Why do firms adopt collective incentives? An analysis of family and non-family firm

Journal:	*Employee Relations*
Manuscript ID	ER-10-2021-0453.R3
Manuscript Type:	Research Paper
Keywords:	Pay incentives, Family and non-family firms, Structural contingency theory, Socioemotional wealth theory, Productivity, Italy

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Abstract

Purpose: By combining structural contingency theory and socioemotional wealth theory, this study aims to identify the organizational determinants of collective performance-related pay (PRP) adoption by examining the interplay between a firm's ownership characteristics (i.e. family or non-family ownership) and other organizational characteristics.

Design/methodology/approach: This study adopts a quantitative approach, conducting empirical analyses of a longitudinal dataset of 4,222 Italian companies in the manufacturing sector for 2009–2017. The probability of adopting collective PRP schemes is estimated using the average marginal effects of the probit and linear probability models.

Findings: The results show that family firms are less likely to adopt collective PRP schemes than non-family firms. Moreover, *ceteris paribus*, firm characteristics such as size, age, and past (firm and labor) productivity are important determinants of firms' adoption of collective incentive pay; however, the significance and magnitude of their effects vary depending on a firm's ownership structure.

Originality/value: This analysis has two major elements of novelty. First, it increases our knowledge of how organizational contingencies differ in family versus non-family contexts regarding pay decisions. Second, it brings new theoretical perspectives to the pay debate by combining structural contingency theory and socioemotional wealth theory, thus developing new and fertile theoretical grounds for advancing our understanding of the pay determinants. To our knowledge, this is one of the first (if any) studies to shed light on collective PRP in family and non-family firms.

Keywords: Pay incentives, Family and non-family firms, Structural contingency theory, Socioemotional wealth theory, Productivity, Italy

Introduction

The literature has long suggested that firms adopt performance-related pay (PRP) schemes because of "flexibility-related motivations" (e.g., to deal with a high variance in profits), "productivity-related motivations" (e.g., to improve labor productivity, or to reduce monitoring costs, see Doucouliagos *et al.*, 2020; Kruse, 1996; Nyberg *et al.,* 2018), and "attraction/retention-related motivations" (i.e. to better manage talented workers with higher human capital; Cruz *et al.*, 2011; Long and Fang, 2015). Practitioners, social partners, policymakers, and industrial relations scholars have increasingly focused on the operation and effects of incentive pay schemes (Chowhan, 2016; Pendleton and Robinson, 2017) to analyze the *outcome* (e.g., Curran and Walsworth, 2014; Dahl and Pierce, 2020; Doucouliagos *et al.*, 2020) and *process* (Miceli and Heneman, 2000). However, despite the importance of incentive pay, little is known about its determinants, and very few studies have explored the relationship between firm characteristics and the decision to adopt a PRP scheme (e.g., Bayo-Moriones *et al.*, 2013; Jones and Pliskin, 1997; Kang and Yanadori, 2011; Long and Fang, 2015; Long and Shields, 2005). Moreover, among the various forms of PRP, the literature has mostly focused on individual incentives (e.g., piece-rate plans and bonuses based on individual performance—see Gerhart and Fang, 2014; Maltarich *et al.*, 2017) or does not distinguish individuals from collective incentives (e.g., Damiani and Ricci, 2014; Damiani *et al.*, 2019; Pompei *et al.*, 2019), whereas collective incentives (e.g., gain-sharing and profit-sharing) are largely under-researched (Nyberg *et al.*, 2018). This is surprising considering that in several European countries, the adoption of collective incentives has increased in recent years (Doucouliagos *et al.*, 2020) and that of individual incentives has decreased (Freeman and Kleiner, 2005).

Accordingly, this study investigates the organizational factors that affect the adoption of collective PRP schemes in family- and non-family owned Italian manufacturing companies. Indeed, the literature suggests that family firms may differ from non-family firms in terms of the management of employee relations, as family firms tend to pursue goals (i.e. emotional, social, and affective) that managers in non-family businesses may consider trivial (Gomez-Mejia *et al.*, 2007). Professional management in family firms relies on personal and less formal procedures, centralized decision-making processes, and higher levels of internal capabilities and resources (Daily and Dollinger, 1992). Additionally, within family firms, the allocation of strategic decision-making power is clearer than in non-family contexts (Fernández and Nieto, 2006), and the high level of informality in management procedures allows for more interactions and better organization of activities, making the implementation of strategies (such as pay

policies) easier (Moreno-Menéndez and Casillas, 2021). Therefore, consistent with the literature, our study contributes to research on the determinants of PRP by distinguishing between family and non-family firms and analyzing how the influence of age, size, and past productivity on a firm's decision to adopt collective PRP schemes varies depending on the ownership structure (i.e. family- or non-family-owned) of the company.

To this end, we used a panel dataset of Italian manufacturing firms from 2009 to 2017 combining financial statements from Bureau van Dijk AIDA and information on the collective agreements signed by the same companies available from the Observatory on the Labor Market and Industrial Relations in Italy (OSMER, http://osmer.org/). Italy is the fourth country in Europe in terms of the prevalence of incentive pay (following Finland, Sweden, and France) and exhibits both a high incidence of and a significant increase in the diffusion of incentive schemes (Bryson *et al.*, 2012). These features are largely explained by the fact that Italy benefits from a strong industrial relations system that favors the adoption of collective PRP more than individual PRP (Casnici *et al.*, 2020; Della Torre, 2019).

This study contributes to the literature on compensation in several ways. First, existing research has shown that the diffusion of group-based profit-sharing and gain-sharing schemes (i.e. collective PRP) has risen, whereas traditional piece-rate payments are declining (Doucouliagos *et al.*, 2020; Freeman and Kleiner, 2005). By focusing on the factors driving the adoption of collective PRP, this study enhances our understanding of these trends, as emphasized by recent calls for studying the conditions and contingencies that affect the adoption of this form of PRP (Nyberg *et al.,* 2018). Second, considering the relevance of family firms in several European countries, including Italy, this study increases our knowledge of how organizational contingencies differ in these contexts compared to non-family contexts regarding pay decisions. It also opens new theoretical perspectives on the pay debate by combining structural contingency theory (Donaldson, 2001) and socioemotional wealth theory (Gomez-Mejia *et al.*, 2007), thus developing fertile theoretical ground for advancing our understanding of pay determinants in family firms compared to non-family firms. Third, the adoption of a PRP system is often incentivized as part of the growth and development of public policies. Therefore, it is essential for policymakers to understand which firms adopt (or do not) collective PRP schemes to improve the design of their public programs. The findings of this study provide insights into the Italian government's initiative to introduce fiscal incentives for the adoption of PRP schemes to support the growth and competitiveness of the Italian economy (Eurofound, 2014).

Theoretical framework

Structural contingency theory argues that there is no one best way of organizing, as the "choice" and "effectiveness" of a given organizational structure depend on the fit among the environment, the organization, and its strategy (Donaldson, 2001). The theory has expanded in several areas beyond research on organizational structure into a growing body of compensation research that explains the determinants of incentive pay systems from a contingency perspective (e.g., Balkin and Gomez-Mejia, 1987; Bayo-Moriones *et al.*, 2013; Long and Fang, 2015; Miceli and Heneman, 2000). This approach assumes that "congruence" or "fit" drives managers' (compensation) decisions. The notion of "fit" in this perspective refers to the *internal fit* among human resource (HR) policies or practices across areas (e.g., between compensation and job design; Kepes and Delery, 2007), and the *external fit* among HR practices and organizational characteristics, business strategy, or institutional demands (Donaldson, 2001; Miceli and Heneman, 2000).

Concerning internal fit, contingency theory posits that coherence in the configuration of individual human resource practices (e.g., incentive pay) in an organization depends on HR practices already in place. Concerning external fit, the theory proposes that the adoption of human resource practices in an organization depends on contingencies, such as institutional demands, business strategy (e.g., cost efficiency or differentiation), and other organizational characteristics (such as performance, size, ownership, age, and unionization; see Bayo-Moriones *et al.*, 2013; Long and Shields, 2005; Miceli and Heneman, 2000; Papadakis *et al.*, 1998). Kang and Yanadori (2011) offer insights into three institutional factors that explain managers' adoption of PRP schemes (see also Scott, 1995). The *regulative* factors are related to the pressure exerted on firms by governments in highly regulated industries, either in the form of legal mandates or incentives. In Italy, despite the absence of coercive measures, in 2013 the government introduced fiscal incentives for the adoption of collective PRP. The second factor is related to *normative* factors operating when firms (ought to) adopt collective PRP to conform to prevailing practices and gain legitimacy, even without an accurate evaluation of the consequences of their adoption in their specific context (Peng, 2004). The last is related to *cognitive* factors, operating when managers (want to) adopt collective PRP to soften the positions of unions in a repeated bargaining setting. In such a scenario, managers conforming to unions' demands can yield significant benefits such as increased legitimacy, survival, and bargaining capabilities, and reduce conflicts within the organization. In addition to these institutional factors, external fit also refers to the characteristics of the external

environment, including the dynamism and competitiveness that characterize the market in which an organization operates (Miceli and Heneman, 2000).

Given our aim to better understand the differences between family and non-family firms in terms of determinants of collective incentives, in the following sections, we elaborate on this theoretical reasoning by combining arguments from the socioemotional wealth (SEW) theory. Indeed, SEW suggests that family managers make decisions that are not only driven by economic considerations but also by the aim of preserving the stock of affect-related values that they derive from their family firm (Chua *et al.*, 2015; Gomez-Mejia *et al.*, 2007, 2011). According to the SEW theory, family firms behave differently from non-family firms. Though non-economic goals could be present in non-family firms, they are especially important in family firms, and such preferences for non-financial objectives (or affective endowments) may influence human resource practices, such as incentive pay. The preservation of SEW dimensions such as family control and influence, identification of family members with the firm, long-term and binding social ties, emotional attachment, firm reputation, and the continuity of the family dynasty (Berrone *et al.*, 2012), may therefore help to explain the differences in the determinants of the adoption of collective PRP between family and non-family firms.

Family and non-family firms

Compensation decisions are influenced by the ownership structure of a company (Kang, 1996; Pendleton *et al.*, 2017), particularly in family businesses in which owners have a large equity share (Zahra, 2003). The two primary dimensions of ownership structure are the identity of the owners and the level of ownership (Thomsen and Pedersen, 2000). Identity (institutional investors, firms, banks, families, etc.) has implications for goal setting, time horizons, and attitudes toward risk; level of ownership, on the other hand, affects the intensity of the owner's decision-making power. However, the direction of this effect remains unclear. According to contingency theory, there is no "best" firm ownership structure, not all ownership structures are equally effective, and the influence of different ownership structures on a firm's decisions varies according to industry characteristics (Kang, 1996). The SEW theory may help solve this ambiguity and understand how family firms make pay decisions compared to non-family firms. According to SEW, family firms with the desire to protect family social capital have longer-term horizons and reputation concerns and implement a compensation package that offers lower pay but high job security compared to non-family firms (Bassanini *et al.,* 2013; Damiani *et al.*, 2019). In contrast, non-family firms often rely on efficiency wage strategies based on

compensation packages that include collective incentives (i.e. profit-sharing) as a means to pay above-market wages (Gerhart, *et al.*, 2009; Long and Fang, 2015). In terms of internal fit, this is also due to different recruitment logics of family and non-family firms. Indeed, in non-family firms, higher wages represent one of the main means of attracting and retaining talented, high-performing employees (Long and Fang, 2015), whereas in family firms, the attraction and retention strategies are largely based on non-economic factors (Cruz *et al.*, 2011). In addition, family firms are often smaller and have fewer resources than non-family firms in develop the internal competencies necessary to design reward systems such as incentive pay. As noted by Cruz *et al.* (2011), the high-level technical competencies needed to implement incentive systems are often not affordable for family firms. Aldrich and Langton (1998) consistently found a negative relationship between the number of family members who work in a firm and the use of formal HR practices. Based on these arguments, we expect family firms to have a lower propensity to adopt collective PRP than non-family firms do.

H1: Ownership structure is related to the adoption of collective PRP, so that family firms are less likely to adopt collective incentives than non-family firms.

