

The Talent Gap in Family Firms^{*}

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Abstract

We study how family control affects the allocation of talent across firms using comprehensive Danish administrative data including direct measures of workers' cognitive ability, educational attainment, and grades. We document a substantial talent gap: family firms employ workers with significantly lower cognitive ability and educational attainment than non-family firms, with the gap concentrated in senior positions and high-skill occupations. To isolate the impact of family control, we exploit within-firm CEO successions, an instrumental variables strategy based on the gender composition of the departing CEO's children, and a survey experiment that randomly assigns family control status across otherwise identical job postings. All three approaches indicate that stronger family control reduces firms' ability to attract talented workers. We identify two mechanisms underlying this result. First, nepotistic promotion practices create a "surname ceiling" that limits the career prospects of non-family employees. Second, family firms offer lower wage premiums than comparable non-family firms. Our findings show that corporate governance shapes the allocation of talent by affecting both the returns to talent and career opportunities within firms.

Keywords: Family Firms, Employee Quality, IQ, Nepotism

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I Introduction

The allocation of talented individuals across occupations, sectors, and firms can have large consequences for economic outcomes (Rosen, 1981; Murphy et al., 1991). Employees’ choice of employer is influenced by the prospect of future rewards, including promotions, access to leadership positions, wage growth, and other forms of career advancement. Because these rewards cannot be fully specified or enforced in *ex ante* contracts, the returns to talent depend on the criteria used to make personnel decisions. Depending on the governance structure, those criteria may depart from purely meritocratic considerations and instead reflect social identity, social affinity, or other forms of in-group favoritism (Becker, 1957; Akerlof and Kranton, 2000; McPherson et al., 2001). Corporate governance can therefore play an important role in shaping the allocation of talent across firms.

We study how governance shapes the allocation of talent by focusing on the role of family control. Family-controlled firms provide a useful setting because their personnel decisions are known to differ systematically from those of other firms (Bandiera et al., 2015). For example, controlling families may favor relatives in promotion and leadership decisions (Perez-Gonzales, 2006; Bennedsen et al., 2007; Bertrand and Schoar, 2006), potentially reducing the rewards available to non-family employees. At the same time, controlling families are often viewed as having a stronger commitment to workers (Sraer and Thesmar, 2007; Ellul et al., 2018), offering greater employment stability. Whether, on balance, family firms are more or less successful at attracting and retaining talented workers is therefore an open empirical question.

To study this question, we combine several comprehensive administrative datasets from Denmark that allow us to observe four key dimensions of the labor market. First, we directly observe workers’ ability through mandatory military IQ examinations together with educational attainment and grades. Second, we observe the complete employment histories of workers and the universe of Danish firms through matched employer-employee records. Third, we identify the individuals who control each firm using data on boards

of directors and CEOs. Finally, administrative records on family relationships allow us both to classify firms as family-controlled and to distinguish family employees from non-family employees within those firms. Together, these data provide an unprecedented view of how talent is allocated across family and non-family firms. We complement these administrative data with a survey experiment that isolates the effect of family control.

We find a substantial talent gap. Employees in family firms have significantly lower cognitive ability and educational attainment than employees in non-family firms. On average, workers in family firms score approximately 2.15 points lower on IQ tests (about five percent of the population mean) and are 17 percentage points less likely to have completed high school. These differences are not driven by family members and persist after controlling for a rich set of worker and firm characteristics. The talent gap is not uniform: it is largest at the top of the hierarchy and in high-skill occupations, suggesting that family firms may distort talent allocation precisely where it matters the most for firm performance.

One concern with our findings is that unobserved firm characteristics, such as growth prospects, may drive both family control and the composition of the workforce. To address it, we employ three complementary identification strategies: a within-firm analysis of CEO successions, an instrumental variables approach based on the gender composition of the departing CEO's children, and a survey experiment that randomly assigns family control status across otherwise identical job postings.

Our first identification strategy exploits within-firm variation in family control. While transitions from family-controlled to non-family-controlled firms (and vice versa) would provide the ideal source of variation, such transitions are extremely rare in our data. Instead, we turn to CEO successions, which generate more moderate changes in the intensity of family control. We classify a succession as a family succession if the outgoing and incoming CEOs are related by blood or marriage, and as a non-family succession otherwise. A family succession keeps day-to-day operations and personnel decisions in the hands of the controlling family, preserving effective family control; a non-family suc-

cession passes them to an outsider, weakening it. Comparing the two types of succession therefore isolates the effect of stronger family control, and we find that stronger family control leads to a decline in the average talent of the firm’s workforce.

To address concerns that the choice of successor is itself endogenous, our second identification strategy is an instrumental variables approach that exploits the gender composition of the departing CEO’s children. The IV estimates likewise indicate that family control causally affects workforce composition, leading to lower average employee talent.

Our final identification strategy complements the administrative evidence with a survey experiment that generates exogenous variation in family firm status. Prospective employees evaluate synthetic job postings in which firm status (family-owned, family-owned and controlled, or non-family) is randomly assigned while holding constant wages, firm size, firm age, and non-wage amenities. Because family involvement is experimentally varied, any differences in job attractiveness can be attributed directly to family control rather than correlated firm characteristics. The experimental results mirror the administrative evidence: high-achieving respondents are significantly less likely to apply to firms with active family control than to otherwise identical non-family firms, whereas no such pattern emerges among lower-achieving respondents. These findings reinforce the causal interpretation of our results by showing that talented workers actively avoid family-controlled firms even when compensation and job characteristics are held fixed.

We next investigate the mechanisms underlying the talent gap. We identify two primary channels. The first is nepotism. By limiting promotion opportunities for non-family employees, nepotistic personnel decisions reduce the returns to talent and disproportionately discourage talented workers from joining family firms. To examine this mechanism, we use machine learning techniques to predict employees’ organizational rank based on their observable qualifications. We find that family members hold positions above what they would attain in non-family firms, indicating the presence of nepotism. While prior literature has documented nepotism at the CEO level, our findings indicate that it ex-

tends throughout the organization. Importantly, we also find that non-family employees hold lower positions than their qualifications would predict, suggesting a channel through which talented workers may be deterred from joining family firms. We also complement this evidence by examining promotion decisions directly. We find that family firms reward the ability of non-family employees less when making promotion decisions, while relatives advance irrespective of their measured qualifications. Thus, promotions in family firms depend less on talent and more on family ties. This “surname ceiling” represents an indirect consequence of nepotism, reducing the career prospects of talented non-family employees and potentially discouraging them from joining family firms.

The second mechanism is compensation. Previous studies show that family firms pay lower wages on average, but this difference may simply reflect the lower average talent of their workforce. To separate compensation policies from workforce composition, we estimate the additive worker-firm effects model of Abowd et al. (1999), which decomposes wages into worker and firm fixed effects. Controlling for all time-invariant worker characteristics, including cognitive ability, we find that family firms offer lower wage premiums than comparable non-family firms.

Our findings contribute to several strands of the literature. First, we provide the first large-scale evidence on the allocation of talent across family and non-family firms using direct measures of worker ability (cognitive test scores and educational attainment). While previous research has examined differences in managerial quality primarily at the CEO level (Bennedsen et al., 2007), we show that talent differences extend throughout the organization. Our findings complement the recent work of Di Porto et al. (2024), who document systematic differences in the sorting of workers across family and non-family firms using worker fixed effects from the Abowd-Kramarz-Margolis (AKM) wage decomposition (Abowd et al., 1999). By directly observing cognitive ability and educational attainment, we measure talent independently of labor market outcomes. This provides evidence based on objective measures of worker ability rather than persistent wage components, which may reflect not only worker ability but also other determinants of wages (Card et al., 2018; Bonhomme et al., 2019; Kline et al., 2020).

Second, a large literature documents how family and non-family firms differ in their corporate policies (see Anderson and Reeb, 2003; Burkart et al., 2003; Bertrand and Schoar, 2006; Bennedsen et al., 2007). We advance this literature by identifying specific mechanisms, nepotism and compensation practices, through which family governance affects firms’ human capital.

Within this strand, a smaller literature examines the trade-off between wages and job security in family firms (Ellul et al., 2018; Sraer and Thesmar, 2007; Bach and Serrano-Velarde, 2015). While these studies show that family firms provide greater job security but pay lower wages, we extend this work by demonstrating that family firms pay less for a given level of talent, rather than merely employing lower-paid workers on average.

Third, our results inform the broader literature on talent allocation and labor mobility. A large body of work studies how talent is allocated across occupations, sectors, and firms, and its consequences for growth and productivity (Murphy et al., 1991; Baumol, 1990; Hsieh et al., 2019), as well as the forces drawing high-ability individuals toward particular sectors and employers (Philippon and Reshef, 2012; Oyer, 2008). A related literature uses matched employer–employee data to document the sorting of high-wage workers into high-paying firms (Abowd et al., 1999; Card et al., 2013; Song et al., 2019) and shows that firms’ management and organizational practices shape which workers they attract and retain (Bender et al., 2018). We contribute to this literature by identifying family control as an important, yet understudied, determinant of talent allocation. By documenting systematic differences in both the incentives family firms offer to attract talent (compensation) and the constraints they impose on career advancement (nepotism), we provide new insights into how firm governance affects the distribution of human capital across organizations.

The remainder of the paper proceeds as follows. Section II describes the data sources and presents summary statistics. Section III documents the talent gap across the firm hierarchy and occupational skill levels. Section IV establishes that family control drives the talent gap using multivariate regressions, a difference-in-differences analysis of CEO

successions, instrumental variables, and a survey experiment. Section V investigates the mechanisms driving the talent gap, focusing on nepotism and compensation practices. Section VI discusses the retention of high-ability workers and the implications of the talent gap for firm performance. Section VII concludes.

II Data and Summary Statistics

This section describes the data sources underlying our empirical analysis and the construction of the estimation samples. We combine several linked administrative registers maintained by Statistics Denmark that allow us to simultaneously observe workers' talent, employers, organizational positions, family relationships, and firm governance. With the resulting dataset, we identify family-controlled firms, distinguish family from non-family employees, and study how talent is allocated across firms.

II.1 Matched Employer-Employee Data

We use the matched employer-employee datasets from Statistics Denmark (IDA). Since 2008, the IDA register reports all jobs held by an individual during a calendar year. We keep only the main job when multiple positions are held concurrently. For each employee, IDA records annual earnings, the employer's tax identifier, and the worker's position in the corporate hierarchy, distinguishing managers, white-collar, and blue-collar workers. We merge IDA with demographic registers to obtain each worker's gender and date of birth.

II.2 IQ Data

IQ information is obtained from the compulsory military draft sessions of 18-year-old men in Denmark. In addition to undergoing a physical examination, individuals

complete an intelligence test consisting of 70 multiple-choice questions.¹ Prior to 2007, the military reported only coarse performance categories, typically three to four bins indicating thresholds for eligibility for military service. Unfortunately, the underlying raw scores from this earlier period are no longer available. Beginning in 2007, however, we observe the full distribution of raw test scores for the entire population of Danish men subject to the draft. We use these raw scores as our primary measure of individual talent.

One concern is the potential for manipulation by individuals seeking to avoid military service. In practice, this is unlikely to matter. The test no longer plays a decisive role in enlistment decisions: currently, 99% of those entering military service are volunteers, substantially reducing incentives to deliberately underperform. Moreover, there may be a perceived cost to scoring very low, as some individuals might worry that results could be used in the future, despite Danish privacy laws explicitly prohibiting such use. Finally, the military excludes from the dataset any tests exhibiting anomalous answer patterns.

We validate our measure of talent in Appendix Figure B1. We sort individuals into IQ ventiles and plot the average hierarchy position within the firm and the average wage, computed over the full sample. The hierarchy position ranges from 1 (bottom) to 5 (top). Both panels show a clear positive association between IQ and career outcomes: higher-IQ individuals attain higher positions within firms and earn higher wages.

A limitation of this measure is that it is available only for men who turned 18 in 2007 or later. To address this constraint, we construct an alternative measure of talent, described below.

¹The test, known as Børge Priens Prøve (BPP), was developed in the 1950s by the military psychologist Børge Prien.

II.3 High School Grade Data

As a complementary measure of talent, we use average high school grades. These data are drawn from administrative registers maintained by Statistics Denmark. Specifically, we rely on the annual UDG datasets, which contain comprehensive information on degrees obtained by the entire Danish population, including completion dates, grades, and related educational characteristics.

In Denmark, education is compulsory through the 9th grade (ISCED level 2). After completing compulsory schooling, students may enroll in vocational education, attend a general academic high school, or exit the formal education system. For those who continue, we observe final-year grades for both vocational and general high school programs across all courses.

Results from the 9th grade are available for the full population but only from 2008 onward; the high school grade data, by contrast, extend back to the 1970s. To maximize coverage across cohorts, we also construct an indicator equal to one if an individual obtained any educational qualification beyond the 9th grade, so that the entire population can be included in the analysis.

II.4 CEO and Board Data

We obtain information on board members and CEOs (“executives”) from Erhvervs- og Selskabsstyrelsen, the register maintained by the Danish Commerce and Companies Agency. This dataset provides the Danish personal identification number (CPR) of each executive, along with the start and end dates of each appointment.

II.5 Family Relationship Data

To establish family relationships among executives, we use the annual BEF files from Statistics Denmark. These files record, for each Danish resident, the CPR numbers of both parents and of the spouse or registered partner. Using these identifiers, we

construct an extensive network of kinship links, including siblings, siblings-in-law, aunts and uncles, and grandparents.²

II.6 Firm Financial Data

Firm-level financial data are obtained from the Statistical Business Register (SBR) maintained by Statistics Denmark. The SBR contains comprehensive accounting information from firms' financial statements, including revenue, net income, total assets, and other key balance sheet and income statement items.

II.7 Family-Controlled Firm Definition and Sample Selection

We define a family-controlled firm as one in which at least three executives are related by blood or marriage. This control-based definition directly reflects our focus on the consequences of family control, and it rests on board membership data that in Denmark are highly reliable and comprehensive.

