The Demography of Danish Foundation-Owned Companies[1][2][3]

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Abstract

We study the demography of Danish foundation-owned firms in 2010. Employees in foundation-owned firms have longer tenure, better education, a higher share of females and higher pay. Managers in foundation-owned firms are better educated, receive higher pay and (in large companies) have longer tenure than managers in other companies. Board members in foundation-owned firms are similarly well educated, high income and high net wealth individuals. Both managers and board members in foundation-owned companies have fewer family ties within the same company than managers or board members in non-foundation-owned companies.

1. Introduction

Industrial foundations are foundations that own business firms (Thomsen 2012), which implies an interesting combination of for-profit business firms with non-profit ownership. These entities are found around the world, but they are quite common in Denmark, where they employ some 5% of the labour force. Foundation-owned companies do quite well across a wide range of performance indicators such as profitability, stock market valuation and survival (Thomsen, 1996, 1999, Herman and Franke 2002, Rose and Thomsen, 2004, Hansmann and Thomsen 2013). The question is why and whether they behave differently than other companies.

In this paper we contribute to a better understanding by examining unique population data on the demographic characteristics foundation-owned companies. We look at board members, managers and employees.

The structure of our paper is as follows. We discuss theory development in Section 2. In Section 3, we describe our data. In section 4 we present summary results, which we examine further though statistical analysis in section 5. Section 6 concludes.

2. Theory development

What makes foundation-ownership work? How does it work? Normally, we expect economic incentives to drive business activity, but standard profit incentives are muted or even absent in foundation-owned companies. We rely on economic theory (Benabou and Tirole 2006, Akerlof G. A., Kranton) as well as previous research on industrial foundations (Thomsen 2012) to formulate hypotheses on how foundation-ownership will impact the demographic mix of employment in foundation-owned firms.

We know from agency theory that business companies suffer from the twin problems of moral hazard and adverse selection. In the absence of a profit seeking owner, we might expect such problems to expand, i.e. unproductive staff would self-select into to foundation-owned firms and their effort levels would be low. Moreover, theoretically, employees might be able to get higher wages in bargaining with foundations. All this should lead to sub normal company performance, but we do not find this in the data, so what is wrong?

One solution to this riddle may be that the profit incentive is not absent at all. This may be the case if the founding family is represented on the board or in the management of the company. According to Danish foundation law, the founding family may in some cases (depending on the foundation charter) benefit from donations from the foundation although board members cannot themselves receive donations. It is also possible the members of the founding family retain a feeling of emotional ownership, which makes them act as if they still owned the company (although in fact it is now owned by the foundation). **Family ties** can give an indication of whether and to which extent foundations are in fact succession mechanisms through which the founding family retains control of a company.

A second solution may be that there are indeed important agency costs, but that these costs are counterbalanced by advantages of foundation ownership or firm specific assets. Advantages of foundation-ownership might be related to factors such as longtermism, which have been explored in other research. For example, it is possible that foundation-owned firms can develop or retain high-margin businesses because of their longtermism, but that these advantages are partly dissipated by excess labour (low labour productivity) or high wages. Firm specific advantages could be related to market position, brands or R&D which are in principle unrelated to the foundation ownership, but which could also be shared with employees through high salaries or excess labour.

A third solution may be that foundation-owned companies rely more on intrinsic than extrinsic motivation in the same way that the Red Cross relies on volunteers, although no doubt to a smaller extent. Can we find evidence that foundation board members, managers or employees are somehow more ethical (less motivated by money) than their counterparts in other companies? The idea here would be that intrinsic motivation (ethics) substitutes for monetary incentives (profits).

Trading off risk and incentives. From previous research we know that industrial foundations tend to pursue low risk strategies that involve lower fluctuations in profitability and stock prices, less financial leverage and higher long term survival rates. These characteristics may also influence the demographic mix of their employees and leadership teams. Employees that value stability of employment may self-select as employees of foundation-owned firms, and we would expect the foundation-owned firms to retain them for longer so that they would on average be older the employees in comparable firms. It is also

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possible that risk adverse employees (e.g. women) would feel particularly attracted to foundation-owned firms.

Capital and labour. If the profit motive is attenuated in foundation-owned firms, it seems possible that the bargaining power of capital vs. labour will be different. Employees might successfully bargain for higher wages or greater job security. This in turn could provide greater incentives for employees to invest in firm-specific skills and might also generate greater loyalty in the work force. Alternatively, it could simply result in greater slack, if foundations are less active owners than profit-seeking individuals.