Firm size

Firm size is a key contingency variable that may facilitate or constrain decisions on PRP adoption (Balkin and Gomez-Mejia, 1987; Zona *et al.*, 2013). Adopting the lens of contingency theory, one may expect that incentive pay choice is facilitated in smaller firms by a range of internal (e.g., less complexity in the job evaluation process) and external (e.g., a more entrepreneurial organizational culture) factors (Balkin and Gomez-Mejia, 1987; Ettlie, 1983; Wang *et al.*, 2018). However, by analyzing the characteristics of the Italian context, large firms are under greater pressure to improve or maintain their legitimacy (Volberda *et al.,* 2012) by demonstrating their conformity to and support of unions, which traditionally prefer collective PRP to other forms of incentive pay. Moreover, in the specific case of the data used in this study, to benefit from the fiscal incentives introduced in 2013 by the Italian government for the adoption of collective PRP schemes, firms must adopt schemes in agreement with company union representatives who are more likely to be present in large rather than small firms. Existing studies also claim that larger firms may be more inclined to adopt performance pay schemes as "it is more likely that they will have access to the resources to design and maintain such plans" (Long and Shields, 2005, p. 1788). Additionally, Brown (1990) and Bayo-Moriones *et al.* (2013) argue that as the incidence of fixed costs of PRP system development

and administration decreases with the number of employees, the likelihood of implementing such systems increases with the size of the establishment.

On the empirical side, research investigating the link between firm size and collective PRP has reached inconclusive findings (e.g., Bayo-Moriones *et al.*, 2013; Long and Shields, 2005). The distinction between family and non-family firms may help to explain this inconclusiveness. Some of the literature suggests that as a firm expands in size, it would introduce more formalized procedures and professional structures (task divisions, non-family management, less nepotism, more formal routines, etc.) (Dekker *et al.*, 2013; Kim and Gao, 2010), thus leading to the similarity in decision-making between large family and non-family firms (Andersson et al., 2018). This may often occur through a process of replication of organizational practices adopted by non-family firms by family firms (Chang *et al.*, 2022), potentially leading to a high diffusion of collective PRP among family firms.

In contrast, the second strand of literature grounded in the SEW theory suggests that larger family businesses are different from non-family businesses in terms of professionalizing the family business (i.e. separation of ownership and control, Chua *et al.*, 2009; Dyer, 2006), defining company boundaries (i.e. bounded reliability, Verbeke and Kano, 2010), building stocks of socio-emotional endowments (Gomez-Mejia *et al*., 2011), and seeking conformance to institutional domains (e.g., Peng *et al.*, 2018). Professionalized family firms (i.e. those that delegate more authority to non-family employees) are more prone to face new challenges related to performance appraisal and compensation systems. For instance, in large family businesses, unequal treatment of family and non-family employees develops bounded reliability challenges, leading to lower economic outcomes (Chua *et al.*, 2009; Verbeke and Kano, 2010) and therefore fewer resources to dedicate to collective incentives. It has also been noted that, in comparison to non-family firms, family firms are more able to grow employees but less in sales (Moreno-Menéndez and Casillas, 2021). This, in turn, may result in a decrease in efficiency and productivity compared with non-family businesses, which can make them less prone to adopt collective incentives. In contrast, as noted by Damiani *et al.* (2019), professional managers of larger and well-organized non-family firms often follow unions' requests and specific trends of industrial relations, including incentive pay systems, regardless of revenue trends and fluctuations. Finally, the focus of family firms on preserving family interests may result in conservatism, thus missing out on potentially risky opportunities that may endanger family control (Gomez-Mejia *et al.*, 2010), such as collective incentives. Taken together, these arguments suggest that the likelihood of large family firms adopting collective

schemes is lower than that for non-family firms. Building on these premises, we formally hypothesize the following.

> *H2: Firm size (a) is positively related to the adoption of collective PRP and (b) the magnitude of this relationship is weaker in family firms than in non-family firms.*

Firm age

Firm age is another factor that may drive decisions on PRP choices (Balkin and Gomez-Mejia, 1987; Bayo-Moriones *et al.*, 2013; Budhwar and Khatri, 2001; Carrasco-Hernandez and Sánchez-Marín, 2007). Contingency theory suggests that incentive pay choices are facilitated in firms in the growth stage. Cowling (2006) suggests that younger businesses are more likely to be concerned with *survival* than *growth* if they do not fail within the first few years of start-up. Gupta and Govindarajan (1984) posit that firms in the growth stage are more willing to take risks and have higher tolerance for uncertainty. These firms are more prone to recruit younger, more risk-taking employees, and to pay them based on an incentive system rather than fixed salary and benefits (Ettlie, 1983). Adopting PRP schemes allows them to transfer some of their fixed expenses to a variable cost that will be paid when firms are in the best financial position.

This may also hold for (aged) family firms with a growth orientation (Memili *et al.*, 2013), where age is often strictly related to generational involvement and the participation of family. This has an impact on the firm's resource and capability development, as well as how SEW influences decision-making processes (Moreno-Menéndez and Casillas, 2021). When family businesses evolve and develop across generations, their business systems become more complex and certain characteristics such as "familiness" or socioemotional wealth are weakened (Gomez-Mejia *et al.*, 2011; Sciascia *et al.*, 2014). In other words, the focus on preserving the family's SEW diminishes as the firm moves through generations and economic considerations become a more important frame of reference. At later generational stages, identification with the firm, as well as binding social ties and emotional attachment of family members, is likely to be low or negligible as family branches emerge and family firms pass through subsequent generations (Ensley and Pearson, 2005; for a review, see Sciascia *et al.*, 2014).

Prior studies suggest that, in aged family firms, identification with the firm is likely to wane as family branches with different needs and agendas emerge, resulting in weakened

family ties (Ensley and Pearson, 2005; Le Breton-Miller and Miller, 2013). Typically, family branches (i.e. active or passive family members) show differences in commitment and interest in dividend payments (Lubatkin *et al.*, 2005) leading aged family firms to pay more attention to financial (including compensation) than non-financial indicators. Moreover, when older family firms are less concerned about preserving SEW and more concerned with financial results, they are also likely to increase their risk propensity (Arrondo-García *et al.*, 2016) and interest in risk-sharing practices such as collective PRP. Accordingly, the more economic and financial goals dominate decision making, the higher the utility that family firms can perceive from adopting collective PRP plans (such as profit-sharing), thus making such plans more attractive and more likely to be implemented. Lastly, older family firms have more specific knowledge and less dominant conservative strategies, which in turn may enhance firm performance (Block *et al*., 2011; Miralles-Marcelo *et al*., 2014) thus facilitating the adoption of collective incentives. Based on these arguments, we predict the following:

> *H3: Firm age (a) is positively related to the adoption of collective PRP and (b) the magnitude of this relationship is stronger in family firms than in non-family firms.*

Firm and labor productivity

Prior studies suggest that the "ability to pay" is a function of the productivity of the organization (Miceli and Heneman, 2000) and firm productivity influences employees' compensation (Chowdhury and Schulz, 2022; Riley and Rosazza Bondibene, 2017), so that PRP schemes are mainly adopted in firms with higher firm performance and greater ability to pay (Damiani and Ricci, 2014). According to the external fit perspective of contingency theory, a positive relationship between past productivity and the adoption of collective PRP can be predicted. First, an establishment with higher productivity is more profitable and has a better financial performance. Thus, managers may want to adopt collective PRP to gain legitimacy from their unions and external stakeholders. Second, to distribute gains and maintain equity across employees, managers should link performance to rewards across performance levels; that is, the higher past firm productivity, the more likely the establishment is to adopt collective PRP. Third, managers may adopt collective PRP schemes to continue productivity improvements or consolidate their good performance.

From a managerial perspective, the use of PRP mechanisms can be explained by the fact that firm productivity is a shared responsibility that is extremely sensitive to changes in all

employees' efforts. Therefore, managers may use collective PRP plans as a strategy to align employee behavior with organizational objectives and retain the workforce that achieves past productivity growth (Prince *et al.*, 2016). One may argue that these arguments also hold for firms with lower levels of productivity that may want to adopt collective PRP schemes because of their need to improve their performance. However, in low-performing firms, the initiative to adopt PRP schemes may encounter resistance from employees and unions, who may perceive the incentives as attempts by the company to save costs by transferring economic risk to the workforce (Freeman *et al.*, 2010).

We believe that this could be particularly critical for family firms because of their greater need to preserve their internal and external social legitimacy. As noted by Werner et al. (2005), compensation in family firms is more sensitive to changes in performance for all employees than in non-family firms. Indeed, the SEW theory also integrates the ideas discussed within the stewardship and stakeholder theories and states that family managers and family members seek to benefit all stakeholders and act primarily as stewards of their employees to protect SEW. In other words, the greater importance attached to family centered and non-economic goals may lead family firms to be less prone than non-family firms to introduce collective PRP when the firm's performance is low because of the associated risks of reducing their socioemotional wealth (and external legitimation) in those situations. On the contrary, more productive family firms that have more capital resources and interest in family social capital may adopt collective PRP schemes as a caring-oriented policy to address lower pay levels and consolidate productivity gains. Furthermore, family firms are more subjected to agency problems, such as adverse selection problems, nepotism, hiring from a limited talent pool, and moral hazard (Chrisman *et al*., 2017; Damiani *et al*., 2019; Neckebrouck *et al*., 2018). These alternative sources of labor inefficiency (Chrisman *et al*., 2017; for a review see: Creemers *et al*., 2022) may encourage family firms with more "ability to pay" (i.e. with higher past productivity) to adopt collective incentives to consolidate higher past productivity levels, address agency problems and better align employees' interest with the company compared to non-family firms. Considering these arguments, we propose the following:

> *H4: (a) Past firm and labor productivity are positively associated with the adoption of collective PRP, so that firms with higher productivity (at time t-1) are more likely to use collective incentives schemes (at time t); and (b) the magnitude of this relationship is stronger in family firms than in non-family firms.*

Research context and data description

This study was conducted in manufacturing firms in the Italian province of Brescia. With an industrial gross value added (GVA) of approximately 12 billion euros in 2017 (Eurostat, 2020), Brescia is the second most valuable province in Lombardy, third in Italy, and one of the top five super-specialized provinces in manufacturing in Europe. The manufacturing GVA of Brescia alone corresponds to the sum of the GVA of Latvia, Estonia, and Bulgaria (Eurostat, 2020). Therefore, studying the determinants of PRP scheme adoption by manufacturing companies in this province provides insights that are potentially relevant in a much wider context.

To test the hypotheses formulated above, we built a database that combined two sources of information. First, we exploit the financial statements available in the AIDA (*Analisi Informatizzata Delle Aziende*) database by Bureau Van Dijk, which is the Italian subset of the Orbis/Amadeus database, collecting information on 'all Italian companies' that are required to file their accounts. The AIDA database accounts for more than 2.3 million limited companies and cooperatives as of May 2022 and has been widely used in other Italian studies on incentive pay (e.g., Damiani and Ricci, 2014; Damiani *et al.*, 2019; Pompei *et al.*, 2019).

For this study, we focus on 4,222 companies operating in the manufacturing sector in 2009–2017, with a registered office/trading address in the province of Brescia. We combined the resulting longitudinal dataset with information from the Italian Labor Market and Collective Relations Observatory (OSMER). The OSMER manages a database of over 2,400 company-level collective agreements (from more than 800 firms at the time of writing) signed in 2008 in the manufacturing sector, predominantly in the Lombardy region and the province of Brescia. However, the dataset also includes contracts from the non-manufacturing sector and other northern Italian regions.

To access the fiscal incentives introduced by the government, decentralized collective bargaining agreements must be signed by the employer, the representative employees' organization(s), and filed with the provincial employment agency (*Direzione Territoriale del Lavoro Brescia* or DTL). If the establishment has no internal union representative, by Ministry of Labor Ruling no. 8/2013, provincial social partners are required to confirm the agreement. Owing to the joint venture among DTLs, social partners, and OSMER, we are confident that our data provide a fully reliable picture and that all firms adopting collective incentives in the province of Brescia are available in our OSMER dataset.

