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A Study of Finance, Growth and Productivity in Family-Owned SMEs

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1. Abstract

Family-owned firms (FOFs) constitute a substantial proportion of the business base in most modern-day economies. Numerically, they also form the vast majority of small and medium-sized enterprises (SMEs) in these countries. Yet somewhat paradoxically, the volume of research on the financial affairs of these firms has been relatively modest. This report seeks to rectify this omission within the small business finance literature by specifically examining their experiences when attempting to raise finance, their levels of borrower discouragement in FOFs and how these credit conditions affect their performance outcomes. The main dataset interrogated for this empirical analysis is the UK's single largest survey of small firms, the Longitudinal Small Business Survey (LSBS). In terms of the project's methods, we wish to undertake econometric analysis which will employ a multi-tier empirical strategy that exploits both the broad coverage and the longitudinal features of the LSBS. A number of key findings emerged from this novel empirical analysis. Our findings show that FOFs have a greater propensity towards being discouraged and this applies particularly for limited liability partnerships (LLPs). It appears that discouragement in these firms may be irrational decision-making behaviour as the counterfactual approval probability of discouraged firms accessing finance is high. Plus overall, FOFs do not experience any greater credit rationing than non-FOFs. In terms of the economic impact of borrower discouragement, FOFs encounter no greater discernible impact than non-FOFs. Borrower discouragement was found to be a permanent *state* rather than a transitory *phase*. Despite this, surprisingly, no change in the growth ambition is detected in firms suffering from discouragement.

Keywords

- Family firms
- Borrower discouragement
- Access to finance
- Small and medium-sized enterprises
- Longitudinal Small Business Survey

2. Introduction

2.1 Background and Context

Within academic literature, family-owned firms (henceforth FOFs) are technically regarded as businesses governed and/or managed with the intention to shape and pursue the vision of the business held by members of the same family across generations (Chua et al., 1999). FOFs constitute a substantial proportion of the business base in most modern-day economies (Aguilera et al, 2025) and numerically they constitute the vast majority of small and medium-sized enterprises (SMEs) in these countries. Owing to their central economic importance this project wishes to examine the "peculiar financial logic" (Michiels and Molly, 2017, p. 369) characterizing family firm funding and the associated growth constraints faced by FOF SMEs in the UK compared to their non-FOF counterparts.

In recent years, family firms have been found to exhibit certain characteristics with respect to their investment and financing decisions compared to non-family firms (Cordoba et al, 2024), yet scholars have yet to fully clarify and sketch how these distinctions influence and shape investment and financing preferences. Indeed, much of the literature on FOF is strongly theoretically anchored in the literature surrounding socio-emotional wealth (SEW) and how these firms have acutely different belief systems which mould their decision-making behaviour. According to this theoretical construct "the pursuit of nonfinancial utilities, or what we refer to as the family's socioemotional wealth, can best capture the family firms' uniqueness and thus serve as a unifying analytical perspective to explain differences in managerial [and owners'] choices" (Gómez-Mejía et al., 2011, p. 660).

This report seeks to rectify this omission within the small business finance literature by specifically examining their experiences when attempting to raise finance, levels of borrower discouragement in FOFs and how these credit conditions ultimately affect their performance in terms of entrepreneurial growth outcomes. Borrower discouragement is a situation whereby a 'good' firm with a high chance of servicing a loan chooses not to apply despite having an underlying need for external finance for fear of rejection by a lender (Kon and Storey, 2003). Understanding the gravity and consequences of borrower discouragement in FOFs is a key focus of this study as it has shown to significantly curtail investment levels and growth of SMEs (Brown et al, 2022; Cowling et al, 2026). The main dataset underpinning this empirical analysis is the UK's single largest survey of small firms, the Longitudinal Small Business Survey (LSBS). In terms of the project's methods, we undertake econometric analysis which employs a multi-tier empirical strategy that exploits both the broad coverage and the longitudinal features of the LSBS.

While research on FOFs has undoubtedly become an established sub-field of the entrepreneurship and small business research field, the literature is mired in definitional ambiguities across different studies (Howorth et al, 2010). In short, a family firm is "one in which the family will exert some strategic control over the firm's resources and processes" (Barbera and Moores, 2013, p. 955). Therefore, given the need for definitional clarity, within this study we take FOFs to be those who are both owned and governed by members of the same family. The precise terminology used in the LSBS to delineate a FOF from a non-FOFs is as follows: family status is measured by the survey's self-report (question A12), which asks whether the business is majority-owned by members of a single family. This means a business where a "majority" of the owners are in the same family (DBT, 2025). "Majority" here means more than half. Respondents are asked in the survey whether their business is family-owned, defined in the questionnaire as "majority-owned by members of the same family" (DBT, 2025a). Enterprises with a single owner are automatically assumed to be a family business in the LSBS, while those with two or more owners are asked if they are a family-owned business (DBT, 2025b). Businesses with no owners are automatically assumed not to be a family business (DBT, 2025b). This definition is consistent with that used in previous waves of the LSBS, ensuring the comparability of results over different time periods. Under this definitional rubric, weighted family firms constitute 89 percent of the broad SME population and 66.9 percent of the multi-owner population.

2.2 Research Questions

This report addresses three questions, which Section 3 develops into six testable hypotheses:

1. Research Question 1: Are family-owned SMEs more likely than comparable non-family SMEs to be discouraged borrowers, and where in the SME population is any differential concentrated?
2. Research Question 2: Does the family differential arise from how lenders treat family firms that apply, or from family firms choosing not to apply, and is that choice warranted by their prospects of approval?
3. Research Question 3: Do credit constraints reduce productivity, growth, innovation or exporting by more in family firms than in non-family firms, and does borrower discouragement persist once a firm enters that state?

2.3 Structure of the Research Paper

The remainder of the report continues as follows. In Section 3 we delineate a series of hypotheses to help frame the empirical analysis undertaken. In Section 4 we outline the data interrogated and the descriptive statistics emanating from the analysis, and report the empirical methodology used in this study. Section 5 discusses the findings. The discussion of these findings, conclusions and policy implications are drawn in Sections 6 and 7.

