Family Businesses, Nepotism, and Productivity*

Hsien-Ming Lien
National Chengchi University

Linda Wu
University of British Columbia

Abstract

This paper provides the first systematic evidence on kinship networks within and across businesses by linking comprehensive administrative data on family ties, firm ownership, firm-to-firm transactions, and employer-employee records for the universe of firms in Taiwan. The unique dataset enables us to document the importance of family connections both within and across firms: 40% of firms employ family members and 33% have family owners with relatives owning other firms. When two firms are owned by family members, they have a 25% likelihood of trading with each other at higher transaction values than non-family partners. These patterns suggest that family ties contribute to shaping business networks and raise questions about their impact on firm performance. To examine this impact, we use a stacked event study design comparing ownership transfers to family members versus unrelated individuals. While firms transferred within the family experienced little change in sales, firms transferred to unrelated individuals increased sales by over 13% four years later. The improvement can be attributed to the restructuring of employee and supply chain networks, as firms recruit new employees and establish new supplier-buyer relationships.

*Corresponding author: Linda Wu, University of British Columbia (l.wu@ubc.ca). Hsien-Ming Lien: National Chengchi University and Chung-Hua Institution for Economic Research (hmlien@nccu.edu.tw). This paper greatly benefited from discussions with Richard Blundell, Anne Brockmeyer, François Gerard, Jonas Hjort, Patrick Kline, Camille Landais, Attila Lindner, Jon Piqueras, and Danny Yagan. We thank the Financial Information Agency in Taiwan for granting access to the administrative data. Wu acknowledges the financial support from the Stone Centre at UCL.

1 Introduction

Do family ties in businesses enhance efficiency through trust and cohesion, or do they introduce inefficiencies through nepotism? The effect is theoretically ambiguous. Family connections can help firms fill positions more quickly (Corak and Piraino, 2011; Kramarz and Skans, 2014) and strengthen contract enforcement through trust-based payment terms (McMillan and Woodruff, 1999; Boehm and Oberfield, 2020). However, family nepotism in hiring, supplier selection, or ownership succession within restricted pools can lead to resource misallocation (Villalonga and Amit, 2006; Pérez-González, 2006; Bennedsen et al., 2007; Bloom and Van Reenen, 2007; Bandiera et al., 2009).

Family ties exist both within firms, such as when owners employ or promote family members, and across firms, where family members who own separate businesses engage as suppliers or buyers. While these ties influence business operations, empirical evidence on their broader economic impact remains scarce. Most studies focus on family connections within firm workforces (Corak and Piraino, 2011; Kramarz and Skans, 2014), leaving cross-firm family networks unexplored. We lack understanding of how commonly firm owners have family members who also own other firms, or whether these family-related firms tend to trade with each other. These questions are essential, as family networks could shape broader economic outcomes, influencing market competition and resource allocation.

In this paper, we fill this gap by systematically documenting family ties within and across businesses using comprehensive administrative data from Taiwan. We link full-population records through family relationships, firm-level shareholder structures, firm-to-firm transactions, and employer-employee connections and document family connections along two dimensions. First, building on existing studies, we analyze owner-employee family relationships *within* firms, where family ties exist between owners and their employees. Second, we break new ground by documenting owner-owner family relationships *across* firms, where family members with separate businesses engage in each other's supply chains. To our knowledge, this is the first study to use administrative data to systematically link family ties through both ownership structures and supply chain networks.

The first part presents descriptive analysis across both dimensions. Within firms,

40% employ family members and tend to be older with lower sales, costs, and wage bills, while family employees have longer tenures and receive slightly higher wages after controlling for firm fixed effects. Across firms, 33% of owners have family members who own other firms, with 55% probability of operating in the same industry, suggesting family ties facilitate market entry through shared knowledge or resources. When firms are family-linked through ownership, there is 25% likelihood they trade with each other, and these transactions have higher values than non-family partnerships. These patterns highlight the role of owners' family ties in shaping business networks both within and across firm boundaries.

To examine the performance implications of these networks, in the second part of the paper, we use a stacked event study design comparing ownership transfers to family members versus unrelated individuals. We categorize transferred firms into three groups: transfers to (i) children or spouses, (ii) other family members, and (iii) unrelated individuals, comparing them with firms that never changed ownership. Our findings reveal stark contrasts between family and non-family transfers. Firms transferred to unrelated individuals demonstrate immediate and substantial improvements, with assets increasing 7% in the first year and 13% four years later. Sales follow a similar trajectory with 13% growth after four years. These firms expand significantly through new entrants, increasing their workforce by 18% with new employees and broadening their supplier and client networks with new trading partners.

In contrast, firms transferred within the family show minimal performance changes. Assets, sales, and workforce composition remain relatively stable for transfers to children or spouses, while transfers to other family members show only modest asset increases. The performance differences between family and unrelated transfers may stem from non-family transfers attracting new employees and suppliers who are better matches, which enhances productivity.

Related Literature and Contributions. This paper speaks to three strands of literature: (i) social ties and incentives in organizations, (ii) social ties and frictions in production networks, and (iii) the effect of inherited control on firm performance.

First, our research relates to the literature on social networks and incentives in organizations. Prior studies examine social connections among employees (Kramarz and Skans, 2014), in boardrooms (Kramarz and Thesmar, 2013), between managers and

workers (Bandiera et al., 2009), and cases of kin nepotism in both the public (Riano, 2023) and private sectors (Pellegrino and Zingales, 2017; Gagliarducci and Manacorda, 2020). Unlike studies often limited to specific sectors, we leverage comprehensive administrative data for an entire economy, documenting family connections across all firms. Furthermore, our analysis goes beyond within-firm ties and explores cross-firm family relationships, offering a more complete view of kinship's influence across business supply chain networks.

