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No Successor, No Success? The Impact of a Little Son on Business Performance[*]

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Abstract

The dynasty model, which assumes the presence of intergenerational altruism, implies that business owners will have more incentive to improve the firm performance if they expect their children to take over their firms. This study empirically examines how top managers' expectations about future family succession affect the performance of small businesses. Utilizing the sex of the top manager's first-born child as an instrumental variable for the manager's expectations about business succession by his child, we find that the existence of a potential family successor has a positive effect on profit. We also find that the presence of a potential family successor induces performance-enhancing actions and behaviors on the part of managers, such as improving operational efficiency, selecting better suppliers, and investing in information technology.

Keywords: expectation; small and medium enterprises; succession decision; firm performance; corporate decision-making

JEL Codes: D25, D84, D91, E22, L25

1 Introduction

Growing empirical evidence shows that the expectations of top managers about future business situations are important determinants of investment and on-going business outcomes (Gennaioli et al., 2015, Massenot and Pettinicchi, 2018; Tanaka et al., 2020). For top-managers of small and medium enterprises (SMEs), whether their children will succeed their business after their retirement – family succession – is one of the key long-run future situations. However, while there is a large body of literature on the impact of family succession on firm performance (e.g. Bennedsen et al., 2007), little is known empirically about the expectations and behaviors of managers *prior* to succession. In particular, how do managers' expectations about family succession affect the managers' current behaviors and firm performance? In theory, the dynasty model of Barro (1974) that assumes parents' altruism for their children implies that the managers would exert more effort to improve firm value if they anticipate that the business will be taken over by their children, rather than being succeeded by others or having no successors. Conversely, under the selfish life-cycle model, where managers care only about their own lifetime utility, such incentives would be weak.

In this study, we investigate how managers' expectations about future family succession affect business performance using a newly constructed dataset of Japanese SMEs. To identify the causal effect, we exploit the sex of the top manager's first-born child as an instrumental variable (IV). While the sex of the first-born child is randomly determined by nature and unlikely to influence firm performance directly, we find that it significantly affects the manager's expectation that his own child will succeed in the business.[1] For the nature of this instrument, we focus on the impact of family succession (i.e. succession by a family member of the owner), rather than succession in general or a sell-out option as a means to keep the business after the owner's retirement. For Japanese SMEs, family succession is the most common pattern of business succession, and mergers and acquisitions (M&As) are rare. Among

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[1]Ahrens et al. (2015) also finds that family successions are significantly more likely to occur when the manager has a son.

Japanese SMEs' business transfers, 61.1% of the transfers took place among relatives, and only 4.5% were through M&A, according to the estimation based on a congressional research report of the Secretariat of the House of Representatives of Japan (2019).[2]

We find that the existence of a potential family successor has a large positive effect on profit, especially among businesses with hired employees. Our results indicate that an increase in the expectation of family succession by one standard deviation raises profit margins by 37%. In exploring the channels, we find that the presence of a potential family successor induces managers' actions to enhance performance, such as improving efficiency in production and sales operations, selecting better suppliers, and investing in information technology (IT). The results are robust even if we focus on the sample of managers with small children, implying that the direct effect of children through their involvement in the business is not likely to explain the results. Our findings suggest that the performance at the time of retirement could also be driven by managers' past expectations regarding succession/exit, even though many Japanese SME managers point to underperformance as the main reason for business closure at the time of their retirement (White Paper on SMEs in Japan 2019).[3]

Our study is closely related to three strands of literature. The first examines who inherits businesses. La Porta et al. (1999) and Claessens et al. (2000) document that there are more dynastic family firms in countries where legal protections for stakeholders are weak. Furthermore, sons were more inclined to become successors than daughters in many countries (Ahrens et al. 2015, Niittykangas and Tervo 2005, Aldrich and Kim 2006). Firms with stronger family control and influence are likely to select the first-born child as the next leader (Calabrò et al. 2018).

The second strand of related literature documents the empirical relationships between the types of successors and changes in firm performance before and after succession. There is a growing body of research documenting what types of successors improve firm performance

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[2]The Small and Medium Enterprise Agency (2013) also documents that M&A accounts for only 2.3% of business successions among small businesses, and 1.5% among medium firms.

[3]As reasons for closing their business upon retirement, many mangers cited low potential for future growth (46.1%), low value in continuing the business (19.6%), and low profitability (19.4%).

after family- or non-family succession (Chen et al. 2016, Luan et al. 2018, Cucculelli 2008, Saito 2008, Perez-Gonzalez 2006, Lee et al. 2003), but the results are mixed. Similarly, Mehrotra et al. (2013) find succession by a son-in-law enhances return on assets compared to that by biological sons. Cao et al. (2015) point out that the one-child policy in China could lead to a decrease in companies' desire to be listed as well as in re-investment and R&D, following the decline in the number of children. Bennedsen et al. (2007) use data on Danish succession cases and show that (1) succession is 32.7% more likely to be within the family if the sex of the departing CEO's first-born child is male; (2) the sex of the child has little effect on profit margin, firm age, firm size, number of children, marital status, and divorce rate at the time of CEO transition; and (3) family succession deteriorates firms' post-succession performance, compared to succession by unrelated persons.

The aforementioned literature focuses on post-succession outcomes or changes in outcomes pre- and post-succession for firms that were succeeded in the end. Our study is unique in that we focus on determinants of expectations about succession/exit and the effects of such expectations on pre-succession firm performance. Moreover, unlike previous studies, our data are not restricted to firms that will be succeeded in the end but includes firms that are going to exit.