3. Literature Review

This section reviews the existing evidence relevant to the research questions set out in Section 2.

3.1 Theoretical Framework

We now wish to take stock of relevant literature examining the nature of finance in small FOFS. To do so we first wish to examine the nature of decision-making in FOFs. Following on from this, we posit a number of hypotheses to help inform our empirical analysis.

There is an extant literature on borrower discouragement and how this mindset can negatively impact a small firm's ability to obtain finance, especially in particular types of firms in certain geographical locations (Lee and Brown, 2017; Brown et al, 2022; Cowling et al, 2026). A discouraged borrower is a firm with a need for external finance that does not apply for fear of rejection (Kon and Storey, 2003). A firm that needs external finance applies when the expected benefit of applying exceeds its cost. In the application-cost model of Kon and Storey (2003), the benefit is the perceived probability of approval multiplied by the surplus from the loan, and the cost includes fees, time, disclosure, and the disutility of submitting to external scrutiny.

Two schools of thought follow from this framework. Under the screening account, discouragement reflects application costs and pessimistic beliefs about approval, so that it is efficient self-rationing when beliefs are accurate and an information friction when they are not (Kon and Storey, 2003; Han et al, 2009; Freel et al, 2012). Under the preference account, discouragement reflects costs unrelated to the approval probability: loss of control, disclosure to outsiders, and the owner's personal exposure to business debt (Koropp et al, 2013; Nguyen et al, 2021). The two accounts have different comparative statics. Screening-based discouragement responds to changes in application costs and to information, whereas preference-based discouragement does not (Cowling et al, 2016; Anastasiou et al, 2022).

Family ownership sharpens this contrast. In the socioemotional wealth tradition outlined above, family owners attach value to control, independence, and the survival of the firm as a family asset, and they weigh this affective endowment against financial returns (Gómez-Mejía et al. 2007; Berrone et al, 2012). External debt intrudes on all three. Where the legal form ties business debt to family wealth, as in partnerships with limited liability, the intrusion is greatest. Family ownership should therefore raise discouragement through the preference channel, at a given approval probability, and the differential should be concentrated where personal exposure is concentrated rather than where firms are small, young, or of low technology intensity.

3.2 Empirical Evidence

The framework yields six testable hypotheses. H1 to H4 concern who enters discouragement, and H5 and H6 examine what happens thereafter. The distinction organises the results. Family status is expected to matter for entry into the state and to be irrelevant to behaviour thereafter. However, we need to bear in mind that FOFs are a heterogenous group (Freixanet et al, 2024) and some may have a greater level of personal exposure, such as partnership and firms with limited liability and hence more prone towards discouragement. Following others, we expect limited liability to be associated with discouragement (Freel et al, 2012). Therefore, we posit the following two hypotheses:

H1. Family firms are more likely than similar non-family firms to need external finance and not apply for it for fear of rejection.

H2. The family differential in discouragement is concentrated where owners' personal exposure is greatest, in partnerships and LLPs, and does not vary detectably with firm size, firm age, or the technology intensity of the sector

Although FOFs may be more susceptible to discouragement, this may not translate into higher levels of credit refusals. The family differential arises on the demand side hence we put forward the following hypothesis:

H3. Conditional on applying, family firms are not rejected more often than non-family firms, overall or within finance types.

Some more risk-averse entrepreneurs over-estimate their inability to obtain credit and *irrationally* credit self-ration. Unfounded pessimism and hesitancy about future economic conditions is one such gut-based heuristic thought to influence discouragement (Anastasiou et al, 2022). In relation to FOFs we propose the following hypothesis:

H4. If discouragement were efficient self-rationing, discouraged firms would face low counterfactual approval probabilities

Despite the large number of studies on borrower discouragement the literature has tended to overlook the impact of this credit self-rationing process (Cowling et al, 2016; Cowling et al 2026). However, we would expect that this would apply equally to all types of firms, irrespective of ownership or governance structure. Hence we posit the following hypothesis:

H5. Credit constraints reduce productivity, growth, innovation, or exporting by more in family firms than in non-family firms

If discouragement reflected application costs, it should not persist once those costs fall, and discouraged firms should re-enter the market as conditions improve. Under the preference account, discouragement is a persistent state. The underlying growth ambition and financing need survive, stated intentions to apply are not acted on, the state persists over several years. Hence we put forward our final hypothesis:

H6. Participation does not recover even when application barriers are removed.

3.3 Summary and Gaps

Three gaps motivate the study. First, although family-owned firms form the vast majority of SMEs in most modern economies, the volume of research on their financial affairs has been modest (Michiels and Molly, 2017), and scholars have yet to fully clarify how the distinctive belief systems of these firms shape their financing preferences (Cordoba et al, 2024). Second, the literature on borrower discouragement has tended to overlook the consequences of this credit self-rationing for observable firm performance (Cowling et al, 2016; Cowling et al, 2026), and no study has asked whether those consequences differ for family firms. Third, the family-firm literature is mired in definitional ambiguities (Howorth et al, 2010), so that findings on family finance are hard to compare across studies.

This study addresses these gaps with a single large panel. The LSBS applies one consistent definition of family ownership across ten waves, records need, application and outcome for external finance in each wave, and follows firms over time, so that entry into discouragement, lender treatment, the counterfactual prospects of the discouraged, the effects of a credit constraint on performance, and the persistence of the state can be examined for family and non-family firms within one framework.

4. Methodology

4.1 Research Design

The quantity of interest is the difference in the probability of being a discouraged borrower between family and non-family firms that share an employment size band, an age band, a one-digit industry, a region, a legal form, and a survey year. It is a conditional association and not a causal effect, and the verbs used throughout Section 5 are chosen accordingly. Because a discouraged borrower is defined as a firm that needs finance and does not apply, this probability is a joint one, and Section 5.2 locates the family differential within the financing process.

