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What is This?

Sustainable Certification for Future Generations: The Case of Family Business

Magali A. Delmas[1] and Olivier Gergaud[2]

Abstract
Business sustainability has been defined as meeting current needs while providing the ability of future generations to meet their own needs. However, few firms invest in practices geared at sustainability. In this article, we investigate how family ties to future generations via the intention of transgenerational succession can be associated with the adoption of sustainable practices. Using data from 281 wineries in the United States collected through a survey questionnaire, we show that ties to future generations, measured as the intention of the winery owner to pass down the winery to their children, are associated with the adoption of sustainable certification.

> We do not inherit the earth from our parents; we borrow it from our children.
>
> —Antoine de Saint-Exupéry, Terre des Homes 1939

Business sustainability has been defined as meeting current needs without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). Researchers have argued that the current economic paradigm is not conducive to business sustainability because it places more value on short-term profit motivations than on the longer-term impacts on society, the environment and future generations (Gladwin, Kennelly, & Krause, 1995). Some scholars have called for a modified paradigm that would reconcile short- and long-term orientations and align social, environmental, and economic goals (Gladwin et al., 1995; Slawinski & Bansal, 2009). In this article, we propose a framework that includes future generations as an important stakeholder, driving the adoption of sustainable practices. In the context of family-owned businesses, we develop a perspective in which anticipation of the needs of future generations via the owner's intention of transgenerational succession encourages business sustainability.

A broad literature has emerged over the past decade demonstrating that firms' environmental strategies and practices are influenced by stakeholders, including nongovernmental organizations and employees (Aragón-Correa, 1998; Delmas, 2001; Delmas & Toffel, 2004; Sharma & Henriques, 2005). However, few articles focus on family enterprises (Berrone, Cruz, Gómez-Mejía, & Larraza-Kintana, 2010; Craig & Dibrell, 2006; Neubaum, Dibrell, & Craig, 2012; Sharma & Sharma, 2011), although family-controlled businesses represent approximately 80% of all business enterprises (Gersick, Davis, Hampton, & Lansberg, 1997; Gomez-Mejia, Larraza-Kintana, & Makri, 2003). Most important, family-controlled businesses have been shown to be particularly effective at embracing demands from their internal and external stakeholders (Neubaum et al., 2012) and demonstrate higher levels of investments in proactive environmental practices than nonfamily businesses (Berrone et al., 2010; Craig & Dibrell, 2006; Sharma, & Sharma, 2011). A better understanding of the

[1]UCLA, Los Angeles, CA, USA
[2]KEDGE—Bordeaux Business School, Talence, France

Corresponding Author:
Magali A. Delmas, Anderson School of Management & Institute of the Environment and Sustainability, UCLA, La Kretz Hall, Suite 300, Los Angeles, CA 90095-1496, USA.
Email: delmas@ucla.edu

characteristics that explain family businesses' superior investment in sustainability practices can enrich the stakeholder literature. The examination of sustainability in family businesses is important because many businesses include family ties and relationships.

Many definitions have been provided of family firms, but an important characteristic is that the business is potentially managed across generations of the same family (Chua, Chrisman, & Sharma, 1999; Sharma, Christman & Chua, 1997). This feature is said to have significant bearing on many decisions of family businesses and on performance, including innovation (De Massis, Frattini, Pizzurno, & Cassia, 2013). However, it is unclear under what circumstances this intergenerational feature is initiated and how it affects business sustainability. While the literature has examined the drivers of an effective succession process (Sharma, Chrisman, & Chua, 2003; Sharma, Chrisman, Pablo, & Chua, 2001), it has not yet addressed the question of how the intention for transgenerational succession influences the adoption of sustainable practices. In the context of family businesses, we argue that future generations have a stake in the long-term performance of a business owned by their family and that business owners who are planning their succession are more likely to recognize the needs of future generations and to adopt sustainable practices. We argue that one key explanation for the adoption of sustainable practices is the long-term economic viability of the business that eco-certification can bring to these future generations. To understand the link between intergenerational intent and business sustainability, we used data from a survey of 281 wineries in the United States, including information on the intention to pass down the winery to family members and information about eco-certification practices.

Business sustainability can take many forms. In this article, we focus on eco-certification, which represents the adoption of codified environmental practices and the certification of these practices by a third party (Delmas & Grant, 2014). As eco-certification is associated with third party verification, it provides researchers with confidence in the adoption of substantive environmental practices, limits concerns of greenwashing (Delmas & Burbano, 2011), and functions as an effective signaling mechanism of the firm's environmental performance (Delmas, 2002; Jiang & Bansal, 2003; King, Lenox, & Terlaak, 2005). Furthermore, eco-certification has been shown to facilitate efficiency gains and improvement in product quality (Rondinelli & Vastag, 2000). Because of the possible link between eco-certification and performance, eco-certification has been portrayed has one of the most promising forms of business sustainability (Delmas & Young, 2009). This important characteristic makes eco-certification particularly suitable to understand the role of economic motivations, such as increasing market share or producing higher quality products, in business sustainability decisions. Furthermore, eco-certification represents various shades of green since some firms can adopt eco-certification for only a few products while other can certify all their products and processes. This allows us to go beyond a dichotomous analysis of business sustainability that contrasts brown firms to green firms and instead focus on the drivers of different levels of commitment to business sustainability. It also allows us to assess whether firms with low commitment toward business sustainability differ significantly from those with no commitment.

Our research contributes to both the stakeholder and the family business enterprise literatures. First, we integrate future generations into the stakeholder perspective. The stakeholder literature focuses mostly on current stakeholders, and while successors have been described by Sharma et al. (2001) as an important stakeholder group with a legitimate claim on the firm and a legitimate concern over the succession process, we still have little understanding of how the prospect of succession affects decisions to adopt sustainable practices by current owners. Second, we are able to identify business sustainability as an additional outcome of transgenerational intention to those previously studied in the family business literature. Third, because eco-certification potentially leads to increased quality of products and soil, and improved signaling about business sustainability to stakeholders, we ascertain the role of quality and market considerations as important motivators to adopt sustainable practices in addition to the desire to maintain socioeconomical wealth previously identified in the family business literature.