Second, we contribute to literature on social ties and production network frictions. Studies explore how information asymmetries, geographic distance, and weak contract enforcement distort firms' supplier and buyer choices. Rauch and Trindade (2002) show ethnic networks facilitate trade by helping firms find partners, while Boehm and Oberfield (2020) demonstrate that weak contract enforcement leads firms to rely on relationship-specific sourcing, potentially causing misallocation. To avoid contracting frictions, firms often source from relatives or maintain long-term relationships, though this may limit switching to more efficient suppliers. We examine kinship ties as a unique supply chain factor that both reduces transaction costs and hinders adaptability. By documenting kinship prevalence in production networks economy-wide, we illuminate how family relationships shape supplier and buyer choices, potentially affecting operational optimization and market responsiveness.

Third, we contribute to the literature on family control and firm performance. Research yields mixed findings on whether family ownership or management affects firm outcomes. Many studies suggest inherited control negatively impacts performance through nepotism and unprofessional management (Faccio and Lang, 2002; Pérez-González, 2006; Bennedsen et al., 2007; Bertrand and Schoar, 2006; Bloom and Van Reenen, 2007), while others show family-owned firms perform better (Anderson and Reeb, 2003). However, much literature relies on data from large firms or specific industries. A notable exception is Bennedsen et al. (2007), which uses Danish data to document negative effects of family succession but leaves underlying mechanisms unexplored. We contribute by investigating the mechanisms through the lens of employee and supply chain networks in an East Asian context where family businesses are more prevalent (The Economist, 2015) and social capital differences may shape family control differently than in Scandinavia (Knack and Keefer, 1997). We find that

firms transferred to unrelated individuals experience significant performance improvements through network restructuring, illuminating potential productivity gains from transferring ownership outside the family.

The rest of the paper proceeds as follows. Section 2 describes the data and the variable definitions. Section 3 presents the descriptive analysis of the prevalence of family ties within and across businesses. Section 4 examines the effect of ownership by type of relationship on firm performance. Section 5 concludes.

2 Data & Definition

2.1 Data

Our administrative data come from five sources provided by the Taiwanese Fiscal Information Agency: (i) corporate income tax, (ii) shareholder registries, (iii) firm-to-firm value-added tax, (iv) personal income tax, and (v) population registry. All data are between 2008 and 2021.

Corporate income tax. This dataset includes publicly and privately held businesses subject to corporate income tax. Although the income threshold varies slightly by year, it is generally around 120,000 TWD (approximately 4,000 USD). The records contain detailed balance sheet items for each firm, as well as the chair of the board, who typically acts as the firm's representative.

Shareholder registries. This dataset provides information on the shareholder structures of all firms in the corporate income tax records, indicating who owns how many shares in what firms. The data are collected to compute imputed tax credits under Taiwan's integrated corporate and dividend income tax system.

Value-added tax (VAT) firm-to-firm transaction. The VAT dataset contains monthly transaction-level records of firm-to-firm sales. The income threshold for VAT liability varies by year but generally hovers around 80,000 TWD (approximately 2,670 USD). Each transaction record includes the supplier ID, buyer ID, and transaction value.

Individual income tax. This dataset provides a detailed breakdown of individual income sources on an annual basis, including salary, dividends, pension, profit, and rental income. It identifies the amount and type of income received by each individual,

as well as the firms from which these payments originate.

Population registry. The population registry is a full-population dataset covering household structures and individual demographics, including gender, age, marital status, and birthplace. Crucially, it also records the IDs of each individual's parents and spouse, which is the key variable we use to identify family connections.

2.2 Sample Construction and Variable Definition

Firm sample construction. We begin with the corporate income tax data and apply the following filters to construct our firm samples: (i) firms must be limited liability companies; (ii) they must have an average monthly business revenue exceeding 1 million TWD (approximately 30,000 USD); (iii) they must be registered in the labor insurance data; (iv) owner demographic information must be available; and (v) firms must appear at least once in the VAT records between 2008 and 2021. In the final sample, we have 320,197 unique firms across all years.

Column (1) of Table 1 presents the descriptive characteristics of the firm samples. On average, firms are around 16 years old, have approximately 16 employees, with annual total wages around 8.7 million TWD. Sales and payments are roughly balanced, both averaging around 41 million TWD, indicating consistent revenue and expenditure patterns across firms. Firms typically maintain networks with around 73 suppliers and buyers, suggesting moderate interaction within supply chains. In terms of industry distribution, firms are most heavily concentrated in the retail sector, followed by manufacturing, construction, and finance.

Definition of firm owners. Using the shareholder registries, which provide the full shareholder structure of firms, we define a firm owner as any individual holding more than 25% of a firm's shares. For firms where no individual holds more than 25% (about 22% of the firm sample), we designate the individual with the largest shareholding as the owner. This results in 532,842 unique firm owners across the 320,197 unique firms.

Definition of family members of owners. To identify the family members of firm owners, we use the population registry, which records the IDs of each individual's parents and spouse. This allows us to construct a family tree for each firm owner, including the following relations (from closest to most distant): (i) children, (ii) spouse,

(iii) parents, (iv) grandparents, (v) grandchildren, (vi) siblings, (vii) parents-in-law, (viii) siblings-in-law, and (ix) children-in-law. In total, we identify 5,492,075 unique family members of firm owners within the 320,197 unique firm observations.

Firm-to-firm transaction construction. Using the VAT records of our firm sample, we identify relationships between firms based on their transactions, capturing the network of suppliers and buyers. This yields 24,513,268 unique undirected dyads of firm-to-firm transactions.

3 The Pervasiveness of Family Ties Within and Across Firms

We start by presenting empirical facts regarding the pervasiveness of family ties and focus on the (i) owner-employee network within a firm and (ii) owner-owner network across firms.

3.1 Within Firms: Owner-Employee Network

We construct a year-firm-owner-employee level dataset with merged kinship information. For each year and firm, we determine if an owner and an employee within the firm are family-related. Next, we collapse the data to the year-firm level and create a binary indicator that indicates whether a firm employs at least one family-related employee in a given year.