Under this definition, our main sample includes firms with between three and twenty executives. Firms with more than twenty executives are excluded for computational reasons, although this restriction has negligible quantitative impact given their small number. We also exclude firms with two or fewer executives, as such firms would be mechanically classified as non-family firms. This restriction ensures a more balanced comparison between family and non-family firms. Moreover, requiring at least three executives excludes very small firms and shell corporations with limited or no substantive economic activity, which are often established for tax purposes.

Our baseline sample consists of employees with valid IQ scores across 46,219 firms (271,274 firm-year observations) and 2,500,935 employee-year observations. Since IQ

²All kinship links are constructed by composing the parent and spouse identifiers. For example, siblings share at least one parent, an uncle or aunt is a sibling of a parent, and a grandparent is a parent of a parent.

data are available only for men and only for cohorts reaching age 18 in 2007 or later, we complement this analysis with specifications using high school grades as an alternative measure of talent. This expanded sample includes 67,750 firms and 14,802,027 employee-year observations.

II.8 Summary Statistics

Table 1, Panel A reports firm-year summary statistics for the baseline sample. Columns (1) and (2) present statistics for all firms, columns (3) and (4) for family firms, columns (5) and (6) for non-family firms, and column (7) reports the difference in means between the two groups.

Approximately 20% of firms in our sample are classified as family firms. The average firm has total assets of \$12.51 million and sales of \$10.45 million. Family firms are substantially smaller: average assets (sales) equal \$4.49 (\$4.73) million, compared to \$14.59 (\$11.91) million for non-family firms. Other size measures, such as the number of employees, yield similar conclusions. Overall, Table 1, Panel A indicates that our sample primarily consists of small and medium-sized firms. Given that small and medium-sized firms are the most prevalent firm type worldwide, we believe our findings are likely to extend beyond the Danish context.

Appendix Table A1 presents firm-level statistics for the expanded sample. The patterns are similar: family firms are smaller in terms of assets, sales, and employment, and they represent approximately 20% of all firms.

Table 1, Panel B reports employee-level summary statistics. Columns (1) and (2) show results for all employees, columns (3) and (4) for employees in family firms, columns (5) and (6) for employees in non-family firms, and column (7) presents the difference in means between the two groups.

Employees in family firms are, on average, 25.79 years old, compared to 26.02 years in non-family firms, a small difference. The relatively low average age in the main sample

reflects the availability of IQ data only for men who were 18 years old in 2007 or later.

Employees in family firms score lower on the IQ test (41.62) than those in non-family firms (43.77). Educational attainment exhibits a similar pattern: 26% of employees in family firms have completed high school, compared to 43% in non-family firms. Among high school graduates, the average percentile grade is 41.86 in family firms and 45.52 in non-family firms. While these are univariate comparisons, we demonstrate below that the gaps in IQ scores and educational attainment persist after controlling for a rich set of individual and firm characteristics.

Compensation also differs across firm types. Average annual wages equal \$36.54k in family firms and \$38.88k in non-family firms, implying a gap of \$2.34k. Lower wages in family firms are consistent with prior evidence (Sraer and Thesmar, 2007). As with talent measures, we show below that the wage differential remains statistically and economically significant after accounting for additional controls.

Appendix Table A1 reports employee-level statistics for the expanded sample. The results reveal similarly small age differences but persistent gaps in high school completion and grades, with employees in family firms lagging behind on both dimensions.

III The Talent Gap by Hierarchy and Occupation

The previous section shows that employees in family firms have lower IQ scores than employees in non-family firms. In Tables 2 and 3, we examine whether these differences persist across the firm hierarchy and across occupational skill levels.

Understanding the distribution of talent across the hierarchy is important because employees at different organizational levels exert different degrees of influence over firm decisions. A talent gap concentrated at the top of the hierarchy would be consistent with differences in the quality of strategic decision-making between family and non-family firms. In contrast, a gap confined to lower-level employees would have more limited implications for firm outcomes.

Table 2 classifies employees by hierarchical position using the IDA database, distinguishing between top management, middle management, and non-managerial employees. Three key insights emerge from this analysis. First, average talent increases monotonically with hierarchical rank: for the sample as a whole, average IQ at the bottom of the hierarchy is 41.93, rising to 45.87 in the middle and to 48.95 at the top. The relationship between IQ and hierarchical level provides reassurance that IQ is a meaningful proxy for talent and that firms tend to promote higher-ability individuals to senior positions.

Second, at every level of the hierarchy, employees in family firms have lower IQ scores than their counterparts in non-family firms. Among top managers, average IQ is 47.10 in family firms and 49.05 in non-family firms. For the middle of the hierarchy, employees in family firms score 44.36, compared to 45.98 in non-family firms. Finally, at the bottom of the hierarchy, family firm employees' average IQ is 40.82, compared to 42.12 for non-family firm employees.

Third, the talent gap is largest at the top of the organization and narrows toward the bottom. The gap is 1.96 points at the top of the hierarchy and 1.30 at the bottom. This pattern suggests that differences in talent are most pronounced among key decision-makers, where they are likely to have the greatest impact on firm outcomes.

Appendix Table A2 reports analogous results using the expanded sample and alternative measures of talent based on high school grades and high school completion. Both measures increase with hierarchical rank, and employees in family firms score lower than employees in non-family firms at every level. As in the baseline results, the gap is largest at the top of the hierarchy. Moreover, Appendix Table A8 repeats the analysis excluding employees who are relatives of the controlling family.

Hierarchy, however, is not the only dimension along which talent may matter. In many occupations, employee human capital is a first-order input to production regardless of where workers sit in the organizational hierarchy (e.g., software engineers, lawyers, researchers). A talent gap in these roles can affect firm performance directly, even when it is not concentrated at the top. We therefore examine how the talent gap varies across

occupations. We rank occupations by the average high-school grade of their workers in the overall population, and group them into high-, medium-, and low-skill categories.

Table 3 reports results. Average IQ is highest in high-skill occupations and declines monotonically with skill level. Within each skill category, employees in family firms have lower IQ scores than employees in non-family firms, with the largest differences observed in high-skill occupations. Appendix Table A3 shows that these patterns are robust to using alternative talent measures and the expanded sample, and Appendix Table A9 shows that these patterns are similar when we exclude relatives of the controlling family.

Overall, these results show that lower employee talent in family firms is a pervasive feature of the workforce and not confined to a particular segment of the organization. The gap is present across hierarchical levels and occupational skill groups, and is largest in positions and occupations where talent is likely to be most consequential for firm outcomes. At the same time, these patterns are descriptive. They do not, by themselves, establish whether the observed differences reflect causal effects of family control, or instead arise from other firm characteristics correlated with family firm status. The next section addresses this question.

IV Isolating the Effect of Family Control

We assess whether the documented talent gap reflects family control by implementing a series of complementary empirical tests that progressively address concerns about unobserved heterogeneity. We begin by estimating the effect of family control on the average IQ of the firm using a panel regression at the firm-year level, with year and industry fixed effects and size controls. Moreover, we include firm-employee-level tests where we can also include occupation and industry-by-occupation fixed effects. These specifications extend the univariate comparisons presented earlier by conditioning on a rich set of observable characteristics. The results show that family-controlled firms have significantly lower average employee IQ, even after controlling for these observables. Yet, while informative, these regressions remain subject to concerns about omitted variables.

To further address these concerns, we next exploit within-firm variation using a difference-in-differences framework. Rather than comparing transitions from family to non-family status or vice versa, which are rare in the data, we focus on CEO successions. Specifically, we treat a succession in which the incoming CEO is a relative of the departing CEO (a family succession) as preserving family control, and a succession to an unrelated outside CEO (a non-family succession) as weakening it. Because it relies on within-firm changes, this design controls for time-invariant firm characteristics, though it captures variation in the intensity of family control rather than a discrete change in family-controlled status. A remaining concern is that these leadership transitions may themselves be endogenous to the talent a firm can attract, for example, if families appoint a non-family CEO precisely when the firm struggles to recruit. To address this, we implement an instrumental variables strategy that isolates plausibly exogenous variation in family succession, disentangling the effect of family control from endogenous selection into family leadership.

Finally, we present evidence from a survey experiment in which the family status of a hypothetical firm is randomly assigned in job descriptions shown to prospective employees. In this setting, family firm status is exogenous by construction, varying the discrete classification of the firm as family-owned, family-owned and controlled, or non-family rather than the degree of family involvement. The results show that high-achieving prospective employees prefer non-family firms, providing direct evidence that family firm status itself affects worker sorting, independent of firm fundamentals or within-firm changes in family involvement.

Taken together, these tests suggest that the talent gap between family-controlled firms and non-family firms reflects family control itself, rather than unobserved firm characteristics.

IV.1 Employee and Firm Characteristics and Selection into Family Firms

Tables 2 and 3 present only univariate comparisons, leaving open the possibility that confounding factors account for part or all of the observed gap. For example, Table 1 shows that family and non-family firms differ in size. Moreover, family firms tend to concentrate in certain industries (Villalonga and Amit, 2010), which may have a lower demand for talented employees. To address these concerns, we next examine the relationship between talent and family firm employment while conditioning on a rich set of firm-level characteristics.

Table 4 estimates a panel regression at firm-year level. Mirroring the previous results without controls, column (1) shows that family firms have lower IQ employees. Columns (2)-(3) show that the magnitude and significance of the coefficient on family-controlled firm remain relatively constant as we add year fixed effects and size controls. In column (4), we add industry fixed effects, and the magnitude of the coefficient on family-controlled firm is cut in half. However, it remains statistically significant. The fact that the introduction of industry fixed effects reduces the coefficient on family-controlled firm suggests that family firms are more likely to be found in industries with lower demand for talented employees.

To further explore the role of firm size in a less parametric way, columns (5)-(7) show regression estimates for samples split by terciles of size. The results show that the family-firm gap is present across all size categories.

The firm-year specifications above condition on aggregate firm characteristics, but two additional concerns remain. First, because IQ is recorded at the draft at age 18, a worker's score is tied to the year his cohort was tested. Family and non-family firms employ workers of different ages, and hence draw on different draft cohorts, so we include birth-cohort (draft-year) fixed effects to ensure the talent gap is not driven by differences in the cohort composition of their workforces. Second, family firms may differ from non-family firms in their technology or organizational structure, which could itself shape the

occupational composition of their workforces. To compare otherwise similar jobs across family and non-family firms, we add a rich set of occupation fixed effects and, in our most demanding specification, industry-by-occupation fixed effects.

Implementing these controls requires moving from the firm-year level to the employee level, since both cohort and occupation are defined for individual workers. We do so in Panel B of Table 4, where each observation is an employee in the first year of employment at the firm. The estimates are robust: the family-firm talent gap attenuates once we condition on occupation, but it remains economically meaningful and highly statistically significant.

While these specifications condition on a rich set of observable firm and individual characteristics, they may not fully account for all sources of unobserved heterogeneity correlated with family control. In particular, persistent firm characteristics that are difficult to observe, such as location or organizational features, may jointly shape family control and the composition of the workforce.

IV.2 Evidence from CEO Successions

To address concerns about unobserved firm characteristics, a natural approach is to exploit within-firm variation in employee talent around transitions between family and non-family control, since such a design differences out time-invariant firm characteristics that may be correlated with both family control and employee talent. In practice, however, these transitions are extremely rare in the data. We therefore focus on more frequent and incremental changes in family control, specifically CEO successions, distinguishing between successions that preserve family involvement and successions that reduce it.

IV.2.1 Difference-in-Differences Estimates

We examine how employee talent changes around CEO successions using a difference-in-differences framework. We classify a succession as a *family succession* if the incoming

and outgoing CEOs are related, and as a *non-family succession* if they are not. A family succession keeps leadership within the family and thus preserves or strengthens effective family control, whereas a non-family succession transfers leadership to an outsider and weakens it. We compare changes in employee talent before and after the succession in firms that experience a family succession to those in firms that experience a non-family succession.

To implement this design, we estimate the following equation:

$$\Delta \text{employee talent}_j = \alpha_{t(j)} + \gamma_{k(j)} + X_j' \beta + \delta \text{Family succession}_j + \varepsilon_j, \quad (1)$$

where j indexes successions and the dependent variable is the difference in average employee IQ between the five years after and the five years before the succession. The terms $\alpha_{t(j)}$ and $\gamma_{k(j)}$ denote succession-year and industry fixed effects, and X_j contains firm size (assets).

Table 5 reports the results. We consider two versions of the dependent variable: average talent among new hires and average talent among all employees. Focusing on new hires captures active managerial hiring decisions, while the measure based on all employees reflects the net effect of hiring, separations, and retirements. Column (1) shows that the average IQ of new hires declines by approximately one point in the five years following a family succession relative to a non-family succession, corresponding to a 2.3% decrease relative to the population mean of 43. Column (2) shows a 0.5-point decline in the average IQ of all employees.

In Appendix Table A4, we replicate the analysis using high school grades as an alternative measure of talent. The estimates again indicate declines in employee talent: 2.2% for new hires and 1.5% for all employees, although these effects are not statistically significant. Overall, the difference-in-differences evidence is consistent with the earlier findings that increased family involvement is associated with a deterioration in employee talent.

While the difference-in-differences design addresses concerns related to time-invariant

unobserved heterogeneity, it does not fully resolve potential endogeneity of the succession decision itself. In particular, families may choose a non-family successor in response to changes in the firm’s ability to attract talent, which could bias the estimates.

IV.2.2 Instrumental Variables Evidence

To address the potential endogeneity of CEO succession choices, we implement an instrumental variables (IV) strategy that exploits plausibly exogenous variation in family succession. Following Bennedsen et al. (2007), we use the gender of the departing CEO’s firstborn child and the number of sons of the departing CEO as instruments for a family succession. These variables strongly predict the likelihood of a family succession. The exclusion restriction requires that they affect the change in workforce talent only through the realized family succession, and not through other channels correlated with the composition of the controlling family, such as dynastic intentions, governance arrangements, or workers’ expectations about future control. While this assumption cannot be tested directly, we present evidence below that is consistent with it.