Knowledge intensity.   Conceivably, foundation ownership could be have efficiency advantages in knowledge intensive business, which require a long time horizon and are impossible to finance with debt and difficult to finance with external equity. Knowledge intensity could show up as greater R&D intensity or higher education of the workforce in foundation-owned firms.

Hypotheses

Below we summarize the testable hypotheses that arise from the theory discussion. Rather than relying on a single, consistent theory, we reproduce partially conflicting and complementary predictions for empirical testing.

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Summary of Hypotheses

Hypothesis 1. **Family engagement**. Founding family presence on company supervisory and management boards substitutes for muted owner-incentives. The founding family is active in leadership of foundation-owned firms.

Hypothesis 2. **Firm specific advantages** allow foundation-owned firms to share rents with employees through higher labour costs (excess labour and/or higher salaries).

Hypothesis 3. **Non-monetary motivation**. Foundation-owned firms select board members, managers and employees that are motivated by non-monetary rewards related to intrinsic motivation, morality or other factors.

Hypothesis 4. **Risk adverse employees**. Risk averse employees (e.g. perhaps women) are more likely to seek employment in foundation-owned firms.

Hypothesis 5. **Longtermism**. Employment stability, average age and tenure are likely to be higher in foundation-owned firms.

Hypothesis 6. **Greater bargaining power of labour**. Employment stability, wages and salaries are likely to be higher in foundation-owned companies.

Hypothesis 7. **Knowledge intensity**. Employees in foundation-owned firms are likely to be better educated.

3. Data

Our data is based on a cross section of foundation-owned companies in the year 2010. We employ a combination of databases from three sources:

The Danish Business Authority's Board membership database, collecting person identifiers of 260,000 persons registered as members of managerial boards or board of directors in 560,000 firm-individual relationships

A sample of firms owned by industrial foundations. These were identified on basis of a Business authority sample of industrial foundations. This data was cleansed for non-business related foundation like museums or social housing initiatives, and combined with ownership information from the Business authority that was made accessible though the credit rating/business intelligence company Experian A/S. For this analysis, we only consider firms that hand in a financial report in 2010.

Register data from Statistics Denmark, including demographic information like age and gender, marital status, education, and income. Further, data allows identification of mothers and fathers, which enables us to identify siblings.

Accounting data supplied by the credit rating/business intelligence company Experian A/S: To control for firm background characteristics in the analysis, we use information from the unconsolidated financial report of incorporated firms that are obliged to submit them to the Danish Business Authority.

We employ two samples of firms and individuals for our analysis, which is divided into one part considering employees and one part considering directors and managers. Both samples are restricted to firms that hand in a financial report in 2010.

The analysis of directors and managers is further restricted to firms that are represented in the board database.

In total, there are 170,000 registered firms in the Statistics Denmark employer-employee database ('idan'-database) in 2010 , defined by firm-identifiers ('cvr-numbers') in Denmark in 2010. Of these, 62,000 are incorporated private sector firms with employees, and 58,000 hand in a financial report.

These employ roughly one million employees, which, in the present case, is equivalent to the number of jobs (firm-worker relationship), as we only consider one job person. Of these, 115,000 persons are employed in firms that are partly or completely owned by an industrial foundation.

There are 74,000 firms with board of directors information. Of these, 54,000 hand in a financial report in 2010. These have a total of 190,000 board of directors members (out of 250,000 records in the board database) and employ approximately one million persons according to the Statistics Denmark employer-employee database and 2.5 million persons according to their firm-level reports collected by Experian A/S and Statistics Denmark, where the latter number includes activity outside the Danish borders.

There are in total 290,000 firm-person relationships for managerial boards in the board data, with 190,000 in firms handing in a financial report in 2010, and being sampled in the subsequent analysis.

In the following, we consider some of the most straightforward characteristics of board members. We distinguish managerial boards ('direktører') and members of the board of directors ('bestyrelser'). We describe the characteristics: gender, age, marital status, whether or not the person is registered having a brother or sister (defines by having the same father), education length, education subject area, the number of times the person-firm matches in the board database, and whether or there is a sibling in the same firm in the board database. The information is all taken directly from the Statistics Denmark registers.

4. The Demography of Directors and Managers

We start with members of the board of directors (table 1).