Finally, our study is related to the growing empirical literature on firm managers' expectations (Coibion et al. 2018; Bachmann and Elstner 2015; Bloom et al. 2018). In particular, a few recent studies analyze the empirical relationship between firms' expectations and firm outcomes. Using US survey data on CFOs' expectations, Gennaioli et al. (2015) show that investment plans and realizations are well explained by expectations about earnings growth. In a related effort, Massenot and Pettinicchi (2018) and Tanaka et al. (2020) use firm survey data in Germany and Japan and show that firms' forecasts of future growth are associated with investment, employment, profit, and productivity in the subsequent year. As far as we know, our study is the first to examine the effect of managers' expectations about family succession on (pre-succession) business outcomes.

Japan is a suitable setting for this study for three reasons. First, there is a persistent primogeniture custom in Japan. In business successions, male children are more likely to succeed in their parents' business compared to female children. This condition allows us to use the sex of the first-born child as an IV. Second, parents' manipulation of their child's sex by altering the chromosome or having an abortion is likely to be very limited in Japan. This feature validates the key assumption for IV. Lastly, Japan is the world's fastest-aging society, with growing importance being accorded to research on SMEs' succession decisions. In 1950, the population aging rate in Japan was only 4.9% before it rapidly rose to 26.6% in 2015.[4] Top-managers are also aging. In Japan, over 70% of all managers are 55 years old or older, while the corresponding figure in the United States is over 40% (the US Census Bureau; Kodama and Li, 2018). In tandem with managers' aging, the number of business closures triggered by retirement is growing and amounted to about six times the number of bankruptcies in 2018, even though the number of bankruptcies was almost the same as in 2000 (Tokyo Shoko Research 2016, 2018). To prevent high-performing firms from exiting the market due to retiring managers, the Small and Medium Enterprise Agency in Japan promotes M&A matching and exemptions of inheritance tax and gift tax.[5]

The remainder of this paper is organized as follows. We describe our data and the empirical strategy in the next section. Sections 3 and 4 report the main empirical results and discuss the underlying mechanisms. The last section presents the conclusions of the study.

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[4]Population aging rate is the ratio of the elderly (people aged 65 years or older) to the total population. During the same period, the rate rose from 8.2% to 14.6% in the United States, from 11.4% to 18.9% in France, from 10.8% to 18.1% in the United Kingdom, from 9.7% to 21.1% in Germany, and from 4.4% to 9.7% in China. According to the UN's world population prospects (2017), the population aging rate in the above five countries in 2060 is predicted to become almost the same as in Japan or even higher.

[5]The scheme grants firms a moratorium of inheritance tax and gift tax as long as the successor who is approved by the local government will continue the business and, in certain circumstances (e.g. the death of the successor), exemption from payment of the tax for a grace period.

2   Data and empirical strategy

Our aim is to study how expectations about succession/exit affect firm performance. We investigate this question using a newly constructed dataset of Japanese SMEs. To identify the causal effect, we exploit the sex of the top manager's first-born child as an IV.

2.1   Data collection

To capture current firm performance, investment, and the possibility of future succession simultaneously, we conducted two waves of a web survey. The first wave ("Wave 1," hereafter) was conducted in August 2018, and the second wave ("Wave 2", hereafter) was conducted in August 2019.[6] Wave 1 had 3,036 respondents, and Wave 2 had 3,010. The respondents included top managers from sole proprietorships and corporations who were younger than 60 years, with at least one child.[7] Since we use the information about the first-born child for our identification strategy, we target managers with at least one child. Additionally, Wave 1 targeted managers with at least one young child aged 14 or under, and Wave 2 targeted managers in their 50s to add more managers who were closer to retirement. We analyze the results from both waves as pooled cross-sectional data by correcting sampling rates by population weights[8]. Then, we conduct a robustness check to use each wave separately, and confirm that it changes little of our main conclusion.

After dropping self-contradictory responses, we focus on the sample of male top managers who started the business themselves or inherited it from relatives more than 3 years before. The reason is that our instrumental variable (first-born child being male) could reasonably affect the managers' expectations about family succession in this sample, but it is less likely

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[6]The survey was implemented by Macromill, a private survey company. It was sent to Macromill's registrants who had agreed to answer questionnaires in advance. The company has one of the largest numbers of registrants in Japan, and the total number of registrants is about 10 million.

[7]In Japan, the labor force participation rate falls rapidly at the age of 60 because many companies set 60 as their mandatory retirement age.

[8]Due to the large number of registrants with Macromill, cases of having the same manager answering both waves are rare. We find only 86 seemingly identical managers across the two waves, who are identified based on observed characteristics (sex, residing prefecture, occupation, relation to the ex-CEO, industry, children's sex, age, firm's age, tenure, and children's ages).

to be relevant for the rest of the sample (e.g. female managers may rather choose their daughters as their successors). We also drop the sample of managers aged 32 or younger since the average age of first marriage for Japanese men in 2016[9] is 31.1, and the number of managers in this age group with at least one child is few.[10] The remaining sample size after these restrictions was 4,534 ("baseline sample"). Since our sample is not representative of the demographic distribution of top managers in Japan, we use population-weighted regressions where weight is defined for each age by the ratio of the number of top managers in our baseline sample to the number of top managers in the Employment Structure Basic Survey conducted by the Statistics Bureau.