One potential concern with the exclusion restriction is that the instrument may influence workforce composition even before the CEO succession takes place. For example, employees may observe the composition of the controlling family and form expectations about the likelihood of a future family succession. If anticipated family succession affects workers’ willingness to join the firm, the instrument could influence workforce composition through a channel other than the realized CEO transition. We examine this possibility in Appendix Tables A6 and A7 by testing whether the instrument predicts the firm’s average employee IQ prior to the succession. We find no evidence of such an effect: pre-succession workforce composition is unrelated to the instrument, consistent with the exclusion restriction.

We estimate the model using two-stage least squares. Panel B of Table 6 shows that both instruments are strong predictors of family succession. Panel A reports the second-stage results. Columns (1) and (2) show that, for new hires, family successions

are associated with a decline of 5-5.6 IQ points, corresponding to an 11.5–12.8% reduction relative to the mean. When considering all employees, the estimated decline is approximately four IQ points (10%). Two of the four coefficients are statistically significant.

The IV estimates are larger in magnitude than those obtained from the difference-in-differences analysis. One possible explanation is selection: firms anticipating difficulties in attracting talent may be more likely to appoint a non-family CEO, which would attenuate the difference-in-differences estimates. In this case, the difference-in-differences results may understate the true effect of family control on the talent composition of firms' workforces. Appendix Table A5 reports analogous IV results using high school grades as an alternative measure of talent, yielding qualitatively similar, though noisier, estimates.

Taken together, the difference-in-differences and IV evidence suggests that increases in family control adversely affect the talent composition of firms. Combined with the earlier multivariate results, these findings support the interpretation that family control plays a causal role in the allocation of talent across firms.

IV.3 Survey Experiment on Student Job-Seeker Preferences for Family-Firm Status

The succession-based analyses above exploit variation in the degree of family involvement within firms, but do not provide discrete variation in family control. To address this limitation, we complement the administrative evidence with a survey experiment in which family firm status is randomized by design. Students at the University of Copenhagen evaluated a series of hypothetical job postings and reported how likely they would be to apply for each position. The postings randomized a wide range of firm and job characteristics, including firm size, firm age, wages, non-wage job attributes, and, crucially for our purposes, the firm's family status.

IV.3.1 Experimental Design

The experiment quantifies job-seeker preferences for different firm ownership and control structures. To isolate preferences, our survey randomly varied the firm’s ownership and control status, compensation, and non-monetary benefits. Job-seekers were told that their ratings would be used by a matching algorithm, following the non-deceptive incentivized rating framework of Kessler et al. (2019). This design encourages truthful revelation: participants maximize the quality of matched job recommendations by rating highly only those postings whose attributes they truly value. To design the specific job postings, we follow the example of Colonnelli et al. (2023).

IV.3.2 Recruitment of Participants

We recruited undergraduate and master’s students in finance, accounting, and economics at the University of Copenhagen. Potential participants were contacted via their university email; the recruitment message is reproduced in Appendix Figure C1.

IV.3.3 Survey Structure and Rating Protocol

The survey began with an introduction describing its purpose and the incentives for participation, followed by a consent form (Appendix Figure C2). The respondents were then instructed to evaluate job postings on a 1 to 5 Likert scale. We emphasized that all job and firm characteristics would be considered when matching them with real positions. To tailor postings to participants’ interests, we first asked for their preferred industry. Each respondent then rated 15 synthetic job postings. After rating the postings, participants answered open-ended questions about their impressions of working at small companies, family firms, and fast-growing firms. Finally, the survey collected demographic and socioeconomic data, including gender identity, zip code, prior GPA, and expected time to graduation.

IV.3.4 Construction of Synthetic Job Postings

To construct realistic postings, we manually reviewed 200 job ads from Job Index (<https://www.jobindex.dk/>) and identified three core categories: firm history, job characteristics, and compensation. Our synthetic postings always listed four company descriptors at the top: an introductory sentence, the firm’s age, its size, and its family-firm status. These elements were randomized. The firm’s size (small, medium, or large) was drawn with equal probability; once assigned, a precise size was sampled uniformly within that category. Ownership structure was conveyed through a separate founding sentence, which combines a family-ownership intensity level (1–3) with a founding year. Both variables were drawn from discrete distributions (Appendix Table C7), and the resulting values were inserted into pre-defined sentence templates. In the baseline condition, no ownership information was provided. In a second condition, the firm was described as family owned. In a third condition, the firm was described as family owned and actively controlled by the family. To avoid repeat exposure to the same family name and control for idiosyncratic associations, each respondent saw a unique set of templates, and question fixed effects were included in the analysis.

Within the participant’s chosen industry, each posting specified a job title drawn from three possibilities (Appendix Table C3). Four sentences describing job responsibilities and four describing required qualifications were sampled at random from job-specific lists (Appendix Tables C4 and C5). Compensation was randomized independently: the annual wage was uniformly drawn between 390,000 and 590,000 Danish kroner in 10,000-kroner increments. Each of the three non-wage amenities (additional holiday leave, a gym membership, and a meal allowance) was included with a probability of $\frac{1}{3}$. Examples of the resulting postings appear in Appendix Figure C3, and further details on the distributions are provided in Appendix C.

IV.3.5 Outcome Measures

Our primary outcome captures how likely a respondent is to apply to a job posting. For each posting, participants answered: “How likely are you to apply for this job?” on a 1 to 5 scale, with higher values indicating a greater likelihood of applying. To separate the appeal of a posting from respondents’ beliefs about their chances of being hired, we also elicited perceived hiring probability with a second question: “How likely is it that the company would hire you?” Together, these two measures allow us to distinguish the attractiveness of a posting from beliefs about hiring chances.

IV.3.6 Survey Results

The results are reported in Table 7. The regressions include an indicator variable for family-owned firms and another indicator variable for family-owned and controlled firms, with non-family firms serving as the omitted category. The coefficients therefore capture differences in respondents’ reported likelihood of applying relative to an otherwise identical non-family firm. All specifications control for the randomized job attributes, include question fixed effects to account for systematic differences across postings, and include individual fixed effects to absorb persistent heterogeneity in respondents’ preferences. Standard errors are clustered at the respondent level.

Columns (1)–(3) report results for the full sample and separately for high- and low-achieving students, where achievement is measured by whether GPA is above or below the sample median. In the full sample, there is no statistically significant preference for family firms. However, substantial heterogeneity emerges when the sample is split by academic achievement. High-achieving students report a significantly lower likelihood of applying to family firms, with the negative effect being largest and most precisely estimated for family-owned and controlled firms. In contrast, low-achieving students exhibit a higher likelihood of applying to family-owned firms.

These patterns suggest that family firms face a lower-quality applicant pool when family control is salient, consistent with the talent gap documented in the administrative

data.

Because our outcome is how likely respondents are to apply, it could reflect not only preferences over working environments but also beliefs about the probability of actually being hired. To address this, we use the perceived hiring probability elicited alongside each rating. In columns (4)–(6) we restrict the sample to respondents who report a high probability of being hired and re-estimate the same specifications; the family-firm patterns are very similar. Because perceived hiring probability is reported after respondents view the randomized posting, this restriction conditions on a post-treatment variable, so we read it as reassuring rather than as a clean test. It nonetheless provides no evidence that the baseline patterns reflect differences in perceived hiring probabilities rather than preferences over family control.

Overall, the experimental evidence indicates that family control causally affects the attractiveness of firms to prospective employees, with particularly strong negative effects among high-achieving students. These findings complement the administrative results by showing that differences in applicant composition can arise even when firm characteristics are held constant, and they demonstrate that the supply of talent to family firms responds to family control itself.

V Identifying Drivers of the Talent Gap

Why do family firms hire less talented employees? In this section, we test two hypotheses that may explain the documented talent gap. One is based on nepotism (the practice of hiring and promoting family members within the firm), and the other is based on the compensation that family firms offer their more talented employees.

V.1 Nepotism

Controlling families frequently promote their own members to leadership positions, even when more qualified candidates are available (Perez-Gonzales, 2006; Bennedsen

et al., 2007). Such nepotism limits promotion opportunities for non-family employees. Thus, nepotism can reduce the attractiveness of working for a family firm, especially for highly talented individuals, as they are the most likely to be promoted.

This mechanism generates two testable implications: first, that family members are promoted beyond what their qualifications would predict, and second, that non-family employees are held back below what their qualifications would predict. To test both implications, we compare the actual positions in the organizational hierarchy of employees in family firms to the counterfactual positions they would hold if they worked instead in a non-family firm. To construct these counterfactual positions, we train a random forest model using only data for employees in non-family firms. The dependent variable is the employee’s hierarchical position, which takes one of five ordered values (e.g., top management, middle management), coded so that higher numbers correspond to more senior roles. The independent variables include a range of individual and firm characteristics. The estimated model is then used to predict the position each employee in a family firm would be expected to attain in a non-family firm, conditional on their observed characteristics.

The results are presented in Table 8. The first row examines employees in family firms who are related by blood or marriage to members of the controlling family. Their average actual position is 3.2, compared to a predicted position of 2.7 if employed in a non-family firm, a difference that is significant at the 1% level. The effect is slightly more pronounced when restricting to nuclear relatives (parents, children, and siblings), as shown in the second row. These findings are consistent with nepotism: relatives of the controlling family hold higher positions than they would in non-family firms. While prior studies have documented nepotism at the CEO level, this evidence suggests that it extends throughout the organizational hierarchy.

The third row of Table 8 examines non-family employees in family firms. For these employees, the pattern is reversed: their average actual position is 2.1, compared to a predicted position of 2.6 in non-family firms. In other words, while relatives occupy

positions that exceed their counterfactual benchmarks, unrelated employees fall short of theirs. This asymmetry is consistent with nepotistic promotion practices that advantage family members at the expense of comparable non-family employees. Importantly, the pattern is unlikely to be an artifact of differences in organizational structure between family and non-family firms. Because the predicted position depends only on an employee’s qualifications, and not on whether the employee is related to the controlling family, common firm-level features such as flatter hierarchies, fewer senior slots, or different placement practices would move the positions of relatives and non-family employees in the same direction. Such factors cannot generate the opposite-signed wedge we observe, in which relatives stand above and non-family employees below their predicted positions; only differential treatment by family status can.

We complement this evidence by examining promotion decisions directly. Table 12 reports estimates from a linear probability model in which the dependent variable equals one if an employee’s position in the firm hierarchy increases in a given year. Panel A is estimated on the employees of non-family firms together with the non-family employees of family firms, so that members of the controlling family are excluded and the comparison is between otherwise similar non-family employees in the two types of firms. The specification includes IQ, an indicator of family control, and their interaction, together with analogous terms for age, year and industry fixed effects, and a control for firm size. The coefficient on IQ is positive and highly significant, so more able employees are more likely to be promoted. The interaction between IQ and family control is negative and significant in every specification: among non-family employees, the sensitivity of promotion to talent is substantially weaker in family firms. In our most demanding specification (column 3), the return to IQ for non-family employees in family firms is roughly 40 percent of that in non-family firms. Because the interaction is negative, this promotion shortfall is largest for high-ability employees, precisely those whose advancement matters most for a firm’s ability to attract talent.

Panel B restricts the sample to family firms and replaces the indicator of family control with an indicator for whether the employee is related to the controlling family.

Relatives are approximately 1.6 percentage points more likely to be promoted than comparable non-family employees in the same firms, although this difference is estimated less precisely (significant at the ten percent level). The interaction between relative status and IQ is small and statistically insignificant, indicating that this promotion advantage is roughly constant across the ability distribution rather than concentrated among more able relatives. Taken together, the two panels show that promotions in family firms depend less on talent and more on family ties: family firms reward the ability of their non-family employees less in promotion decisions, and relatives advance regardless of their measured qualifications. This direct evidence on promotion decisions reinforces the predicted-position results and the surname ceiling they imply.

These patterns may help explain why family firms struggle to attract and retain highly talented employees. If career advancement is perceived to depend not only on merit but also on family ties, high-ability individuals, who have the highest probability of advancement, may be less willing to join such firms in the first place.

V.2 Compensation

One possible explanation for the talent gap documented above is that family firms pay lower wages to their employees. Indeed, prior work provides evidence that family firms offer lower compensation than non-family firms (Bach and Serrano-Velarde, 2015; Ellul et al., 2018). However, given our finding that family firms hire lower-ability employees, the wage differences documented in previous studies could simply reflect compositional effects. That is, family firms may pay the same wages as non-family firms for employees of equivalent talent, but appear to pay less on average because they employ lower-ability workers.

Since compensation depends on many employee characteristics beyond IQ, simple regressions may not fully account for compositional differences between family and non-family firms. To address this, we use the additive two-way firm-worker-effects methodology introduced by Abowd et al. (1999) (hereafter AKM) to decompose wages into firm

and worker fixed effects.

We estimate the following log-linear equation:

$$\text{Log(Wage)}_{it} = \alpha_i + \psi_{j(i,t)} + \lambda_t + \varepsilon_{ijt}, \quad (2)$$

where the dependent variable is the logarithm of the wage of worker i at time t . The regression includes worker fixed effects, α_i , that control for permanent worker characteristics, such as ability, preferences, and bargaining power. The regression also includes firm fixed effects, $\psi_{j(i,t)}$, that account for the presence of firm-specific pay policies, and year fixed effects, λ_t , that absorb aggregate wage variation common to all workers in a given year.

Firm fixed effects reflect the additional compensation a firm pays to all its employees, flexibly controlling for its employee pool. Firms could differ in pay due to factors such as profitability, compensation philosophy, rent-sharing arrangements, or other firm-specific characteristics that affect wage-setting policies.

We estimate equation 2 on the expanded sample of firms and employees, which includes both men and women. Because this specification does not require a direct measure of IQ (which is absorbed into the worker fixed effect), it allows us to extend the analysis beyond the baseline sample of male workers. We present the results in Table 9. Columns (1)–(3) present average firm fixed effects for family and non-family firms, as well as the difference between these averages. They show that family firms pay less than non-family firms, even after controlling for differences in employee composition.

Columns (4)–(6) serve as a robustness test for the talent gap documented throughout the paper, using the worker fixed effect as an alternative, market-based proxy for talent.³ Column (6) shows that the average worker fixed effect is significantly lower in family firms than in non-family firms, confirming that family firms employ lower-talent individuals,

³The caveat in this analysis is that worker fixed effects are not a pure measure of talent: they capture all permanent determinants of pay, not only ability, and they are estimated with error when workers move infrequently across firms (Card et al., 2018; Bonhomme et al., 2019; Kline et al., 2020).

consistent with our earlier findings.