In table 1 we see the following characteristics of directors in foundation-owned companies when compared to the population of all Danish companies:

- 4 years older
- Less likely to be female
- Even more likely to be Danes
- More likely to be married
- Better educated
- Much more likely to have long (tertiary) education
- More likely to have other board and management positions outside the company
- Less likely to be a member of the management board ("direktionen") of the same company
- Less like to have a sibling on the same board or in the management of the same company

However, we also know that the foundation-owned firms are much larger than other firms, for example their mean assets are about 10 times larger. The observed demographic differences might reflect size effects. We therefore produce a secondary table for large companies only (i.e. companies with more than 1000 employees). Here we find the following director characteristics compared to directors in other large firms:

- 1 year older
- More (not less) likely to be females
- Same likelihood of foreign nationality
- More likely to have a higher education
- Greater likelihood of an education in engineering
- Smaller, but not significantly smaller likelihood of have a sibling on board
- Less like to have a sibling on the same board or in the management of the same company

TABLE 1: Demographic characteristics of board members (directors)

Panel (I): All firms

	Number of observations		Means		T-test
	Not foundation-owned	Foundation-owned	Not foundation-owned	Foundation-owned	
Age (years)	164.656	5.798	50,555	54,736	***
Gender: female	181.361	6.094	0,188	0,117	***
Citizenship: Not Danish	181.361	6.094	0,011	0,007	***
Married (1/0)	164.656	5.798	0,863	0,919	***
Length of education (years)	163.459	5.745	13,823	14,801	***
The person has a long tertiary education (1/0)	164.656	5.798	0,225	0,381	***
The person has an education in engineering related subject	164.656	5.798	0,238	0,204	***
The person has an education in social science related subject	164.656	5.798	0,452	0,556	***
The number of person-firm matches in the board database	181.361	6.094	7,810	9,232	***
The person is on the managerial board of the same company	181.361	6.094	0,251	0,107	***
The person has a brother or sister in the same firm in the board database	181.361	6.094	0,095	0,018	***

Panel (II): Only firms with at least 1,000 employees

Age (years)	596	286	52,331	53,832	**
Gender: female	773	319	0,109	0,144	
Citizenship: Not Danish	773	319	0,009	0,006	
Married (1/0)	596	286	0,924	0,951	
Length of education (years)	581	284	14,351	15,077	***
The person has a long tertiary education (1/0)	596	286	0,337	0,395	*
The person has an education in engineering related subject	596	286	0,171	0,318	***
The person has an education in social science related subject	596	286	0,564	0,458	***
The number of person-firm matches in the board database	773	319	7,627	7,765	
The person is on the managerial board of the same company	773	319	0,065	0,034	**
The person has a brother or sister in the same firm in the board database	773	319	0,022	0,013	

This has a number of implications for the theory framework suggested in section 2.

Our findings provide at best mixed support for hypothesis 1 that family involvement substitutes for a lack of direct ownership in foundation-owned firms. We find that family involvement on foundation boards is low (measured by our proxy % siblings on board) and lower than in other companies. Thus family involvement appears not to make up for any perceived lack of incentives in foundation-owned firms.

So far, our best proxy for civic virtue (hypothesis 3) is marriage, and we do in fact find that board members in foundation-owned firms are more likely to be married. But the validity this measure is debatable, and the difference is not significant for large firms. In other words, differences in marriage frequency may in principle be attributable to a firm size effect.

We find some limited support for hypothesis 4 at the board level: the fraction of women is higher when comparing large companies. We also find board members to be slightly older and to have a longer history with the company (hypotheses 5). In contrast we find quite strong support for hypothesis 7 at the board level: Directors in Foundation-owned are better educated.

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In Appendix table 1 we subject the higher education level of foundation directors (board members) to further statistical testing controlling for a range of variables such as firm size. The effect remains robust and significant.

In Appendix table 3 we provide further analysis on the family background of supervisory board members. 15% of the boards of foundation-owned firms have siblings on board compared to 22% of other firms.

<u>Managers</u>

We count as a managers/executives "direktører" of Danish limited liability companies (not to be confused with UK or US "directors", since these are all executive directors or members of the management board, direktionen). This would typically be the CEO in smaller companies, while large companies may also have a CFO, COO a Vice CEO and other registered executives.

Tabel 2 compares executives in foundation-owned firm to the overall Danish population of executives. On this scale, the executives in foundation-owned firms are on average:

- 4-5 years older
- less likely to be female
- slightly less likely to be foreign
- much more likely to be married
- better educated
- much more likely (2x) to have an academic education
- better networked (more positions outside the company)
- less family-related
- more likely to be a member of the (supervisory) board.