The OSMER and AIDA records were deterministically linked via the companies' unique fiscal codes. To remove outliers, we used both quantitative and qualitative outlier identification strategies, as suggested in earlier studies (Aguinis *et al.*, 2013). Once we defined the estimation sample, we considered a leverage of 99% and excluded observations with large residuals, accounting for 2% of the total sample, resulting in a final sample of 4,222 firms operating in the manufacturing sector in the period 2009–2017. Among these, 527 signed a supplementary company-specific contract and, in 466 cases, the agreement included the adoption of collective PRP. Table A in the Appendix reports the descriptive statistics of the companies included in the AIDA or OSMER but excluded from our final sample.

Variables definition

The adoption of *collective PRP* is measured by a binary variable taking a value of 1 at time *t* if the company's remuneration package includes tax-exempted productivity-enhancing bonuses or profit-sharing schemes and zero otherwise. The use of dummy variables to capture the presence of different forms of PRP is common in compensation literature (e.g., Curran and Walsworth, 2014; De Spiegelaere *et al.,* 2018).

To identify *non-family-owned* companies, we first calculated the average number of employees during the study period (2009–2017). Second, we applied differentiated thresholds of non-family ownership shares for small (i.e. with less than 50 employees) and medium and large companies (i.e. with more than 50 employees); for small companies, the threshold is 50%, and for medium and large companies, it equals 80% (Zellweger, 2017). Finally, we constructed our non-family variable as (1 if the company is a non-family firm and 0 otherwise). To control for the weight of non-family shareholders, we also consider the variable *non-family owners' shares*, which is defined as the sum of the shares of all non-family shareholders.

Firm *age* was measured as the number of years elapsed since the year of incorporation. To measure firm *size,* we used a scale ranging from 1 to 4 (1: <15 employees, 2: 15–49 employees, 3: 50–249, and 4: ≥ 250). We also control for firm size using the natural logarithm of the book value of a firm's total assets (*total assets*). By doing so, we do not depart from the standards of the previous empirical literature (e.g., Kim *et al.,* 2013).

As productivity measures, we consider the ratio between the value-added and the number of employees (value-added per employee) as an index of *labor productivity*, and the ratio of the value-added to total production costs (value-added over total cost) as an index of *total productivity*. Our productivity measures provide a comprehensive representation of the overall value of production, and have been widely used in similar studies (e.g., Della Torre *et al.,*

2018). We also control for a company's profitability, measured by the return on sales index (*ROS*).

Research also suggests that foreign ownership is positively related to the use of incentive pay and that pay–performance sensitivity is higher in foreign-owned firms and in firms affiliated with a multinational group than among domestic firms (Barth *et al.*, 2008). Therefore, our models also include *foreign ownership* as a control variable, measured as a dummy variable (1 = at least one shareholder is not Italian; 0 = all shareholders are Italian). Finally, as the adoption of a collective PRP scheme considered in this context is potentially in contrast to a situation of deep financial insecurity and high risk of bankruptcy, we also include a dummy variable *procedure* that equals 1 starting from the year any of the following procedures begins (and 0 before): preliminary closure, closure, merging, and transfer.

Analyses and results

Descriptive statistics and preliminary evidence

Table 1 presents descriptive statistics for our sample made of 4,222 distinct companies each observed on average 6.01 times from 2008 to 2017 for a total of 25,391 observations. On average, 4.1% of the observations refer to establishments with active *collective PRP* (2.06% of family firms and 11.95% of non-family firms). This finding is comparable with estimations from other sources (i.e. Eurofound, 2019) suggesting that only 3% of Italian firms fully implement variable extra pay linked to the results of the team, working group, or department for their employees. For the profit-sharing scheme, this estimation is approximately 7% (Eurofound, 2019).

Table 1 about here

To preliminarily investigate the relationship between the adoption of collective PRP and size, age, and labor/firm productivity in family and non-family firms, we use the univariate non-parametric regression analyses shown in Figure 1. In each panel, we use a second-order local polynomial smoother to estimate the probability (and its 95% confidence interval) of the company having a *collective PRP* as a function of *size*, *age*, *labor productivity and total productivity*. For non-family firms, the results confirm a positive relationship between the likelihood of adopting collective PRP and the size (total assets and number of employees) of the company and its labor productivity. For total productivity, the likelihood of having

collective PRP is almost constant (approximately 4%) up to the 75th percentile of the total productivity distribution, at about 0.4; above this value, the relationship is clearly negative. Consistently, for ages up to the 95th percentile of the total age distribution, there is a positive relationship, but above this value the relationship is clearly negative. For family firms, the results confirm the positive relationship between the likelihood of adopting collective PRP and the size (total assets and number of employees) of the company and its age. For labor productivity, a positive relationship exists up to the 95th percentile of the total productivity distribution and above, which starts to decline. For total productivity instead, there is no clear relation between the adoption of collective incentives and the past value of total productivity.

Figure 1 about here

Multiple regression analysis

Given the available data, we focus on estimating the probability that, given the observable characteristics of a company at time $t-1$, the company currently has an active collective PRP scheme. Specifically, we consider the following index model:

$$\Pr\left(y_{it}=1 \mid X_{it-1}, Z_i, T_t\right) = G\left(X'_{it-1}\beta + Z'_i\gamma + T'_t\delta\right)$$

where y_{it} is our *collective PRP* variable, which equals 1 if company i at time t has an active collective PRP and 0 otherwise; X_{it-1} is a vector of observable time-variant characteristics of company i measured in the previous year ($t-1$); Z_i is a vector of time-invariant features of company i; T_t is a set of time dummies; β, γ, and δ are vectors of parameters to be estimated; and $0 < G(.) < 1$ denotes the cumulative distribution function of the standardized normal random variable. To alleviate the possible bias of the estimates due to the correlation between the covariates and the error terms, we used the lagged value of *X*s and estimated the parameters via pseudo-maximum likelihood. Thus, our results rely on the assumptions that past values of *Xs* (e.g., past productivity) are not affected by the current shock determining the adoption of *collective PRP* and that if there is any unobservable company-specific time-invariant latent component affecting the adoption of *collective PRP*, such components are uncorrelated with any of the covariates.

Table 2 reports the average marginal effects computed based on the pseudo-maximum likelihood estimates of the parameters of the probit model above, and their associated standard errors, clustered at the company level.

Table 2 about here

The multiple regression analysis confirmed most of the preliminary evidence in the previous section. In terms of the main effects of the ownership structure of the company, the results show that, *ceteris paribus*, the weight of non-family owners has a positive impact on the probability of collective PRP. In fact, the average marginal effect of the variable *non-family owners' shares* is positive (with a *p*-value < 5%); that is, the lower the family's control over the company, the higher the probability of adopting *collective PRP*. Therefore, H1 is supported.

The results also indicate that firm *size* measured by the number of employees and total assets is positively and significantly related to the adoption of *collective PRP* in both family and non-family firms. In particular, a 1% increase in the value of total assets is associated with a 1.6 percentage point (pp.) increase in the probability (1.3 pp. for family firms and 2.7 pp. for non-family firms, respectively; see the average marginal effect of *total assets*$_{t-1}$ in Column 1), and all the average effects related to the number of employees are positive and increase with size (thus, H2a is supported). To appreciate the relevance of these effects, remind that the average probability of a company having active *collective PRP* is 4.09%.

Age also has a positive (and statistically significant) marginal effect. This result suggests that firm age is positively related to the adoption of collective PRP; however, once the company's size is controlled for, the effect of an additional year of operations increases the probability of having *collective PRP* by only .04 pp (.03 pp. for family firms and .06 pp. for non-family firms); thus, H3a is supported.

Multiple regression analysis also clarifies evidence in favor of higher past productivity levels. Indeed, both past *total* and *labor productivity* have positive (and statistically significant) average marginal effects on the probability of adopting *collective PRP*. An increase of 10 pp. of *total productivity* measures increases the probability of *collective PRP* by 0.65 pp. (0.39 pp. for family firms and 1.8 pp. for non-family firms), whereas an additional 1,000 euros per employee of *labor productivity* is associated, *ceteris paribus,* with an increase of 0.2 pp. (0.1 pp. for family firms and 0.9 pp. for non-family firms); thus, H4a is supported.

To validate H2b, H3b, and H4b, we conduct a multi-group analysis to test the equality of the coefficients of size, age, and past productivity in family and non-family firms. We first estimate the size of each relationship, followed by a series of chi-square difference tests to assess the differences in the slope parameters for family and non-family firms (Satorra and Bentler, 2001). The analysis shows that the positive relationship between size and the adoption

of collective PRP is significantly stronger in non-family firms than in family firms (for total assets: $\Delta\chi^2 = 3.42$, $p = 0.05$; for number of employees: $\Delta\chi^2 = 4.38$, $p = 0.03$). Therefore, H2b is supported. The results also show that the relationship between age and collective PRP adoption is significantly stronger in family firms than in non-family firms ($\Delta\chi^2 = 4.11$, $p = 0.04$), supporting H3b. Concerning past firms and labor productivity, the coefficients are not significantly different between family and non-family firms ($\Delta\chi^2 = 0.58$, $p = 0.447$ and $\Delta\chi^2 = 0.001$, $p = 0.959$, respectively). Therefore, H4b is not supported.

Robustness tests

We considered two alternative sets of estimates to check the robustness of our results. First, our preliminary analysis indicates that the probability of observing a collective PRP for a micro-enterprise is almost negligible. For these companies, organizational barriers, the absence of unions, and informal management of human resources may make the use of collective PRP unattractive. It could make sense to focus on companies for which collective PRP is a viable option. Therefore, we restrict our estimation sample to enterprises with at least 15 workers, excluding micro-enterprises. This drastically reduced the number of companies but qualitatively confirmed all the results for both family and non-family firms. Second, we changed the specification of our model and used a linear probability model (LPM). With respect to the probit model, the LPM is robust to the misspecification of distributional assumptions but imposes homogeneity in the marginal effects. Columns 4 to 6 of Table 2 show the average marginal effects of the OLS estimates for the total, family, and non-family samples considered for the probit model. Again, the results obtained using the probit model were qualitatively confirmed.

Finally, we examined whether firm characteristics differ between firms included and not included in our final estimation sample (see Table A) by comparing the means of the variables used in the regression analysis. The main reason for excluding companies from the estimation sample was the lack of information on some key variables for our analysis, such as the nature of the ownership and the age of the company. The estimation sample covers 82.9% of the companies that have been active during the 10 years considered. Among the excluded firms, 40.5% experienced the start of the bankruptcy process, which often results in the closure of the business. According to the available data and consistent with previous observation, the excluded companies have productivities and returns on sales that are remarkably lower than those of the companies in the estimation sample. Given their characteristics and the economic difficulties they face, the excluded companies can hardly consider the signing of a PRP contract

a real option. Consequently, we can prudently generalize our findings to all the companies that are not struggling to survive.

Discussion and implications

The present research contributes to the compensation and family business literature in several ways.

First, our findings show that a higher weight of family shareholders reduces the probability of adopting a collective PRP, which is consistent with the SEW theory arguing that in family firms, managers pay more attention to relational contracts, intrinsic incentives, and relationships rather than "the economic value created by transaction" (Gomez-Mejia *et al.*, 2001, p. 82). In turn, these characteristics affect managerial decisions regarding compensation policies. Interestingly, our findings also show that the influence of such family–firm characteristics is independent of firm size. While we find a positive relationship between firm size and the adoption of collective PRP, this relationship is weaker in family firms than in non-family firms. These results suggest that while HR departments and union representatives of larger firms generally have easier access to the resources necessary to design and implement these collective PRP schemes (consistent with the external fit predictions of contingency theory), the specific characteristics of family firms related to SEW persist and influence decisions, even when the firm grows and expands. Importantly, the literature shows that family firms that adopt incentives, such as PRP, obtain greater gains in competitiveness (Damiani *et al.*, 2019), commitment, and motivation from their employees (Pompei *et al.*, 2019). Therefore, the adoption of collective PRP may be considered an untapped opportunity for managers in family firms (even large ones) that should be addressed. On this point, external shareholders may bring extra resources and competencies to the family businesses to overcome those obstacles such as family "control" and "influence" (Berrone *et al.*, 2012) that make family firms less prone to adopt collective incentives.