Future Generations as a Stakeholder

Freeman (1984) defines a stakeholder as "a group or individual who can affect or is affected by the achievement of the organization's objectives" (p. 46). The stakeholder approach proposes that firms should not only focus their strategic decision on generating shareholder value, but should also include the interests of a

variety of stakeholders such as employees, customers, communities, the media, and regulatory agencies (Delmas & Toffel, 2004). The explanatory power of stakeholder analyses has been shown in a variety of research in the environmental management literature (Buysse & Verbeke, 2003; Delmas & Toffel, 2008; Henriques & Sadorsky, 1996; Sharma & Henriques, 2005) and in family business (Bingham, Dyer, Smith, & Adams, 2011; Neubaum et al., 2012). In particular, Neubaum et al. (2012) have shown that attention to family employees along with concern for environmental protection help family firms' performance.

Future generations can be thought as a stakeholder that is particularly salient for family firms as compared with nonfamily firms (Bingham et al., 2011; Sharma et al., 2001). Indeed, family business enterprises differ in many dimensions from other businesses. One of these dimensions consists of the handling of succession, which refers to all activities related to the transition of the business from one generation to the next (Barry, 1975; Sharma et al., 2001), and that often remains in the family. The succession process is defined as "the actions and events that lead to the transition of leadership from one family member to another in family firms" (Sharma et al., 2001, p. 21). Intergenerational succession can only occur if there is a family member willing to take over the leadership. Research has therefore suggested future generations as potential stakeholders in the succession process, since they affect or can be affected by leadership transitions (Sharma et al., 2001).

Future generations possess several elements that qualify them as a stakeholder. First, several scholars define stakeholders in terms of their necessity for the firm's survival (Bowie, 1988; Freeman & Reed, 1983). Heirs are necessary for the survival of the business as a family business. Mitchel, Agle, and Wood (1997) differentiated further between groups that have a legal, moral, or presumed claim on the firm and groups that have an ability to influence the firm's behavior, direction, process, or outcomes. Heirs are part of both of these groups, since they have a presumed claim on the family business because of their lineage and have the ability to influence the firm's behavior once they inherit the family firm. Scholars have further differentiated between current and potential stakeholders. For example, Starik (1994) refers to stakeholders as those who "are or might be influenced by, or are or potentially are influencers of, some organization" (p. 90). As intergenerational succession is a future event, heirs can therefore

be a subset of potential stakeholders. The fact that heirs will likely inherit a business can influence how the current owner behaves in anticipation of intergenerational succession. Finally, scholars have argued that the concept of stakeholder encompasses a socioemotional dimension, in which stakeholders are partners whose futures and stakes are intertwined (Freeman & Gilbert, 1988; Starik, 1995). This socioemotional dimension is at the core of the relationship between business owners and their heirs and is further evidence of the future generations as stakeholders (Berrone, Cruz, & Gomez-Mejia, 2012).

Hypotheses

Intergenerational Ties

Recent research indicates that family businesses tend to show higher levels of corporate social responsibility than other firms (Berrone et al., 2010; Dyer & Whetten, 2006; Post, 1993). These higher levels of investments have been explained by the ability of family business owners to have a longer-term view of their investments. Indeed, owners of family businesses are said to care about the long-term objectives of other family members, and their involvement in the business, more than business owners who do not have family involved in the business and who are said to embrace objectives of a shorter-term nature (Miller, Le Breton-Miller, & Scholnick, 2008).

Two main characteristics of family businesses can facilitate this long-term view. The first relates to the ability of family business owners to make independent decisions. Indeed, family firms, in which ownership and control are often embodied into a single decision maker, may produce different managerial rules for investment decisions than firms in which the ownership and control functions are separated (Fama & Jensen, 1985). Because family firms are owned and managed by family members, they are more able to make unilateral decisions than nonfamily firms where ownership is more dispersed (Carney, 2005). Furthermore, family businesses that are privately owned do not face short-sighted investors who could hamper a longer-term perspective.

The second and, as we argue, most important characteristic lies in the connection of family businesses to the next generation. One important element that distinguishes family businesses from other businesses is "the intention to shape and pursue the vision of the business

. . . in a manner that is potentially sustainable across generations of the family or families" (Chua et al., 1999, p. 25). The concept of sustainability across generations indicates intergenerational ties and, therefore, the availability of a family successor (Chua et al., 1999). The long-term perspective of family is related to membership in a family system: owners of family businesses invest in building the business for the long-run benefit of various family members (Gomez-Mejia, Takacs-Haynes, Nuñez-Nickel, Jacobson, & Moyano-Fuentes, 2007; Habbershon & Pistrui, 2002; James, 2006). The extension of horizons to the next generation "acts as an incentive for proprietors to postpone consumption out of a concern for the welfare of the proprietors' children, grandchildren, as well as other family members" (James, 1999, p. 47). Eco-certification, by reducing the environmental footprint of the business, allows family businesses owners to invest in the long-term sustainability of their business for the benefit of the next generation.

Factors hampering this long-term perspective have been shown as the inability of the owner to pass the business on to their children or other problems that interfere with the overlapping generational features of the family firm (James, 1999). These can include conflict with inheritance plans, lack of heirs in the family, or open unwillingness of heirs to take over the family business. Such factors reduce the incentives for the family business owner to make investments beyond his or her expected life.

Here, we contend that the ability of the owner of family firms to extend the horizon beyond their expected lives is activated when the owner intends to pass down its business to his or her heirs. In the case of eco-certification, we argue that owners who intend to pass down their business to future generations are more likely to adopt eco-certification for their products than family business owners who do not have this intention. Indeed, intergenerational succession is not an automatic process and requires important preconditions such as the willingness of the incumbent to step aside, the presence of a family successor, and trust in the successor's ability and intentions (Sharma et al., 2001). It is in anticipation of intergenerational succession that the business owner can be influenced by future generations. We therefore hypothesize the following:

Hypothesis 1: Family business owners' transgenerational succession intention is positively associated with the adoption of eco-certification.