  For comparisons between large firms > 1000 employees, the executives in foundation-owned companies are on average:

- about the same age
- equally likely to be female
- equally likely to non-Danes
- equally likely to be married
- but slightly better educated
- and more likely to have an engineering education

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- less well connected.
- less likely to sit on the supervisory board.

Thus, when correcting for size the only factor which stands out for the executives in foundation-owned firms is better education, particularly in engineering. In Appendix table 2, we test the robustness of this observation controlling for firm size and a number of other variables. It remains very significant and strong.

TABLE 2: Demographic Characteristics of Managers

Panel (I): All firms

	Number of observations		Means		T-test
	Not foundation-owned	Foundation-owned	Not foundation-owned	Foundation-owned	
Age (years)	206.241	1.751	48,594	53,057	***
Gender: female	214.271	1.796	0,121	0,085	***
Citizenship: Not Danish	214.271	1.796	0,017	0,009	***
Married (1/0)	206.241	1.751	0,835	0,920	***
Length of education (years)	204.571	1.740	13,521	14,931	***
The person has a long tertiary education (1/0)	206.241	1.751	0,158	0,379	***
The person has an education in engineering related subject	206.241	1.751	0,329	0,232	***
The person has an education in social science related subject	206.241	1.751	0,347	0,581	***
The number of person-firm matches in the board database	214.271	1.796	5,529	8,599	***
The person has a brother or sister in the same firm in the board database	214.271	1.796	0,037	0,018	***
The person is on the board of directors of the same company	214.271	1.796	0,212	0,363	***

Panel (II): Only firms with at least 1,000 employees

Age (years)	241	98	50,124	49,959	
Gender: female	277	100	0,058	0,070	
Citizenship: Not Danish	277	100	0,018	0,020	
Married (1/0)	241	98	0,917	0,949	
Length of education (years)	236	96	15,606	16,042	*
The person has a long tertiary education (1/0)	241	98	0,527	0,500	
The person has an education in engineering related subject	241	98	0,187	0,276	*
The person has an education in social science related subject	241	98	0,693	0,551	**
The number of person-firm matches in the board database	277	100	10,679	8,030	**
The person has a brother or sister in the same firm in the board database	277	100	0,025	0,030	
The person is on the board of directors of the same company	277	100	0,181	0,110	*

5. Salary, income and wealth of board members and managers

In table 3 we examine the income and wealth of directors (board members) in foundation-owned firms.

We find that they have substantially higher income (2x) and wealth (3x) than directors in other firms. The salary differences remain significant, but the wealth differences disappear when we only examine directors of large firms.

In the population of all-foundation-owned firms, average income is 1.7 mill DKK and average personal wealth is 6.6 mill DKK. Average income among directors of large foundation-owned firms is 4.4million DKK and their average wealth is 15.2 mill DKK.

This means that directors of foundation-owned firms typically belong to the 1% highest income and bracket of Danish society. In 2010 some 35.000 Danes (less than 1% of the 4.2 million tax subjects) had an income of more than 1 million DKK a year.

On average, foundation bards are slightly below the 1% highest wealth bracket in 2012 which began at 7.7 million DKK .

Typical board fees of some 50.00-100.000 DKK thus constitute some 3-6% of the total income of the average board member, i.e. a relatively insignificant share so that board members in foundation-owned firms are typically economically independent of the company. However, they may have significant reputational capital at stake, damage to which could spill over to their other activities.

TABLE 3: Income and wealth of board members

Panel (I): All firms

	Number of observations		Means		T-test
	Not foundation-owned	Foundation-owned	Not foundation-owned	Foundation-owned	
Taxable income (DST-variable qsplindk), DKK mio.	167.401	5.876	0,649	1,722	***
Wage income (DST-variable loenmv), DKK mio.	167.401	5.876	0,665	1,530	***
Wealth (DST-variable FORMREST_NY05), DKK mio	167.401	5.876	2,305	6,602	***
Panel (II): Only firms with at least 1,000 employees					
Taxable income (DST-variable qsplindk), DKK mio.	617	292	2,288	4,412	***
Wage income (DST-variable loenmv), DKK mio.	617	292	2,009	3,116	***
Wealth (DST-variable FORMREST_NY05), DKK mio	617	292	18,520	15,250	
Wealth (DST-variable FORMREST_NY05)< DKK1.25 mio	773	319	0,058	0,060	

Management Pay and Wealth

I table 4 we examine the income and wealth of executives (managers) in foundation-owned firms. Income and wealth at average levels of 1.5 and 4.4 million DKK respectively is higher than in the average firm. Among large firms, foundation-owned firms have higher income than in other firms – e.g. a salary of some 5 mill DKK compared to an average of 3.7 mill DKK, but the wealth difference to other firms is not significant.