4.2 Data Sources

The Longitudinal Small Business Survey

The data are the ten waves of the UK Longitudinal Small Business Survey (LSBS), 2015 to 2024 (UK Data Archive study 7973). The LSBS is an annual panel telephone survey of UK small and medium-sized enterprises commissioned by the Department for Business and Trade and its predecessors. The unit of observation is the firm-year. The raw panel contains 104,163 firm-year observations, about 15,000 firms in the 2015 and 2018 recruitment waves and between 6,600 and 11,000 in the other waves, with refreshment cohorts added as the panel ages. Sampling is stratified by employment size band, broad sector, and UK nation, and over-represents medium-sized and larger SMEs. Cross-sectional weights (xweight) restore representativeness of the UK SME population with fewer than 250 employees. The weighted estimates in this paper therefore describe that population, and the small number of observations with 250 or more employees, for which no weight is defined, drop from weighted specifications.

Sample construction

Registered charities are excluded throughout (7,213 firm-year observations), because including them reverses the sign of the unconditional family productivity gap and they face a different financing environment. The resulting broad sample contains 96,950 firm-year observations, of which 73,681 are family firms, 22,755 are non-family firms, and 514 have missing family status.

Family status is measured by the survey's self-report (question A12), which asks whether the business is majority-owned by members of a single family. Firms with a single owner are in effect family firms under this definition, since 99.4 percent report family ownership, which conflates family governance with self-employment. The analysis therefore uses two samples. The broad sample applies A12 to all firms and matches the official LSBS definition. The multi-owner sample drops the 39,613 single-owner firm-years and retains 57,337 observations (34,289 family, 22,534 non-family, 514 missing family status), and within it family status distinguishes governance rather than ownership form. Weighted, family firms are 89.0 percent of the broad SME population and 66.9 percent of the multi-owner population.

Credit states

The financing questions (section H of the survey instrument) identify, for the previous twelve months, whether the firm needed external finance, whether it applied, and what it obtained. Four mutually exclusive states follow. A firm that applied and obtained at least some finance is unconstrained (10,257 firm-year observations in the broad sample). A firm that applied and obtained none is rejected (1,632). A firm that needed finance and did not apply is a discouraged borrower (5,940). A firm with no need (74,935) is excluded from the constrained-unconstrained comparison, since it supplies no information about constrained access, and is retained only where explicitly stated, as a comparison group in the COVID analysis. Credit state is undefined for the remaining 4,186 firm-year observations with incomplete financing responses, and these are excluded from every analysis that conditions on the state. The discouraged-borrower indicator of equation (1) is defined more widely, for the 94,784 observations answering the need question, since a firm that did not report a need is

a non-discouraged firm rather than a missing one. That is why the estimation samples of Table 2 exceed the sum of the four states.

One feature of the instrument governs how the need question can be used. Question H95 asks non-applicants whether they had a need for finance at all, and asks applicants whether they needed more finance than they applied for. The raw response is therefore exact for the discouraged-borrower definition, which is built only on non-applicants, but it is not a pooled indicator of credit-market participation. Wherever this paper requires such an indicator, it is constructed as applying for finance or reporting an unmet need without applying, which uses H95 only where the question is exact. On that definition 20.1 percent of firm-years are in the credit market unweighted and 15.5 percent weighted. Weighted, 6.9 percent of family firms and 6.0 percent of non-family firms are discouraged borrowers in an average year.

Discouragement reasons are recorded for discouraged firms (questions H96 and H97). The most common is reluctance to take on additional risk (63 percent), followed by cost (47 percent), economic conditions (43 percent), expected rejection (37 percent), not knowing where to find appropriate finance (23 percent), and poor credit history (15 percent). These shares are weighted, consistent with the main specification. Unweighted they are 61, 45, 43, 29, 17, and 9 percent. Weighting raises expected rejection, not knowing where to find finance, and poor credit history by 6 to 8 points each, and leaves risk aversion, cost, and economic conditions within 2 points. Applications to the government-backed COVID loan schemes of 2020 and 2021 (Bounce Back Loans and CBILS, question H5_12) are taken from the archived survey file and merged to the panel.

Outcomes and covariates

Labour productivity is the log of real turnover per employee, with turnover deflated by industry deflators constructed from ONS output deflator series and merged at the SIC section level. The measure is gross output per head, so cross-sector comparisons mix intermediate intensity with efficiency, a point that matters for the decompositions below. Growth ambition is the survey's forward-looking question (R1), which asks whether the firm aims to grow sales over the next three years. Seventy-two percent of firm-years report the ambition, and a banded follow-up records its size. The stated likelihood of approaching external finance providers over the next three years (R2) is recorded on a four-point scale. Innovation, R&D activity, and exporting are taken from the corresponding survey modules.

Covariates in all conditional specifications are employment size band, firm age band, one-digit SIC section (fourteen categories, the finest industry detail the archive releases), government office region, legal form (four harmonised categories), and survey year. Standard errors are clustered by firm throughout, because the panel follows firms over up to ten waves and repeated responses by the same firm are the dependence the design creates. The stratification of the sample is handled by the weights rather than by the variance estimator. Descriptive statistics are reported in Table 1, whose weighted counts fall below the sample counts above by 681 firm-years in the broad sample and 634 in the multi-owner sample, these being observations for which no cross-sectional weight is defined.

Table 1. Descriptive statistics by family status (weighted)

	(1) Broad sample		(2) Multi-owner sample	
	No	Yes	No	Yes
Discouraged borrower	0.060	0.069	0.060	0.064
	(0.237)	(0.253)	(0.238)	(0.245)
Reported need for finance (H95)	0.083	0.083	0.084	0.082
	(0.276)	(0.277)	(0.277)	(0.274)
Rejected, applicants only	0.203	0.218	0.201	0.163

	(0.402)	(0.413)	(0.401)	(0.369)
Log real turnover per employee	11.384	11.198	11.383	11.316
	(1.160)	(1.084)	(1.162)	(1.065)
Knowledge-intensive sector (J, M)	0.227	0.213	0.226	0.185
	(0.419)	(0.409)	(0.418)	(0.388)
Aims to grow sales	0.692	0.539	0.694	0.614
	(0.462)	(0.499)	(0.461)	(0.487)
Operates from home	0.278	0.564	0.280	0.454
	(0.448)	(0.496)	(0.449)	(0.498)
Urban location	0.763	0.685	0.765	0.593
	(0.425)	(0.464)	(0.424)	(0.491)
R&D activity	0.168	0.121	0.169	0.150
	(0.374)	(0.326)	(0.375)	(0.357)
Exports	0.205	0.131	0.205	0.166
	(0.404)	(0.338)	(0.403)	(0.372)
N	96269		56703	

LSBS 2015-2024, charities excluded. Cross-sectional weights (xweight). SD in parentheses. H95 asks non-applicants whether finance was needed at all and applicants whether more was needed than applied for, so the reported-need row is not a pooled participation rate. Rejection is defined for applicants only. R&D is from the 2018-on module.