Intergenerational Ties and Quality Motivations

The long-term view of business performance with intergenerational intention might be heightened if the adoption of sustainable practices can increase the long-term quality of products and solidify the business for future generations by improving the winery brand. This is particularly true in agriculture where ecologically sound management can improve soil quality and productivity (Organisation for Economic Cooperation and Development, 2011). The use of organic grown grapes has also been shown to result in superior wine quality because organic growing leads to optimum expression of the land in wine (Delmas & Grant, 2014).

However, this potential increase in quality associated with eco-certification is longer term. Indeed, eco-certification can be a complex and difficult lengthy process. For example, it takes at least 3 years to obtain organic certification, and during that time, the family business owner cannot benefit from the potential price premium associated with certification (Delmas, Doctori-Blass, & Shuster, 2008). Therefore, intergenerational intentions will make these longer-term quality motivations more appealing. Family business owners who seek to increase the quality of their crops and the sustainability of their land might be more likely to adopt certification. In the case of family wineries, the owner might use eco-certification to protect the quality of the soil and the products over the long run. Therefore, a long-term perspective is essential to consider the potential increase in the quality of the product. We hypothesize that the quality motivation will be activated for family business owners who intend to pass down their business to their children. In that case, business owners view their children as having an important stake in the future quality of the product and related economic viability of the family business. Thus, we hypothesize the following:

Hypothesis 2: The positive relation between quality motivation and eco-certification will be stronger in firms that intend to pass down their business to their heirs.

Intergenerational Ties and Market Motivations

Another explanation for the adoption of eco-certification includes the objective to build market share and more

enduring relationships with customers (James, 2006; Miller & Le Breton-Miller, 2003). Research indicates that family business owners are particularly attentive to their stakeholders and seek to build strong connections with outside stakeholders, and particularly with customers who can sustain the business in times of trouble (Berrone et al., 2012; Gomez-Mejia, Nuñez-Nickel, & Gutierrez, 2001). As we argue below, eco-certification can help family businesses create deeper connections with their current customers and help them reach out to new customers.

One of the objectives of eco-certification and their associated labels is to provide credible information related to the environmental attributes of the product and to signal that the product is superior in this regard to a nonlabeled product (Crespi & Marett, 2005). The assumption behind eco-labels is that environmentally responsible consumers can make informed purchasing choices based on product-related environmental information (Leire & Thidell, 2005). Family business owners might, therefore, seek to solidify or expand their relationships with customers through eco-certification. Eco-certification can help firms gain access to emerging green markets and build long-term customer relationships based on sharing sustainable values (Delmas, 2001). Eco-certification can therefore help to create new and stronger connections with customers.

However, there is still some uncertainty of the value of eco-certification. For example, studies have shown that the presence of competing eco-certification systems has led to consumer confusion about the value of eco-certification (Delmas, Nairn-Birch & Balzarova, 2013; Leire & Thidell, 2005). This is particularly salient as it relates to eco-certification in the wine industry (Delmas & Grant, 2014; Delmas & Lessem, in press). In other words, eco-certification might have the potential for market appeal, but there is some uncertainty on when this appeal will be realized. This is why family business owners who intend to pass down their business to their heirs and have a longer-term vision of their business should be more likely to adopt eco-certification for its future market potential. Such family business owners will open market opportunities for the future generations. For these reasons, we hypothesize the following:

> **Hypothesis 3:** The positive relation between market motivation and eco-certification will be stronger in firms that intend to pass down their business to their heirs.

Methodology

We used the wine industry to test our hypotheses. The wine industry is an excellent context to test the drivers of proactive environmental strategy in family firms (Sharma & Sharma, 2011). First, it is composed of both family and nonfamily firms with different succession practices. Second, wine industries in many countries face a wide array of environmental concerns and increasing pressures to improve their environmental performance (Marshall, Akoorie, Hamann, & Sinha, 2010). Third, firms can adopt several eco-certification systems including organic and biodynamic certification (Delmas & Grant, 2014). However, up until now relatively few scholars have investigated proactive environmental strategies in the wine industry context (Cordano, Marshall, & Silverman, 2010; Delmas & Grant, 2014; Marshall, et al., 2010).

Data Collection

Because there was no existing publicly available data on the subject, the best method to obtain this information was to directly question wineries and vineyards in California through the dissemination of an online survey. California accounts for an estimated 90% of the U.S. wine production, making more than 260 million cases annually, and consists of family-owned wineries and wineries owned by corporations.[1,2] The survey questionnaire included questions about the winery characteristics, such as size and eco-certification status, and motivations to adopt eco-certification.

Population. Our population consisted of all 1,900 California wineries identified in the California Department of Alcoholic Beverage Control database, which includes all wineries legally licensed to sell alcohol within the state. It, therefore, does not include vineyards that produce grapes but no wine. Phone and e-mail contact information was obtained through an Internet search. The survey was addressed to the owner of the winery or the general manager for nonfamily business wineries. We distributed the survey employing several mediums, including, mailing a recruitment letter with the survey link, sending e-mails, and calling wineries and vineyards to ask for their participation in this survey. The survey was kept open for 3 weeks, with two reminder e-mails sent during that period.

Survey Administration. A total of 1,861 letters describing the study with a link to an online survey were successfully

delivered. Three emails (delivered over a 2-week period to 1,186 potential respondents) and 849 phone calls were subsequently used to contact wineries to further encourage participation. In total, 378 responses were gathered, reflecting a 20% response rate, which is comparable to other recent research (Chrisman, Chua, Pearson, & Barnett, 2012; Davis, Dibrell, Craig, & Green, 2013; Delmas & Toffel, 2008; Zellweger, Kellermanns, Chrisman, & Chua, 2012; Zellweger, Nason, & Nordqvist, 2012). Out of these responses we retain 281 usable observations.