TABLE 4: Income and Wealth of Managers

Panel (I): All firms

	Number of observations		Means		T-test
	Not foundation-owned	Foundation-owned	Not foundation-owned	Foundation-owned	
Taxable income (DST-variable qsplindk), DKK mio.	209.078	1.767	0,456	1,558	***
Wage income (DST-variable loenmv), DKK mio.	209.078	1.767	0,530	1,770	***
Wealth (DST-variable FORMREST_NY05), DKK mio	209.078	1.767	1,255	4,408	***
Panel (II): Only firms with at least 1,000 employees					
Taxable income (DST-variable qsplindk), DKK mio.	248	98	3,326	4,625	**
Wage income (DST-variable loenmv), DKK mio.	248	98	3,682	5,076	***
Wealth (DST-variable FORMREST_NY05), DKK mio	248	98	3,879	4,806	

Altogether, the average manager in a foundation-owned firm is relatively well paid (around the top 1% in Denmark). Managers in large firms are of course paid more.

6. Tenure of board members and managers

 In table 5 we examine the tenure of board members in foundation-owned firms. To our surprise we find greater mobility among the foundation-owned firms than in other firms, when we look compare with the overall populations. However, among the large foundation-owned firms we find that board members do have a longer history with the company. On average they were employed in 1997 (i.e. a 13 year tenure up to 2010), while board members of other firms were first employed in 2002 (i.e. 8 years of tenure up to 2010). Thus we find some evidence of the greater continuity, which we would associate with foundation-owned firms (hypothesis 7).

TABLE 5: Tenure of Board Members

Panel (I): All firms	Number of observations		Means		T-test
	Not foundation-owned	Foundation-owned	Not foundation-owned	Foundation-owned	
First year of hire in firm (employment database)	36719	684	2000,757	2000,421	
Registered being in same firm in 2005 (1/0) (employer-employee database)	181361	6.094	0,213	0,101	***
Registered being in same firm in 2010 (1/0) (employer-employee database)	181361	6.094	0,172	0,082	***
First year on either managerial board or board of directors	158048	5.501	2005,326	2006,039	***
First year on either managerial board or board of directors<=2000	181361	6.094	0,125	0,094	***
First year on either managerial board or board of directors<=2005	181361	6.094	0,356	0,311	***
Panel (II): Only firms with at least 1,000 employees					
First year of hire in firm (employment database)	182	83	2002,709	1997,349	***
Registered being in same firm in 2005 (1/0) (employer-employee database)	773	319	0,118	0,119	
Registered being in same firm in 2010 (1/0) (employer-employee database)	773	319	0,102	0,116	
First year on either managerial board or board of directors	720	302	2006,481	2006,262	
First year on either managerial board or board of directors<=2000	773	319	0,061	0,088	
First year on either managerial board or board of directors<=2005	773	319	0,277	0,320	

One reason for this finding may be that managers in foundation-owned firm more often continue as board members and therefore have longer overall tenure.

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Management Tenure

In table 6, we examine tenure of managers (executives) in foundation-owned firms. To our surprise we find greater mobility among the foundation-owned firms than in other firms, when we look compare the overall populations. In earlier work based on accounting information we found the opposite: higher tenure in foundation-owned firms[6]. However, among the large foundation-owned firms this result is reversed, For example, we find that more than 20% of the managers of foundation-owned firms have been with the company for more than 10 years (since before 2000), while only 8% of other large company managers have been with their company for that long.

TABLE 6: Tenure of managers

Panel (I): All firms

	Number of observations		Means		T-test
	Not foundation-owned	Foundation-owned	Not foundation-owned	Foundation-owned	
First year of hire in firm (employment database)	56.638	666	2002,592	2002,758	
Registered being in same firm in 2005 (1/0) (employer-employee database)	214.271	1.796	0,225	0,173	***
Registered being in same firm in 2010 (1/0) (employer-employee database)	214.271	1.796	0,163	0,136	***
First year on either managerial board or board of directors	188.933	1.597	2004,993	2005,408	***
First year on either managerial board or board of directors<=2000	214.271	1.796	0,123	0,129	
First year on either managerial board or board of directors<=2005	214.271	1.796	0,395	0,363	***

Panel (II): Only firms with at least 1,000 employees

First year of hire in firm (employment database)	154	82	2004,136	2002,390	*
Registered being in same firm in 2005 (1/0) (employer-employee database)	277	100	0,130	0,140	
Registered being in same firm in 2010 (1/0) (employer-employee database)	277	100	0,119	0,150	
First year on either managerial board or board of directors	263	88	2005,943	2005,068	*
First year on either managerial board or board of directors<=2000	277	100	0,083	0,210	***
First year on either managerial board or board of directors<=2005	277	100	0,332	0,380	

Thus, for management tenure as well as for board tenure, we find support for the continuity hypothesis only among the largest firms.