3.1.1 How Common Is Family Employment?

We begin by examining how common it is for firms to employ family members and the characteristics of these firms in Column (2) of Table 1. Out of 3,588,541 firm-year observations, 1,435,655 include a family connection between an owner and an employee, indicating that 40% of firms employ a family member. These firms tend to be older and have lower sales, costs, and wage bills than the average firm in the full sample. They also rely more on family-related business networks, as shown by a higher amount of sales and payments transacted to family trading partners. In addition, they have longer-term relationships with suppliers and clients, suggesting greater stability in the composition along their supply chains. Firms with family employees are also less

likely to be publicly listed, more often operate in manufacturing, and are less common in retail and finance.

3.1.2 Do Family Employees Earn More or Stay Longer?

Given that firms employing family members tend to have smaller overall wage bills, we next examine whether family employees are paid differently or have longer tenures than non-family employees. By analyzing the wage and tenure dynamics, we can better understand the impact of family ties on employment conditions within these firms.

We estimate the following specification, distinguishing between family employees who are children or spouses of the owner and those who are other relatives. We group children and spouses together because succession often follows a two-step process: businesses are frequently first transferred to the spouse, who then passes ownership to the children.

$$Y_{ift} = \beta_0 + \beta_1 \,\text{ChildSpouse}_{ift} + \beta_2 \,\text{OthFam}_{ift} + \gamma' X_{it} + \alpha_f + \delta_t + \epsilon_{ift} \tag{1}$$

where Y_{ift} is the outcome of individual i who works in firm f in year t, which could be log wage or tenure. ChildSpouse_{ift} is 1 if individual i in firm f is the child or spouse of the owner of firm f in year t and 0 otherwise. OthFam_{ift} is 1 if individual i in firm f is other family members within the second degree of consanguinity but not a child nor spouse of the owner of firm f in year t and 0 otherwise.[1] X_{it} are control variables including i's age, age squared; α_f is firm FE and δ_t is year FE.

Table 2 presents the effect of being a family employee, splitting by as a child or spouse, or other relative, on wages and tenure. Column (1) shows that, on average, an employee who is a child or spouse of the owner earns around 19% less than non-family employees, while an employee who is of other family relations earns about 21.3% less. However, with firm and time fixed effects added to Column (2), the coefficients turn positive: children or spouses earn 8.3% more than non-family employees, and other relatives earn 1.6% more. The flip of the signs of the coefficients suggests that firms hiring family members tend to pay lower wages overall, but within these firms, family employees may be paid slightly more than non-family employees.

[1] These are, for example, parents, grandparents, grandchildren, siblings, parents-in-law, siblings-in-law, and children-in-law. See Section 2.2.

Moving to the outcome of tenure. Column (3) shows that children or spouses tend to stay longer in a firm than non-family employees, while other relatives stay for shorter periods. With time and firm fixed effects to Column (4), both groups of family employees show positive tenure effects. Children or spouses of the owner stay about 0.82 year longer and other relatives stay about 0.11 year longer than non-family employees. The change between the two columns suggests two things: first, firms that employ family members tend to have longer employee tenures overall, which explains why adding firm fixed effects reduces the tenure coefficient for children or spouses and flips the tenure coefficient of other relatives to a positive sign. Second, children and spouses still have a longer tenure compared to other relatives, even within the same firm.

3.2 Across Firms: Owner-Owner Network

To understand the prevalence of family relationships in owner-owner networks across firms, we examine the extent to which firm owners are connected to other firms through family ties. Specifically, we define "family-related firms" as those where the owners are family members. We analyze this in two steps. First, we document how common it is for a firm owner to have a family member who owns another firm, then determine whether these family-related firms trade with each other.

3.2.1 How Common Is It for a Firm Owner's Family Member to Own Another Firm and Trade With Each Other?

We first identify if a firm owner has a family member who owns a different firm each year. Then, we create an indicator for each firm, specifying whether or not it has a family-related firm in that year. Table 3 shows the summary statistics. Column (1) is the number of firms and Column (2) presents the fraction of firms whose owners have a family member who owns another firm. On average, 33% of firms have a family-related firm, meaning their owners are connected through a family tie.

Next, we examine whether these family-related firms tend to operate within the same industry. On one hand, family members might operate in the same industry for the use of shared knowledge, resources, or networks to facilitate business entry and growth. On the other hand, families may deliberately diversify across industries as a way to hedge against industry-specific risks, such as market downturns or regulatory

changes. Column (3) of Table 3 shows that, conditional on having a family member owning another firm, there is a 55% chance that the two firms operate within the same industry, as defined by the first two digits of the NAICS codes. Column (4) further explores whether family-related firms trade with each other. It shows the likelihood that, conditional on having a family member owning another firm, the two firms engage in business transactions with each other, with a probability ranging from 25% to 27% across the years.

Who are the firms that trade with family members? Are they smaller businesses that depend on family relationships for supply chain stability, or are they large, interconnected groups, such as chaebols, where families span multiple firms and use intra-family trade for strategic growth? We pool all year-firm observations across years and present their firm characteristics in Column (3) of Table 1. It shows that firms that trade with family members tend to be larger, with greater assets, more employees, higher wage bills, and higher sales and payments compared to the full sample in our data. These firms also engage with a higher number of suppliers and buyers, with transactions involving family-related firms accounting for approximately 6.6% of sales and 6% of costs. This pattern suggests that, at least descriptively, firms that trade with family members are more likely to be larger. However, it's important to note that engaging in family-related trade inherently conditions on having a family member who owns another firm, introducing a selection bias. To establish a causal link between family-related trade and firm performance, future analyses will need to account for this selection effect.