In sum, the AKM decomposition reveals that family firms both pay lower wages and employ lower-talent workers than non-family firms. Because the firm fixed effect is estimated net of worker fixed effects, this lower pay reflects firm pay policy rather than workforce composition, suggesting that lower compensation may itself contribute to the talent gap by making family firms less attractive to high-ability workers.

VI Discussion

VI.1 Retention of High-Ability Workers

The nepotism and compensation results above identify two forces that may deter talented workers from joining family firms. These mechanisms should also shape the decisions of high-ability employees *already* employed at family firms: if advancement is constrained by a surname ceiling and wages are lower, the most able workers have the weakest incentives to remain. We examine this implication by estimating a linear probability model in which the dependent variable is an indicator equal to one if the employee leaves the firm in a given year. The independent variables are *High Ability*, an indicator for above-median IQ in the sample; *Family Control*, an indicator for family-controlled firms; and their interaction. Across specifications, we progressively add year, industry, size-tercile, and occupation fixed effects, so that the comparison is made among observably similar workers and firms. Table 10 reports the results.

Family-controlled firms are less likely to lose employees on average, with a negative coefficient on *Family Control* of roughly 1.2 to 4.1 percentage points, consistent with the greater employment stability documented for family firms (Ellul et al., 2018; Sraer and Thesmar, 2007). This retention advantage, however, does not extend to their most able workers: the interaction *Family Control* $\times$ *High Ability* is positive and statistically significant across all specifications, offsetting much or all of the average effect. Family-controlled firms thus retain their workforce in general but fail to *preferentially* retain

talent.

Note that the high-ability employees we observe inside family firms are a selected group, namely those who chose to join despite the very deterrents we document, and are plausibly the workers least deterred by family control. This selection should, if anything, bias us against finding elevated attrition among talented family-firm workers, so our estimates are likely conservative.

VI.2 The Talent Gap and Firm Performance

As a final and more tentative exercise, we ask whether the talent gap is likely to matter for firm outcomes by relating firm productivity to the average ability of a firm’s workforce. We regress two measures of productivity, gross profit per worker (net of materials but before labor costs) and sales per worker (revenue per employee), on the average IQ of a firm’s employees, including firm and year fixed effects (Table 11). The coefficient on average IQ is positive and statistically significant for both outcomes: periods in which a firm employs a higher-ability workforce are periods of higher gross profit and sales per worker. This is consistent with a large literature establishing that workforce human capital is an important determinant of firm productivity (Hellerstein et al., 1999; Moretti, 2004; Iranzo et al., 2008; Bloom and Van Reenen, 2007; Bender et al., 2018).

We interpret this association as suggestive rather than causal, and it is not the goal of the paper to estimate the return to talent. The positive association is consistent with talent raising productivity, but it can equally reflect the reverse: periods in which a firm is more productive may also be periods in which it can attract and pay for higher-ability workers, so the causation may run from performance to talent rather than from talent to performance. Nonetheless, the positive within-firm link suggests that the talent gap we document is unlikely to be without consequences for firm performance.

VII Conclusion

Using IQ data from Danish military draft sessions, we document a large and statistically significant talent gap in family firms. Employees in family firms have lower cognitive ability and educational attainment than their counterparts in non-family firms. This gap is most pronounced at the top of the firm hierarchy, where cognitive ability is potentially most valuable for strategic decision-making and firm performance. Evidence from CEO successions, an instrumental variables strategy based on the gender composition of the departing CEO’s children, and a randomized survey experiment indicates that this gap reflects family control itself rather than other firm characteristics.

We investigate two mechanisms that may explain this talent allocation pattern. First, we provide evidence that nepotism in family firms limits advancement opportunities for non-family employees. Family members hold positions above what their qualifications would predict, while non-family employees are systematically placed below theirs. Anticipating these limited advancement opportunities, high-ability individuals may be less willing to join family firms. Second, family firms pay lower wages for equivalent talent levels, creating a compensation disadvantage when competing for high-ability workers.

Our findings have implications for both family business strategy and broader economic efficiency. First, nepotism can be costly beyond the direct effect of promoting unqualified family members. Indeed, the perception of a lack of meritocracy within the firm may discourage talented individuals from joining in the first place. For family businesses, this presents a fundamental trade-off between preserving family control and optimizing talent acquisition. Second, our results indicate that the prevalence of family firms in an economy may significantly influence the allocation of human capital across firms.

These patterns raise several questions for future research. First, estimating the productivity costs of the talent gap would quantify the economic magnitude of these effects. Second, understanding whether and how family firms might mitigate these disadvantages

while preserving family involvement represents an important practical question.

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Tables

Table 1: Summary Statistics

This table reports summary statistics for firm-year level variables for all firms in the sample, as well as separately for family and non-family firms. Family firms are those in which at least three board members or CEOs are related by blood or marriage; non-family firms are all others. For each firm, we average variables across years, so that each observation is a firm. The table reports the number of observations, means, and standard deviations (in parentheses), as well as the difference in means between family and non-family firms, with the standard error of the difference in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. For the conversion from DKK to USD, we use the year-end spot exchange rate. Firm-year level variables are winsorized at the 1% level.

Panel A : Firm Level

	All		Family Firms		Non-Family Firms		Difference
	Observations	Mean	Observations	Mean	Observations	Mean	
	(1)	(2)	(3)	(4)	(5)	(6)	
Total assets (mil. \$)	42,477	12.51 (174.59)	8,764	4.49 (26.49)	33,713	14.59 (195.45)	-10.10*** (2.09)
Sales (mil. \$)	46,216	10.45 (80.88)	9,403	4.73 (15.12)	36,813	11.91 (90.24)	-7.17*** (0.93)
Number of employees	46,219	35.84 (244.29)	9,403	18.97 (39.15)	36,816	40.15 (272.83)	-21.18*** (2.82)
Number board members + CEOs	46,219	4.93 (2.43)	9,403	4.00 (1.22)	36,816	5.17 (2.60)	-1.17*** (0.03)

Table 1: Summary Statistics, continued

This table reports summary statistics for employee-year level variables for all employees in the sample, as well as separately for family and non-family firms. Family firms are those in which at least three board members or CEOs are related by blood or marriage; non-family firms are all others. For each employee, we average variables across years. The table reports the number of observations, means, and standard deviations (in parentheses), as well as the difference in means between family and non-family firms, with the standard error of the difference in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel B : Employee-Level

	All		Family Firms		Non-Family Firms		Difference
	Observations	Mean	Observations	Mean	Observations	Mean	
	(1)	(2)	(3)	(4)	(5)	(6)	
Age	2,500,935	25.99 (7.09)	315,228	25.79 (6.96)	2,185,707	26.02 (7.11)	-0.23*** (0.01)
Male	2,500,935	0.99 (0.11)	315,228	0.99 (0.10)	2,185,707	0.99 (0.11)	0.00*** (0.00)
IQ	2,500,935	43.50 (8.98)	315,228	41.62 (8.75)	2,185,707	43.77 (8.98)	-2.15*** (0.02)
High school grade (percentile)	1,025,706	45.23 (28.34)	81,829	41.86 (28.02)	943,877	45.52 (28.34)	-3.66*** (0.10)
High school graduate	2,500,935	0.41 (0.49)	315,228	0.26 (0.44)	2,185,707	0.43 (0.50)	-0.17*** (0.00)
Wage (USD thousands)	2,500,935	38.58 (35.80)	315,228	36.54 (30.20)	2,185,707	38.88 (36.53)	-2.34*** (0.07)

Table 2: Employee IQ, by hierarchy level

This table reports IQ scores for all employees in the sample, as well as separately for employees in family and non-family firms. Family firms are those in which at least three board members or CEOs are related by blood or marriage; non-family firms are all others. For each employee, we average IQ across years to obtain a single measure per individual. Employees are grouped into three hierarchy levels: Row 1 corresponds to the top hierarchy (“upper management”), Row 2 to the middle hierarchy (“middle management”), and Row 3 to the lower hierarchy. The table reports the number of observations, means, and standard deviations (in parentheses), as well as the difference in means between family and non-family firms, with the standard error of the difference in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	All		Family Firms		Non-Family Firms		Difference
	Observations	Mean	Observations	Mean	Observations	Mean	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Top Hierarchy	318,466	48.95 (7.61)	17,005	47.10 (8.07)	301,461	49.05 (7.56)	-1.96*** (0.06)
Middle Hierarchy	305,455	45.87 (7.71)	21,400	44.36 (7.55)	284,055	45.98 (7.71)	-1.62*** (0.05)
Bottom Hierarchy	1,579,744	41.93 (8.85)	232,629	40.82 (8.62)	1,347,115	42.12 (8.87)	-1.30*** (0.02)

Table 3: Employee IQ, by occupational skill level

This table reports IQ scores for all employees in the sample, as well as separately for employees in family and non-family firms. Family firms are those in which at least three board members or CEOs are related by blood or marriage; non-family firms are all others. For each employee, we average IQ across years. Occupations are grouped into three skill levels using the entire population: Row 1 corresponds to high-skill occupations, Row 2 to medium-skill occupations, and Row 3 to low-skill occupations. The table reports the number of observations, means, and standard deviations (in parentheses), as well as the difference in means between family and non-family firms, with the standard error of the difference in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	All		Family Firms		Non-Family Firms		Difference
	Observations	Mean	Observations	Mean	Observations	Mean	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
High Skill	310,053	47.52 (8.29)	21,969	45.12 (8.73)	288,084	47.71 (8)	-2.59*** (0.06)
Medium Skill	604,396	42.78 (8.96)	58,533	41.47 (8.98)	545,863	42.92 (9)	-1.44*** (0.04)
Low Skill	451,798	41.07 (8.65)	83,537	40.04 (8.54)	368,261	41.30 (9)	-1.27*** (0.03)

Table 4: Average employee IQ as a function of family-firm status

This table reports the relationship between IQ and family firm status. The outcome in panel A is the average IQ of employees in the firm and the outcome in panel B is the IQ of each individual new hire. In both panels, the regressor is Family Control, which is an indicator equal to one if the firm is family-controlled. Family firms are those firms in which at least three board members or CEOs are related by blood or marriage; non-family firms are all others. Firm size is measured by total assets. Panel A is estimated at the firm-year level while Panel B is estimated at the worker-firm level. Standard errors are clustered at the firm level and reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A Firm Level							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Family Control	−2.250*** (0.064)	−2.249*** (0.064)	−2.131*** (0.066)	−1.053*** (0.062)	−0.870*** (0.10)	−1.048*** (0.094)	−1.182*** (0.096)
Observations	271,274	271,274	251,556	251,555	83,852	83,852	83,850
Year FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Size Control	No	No	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	No	Yes	Yes	Yes	Yes
Occ FE	No	No	No	No	No	No	No
Sample	All	All	All	All	Tercile 1	Tercile 2	Tercile 3
R^2	0.021	0.022	0.021	0.154	0.155	0.156	0.155

Table 4: Employee Level

Panel B New Hires					
	(1)	(2)	(3)	(4)	(5)
Family Control	−1.907*** (0.11)	−1.943*** (0.096)	−1.086*** (0.087)	−0.585*** (0.083)	−0.494*** (0.070)
Observations	1,056,518	1,056,518	1,056,079	473,524	473,473
R^2	0.004	0.026	0.057	0.106	0.115
Year of Birth FE	No	Yes	Yes	Yes	Yes
Industry FE	No	No	Yes	Yes	No
Occ FE	No	No	No	Yes	No
Ind $\times$ Occ FE	No	No	No	No	Yes

Table 5: Difference-in-Differences: CEO Successions and Employee Talent

This table reports the relationship between the type of succession (family or non-family) and the change in employee IQ. Family successions are CEO transitions in which the incoming and outgoing CEOs are related by blood or marriage; all other successions are classified as non-family. The outcome variable is the change in average IQ, measured as the difference between the five years after and the five years before succession. Column (1) reports results for new hires, while Column (2) reports results for all employees. Firm controls include firm asset size the year before succession. Standard errors are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	IQ	
	New Hires	All Employees
	(1)	(2)
Family Succession	-0.936*** (0.33)	-0.550*** (0.20)
Industry control	Yes	Yes
Firm Controls	Yes	Yes
Observations	5,091	5,884

Table 6: IV Estimates

This table reports the relationship between the type of succession (family or non-family) and the change in employee IQ, instrumenting for family succession. Family successions are CEO transitions in which the incoming and outgoing CEOs are related by blood or marriage; all other successions are classified as non-family. The outcome variable is the change in average IQ, measured as the difference between the five years after and the five years before succession. Panel A presents the second-stage results, and Panel B presents the first-stage results. Columns (1) and (2) in both panels use the change in average IQ of new hires, while Columns (3) and (4) use the change in average IQ of all employees. *Firstborn male* is an indicator for whether the CEO's firstborn child is male, and *# of sons* is the number of sons of the CEO. Firm controls include firm asset size. Standard errors are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel (A) Second Stage				
	New Hires		All Employees	
	(1)	(2)	(3)	(4)
Family Succession	-5.099 (4.706)	-5.594** (2.603)	-4.232 (3.746)	-4.329*** (1.944)
Observations	5,091	5,091	5,884	5,884
Industry FE	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes
Instrument Used:	Gender of Firstborn	# of Sons	Gender of Firstborn	# of Sons
Panel (B) First Stage				
	New Hires		All Employees	
	(1)	(2)	(3)	(4)
Firstborn male	0.041*** (0.009)		0.035*** (0.008)	
# of sons		0.042*** (0.005)		0.040*** (0.005)
F-Stat	23.118	69.446	18.150	67.572
Observations	5,091	5,091	5,884	5,884
Industry FE	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes