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[6] See http://www.tifp.dk/wp-content/uploads/2014/04/The-Governance-of-Industrial-Foundations-Executive-and-Director-Turnover.pdf

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7. Workforce Characteristics

We now proceed to demographic characteristics of the employees of foundation-owned firms. Table 7 produces some overall statistics.

TABLE 7: Summary Employee Statistics by Foundation Ownership

| Variable | Number of observations | | Means | | T-test |
	(I) Not foundation-owned	(II) Foundation-owned	(I) Not foundation-owned	(II) Foundation-owned	
Age (years)	1.093.130	139.847	38,47	37,65	***
Gender=female	1.101.640	140.925	0,35	0,41	***
Education length in years	1.063.250	137.015	12,21	12,63	***
Years since hire	1.071.022	138.853	4,26	4,66	***
Hourly wage	1.091.809	139.649	179,61	195,72	***

We first observe that more than 10% of the observation now are attributable to the foundation-owned firms, which is an indicator of their importance to the Danish economy. The actual numbers are consistent with an estimated share of 5-10% of Danish employment (government employment is excluded from the figures above which compare private companies).

First we observe that the employees of foundation-owned firms are slightly younger than average. The difference is highly significant even if very small. We speculate that the success of foundation-owned firms has made them attractive workplaces for younger people.

Second, we observe that there tends to be more female employees (41%) in foundation-owned firms than in other firms (35%). The difference is large and consistent with hypothesis 4.

Third, we observe that employees of foundation-owned firms are sligthly but very significantly better educated than employees of other firms. This is consistent with hypothesis 7. In Appendix table 6 we subject the education premium of foundation-owned companies to a range of economic control variables, including labour productivity and industry effects, but it remains significant.

Third, we observe that employees tend to stay longer in foundation-owned firms. This is consistent with hypothesis 5. In Appendix 4 we control for relevant economic variables such as firm size and industry but find that the tenure advantage of foundation-owned firms remains significant. In other words, so far as we know, it is attributable to the ownership structure rather than to other variables.

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Finally, 4th, we observe that employees in foundation-owned firms are paid better, at least when we compare hourly wages, which are around 9% higher. This may be attributable to a range of industry factors (i.e. foundation-owned firms being active in high-wage industries) and a higher level of education. But it is also conceivable that they are able to strike a better deal with their owners because of the foundation ownership structure. In Appendix 5 we estimate the wage equation and find that the foundation wage premium can be explained away (becomes insignificant) if we include relevante economic control variables, particularly industry effects. In other words, we cannot rule out that foundation-owned companies simply pay the going industry wage.

8. Conclusion

We find that foundation-ownership influences the demography of boards, executives and employees.

Board members of foundation-owned firms are older and better educated. They have higher income and are more wealthy than other board members.

Managers of foundation-owned firms are better educated and better paid than managers in other companies.

Employees of foundation-owned firms are better educated, have longer tenure, a higher share of women and are better paid than in other firms.

Contrary to popular belief, foundation-ownership is not a vehicle for family ownership. Family ties within the leadership of foundation-owned firms are weaker than in other firms.

The results appear to be consistent with a range of hypotheses concerning the nature of foundation ownership.

Below, in table 8, we summarize the implications for the proposed hypotheses.

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Table 8. Summary of Findings