3.2.2 Does Family-Related Supplier-Buyer Relationship Trade More or Last Longer?

To explore the dynamics of family-related trade, we examine whether supplier-buyer relationships between family-related firms differ from those between non-family-related firms in terms of trade value and duration. We begin by constructing a year-level dataset that identifies whether a supplier's owner and a buyer's owner share a family tie. Pooling data across years yields 262,594,042 observations. For each supplier-buyer pair, we create "undirected" dyads, meaning we treat the pair as connected if a trade exists, without distinguishing which firm acts as supplier or buyer. This results in a

total of 24,513,268 unique undirected dyads. We estimate the following specification:

$$Y_{dt} = \alpha_0 + \alpha_1 \, \text{FamTrade}_{dt} + \gamma' X_{dt} + \mu_d + \delta_t + \epsilon_{dt} \tag{2}$$

where Y_{dt} represents either the trade value or the tenure of the dyad relationship d in year t. FamTrade_{dt} is a binary indicator that equals 1 if the relationship is family-related, i.e., if the owners of firm i and j are family-related. The vector X_{dt} includes interactions such as the product of the firm age of the two firms or the product of the firm size of the two firms. μ_d and δ_t are dyad and time fixed effects, respectively. Standard errors are clustered on the dyad level.

The regression results are presented in Table 4. Columns (1) and (2) focus on trade value, while Columns (3) and (4) on tenure. In Column (1), family-related relationships have a much higher trade value, with a coefficient of 3.68, suggesting that trade value is over 300% higher if the transaction is family-related. However, adding dyad and time fixed effects in Column (2) reduces this to 0.81, though it remains significantly high. In other words, on average, family-related transactions are 81% higher in value than non-family-related trades. Moving to the outcomes of tenure in Column (3), it shows that family-related trades last about 137% longer than non-family-related trades. However, after controlling for dyad and time effects in Column (4), the effect drops to near zero and becomes insignificant. This suggests that the longer duration of family-related relationships can be mostly attributed to consistent characteristics of the trading pairs or overall trends over time, rather than the family connection itself.

4 The Effect of Ownership Transfers on Firm Performance

Our findings thus far have highlighted the prevalent role of family ties in business operations, affecting both internal employee relationships and external trading partnerships. This close integration of family ties suggests that business decisions and performance are tightly connected to the owner's family relationships. This raises a question: how does a change in ownership affect firm performance and productivity? A priori, the effect might depend on the ownership recipient. If ownership transfers to

close family members, business practices are likely to stay largely the same, whereas transfers to outsiders are more likely to bring significant changes to operations.

This section examines how different types of ownership transfers affect firm performance, focusing on the relationship between the departing owner and the new owner. We aim to determine whether firms that undergo ownership transfers to children, spouses, other family members, or unrelated individuals experience different effects on firm performance.

4.1 Empirical Strategy

Selection of Transfer Events. Under our definition of firm owners, a firm could have multiple owners. To avoid complications when multiple owners change at the same time, making it hard to identify the departing and incoming owners, we limit the definition of a firm owner in this section to those registered as the chair of the board. This approach ensures that each firm has a single owner at any given time, allowing us to clearly identify the departing owner, the incoming owner, and their relationship.

We define a transfer event as a change in its owner (i.e., the chair of the board). If a firm experiences multiple transfers across years, we pick the earliest one. In addition, we apply the following restrictions: (i) the firm did not undergo another transfer within four years after the event, and (ii) the firm must have nonzero employment before the transfer. To construct our control group, we assign a placebo transfer year to firms that did not undergo any ownership transfers during our observation period. In the end, we identify 7,112 transfer events, with 4,293 involving a transfer to a child or spouse, 843 involving other family members, and 1,976 involving unrelated individuals. The control group consists of 170,412 firms that never experienced a transfer.

Firm Characteristics by Type of Transfers. Table 5 presents the summary statistics of firms, split by transfer types: never-transferred, transferred to a child or spouse, to other family members, or to unrelated individuals. Firms that transferred ownership to children or spouses tend to be associated with older departing owners, suggesting that transfers within close family are often part of generational transitions. These firms are generally smaller in terms of both assets and employees compared to firms transferred to unrelated individuals, which tend to be larger and have higher sales and payments.

In contrast, firms transferred to unrelated individuals engage with a higher number

of suppliers and clients and have greater total wages and wage-per-worker averages, indicating that transfers to non-family members may correlate with larger firm size and more complex business networks. Firms transferred to other family members show characteristics in between those transferred to close family and those transferred to unrelated individuals, suggesting that the degree of family proximity may play a role in firm size and complexity post-transfer.

Stacked Event-study Design. To address issues related to negative weighting in recent dynamic difference-in-difference literature, we adopt the stacked event-study design proposed by Cengiz et al. (2019). We create event-datasets (event is the year of transfer). In each event-dataset h, the treated are the ones that underwent a transfer and the control are the ones that did not undergo a transfer throughout the studied period. We align events by relative time and stack all event datasets. The baseline regression specification is the following:

$$Y_{hik} = \sum_{k \neq -1} \beta_k I_{hik} + \Omega_{hik} + \mu_{hi} + \rho_{hk} + \epsilon_{hik} \tag{3}$$

where Y_{hik} is the outcome for firm i in event dataset h at relative time k. $I_{hik} = 1$ if firm i in event dataset h is transferred k years relative to the transfer year. Ω_{hik} includes firm age that varies within eventdata-firm over time. μ_{hi} is eventdata-firm fixed effect, ρ_{hk} is eventdata-time fixed effect. The control group is the firms that have never experienced an ownership transfer. We omit $k = -1$ and cluster the standard errors at the firm level.

As we are interested in the differential impact of the relation of transfer, we split the treated firms into samples based on the transfer type: (i) child or spouse, (ii) other family, or (iii) unrelated transfers, and estimate the regression separately. For balance-sheet outcomes that could be zero, we scale them with the average asset values before the transfer. For employee outcomes that could be zero, we scale them with the average number of employees before the transfer. For supplier-client outcomes that could be zero, we scale them with the average number of trading partners before the transfer.

4.2 Results and Discussion

Assets, Liabilities, Sales, Purchases, Wage Bills. We start presenting the event study results estimated from Equation 3. Figure 1 displays the outcomes for assets, liabilities, sales, and costs. The estimated coefficients indicate the evolution of each outcome variable compared to firms that never underwent a transfer. Results for transfers to children or spouses are shown in black, transfers to other family members in blue, and transfers to unrelated individuals in orange. The figure shows there is no pretrend between the three types of treated group and the control group, lending support to the parallel trend assumption.