Table 7: Student Preferences for Family Firms

This table reports the relationship between students' job ratings and family firm status. Columns 4 to 6 report the results for students who rated their likelihood of being hired by the firm greater than 3 out of 5. We include question-level and individual fixed effects in all estimates. The controls are wage, size and non-wage amenities. Standard errors are reported in parentheses. ***, **, and * correspond to statistical significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Family-owned Firm	0.0419 (0.0496)	-0.0677 (0.0652)	0.167** (0.0762)	0.0536 (0.0700)	-0.0189 (0.0879)	0.136 (0.117)
Family-owned and Controlled Firm	-0.0626 (0.0496)	-0.187*** (0.0647)	0.0839 (0.0777)	-0.103 (0.0709)	-0.192** (0.0896)	-0.00148 (0.117)
Observations	3,420	1,952	1,468	1,384	846	538
Adjusted R^2	0.242	0.247	0.237	0.328	0.318	0.338
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Talent	All	High Talent	Low Talent	All	High Talent	Low Talent
Perceived Likelihood of Receiving an Offer	Any	Any	Any	High	High	High

Table 8: Actual and predicted position in the hierarchy of employees in family firms by their relation to the controlling family

The table reports the actual position of employees in family firms and their predicted positions if they worked for a non-family firm instead. To predict positions in non-family firms, we estimate a random forest model using data solely from employees in non-family firms. The dependent variable in this model is the employee's position within the organizational hierarchy, which is available in the data and takes one of five different values (e.g., top management, middle management, etc.). Higher numbers of this variable indicate higher positions within the firm, with a scale ranging from 1 to 5. The independent variables include a battery of individual and firm characteristics. The table presents actual and estimated positions for employees with different relations to the controlling family. Standard errors are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Relation to the executives of the controlling family	Actual position	Predicted position	Difference
Relative	3.1923	2.6532	0.5391*** (0.0045)
Nuclear relative	3.2227	2.6585	0.5642*** (0.0046)
Unrelated	2.1376	2.6319	-0.4943*** (0.0008)

Table 9: AKM Regression Results for Family and Non-Family Firms

The table reports average firm fixed effects and average worker fixed effects for family and non-family firms as estimated by equation 2. Columns (1) and (2) report the average estimated firm fixed effects for family and non-family firms respectively, whereas column (3) reports the difference between the two. Columns (4) and (5) report the estimated average worker fixed effects for employees in family and non-family firms respectively, whereas column (6) shows their difference. Standard errors are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

(1)	(2)	(3)	(4)	(5)	(6)
Average Firm Fixed Effect			Average Worker Fixed Effect		
Family Firms	Non-Family Firms	Difference	Family Firms	Non-Family Firms	Difference
-0.211	-0.167	-0.043***	-0.244	0.020	-0.264***
(0.016)	(0.006)	(0.016)	(0.003)	(0.001)	(0.003)

Table 10: Employee Exit, Ability, and Family Control

The table reports estimates from linear probability models in which the dependent variable, exit, is an indicator equal to one if the employee leaves the firm in a given year. The independent variables are High Ability, an indicator for whether the employee is above the median IQ within the sample, Family Control, an indicator for whether the employer is family-controlled, and their interaction. Firm size is measured by total assets. Standard errors are clustered at the firm level and reported in parentheses below each coefficient. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
High Ability	-0.0224*** (0.0035)	-0.0197*** (0.0018)	-0.0186*** (0.0019)	-0.00864*** (0.0022)
Family Control	-0.0409*** (0.0082)	-0.0124*** (0.0045)	-0.0207*** (0.0036)	-0.0160*** (0.0046)
Family Control $\times$ High Ability	0.0282*** (0.0051)	0.0148*** (0.0037)	0.0136*** (0.0038)	0.00769* (0.0046)
Observations	2,276,423	2,275,042	2,095,556	1,060,801
R^2	0.005	0.056	0.054	0.070
Year FE	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	Yes
Size Tercile FE	No	No	Yes	Yes
Occupation FE	No	No	No	Yes

Table 11: Firm Performance and Workforce Talent

The table reports estimates of the relationship between firm performance and the average ability of a firm's workforce. The dependent variable is gross profit per worker (gross profit divided by the number of employees) in column (1) and sales per worker (total sales divided by the number of employees) in column (2). The independent variable is the average IQ of the firm's employees. All specifications include firm and year fixed effects. Observations are at the firm-year level. Standard errors are reported in parentheses below each coefficient. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)
IQ	0.000567** (0.00028)	0.00101*** (0.00029)
Observations	242,260	251,359
R^2	0.648	0.803
Firm FE	Yes	Yes
Year FE	Yes	Yes

Table 12: Promotion

This table reports the relationship between promotions and family control. The dependent variable is promotion, an indicator for whether an employee's position in the firm hierarchy has increased in the year of observation. Age is a continuous variable equal to the age of the employee. Panel A is estimated on the employees of non-family firms together with the non-family employees of family firms; members of the controlling family are excluded. *Family Control* is an indicator equal to one if the firm is family-controlled and zero otherwise. In Panel B, we restrict the sample to family firms and add *Relative*, an indicator equal to one if the employee is related to the controlling family and zero otherwise. Standard errors are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel (A) All Firms			
	(1)	(2)	(3)
IQ	0.000419*** (0.000040)	0.000300*** (0.000034)	0.000282*** (0.000032)
Family Control	0.0108*** (0.0037)	0.00910*** (0.0035)	0.00762** (0.0034)
Family Control $\times$ IQ	-0.000262*** (0.000057)	-0.000197*** (0.000052)	-0.000166*** (0.000051)
Age	0.000755*** (0.00010)	0.000809*** (0.00010)	0.000751*** (0.000085)
Family Control $\times$ Age	-0.000225* (0.00012)	-0.000160 (0.00011)	-0.000125 (0.00011)
N	2,413,882	2,412,521	2,220,710
R^2	0.013	0.013	0.010
Year FE	Yes	Yes	Yes
Industry FE	No	Yes	Yes
Size Control	No	No	Yes
Panel (B) Family Firms			
	(1)	(2)	(3)
IQ	0.000157*** (0.000041)	0.000132*** (0.000039)	0.000157*** (0.000040)
Relative	0.0162* (0.0085)	0.0161* (0.0085)	0.0163* (0.0087)
Relative $\times$ IQ	-0.0000210 (0.00017)	-0.0000249 (0.00017)	-0.00000900 (0.00018)
Age	0.000528*** (0.000075)	0.000542*** (0.000078)	0.000494*** (0.000079)
Relative $\times$ Age	0.0000623 (0.00016)	0.0000427 (0.00016)	0.0000532 (0.00017)
N	308,417	308,370	295,643
R^2	0.009	0.010	0.010
Year FE	Yes	Yes	Yes
Industry FE	No	Yes	Yes
Size Control	No	No	Yes

Internet Appendix to

“The Talent Gap in Family Firms”

This appendix presents additional results to accompany the paper "The Talent Gap in Family Firms." The contents are as follows:

Appendix A presents supplementary tables with additional summary statistics, robustness checks, and alternative-measure analyses referenced in the main text (Tables A1–A10).

Appendix B presents supplementary figures motivating our talent measure (Figure B1).

Appendix C describes the design, implementation, and materials used in the survey experiment, including the survey flow, randomization procedures, and sample job postings, along with supporting tables and figures (Tables C1–C7 and Figures C1–C3).

A Tables

Table A1: Summary Statistics

This table reports summary statistics for firm-year level variables for all firms in the *expanded* sample (not restricting to employees with a valid IQ measure), as well as separately for family and non-family firms. Family firms are those in which at least three board members or CEOs are related by blood or marriage; non-family firms are all others. For each firm, we average variables across years, so that each observation is a firm. The table reports the number of observations, means, and standard deviations (in parentheses), as well as the difference in means between family and non-family firms, with the standard error of the difference in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. For the conversion from DKK to USD, we use the year-end spot exchange rate. Firm-year level variables are winsorized at the 1% level.

Panel A : Firm Level

	All		Family Firms		Non-Family Firms		Difference
	Observations	Mean	Observations	Mean	Observations	Mean	
	(1)	(2)	(3)	(4)	(5)	(6)	
Assets (mil. \$)	60,106	9.89 (153.36)	12,474	3.78 (21.43)	47,632	11.48 (171.89)	-7.70*** (1.54)
Sales (mil. \$)	67,738	7.26 (66.15)	14,074	3.26 (11.89)	53,664	8.31 (74.03)	-5.04*** (0.63)
# Employees	67,750	24.43 (197.97)	14,074	12.94 (32.63)	53,676	27.44 (221.68)	-14.50*** (1.87)
# Managers	67,750	4.71 (2.24)	14,074	3.91 (1.13)	53,676	4.92 (2.41)	-1.00*** (0.02)

Table A1: Summary Statistics, continued

This table reports summary statistics for employee-year level variables for all employees in the *expanded* sample (not restricting to employees with a valid IQ measure), as well as separately for family and non-family firms. Family firms are those in which at least three board members or CEOs are related by blood or marriage; non-family firms are all others. For each employee, we average variables across years. The table reports the number of observations, means, and standard deviations (in parentheses), as well as the difference in means between family and non-family firms, with the standard error of the difference in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel B : Employee-Level

	All		Family Firms		Non-Family Firms		Difference
	Observations	Mean	Observations	Mean	Observations	Mean	
	(1)	(2)	(3)	(4)	(5)	(6)	
Age	14,802,027	38.97 (13.30)	1,720,186	39.49 (14.02)	13,081,841	38.90 (13.20)	0.59*** (0.01)
Male	14,802,027	0.65 (0.48)	1,720,186	0.70 (0.46)	13,081,841	0.64 (0.48)	0.06*** (0.00)
IQ	2,500,935	43.50 (8.98)	315,228	41.62 (8.75)	2,185,707	43.77 (8.98)	-2.15*** (0.02)
High school grade percentile	3,885,885	47.26 (28.34)	301,889	43.78 (28.08)	3,583,996	47.55 (28.35)	-3.77*** (0.05)
High school graduate	14,802,856	0.26 (0.44)	1,720,258	0.18 (0.38)	13,082,598	0.27 (0.45)	-0.10*** (0.00)
Wage (USD thousands)	14,802,856	49.64 (43.24)	1,720,258	43.98 (34.85)	13,082,598	50.38 (44.18)	-6.40*** (0.04)

Table A2: High school outcomes by hierarchy

This table reports high school outcomes by hierarchy level for all employees in the *expanded* sample, as well as separately for employees in family and non-family firms. Family firms are those in which at least three board members or CEOs are related by blood or marriage; non-family firms are all others. For each employee, we average variables across years. Employees are grouped into three hierarchy levels: top, middle, and bottom. Panel A reports the high school grade percentile and Panel B reports an indicator for having completed high school. The table reports the number of observations, means, and standard deviations (in parentheses), as well as the difference in means between family and non-family firms, with the standard error of the difference in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	All		Family Firms		Non-Family Firms		Difference
	Observations	Mean	Observations	Mean	Observations	Mean	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: High school grade percentile							
Top hierarchy	952,874	55.89	40,085	48.93	912,789	56.19	-7.26***
		(27.69)		(27.80)		(28.00)	(0.14)
Middle hierarchy	709,391	44.64	37,283	40.79	672,108	44.85	-4.06***
		(27.23)		(26.48)		(27.00)	(0.14)
Bottom hierarchy	1,755,993	43.72	168,309	42.74	1,587,684	43.82	-1.07***
		(28.12)		(28.28)		(28.00)	(0.07)
Panel B: High school graduate							
Top hierarchy	2,234,838	0.43	140,168	0.29	2,094,670	0.44	-0.15***
		(0.49)		(0.45)		(0.00)	(0.00)
Middle hierarchy	2,402,334	0.30	163,395	0.23	2,238,939	0.30	-0.07***
		(0.46)		(0.42)		(0.00)	(0.00)
Bottom hierarchy	8,476,674	0.21	1,126,569	0.15	7,350,105	0.22	-0.07***
		(0.41)		(0.36)		(0.00)	(0.00)

Table A3: Employee high school grades and completion, by occupational skill

This table reports summary statistics for the employee-year level talent variables by occupation skill level for all the employees in the sample and for employees in family and non-family firms, respectively. For each employee we average across years. To group occupations into three level of skill, we rank them by the average grade of the employees in the occupation. Panel A compares employees in high skill occupations, Panel B medium skill, and Panel C low skill occupations. The table reports the number of observations, means, and standard deviations (in parentheses), as well as the difference in means between family and non-family firms, with the standard error of the difference in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	All		Family Firms		Non-Family Firms		Difference
	Observations	Mean	Observations	Mean	Observations	Mean	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: High school grade percentile							
High Skill	795,934	53.38	48,419	47.94	747,515	53.74	-5.79***
		(27.99)		(28.11)		(28)	(0.13)
Medium Skill	1,037,440	44.56	85,976	43.33	951,464	44.67	-1.34***
		(27.77)		(27.81)		(28)	(0.10)
Low Skill	185,153	38.23	18,857	36.12	166,296	38.47	-2.35***
		(27.41)		(27.06)		(27)	(0.21)
Panel B: High school graduate							
High Skill	1,841,267	0.43	152,797	0.32	1,688,470	0.44	-0.13***
		(0.50)		(0.47)		(0)	(0.00)
Medium Skill	2,846,182	0.36	290,965	0.30	2,555,217	0.37	-0.08***
		(0.48)		(0.46)		(0)	(0.00)
Low Skill	2,040,970	0.09	315,675	0.06	1,725,295	0.10	-0.04***
		(0.29)		(0.24)		(0)	(0.00)

Table A4: Difference-in-Differences: High School Grades

This table reports the change in average employee talent after family successions, using high school grade percentile as the measure of talent. Successions are identified by a change in CEO, and family succession is defined as cases where the outgoing and incoming CEO are related by blood or marriage. Firm controls include firm asset size. Standard errors are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	High School Grade	
	New Hires	All Employees
	(1)	(2)
Family Succession	-1.205 (1.02)	-0.728 (0.63)
<i>Industry FE</i>	Yes	Yes
<i>Firm Controls</i>	Yes	Yes
Observations	5,569	6,528

Table A5: IV Estimates: High School Grades

This table reports the change in average employee high school grade percentile after family successions. The outcome variable, change in high school grade, is created by using the difference in average employee high school grade percentile between the five years after the succession and the five years before the succession. The first 2 columns average the high school grade percentile of new hires within 5 years of the succession and the second 2 columns use the average high school grade percentile of all employees at the firm within 5 years of the succession. Successions are identified by a change in CEO and family succession is defined by determining if the old CEO is related to the new CEO by blood or marriage. Panel A presents the results of the second stage, while Panel B presents the first stage results. Firm controls include firm asset size. Standard errors are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel (A) Second Stage				
	New Hires		All Employees	
	(1)	(2)	(3)	(4)
Family Succession	-32.510 (27.641)	-7.040 (10.126)	-12.246 (16.944)	-3.273 (5.939)
Observations	5,569	5,487	6,528	6,528
<i>Industry FE</i>	Yes	Yes	Yes	Yes
<i>Firm Controls</i>	Yes	Yes	Yes	Yes
<i>Instrument Used:</i>	Gender of Firstborn	# of Sons	Gender of Firstborn	# of Sons
Panel (B) First Stage				
	New Hires		All Employees	
	(1)	(2)	(3)	(4)
Firstborn male	0.020*** (0.008)		0.020*** (0.008)	
# of sons		0.027*** (0.005)		0.031*** (0.005)
F-Stat	6.532	33.106	7.238	47.406
Observations	5,569	5,569	6,528	6,528
<i>Industry FE</i>	Yes	Yes	Yes	Yes
<i>Firm Controls</i>	Yes	Yes	Yes	Yes

Table A6: Average Firm IQ by Outgoing CEO Family Composition

The table reports the average IQ of a firm's employees by the family composition of the outgoing CEO. For each firm in our sample that undergoes a CEO succession, defined as a CEO leaving and a new CEO being hired in the same year, we calculate the average IQ of the firm's employees 5 years prior to the succession. We then compare this average firm IQ across groups defined by the number of sons the outgoing CEO has at the time of succession.