Second, our findings also show that the years of operation of the firm (age) positively affect the adoption of collective PRP, and that this relationship is stronger in family firms than in non-family firms. This may be surprising given the opposite finding related to firm size. However, size and age are not necessarily related; in particular, in family firms, ownership may strategically decide to contain growth (in terms of the number of employees) to preserve the governability and flexibility typical of small organizational contexts. However, in all cases, incorporation age is related to ownership succession, and in the case of family firms, this typically implies generational succession. Therefore, the stronger effect of age on the adoption

of collective PRP in family firms supports our argument that family dynasties resulting from firm age reduce family control and socioemotional wealth (Sciascia *et al.*, 2014), while outweighing economic goals (rather than the family's non-economic goals), thus favoring an increase in the adoption of collective incentives in family firms.

Third, we found that past firm/labor productivity induces the adoption of collective PRP mechanisms, independent of ownership structure, and is consistent with the external fit prediction of the contingency perspective. In low-performing firms, PRP adoption is reduced because employees and unions may perceive the initiative as a cost-saving strategy to shift the economic risks of incentives to workers. Contrariwise, as firm performance improves, employees and unions typically negotiate a redistribution of gains, as managers have larger budgets for compensation schemes that can be shared via collective PRP schemes to foster good performance. Correspondingly, companies in better financial shape are more likely to share rents with unions to gain social legitimacy and maintain equity across employees. This view is consistent with earlier findings suggesting that PRP schemes are mainly adopted by firms with a higher ability to pay and better firm performance (Damiani and Ricci, 2014). Further, managers may also use collective PRP as a strategy to retain the most productive employees, who have contributed to past growth in firm productivity.

Overall, our results suggest that despite the potential benefits of collective PRP, younger and smaller firms with lower (past) productivity levels are less likely to exploit collective PRP plans, especially if they have family ownership. Future studies could consider other contingencies that may affect collective PRP diffusion, such as the alignment of collective PRP schemes with other HR practices or the key aspects of company strategy. Next, as the peculiarities of the reward mechanisms play a key role in their effectiveness, useful insights would be provided by studies investigating not only the mere presence of collective PRP schemes but also how internal and external contingencies affect their design. We believe that our study demonstrates how a "contingency approach" might be an appropriate perspective for integrating different complementary theories on incentive pay. Therefore, theoretical explanations being considered in competition may be examined by reference to third contingency variables (i.e. different contexts), whereby a given theory may better explain the observed effect.

Beyond these theoretical contributions, our study has several implications for HR managers in family firms and policymakers. First, because family firms are less likely to adopt collective incentives than non-family firms, HR managers should paint a clear picture of the benefits of collective incentives for family owners and CEOs. Indeed, research shows that

collective incentives are a key factor in attracting and retaining a talented workforce (Cruz *et al.*, 2011; Long and Fang, 2015), which is a crucial component of firm competitiveness.

Second, and relatedly, when HR managers articulate collective incentive benefits for family owners, they should consider both economic and non-economic benefits and determine the right balance between extrinsic (i.e. collective incentives) and intrinsic (i.e. SEW) motivational factors. This holds for family firms of all sizes, particularly younger ones, as they appear less likely to adopt collective incentives.

Third, this study offers new insights for policymakers interested in designing public policies to promote the diffusion of collective incentives. Our findings suggest that family firms should be supported and incentivized to adopt more advanced and competitive compensation systems. This seems particularly relevant in Italy, which is characterized by the prevalence of small family firms in the economy.

Limitations

This study has several limitations that should be considered when interpreting our results. First, despite the robustness checks conducted in this study, the reverse causality and potential endogeneity problem of the PRP system remains an important issue (Damiani *et al.*, 2019). Future studies should put additional effort into accounting for endogenous variables that may influence determinants of the adoption of collective incentives in different types of family firms (e.g., managed by the founder, family CEO, or non-family CEO, dual shares).

Second, in our analysis, it is unclear which emotional dimensions of SEW may inhibit or foster the adoption of collective incentives. Future research may investigate the mechanisms underlying the mediation between internal and external contingencies and the adoption of incentive policies.

Third and relatedly, in this study, we use ownership structure as a proxy of SEW to explain our hypotheses. However, there is a high degree of inconsistency in the conceptualization and operationalization of SEW dimensions (Berrone *et al.*, 2012). Future studies could use psychometric instruments to grasp the SEW construct (Damiani *et al.*, 2019; Pompei *et al.*, 2019). For instance, they may conduct new surveys to identify the key drivers of non-economic goals such as altruism, justice, fairness, and generosity (Berrone *et al.*, 2012).

Fourth, this study lacks detailed information on the different types of collective PRP schemes. While we focus on productivity-enhancing bonuses and profit-sharing schemes as two common forms of collective incentives, future studies could examine the validity of our

findings for other types of collective incentives, such as top management team PRP, broad-based stock options, employee stock ownership plan (ESOP), gain-sharing, and team PRP (Nyberg *et al*., 2018).

Finally, our data are from a single province and industry, which despite its importance, may not be representative of other sectoral, institutional, and normative frameworks. Future studies could therefore adopt more representative samples and verify whether and how our findings vary depending on specific contextual factors.

Conclusion

This study makes several contributions to the literature on incentive adoption, and more precisely on the characteristics of employers using collective PRP schemes in the context of family and non-family firms. The theory identifies several factors related to collective PRP adoption: ownership, size, age, and past performance (firm/labor productivity). However, the existing empirical results are inconclusive. We argue that although firm characteristics have a high impact on collective PRP adoption, the effect (and its magnitude) varies depending on the ownership structure. Indeed, our results revealed that the specific characteristics of a given context may act as a barrier to the adoption of PRP, something policymakers should consider. For instance, in Italy, structural conditions and the fragmentation of the economy into small family firms (accounting for more than 85% of the total number of businesses and approximately 70% of employment) are structural weaknesses that affect the adoption of collective PRP schemes (Damiani and Ricci, 2014). Small businesses lack resources and the necessary experience to adopt collective PRP. Conversely in large firms, better performance and economies of scale decrease implementation costs of PRP adoption. Therefore, government initiatives that favor firm growth (i.e. R&D investment in small firms), greater fiscal exemptions linked to enterprise results, and profitability may indirectly eliminate major impediments to PRP adoption.

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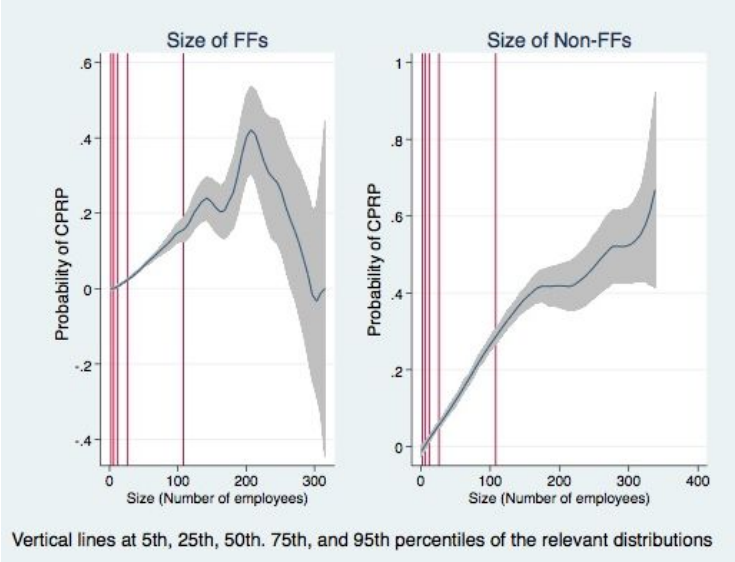
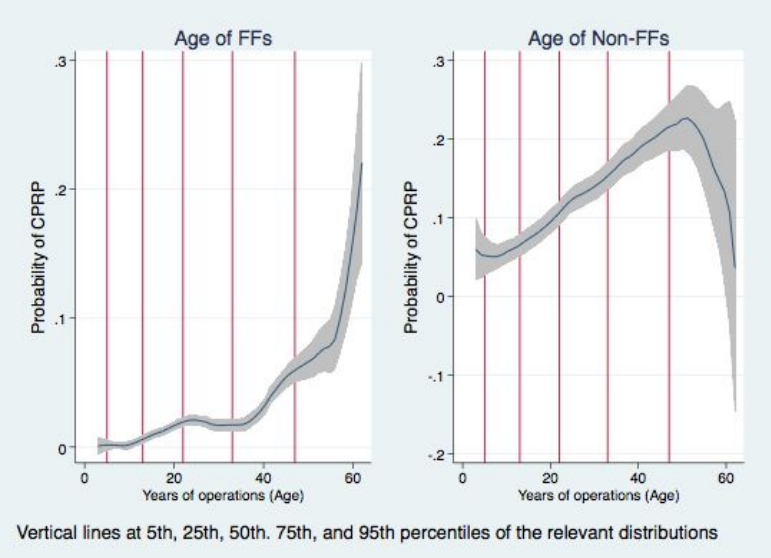
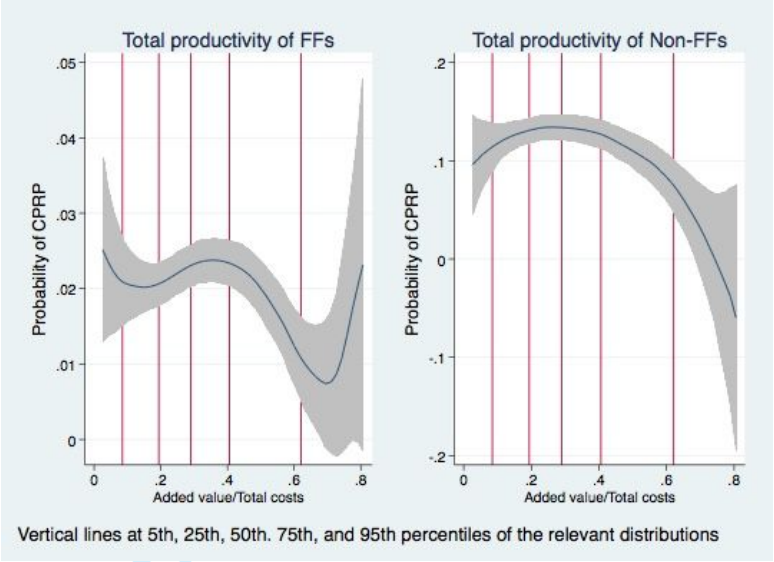
Figure 1. Probability of being under collective PRP by company size, age and past productivity in family and non-family firms.