Considering the possibility of heterogeneous effects by firm size, for example, employers with no employees close business easily, we additionally study a subgroup of businesses of relatively large firms, focusing on enterprises with at least three workers, including the respondent, 3 years ago. The sample size of this subgroup is 1,849 ("sample with at least three workers" hereafter).[11] One may expect that managers hiring workers may feel more responsible for continuing the business after retirement compared to managers working by themselves or with family members.

The current top manager was asked whether he was going to have someone succeed his business. Specifically, the survey asked "Has a successor of your business been determined?" and the relationship between him and his successor if he has decided on someone who is going to inherit his business. We define "own child will inherit"=1 if the manager has determined one of the manager's biological children as his business successor, and the child also agrees with inheriting the family business. If he has not decided on a successor, he is

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[9]OECD – Social Policy Division – Directorate of Employment, Labor, and Social Affairs. http://www.oecd.org/els/family/database.htm.

[10]The sample size under 33 years old is below 10 for each age. Since the weights by ages from the Statistics Bureau are not conditional on having at least one child, the number of individuals younger than 32 with a child in our data was too small compared to the population number of observations under the age of the government statistics, resulting in artificially large weights attached to respondents under 32.

[11]In this subgroup analysis, we use population weights specific to this sub-sample.

asked why.[12] If the manager indicates that there is a potential successor,[13], he is questioned about the relationship between himself and his potential successors. We define "own child could inherit"=1 if the current manager wants his biological child to succeed his business, but the potential successor does not necessarily agree with it. The survey includes information on the sex and age of each biological child of the manager.

The survey gathers details on business performance, including profits, firm size, and recent investment. From this section, we use the following variables: (1) profits (pre-tax profits in million yen),[14] (2) Relative performance (i.e. subjective performance evaluation compared to other firms in the same industry on a scale of four: 4 (better), 3 (slightly better), 2 (slightly worse), or 1 (worse)); (3) a dummy for earning surplus: 1 (surplus) or 0 (incurring deficit or break-even), (4) sales in million yen, (5) number of workers (including the respondent), (6) growth in the number of customers compared with 3 years ago (number of customers 3 years ago = 100), (7) investment (whether a manager invests in tangible capital such as a car, machine, or land in the last 3 years); (8) IT investment (whether a manager invests in IT capital such as computers or software in the last 3 years), (9) debt (new borrowing), and (10) use of data for decision-making (a dummy variable). In addition, we surveyed managers' actions to improve performance in the past 3 years regarding the following four points: (1) improving efficiency in production and sales operations, (2) developing worker skills, (3) selecting suppliers and subcontractors, and (4) using e-commerce for marketing and sales.

Table 1 summarizes the basic statistics of key variables in our analysis for the baseline sample (panel (a)) and the sample with at least three workers (panel (b)). As expected, firm sizes measured by sales and employment in panel (b) are larger than the one in panel

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[12]The choices are: (1) I want my child to succeed the business, but he/she has not accepted yet, (2) There is a candidate who is not my child, but he/she has not accepted yet, (3) There are multiple candidates, and it is not determined who should be selected, (4) I am currently searching for successors, (5) Since I am still young, I do not need to decide it now, (6) I will close the business when I retire, or (7) Others.

[13]That is, those who selected (1), (2), or (3)

[14]To reduce the influence of outliers, we also tried to use the inverse of hyperbolic sine (IHS) transformation of profit, which is similar to a log transformation allowing for zeroes and negative values (McKenzie, 2017).

(a). On the other hand, manager's age, first child's age, and the probability that the first child is male is almost the same across the panels. In both panels, the average age of top managers is around 47. The share of managers having an official or potential successor is low in panel (a), more specifically, 0.04 for "own child will inherit" and 0.10 for "own child could inherit". They may seem small, but this could be partly because first-born children in our sample are still around 14 years old on average. The corresponding numbers are a little higher in panel (b) (0.07 for "own child will inherit" and 0.16 for "own child could inherit"), reflecting a possibility that managers with employees have a stronger will to keep the business running. Overall, enterprises in panel (b) perform better than those in panel (a) in variables like profit, relative performance, sales, and IT investment.[15]

[Insert Table 1 Here]

2.2 Empirical strategy

This study aims to estimate the causal impact of a manager's expectation about family succession on business performance. To identify the causal effect, we exploit the sex of the top manager's first-born child as an IV following Bennedsen et al. (2007). In the second-stage regression, performance is regressed using the following equation:

$$Y_i = \beta E[\text{Family Succession}]_i + \alpha X_i + \epsilon_i \tag{1}$$

where Y_i is one of the business performance measures of manager i, and $E[\text{Family Succession}]_i$ is the manager's expectation about family succession represented by a variable, "own child could inherit", for which a detailed description is provided in Section 2.1. The probability

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[15]The average profit margin is 0.34 in panel (a), while it is 0.24 in panel (b). This may be attributed to a difference in component percentage between corporate enterprises and sole proprietors. In general, corporate companies report a profit after expenses as a profit, while sole proprietorships record a profit including labor costs of the owner. Therefore, the gross average profit margins tend to be smaller among corporate enterprises than sole proprietors.

of family succession is a proxy of the preparation level of business in the next generation.[16] In our baseline specification, X_i is a vector of control variables that include a linear and a quadratic term of the manager's age, first-born child age, and survey year.