4.3 Analytical Methods

Discouragement

Discouragement is estimated by linear probability models of the form

$$D_{it} = \alpha + \beta F_{it} + X_{it}'\gamma + \varepsilon_{it}, \quad (1)$$

where D_{it} indicates that the firm is a discouraged borrower, F_{it} indicates family ownership, and X_{it} is the covariate set above. The coefficient β is the family difference in that probability, measured in percentage points. Average marginal effects from probit models are reported as a functional-form check, at +1.0 against +0.99 percentage points in the weighted broad sample. The identifying comparison is between family and non-family firms within cells defined by the covariate set, so firms in industries, size bands, or legal forms occupied by only one ownership type contribute nothing.

Weighted estimates are the baseline throughout this paper. The choice follows from the survey's stratified design rather than from a preference among results, and Section 4.3 sets out what it implies and how it is checked.

Decomposition of the gaps

Raw family gaps in discouragement and in log productivity are decomposed with the twofold Oaxaca-Blinder method using pooled reference coefficients from a model that includes the group indicator (Jann 2008). Categorical covariates enter as complete dummy sets in deviation-contrast form, which makes the detailed contributions invariant to the choice of omitted category. Contributions are grouped into six blocks: industry, size, age, legal form, region, and year. The decomposition is an accounting exercise, and contributions describe how much of each gap is attributable to differences in measured composition rather than to causal effects. The unexplained component from this construction equals the family coefficient in the pooled fully controlled linear regression, which ties the decomposition to equation (1) exactly.

The financing process

The financing process is described by three quantities: whether the firm is in the credit market, whether it applies given that it is, and whether it is rejected given that it applies. Each is estimated separately. Participation is defined as applying or reporting an unmet need without applying, so it contains discouragement by construction, and the two components of the process that are measured separately are the unconditional application rate and the discouragement rate. Rejection conditional on application is the quantity that speaks to lender treatment, and a family deficit in applying given need is the same fact as a family excess in discouragement among firms with a need.

A three-stage selection model with growth ambition and exporting as the excluded instruments is estimated as a check on selection into application, and its results, which are consistent with the single-stage estimates, are reported in Table A5. Rejection is additionally estimated within finance types (bank loans, overdrafts, grants and others) for the 2016 to 2019 waves in which per-type outcomes are recorded.

The counterfactual approval probability of discouraged firms is constructed by estimating an approval model on applicants and predicting approval for the discouraged, following Cowling et al (2016). Because applicants are self-selected, the prediction is validated against realised outcomes in the panel. Discouraged firms observed applying in the following wave supply a realised approval rate that can be compared with their predicted rate, and returners can be compared with non-returners on predicted approval to check selection into returning.

Effects of a credit constraint

The effect of a credit constraint on outcomes is estimated from the following:

$$y_{it} = \delta_1 C_{it} + \delta_2 F_{it} + \delta_3 (C_{it} \times F_{it}) + X_{it}'\gamma + u_{it}, \quad (2)$$

where C_{it} indicates a constrained firm-year (rejected or discouraged) and δ_3 is the differential effect on family firms. The constraint indicator is also decomposed into eight channel definitions, combining the rejection and discouragement stages, a partial-against-full distinction among firms that obtained finance, and the stated reasons for discouragement. The definitions are in the appendix.

Equation (2) is estimated with a lagged dependent variable and with firm fixed effects. The two are informative together because each is biased under the other's maintained assumption, and in opposite directions. If the correct model conditions on past productivity, the fixed-effects estimator is biased, and if the correct model contains a permanent firm effect, the lagged-dependent-variable estimator is biased. Because the two biases run in opposite directions, the pair of estimates bounds the parameter between them, without the argument requiring which of the two is the upper bound. The bracket applies to δ_1 and δ_3 rather than to the near-time-invariant family main effect. It fails if selection into the constrained state runs on the growth rate of productivity rather than on its level, because both estimators would then be biased in the same direction, and nothing in these data rules that out. That is one reason the null of Section 5.5 is reported as a bounded interval rather than as an established equality. A coarsened-exact-matching estimate complements the regression pair.

The dynamics of discouragement

The persistence hypotheses are tested on firms observed in consecutive waves. Among firms with a stated growth ambition and a defined credit state at t, four outcomes at t+1 are examined: retention of the ambition, the banded size of the retained ambition, continued reporting of a financing need, and application for finance. Reported transition rates are predictive margins from linear probability models containing the covariate set of equation (1). The same application outcome is followed to t+2 and t+3. The intention-action gap is measured by interacting the credit state with the stated likelihood of approaching providers. Attrition into t+1 is modelled explicitly as an auxiliary outcome.

The removal of application barriers is examined through the COVID lending schemes. The 2020 and 2021 Bounce Back Loan and CBILS programmes offered near-automatic, government-guaranteed credit, which removed most of the screening and application cost that the Kon and Storey (2003) model identifies as the source of discouragement. Firms are classified by their 2019 credit state (obtained, rejected, discouraged, no need) and their 2020 to 2021 behaviour is compared on two

outcomes, any application for finance and application to the schemes specifically. Under the screening account the previously discouraged should re-enter the market, and under the preference account they should not.