Panel A: Group means			
Group	N	Mean	Std. Dev.
0 sons	2,824	43.762	6.543
1 son	1,267	43.866	6.292
2+ sons	876	43.762	6.313
Panel B: Pairwise comparisons (Bonferroni-adjusted)			
Comparison	Difference	Std. Err.	<i>p</i> -value
1 son vs. 0 sons	0.104	0.215	1.000
2+ sons vs. 0 sons	0.001	0.246	1.000
2+ sons vs. 1 son	-0.103	0.277	1.000

Table A7: Average Firm IQ by Gender of Outgoing CEO's Firstborn Child

The table reports the average IQ of a firm's employees by the gender of the outgoing CEO's firstborn child. For each firm in our sample that undergoes a CEO succession, defined as a CEO leaving and a new CEO being hired in the same year, we calculate the average IQ of the firm's employees 5 years prior to the succession. We then compare this average firm IQ across groups defined by the gender of the firstborn child of the outgoing CEO.

Panel A: Group means			
Firstborn	N	Mean	Std. Dev.
Female (= 0)	3,512	43.743	6.506
Male (= 1)	1,455	43.899	6.272
Panel B: Regression of IQ on firstborn male			
	Coef.	Robust S.E.	<i>p</i> -value
Firstborn male	0.156	0.198	0.430
Constant	43.743	0.110	0.000

Table A8: Employee IQ, by hierarchy level excluding relatives

This table repeats the analysis of Table 2, removing the IQ scores for employees of family firms who are related to the controlling family. Family firms are those in which at least three board members or CEOs are related by blood or marriage; non-family firms are all others. For each employee, we average IQ across years. Employees are grouped into three hierarchy levels: Row 1 corresponds to the top hierarchy (“upper management”), Row 2 to the middle hierarchy (“middle management”), and Row 3 to the lower hierarchy. The table reports the number of observations, means, and standard deviations (in parentheses), as well as the difference in means between family and non-family firms, with the standard error of the difference in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	All		Family Firms		Non-Family Firms		Difference
	Observations	Mean	Observations	Mean	Observations	Mean	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Top Hierarchy	315,106	48.99 (7.59)	13,645	47.53 (8.04)	301,461	49.05 (7.56)	-1.53*** (0.07)
Middle Hierarchy	303,824	45.87 (7.71)	19,769	44.36 (7.55)	284,055	45.98 (7.71)	-1.62*** (0.06)
Bottom Hierarchy	1,569,958	41.93 (8.85)	222,843	40.77 (8.64)	1,347,115	42.12 (8.87)	-1.35*** (0.02)

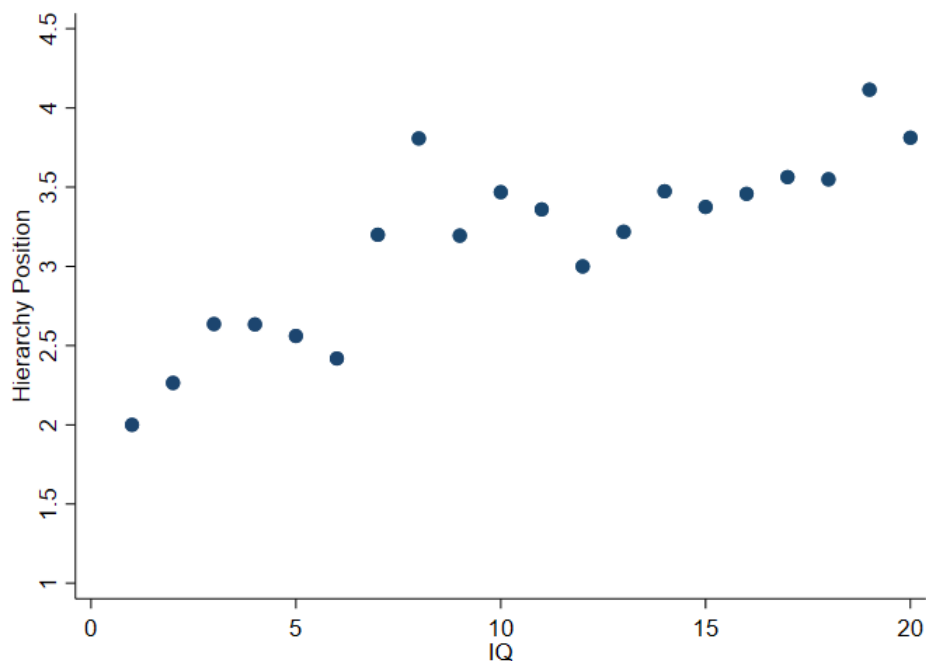
Table A9: Employee IQ, by occupational skill level, excluding relatives

This table repeats the analysis of Table 3 while removing all employees of family firms who are related to the controlling family. The table reports IQ scores for all employees in the reduced sample, as well as separately for employees in family and non-family firms. Family firms are those in which at least three board members or CEOs are related by blood or marriage; non-family firms are all others. For each employee, we average IQ across years. Occupations are grouped into three skill levels using the entire population: Row 1 corresponds to high-skill occupations, Row 2 to medium-skill occupations, and Row 3 to low-skill occupations. The table reports the number of observations, means, and standard deviations (in parentheses), as well as the difference in means between family and non-family firms, with the standard error of the difference in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

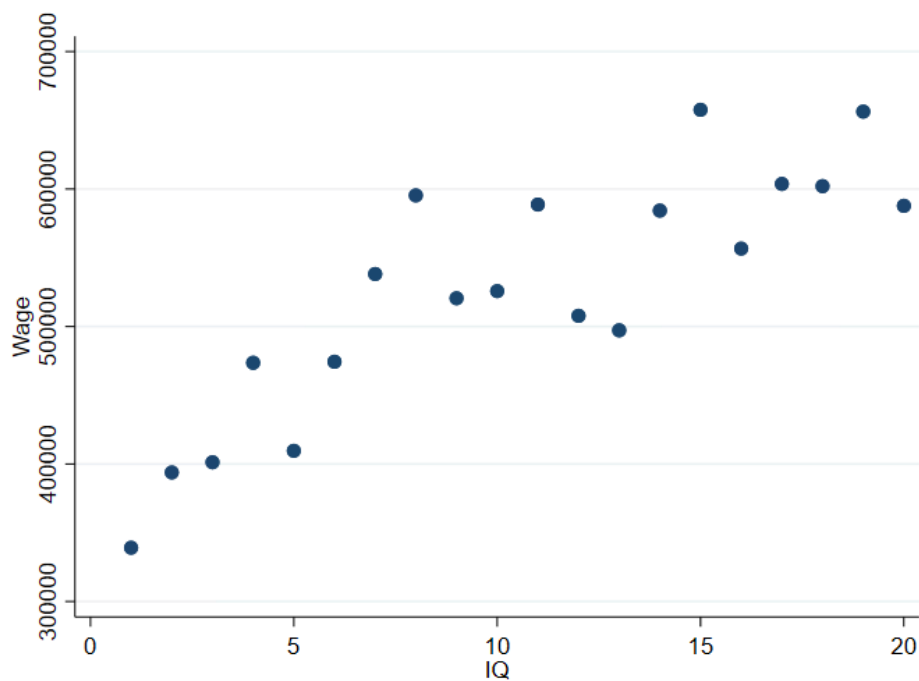
	All		Family Firms		Non-Family Firms		Difference
	Observations	Mean	Observations	Mean	Observations	Mean	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
High Skill	306,831	47.55 (8.29)	18,747	45.20 (8.84)	288,084	47.71 (8.00)	-2.51*** (0.06)
Medium Skill	581,133	42.78 (8.96)	52,965	41.37 (8.98)	528,168	42.90 (9)	-1.52*** (0.04)
Low Skill	468,110	41.17 (8.67)	82,154	40.04 (8.59)	385,956	41.41 (9.00)	-1.37*** (0.03)

B IQ and Career Progression

Figure B1: These figures show the relationship between IQ and career progression, measured by hierarchy position and wage. The hierarchy position within the firm ranges from 1 (bottom) to 5 (top). We sort individuals into IQ ventiles and plot the corresponding mean hierarchy position and mean wage for each ventile, computed over the full sample.



(a) Average hierarchy position by ventiles of IQ.



(b) Average wage by ventiles of IQ.

C Survey Details

C.1 Survey Flow

Consent Letter

Q1: Do you accept the terms?

I accept; I do not accept

Industry Selection

Q2: Which industry would you be interested in seeing positions for?

Accounting; Finance; Business Administration

Job Postings 1-15

Impressions

Q4: What do you think about working for a small company? Please list any associations you have about culture, leadership, and stability.

Open-ended

Q5: What do you think about working for a family firm? Please list any associations you have about culture, leadership, and stability.

Open-ended

Q6: What do you think about working for a fast-growing company? Please list any associations you have about culture, leadership, and stability.

Open-ended

Demographics

Q7: What gender do you identify as?

Man; Woman; Non-binary; Other; Prefer not to say

Q8: What zipcode do you live in?

Open-ended

Q9: What was your grade point average in the education (e.g. high school) that gave you access to your current study?

Open-ended

Q10: How many years do you expect to have left before you finish your studies? (Please write the number of years until you finish your master's degree; if you are sure to leave the study after the first part, then write how many years until then).

Open-ended

Conclusion

Q11: We thank you for your time spent on this survey. Your response has been recorded.

C.2 Job Rating Template

Company History

Introductory Statement

Family Firm Statement

About the Job

As a *Job Title*, you will be responsible for *Job Responsibilities*

About the Job *Job Descriptions*

Applicant Requirements

Benefits

Benefits

Wage

Wage Distribution

C.3 Job Rating Components

Table C1: Introductory Sentences

The distributions of the bracketed placeholders <i>[size]</i> and <i>[founding year]</i> appear in Table C7.	
Text	
We are a company with <i>[size]</i> employees, based in Greater Copenhagen, working purposefully to create value for our customers.	
With us, you have the opportunity to join a dedicated team of <i>[size]</i> employees in the heart of Copenhagen.	
Become part of a dynamic organization with <i>[size]</i> staff members, where we develop innovative solutions together in Copenhagen.	
We offer an inspiring work environment in Copenhagen with <i>[size]</i> dedicated employees. Since <i>[founding year]</i> , we have focused on professional development and collaboration.	
As an employee with us, you join a strong community of <i>[size]</i> colleagues in Greater Copenhagen. We have been on the market since <i>[founding year]</i> . Our company in Copenhagen consists of <i>[size]</i> committed employees who create results together. We were founded in <i>[founding year]</i> .	
You will have the opportunity to work in a professional team of <i>[size]</i> people in the Greater Copenhagen area. The company has existed since <i>[founding year]</i> .	
We are proud of our history and today we count <i>[size]</i> employees in Copenhagen.	
With us, you become part of a well-functioning team of <i>[size]</i> employees working together to achieve our goals in Copenhagen.	
We have developed into a company with <i>[size]</i> employees, all working in Greater Copenhagen.	
Our office in Copenhagen houses a dedicated team of <i>[size]</i> employees.	
Become part of our company in Copenhagen, where we are <i>[size]</i> employees creating a strong professional environment together.	
We are based in Greater Copenhagen and employ <i>[size]</i> employees, all contributing to our success.	
We have built a team of <i>[size]</i> employees in Copenhagen, where we work purposefully with development and collaboration.	
You will join a company with <i>[size]</i> employees in Copenhagen, where we have focused on quality and development.	

Table C2: Company Founding Sentences with Family Ownership Variations

Each job posting was randomly assigned a family ownership intensity level and founding year using the distribution in Table C7. Each question had a unique set of sentences to prevent any family name appearing twice for any given participant. We include question fixed effects to account for any exogenous associations with a given name or structure.

Family Ownership Intensity	Sentence
1	The company was founded in the year <i>Founding Year</i> .
2	The company was founded in the year <i>Founding Year</i> by the Jensen family, who remain the main shareholder.
3	The company was founded in the year <i>Founding Year</i> by the Jensen family, who remain the main shareholder. Several generations of the family are still active in operations.
1	Since <i>Founding Year</i> , the company has existed.
2	Since <i>Founding Year</i> , the company has been owned by the Nielsen family, who still own the majority.
3	Since <i>Founding Year</i> , the company has been owned by the Nielsen family, who still own the majority. Several family members are actively involved in daily operations.
1	The company has roots dating back to <i>Founding Year</i> .
2	The company has roots dating back to <i>Founding Year</i> , when the Hansen family founded and still owns the company.
3	The company has roots dating back to <i>Founding Year</i> , when the Hansen family founded and still owns the company. The family remains active in management.
1	The firm was established in <i>Founding Year</i> .
2	The firm was established in <i>Founding Year</i> by the Madsen family, who still own it.
3	The firm was established in <i>Founding Year</i> by the Madsen family, who still own it. Several generations still work in the firm.
1	Since its start in <i>Founding Year</i> , the company has developed.