$E[\text{Family Succession}]_i$ is likely to be endogenous in Equation (1). For example, managers of productive firms may be more eager to keep their business by finding a potential successor compared to managers of less productive firms. To address the endogeneity problem, we use the sex of the first-born child of the manager as an IV. Our first-stage equation is as follows:

$$E[\text{Family Succession}]_i = \gamma[\text{First Child is Male}]_i + \rho X_i + u_i \qquad (2)$$

where $[\text{First Child is Male}]_i=1$ if the manager's first-born child is male, and zero if the child is female.[17] The identification assumptions for this IV are considered valid under two key unique features in a Japanese setting. First, there is still a persistent gender bias against women in business succession in Japan. A typical primogeniture custom can be seen as a persistent Japanese culture of barring women from ascending to the imperial throne. Japan Finance Corporation (2016) reports that 51.5% of managers are planning to hand over their business to their first-born sons, 10.2% to sons other than the first-born sons, and 12.1% to daughters. The sex of the first-born child strongly predicts a manager's expectation about family succession.

Second, despite persistent primogenital custom and gender bias against women, gender preferences for the children of recent parents are rather mixed. In 2017, 47.1% of men and 71.4% of women prefer daughters on the condition that he has only one child, according to the National Institute of Population and Social Security Research (IPSS 2017).[18] As there is no official statistic on how many parents have undergone procedures to determine the sex of children by altering the chromosome or having an abortion for sex selection, we

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[16]Mokhber et al. (2017) presents preparation level of heirs and relationship between family and business members had a positive effect on family business performance.

[17]Our data are composed of managers having at least one child.

[18]They are asked how many children and which gender they want, and 47.1% of men and 71.4% of women prefer girls if they were to have only one child.

cannot assert that the sex of children is not artificially controlled. However, according to International Bank for Reconstruction and Development (IBRD) statistics, the proportion of male births to female births in Japan was 1.056 in 2012, while the average rate of female births to male births in 193 countries, including developing countries, was 1.051, suggesting that Japan's female-to-male birth proportion is close to the world's average. Furthermore, our data provide evidence that the sex of the first-born child is balanced across managers and firm characteristics that are considered to be determined prior to the birth of the child.

Table 2 presents the results of balancing tests, regressing each characteristic on the sex of the first-born child. The coefficients for the age of manager, the age of the first-born child, the number of children, relation with ex-manager (whether ex-manager is the current manager's biological parent or relative), ownership (whether a firm owner manages the firm), and firm age are all small in magnitudes and statistically insignificant. In the last column, the dependent variable measures the manager's gender-role perception, defined by the degree to which he agrees with the statement, "Husbands should go out to work, and wives should take care of homes" on a scale of 1 to 5. Such gender value is also balanced across genders of the first-born child.

[Insert Table 2 Here]

3 The impact of expectation about family succession on business performance

Table 3 shows the result of estimating Equation (2), the first-stage equation, in the baseline sample (panel (a)) and the sample with at least three workers (panel (b)). Columns (1) and (2) show the coefficients for having a potential successor ("own child could inherit"), and columns (3) and (4) present those for having an official successor ("own child will inherit"). We find all coefficients on "first child is male" are positive and statistically significant at the 1% level, suggesting that managers are more likely to have official/potential successors if

their first child is male. The magnitude of the coefficients is quite large considering the mean value of the dependent variables. For example, in the baseline sample, managers with a male first-born child have around 5.5 percentage points higher chance of expecting their children to succeed their business compared to managers with a female first-born child. This is a large increase given that only 7.8% of managers with a female first-born child are expecting their children to succeed. From this, we gather that the sex of the first-born child strongly predicts a manager's expectation about family succession. The results change little when controlling for manager's age and its square, the age of the first-born child, and the indicator for year.

[Insert Table 3 Here]

Table 4 presents our main 2SLS results for estimating the effects of expectation about family succession on business performance. For all equations, the specification shown in column (2) of Table 3 is used as the first stage specification. The coefficients for profit are positive and statistically significant at the 10% level in the baseline sample (panel (a)), and at the 5% level in the sample with at least three workers (panel (b)) as shown in column (1). These coefficients seem to be very large, and this could be partly due to outliers in the right tail of the distribution for profits. To reduce the influence of the outliers, we use log of profit, more specifically, the inverse of hyperbolic sine transformation of profit as shown in column (2). The coefficients remain positive for both samples, although statistically significant only for panel (b). As an alternative index, we also examine profit margin, defined by the ratio of profits to sales. The coefficients for profit margin in column (3) are also positive and statistically significant at the 10% level. The sizes of these coefficients are still large but not implausible. For example, in the baseline sample, an increase in probability of having a potential successor by one standard deviation raises profit margin by 0.123 (=0.41*0.30), which is a 37% (=0.123/0.328*100) increase compared to the mean. To eliminate the possibility of manipulation of profit, especially for managers having a successor, we also examine two additional dependent variables: a discrete variable of whether the firm

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earns surplus and relative performance compared with other firms in the same industry. In column (4), the coefficients for an indicator of earning surplus are also positive and statistically significant at the 5% level, consistent with the results for profits. Column (5) examines the effect on the manager's subjective evaluation about business performance relative to other companies in the same industry. The positive coefficients imply that having a potential successor positively affects the manager's evaluation of business performance. The results are similar when we run separate regressions by survey wave, although the coefficients are not precisely estimated (results are provided in Appendix Table A1). Overall, our findings suggest that the presence of a potential successor positively affects ongoing business performance.

[Insert Table 4 Here]

One possible concern is that the exclusion restriction of 2SLS could be violated. For example, raising sons may cost more time and money than raising daughters, which may also affect managers' behaviors and firm performance. To address such concerns, we collected information on the education cost of each child and whether managers feel occupied with childcare.[19] We confirm that the results are qualitatively unchanged after controlling for these variables (Appendix Table A2).