Weighting and inference

Weighted estimates are the baseline. The survey's size-stratified design means that unweighted estimates describe a sample tilted toward larger SMEs, whereas the population of interest is the UK SME stock. Longitudinal rates are weighted by the base-year cross-sectional weight and, given the attrition modelling of Section 4.3, describe the surviving base-year population.

Two diagnostics discipline the choice. First, unweighted estimates are re-computed on exactly the weighted estimation sample, so that any weighted-unweighted comparison reflects the estimand and not sample composition. Second, DuMouchel-Duncan (1983) tests interact the weight with the full covariate set, with a joint test of all weight terms and a focused test of the family term. In the framework of Solon et al (2015), weighted and unweighted estimates differ only when effects are heterogeneous across the strata that are sampled at different rates, so a rejection is evidence that design weighting is required for a population interpretation rather than evidence of fragility. Where the focused test rejects, the unweighted estimate has no population interpretation and is not reported as a competing result.

For the interaction analysis, size and age are the *a priori* dimensions. Broad sector, legal form, and technology intensity were examined subsequently, and family-wise corrections are applied across all five dimensions searched. Small-cell results are flagged where they occur.

4.4 Limitations

Attrition from the panel is not random, since exit correlates with constrained status, so all panel estimates are conditional on survival and continued survey response. Where attrition interacts with the quantities of interest it is reported alongside the estimates.

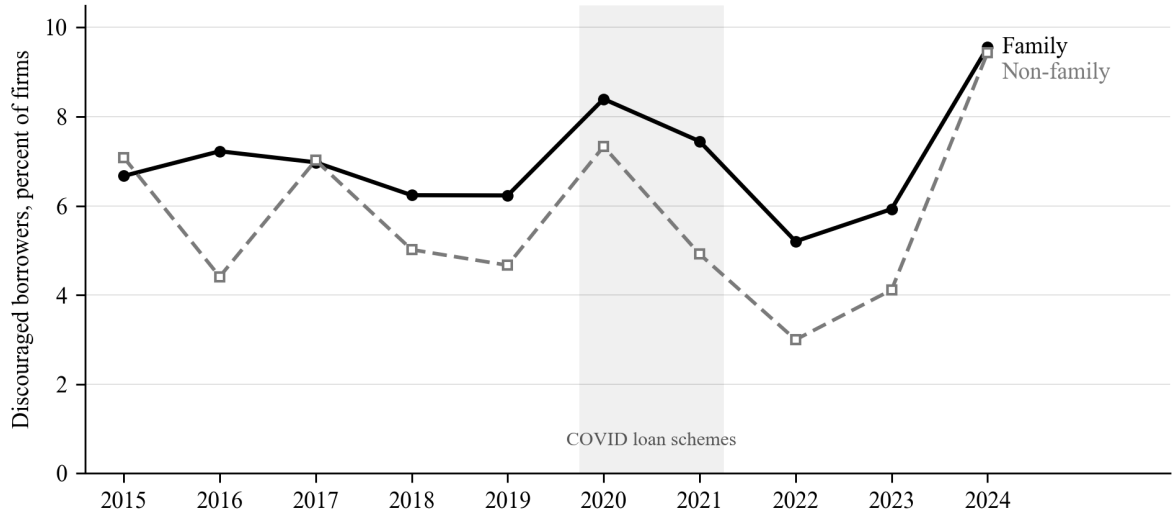
5. Findings

This section presents the findings from the analysis, organised around the six hypotheses. All estimates are weighted unless stated otherwise, and the unweighted counterpart is given where it is informative about the design. Section 5.8 reports the weighting diagnostics.

5.1 Discouragement: family firms are more often discouraged (H1)

Figure 1 shows the pattern the estimates draw on. The weighted discouragement rate of family firms sits above the non-family rate in eight of the ten waves, both rates move together with the credit cycle, dipping in 2022 and rising in 2020 and 2024, and the differential is not the product of any single period.

Figure 1. Discouraged borrowers by family status, 2015 to 2024



Weighted (xweight) share of firms that needed external finance and did not apply, by family status and survey year. Broad sample, charities excluded. The shaded band marks the 2020 to 2021 COVID loan-scheme window. Yearly rates carry sampling errors of 0.4 to 1.6 percentage points, and the pooled adjusted differential is +0.99 points (Table 2).

Table 2 reports the estimates. In the broad sample the family differential in discouragement is +0.99 percentage points, with a 95 percent confidence interval running from 0.15 to 1.83 points and a probit average marginal effect of +1.0 point. Against a base of 6.0 percent among non-family firms, that is a proportional increase of about one sixth. In the multi-owner sample, where single-owner firms cannot inflate the family group, the differential is +0.83 points, with an interval from −0.11 to +1.77 points. Unweighted the estimates are +0.58 and +0.32 points, and Section 5.8 shows that the weighted and unweighted family coefficients in this specification are statistically compatible.

Table 2. Borrower discouragement: the family differential

	(1) Broad, weighted	(2) Broad, unweighted	(3) Multi-owner, weighted	(4) Multi-owner, unweighted
Family firm	0.0099**	0.0058***	0.0083*	0.0032
	(0.0043)	(0.0021)	(0.0048)	(0.0023)
Probit AME (family)	0.0100	0.0065	0.0084	0.0037
Probit AME p-value	0.017	0.002	0.067	0.114
Observations	92806	92961	54469	54579
Distinct firms	45089	45100	27520	27532

Standard errors in parentheses
Linear probability models. The dependent variable is the discouraged-borrower indicator. Controls: size band, age band, SIC section, region, legal form, year. Standard errors clustered by firm. Weighted models use xweight and describe the UK SME population with fewer than 250 employees.

* p<0.10, ** p<0.05, *** p<0.01

Table 3 decomposes the differential. The raw gap of 1.0 percentage point is not explained by composition. The explained component is indistinguishable from zero (p = 0.96) and the residual family component is 0.99 points. Unweighted, about half of the larger 1.23 point raw gap is compositional, and industry contributes 0.15 points, about 12 percent of that gap. In the population the family discouragement gap is a family residual rather than a reflection of where family firms sit in the size or industry distribution.