Hypothesis	Findings
Hypothesis 1. **Family engagement**. Founding family presence on company supervisory and management boards substitutes for muted owner-incentives. The founding family is active in leadership of foundation-owned firms.	**Rejected**. Family involvement is lower in Foundation-owned firms. However the founding family still plays a role in many foundation-owned companies.
Hypothesis 2. **Firm specific advantages** allow foundation-owned firms to share rents with employees through higher labour costs (excess labour and/or higher salaries).	**Partially supported**. Employees in foundation-owned companies have higher wages and longer tenure.
Hypothesis 3. **Non-monetary motivation**. Foundation-owned firms select board members, managers and employees that are motivated by non-monetary rewards related to intrinsic motivation, morality or other factors.	**Unclear evidence**. Board members in foundation-owned firms are more likely to be married.
Hypothesis 4. **Risk adverse employees**. Risk averse employees (e.g. perhaps women) are more likely to seek employment in foundation-owned firms.	**Supported**. The female share of employment is substantially higher in foundation-owned companies. Mixed evidence for managers and board members.
Hypothesis 5. **Longtermism**. Employment stability, average age and tenure are likely to be higher in foundation-owned firms.	**Supported**. Mixed Evidence for Managers and Board members.
Hypothesis 6. **Greater bargaining power of labour**. Employment stability, wages and salaries are likely to be higher in foundation-owned companies.	**Supported**. Employees are better paid. Board members and managers have higher income and wealth.
Hypothesis 7. **Knowledge intensity**. Employees in foundation-owned firms are likely to be better educated.	**Supported.** Employees, board members and managers are better educated.

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Appendix Tables

Appendix Table 1 : Board Members. Education regressions

	Dependent variable: Education length (years)				Dependent variable: The person has a long tertiary education			
Model	Linear regression model				Logit model			
Variable	Coeff.	Ste.	Coeff.	Ste.	Coeff.	Ste.	Coeff.	Ste.
Firm is owned by an industrial foundation=1	0,979 ***	0,033	0,750 ***	0,034	0,753 ***	0,028	0,547 ***	0,030
More than one sibling in either board of directors or managers			-0,430 ***	0,015			-0,510 ***	0,017
Number of persons in boards of directors and managers			0,000	0,002			0,001	0,001
Log(firm size(number of employees))			0,113 ***	0,006			0,092 ***	0,006
Labor productivity (DKK1,000,000)			0,242 ***	0,021			0,241 ***	0,018
Capital intensity (DKK1,000,000)			0,001	0,001			0,001 *	0,001
Solvency (equity/total assets)			0,201 ***	0,018			0,224 ***	0,018
			-0,438	0,054			-0,397	0,046
Constant	13,823 ***	0,006	13,376 ***	0,025	-1,239 ***	0,006	-1,686	0,024
Number of observations	169.204		167.799		170.454		169.038	

Appendix Table 2: Managers. Education regressions

| | Dependent variable: Education length (years) | | | | Dependent variable: The person has a long tertiary education | | | |
| Model | Linear regression model | | | | Logit model | | | |
Variable	Coeff.	Ste.	Coeff.	Ste.	Coeff.	Ste.	Coeff.	Ste.
Firm is owned by an industrial foundation=1	1,410 ***	0,056	0,901 ***	0,060	1,175 ***	0,050	0,710 ***	0,056
More than one sibling in either board of directors or managers			-0,534 ***	0,024			-0,630 ***	0,030
Number of persons on both boards of directors and managers			0,087 ***	0,008			0,097 ***	0,006
Log(firm size(number of employees))			0,105 ***	0,009			0,051 ***	0,010
Labor productivity (DKK1,000,000)			0,472 ***	0,028			0,508 ***	0,028
Capital intensity (DKK1,000,000)			0,000	0,001			-0,001	0,001
Solvency (equity/total assets)			0,350 ***	0,014			0,423 ***	0,017
			-0,477	0,060			-0,599	0,056
Constant	13,521 ***	0,005	12,685 ***	0,025	-1,670 ***	0,006	-2,546 ***	0,030
Number of observations	206.311		202.565		207.992		204.204	

Appendix Table 3: Board Member Family relations. Firm-Level Data.

	Foundation-owned				Non-foundation-owned			
	N	mean	minimum	maximum	N	mean	minimum	maximum
Number of Bord Members	1.383	4,41	2	17	70.152	3,47	2	19
Number with same father	1.383	0,57	0	3	70.152	0,70	0	6
Number with same father of father	1.383	0,06	0	2	70.152	0,11	0	5
Share with same father	1.383	0,15	0	1	70.152	0,22	0	1
Share with same father of father	1.383	0,02	0	0,67	70.152	0,03	0	1

Appendix Table 4. Employee Tenure and Foundation Ownership. Dependent variable: Years employed since hired.