We tested sample representativeness in several ways. First, we conducted t tests to compare respondents to nonrespondents along three dimensions. We used data on the nonrespondents from the California Department of Alcoholic Beverage Control database. The survey respondents were 7.4% more likely to have obtained eco-certification than the nonrespondents ($p = .01$). However, they did not differ in terms of the number of years in business ($p = .46$). The overrepresentation of eco-certified respondents was to be expected, since such wineries would be more interested in responding to a questionnaire on the motivations for sustainable agriculture. To correct for this bias, we used the sample weight procedure for survey data in Stata and obtained similar regression results as those with the original sample presented in this article.[3] We also tested for nonresponse bias by comparing early and late respondents, since late respondents have been shown to be similar to nonrespondents (Armstrong & Overton, 1977). We created a set of late respondents with those who responded after receiving the third reminder on April 27, 2009 (Cantwell & Mudambi, 2005). We did not find a significant difference between the late respondents and the other respondents in terms of status (family business vs. nonfamily business: $p = .89$) and eco-certification ($p = .26$).

Variables

Dependent Variable. Our dependent variable represented the percentage of eco-certified production per winery, which was 10.4% on average. Eco-certification represented the adoption of organic certification or biodynamic certification. Of the vineyards, 21% have between 10% and 90% of their products eco-certified, and 2.5% reach 100% of eco-certified products. Conventional wineries are dominant in our sample (76.5%).

Independent Variables. To identify family businesses and family business owners with the intention to pass down

their business to the next generation, we included two variables. *Family business* is a dummy variable that represented whether the winery was family-owned as opposed to other forms of private ownership, publicly traded, or part of a cooperative. Family businesses were dominant in our sample (81.9%).[4] *Heir succession* is a dummy variable that identified those producers whose intention was to pass down the business to their heirs. This constituted about one-half (50.2%) of the producers.[5]

Quality motivations and *market motivations* were identified through a factor analysis based on the four following motivation variables: *improved soil quality, improved quality of grapes, increased demand from restaurants and retailers*, and *growing consumer demand*. Motivations were assessed on a 7-point Likert-type scale and the questions were developed based on Delmas and Toffel (2008) and enhanced with input from industry experts. We conducted a factor analysis with Varimax rotation of these variables, which resulted in two factors and explained 82% of the variance. The variables *improved soil quality* and *improved quality of grapes* loaded on the first factor. The variables *increased demand from restaurants and retailers* and *growing consumer demand* loaded on the second factor. The first factor, therefore, represents quality motivations, while the second factor represents market motivations.

Controls. The controls included winery age (6 categories) and size as proxied by the number of cases produced per year (19 categories). Winery age was included because older wineries may be more likely to be at a stage of intergenerational succession. Smaller wineries may also be more likely to be family-owned. Wineries considered here were created 19.83 years ago and sell around 10,250 cases per year on average. Vertical integration was a binary variable for those wineries (83%) that own part or all of the vineyard as compared with purchasing grapes. Vertical integration makes the winery own its vineyard and be more likely to care about long-term soil quality. Last, we controlled for the geographical location of the winery at the county level from a set of four dummy variables for the most represented counties: Napa Valley (22%), Sonoma Valley (27%), San Luis Obispo (7%), Santa Barbara (8%), and others (36%), which was considered as the reference category. This allowed us to control for the level of eco-certification adoption in specific counties that could affect the adoption of eco-certification by a winery.

A Harman's one-factor test was conducted to test for the presence of common method effect. The following variables (heir succession, quality motivations, market motivations, vertical integration, winery age, number of cases produced) were entered into an exploratory factor analysis, using unrotated principal components factor analysis to determine the number of factors that were necessary to account for the variance in the variables.[6] In our case, the results of this analysis show that three factors were present, with the first factor explaining only 23% of the variance and the three factors explaining 56% of the total variance. This suggests that common method variance is not of concern and thus is unlikely to confound the interpretation of the results.

The descriptive statistics and the correlation matrix are provided in Table 1.

Model

In Model 1, the level of eco-certified production of winery *i* was seen as a function of *family business, quality motivations, market motivations*, and the exogenous controls. In Model 2, we added *heir succession* to the list of regressors of Model 1 to assess the influence of this key dimension on the quality of the fit. In Model 3, we interacted *heir succession* with *quality motivations* and *market motivations* to check whether the impact of heir succession varied with quality and market motivations. This model is used to test Hypotheses 2 and 3.

Estimation Strategy

The dependent variable represents the proportion of eco-certified production per winery. It has two important features: it is a rate, and it includes many observations clustered at zero (76.5%) and several observations in the far-right tail of the distribution (2.5% of our sample firms have all their production eco-certified). Our goal here was to model *p*, the proportion of eco-certified production as a function of a vector of explanatory variables X[7] with a special emphasis on the role played by heir succession plans in the process. The usual linear regression models assume that data come from a normal distribution with the mean related to its predictors ($Y \sim N(\mu, \varphi)$ and $\mu = X\beta$). But there are obvious occasions when a normal distribution is inappropriate. Proportions fall into this category as they are, by construction, constrained between 0 and 1.

This is the reason why we adopted a generalized linear model (GLM) approach, a flexible generalization of ordinary least squares which is, among others, designed to model how the mean proportion relates to the set of explanatory variables (see Nelder & Wedderburn, 1972). In GLM, each outcome of the dependent variable is assumed to be generated from a particular distribution in the exponential family[8] ($Y \sim P(\mu, \varphi)$), and a link function provides the relationship between the linear predictor and the mean of the distribution function ($g(\mu) = X\beta$).

The expected proportion of eco-certified production, *p*, may be modeled using a binomial distribution. Papke and Wooldridge (1996) suggest that a GLM with a binomial distribution and a logit link function, which they term the *fractional logit* model, may be appropriate to model such proportion or fraction. Following these authors, popular econometric softwares such as Stata and R use logit as the default—natural/canonical—link.[9] We therefore use the canonical logit link: $g(p) = \ln(p/(1 - p))$.