Table 3. Oaxaca-Blinder decomposition of the family discouragement gap

	(1) Broad, weighted	(2) Broad, unweighted	(3) Multi-owner, weighted	(4) Multi-owner, unweighted
Overall decomposition				
Family firms	0.0682***	0.0654***	0.0636***	0.0599***
	(0.0020)	(0.0011)	(0.0028)	(0.0015)
Non-family firms	0.0584***	0.0531***	0.0590***	0.0531***
	(0.0037)	(0.0017)	(0.0038)	(0.0017)
Raw family gap	0.0098**	0.0123***	0.0046	0.0068***
	(0.0042)	(0.0020)	(0.0047)	(0.0022)
Explained by composition	-0.0001	0.0065***	-0.0037*	0.0036***
	(0.0018)	(0.0008)	(0.0020)	(0.0008)
Family residual	0.0099**	0.0058***	0.0083*	0.0032
	(0.0043)	(0.0021)	(0.0048)	(0.0023)
Detail of the explained component				
Industry	0.0007	0.0015***	0.0013	0.0031***
	(0.0007)	(0.0003)	(0.0013)	(0.0006)
Size band	-0.0014*	0.0022***	-0.0001	0.0019***
	(0.0008)	(0.0006)	(0.0003)	(0.0004)
Age band	-0.0002	0.0014***	-0.0020***	-0.0005**
	(0.0005)	(0.0002)	(0.0006)	(0.0002)
Legal form	0.0034*	0.0020***	-0.0000	0.0001
	(0.0018)	(0.0006)	(0.0011)	(0.0004)
Region	-0.0014***	-0.0006**	-0.0017*	-0.0006*
	(0.0005)	(0.0002)	(0.0009)	(0.0003)
Year	-0.0012***	0.0000	-0.0013**	-0.0005**
	(0.0003)	(0.0001)	(0.0005)	(0.0002)
Detail of the family residual				
Industry	0.0005	0.0004	-0.0030	-0.0000
	(0.0023)	(0.0015)	(0.0031)	(0.0018)
Size band	0.0033*	0.0080*	0.0017	0.0064
	(0.0019)	(0.0047)	(0.0020)	(0.0048)
Age band	0.0015	0.0005	0.0024	0.0020
	(0.0019)	(0.0015)	(0.0024)	(0.0018)
Legal form	0.0018	-0.0032	0.0035	-0.0057
	(0.0068)	(0.0043)	(0.0073)	(0.0057)
Region	0.0025	-0.0000	0.0025	-0.0005
	(0.0032)	(0.0010)	(0.0034)	(0.0010)
Year	-0.0012	-0.0007	-0.0006	-0.0006

	(0.0011)	(0.0005)	(0.0011)	(0.0006)
Constant	0.0014	0.0009	0.0017	0.0018
	(0.0097)	(0.0072)	(0.0107)	(0.0083)
Observations	92806	92961	54469	54579
Distinct firms	45089	45100	27520	27532

Standard errors in parentheses
Twofold decomposition, pooled reference coefficients including the group indicator. Categorical blocks normalized (deviation contrasts). Difference = family minus non-family. Clustered by firm.
* p<0.10, ** p<0.05, *** p<0.01

As context for H2, Table A1 maps where family firms sit. The family share of the multi-owner SME population ranges from 88.7 percent in primary industries and 74.7 percent in construction, through 73.7 percent in accommodation and food, down to 59.6 percent in information and communication and 40.3 percent in other services. Family firms are under-represented in knowledge-intensive services, sections J and M taken together, at 18.5 percent of family firms against 22.6 percent of non-family firms in the multi-owner population. The deficit is 11.0 percentage points within firms founded before 1980, indistinguishable from zero in the two intermediate cohorts, and 7.9 and 5.6 points in the two most recent ($p = 0.012$ and $p = 0.065$). It does not decline steadily with founding date, and the cross-cohort joint test is itself marginal ($p = 0.086$). In the broad sample family firms are also about twice as likely to operate from home, about 1.6 times as likely among multi-owner firms, are more rural, and more often own their premises. None of this accounts for their credit seeking and non-seeking behaviour. Adding premises, urban location, and multi-site indicators to equation (1) leaves the family discouragement coefficient unchanged, and the technology composition of the industry mix explains none of the gap.

5.2 The differential arises on the demand side (H3)

Conditional on applying, no evidence is found that family firms are rejected more often. In the multi-owner sample the family rejection differential is −1.7 percentage points ($p = 0.46$), and the 95 percent interval rules out a family rejection penalty above about 2.7 points. Unweighted the same differential is −0.3 points ($p = 0.68$) with an upper bound of 1.2 points. In the broad sample an unweighted differential of +1.5 points ($p = 0.058$) falls to +1.0 points and is no longer distinguishable from zero once weighted ($p = 0.66$), although the weighted interval reaches +5.6 points, so that specification is uninformative rather than evidence of no effect. The unweighted differential is traceable to the single-owner layer, since it is absent in the unweighted multi-owner sample. Within finance types, no evidence is found of higher family rejection for bank loans (0.0 points, $p = 0.99$) or overdrafts (−3.0 points, $p = 0.16$), and only government grants show a positive but insignificant differential (+9.8 points, $p = 0.15$, on about 200 applicants). These per-type estimates are unweighted, since the per-type outcomes are recorded only for 2016 to 2019 and no weighted counterpart is estimated. The rejection null also survives correction for selection into application. In the three-stage model of Table A5 the selection-corrected family effect on rejection conditional on applying is −0.3 percentage points under the weighted baseline ($p = 0.89$) and −0.1 points in the unweighted replication of the original specification, the test of independent equations does not reject in either ($p = 0.18$ and 0.17), and the estimated correlation between the rejection and application disturbances changes sign across the two weightings while the family null does not move.