4   Possible pathways

We next examine possible mechanisms through which expectation about family succession results in better firm performance. The mechanisms we consider are (1) business expansion, (2) efficiency improvements, (3) expected long-term relationship with employees and banks, (4) direct contribution of children to the business, and (5) accounting gimmicks and tax avoidance.

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[19]We asked about total realized education cost if their children have finished final education, and expected cost otherwise. We also asked how busy managers feel with their child raising.

[Insert Table 5 and 6 Here]

4.1 Business expansion

We first consider the mechanism of business expansion. Managers anticipating their children to succeed in the business may try to expand their business to leave a larger firm to their children. If the firm becomes larger, it is likely to earn higher profits through scale economies or higher markups. We test this possibility by estimating the same specification as equation (2) for sales, employment, and investment in panel (a) of Table 5 (for the baseline sample) and Table 6 (for the sample with at least three workers). The coefficients for the log of sales and log of employment are insignificant, although they are positive for the sample with at least three workers. The coefficients for the investment dummy, indicating whether the firm invested in the business in the past three years,[20] are negative and insignificant, respectively. The coefficients for the growth of the number of customers are also insignificant. Overall, these results imply that profit-enhancing effects are not driven by business expansion or scale effects.

4.2 Efficiency improvement

We next turn to the possibility that managers expecting their children to inherit the business put more effort to improve efficiency to leave a more profitable business to their children. Columns (1) and (2) of panel (b) in Tables 5 and 6 indicate that expecting family succession encourages managers to undertake actions to improve efficiency in production and sales operations, as well as to select better suppliers and subcontractors. Furthermore, columns (3)–(5) show that expectations about family succession positively affect IT investment, use of data for decision-making, and use of electronic commerce for marketing and sales. The coefficients for these variables are large and positive for both samples, although some of

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[20]Investment here is considered to be mostly about tangible capital such as cars, land, and machinery, as we indicated these examples in the survey.

them are not precisely estimated. Overall, the evidence suggests that having a potential successor encourages managers to improve efficiency by upgrading operational efficiency, choosing better suppliers, investing in IT, and utilizing it.

The results are consistent with the implication of a simple dynastic model in which a parent cares about the utility of his child (Barro 1974). For example, imagine that the parent's and child's utility functions are $U_P(C_p, U_c)$ and $U_c(C_c)$, where C_p and C_c are the parent's and child's consumption, respectively. Income for SME owners determines the level of consumption for the parent, and also for the child if and only if the child succeeds in the business. When the parent has the chance to make a costly investment decision on new technology that could boost current and future profits, he would be more willing to do so if his child is likely to inherit the business.

4.3 Expected long-term relationship with employees and banks

Next, we consider mechanisms related to stakeholders' expectations. Specifically, when managers and employees anticipate a higher chance of family succession, they may expect a long-term employment relationship and invest more in firm-specific human capital. We test this possibility in panel (c) of Table 5 and Table 6. Column (1) shows that there is little effect of a potential successor on managers' actions to develop employees' skills. Column (2) examines the effect on communication between managers and employees, measured by an indicator for whether the manager discusses with existing employees when he considers hiring a new worker. The coefficient is positive and marginally significant for the baseline sample, suggesting that better communication between managers and employees can be a pathway of higher profitability.

Similarly, if banks know the existence of a potential successor, they may be more willing to lend, anticipating a longer-term relationship. However, the coefficients for the indicator of new borrowing from banks or other financial institutions, as shown in column (3) of panel (c), are statistically insignificant. While this could be partly explained by the earlier results on

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investment and profit, the result also suggests that a long-term relationship with banks is not likely to be an important channel. If anything, managers expecting family succession seem to be unenthusiastic about taking a risk that could leave a pile of debt for their inheritors.

4.4 Direct contribution of children to the business

Children sometimes help family businesses, in which case, sons may be more likely to assist in the business than daughters if they have a higher chance of inheriting it. To check this possibility, we control for the number of children working for the business and the number of other family employees in the main specification for profit and firm performance. We confirm that the results are qualitatively unchanged (the results are shown in Appendix Table A2).

Another related possibility is that even if the number of children working for the business does not boost profitability, male children may exert more effort qualitatively compared to female children by anticipating succession. To examine this hypothesis, in panel (a) of Table 7, we restrict the baseline sample to managers having a first-born child aged 14 years or less. Since such small children are not likely to be working for the business, the direct effects of children on the business are absent in this sample. The first-stage coefficient is still positive and significant at the 1% level. The 2SLS coefficients for profit and relative performance are all positive and significant, despite the smaller sample size compared to the baseline sample. The outcomes suggest that children's involvement in the business does not explain the boost in firm performance.

[Insert Table 7 Here]

4.5 Accounting gimmicks

Finally, we consider the channel of accounting gimmicks and tax avoidance that could influence the accounting measures of profit. For example, firms may manipulate accounting profits to reduce tax payments or receive better treatment from banks. Here, we provide two

reasons why this is not likely to be the main mechanism. First, even though our results on business performance are mostly based on profit, recall that we also obtain similar results when we use managers' subjective evaluation of relative performance compared to other firms in the same industry. Thus, this result cannot be explained by accounting manipulation.