Results

GLM Regressions

In Table 2, we present GLM estimates to test Hypothesis 1 on the effect of *heir succession* on *eco-certification*. Interestingly, Model 1 showed no difference between family businesses and nonfamily businesses, since the coefficient of the variable *family business* is insignificant. The results of Model 2 showed, on the contrary, that *heir succession* has a strong positive and significant (1% level) influence on the percentage of eco-certified wine. The marginal effect is at about 8.9%. These results, therefore, confirm Hypothesis 1.

The coefficient of the variable *quality motivations* was significant at the 1% level (+4.3% per standard deviation, once we controlled for the influence of *heir succession* in the model). The variable *market motivations* also came out highly significant at the 1% level and of comparable magnitude (+4% per standard deviation). The negative sign for *number of cases produced* indicated that small businesses were more likely to invest in the certification process than bigger ones. The impact of *winery age* was significant and positive and informed us that older wineries were more willing to invest in the green process than younger ones. This is consistent with the literature predicting the effect of local roots on environmental performance to be stronger

Table 1. Descriptive Statistics.

	Obs.	Mean	SD	Min	Max	ECP	HS	FB	QM	MM	VI	Age	Cases	SV	NV	SB	SLO
Percentage of eco-certified production (ECP)	281	0.104	0.246	0	1	—											
Heir succession (HS)	281	0.502	0.501	0	1	0.22**	—										
Family business (FB)	281	0.819	0.386	0	1	0.08	0.47**	—									
Quality motivations (QM)	281	0.012	0.982	-3.74	1.301	0.19**	0.11+	0.07	—								
Market motivations (MM)	281	0.001	1.008	-2.461	1.93	0.16**	0.01	-0.03	-0.02	—							
Vertical Integration (VI)	281	0.826	0.38	0	1	0.10+	0.25**	0.10+	0.12*	0.02	—						
Winery age (Age)	281	19.838	5.88	2.5	100	0.15**	0.08	-0.04	0.09	0.19**	0.23**	—					
Cases produced (Cases)	281	10,250	1,365	50.5	40,000,000	0.01	0.01	-0.19**	0.02	-0.01	0.03	0.50**	—				
Sonoma Valley (SV)	281	0.27	0.445	0	1	-0.08	-0.01	-0.02	-0.08	-0.00	-0.03	0.03	0.02	—			
Napa Valley (NV)	281	0.217	0.413	0	1	-0.02	0.01	-0.00	0.08	-0.00	0.11+	0.30**	0.16**	-0.32**	—		
Santa Barbara (SB)	281	0.085	0.28	0	1	0.02	0.07	0.02	-0.10+	-0.04	-0.14*	-0.08	-0.07	-0.14*	-0.16**	—	
San Luis Obispo (SLO)	281	0.068	0.252	0	1	0.13*	0.08	0.04	0.08	0.03	0.07	-0.06	-0.02	-0.16**	-0.19**	-0.08	—

Note. p Values in parentheses; **$p < .01$. *$p < .05$. +$p < .1$.

Table 2. The Motivations of Eco-Certification (GLM).

	(1)	Marginal effects	(2)	Marginal effects	(3)	Marginal effects
Family Business	0.176 (0.78)	0.176 (0.78)	−0.277 (−1.02)	−0.042 (−0.90)	−0.250 (−0.95)	−0.037 (−0.85)
Heir succession			0.654** (3.15)	0.089** (3.14)	0.602** (2.92)	0.080** (2.86)
Quality motivations (factor)	0.343** (3.64)	0.049** (3.48)	0.326** (3.57)	0.043** (3.45)	0.058 (0.39)	0.008 (0.39)
Market motivations (factor)	0.291** (3.05)	0.041** (3.12)	0.300** (3.22)	0.040** (3.21)	0.430** (2.86)	0.056** (2.79)
Quality motivations × Heir succession					0.404* (2.10)	0.053* (2.08)
Market motivations × Heir succession					−0.156 (−0.84)	−0.020 (−0.83)
Exogenous controls						
Vertical integration	0.082 (0.39)	0.011 (0.41)	−0.094 (−0.41)	−0.013 (−0.40)	−0.067 (−0.30)	−0.009 (−0.29)
Winery age	0.270** (3.15)	0.038** (3.17)	0.273** (3.18)	0.036** (3.27)	0.275** (3.14)	0.036*** (3.31)
Number of cases produced	−0.046* (−1.96)	−0.007+ (−1.90)	−0.056* (−2.38)	−0.007* (−2.30)	−0.058* (−2.43)	−0.008* (−2.37)
Wine regions (ref. category: other)						
Sonoma Valley	−0.315 (−1.35)	−0.039 (−1.50)	−0.304 (−1.28)	−0.036 (−1.42)	−0.302 (−1.29)	−0.035 (−1.43)
Napa Valley	−0.270 (−1.31)	−0.035 (−1.40)	−0.279 (−1.38)	−0.034 (−1.46)	−0.282 (−1.38)	−0.034 (−1.48)
Santa Barbara	0.184 (0.52)	0.029 (0.47)	0.031 (0.09)	0.004 (0.08)	0.026 (0.07)	0.004 (0.07)
San Luis Obispo	0.366 (1.34)	0.064 (1.13)	0.305 (1.12)	0.049 (0.97)	0.267 (0.96)	0.041 (0.84)
Constant	−2.130** (−5.10)		−1.926** (−4.80)		−1.969** (−4.91)	
n	281		281		281	
Log pseudo-likelihood	−73.09		−70.41		−69.52	

Note. Robust z-statistics in parentheses; GLM estimates are derived using a canonical logit link and a binomial distribution.
**$p < .01$. *$p < .05$. +$p < .1$.

under family business ownership (Berrone et al., 2010). *Vertical integration* had no significant influence on eco-certification, which might be explained by the fact that most of our wineries were vertically integrated.