Two separately measured quantities locate the differential. Credit-market participation is defined as applying or reporting an unmet need without applying, so it is the sum of the unconditional application rate and the discouragement rate rather than a prior stage, and the informative decomposition is into those two components. In the broad sample family firms apply for external finance 1.07 percentage points less often than comparable non-family firms ($p = 0.073$) and are discouraged 0.99 points more often ($p = 0.023$), so total participation is unchanged at −0.08 points ($p = 0.91$). The family credit problem is a substitution out of applying and into not asking, at an unchanged level of demand for external finance, rather than a difference in how much finance family firms need or in how lenders treat those who ask. In the multi-owner sample the same pattern is weaker and the application component is absent, at −0.12 points ($p = 0.86$) against a discouragement effect of +0.83 points ($p = 0.085$). Expressed as a rate, applications conditional on participation are 7.1 percentage points

lower in the broad sample, with an interval from 3.2 to 11.0 points, and 4.2 points lower in the multi-owner sample (p = 0.043), though that ratio is a function of the same two components and adds no independent information.

Unweighted the two components move together rather than offsetting. Family firms in the size-tilted sample both apply more often, by 1.1 percentage points (p = 0.002), and are discouraged more often, by 0.58 points (p = 0.006). The DuMouchel-Duncan focused tests locate the weight sensitivity on the application side, rejecting weight-invariance of the family term for participation (p = 0.005 in the broad sample) and for the conditional application rate (p = 0.0005 broad, p = 0.019 multi-owner) while not rejecting it for discouragement itself (p = 0.33). Under the framework of Section 4.3 the weighted estimates carry the population interpretation, and the divergence indicates that the substitution out of applying is a feature of the smaller firms that weighting up-weights.

5.3 The differential is concentrated in partnerships (H2)

Interacting the family effect with firm characteristics locates the differential (Table 4). Interactions with size bands, age bands, broad sector, and knowledge-intensive sector status are all insignificant, with joint tests between p = 0.20 and p = 0.80 for size and age across the two samples and both weightings, and between p = 0.25 and p = 0.73 for knowledge intensity. These are absences of evidence rather than established zeros. The widest size cell admits a family differential of up to 2.7 percentage points and the widest age cell up to 3.5 points, both several times the headline differential, so the size and age dimensions are bounded loosely and the finding is that nothing there is detectable rather than that nothing is there. Only legal form is significant. The legal-form joint interaction has p = 0.018 in the multi-owner sample, driven by partnerships and limited liability Partnerships (LLPs), where the family differential in discouragement is +3.5 percentage points (p < 0.001) against +0.5 points within company-type entities and −0.3 points among sole proprietors. The interaction survives a direct horse race with the technology dimension, since adding the family-by-knowledge-intensity interaction leaves it null (p = 0.46 weighted, 0.89 unweighted) and the partnership effect unchanged. An Oaxaca-Blinder decomposition run within each legal form places the residual in the same cell, at +2.1 percentage points among partnerships (p = 0.003) against +0.1 points within company-type entities (p = 0.77), unweighted. Two qualifications are reported with the result. Legal form was examined only after size and age, the *a priori* dimensions, were found insignificant, and the weighted joint tests do not survive a Bonferroni correction across the five dimensions searched, although the partnership-specific differential does.

Table 4. The family discouragement differential within legal forms, and the technology horse race (multi-owner sample)

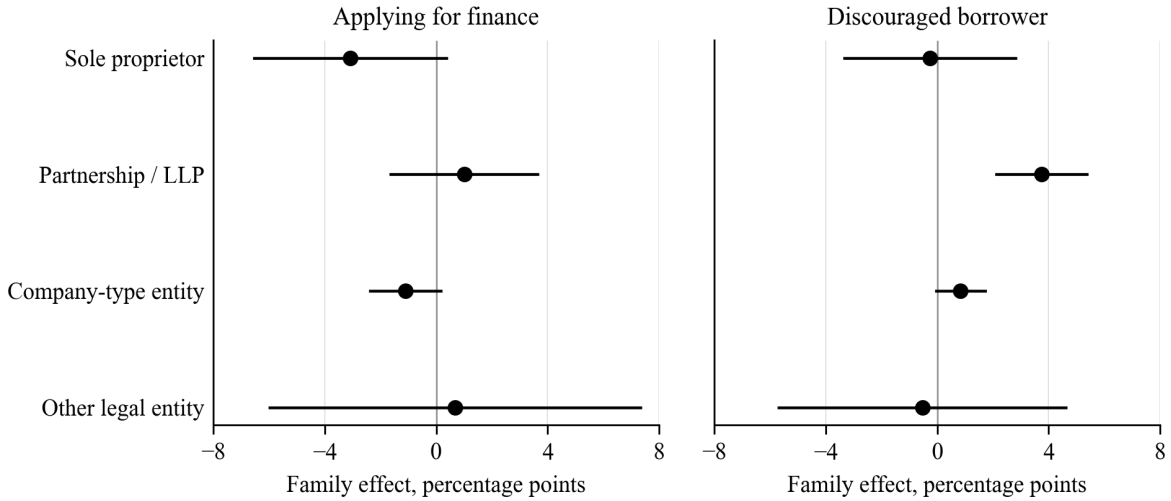
	(1) Baseline, weighted	(2) Baseline, unweighted	(3) Horse race, weighted	(4) Horse race, unweighted
Sole proprietor	-0.0025	-0.0048	-0.0023	-0.0048
	(0.0208)	(0.0144)	(0.0208)	(0.0144)
Partnership / LLP	0.0352***	0.0213***	0.0356***	0.0213***
	(0.0090)	(0.0059)	(0.0090)	(0.0059)
Company-type entity	0.0047	0.0007	0.0048	0.0007
	(0.0054)	(0.0025)	(0.0054)	(0.0025)
Other legal entity	-0.0076	0.0222	-0.0073	0.0222
	(0.0247)	(0.0185)	(0.0247)	(0.0185)
Joint p: family x legal form	0.018	0.007	0.020	0.007
Joint p: family x knowledge intensity			0.464	0.890
Observations	54469	54579	54469	54579

Standard errors in parentheses
Average marginal effects of family status within each legal form. Horse-race columns add the

family x knowledge-intensity interaction (sections J, M). Sector main effects via full SIC dummies.
* p<0.10, ** p<0.05, *** p<0.01

Figure 2 shows where in the financing process the partnership result sits. The family effect on applying for finance straddles zero in every legal form, whereas the family effect on discouragement stands apart from zero only among partnerships.