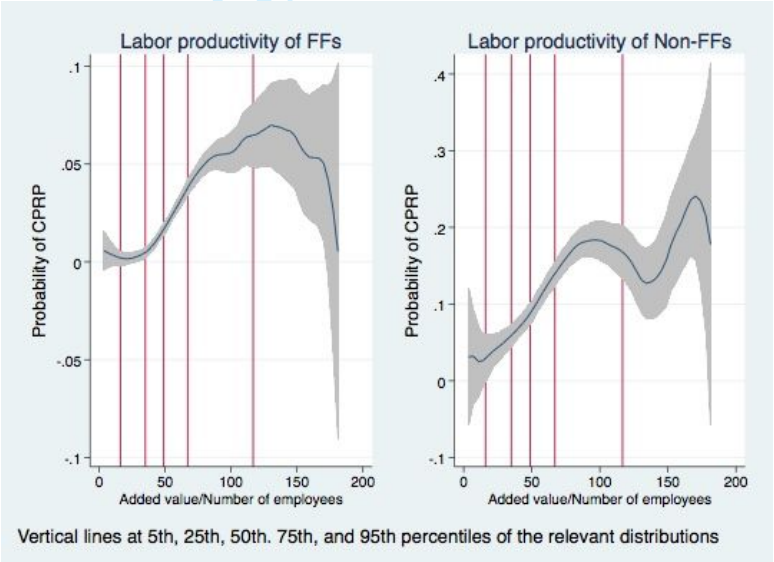
a) Size



b) Age



c) Total productivity



d) Labor productivity

Table 1: Descriptive statistics of key variables included in the study

	Variables	Adopters		Non-adopters		Total sample		Family firms		Non-family firms	
		Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
1	Collective PRP	-	-	-	-	.040	.001	.020	.000	.119	.004
2	Ln(Total assets)$_{t-1}$	10.281	.042	7.598	.009	7.709	.009	7.453	.010	8.690	.023
3	Return on sales$_{t-1}$	4.211	.219	4.064	.049	4.066	.048	4.187	.053	3.597	.116
4	Negative return on sales$_{t-1}$	.156	.011	.136	.002	.137	.002	.127	.002	.174	.005
5	Total productivity$_{t-1}$	.291	.004	.313	.001	.312	.001	.315	.001	.299	.002
6	Labor productivity$_{t-1}$	78.268	1.115	54.171	.209	55.157	.207	51.815	.218	68.119	.520
7	Age	34.994	.504	23.608	.085	24.074	.086	23.823	.098	25.046	.201
8	With foreign shareholders	.172	.011	.036	.001	.042	.001	.014	.000	.149	.004
9	Non-family-owned	.762	.013	.266	.002	.286	.002	-	-	-	-
10	Non-family owners' shares	64.778	1.330	20.034	.236	21.863	.239	3.528	.085	92.989	.180
11	Procedure	.00	.00	.003	.000	.003	.000	.003	.000	.005	.000
12	Size	2.883	.023	1.474	.004	1.532	.004	1.416	.004	1.981	.012
13	Year	2013	.071	2013	.015	2013	0.014	2013	.016	2013	.033
	Number of observations	1,038		24,353		25,391		20,187		5,204	

Table 2: Average marginal effects of probit and linear probability models.

	Probit			Linear probability model		
	(1) Total sample	(2) Family firms	(3) Non-family firms	(4) Total sample	(5) Family firms	(6) Non-family firms
Ln(Total assets)$_{t-1}$	.016***	.013***	.027***	.013***	.009***	.022**
	(.003)	(.002)	(.011)	(.002)	(.002)	(.009)
Return on sales$_{t-1}$	−.001**	−.000	−.004**	.0003	.0002	−.004**
	(.000)	(.000)	(.001)	(.000)	(.000)	(.002)
Negative return on sales$_{t-1}$	.014**	.005	.044**	.013**	.007	.025
	(.006)	(.005)	(.023)	(.006)	(.004)	(.018)
Total productivity$_{t-1}$	.065***	.039**	.180**	.011	.002	.117**
	(.019)	(.015)	(.071)	(.016)	(.012)	(.066)
Labor productivity$_{t-1}$	.0002***	.0001*	.0009***	.0002	.0001	.0008***
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Age	.0004***	.0003***	.0006	.0001	.0001	.0001
	(.000)	(.000)	(.000)	(.000)	(.000)	(.001)
With foreign shareholders	.002	.004	.005	.032	.038	.013
	(.007)	(.011)	(.020)	(.023)	(.036)	(.028)
Non-family owned	−.006			−.022		
	(.011)			(.026)		
Non-family owners' shares	.0003***	.0002**	.0007	.0006**	.0009***	.0002
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Procedure	(empty)	(empty)	(empty)	−.050**	−.030*	−.055*
				(.019)	(.016)	(.033)
Size	.021***	.008***	.076***	.061***	.033***	.109***
	(.003)	(.002)	(.016)	(.005)	(.005)	(.015)
Year						
2010	.010***	.004*	.035***	.008**	.004	.033***
	(.003)	(.002)	(.010)	(.006)	(.003)	(.013)
2011	.018***	.009***	.058***	.024***	.013***	.067***
	(.003)	(.002)	(.012)	(.004)	(.004)	(.014)
2012	.010**	.002	.043***	.011**	.001	.051***
	(.004)	(.003)	(.014)	(.004)	(.004)	(.016)
2013	.017***	.007**	.057***	.017***	.005	.068***
	(.004)	(.003)	(.015)	(.005)	(.004)	(.016)
2014	.019***	.009**	.060***	.018***	.005	.070***

	(.004)	(.003)	(.015)	(.004)	(.004)	(.016)
2015	.013***	.007**	.037***	.013***	.004	.048***
	(.003)	(.003)	(.013)	(.004)	(.004)	(.014)
2016	.008**	.004	.025*	.007*	.001	.036**
	(.003)	(.003)	(.013)	(.004)	(.003)	(.015)
2017	.0006	−.002	.012	−.0003	−.006	.020
	(.004)	(.003)	(.015)	(.004)	(.003)	(.015)
Number of observations	25,391	20,187	5,204	25,391	20,187	5,204
Number of companies	4222	3412	810	4222	3412	810
% of CPRP adoption	4.09	2.06	11.95	4.09	2.06	11.95

Standard errors, clustered at the company level, are shown in parentheses. *P-values:* * p <.1; **p<.05; ***p<.001. In Columns 4–6, the presence of an active procedure (which brings closure to the business) perfectly predicts the absence of collective PRP.

Table A: Descriptive statistics for companies not included in the final sample

	Variables	For firms in AIDA not in final sample*		For firms in OSMER not in final sample**	
		Mean	SE	Mean	SE
1	Collective PRP	-	-	-	-
2	Ln(Total assets)$_{t-1}$	5.472	.026	10.324	.076
3	Return on sales$_{t-1}$	1.093	.270	4.215	.293
4	Negative return on sales$_{t-1}$	.038	.001	.196	.013
5	Total productivity$_{t-1}$	-.313	.385	.367	.007
6	Labor productivity$_{t-1}$	13.501	6.617	132.213	18.512
7	Age	15.187	.083	29.362	1.880
8	With foreign shareholders	.0178	.000	.802	.014
9	Non-family owned	.079	.001	.895	.011
10	Non-family owners' shares	5.766	.138	86.971	1.172
11	Procedure	.405	.003	.001	.022
12	Size	3.314	.007	2.912	.035
13	Year	2012	.018	2014	0.068
	Number of observations	2612		766	
	Number of companies	869		174	

* These manufacturing firms are located in the province of Brescia, available in AIDA, but not in our final sample due to statistical outliers and missing values in main variables of the study (i.e., ownership, age).

**Theses firms are either non-manufacturing or non-Brescian firms.

Why do firms adopt collective incentives?
An analysis of family and non-family firms

Abstract

Purpose: By combining structural contingency theory and socioemotional wealth theory, this study aims to identify the organizational determinants of collective performance-related pay (PRP) adoption by examining the interplay between a firm's ownership characteristics (i.e. family or non-family ownership) and other organizational characteristics.

Design/methodology/approach: This study adopts a quantitative approach, conducting empirical analyses of a longitudinal dataset of 4,222 Italian companies in the manufacturing sector for 2009–2017. The probability of adopting collective PRP schemes is estimated using the average marginal effects of the probit and linear probability models.

Findings: The results show that family firms are less likely to adopt collective PRP schemes than non-family firms. Moreover, *ceteris paribus*, firm characteristics such as size, age, and past (firm and labor) productivity are important determinants of firms' adoption of collective incentive pay; however, the significance and magnitude of their effects vary depending on a firm's ownership structure.

Originality/value: This analysis has two major elements of novelty. First, it increases our knowledge of how organizational contingencies differ in family versus non-family contexts regarding pay decisions. Second, it brings new theoretical perspectives to the pay debate by combining structural contingency theory and socioemotional wealth theory, thus developing new and fertile theoretical grounds for advancing our understanding of the pay determinants. To our knowledge, this is one of the first (if any) studies to shed light on collective PRP in family and non-family firms.

Keywords: Pay incentives, Family and non-family firms, Structural contingency theory, Socioemotional wealth theory, Productivity, Italy

Introduction

The literature has long suggested that firms adopt performance-related pay (PRP) schemes because of "flexibility-related motivations" (e.g., to deal with a high variance in profits), "productivity-related motivations" (e.g., to improve labor productivity, or to reduce monitoring costs, see Doucouliagos *et al.*, 2020; Kruse, 1996; Nyberg *et al.,* 2018), and "attraction/retention-related motivations" (i.e. to better manage talented workers with higher human capital; Cruz *et al.*, 2011; Long and Fang, 2015). Practitioners, social partners, policymakers, and industrial relations scholars have increasingly focused on the operation and effects of incentive pay schemes (Chowhan, 2016; Pendleton and Robinson, 2017) to analyze the *outcome* (e.g., Curran and Walsworth, 2014; Dahl and Pierce, 2020; Doucouliagos *et al.*, 2020) and *process* (Miceli and Heneman, 2000). However, despite the importance of incentive pay, little is known about its determinants, and very few studies have explored the relationship between firm characteristics and the decision to adopt a PRP scheme (e.g., Bayo-Moriones *et al.*, 2013; Jones and Pliskin, 1997; Kang and Yanadori, 2011; Long and Fang, 2015; Long and Shields, 2005). Moreover, among the various forms of PRP, the literature has mostly focused on individual incentives (e.g., piece-rate plans and bonuses based on individual performance—see Gerhart and Fang, 2014; Maltarich *et al.*, 2017) or does not distinguish individuals from collective incentives (e.g., Damiani and Ricci, 2014; Damiani *et al.*, 2019; Pompei *et al.*, 2019), whereas collective incentives (e.g., gain-sharing and profit-sharing) are largely under-researched (Nyberg *et al.*, 2018). This is surprising considering that in several European countries, the adoption of collective incentives has increased in recent years (Doucouliagos *et al.*, 2020) and that of individual incentives has decreased (Freeman and Kleiner, 2005).

Accordingly, this study investigates the organizational factors that affect the adoption of collective PRP schemes in family- and non-family owned Italian manufacturing companies. Indeed, the literature suggests that family firms may differ from non-family firms in terms of the management of employee relations, as family firms tend to pursue goals (i.e. emotional, social, and affective) that managers in non-family businesses may consider trivial (Gomez-Mejia *et al.*, 2007). Professional management in family firms relies on personal and less formal procedures, centralized decision-making processes, and higher levels of internal capabilities and resources (Daily and Dollinger, 1992). Additionally, within family firms, the allocation of strategic decision-making power is clearer than in non-family contexts (Fernández and Nieto, 2006), and the high level of informality in management procedures allows for more interactions and better organization of activities, making the implementation of strategies (such as pay

policies) easier (Moreno-Menéndez and Casillas, 2021). Therefore, consistent with the literature, our study contributes to research on the determinants of PRP by distinguishing between family and non-family firms and analyzing how the influence of age, size, and past productivity on a firm's decision to adopt collective PRP schemes varies depending on the ownership structure (i.e. family- or non-family-owned) of the company.

To this end, we used a panel dataset of Italian manufacturing firms from 2009 to 2017 combining financial statements from Bureau van Dijk AIDA and information on the collective agreements signed by the same companies available from the Observatory on the Labor Market and Industrial Relations in Italy (OSMER, http://osmer.org/). Italy is the fourth country in Europe in terms of the prevalence of incentive pay (following Finland, Sweden, and France) and exhibits both a high incidence of and a significant increase in the diffusion of incentive schemes (Bryson *et al.*, 2012). These features are largely explained by the fact that Italy benefits from a strong industrial relations system that favors the adoption of collective PRP more than individual PRP (Casnici *et al.*, 2020; Della Torre, 2019).

This study contributes to the literature on compensation in several ways. First, existing research has shown that the diffusion of group-based profit-sharing and gain-sharing schemes (i.e. collective PRP) has risen, whereas traditional piece-rate payments are declining (Doucouliagos *et al.*, 2020; Freeman and Kleiner, 2005). By focusing on the factors driving the adoption of collective PRP, this study enhances our understanding of these trends, as emphasized by recent calls for studying the conditions and contingencies that affect the adoption of this form of PRP (Nyberg *et al.,* 2018). Second, considering the relevance of family firms in several European countries, including Italy, this study increases our knowledge of how organizational contingencies differ in these contexts compared to non-family contexts regarding pay decisions. It also opens new theoretical perspectives on the pay debate by combining structural contingency theory (Donaldson, 2001) and socioemotional wealth theory (Gomez-Mejia *et al.*, 2007), thus developing fertile theoretical ground for advancing our understanding of pay determinants in family firms compared to non-family firms. Third, the adoption of a PRP system is often incentivized as part of the growth and development of public policies. Therefore, it is essential for policymakers to understand which firms adopt (or do not) collective PRP schemes to improve the design of their public programs. The findings of this study provide insights into the Italian government's initiative to introduce fiscal incentives for the adoption of PRP schemes to support the growth and competitiveness of the Italian economy (Eurofound, 2014).