Panel A illustrates the changes in assets after the transfers. Firms transferred to unrelated individuals experienced an immediate increase in assets of approximately 7%, which continued to grow to about 13% four years after the transfer. Firms transferred to other family members also saw an increase in assets, but the growth was smaller compared to transfers to unrelated individuals. By the end of the fourth year, the change in assets is around 6%. In contrast, firms transferred to children or spouses showed little to no change in assets following the transition.

To explore where the source of change in assets is from, Panel B plots the trend of liabilities. Firms transferred to unrelated individuals saw a rise in liabilities, increasing by around 10% a year after and reaching 18% by year four. For firms transferred to other family members, liabilities showed a modest, statistically insignificant increase. In contrast, firms transferred to children or spouses saw no liability increase initially, and by year three, liabilities had slightly decreased, averaging a 0.3% decrease by year four. This trend may suggest that family-transferred firms, particularly those given to children or spouses, are less likely to finance investments, possibly reflecting a more cautious approach to risk-taking after the transition.

In Panel C, we examine sales. Firms transferred to unrelated individuals increased their sales by around 8% a year after the transfer, with growth reaching around 13% four years after. Transfers to other family members also displayed an upward trend in sales, although the estimates are statistically insignificant. In contrast, firms transferred to children or spouses showed a slight, statistically insignificant downward trend in sales following the transition.

Panel D shows the trend in purchases. Firms transferred to unrelated individuals increased their purchases for production, averaging 12% more in the first year after the transition, with the increase stabilizing over the following four years. For firms transferred to other family members, the effect was statistically insignificant but showed slight growth starting in the second year after the transition. Firms transferred to children or spouses did not exhibit significant changes in their payment bills.

Panel E illustrates that firms transferred to unrelated individuals increased their total wage bills by approximately 3% in the first year after the transfer, with growth continuing to more than 4% four years later. In contrast, firms transferred to other family members or to children or spouses did not exhibit any significant changes in their total wage bills.

Number of Employees and Entrant Employees. Is the increase in total wage bills related to the change in the number of employees? Panel A of Figure 2 examines the evolution of employee numbers. To account for the issue of zeros, we scale the number of employees by the mean of the number of employees before the transfer. It shows that firms transferred to unrelated individuals began increasing their employee count after the transfer, with an 8% rise in the first year and growth reaching about 19% four years later. Firms transferred to other family members or to children or spouses also saw increases in employee numbers, but the growth was smaller and occurred more gradually. Four years after the transfer, the increases in employee numbers were 10% for firms transferred to other family members and 4% for those transferred to children or spouses.

Panel C shows the evolution of new employee hires. The results indicate that firms undergoing an unrelated transfer hired approximately 20% more new employees after the transition, with continued hiring in subsequent years. In contrast, firms transferred to other family members or to children or spouses mainly hired new employees during the year of the transition and the following year, but the magnitude was much lower compared to firms transferred to unrelated individuals.

Number of Suppliers, Buyers, and Entrants. Are the increases in sales and costs linked to changes in suppliers and clients? Figure 3 uses the same empirical strategy to explore the number of suppliers, clients, and new entrants in the supply chain. Again,

we detect no pretrends between the firms that are transferred versus never transferred.

Panel A presents the evolution in the number of suppliers. Similarly, to account for the issues of zeros, we scale the number of suppliers by the mean value of the number of suppliers before the transfer. Starting from the year of transition, all three types of transferred firms experienced an upward trend in supplier numbers. However, the differences in magnitude became notable one year after the transfer. Firms transferred to unrelated individuals saw a 7% increase in the number of suppliers compared to the base period, with continued growth reaching around 10% four years later. In contrast, firms transferred to family members increased their supplier numbers by approximately 3% one year after the transfer, with a smaller, slower growth trajectory that leveled off at under 5% after four years.

To investigate whether the increase in supplier numbers stems from new entrants to the supply chain, we analyze the number of entrant suppliers in Panel B. The definition of an entrant is it is the first time the supplier appears in the supply chain as a supplier. The results show that firms transferred to unrelated individuals saw an around 6% increase in the number of entrant suppliers in the first year after the transition, and the number oscillated around 5% by the end of the fourth year, while firms transferred within the family resulted in an increase of only around 2%.

Moving to the buyers, we examine whether a similar pattern exists. Panel C shows the trend in the number of buyers over time. Firms transferred to unrelated individuals experienced a 3% increase in buyers one year after the transfer, with the trend continuing upward to reach 4% four years later. In contrast, the changes in buyer numbers for firms transferred to other family members are statistically insignificant, while those transferred to children or spouses show a slight, statistically insignificant upward trend.

Panel D examines whether the increase in buyer numbers following transfers to unrelated individuals can be attributed to new entrant buyers. Firms transferred to unrelated individuals saw an average increase of around 2% in new buyers one year after the transition, with this trend remaining stable over subsequent years. The trend for firms transferred within the family, however, is statistically insignificant.

These findings suggest that firms transferred to unrelated individuals not only increase their supplier and client bases but also are matched with more entrants within

the supply chain, particularly on the supplier side. In contrast, firms transferred within the family exhibit more modest and generally insignificant changes in their supply and client networks.

Discussion. The results point to key differences in how firms react to ownership transfers based on the type of recipient. For firms transferred to unrelated individuals, we observe significant increases in assets, sales, costs, liabilities, and the expansion of employees and supplier and client networks. These changes suggest that unrelated recipients may adopt a growth-oriented approach, possibly by investing in new projects, increasing workforce, and forming connections with new suppliers and buyers. The hiring of new employees and engagement with new suppliers and buyers may indicate a drive for business expansion or diversification under new ownership.

In contrast, firms transferred within the family, especially to children or spouses, show more conservative patterns. The limited or statistically insignificant changes in assets, liabilities, and supplier or buyer networks suggest that these family-transferred firms may be less inclined to change the existing networks. This trend could reflect a preference among family members to maintain stability rather than pursue growth, potentially due to a desire to preserve legacy or minimize financial risks. The slight decrease in liabilities observed for firms transferred to children or spouses might further support the notion of conservative financial management.