	Model 1		Model 2		Model 3		Model 4	
	Coefficient	Standard deviation	Coefficient	Standard deviation	Coefficient	Standard deviation	Coefficient	Standard deviation
Firm is owned by an industrial foundation=1	0,402 ***	0,018	0,663 ***	0,016	0,607 ***	0,021	0,356 ***	0,025
Age			0,217 ***	0,003	0,179 ***	0,003	0,212 ***	0,003
Age^2			0,000 ***	0,000	0,000 ***	0,000	0,000 ***	0,000
Education length (years)			0,512 ***	0,014	0,590 ***	0,017	0,426 ***	0,017
Education length (years)^2			-0,026 ***	0,001	-0,028 ***	0,001	-0,022 ***	0,001
Gender=female			-0,274 ***	0,010	-0,075 ***	0,013	-0,004	0,014
Log (number of employees)					-0,125 ***	0,003	-0,062 ***	0,005
Labour productivity					0,000 ***	0,000	0,000 ***	0,000
Capital intensity					0,000 ***	0,000	0,000 ***	0,000
Solvency (equity/total assets)					1,305 ***	0,034	1,523 ***	0,037
Ownership type=joint stock					-0,032 *	0,018	-0,009	0,021
Constant term	4,258 ***	0,006	-5,568 ***	0,077	-5,117 ***	0,128	-4,948 ***	0,107
Industry dummies included into regression[1]	no		no		10 dummy variables		536 industries (fixed effects)	
Number of observations	1.209.875		1.171.262		794.569		794.569	
R2	0,0005		0,1751		0,1992		0,183	

Appendix Table 5. Wage Regressions by Foundation Ownership. Dependent variable: Log (hourly wage).

	Model 1		Model 2		Model 3		Model 4	
	Coefficient	Standard deviation	Coefficient	Standard deviation	Coefficient	Standard deviation	Coefficient	Standard deviation
Firm is owned by an industrial foundation=1	0,046 ***	0,003	0,041 ***	0,002	0,035 ***	0,002	0,002	0,003
Age			0,159 ***	0,000	0,156 ***	0,000	0,143 ***	0,000
Age^2			-0,002 ***	0,000	-0,002 ***	0,000	-0,002 ***	0,000
Tenure (years)			0,095 ***	0,000	0,090 ***	0,000	0,088 ***	0,000
Tenure (years)^2			-0,003 ***	0,000	-0,003 ***	0,000	-0,003 ***	0,000
Education length (years)			-0,024 ***	0,002	-0,015 ***	0,002	-0,009 ***	0,002
Education length (years)^2			0,004 ***	0,000	0,003 ***	0,000	0,003 ***	0,000
Gender=female			-0,249 ***	0,001	-0,259 ***	0,001	-0,222 ***	0,002
Log (number of employees)					-0,017 ***	0,000	0,004 ***	0,001
Labour productivity					0,000 ***	0,000	0,000 ***	0,000
Capital intensity					0,000 ***	0,000	0,000	0,000
Solvency (equity/total assets)					-0,073 ***	0,004	-0,042 ***	0,004
Ownership type=joint stock					0,043 ***	0,002	0,018 ***	0,002
Constant term	4,957 ***	0,001	1,162 ***	0,012	1,224 ***	0,016	1,422 ***	0,013
Industry dummies included into regression[1]	no		no		10 dummy variables		536 industries (fixed effects)	
Number of observations	1.158.997		1.106.401		758.035		758.035	
R2	0,0003		0,5212		0,5526		0,547	

Appendix Table 6. Education and foundation ownership. Dependent variable: Years of education of highest educational degree (hfpria).

	Model 1		Model 2		Model 3		Model 4	
	Coefficient	Standard deviation	Coefficient	Standard deviation	Coefficient	Standard deviation	Coefficient	Standard deviation
Firm is owned by an industrial foundation=1	0,425 ***	0,008	0,509 ***	0,007	0,472 ***	0,008	0,172 ***	0,010
Age			0,424 ***	0,001	0,406 ***	0,001	0,387 ***	0,001
Age^2			-0,005 ***	0,000	-0,005 ***	0,000	-0,005 ***	0,000
Gender=female			-0,099 ***	0,004	-0,181 ***	0,005	-0,222 ***	0,005
Log (number of employees)					-0,053 ***	0,001	-0,005 ***	0,002
Labour productivity					0,001 ***	0,000	0,000 ***	0,000
Capital intensity					0,000 ***	0,000	0,000 ***	0,000
Solvency (equity/total assets)					0,194 ***	0,013	0,032 ***	0,014
Ownership type=joint stock					-0,017 **	0,007	0,038 ***	0,008
Constant term	12,206 ***	0,002	4,093 ***	0,015	4,228 ***	0,029	4,717 ***	0,022
Industry dummies included into regression[1]	no		no		10 dummy variables		536 industries (fixed effects)	
Number of observations	1.200.265		1.200.265		817.810		817.810	
R2	0,0029		0,2168		0,2672		0,231	