Theoretical framework

Structural contingency theory argues that there is no one best way of organizing, as the "choice" and "effectiveness" of a given organizational structure depend on the fit among the environment, the organization, and its strategy (Donaldson, 2001). The theory has expanded in several areas beyond research on organizational structure into a growing body of compensation research that explains the determinants of incentive pay systems from a contingency perspective (e.g., Balkin and Gomez-Mejia, 1987; Bayo-Moriones *et al.*, 2013; Long and Fang, 2015; Miceli and Heneman, 2000). This approach assumes that "congruence" or "fit" drives managers' (compensation) decisions. The notion of "fit" in this perspective refers to the *internal fit* among human resource (HR) policies or practices across areas (e.g., between compensation and job design; Kepes and Delery, 2007), and the *external fit* among HR practices and organizational characteristics, business strategy, or institutional demands (Donaldson, 2001; Miceli and Heneman, 2000).

Concerning internal fit, contingency theory posits that coherence in the configuration of individual human resource practices (e.g., incentive pay) in an organization depends on HR practices already in place. Concerning external fit, the theory proposes that the adoption of human resource practices in an organization depends on contingencies, such as institutional demands, business strategy (e.g., cost efficiency or differentiation), and other organizational characteristics (such as performance, size, ownership, age, and unionization; see Bayo-Moriones *et al.*, 2013; Long and Shields, 2005; Miceli and Heneman, 2000; Papadakis *et al.*, 1998). Kang and Yanadori (2011) offer insights into three institutional factors that explain managers' adoption of PRP schemes (see also Scott, 1995). The *regulative* factors are related to the pressure exerted on firms by governments in highly regulated industries, either in the form of legal mandates or incentives. In Italy, despite the absence of coercive measures, in 2013 the government introduced fiscal incentives for the adoption of collective PRP. The second factor is related to *normative* factors operating when firms (ought to) adopt collective PRP to conform to prevailing practices and gain legitimacy, even without an accurate evaluation of the consequences of their adoption in their specific context (Peng, 2004). The last is related to *cognitive* factors, operating when managers (want to) adopt collective PRP to soften the positions of unions in a repeated bargaining setting. In such a scenario, managers conforming to unions' demands can yield significant benefits such as increased legitimacy, survival, and bargaining capabilities, and reduce conflicts within the organization. In addition to these institutional factors, external fit also refers to the characteristics of the external

environment, including the dynamism and competitiveness that characterize the market in which an organization operates (Miceli and Heneman, 2000).

Given our aim to better understand the differences between family and non-family firms in terms of determinants of collective incentives, in the following sections, we elaborate on this theoretical reasoning by combining arguments from the socioemotional wealth (SEW) theory. Indeed, SEW suggests that family managers make decisions that are not only driven by economic considerations but also by the aim of preserving the stock of affect-related values that they derive from their family firm (Chua *et al.*, 2015; Gomez-Mejia *et al.*, 2007, 2011). According to the SEW theory, family firms behave differently from non-family firms. Though non-economic goals could be present in non-family firms, they are especially important in family firms, and such preferences for non-financial objectives (or affective endowments) may influence human resource practices, such as incentive pay. The preservation of SEW dimensions such as family control and influence, identification of family members with the firm, long-term and binding social ties, emotional attachment, firm reputation, and the continuity of the family dynasty (Berrone *et al.*, 2012), may therefore help to explain the differences in the determinants of the adoption of collective PRP between family and non-family firms.

Family and non-family firms

Compensation decisions are influenced by the ownership structure of a company (Kang, 1996; Pendleton *et al.*, 2017), particularly in family businesses in which owners have a large equity share (Zahra, 2003). The two primary dimensions of ownership structure are the identity of the owners and the level of ownership (Thomsen and Pedersen, 2000). Identity (institutional investors, firms, banks, families, etc.) has implications for goal setting, time horizons, and attitudes toward risk; level of ownership, on the other hand, affects the intensity of the owner's decision-making power. However, the direction of this effect remains unclear. According to contingency theory, there is no "best" firm ownership structure, not all ownership structures are equally effective, and the influence of different ownership structures on a firm's decisions varies according to industry characteristics (Kang, 1996). The SEW theory may help solve this ambiguity and understand how family firms make pay decisions compared to non-family firms. According to SEW, family firms with the desire to protect family social capital have longer-term horizons and reputation concerns and implement a compensation package that offers lower pay but high job security compared to non-family firms (Bassanini *et al.,* 2013; Damiani *et al.*, 2019). In contrast, non-family firms often rely on efficiency wage strategies based on

compensation packages that include collective incentives (i.e. profit-sharing) as a means to pay above-market wages (Gerhart, *et al.*, 2009; Long and Fang, 2015). In terms of internal fit, this is also due to different recruitment logics of family and non-family firms. Indeed, in non-family firms, higher wages represent one of the main means of attracting and retaining talented, high-performing employees (Long and Fang, 2015), whereas in family firms, the attraction and retention strategies are largely based on non-economic factors (Cruz *et al.*, 2011). In addition, family firms are often smaller and have fewer resources than non-family firms in develop the internal competencies necessary to design reward systems such as incentive pay. As noted by Cruz *et al.* (2011), the high-level technical competencies needed to implement incentive systems are often not affordable for family firms. Aldrich and Langton (1998) consistently found a negative relationship between the number of family members who work in a firm and the use of formal HR practices. Based on these arguments, we expect family firms to have a lower propensity to adopt collective PRP than non-family firms do.

> *H1: Ownership structure is related to the adoption of collective PRP, so that family firms are less likely to adopt collective incentives than non-family firms.*

Firm size

Firm size is a key contingency variable that may facilitate or constrain decisions on PRP adoption (Balkin and Gomez-Mejia, 1987; Zona *et al.*, 2013). Adopting the lens of contingency theory, one may expect that incentive pay choice is facilitated in smaller firms by a range of internal (e.g., less complexity in the job evaluation process) and external (e.g., a more entrepreneurial organizational culture) factors (Balkin and Gomez-Mejia, 1987; Ettlie, 1983; Wang *et al.*, 2018). However, by analyzing the characteristics of the Italian context, large firms are under greater pressure to improve or maintain their legitimacy (Volberda *et al.,* 2012) by demonstrating their conformity to and support of unions, which traditionally prefer collective PRP to other forms of incentive pay. Moreover, in the specific case of the data used in this study, to benefit from the fiscal incentives introduced in 2013 by the Italian government for the adoption of collective PRP schemes, firms must adopt schemes in agreement with company union representatives who are more likely to be present in large rather than small firms. Existing studies also claim that larger firms may be more inclined to adopt performance pay schemes as "it is more likely that they will have access to the resources to design and maintain such plans" (Long and Shields, 2005, p. 1788). Additionally, Brown (1990) and Bayo-Moriones *et al.* (2013) argue that as the incidence of fixed costs of PRP system development

and administration decreases with the number of employees, the likelihood of implementing such systems increases with the size of the establishment.

On the empirical side, research investigating the link between firm size and collective PRP has reached inconclusive findings (e.g., Bayo-Moriones *et al.*, 2013; Long and Shields, 2005). The distinction between family and non-family firms may help to explain this inconclusiveness. Some of the literature suggests that as a firm expands in size, it would introduce more formalized procedures and professional structures (task divisions, non-family management, less nepotism, more formal routines, etc.) (Dekker *et al.*, 2013; Kim and Gao, 2010), thus leading to the similarity in decision-making between large family and non-family firms (Andersson et al., 2018). This may often occur through a process of replication of organizational practices adopted by non-family firms by family firms (Chang *et al.*, 2022), potentially leading to a high diffusion of collective PRP among family firms.

In contrast, the second strand of literature grounded in the SEW theory suggests that larger family businesses are different from non-family businesses in terms of professionalizing the family business (i.e. separation of ownership and control, Chua *et al.*, 2009; Dyer, 2006), defining company boundaries (i.e. bounded reliability, Verbeke and Kano, 2010), building stocks of socio-emotional endowments (Gomez-Mejia *et al*., 2011), and seeking conformance to institutional domains (e.g., Peng *et al.*, 2018). Professionalized family firms (i.e. those that delegate more authority to non-family employees) are more prone to face new challenges related to performance appraisal and compensation systems. For instance, in large family businesses, unequal treatment of family and non-family employees develops bounded reliability challenges, leading to lower economic outcomes (Chua *et al.*, 2009; Verbeke and Kano, 2010) and therefore fewer resources to dedicate to collective incentives. It has also been noted that, in comparison to non-family firms, family firms are more able to grow employees but less in sales (Moreno-Menéndez and Casillas, 2021). This, in turn, may result in a decrease in efficiency and productivity compared with non-family businesses, which can make them less prone to adopt collective incentives. In contrast, as noted by Damiani *et al.* (2019), professional managers of larger and well-organized non-family firms often follow unions' requests and specific trends of industrial relations, including incentive pay systems, regardless of revenue trends and fluctuations. Finally, the focus of family firms on preserving family interests may result in conservatism, thus missing out on potentially risky opportunities that may endanger family control (Gomez-Mejia *et al.*, 2010), such as collective incentives. Taken together, these arguments suggest that the likelihood of large family firms adopting collective

schemes is lower than that for non-family firms. Building on these premises, we formally hypothesize the following.

> *H2: Firm size (a) is positively related to the adoption of collective PRP and (b) the magnitude of this relationship is weaker in family firms than in non-family firms.*

Firm age

Firm age is another factor that may drive decisions on PRP choices (Balkin and Gomez-Mejia, 1987; Bayo-Moriones *et al.*, 2013; Budhwar and Khatri, 2001; Carrasco-Hernandez and Sánchez-Marín, 2007). Contingency theory suggests that incentive pay choices are facilitated in firms in the growth stage. Cowling (2006) suggests that younger businesses are more likely to be concerned with *survival* than *growth* if they do not fail within the first few years of start-up. Gupta and Govindarajan (1984) posit that firms in the growth stage are more willing to take risks and have higher tolerance for uncertainty. These firms are more prone to recruit younger, more risk-taking employees, and to pay them based on an incentive system rather than fixed salary and benefits (Ettlie, 1983). Adopting PRP schemes allows them to transfer some of their fixed expenses to a variable cost that will be paid when firms are in the best financial position.

This may also hold for (aged) family firms with a growth orientation (Memili *et al.*, 2013), where age is often strictly related to generational involvement and the participation of family. This has an impact on the firm's resource and capability development, as well as how SEW influences decision-making processes (Moreno-Menéndez and Casillas, 2021). When family businesses evolve and develop across generations, their business systems become more complex and certain characteristics such as "familiness" or socioemotional wealth are weakened (Gomez-Mejia *et al.*, 2011; Sciascia *et al.*, 2014). In other words, the focus on preserving the family's SEW diminishes as the firm moves through generations and economic considerations become a more important frame of reference. At later generational stages, identification with the firm, as well as binding social ties and emotional attachment of family members, is likely to be low or negligible as family branches emerge and family firms pass through subsequent generations (Ensley and Pearson, 2005; for a review, see Sciascia *et al.*, 2014).