Second, even if we closely examine the tax avoidance incentive by business type, the results are still robust. The measure of profit among small businesses differs according to the type of business: sole proprietorship or corporation. On one hand, sole proprietors measure profit by including the labor costs of the owner. On the other hand, profit in a corporation is the remaining amount after payment of expenses for capital and labor and is kept as an internal reserve in the corporation. If a corporation increases the labor costs of owners or family employees, it could reduce profit and pay less corporate tax. Therefore, among corporations, managers who expect to close their business in the future may have a low incentive to keep profit as an internal reserve, so they may reduce profits for saving tax payments.[21]

To remove the effects of bookkeeping deception, we restrict the baseline sample to sole proprietors. The results using this sub-sample are shown in panel (b) of Table 7. The coefficients in columns (2) and (3) indicate that the profit and log of profit (HIS) are positive, although they are smaller than those among the baseline sample and insignificant. However, the coefficients for the profit margin and surplus indicator in columns (4) and (5) remain positive and statistically significant at the 10% level. The relative performance shown in column (6) is positive and statistically significant at the 5% level. Overall, these results suggest that accounting gimmicks and tax avoidance are not likely to be the main channel to explain the results on profit.[22]

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[21]The effects of tax saving are not homogeneous because the rates of income tax and corporate tax are different and depend on the level of sales.

[22]There is also a possibility that profit is manipulated by the incentive to avoid inheritance tax. The inheritance tax in Japan is levied on the firm value and on the other assets, and it is ambiguous whether keeping profit as an internal reserve changes the total amount of tax payment. In any case, however, the above results based on the sub-sample of self-employed sole proprietors suggest that such manipulation is not likely to be the main channel.

5   Concluding remarks

In contrast to a growing body of research on how firm performance changes after the owner's retirement, little is known about how the prospect of business succession affects business performance before retirement. To fill this gap in the literature, we investigate how a manager's expectations about family succession affect business performance by conducting a survey with Japanese SME top managers.

From the results of the survey, we found several patterns worth noting. First, managers whose first-born child is a boy tend to have a potential successor. Second, expecting family succession positively affects profit. Third, the most plausible mechanism behind the positive effects on profit is that a potential successor encourages managers' actions to enhance performance, such as improving efficiency in operations, selecting better suppliers, investing in IT, and using data and electronic commerce. Our results are consistent with a dynastic model in which managers have an incentive to pass a profitable business on to their children.

Our empirical evidence has important implications for aging societies where a larger number of top managers in small businesses are retiring. In some countries, governments support the process of finding a successor for firms that are pressed to exit due to a lack of successors. However, our study reveals that expectation about succession was sometimes made much earlier before retirement, and such an expectation has a large effect on business performance. The performance at the time of retirement could be driven by managers' past decision-making regarding succession/exit. This suggests that policies toward middle-aged managers (rather than old managers near retirement) to encourage a search for a potential successor can yield higher business performance as well as a higher rate of business continuation in the future. Such policies may include information provisions about the importance of finding a successor and business matching of managers and potential successors. No successor, no success.

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Tables

Table 1. Summary statistics

Panel (a) Baseline sample

	Mean	SD	Min	Max	No. Obs
First child is male	0.54	0.50	0	1	4534
Own child will inherit	0.04	0.20	0	1	4534
Own child could inherit	0.10	0.30	0	1	4534
Manager age	47.25	7.72	33	59	4534
First child age	14.71	9.17	0	41	4534
Profit (pre-tax, million yen)	9.34	24.79	-5	200	4534
Profit margin	0.34	0.36	-0	2	4414
Surplus	0.35	0.48	0	1	4534
Relative perform (scale 1–4)	2.41	0.83	1	4	4534
Sales (million yen)	65.60	197.25	0	1700	4534
Employment	6.85	20.25	1	210	4534
Investment	0.50	0.50	0	1	4534
IT investment	0.44	0.50	0	1	2522
Data use	0.25	0.43	0	1	2522
Growth of no. customers (%)	104.83	112.61	0	1000	4534

Panel (b) Sample with at least three workers

	Mean	SD	Min	Max	No. Obs
First child is male	0.53	0.50	0	1	1849
Own child will inherit	0.07	0.25	0	1	1849
Own child could inherit	0.16	0.36	0	1	1849
Manager age	46.72	7.70	33	59	1849
First child age	14.20	8.93	0	41	1849
Profit (pre-tax, million yen)	15.76	34.15	-5	200	1849
Profit margin	0.24	0.32	-0	2	1812
Surplus	0.42	0.49	0	1	1849
Relative perform (scale 1–4)	2.63	0.79	1	4	1849
Sales (million yen)	130.71	276.24	0	1700	1849
Employment	13.60	27.98	1	210	1849
Investment	0.61	0.49	0	1	1849
IT investment	0.54	0.50	0	1	950
Data use	0.38	0.49	0	1	950
Growth of no. customers (%)	113.45	124.25	0	1000	1849

Notes: Questions about 'IT investment' and ' data use' were asked only in the second wave.

Table 2. Balancing tests

	Panel (a) Baseline sample						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Age of manager	Age of first-born child	No. of children	Ex-CEO is biological parent	Firm is managed by owners	Firm age	Traditional gender-role perception
First child is male	-0.05	-0.06	0.02	0.01	-0.01	-0.46	-0.01
	(0.33)	(0.33)	(0.03)	(0.02)	(0.02)	(0.78)	(0.02)
Observations	4,534	4,534	4,523	4,534	4,534	4,534	4,534
Variable mean	44.81	13.21	1.926	0.254	0.668	20.77	0.684
	Panel (b) Sample with at least 3 workers						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Age of manager	Age of first-born child	No. of children	Ex-CEO is biological parent	Firm is managed by owners	Firm age	Traditional gender-role perception
First child is male	-0.18	0.14	0.04	0.03	-0.03	-0.54	0.02
	(0.51)	(0.50)	(0.05)	(0.03)	(0.02)	(1.39)	(0.03)
Observations	1,849	1,849	1,844	1,849	1,849	1,849	1,849
Variable mean	44.81	13.21	1.926	0.254	0.668	20.77	0.684

Notes: Robust standard errors are shown in parentheses. *** for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$.