5 Conclusion

This paper paints a comprehensive picture of family ties along two dimensions of firms: owner-employee family links within firms and owner-owner family links across firms. By documenting these relationships, we provide new insights into the widespread nature of family connections in firm operations and performance. Using a stacked event study to analyze the effect of ownership transfers on firm performance, we find that firms transferred to unrelated individuals experience significant improvements in performance compared to those transferred within the family. The improved performance could be driven by the restructuring of employee networks and supply chain relationships.

Our study highlights the broader economic effects of family networks within firms

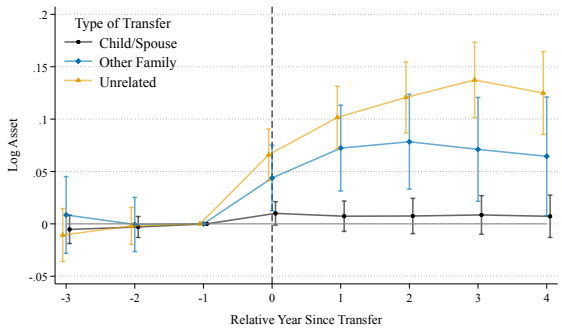
and in business transactions across firms. While family control can provide stability and preserve established relationships, our findings suggest that firms may perform better when ownership is transferred to unrelated individuals. These transfers may lead to changes that create better matches with employees, suppliers, and clients, which results in higher productivity.

These findings have important policy implications, for example, for estate and inheritance tax relief policies that encourage family business succession by offering lower tax rates for keeping businesses within families. While such policies aim to support family continuity and stability, they may unintentionally hold back firm growth and productivity.