Continued on next page

Table C2 – *Continued from previous page*

Family Ownership Intensity	Sentence
2	Since its start in <i>Founding Year</i> , the company has been owned by the Sørensen family, who still have control.
3	Since its start in <i>Founding Year</i> , the company has been owned by the Sørensen family, who still have control. The family is actively involved in the company's operations.
1	The company was founded in <i>Founding Year</i> .
2	The company was founded in <i>Founding Year</i> by the Kristensen family, who still own the company.
3	The company was founded in <i>Founding Year</i> by the Kristensen family, who still own the company. Several family members hold leading roles.
1	Founded in <i>Founding Year</i> , the company has existed for many years.
2	Founded in <i>Founding Year</i> by the Pedersen family, who still own the company.
3	Founded in <i>Founding Year</i> by the Pedersen family, who still own the company. The family is active in daily management.
1	The company has existed since <i>Founding Year</i> .
2	The company has existed since <i>Founding Year</i> , when the Thomsen family founded and still owns the company.
3	The company has existed since <i>Founding Year</i> , when the Thomsen family founded and still owns the company. Several generations continue to work in the company.
1	The firm was started in <i>Founding Year</i> .
2	The firm was started in <i>Founding Year</i> by the Larsen family, who still own it.
3	The firm was started in <i>Founding Year</i> by the Larsen family, who still own it. The family is active in the company's operations.
1	The company has been active since <i>Founding Year</i> .

Continued on next page

Table C2 – *Continued from previous page*

Family Ownership Intensity	Sentence
2	The company has been active since <i>Founding Year</i> , when the Mortensen family founded and still owns the company.
3	The company has been active since <i>Founding Year</i> , when the Mortensen family founded and still owns the company. Several family members work in the company.
1	The company was established in <i>Founding Year</i> .
2	The company was established in <i>Founding Year</i> by the Rasmussen family, who still own the company.
3	The company was established in <i>Founding Year</i> by the Rasmussen family, who still own the company. The family still plays an active role.
1	Since <i>Founding Year</i> , the company has been part of the local community.
2	Since <i>Founding Year</i> , the company has been owned by the Olesen family, who still have ownership.
3	Since <i>Founding Year</i> , the company has been owned by the Olesen family, who still have ownership. Several generations are involved in operations.
1	The company was founded in <i>Founding Year</i> .
2	The company was founded in <i>Founding Year</i> by the Iversen family, who still own the company.
3	The company was founded in <i>Founding Year</i> by the Iversen family, who still own the company. The family is active in management.
1	The firm has existed since <i>Founding Year</i> .
2	The firm has existed since <i>Founding Year</i> , when the Poulsen family founded and still owns the firm.

Continued on next page

Table C2 – *Continued from previous page*

Family Ownership Intensity	Sentence
3	The firm has existed since <i>Founding Year</i> , when the Poulsen family founded and still owns the firm. Several family members work in the firm.
1	The company was created in <i>Founding Year</i> .
2	The company was created in <i>Founding Year</i> by the Møller family, who still own the company.
3	The company was created in <i>Founding Year</i> by the Møller family, who still own the company. The family is actively involved in operations.

Table C3: Job Titles by Industry

Each participant saw 5 job postings with each title in their selected industry.

Industry	Job Title
Accounting	Accountant; Auditor; Financial Accountant
Finance	Business Analyst; Financial Analyst; Risk Analyst
Business Administration	Business Analyst; Project Manager; Logistics Coordinator
Economics	Economist; Financial Analyst; Political Consultant

Table C4: Job Responsibilities by Title and Industry

Each job posting was randomly assigned 4 responsibilities from the list for the assigned job title.

Job Title	Job Responsibilities
Panel A: Accounting Positions	
Accountant	As an accountant, you will be responsible for bookkeeping, account reconciliation, and payroll administration. You contribute to budgeting, reporting, and process optimization in an engaged team. You handle daily accounting tasks, including accounts payable and receivable, payroll, and reconciliations. You participate in monthly and annual closings and help improve workflows. In the role of accountant, you work with financial management, reporting, and ongoing optimization of accounting processes. You are responsible for ensuring accurate and timely accounts. You become part of a team where you handle bookkeeping, reconciliations, and payroll administration. You support the finance function and contribute to the development of internal processes. As an accountant, you have the opportunity to work with accounting, payroll, and reporting. You contribute to optimizing financial processes and collaborate closely with colleagues across departments.
Auditor	As an auditor, you work with a portfolio of small and medium-sized businesses. You take responsibility for your own clients and share knowledge with colleagues in close cooperation. You join a team where you build relationships with clients and take responsibility for your own cases. You contribute to knowledge sharing and team development. In the role of auditor, you have the opportunity to work independently with auditing and advisory tasks. You collaborate with colleagues and continuously develop your skills. You are responsible for auditing clients' accounts and participate in advisory services. You work closely with colleagues and contribute to a strong professional environment.

Continued on next page

Table C4 – *Continued from previous page*

Job Title	Job Responsibilities
	As an auditor, you have the opportunity to develop professionally and personally. You work with your own clients and are part of a team where knowledge sharing and collaboration are in focus.
Financial Accountant	As a financial accountant, you independently handle ongoing bookkeeping, account reconciliations, and reporting. You prepare analyses and reports for management. You are responsible for accounting tasks such as accounts payable, bank reconciliations, and reporting. You contribute to financial management and process optimization. In the role of financial accountant, you work with daily bookkeeping, reconciliations, and preparation of financial analyses. You support management with reporting. You become part of a team where you handle accounting tasks and prepare reports. You help ensure accurate and timely accounts. As a financial accountant, you have the opportunity to develop your accounting skills and work with analyses, reporting, and optimization of financial processes.
Panel B: Finance Positions	
Business Analyst	As a business analyst, you analyze business and financial systems, describe solutions, and implement new processes in collaboration with cross-functional teams. You work on identifying improvement opportunities, developing solutions, and ensuring implementation of new processes. You collaborate closely with colleagues across departments. In the role of business analyst, you turn data and processes into concrete improvements. You test and maintain solutions in collaboration with relevant teams. You are responsible for analyzing current systems, developing optimization proposals, and implementing new processes. You work closely with management and colleagues.

Continued on next page

Table C4 – *Continued from previous page*

Job Title	Job Responsibilities
	As a business analyst, you contribute to the development and maintenance of business processes. You collaborate with cross-functional teams and ensure ongoing improvements.
Financial Analyst	As a financial analyst, you turn data into insights and deliver analyses to management. You support financial management and contribute to the company's development. You work on preparing financial analyses, reporting, and performance management. You ensure financial robustness and support management with decision-making. In the role of financial analyst, you contribute to budgeting, reporting, and development of financial processes. You work closely with management. You are responsible for analyzing financial data, preparing reports, and supporting financial management. You help strengthen the company's financial foundation. As a financial analyst, you work on developing and improving financial management tools. You prepare analyses and reports for management and contribute to business development.
Risk Analyst	As a risk analyst, you assess loan applications, prepare risk frameworks, and evaluate new investments. You write analyses and reports for management. You work on identifying and monitoring risks, preparing recommendations, and ensuring compliance with risk policies. You contribute to the company's risk management. In the role of risk analyst, you analyze credit applications, monitor risk frameworks, and prepare reports. You collaborate with colleagues on risk management. You are responsible for evaluating new investments, formulating risk frameworks, and preparing analyses. You help strengthen the company's risk processes. As a risk analyst, you work with risk assessment, reporting, and development of risk management tools. You collaborate with management and relevant teams.

Continued on next page

Table C4 – *Continued from previous page*

Job Title	Job Responsibilities
Panel C: Business Administration Positions	
Business Analyst	As a business analyst, you identify and analyze business needs, optimize processes, and present analyses to management. You develop and maintain business solutions. You work on mapping and optimizing business processes in collaboration with stakeholders. You communicate analyses and solutions to management. In the role of business analyst, you contribute to the development and implementation of business strategies. You analyze needs and ensure ongoing process improvements. You are responsible for analyzing and qualifying business requirements, optimizing processes, and presenting results to management. You collaborate across the organization. As a business analyst, you work on developing and maintaining business processes. You ensure clear communication of analyses and solutions to relevant parties.
Project Manager	As a project manager, you coordinate and facilitate project implementation, monitor progress, and provide support to project stakeholders and participants. You work on planning, executing, and following up on projects. You advise and support project teams and ensure progress. In the role of project manager, you are responsible for leading projects from start to finish. You ensure coordination, follow-up, and support to project parties. You are responsible for implementing and optimizing projects, monitoring progress, and providing advice to participants. You work closely with stakeholders. As a project manager, you work to ensure effective project execution, support project teams, and contribute to ongoing process improvements.

Continued on next page

Table C4 – *Continued from previous page*

Job Title	Job Responsibilities
Logistics Coordinator	As a logistics coordinator, you coordinate daily logistics and shipping activities, handle order processing and invoicing, and book and manage transportation. You work to ensure efficient logistics, handle order processing and shipments, and prepare data and presentations for management. In the role of logistics coordinator, you are responsible for coordinating shipments, following up on orders, and preparing reports for management. You are responsible for managing logistics processes, handling transportation and invoicing, and analyzing data for management reporting. As a logistics coordinator, you work to optimize logistics activities, ensure correct order processing, and prepare presentations for management.
Panel D: Economics Positions	
Economist	As an economist, you prepare economic analyses, market studies, and impact assessments. You monitor and evaluate financial institutions or sectors. You work on analyzing economic conditions, preparing assessments, and contributing to decision-making for management. In the role of economist, you contribute to preparing analyses, evaluating effects, and monitoring developments in relevant sectors. You are responsible for conducting economic analyses, preparing reports, and contributing to the monitoring of financial institutions. As an economist, you work on analyzing market conditions, preparing impact assessments, and monitoring sector developments.
Financial Analyst	As a financial analyst, you develop and improve financial management tools, prepare budgets, and analyze financial matters related to operations and investments. You work on preparing and managing budgets, analyzing financial data, and contributing to the company's financial development.

Continued on next page

Table C4 – *Continued from previous page*

Job Title	Job Responsibilities
	In the role of financial analyst, you are responsible for developing financial management processes, preparing analyses, and reports for management. You are responsible for analyzing financial matters, preparing budgets, and contributing to the optimization of financial management. As a financial analyst, you work on developing and improving financial management tools, preparing analyses, and reports for management.
Political Consultant	As a political consultant, you develop and refine political strategies, collaborate with parliamentary members, and coordinate cross-departmental projects. You work on analyzing political processes, preparing input, and coordinating cases across departments. In the role of political consultant, you contribute to developing policies, collaborating with relevant actors, and analyzing complex issues. You are responsible for coordinating political projects, preparing analyses, and advising on political processes. As a political consultant, you work on developing strategies, analyzing political matters, and collaborating with relevant stakeholders.

Table C5: Job Qualifications by Title and Industry

Each job posting was randomly assigned 4 qualifications from the list for the given position.

Job Title	Job Qualifications
Panel A: Accounting Positions	
Accountant	Experience with bookkeeping and account reconciliation, Knowledge of payroll administration, Strong teamwork skills, Ability to work in a structured and detail-oriented manner, Experience with daily accounting tasks, Knowledge of accounts payable and receivable management, Experience with payroll administration and reconciliations, Ability to participate in monthly and annual closings, Experience with financial management and accounting processes, Strong analytical skills and attention to detail, Ability to deliver accurate and timely reports, Independent and structured work approach, Experience with bookkeeping and reconciliation, Structured and detail-oriented work approach, Ability to contribute to the development of internal processes, Experience with accounting and payroll administration, Good collaboration skills across departments, Ability to optimize and improve financial processes, Strong reporting skills, Experience with auditing small and medium-sized enterprises, Strong collaboration skills, Ability to work independently with own client portfolio
Auditor	Good collaboration skills, Strong communication skills, Experience with auditing and client relations, Ability to work independently and take responsibility, Experience with auditing and advisory services, Willingness to continuously develop competencies, Experience with auditing financial statements, Strong advisory competencies, Ability to contribute to a professional environment, Ability to work independently with own clients, Interest in professional and personal development, Experience with independent bookkeeping, Strong analytical skills, Experience with account reconciliation, Ability to prepare reports for management

Continued on next page

Table C5 – *Continued from previous page*

Job Title	Job Qualifications
Financial Accountant	Experience with independent bookkeeping, Strong analytical skills, Experience with account reconciliation, Ability to prepare reports for management, Experience with accounts payable and accounting tasks, Strong skills in bank reconciliation, Ability to prepare reporting, Structured and detail-oriented approach to financial management, Experience with daily bookkeeping and reconciliations, Strong analytical skills in financial analysis, Experience in preparing reports for management, Structured and detail-oriented work approach, Experience with accounting tasks and bookkeeping, Ability to prepare accurate reports, Able to meet deadlines and work independently, Experience with accounting and bookkeeping, Interest in optimizing financial processes
Panel B: Finance Positions	
Business Analyst	Strong analytical skills, Experience with business and financial systems, Good collaboration skills across teams, Ability to implement and optimize processes, Experience with process improvements, Good collaboration skills across departments, Ability to implement new solutions, Experience in translating data into business solutions, Good collaboration skills, Experience with testing and maintaining solutions, Experience with process optimization, Experience with development and maintenance of business processes, Strong collaboration skills across disciplines, Ability to identify and implement continuous improvements