Table 3. The impact of sex of first-born child on expectation about successor (First-stage)

	Panel (a) Baseline sample			
	(1)	(2)	(3)	(4)
VARIABLES	Own child could inherit	Own child could inherit	Own child will inherit	Own child will inherit
First child is male	0.055***	0.055***	0.042***	0.042***
	(0.011)	(0.011)	(0.008)	(0.007)
Observations	4,534	4,534	4,534	4,534
Control variables	NO	YES	NO	YES
F statistics	26.76	27.35	31.73	32.41
Variable mean	0.0779	0.0779	0.0201	0.0201
	Panel (b) Sample with at least three workers			
	(1)	(2)	(3)	(4)
VARIABLES	Own child could inherit	Own child could inherit	Own child will inherit	Own child will inherit
First child is male	0.092***	0.090***	0.061***	0.059***
	(0.019)	(0.019)	(0.014)	(0.013)
Observations	1,849	1,849	1,849	1,849
Control variables	NO	YES	NO	YES
F statistics	22.43	22.75	20.20	20.09
Variable mean	0.115	0.115	0.0377	0.0377

Notes: Robust standard errors are shown in parentheses. *** for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. Columns (2) and (4) control for manager's age, manager's age squared, age of the first-born child, and year dummy.

Table 4. The impact of expectation about family succession on business performance (2SLS)

	Panel (a) Baseline sample				
	(1)	(2)	(3)	(4)	(5)
	Profit	Ln Profit	Profit	Earning	Relative
VARIABLES		(IHS)	margin	surplus	performance
Own child could inherit	28.39*	1.46	0.41*	0.73**	1.26**
	(16.14)	(0.95)	(0.24)	(0.33)	(0.55)
Observations	4,534	4,534	4,414	4,534	4,534
Variable mean	9.298	1.732	0.328	0.324	2.360

	Panel (b) Sample with at least 3 workers				
	(1)	(2)	(3)	(4)	(5)
	Profit	Ln Profit	Profit	Earning	Relative
VARIABLES		(IHS)	margin	surplus	performance
Own child could inherit	49.48**	3.05***	0.36*	0.73**	1.98***
	(22.24)	(1.15)	(0.21)	(0.34)	(0.61)
Observations	1,849	1,849	1,812	1,849	1,849
Variable mean	16.30	2.113	0.236	0.409	2.596

Notes: Robust standard errors are shown in parentheses. *** for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. All regressions control for manager's age, manager's age squared, age of the first-born child, and survey year dummy.

Table 5. Pathways (2SLS): baseline sample

Panel (a) Business expansion

VARIABLES	(1) Ln Sales	(2) Ln Employment	(3) Investment	(4) Growth of no. customers
Own child could inherit	-0.44	0.19	-0.10	-52.61
	(0.98)	(0.72)	(0.32)	(92.99)
Observations	4,414	4,534	4,534	4,534
Variable mean	2.780	0.919	0.433	98.29

Panel (b) Efficiency improvement

VARIABLES	(1) Improving efficiency in production and sales operation	(2) Selecting better suppliers and subcontractors	(3) IT investment	(4) Using data for decision making	(5) Using electronic commerce
Own child could inherit	0.44*	0.49*	0.39	0.24	0.34*
	(0.23)	(0.26)	(0.34)	(0.29)	(0.19)
Observations	4,534	4,534	2,522	2,522	2,522
Variable mean	0.114	0.159	0.438	0.248	0.0833

Panel (c) Relationships with employees and banks

VARIABLES	(1) Employees skill development	(2) Communicating with existing employees when hiring	(3) New borrowing
Own child could inherit	0.07	0.60*	-0.37
	(0.24)	(0.32)	(0.31)
Observations	4,534	2,522	4,534
Variable mean	0.119	0.328	0.234

Notes: Robust standard errors are shown in parentheses. *** for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. All regressions control for manager's age, manager's age squared, age of the first-born child, and survey year dummy.

Table 6. Pathways (2SLS): sample with at least 3 workers

Panel (a) Business expansion				
	(1)	(2)	(3)	(4)
	Ln Sales	Ln Employment	Investment	Growth of
VARIABLES				no. customers
Own child could inherit	0.76	0.54	-0.16	169.15
	(0.88)	(0.60)	(0.30)	(107.96)
Observations	1,812	1,849	1,849	1,849
Variable mean	3.811	1.893	0.551	105.7

Panel (b) Efficiency improvement					
	(1)	(2)	(3)	(4)	(5)
	Improving	Selecting	IT	Using	Using
	efficiency	better	investment	data	electronic
	in production	suppliers and		for	commerce
	and sales	subcontractors		decision	
VARIABLES	operation			making	
Own child could inherit	0.24	0.48*	0.77**	0.56*	0.44**
	(0.26)	(0.28)	(0.32)	(0.30)	(0.19)
Observations	1,849	1,849	950	950	950
Variable mean	0.187	0.240	0.529	0.379	0.114

Panel (c) Relationships with employees and banks			
	(1)	(2)	(3)
	Employees	Communicating	New
	skill	with existing	borrowing
	development	employees	
VARIABLES		when hiring	
Own child could inherit	0.19	0.20	-0.19
	(0.28)	(0.28)	(0.31)
Observations	1,849	950	1,849
Variable mean	0.238	0.603	0.342

Notes: Robust standard errors are shown in parentheses. *** for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. All regressions control for manager's age, manager's age squared, age of the first-born child, and survey year dummy.