Prior studies suggest that, in aged family firms, identification with the firm is likely to wane as family branches with different needs and agendas emerge, resulting in weakened

family ties (Ensley and Pearson, 2005; Le Breton-Miller and Miller, 2013). Typically, family branches (i.e. active or passive family members) show differences in commitment and interest in dividend payments (Lubatkin *et al.*, 2005) leading aged family firms to pay more attention to financial (including compensation) than non-financial indicators. Moreover, when older family firms are less concerned about preserving SEW and more concerned with financial results, they are also likely to increase their risk propensity (Arrondo-García *et al.*, 2016) and interest in risk-sharing practices such as collective PRP. Accordingly, the more economic and financial goals dominate decision making, the higher the utility that family firms can perceive from adopting collective PRP plans (such as profit-sharing), thus making such plans more attractive and more likely to be implemented. Lastly, older family firms have more specific knowledge and less dominant conservative strategies, which in turn may enhance firm performance (Block *et al*., 2011; Miralles-Marcelo *et al*., 2014) thus facilitating the adoption of collective incentives. Based on these arguments, we predict the following:

> *H3: Firm age (a) is positively related to the adoption of collective PRP and (b) the magnitude of this relationship is stronger in family firms than in non-family firms.*

Firm and labor productivity

Prior studies suggest that the "ability to pay" is a function of the productivity of the organization (Miceli and Heneman, 2000) and firm productivity influences employees' compensation (Chowdhury and Schulz, 2022; Riley and Rosazza Bondibene, 2017), so that PRP schemes are mainly adopted in firms with higher firm performance and greater ability to pay (Damiani and Ricci, 2014). According to the external fit perspective of contingency theory, a positive relationship between past productivity and the adoption of collective PRP can be predicted. First, an establishment with higher productivity is more profitable and has a better financial performance. Thus, managers may want to adopt collective PRP to gain legitimacy from their unions and external stakeholders. Second, to distribute gains and maintain equity across employees, managers should link performance to rewards across performance levels; that is, the higher past firm productivity, the more likely the establishment is to adopt collective PRP. Third, managers may adopt collective PRP schemes to continue productivity improvements or consolidate their good performance.

From a managerial perspective, the use of PRP mechanisms can be explained by the fact that firm productivity is a shared responsibility that is extremely sensitive to changes in all

employees' efforts. Therefore, managers may use collective PRP plans as a strategy to align employee behavior with organizational objectives and retain the workforce that achieves past productivity growth (Prince *et al.*, 2016). One may argue that these arguments also hold for firms with lower levels of productivity that may want to adopt collective PRP schemes because of their need to improve their performance. However, in low-performing firms, the initiative to adopt PRP schemes may encounter resistance from employees and unions, who may perceive the incentives as attempts by the company to save costs by transferring economic risk to the workforce (Freeman *et al.*, 2010).

We believe that this could be particularly critical for family firms because of their greater need to preserve their internal and external social legitimacy. As noted by Werner et al. (2005), compensation in family firms is more sensitive to changes in performance for all employees than in non-family firms. Indeed, the SEW theory also integrates the ideas discussed within the stewardship and stakeholder theories and states that family managers and family members seek to benefit all stakeholders and act primarily as stewards of their employees to protect SEW. In other words, the greater importance attached to family centered and non-economic goals may lead family firms to be less prone than non-family firms to introduce collective PRP when the firm's performance is low because of the associated risks of reducing their socioemotional wealth (and external legitimation) in those situations. On the contrary, more productive family firms that have more capital resources and interest in family social capital may adopt collective PRP schemes as a caring-oriented policy to address lower pay levels and consolidate productivity gains. Furthermore, family firms are more subjected to agency problems, such as adverse selection problems, nepotism, hiring from a limited talent pool, and moral hazard (Chrisman *et al*., 2017; Damiani *et al*., 2019; Neckebrouck *et al*., 2018). These alternative sources of labor inefficiency (Chrisman *et al*., 2017; for a review see: Creemers *et al*., 2022) may encourage family firms with more "ability to pay" (i.e. with higher past productivity) to adopt collective incentives to consolidate higher past productivity levels, address agency problems and better align employees' interest with the company compared to non-family firms. Considering these arguments, we propose the following:

> *H4: (a) Past firm and labor productivity are positively associated with the adoption of collective PRP, so that firms with higher productivity (at time t-1) are more likely to use collective incentives schemes (at time t); and (b) the magnitude of this relationship is stronger in family firms than in non-family firms.*

Research context and data description

This study was conducted in manufacturing firms in the Italian province of Brescia. With an industrial gross value added (GVA) of approximately 12 billion euros in 2017 (Eurostat, 2020), Brescia is the second most valuable province in Lombardy, third in Italy, and one of the top five super-specialized provinces in manufacturing in Europe. The manufacturing GVA of Brescia alone corresponds to the sum of the GVA of Latvia, Estonia, and Bulgaria (Eurostat, 2020). Therefore, studying the determinants of PRP scheme adoption by manufacturing companies in this province provides insights that are potentially relevant in a much wider context.

To test the hypotheses formulated above, we built a database that combined two sources of information. First, we exploit the financial statements available in the AIDA (*Analisi Informatizzata Delle Aziende*) database by Bureau Van Dijk, which is the Italian subset of the Orbis/Amadeus database, collecting information on 'all Italian companies' that are required to file their accounts. The AIDA database accounts for more than 2.3 million limited companies and cooperatives as of May 2022 and has been widely used in other Italian studies on incentive pay (e.g., Damiani and Ricci, 2014; Damiani *et al.*, 2019; Pompei *et al.*, 2019).

For this study, we focus on 4,222 companies operating in the manufacturing sector in 2009–2017, with a registered office/trading address in the province of Brescia. We combined the resulting longitudinal dataset with information from the Italian Labor Market and Collective Relations Observatory (OSMER). The OSMER manages a database of over 2,400 company-level collective agreements (from more than 800 firms at the time of writing) signed in 2008 in the manufacturing sector, predominantly in the Lombardy region and the province of Brescia. However, the dataset also includes contracts from the non-manufacturing sector and other northern Italian regions.

To access the fiscal incentives introduced by the government, decentralized collective bargaining agreements must be signed by the employer, the representative employees' organization(s), and filed with the provincial employment agency (*Direzione Territoriale del Lavoro Brescia* or DTL). If the establishment has no internal union representative, by Ministry of Labor Ruling no. 8/2013, provincial social partners are required to confirm the agreement. Owing to the joint venture among DTLs, social partners, and OSMER, we are confident that our data provide a fully reliable picture and that all firms adopting collective incentives in the province of Brescia are available in our OSMER dataset.

The OSMER and AIDA records were deterministically linked via the companies' unique fiscal codes. To remove outliers, we used both quantitative and qualitative outlier identification strategies, as suggested in earlier studies (Aguinis *et al.*, 2013). Once we defined the estimation sample, we considered a leverage of 99% and excluded observations with large residuals, accounting for 2% of the total sample, resulting in a final sample of 4,222 firms operating in the manufacturing sector in the period 2009–2017. Among these, 527 signed a supplementary company-specific contract and, in 466 cases, the agreement included the adoption of collective PRP. Table A in the Appendix reports the descriptive statistics of the companies included in the AIDA or OSMER but excluded from our final sample.

Variables definition

The adoption of *collective PRP* is measured by a binary variable taking a value of 1 at time *t* if the company's remuneration package includes tax-exempted productivity-enhancing bonuses or profit-sharing schemes and zero otherwise. The use of dummy variables to capture the presence of different forms of PRP is common in compensation literature (e.g., Curran and Walsworth, 2014; De Spiegelaere *et al.,* 2018).

To identify *non-family-owned* companies, we first calculated the average number of employees during the study period (2009–2017). Second, we applied differentiated thresholds of non-family ownership shares for small (i.e. with less than 50 employees) and medium and large companies (i.e. with more than 50 employees); for small companies, the threshold is 50%, and for medium and large companies, it equals 80% (Zellweger, 2017). Finally, we constructed our non-family variable as (1 if the company is a non-family firm and 0 otherwise). To control for the weight of non-family shareholders, we also consider the variable *non-family owners' shares*, which is defined as the sum of the shares of all non-family shareholders.

Firm *age* was measured as the number of years elapsed since the year of incorporation. To measure firm *size,* we used a scale ranging from 1 to 4 (1: <15 employees, 2: 15–49 employees, 3: 50–249, and 4: ≥ 250). We also control for firm size using the natural logarithm of the book value of a firm's total assets (*total assets*). By doing so, we do not depart from the standards of the previous empirical literature (e.g., Kim *et al.,* 2013).

As productivity measures, we consider the ratio between the value-added and the number of employees (value-added per employee) as an index of *labor productivity*, and the ratio of the value-added to total production costs (value-added over total cost) as an index of *total productivity*. Our productivity measures provide a comprehensive representation of the overall value of production, and have been widely used in similar studies (e.g., Della Torre *et al.,*

2018). We also control for a company's profitability, measured by the return on sales index (*ROS*).

Research also suggests that foreign ownership is positively related to the use of incentive pay and that pay–performance sensitivity is higher in foreign-owned firms and in firms affiliated with a multinational group than among domestic firms (Barth *et al.*, 2008). Therefore, our models also include *foreign ownership* as a control variable, measured as a dummy variable (1 = at least one shareholder is not Italian; 0 = all shareholders are Italian). Finally, as the adoption of a collective PRP scheme considered in this context is potentially in contrast to a situation of deep financial insecurity and high risk of bankruptcy, we also include a dummy variable *procedure* that equals 1 starting from the year any of the following procedures begins (and 0 before): preliminary closure, closure, merging, and transfer.

Analyses and results

Descriptive statistics and preliminary evidence

Table 1 presents descriptive statistics for our sample made of 4,222 distinct companies each observed on average 6.01 times from 2008 to 2017 for a total of 25,391 observations. On average, 4.1% of the observations refer to establishments with active *collective PRP* (2.06% of family firms and 11.95% of non-family firms). This finding is comparable with estimations from other sources (i.e. Eurofound, 2019) suggesting that only 3% of Italian firms fully implement variable extra pay linked to the results of the team, working group, or department for their employees. For the profit-sharing scheme, this estimation is approximately 7% (Eurofound, 2019).

Table 1 about here

To preliminarily investigate the relationship between the adoption of collective PRP and size, age, and labor/firm productivity in family and non-family firms, we use the univariate non-parametric regression analyses shown in Figure 1. In each panel, we use a second-order local polynomial smoother to estimate the probability (and its 95% confidence interval) of the company having a *collective PRP* as a function of *size*, *age*, *labor productivity and total productivity*. For non-family firms, the results confirm a positive relationship between the likelihood of adopting collective PRP and the size (total assets and number of employees) of the company and its labor productivity. For total productivity, the likelihood of having

collective PRP is almost constant (approximately 4%) up to the 75th percentile of the total productivity distribution, at about 0.4; above this value, the relationship is clearly negative. Consistently, for ages up to the 95th percentile of the total age distribution, there is a positive relationship, but above this value the relationship is clearly negative. For family firms, the results confirm the positive relationship between the likelihood of adopting collective PRP and the size (total assets and number of employees) of the company and its age. For labor productivity, a positive relationship exists up to the 95th percentile of the total productivity distribution and above, which starts to decline. For total productivity instead, there is no clear relation between the adoption of collective incentives and the past value of total productivity.

Figure 1 about here

Multiple regression analysis

Given the available data, we focus on estimating the probability that, given the observable characteristics of a company at time $t-1$, the company currently has an active collective PRP scheme. Specifically, we consider the following index model:

$$\Pr\left(y_{it}=1 \mid X_{it-1}, Z_i, T_t\right) = G\left(X'_{it-1}\beta + Z'_i\gamma + T'_t\delta\right)$$

where y_{it} is our *collective PRP* variable, which equals 1 if company i at time t has an active collective PRP and 0 otherwise; X_{it-1} is a vector of observable time-variant characteristics of company i measured in the previous year ($t-1$); Z_i is a vector of time-invariant features of company i; T_t is a set of time dummies; β, γ, and δ are vectors of parameters to be estimated; and $0 < G(.) < 1$ denotes the cumulative distribution function of the standardized normal random variable. To alleviate the possible bias of the estimates due to the correlation between the covariates and the error terms, we used the lagged value of *X*s and estimated the parameters via pseudo-maximum likelihood. Thus, our results rely on the assumptions that past values of *Xs* (e.g., past productivity) are not affected by the current shock determining the adoption of *collective PRP* and that if there is any unobservable company-specific time-invariant latent component affecting the adoption of *collective PRP*, such components are uncorrelated with any of the covariates.

Table 2 reports the average marginal effects computed based on the pseudo-maximum likelihood estimates of the parameters of the probit model above, and their associated standard errors, clustered at the company level.