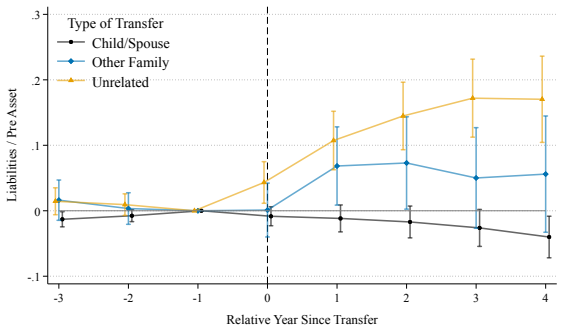
Figures

Figure 1: Effects of Different Types of Ownership Transfers on Firm Outcomes

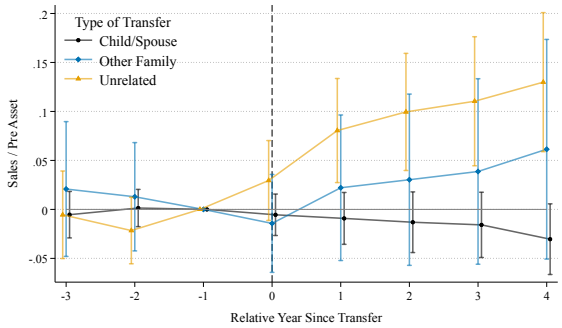
(A) Log Assets



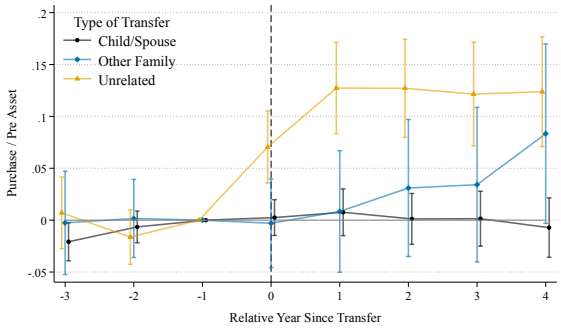
(B) Liabilities/Pre-transfer Assets



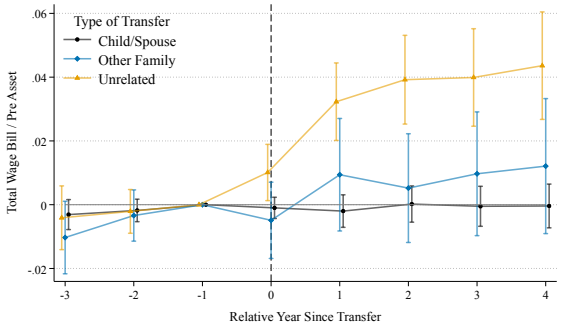
(C) Sales/Pre-transfer Assets



(D) Costs/Pre-transfer Assets



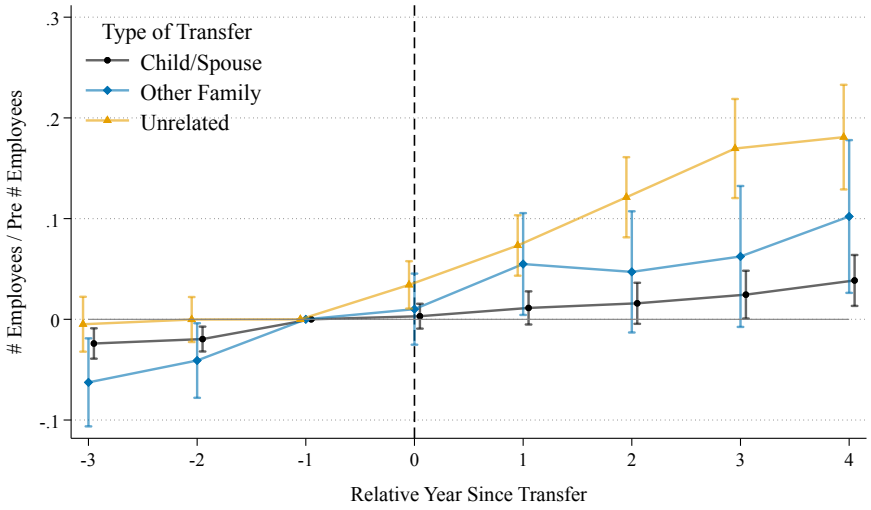
(E) Wage Bills/Pre-transfer Assets



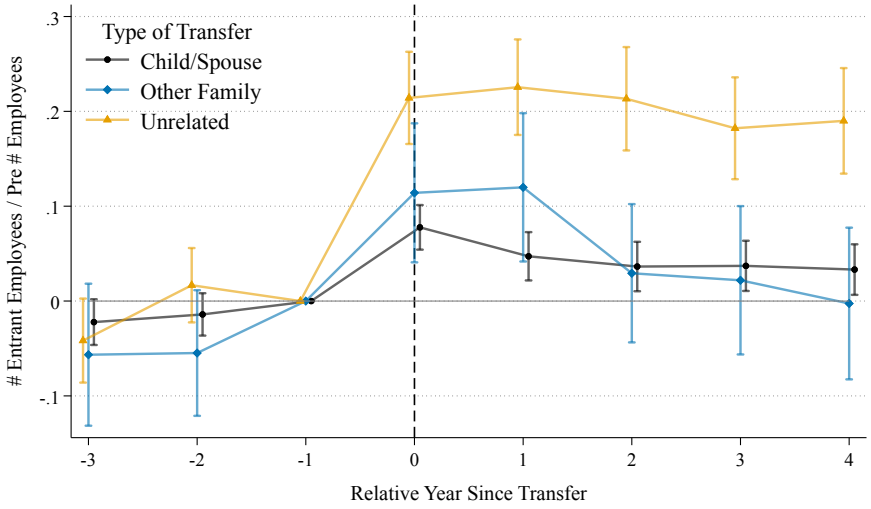
Notes: This figure plots the estimated β_k coefficients with 95% confidence intervals from Equation (3). The black line represents transfers to children or spouses, the blue line represents transfers to other family members, and the orange line represents transfers to unrelated individuals. All coefficients show differences relative to never-transferred firms. Panel (a) shows log asset values. Panels (b)-(e) show outcomes scaled by mean pre-transfer asset values.

Figure 2: Effects of Ownership Transfers on Employment Outcomes

(A) Number of Employees/Pre-transfer # Employees



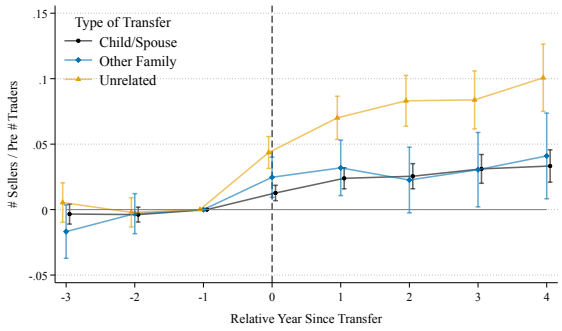
(B) Number of New Entrants/Pre-transfer # Employees



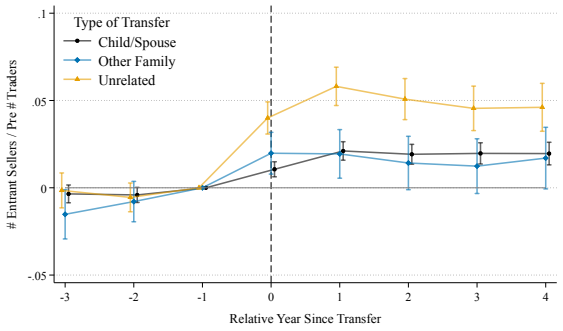
Notes: This figure plots the estimated β_k coefficients with 95% confidence intervals from Equation (3). The black line represents transfers to children or spouses, the blue line represents transfers to other family members, and the orange line represents transfers to unrelated individuals. All coefficients show differences relative to never-transferred firms. Both outcomes are scaled by the mean number of employees before the transfer. Panel (a) shows total employment, and panel (b) shows new entrant employees (those first appearing in the firm's wage bill).

Figure 3: Effects of Ownership Transfers on Trading Relationships

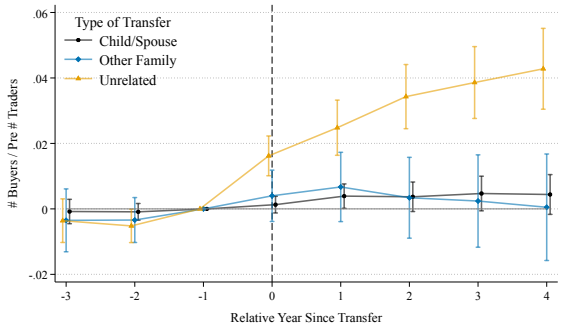
(A) Number of Suppliers/Pre-transfer # Traders



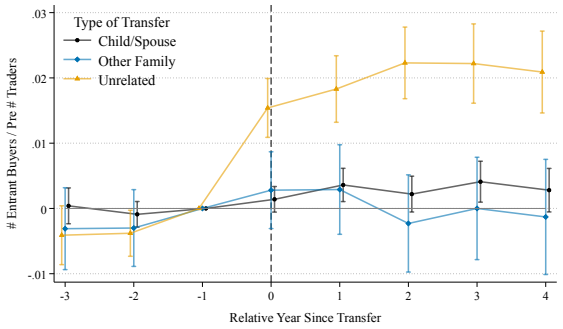
(B) Number of New Suppliers/Pre-transfer # Traders



(C) Number of Buyers/Pre-transfer # Traders



(D) Number of New Buyers/Pre-transfer # Traders



Notes: This figure plots the estimated β_k coefficients with 95% confidence intervals from Equation (3). The black line represents transfers to children or spouses, the blue line represents transfers to other family members, and the orange line represents transfers to unrelated individuals. All coefficients show differences relative to never-transferred firms. All outcomes are scaled by the mean number of trading partners (suppliers + buyers) before the transfer. Panels (a) and (c) show total suppliers and buyers. Panels (b) and (d) show new entrants (those first appearing in the supply chain).