To test Hypotheses 2 and 3, we needed to show how quality and market motivations moderate the effect of intergenerational succession on eco-certification. To do so in Model 3 we use *heir succession* both as a binary variable (direct effect) but also as an interaction term with both factors. The results from this model are consistent with previous results overall. The direct impact of *heir succession* is estimated at around 8%. The direct impact of market motivations is at around 5.6% per standard deviation. However, we did not detect any systematic impact of quality motivations (coefficient of *quality motivations* nonsignificant). This means that wineries with no intergenerational succession planning adopted eco-certification for market motivations only (+4.4% per standard deviation). Wineries with intergenerational succession planning adopted eco-certification both for market motivations (+5.6% per standard deviaton) and quality motivations (+5.3% per standard deviation). These results confirmed Hypotheses 2 and 3.

Robustness Tests

We ran several tests to check the robustness of our model. First, we calculated variance inflated factors

(VIF) to test for potential multicollinearity issues. The mean of the VIF analysis was 3. All individual VIF were below 5, except for the control variable representing the age of the winery, which was just below the rule-of-thumb cutoff value of ten for multiple regression models (Hair, Anderson, Tatham, & Black, 1995; Kennedy, 1992; Marquardt, 1970; Neter, Wasserman, & Kutner, 1989). We tested the robustness of the model without this control variable and obtained similar results as those provided below.[10] This indicates that there is no concern for multicollinearity in our regression models.

Second, we ran a series of Logit models to check whether the drivers of the adoption of green practices in the vineyard were stable or varied with the level of certification. This was done by regressing ten Logits (one for each retained specification) for the probability that a firm *i* certified production exceeds 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, and 90% respectively. In the set of results presented in Table 3 *quality motivations* and *market motivations* are both moderated by *heir succession*.[11]

For easier interpretation, Figure 1A displays the results for owners who anticipate intergenerational succession (*heir succession* = yes) and Figure 1B for those who do not anticipate intergenerational succession (*heir succession* = no). Figure 1A indicates that quality motivations are significant for the adoption of eco-certification until 80%. These are, by far, the strongest drivers of

Table 3. The Drivers of Eco-Certification and Vertical Integration (Logit Analysis on % of Eco-Certified Production).

	>0%	>10%	>20%	>30%	>40%	>50%	>60%	>70%	>80%	>90%
Heir succession: yes										
Quality motivations	0.086 (1.52)	0.139** (3.69)	0.094** (3.02)	0.082** (2.84)	0.064** (2.59)	0.052** (2.64)	0.047* (2.51)	0.034* (2.26)	0.030* (2.01)	0.008 (0.90)
Market motivations	0.049 (1.22)	0.054+ (1.83)	0.032 (1.54)	0.029 (1.59)	0.019 (1.44)	0.015+ (1.73)	0.023* (2.17)	0.027*** (2.76)	0.022* (2.07)	0.011 (1.06)
Heir succession: no										
Quality motivations	0.005 (0.15)	0.029 (0.97)	0.004 (0.22)	0.005 (0.32)	−0.004 (−0.40)	−0.003 (−0.31)	−0.003 (−0.33)	0.000 (0.04)	0.010 (1.13)	0.000 (0.35)
Market motivations	0.087* (2.31)	0.059* (2.26)	0.045* (2.08)	0.036* (2.04)	0.024+ (1.73)	0.020 (1.50)	0.022 (1.64)	0.019 (1.62)	0.016 (1.57)	0.001 (0.46)
Exogenous controls										
Family Business	0.063 (1.09)	0.008 (0.16)	−0.014 (−0.30)	0.004 (0.12)	0.004 (0.16)	−0.003 (−0.14)	−0.004 (−0.16)	−0.008 (−0.36)	—	—
Vertical Integration	−0.125 (−1.46)	−0.036 (−0.51)	0.082** (2.70)	0.052** (1.98)	0.022 (1.21)	0.011 (0.63)	0.009 (0.49)	0.006 (0.30)	—	—
Winery age	0.059* (2.26)	0.053** (2.71)	0.040** (2.94)	0.031** (2.75)	0.027** (3.04)	0.020** (2.73)	0.019* (2.63)	0.016* (2.13)	0.015 (1.43)	0.003 (0.72)
Number of cases produced	0.002 (0.21)	−0.004 (−0.67)	−0.012* (−2.53)	−0.011** (−2.59)	−0.009* (−2.44)	−0.005* (−2.10)	−0.005* (−2.17)	−0.004+ (−1.75)	−0.005 (−1.33)	−0.001 (−0.71)
Wine regions										
Sonoma Valley	−0.082 (−1.34)	−0.048 (−0.96)	−0.043 (−1.27)	−0.022 (−0.77)	−0.027 (−1.64)	−0.024+ (−1.84)	−0.021 (−1.47)	−0.014 (−1.04)	−0.006 (−0.45)	−0.001 (−0.20)
Napa Valley	−0.046 (−0.78)	−0.013 (−0.26)	−0.022 (−0.68)	−0.032 (−1.25)	−0.030+ (−1.82)	−0.024+ (−1.82)	−0.019 (−1.46)	−0.018 (−1.38)	−0.009 (−0.67)	−0.004 (−1.44)
Santa Barbara	−0.084 (−1.00)	0.009 (0.11)	0.045 (0.59)	0.047 (0.69)	0.029 (0.66)	0.027 (0.72)	0.014 (0.43)	0.024 (0.61)	0.012 (0.40)	—
San Luis Obispo	0.049 (0.54)	0.110 (1.20)	0.042 (0.71)	0.027 (0.59)	0.020 (0.60)	0.020 (0.69)	0.031 (0.89)	0.024 (0.72)	0.024 (0.60)	0.008 (0.57)
Pseudo R^2	0.076	0.140	0.175	0.194	0.272	0.310	0.279	0.280	0.314	0.393
Log pseudo-likelihood	−142	−112	−92	−79	−63	−55	−54	−48	−33	−18
Observations	281	281	281	281	281	281	281	281	194	184

Note. Z-statistics in parentheses. Coefficients reproduced in this table are marginal effects.
**$p < .01$. *$p < .05$. +$p < .1$.