Table 7. The impact of expectation about family succession on business performance (2SLS): sub-sample analysis

	Panel (a) Managers with a little son					
	(1)	(2)	(3)	(4)	(5)	(6)
	Own child	Profit	Ln Profit	Profit	Earning	Relative
VARIABLES	could inherit		(IHS)	margin	surplus	performance
First child is male	0.06***					
	(0.02)					
Own child could inherit		41.30*	2.66*	0.71*	0.89*	1.61*
		(24.31)	(1.46)	(0.36)	(0.52)	(0.83)
Observations	1,738	1,738	1,738	1,691	1,738	1,738
Control	YES	YES	YES	YES	YES	YES
Variable mean	0.0950	14.18	2.100	0.240	0.410	2.622

	Panel (b) Self-employed					
	(1)	(2)	(3)	(4)	(5)	(6)
	Own child	Profit	Ln Profit	Profit	Earning	Relative
VARIABLES	could inherit		(IHS)	margin	surplus	performance
First child is male	0.06***					
	(0.01)					
Own child could inherit		16.90	0.65	0.41*	0.62*	1.12**
		(15.20)	(0.92)	(0.24)	(0.33)	(0.55)
Observations	3,862	3,862	3,862	3,754	3,862	3,862
Control	YES	YES	YES	YES	YES	YES
Varible mean	0.0984	15.20	2.192	0.280	0.405	2.565

Notes: Robust standard errors are shown in parentheses. *** for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. All regressions control for manager's age, manager's age squared, age of the first-born child, and survey year dummy.

Online Appendix

Table A1. The impact of expectation about family succession on business performance (2SLS)–separately by survey wave

	Panel (a) 2018 Survey (Baseline Sample)				
VARIABLES	(1) Profit	(2) Ln Profit (IHS)	(3) Profit margin	(4) Earning surplus	(5) Relative performance
Own child could inherit	74.08 (61.61)	1.54 (2.87)	0.12 (0.52)	2.38 (1.64)	3.14 (2.10)
Observations	2,012	2,012	1,968	2,012	2,012
Variable mean	9.548	1.797	0.334	0.359	2.438
	Panel (b) 2019 Survey (Baseline Sample)				
VARIABLES	(1) Profit	(2) Ln Profit (IHS)	(3) Profit margin	(4) Earning surplus	(5) Relative performance
Own child could inherit	10.20 (16.59)	1.24 (1.16)	0.34 (0.29)	0.39 (0.33)	0.79 (0.64)
Observations	2,522	2,522	2,446	2,522	2,522
Variable mean	9.099	1.681	0.323	0.296	2.299
	Panel (c) 2018 Survey (Sample with at least three workers)				
VARIABLES	(1) Profit	(2) Ln Profit (IHS)	(3) Profit margin	(4) Earning surplus	(5) Relative performance
Own child could inherit	121.26 (116.96)	4.65 (4.93)	-0.12 (0.54)	2.41 (2.14)	4.17 (3.21)
Observations	899	899	885	899	899
Variable mean	15.59	2.135	0.239	0.432	2.643
	Panel (d) 2019 Survey (Sample with at least three workers)				
VARIABLES	(1) Profit	(2) Ln Profit (IHS)	(3) Profit margin	(4) Earning surplus	(5) Relative performance
Own child could inherit	38.44 (24.29)	3.01** (1.48)	0.50** (0.25)	0.45 (0.37)	1.29** (0.58)
Observations	950	950	927	950	950
Variable mean	16.97	2.092	0.232	0.387	2.552

Notes: Robust standard errors are shown in parentheses. *** for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. All regressions control for manager's age, manager's age squared, age of the first-born child, and survey year dummy.

Table A2. The impact of expectation about family succession on business performance (2SLS): additional control variables

Panel (a) Controlling for being busy with childcare and education cost

VARIABLES	(1) Profit	(2) Ln Profit (IHS)	(3) Profit margin	(4) Earning surplus	(5) Relative performance
Own child could inherit	27.27*	1.37	0.41*	0.70**	1.22**
	(16.17)	(0.95)	(0.24)	(0.33)	(0.55)
Observations	4,534	4,534	4,414	4,534	4,534
Variable mean	9.298	1.732	0.328	0.324	2.360

Panel (b) Controlling for the number of family employees

VARIABLES	(1) Profit	(2) Ln Profit (IHS)	(3) Profit margin	(4) Earning surplus	(5) Relative performance
Own child could inherit	28.64*	1.41	0.42*	0.71**	1.22**
	(16.93)	(1.01)	(0.25)	(0.35)	(0.58)
Observations	4,382	4,382	4,267	4,382	4,382
Variable mean	9.198	1.734	0.327	0.326	2.360

Notes: Estimation based on the baseline sample. Robust standard errors are shown in parentheses. *** for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.1$. All regressions control for manager's age, manager's age squared, age of the first-born child, and survey year dummy. In panel (a), a dummy variable indicating that the manager is busy with childcare, and the log of education cost is controlled. In panel (b), the number of children working for the business and the number of other family employees are controlled.