Tables

Table 1: Firm Characteristics by Family Employment and Trading Relationships

	(1) All Firms	(2) Family Employees	(3) Family Trading
Firm Size & Performance			
Log assets	16.45	16.69	17.11
Firm age (years)	15.90	17.97	16.88
Number of employees	16.07	16.60	22.57
Total wage (million TWD)	8.77	8.31	12.20
Sales (million TWD)	41.1	38.1	60.2
Purchases (million TWD)	41.1	38.8	66.1
Business Networks			
Number of suppliers	73.18	84.18	97.06
Number of buyers	73.18	76.66	116.86
Sales to family buyers (thousand TWD)	394	460	3,988
Purchases from family suppliers (thousand TWD)	394	496	3,988
Supplier tenure (years)	3.35	3.52	3.38
Buyer tenure (years)	3.58	3.83	3.65
Industry Distribution (%)			
Publicly listed	5.0	3.8	5.9
Agriculture	0.54	0.43	0.46
Manufacturing	22.48	28.05	26.27
Construction	12.97	12.09	10.69
Retail	46.90	46.50	49.13
Restaurants	6.09	4.62	5.23
Financial & other	11.02	8.32	8.22
Sample Size			
Observations	3,588,541	1,435,655	309,673

Notes: This table presents firm characteristics across different samples. Column 1 shows all firms in the sample. Column 2 includes firms that employ at least one family member. Column 3 includes firms that have supplier or buyer relationships with family-owned firms. Values represent means across all firm-year observations in each category.

Table 2: Wage and Tenure Outcomes of Family Employees

	Log Wage		Tenure (years)	
	(1)	(2)	(3)	(4)
Child/Spouse	-0.189***	0.083***	1.032***	0.815***
	(0.000)	(0.000)	(0.003)	(0.007)
Other family	-0.213***	0.016***	-0.176***	0.107***
	(0.000)	(0.002)	(0.004)	(0.008)
Controls	✓	✓	✓	✓
Time FE		✓		✓
Firm FE		✓		✓
Observations	45,823,562	45,823,562	42,966,650	42,966,650

Notes: This table presents the results from Equation (1). The dependent variable in columns (1) and (2) is log wage, and in columns (3) and (4) is tenure in years. Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 3: Likelihood of Having Family Members Owning Other Firms

Year	(1) Number of Firms	(2) % with Family Owners	(3) % Same Industry	(4) % Trading Together
2008	210,474	33.6	54.8	25.7
2009	214,514	33.7	54.8	25.3
2010	220,307	33.7	54.8	25.5
2011	226,202	33.8	54.6	25.6
2012	230,995	33.8	54.9	25.6
2013	235,692	33.8	54.8	25.8
2014	240,276	33.6	54.7	25.8
2015	244,582	33.5	54.8	26.0
2016	249,298	33.5	54.6	25.8
2017	252,438	33.3	54.6	25.8
2018	252,953	33.0	54.5	26.1
2019	255,292	32.9	54.4	26.2
2020	254,544	32.5	54.4	26.4
2021	252,815	32.1	54.2	26.9

Notes: This table presents summary statistics on family ownership ties across businesses over time. Column 2 shows the percentage of firms whose owners have family members owning other firms. Column 3 shows the percentage of family-linked firms operating in the same industry. Column 4 shows the percentage of family-linked firms that trade with each other. The last two percentages are conditional on having family-linked firms.

Table 4: The Relationship between Trade Values and Tenures of Family-Related Transactions

	Log Trade Value		Tenure (years)	
	(1)	(2)	(3)	(4)
Family trade	3.678***	0.813***	1.366***	0.001
	(0.007)	(0.011)	(0.010)	(0.007)
Controls	✓	✓	✓	✓
Dyad FE		✓		✓
Time FE		✓		✓
Observations	67,675,249	67,675,249	67,675,249	67,675,249

Notes: This table presents the results of Equation (2). The dependent variable in columns (1) and (2) is the log of the trading amount, and in columns (3) and (4) is the tenure of the relationship in years. Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 5: Firm Characteristics by Type of Ownership Transfer

	(1) Never Transferred	(2) Child/ Spouse	(3) Other Family	(4) Unrelated
Owner Characteristics				
Departing owner age	53.43	59.42	54.06	55.22
Incoming owner age	53.24	48.17	51.24	49.24
Firm Size & Performance				
Log assets	16.67	16.86	16.96	17.48
Log revenues	16.93	16.98	17.12	17.53
Firm age (years)	18.55	22.69	18.31	18.00
Number of employees	15.10	15.96	19.27	28.96
Total wage (thousand TWD)	6,684	6,802	8,440	15,300
Wage per worker (thousand TWD)	278	274	268	321
Business Relationships				
Number of suppliers	81.25	82.91	88.41	107.15
Number of clients	55.66	61.86	58.46	67.12
Supplier tenure (years)	3.64	3.76	3.51	3.37
Client tenure (years)	3.90	4.18	3.83	3.59
Trading Activity (million TWD)				
Total sales	29.8	32.2	38.5	57.5
Total purchases	28.3	30.5	36.5	56.5
Self-trading sales	115.0	118.6	133.3	166.4
Family trading sales	110.6	105.6	174.5	153.1
Self-trading purchases	111.8	110.9	136.0	157.9
Family trading purchases	111.8	113.2	170.3	151.5
Industry Distribution (%)				
Publicly listed	0.67	0.46	1.05	5.04
Agriculture	0.38	0.42	0.62	0.74
Manufacturing	27.06	36.96	31.52	27.18
Construction	11.66	8.88	10.99	10.86
Retail	48.25	43.88	42.72	40.99
Restaurants	5.56	4.63	5.78	8.74
Financial/Real estate	2.14	2.16	4.08	4.81
Other	4.95	3.07	4.29	6.69
Sample Size				
Unique firms	170,412	4,293	843	1,976
Total observations	8,829,338	34,344	6,744	15,808

Notes: This table presents firm characteristics by ownership transfer type. Column (1) shows firms that never experienced a transfer, column (2) shows transfers to children or spouses, column (3) shows transfers to other family members, and column (4) shows transfers to unrelated individuals. Values are means across all firm-year observations in each category.

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