10
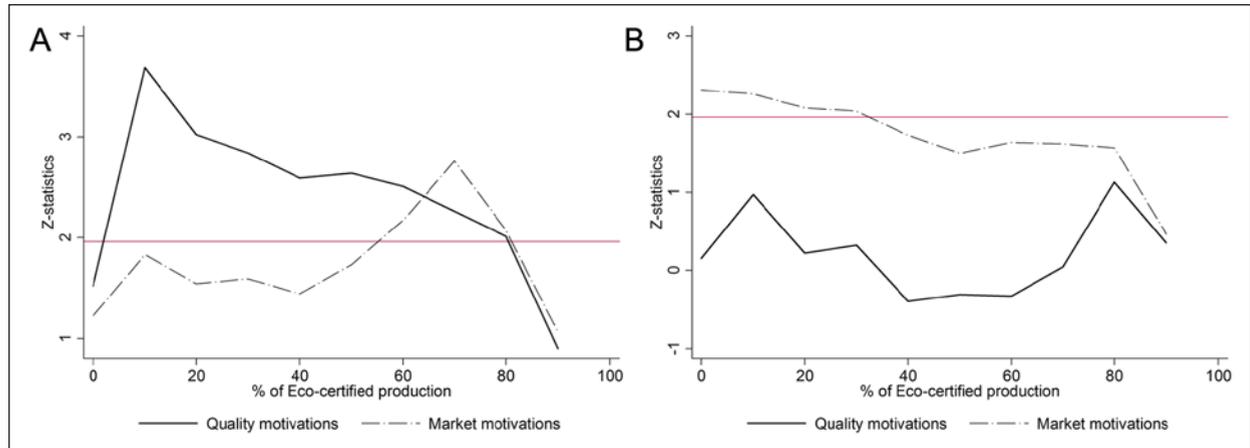
Figure 1. Logit regressions—Model 3: (A) Heir succession plan: Yes; (B) Heir succession plan: No.

eco-certification among these green wineries. The market motivations are only significant above 60% of eco-certification. This might indicate that winery owners with interegenerational intention only see the value of the market signal of eco-certification at higher levels of certification. In both cases, the motivations become insignificant over 80% certification. These results should be interpreted with caution because the very small percentage of eco-certified wineries at these levels might explain this lack of significance. It is also possible that above these threshold emotions are a stronger driver of certification, although we cannot observe this motivation. For those who are not planning intergenerational succession, Figure 1B shows that market motivations are significant until 40% and then become insignificant. Quality motivations are therefore not significant drivers for these winery owners.

In summary, our results confirmed Hypothesis 1 and indicate that anticipation of transgenerational intention was an important driver of eco-certification adoption. We also confirmed Hypothesis 2, showing that this effect was moderated with quality motivations. Indeed, quality motivations tended to dominate market motivations overall and in the case of owners with transgenerational intention. Regarding Hypothesis 3 on the moderating effect of market motivations, we did find a significant effect of market motivations for family businesses. However, we did not find a significant difference between family business owners who intended to pass down their business to their heirs and the other family firms in terms of market motivations. It seems that

market motivations are also present with other family business owners. This could indicate that the current market signal associated with eco-certification is sufficiently strong to appeal to other types of businesses. However, the results from the percentages of adoption showed that market motivation for business without transgenerational intent are only significant for lower levels of adoption (<30%). Such businesses might consider that the market rewards of certification are only rewarding a low commitment.

Discussion

The literature has described short-term profit motivations as a barrier to the adoption of sustainable practices and has called for the need to develop new management models that include time in the analysis (Slawinski & Bansal, 2009). In this article, we argue that family business owners who intend to pass down their business to their children adopt a longer time frame and are more receptive to the needs of future generations and the sustainability of their business. We show that such businesses are more likely to adopt eco-certification. In doing so, our research contributes to several research perspectives.

While the stakeholder framework has been used to demonstrate how businesses tend to respond to stakeholder pressures by adopting green practices, this literature has mostly ignored family businesses and the connections that businesses make with the future of their own family members. We contributed to the stakeholder

literature by showing that future generations should be considered as a main stakeholder, since their existence influences business owners' decisions about eco-certification. Future generations enjoy two main characteristics that qualify them as a stakeholder: They have a presumed claim on the family business because of their lineage, and they have the ability to influence firm behavior once they inherit the family firm. We have described how future generations could influence the adoption of eco-certification, but also impact how current business owners envisage their relationships with their current stakeholders. Our results show that family business owners who intend to pass down their winery to their children are more likely to be responsive to perceived customer demand for green certification. This is consistent with Neubaum et al. (2012), who found a strong relationship between family firm concerns for the environment and concern for their employee well-being. In our case, however, we consider the vision of family involvement in the future of the business as activating the long-term perspective necessary for business owners to embrace business sustainability.

The family business structure and freedom from corporate stakeholders explain why family businesses can make more bold decision because of their independence (Carney, 2005). Here, we find that the private business structure is not enough to explain family business attitude toward business sustainability. Our results confirm that firms that identified themselves as family firms but did not intend to pass down their business to their heirs were not more likely to adopt eco-certification. This lack of intergenerational intent makes such firms comparable with nonfamily private firms. The ability of owners of family firms to extend the horizon beyond their expected lives is only activated when the owners intend to pass down their business to the next generation. These results, in the context of business sustainability, confirm previous literature describing the intergenerational intent as the most important factor differentiating family businesses from other firms (James, 1999). Our results are also consistent with research arguing that the shortcoming of private nonfamily firms, which lack a transgenerational intent, is that they concentrate more on the short-term than family firms do (Miller & Le Breton-Miller, 2005).

While the family business literature has identified the effective drivers of a successful succession planning process (Sharma et al., 2001), it has not yet analyzed how this process could have an impact on the natural environment. We have shown that business sustainability via eco-certification is more likely to be achieved in anticipation of the intergenerational succession process. This finding allows us to isolate one of the specific characteristics of family businesses and to associate it with sustainability. The analysis of the factors that drive family businesses to adopt sustainable practices is important not only because it may be helpful for family-owned firms, but also because many businesses adopt practices that resemble familial ties and relationships.