Continued on next page

Table C5 – *Continued from previous page*

Job Title	Job Qualifications
Financial Analyst	Strong analytical skills, Experience with data analysis and reporting, Good communication skills, Ability to work in a structured and independent manner, Experience with financial reporting, Good understanding of performance management, Ability to communicate complex financial data to management, Experience with budgeting and reporting, Good collaboration skills, Ability to develop and optimize financial processes, Experience with financial management tools, Good communication skills, both written and verbal, Ability to prepare reports and present results to management
Risk Analyst	Strong analytical skills, Experience with risk assessment and report writing, Good written communication skills, Ability to work in a structured and independent manner, Experience with risk assessment and monitoring, Ability to develop clear recommendations, Knowledge of risk policies and compliance, Experience with credit assessment and risk evaluation, Good collaboration skills, Ability to prepare accurate reports, Experience with risk assessment and investments, Ability to formulate clear risk frameworks, Structured approach to preparing analyses, Experience with risk assessment and reporting, Experience with development of risk management tools
Panel C: Business Administration Positions	
Business Analyst	Strong analytical skills, Experience with process optimization, Good communication skills, both verbal and written, Ability to develop and maintain business solutions, Experience with mapping and optimizing business processes, Strong communication skills, both verbal and written, Ability to collaborate with various stakeholders, Analytical mindset and problem-solving skills, Experience with developing and implementing business strategies, Ability to identify and execute process improvements, Ability to collaborate across departments, Experience with developing and maintaining business processes, Good communication skills across stakeholders

Continued on next page

Table C5 – *Continued from previous page*

Job Title	Job Qualifications
Project Manager	Experience in project management, Strong coordination and facilitation skills, Ability to monitor project progress, Good collaboration skills with stakeholders, Experience with project management, Strong planning and follow-up skills, Good collaboration skills and ability to advise teams, Strong coordination and follow-up skills, Good communication skills, Ability to support and motivate project teams, Strong communication skills, Ability to collaborate with various stakeholders, Structured and results-oriented approach, Strong collaboration skills, Ability to optimize and improve processes
Logistics Coordinator	Experience in coordinating logistics and shipping, Strong organizational skills, Experience with order processing and invoicing, Good communication skills, Experience with logistics and order processing, Familiarity with data analysis and presentations, Experience with shipment coordination, Ability to prepare reports, Structured and detail-oriented approach, Experience with logistics management and transport coordination, Strong analytical skills and experience with data processing, Ability to handle invoicing and administrative tasks, Good communication skills, both verbal and written, Ability to prepare presentations for management
Panel D: Economics Positions	
Economist	Strong analytical skills, Experience with economic analyses and market studies, Ability to conduct impact assessments, Knowledge of monitoring and evaluating financial institutions or sectors, Experience with economic analysis, Good communication skills, both written and verbal, Experience with evaluation and reporting, Ability to monitor and interpret data trends, Experience with economic analysis and reporting, Ability to work in a structured and independent manner, Experience with market analysis, Good at monitoring and reporting sector developments

Continued on next page

Table C5 – *Continued from previous page*

Job Title	Job Qualifications
Financial Analyst	Strong analytical skills, Experience in developing financial management tools, Ability to prepare and analyze budgets, In-depth understanding of financial matters and investments, Experience with budgeting and financial management, Good collaboration skills, Experience with financial management and reporting, Good communication skills, Good understanding of financial management, Ability to work independently and in a structured manner, Experience with financial management tools, Good communication skills, both written and verbal, Ability to prepare reports and present findings to management
Political Consultant	Experience in developing political strategies, Strong collaboration skills, especially with political stakeholders, Ability to coordinate and lead projects across organizations, Strong analytical skills, Experience with political processes, Good collaboration skills across departments, Ability to prepare written input, Experience with political advocacy, Good collaboration skills with internal and external stakeholders, Ability to handle complex issues, Experience in coordinating political projects, In-depth knowledge of political processes, Excellent advisory and communication skills, Experience with strategic development, Good collaboration skills with stakeholders

Table C6: Randomized Components: Non-Wage Benefits

Each benefit was included in a job posting with probability 1/3.

Text
Additional Holiday Leave
Gym Membership
Meal Allowance

Table C7: Randomized Components: Firm Characteristics and Wage

This table presents the distributions of the firm characteristics and the wage randomized in the survey. Each job posting was assigned values by first drawing a category (for size and age), then drawing a specific value from the corresponding uniform distribution. Family firm intensity variations are detailed separately in Table C2.

Category	Distribution
Family Firm Intensity	$\sim Unif[1, 3]$
Firm Founding Year Category	$\sim Unif[1,3]$
Category 1 (Young)	$\sim Unif[2009, 2022]$
Category 2 (Middle)	$\sim Unif[1994, 2008]$
Category 3 (Old)	$\sim Unif[1980, 1993]$
Firm Size Category	$\sim Unif[1,3]$
Category 1 (Small)	$\sim Unif[10, 90]$ in steps of 10
Category 2 (Medium)	$\sim Unif[100, 900]$ in steps of 100
Category 3 (Large)	$\sim Unif[1000, 9000]$ in steps of 1000
Annual Wage	$\sim Unif[390000, 590000]$ in steps of 10000

Figure C1: This figure depicts the recruitment email sent to students at the University of Copenhagen.

Kære Polit studerende,

Jeg vil gerne invitere dig til at deltage i en forsknings undersøgelse der ledes af mig, Professor Morten Bennedsen, der underviste/underviser jer i Erhvervsøkonomi på 1. årsprøve:

LINK TIL UNDERSØGELSEN:
https://wustl.az1.qualtrics.com/jfe/form/SV_2f6VjFaAIEVsnLo

Formålet med denne undersøgelse er at forstå hvad du tænker om at arbejde i forskellige typer af private virksomheder og der igennem hjælpe personer som dig selv med at finde jobmuligheder, der stemmer overens med dine interesser og færdigheder.

Du vil blive spurgt, hvor sandsynligt det er, at du ansøger om 15 jobopslag. Undersøgelsen tager 10-15 minutter at udfylde. Vi er klar over at nogle vil være tidligt på studiet og andre tættere på at skulle søge "rigtige" jobs. Vi håber alle vil deltage og vi spørger dig hvor langt du er i studiet undervejs. Jeg vil blandt andet bruge resultaterne i undervisningen i Erhvervsøkonomi til foråret, så jeg håber du vil deltage, - uanset hvor langt du er på studiet.

Som tak for din deltagelse vil vi sende relevante økonomi relaterede studenterjob opslag til dig. Vi har udviklet et nyt AI baseret værktøj der identificerer jobopslag, der stemmer overens med dine interesser som vi udleder fra dine svar.

Vi forventer ingen risici ved at deltage i denne forskning. Svarene vil blive holdt fortrolige, og dine data er helt anonyme. Vi linker ikke data til nogle registre og vi har ikke andre information om dig end hvad du giver os i dine svar. Vi har skrevet til dig via din KU mail med tilladelse af og varme anbefalinger fra Studieleder Thomas Marcussen. Du vil få muligheden for at angive en anden email når du udfylder undersøgelsen.

Du kan læse mere om hvordan vi sikrer data sikkerhed og anonymitet på dette dokument <https://tsoutsoura.com/survey.html>

LINK TIL UNDERSØGELSEN:
https://wustl.az1.qualtrics.com/jfe/form/SV_2f6VjFaAIEVsnLo

Bedste hilsner,

Morten Bennedsen
Forelæser i Erhvervsøkonomi 1. Årsprøve.
Professor Department of Economics, University of Copenhagen
Visiting Professor INSEAD
Editor of Journal of Corporate Finance

Mail: mobe@econ.ku.dk or mortenbennedsen@insead.edu

Google Scholar: <https://scholar.google.com/citations?user=r8MqABAAAAAJ&hl=da&oi=ao>

Figure C2: This figure presents the Consent Letter at the beginning of the survey.

Kære Polit studerende,

Vi vil gerne invitere dig til at deltage i en undersøgelse der ledes af Professor Morten Bennedsen, der underviste jer i Erhvervsøkonomi på 1. årsprøve og i samarbejde med forskere ved Columbia University og Washington University.

Formålet med denne undersøgelse er at forstå hvad du tænker om at arbejde i forskellige typer af private virksomheder og der igennem hjælpe personer som dig selv med at finde jobmuligheder, der stemmer overens med dine interesser og færdigheder.

Du vil blive spurgt, hvor sandsynligt det er, at du ansøger om 15 jobopslag. Undersøgelsen vil tage 15 minutter at udfylde. Vi er klar over at nogle vil være tidligt på studiet og andre tættere på at skulle søge "rigtige" jobs. Vi håber alle vil deltage og vi spørger dig hvor langt du er i studiet undervejs. Jeg vil blandt andet bruge resultaterne i undervisningen i Erhvervsøkonomi, så jeg håber alle deltager uanset hvor langt i er på studiet.

Som tak for din deltagelse vil vi sende relevante økonomi relaterede studenterjob opslag til dig. Vi har udviklet et nyt AI baseret værktøj der identificerer jobopslag, der stemmer overens med dine interesser som vi udleder fra dine svar.

Dear students,

We would like to invite you to participate in a survey led by Professor Morten Bennedsen, who taught you Business Economics in the 1st year exam and in collaboration with researchers at Columbia University and Washington University.

The purpose of this survey is to understand what you think about working in different types of private companies and through that help people like yourself find job opportunities that match your interests and skills.

You will be asked how likely it is that you will apply for 15 job postings. The survey will take 15 minutes to complete. We are aware that some will be early in their studies and others closer to having to apply for "real" jobs. We hope everyone will participate and we will ask you how far along you are in your studies.

Among other things, I will use the results in the teaching of Business Economics, so I hope everyone participates regardless of how far along you are in your studies. As a thank you for your participation, we will send you relevant economics-related student job postings. We have developed a new AI-based tool that identifies job postings that match your interests as we infer from your answers.

Vi forventer ingen risici ved at deltage i denne forskning. Svarene vil blive holdt fortrolige, og dine data er helt anonyme. Vi linker ikke data til andre registre som f.eks. Danmarks Statistik og vi har ikke andre information om dig end hvad du giver os i dine svar. Vi har skrevet til dig via din KU mail med tilladelse af og varme anbefalinger fra Studieleder Thomas Marcussen. Du vil få muligheden for at angive en anden email eller angive at du ikke vil have flere henvendelser fra os når du udfylder undersøgelsen.

Du kan læse mere om hvordan vi sikrer data sikkerhed og anonymitet på dette dokument <https://tsoutsoura.com/survey.html>

Dit input vil gøre en forskel for mange studerende, der søger job efter endt uddannelse, og virksomheder, der er interesserede i at ansætte økonomistuderende som dig. Dit input vil også være et vigtigt input for vores erhvervsøkonomiske forskning på EØ og for undervisningen i Erhvervsøkonomi på Polit.

Det er frivilligt at deltage, og du kan til enhver tid nægte at deltage, afbryde eller springe spørgsmål over, du ikke har lyst til at besvare. Mange tak for din tid og vi håber du har lyst til at være med.

Med venlig hilsen
Morten Bennedsen
Professor ved Økonomisk Institut KU og Forelæser i
Erhvervsøkonomi 1. Årsprøve.

☐ Jeg giver samtykke

☐ Jeg giver ikke samtykke

We do not expect any risks by participating in this research. The answers will be kept confidential, and your data is completely anonymous. We do not link data to other registers such as Statistics Denmark and we do not have any other information about you than what you give us in your answers. We have written to you via your UCPH email with permission and warm recommendations from Study Manager Thomas Marcussen. You will be given the opportunity to provide a different email or indicate that you do not want to receive further communications from us when you complete the survey.

You can read more about how we ensure data security and anonymity on this document <https://tsoutsoura.com/survey.html>

Your input will make a difference for many students looking for jobs after graduation, and companies interested in hiring economics students like you. Your input will also be an important input for our business economics research at EØ and for the teaching of Business Economics.

Participation is voluntary, and you can refuse to participate, interrupt or skip questions you do not wish to answer at any time. Thank you very much for your time and we hope you would like to participate.

Kind regards,
Morten Bennedsen
Professor at the Department of Economics,
University of Copenhagen and Lecturer in Business Economics 1st
Year Exam.

☐ I accept

☐ I do not accept

Figure C3: This figure presents sample job postings. The survey was administered in Danish; the English panels are provided for the reader's convenience. The Danish and English panels are independent illustrative examples rather than translations of a single posting, so randomized components such as the wage and the non-wage amenities differ across panels by construction.

Virksomhedshistorie

Vi er en virksomhed med 30 medarbejdere, der har base i Storkøbenhavn og arbejder målrettet på at skabe værdi for vores kunder. Virksomheden blev grundlagt i Årret 2009 af familien Jensen, som fortsat er hovedaktionær. Flere generationer af familien har stadig en aktiv rolle i driften.

Om jobbet

Som accountant får du ansvar for bogføring, afstemning af regnskaber og lønadministration. Du bidrager til budgettering, rapportering og optimering af processer i et engageret team.

Kvalifikationer

Erfaring med bogføring og regnskabsafstemning
Kendskab til lønadministration
Stærke samarbejdsevner
Evne til at arbejde struktureret og detaljeorienteret

Vi tilbyder

Betalt frokost

Løn

490,000.00 kr.

1 2 3 4 5

Hvor sandsynligt er det, at du søger dette job?

☐

Hvor sandsynligt er det, at dette firma vil ansætte dig?

☐

Company History

We are a company with 30 employees, based in Greater Copenhagen, working purposefully to create value for our customers. The company was founded in the year 2009 by the Jensen family, who remain the main shareholder. Several generations of the family are still active in operations.

About the Job

As an accountant, you will be responsible for bookkeeping, account reconciliation, and payroll administration. You contribute to budgeting, reporting, and process optimization in an engaged team.

Qualifications

Experience with bookkeeping and account reconciliation
Knowledge of payroll administration
Strong teamwork skills
Ability to work in a structured and detail-oriented manner

Benefits

Holiday Leave

Wage

490,000 kr.

Very Unlikely 1 2 3 4 Very Likely 5

How likely are you to apply for this job?

☐

How likely would this firm be to hire you?

☐

Hvor længe ville du være villig til at blive hos dette firma (i år)?

☐ 1-3 år

☐ 3-5 år

☐ 5-7 år

☐ 7+ år

How long would you be willing to stay with this company (in years)?

☐ 1-3 Years

☐ 3-5 Years

☐ 5-7 Years

☐ 7+ Years