Table 2 about here

The multiple regression analysis confirmed most of the preliminary evidence in the previous section. In terms of the main effects of the ownership structure of the company, the results show that, *ceteris paribus*, the weight of non-family owners has a positive impact on the probability of collective PRP. In fact, the average marginal effect of the variable *non-family owners' shares* is positive (with a *p*-value < 5%); that is, the lower the family's control over the company, the higher the probability of adopting *collective PRP*. Therefore, H1 is supported.

The results also indicate that firm *size* measured by the number of employees and total assets is positively and significantly related to the adoption of *collective PRP* in both family and non-family firms. In particular, a 1% increase in the value of total assets is associated with a 1.6 percentage point (pp.) increase in the probability (1.3 pp. for family firms and 2.7 pp. for non-family firms, respectively; see the average marginal effect of *total assets*$_{t-1}$ in Column 1), and all the average effects related to the number of employees are positive and increase with size (thus, H2a is supported). To appreciate the relevance of these effects, remind that the average probability of a company having active *collective PRP* is 4.09%.

Age also has a positive (and statistically significant) marginal effect. This result suggests that firm age is positively related to the adoption of collective PRP; however, once the company's size is controlled for, the effect of an additional year of operations increases the probability of having *collective PRP* by only .04 pp (.03 pp. for family firms and .06 pp. for non-family firms); thus, H3a is supported.

Multiple regression analysis also clarifies evidence in favor of higher past productivity levels. Indeed, both past *total* and *labor productivity* have positive (and statistically significant) average marginal effects on the probability of adopting *collective PRP*. An increase of 10 pp. of *total productivity* measures increases the probability of *collective PRP* by 0.65 pp. (0.39 pp. for family firms and 1.8 pp. for non-family firms), whereas an additional 1,000 euros per employee of *labor productivity* is associated, *ceteris paribus,* with an increase of 0.2 pp. (0.1 pp. for family firms and 0.9 pp. for non-family firms); thus, H4a is supported.

To validate H2b, H3b, and H4b, we conduct a multi-group analysis to test the equality of the coefficients of size, age, and past productivity in family and non-family firms. We first estimate the size of each relationship, followed by a series of chi-square difference tests to assess the differences in the slope parameters for family and non-family firms (Satorra and Bentler, 2001). The analysis shows that the positive relationship between size and the adoption

of collective PRP is significantly stronger in non-family firms than in family firms (for total assets: $\Delta\chi^2 = 3.42$, $p = 0.05$; for number of employees: $\Delta\chi^2 = 4.38$, $p = 0.03$). Therefore, H2b is supported. The results also show that the relationship between age and collective PRP adoption is significantly stronger in family firms than in non-family firms ($\Delta\chi^2 = 4.11$, $p = 0.04$), supporting H3b. Concerning past firms and labor productivity, the coefficients are not significantly different between family and non-family firms ($\Delta\chi^2 = 0.58$, $p = 0.447$ and $\Delta\chi^2 = 0.001$, $p = 0.959$, respectively). Therefore, H4b is not supported.

Robustness tests

We considered two alternative sets of estimates to check the robustness of our results. First, our preliminary analysis indicates that the probability of observing a collective PRP for a micro-enterprise is almost negligible. For these companies, organizational barriers, the absence of unions, and informal management of human resources may make the use of collective PRP unattractive. It could make sense to focus on companies for which collective PRP is a viable option. Therefore, we restrict our estimation sample to enterprises with at least 15 workers, excluding micro-enterprises. This drastically reduced the number of companies but qualitatively confirmed all the results for both family and non-family firms. Second, we changed the specification of our model and used a linear probability model (LPM). With respect to the probit model, the LPM is robust to the misspecification of distributional assumptions but imposes homogeneity in the marginal effects. Columns 4 to 6 of Table 2 show the average marginal effects of the OLS estimates for the total, family, and non-family samples considered for the probit model. Again, the results obtained using the probit model were qualitatively confirmed.

Finally, we examined whether firm characteristics differ between firms included and not included in our final estimation sample (see Table A) by comparing the means of the variables used in the regression analysis. The main reason for excluding companies from the estimation sample was the lack of information on some key variables for our analysis, such as the nature of the ownership and the age of the company. The estimation sample covers 82.9% of the companies that have been active during the 10 years considered. Among the excluded firms, 40.5% experienced the start of the bankruptcy process, which often results in the closure of the business. According to the available data and consistent with previous observation, the excluded companies have productivities and returns on sales that are remarkably lower than those of the companies in the estimation sample. Given their characteristics and the economic difficulties they face, the excluded companies can hardly consider the signing of a PRP contract

a real option. Consequently, we can prudently generalize our findings to all the companies that are not struggling to survive.

Discussion and implications

The present research contributes to the compensation and family business literature in several ways.

First, our findings show that a higher weight of family shareholders reduces the probability of adopting a collective PRP, which is consistent with the SEW theory arguing that in family firms, managers pay more attention to relational contracts, intrinsic incentives, and relationships rather than "the economic value created by transaction" (Gomez-Mejia *et al.*, 2001, p. 82). In turn, these characteristics affect managerial decisions regarding compensation policies. Interestingly, our findings also show that the influence of such family–firm characteristics is independent of firm size. While we find a positive relationship between firm size and the adoption of collective PRP, this relationship is weaker in family firms than in non-family firms. These results suggest that while HR departments and union representatives of larger firms generally have easier access to the resources necessary to design and implement these collective PRP schemes (consistent with the external fit predictions of contingency theory), the specific characteristics of family firms related to SEW persist and influence decisions, even when the firm grows and expands. Importantly, the literature shows that family firms that adopt incentives, such as PRP, obtain greater gains in competitiveness (Damiani *et al.*, 2019), commitment, and motivation from their employees (Pompei *et al.*, 2019). Therefore, the adoption of collective PRP may be considered an untapped opportunity for managers in family firms (even large ones) that should be addressed. On this point, external shareholders may bring extra resources and competencies to the family businesses to overcome those obstacles such as family "control" and "influence" (Berrone *et al.*, 2012) that make family firms less prone to adopt collective incentives.

Second, our findings also show that the years of operation of the firm (age) positively affect the adoption of collective PRP, and that this relationship is stronger in family firms than in non-family firms. This may be surprising given the opposite finding related to firm size. However, size and age are not necessarily related; in particular, in family firms, ownership may strategically decide to contain growth (in terms of the number of employees) to preserve the governability and flexibility typical of small organizational contexts. However, in all cases, incorporation age is related to ownership succession, and in the case of family firms, this typically implies generational succession. Therefore, the stronger effect of age on the adoption

of collective PRP in family firms supports our argument that family dynasties resulting from firm age reduce family control and socioemotional wealth (Sciascia *et al.*, 2014), while outweighing economic goals (rather than the family's non-economic goals), thus favoring an increase in the adoption of collective incentives in family firms.

Third, we found that past firm/labor productivity induces the adoption of collective PRP mechanisms, independent of ownership structure, and is consistent with the external fit prediction of the contingency perspective. In low-performing firms, PRP adoption is reduced because employees and unions may perceive the initiative as a cost-saving strategy to shift the economic risks of incentives to workers. Contrariwise, as firm performance improves, employees and unions typically negotiate a redistribution of gains, as managers have larger budgets for compensation schemes that can be shared via collective PRP schemes to foster good performance. Correspondingly, companies in better financial shape are more likely to share rents with unions to gain social legitimacy and maintain equity across employees. This view is consistent with earlier findings suggesting that PRP schemes are mainly adopted by firms with a higher ability to pay and better firm performance (Damiani and Ricci, 2014). Further, managers may also use collective PRP as a strategy to retain the most productive employees, who have contributed to past growth in firm productivity.

Overall, our results suggest that despite the potential benefits of collective PRP, younger and smaller firms with lower (past) productivity levels are less likely to exploit collective PRP plans, especially if they have family ownership. Future studies could consider other contingencies that may affect collective PRP diffusion, such as the alignment of collective PRP schemes with other HR practices or the key aspects of company strategy. Next, as the peculiarities of the reward mechanisms play a key role in their effectiveness, useful insights would be provided by studies investigating not only the mere presence of collective PRP schemes but also how internal and external contingencies affect their design. We believe that our study demonstrates how a "contingency approach" might be an appropriate perspective for integrating different complementary theories on incentive pay. Therefore, theoretical explanations being considered in competition may be examined by reference to third contingency variables (i.e. different contexts), whereby a given theory may better explain the observed effect.

Beyond these theoretical contributions, our study has several implications for HR managers in family firms and policymakers. First, because family firms are less likely to adopt collective incentives than non-family firms, HR managers should paint a clear picture of the benefits of collective incentives for family owners and CEOs. Indeed, research shows that

collective incentives are a key factor in attracting and retaining a talented workforce (Cruz *et al.*, 2011; Long and Fang, 2015), which is a crucial component of firm competitiveness.

Second, and relatedly, when HR managers articulate collective incentive benefits for family owners, they should consider both economic and non-economic benefits and determine the right balance between extrinsic (i.e. collective incentives) and intrinsic (i.e. SEW) motivational factors. This holds for family firms of all sizes, particularly younger ones, as they appear less likely to adopt collective incentives.

Third, this study offers new insights for policymakers interested in designing public policies to promote the diffusion of collective incentives. Our findings suggest that family firms should be supported and incentivized to adopt more advanced and competitive compensation systems. This seems particularly relevant in Italy, which is characterized by the prevalence of small family firms in the economy.

Limitations

This study has several limitations that should be considered when interpreting our results. First, despite the robustness checks conducted in this study, the reverse causality and potential endogeneity problem of the PRP system remains an important issue (Damiani *et al.*, 2019). Future studies should put additional effort into accounting for endogenous variables that may influence determinants of the adoption of collective incentives in different types of family firms (e.g., managed by the founder, family CEO, or non-family CEO, dual shares).

Second, in our analysis, it is unclear which emotional dimensions of SEW may inhibit or foster the adoption of collective incentives. Future research may investigate the mechanisms underlying the mediation between internal and external contingencies and the adoption of incentive policies.

Third and relatedly, in this study, we use ownership structure as a proxy of SEW to explain our hypotheses. However, there is a high degree of inconsistency in the conceptualization and operationalization of SEW dimensions (Berrone *et al.*, 2012). Future studies could use psychometric instruments to grasp the SEW construct (Damiani *et al.*, 2019; Pompei *et al.*, 2019). For instance, they may conduct new surveys to identify the key drivers of non-economic goals such as altruism, justice, fairness, and generosity (Berrone *et al.*, 2012).

Fourth, this study lacks detailed information on the different types of collective PRP schemes. While we focus on productivity-enhancing bonuses and profit-sharing schemes as two common forms of collective incentives, future studies could examine the validity of our

findings for other types of collective incentives, such as top management team PRP, broad-based stock options, employee stock ownership plan (ESOP), gain-sharing, and team PRP (Nyberg *et al*., 2018).

Finally, our data are from a single province and industry, which despite its importance, may not be representative of other sectoral, institutional, and normative frameworks. Future studies could therefore adopt more representative samples and verify whether and how our findings vary depending on specific contextual factors.

Conclusion

This study makes several contributions to the literature on incentive adoption, and more precisely on the characteristics of employers using collective PRP schemes in the context of family and non-family firms. The theory identifies several factors related to collective PRP adoption: ownership, size, age, and past performance (firm/labor productivity). However, the existing empirical results are inconclusive. We argue that although firm characteristics have a high impact on collective PRP adoption, the effect (and its magnitude) varies depending on the ownership structure. Indeed, our results revealed that the specific characteristics of a given context may act as a barrier to the adoption of PRP, something policymakers should consider. For instance, in Italy, structural conditions and the fragmentation of the economy into small family firms (accounting for more than 85% of the total number of businesses and approximately 70% of employment) are structural weaknesses that affect the adoption of collective PRP schemes (Damiani and Ricci, 2014). Small businesses lack resources and the necessary experience to adopt collective PRP. Conversely in large firms, better performance and economies of scale decrease implementation costs of PRP adoption. Therefore, government initiatives that favor firm growth (i.e. R&D investment in small firms), greater fiscal exemptions linked to enterprise results, and profitability may indirectly eliminate major impediments to PRP adoption.

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