Traditionally, family businesses have been portrayed as risk averse and conservative (Miller & Le Breton-Miller, 2003). The firm symbolizes the family's heritage and traditions to be maintained over several generations (Berrone et al., 2010). Yet we find family businesses with transgenerational intention to be more innovative than other businesses with the adoption of more advanced sustainable practices. This is consistent with Craig and Dibrell (2006), who found family firms with environmental policies to be more innovative. This raises the question of whether the adoption of such innovative practices is a demonstration of conservative or pioneering behavior. The answer is probably a little of both: a pioneering effort is required to conserve the value of the business. On the one hand, we found that one motivation was to preserve the value of the business for the future generation, and in particular, the quality of the soil and the products. On the other hand, eco-certification is an innovative approach for which the market benefits are still uncertain. It, therefore, requires an investment without immediate return, which is similar to other investments in innovative practices.

Research focusing on family business has emphasized the role of noneconomic factors in the management of family businesses as the key distinguishing feature that separates such firms from other organizational forms (Gomez-Mejia, Cruz, Berrone, & De Castro, 2011). Scholars have argued that because of the ambiguous relationship between the adoption of socially responsible behavior and corporate performance, family firms tend to be more responsive to stakeholders for intangible reasons than for economic reasons (Berrone et al., 2012). Our results complement this perspective, as we show that economic considerations might also play a role in the adoption of eco-certification. Indeed, we find that family businesses with transgenerational intention tend to be motivated by quality objectives that have an impact on long-term economic performance as important drivers for the adoption of eco-certification.

Our findings indicate that anticipation of transgenerational intention is associated with eco-certification adoption and that this effect varies with quality and market motivations. Interestingly, family businesses without intergenerational intention were not motivated by the quality potential associated with eco-certification. This confirms our hypothesis that it is indeed intergenerational intention that activates the will to preserve the quality of the product and the vineyard for the long term. We also find that motivations varied with the level of commitment to eco-certification. Market motivations, for family businesses with intergenerational intention, were a more significant driver than quality considerations for higher levels of certification. For other businesses, market motivations were more significant at lower levels of certification. One explanation for this might be that such businesses considered little market benefit for eco-certification and opted for little commitment. Family businesses with intergenerational intention, because of their longer-term perspective, seemed ready for more commitment (i.e., higher levels of certification). This underscores the need to consider certification levels rather than certification as a binary variable, since motivations can vary substantially according to the levels of certification. Research on the adoption of eco-certification has analyzed mostly eco-certification as a binary variable, with adoption and nonadoption being the only alternatives. However, eco-certification rarely covers all the products or activities of the firm, and firms also make decisions on the level of eco-certification they want to adopt. Indeed, firms that have certified 100% of their products are the minority in our sample. We have shown that firms that certify less than 10% of the products have different motivations than those willing to certify the majority or the totality of the products. We also show that wine owners without intergenerational intention are motivated by market motivations for lower levels of certification. It is possible that their shorter-term perspective drives them to adopt eco-certification only for symbolic perspective, to get quick market recognition without substantive commitment to business sustainability. A behavior that could resemble greenwashing by combining positive communication about environmental performance with low environmental performance (Delmas & Burbano, 2011).

Our research is not without limitation. First, our analysis was limited to the California context; future research should explore similar questions in an international setting, as scholars have identified international institutional differences regarding the implementation of environmental practices (Husted, 2005; Husted & Allen, 2006; Darnall, Henriques, & Sadorsky, 2008; Delmas & Montiel, 2008; Delmas & Montes-Sancho, 2011). Second, while our data focused on eco-certification, wineries might adopt other types of sustainable practices that we could not observe through third party certification. Further research should test whether succession intention is also a positive driver of the adoption of these practices. Third, while we asked for information about winery owners' plans for intergenerational intention, we did not ask specific questions about the owner's age or education or the current involvement of family members in the management of the winery. Further research could integrate these additional characteristics. For example, it would be particularly interesting to assess whether family business owners who inherited their winery are more likely to adopt innovative sustainable practices than those who started their own business. Fourth, while our survey included a rich set of variables that allowed us to control for many winery characteristics, its cross-sectional nature hampered us from conducting a dynamic analysis. Further research should examine whether the effects identified in this study persist over time, and should further investigate the precise nature of the dynamic interactions between the firm's external environment (e.g., the existence of informal of formal networks of producers), main business strategy, resources, and organization, and its adoption of eco-certification.

Notes

1. U.S. Treasury's Alcohol and Tobacco Tax and Trade division data.
2. USDA, NASS, California field office (2005) California Agriculture Overview.
3. Results available on request.
4. To identify "family firms," we used the following two main questions from the survey questionnaire: (a) "Winery's ownership status?" (Privately owned, Owned by a publicly traded company, Cooperative). If the respondent answered "Yes" on Privately owned, he/she was asked the following second question: (b) "Type of private ownership?" (Family Owned, Company Owned, Partnership with Larger Company). Family owned ownership represents therefore the subset of privately owned wineries that are family owned.
5. To measure "Heir Succession," the question was whether the owner "had family that he/she plans to pass down his/her winery to."
6. Family business was excluded from the analysis because of his high collinearity with heir succession (i.e., only family business can anticipate to pass down their winery to their heirs). We also excluded the wine region dummy variables.
7. In this theoretical setup, *X* covers all right-hand-side variables.
8. These include the binomial, gamma, inverse gaussian, negative binomial, poisson, and gaussian distributions.
9. See also Fox (2008), Chapter 15, pp. 382-383.
10. Results available on request.
11. Because of the small number of observations with 60% and above of eco-certified production, achieving convergence with interaction variables between heir succession, quality motivations, and market motivations above this threshold was not possible.

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Author Biographies

Magali A. Delmas is a professor of management at the UCLA Anderson School of Management and the Institute of the Environment and Sustainability. Her research focuses on business sustainability.

Olivier Gergaud is a professor of economics at the Kedge Business School in Bordeaux, France. His research interests include the economics of prosocial behavior, wine economics, food economics, sports economics, and cultural economics.