Figure 2. The two components of the family differential, by legal form



Family average marginal effects from probit models with the covariates of equation (1), broad sample, weighted. Whiskers are 95 percent confidence intervals. Applying is the unconditional probability of applying for external finance, and discouraged borrower is the probability of needing finance and not applying. Standard errors clustered by firm.

Locating the concentration within the financing process requires care, because credit-market participation is defined as applying or reporting an unmet need without applying, so it contains discouragement by construction and is not a separate stage. The two quantities that are separately measured are the unconditional application rate and the discouragement rate, and participation is their sum. The family effect on applying is small and does not vary detectably across legal forms, at +1.0 percentage points among partnerships (p = 0.46), −3.1 among sole proprietors (p = 0.081), and −1.1 within company-type entities (p = 0.087) in the broad sample, with joint tests of p = 0.25 there and p = 0.40 in the multi-owner sample. The family effect on discouragement does vary, and it is the partnership cell that carries it, at +3.7 percentage points in the probit specification of this decomposition (p < 0.001, joint tests p = 0.016 and p = 0.023 across the two samples), matching the +3.5 of Table 4. Family partnerships are therefore no more likely than non-family partnerships to seek external finance, and they are more likely to need it and not ask. That is self-rationing, and unlike the application effect it is specific to the form in which business debt reaches private wealth, which is what the personal-exposure account predicts. The corresponding rate of applying conditional on participation is −13.6 percentage points among partnerships (p = 0.011) against −6.4 within company-type entities (p = 0.003) in the broad sample, but that ratio is a function of the same two quantities and its joint test across forms is uninformative (p = 0.53 broad, 0.63 multi-owner), so it is reported for completeness rather than as independent evidence.

5.4 Self-rationing is not efficient: the discouraged would have been approved (H4)

The counterfactual approval probability of discouraged firms is high. Predicted from the applicant model, 76 to 82 percent of discouraged firms would have obtained at least some of the finance they needed, the range running across the broad and multi-owner samples, against 82 to 87 percent unweighted. The panel validation supports the prediction. Among discouraged firms observed applying in the following wave, 81.9 percent are approved against a predicted 82.8 percent for the same firms (p = 0.60 on the difference, unweighted). Discouraged firms that return are not positively

selected on predicted approval, at 84.1 percent among returners against 83.9 among non-returners, so the validation is consistent with the counterfactual not being an artefact of selection on observables, though selection on unobservables cannot be ruled out. For family partnerships, the group carrying the H3 result, predicted approval is about 85 percent and realised approval of returners is 88.6 percent, the latter on 44 firm-years and with a 95 percent interval running from 79 to 98 percent. Discouraged family partnerships self-ration at an approval probability close to nine in ten, so their discouragement is not efficient self-rationing. These rates are above the 55.6 percent in-sample estimate of Cowling et al. (2016) for the recession years, which is consistent with the post-2015 credit environment being more accommodating than discouraged firms believe.

5.5 No evidence of differential effects (H5)

Table 5 reports the estimates. Across every outcome and specification, no evidence is found that credit constraints reduce outcomes by more in family firms compared to their non family-owned counterparts. We find no support for **H5**. For log productivity in the multi-owner sample the interaction δ_3 is −11.3 log points in the lagged-dependent-variable specification (p = 0.11) and +8.0 log points under firm fixed effects (p = 0.46), so the pair of Section 4.3 spans −11.3 to +8.0 log points and the span contains zero. Unweighted the two are −2.8 log points (p = 0.50) and +6.5 (p = 0.37), a tighter span around the same zero. For the unweighted lagged-dependent-variable specification the 90 percent confidence interval rules out a differential penalty larger than about 10 log points, or 9.5 percent, and the design's minimum detectable effect is 11.5 log points. The null holds within each of the eight constraint channels defined in Section 4.3, within all three credit regimes (2015 to 2019, COVID, 2022 to 2024), under coarsened exact matching, and for sales growth and exporting. Innovation is the one outcome with a significant interaction and its sign is positive. Constrained family firms are more likely to innovate than constrained non-family firms, by 21.7 percentage points (p = 0.018, weighted firm fixed effects on 2,299 observations and 854 firms), an estimate whose size reflects the thin within-firm identifying sample and whose sign is the opposite of a constraint penalty. What requires explanation in these data is participation rather than treatment.

Table 5. Differential effect of credit constraints on productivity (multi-owner sample)

	(1) LDV, unweighted	(2) LDV, weighted	(3) Firm FE, unweighted	(4) Firm FE, weighted
Constrained	-0.0311	-0.0233	-0.0578	-0.0661
	(0.0313)	(0.0563)	(0.0551)	(0.0828)
Constrained x family	-0.0276	-0.1133	0.0651	0.0796
	(0.0411)	(0.0706)	(0.0719)	(0.1086)
Lagged productivity	0.7791***	0.7477***		
	(0.0195)	(0.0277)		
Observations	3231	3210	1705	1690
Distinct firms	2167	2156	641	636

Standard errors in parentheses
Constrained = rejected or discouraged. The control group is firms that applied and obtained.
LDV = lagged dependent variable. FE absorbs firm effects, so singleton firms drop.
Weighted columns exclude observations without a cross-sectional weight.
* p<0.10, ** p<0.05, *** p<0.01

5.6 Discouragement is a persistent state, with no evidence of a family differential within it (H6)

Table 6 follows firms with a growth ambition and a defined credit state into the following waves. Unweighted adjusted rates are quoted first here, because the cells are small and the weighted rates are correspondingly imprecise, and weighted counterparts follow.

Table 6. Outcomes at t+1 by credit state at t (growth-ambition holders, broad sample)

	(1) Ambition t+1, unw	(2) Ambition t+1, wtd	(3) Need t+1, unw	(4) Need t+1, wtd	(5) Applied t+1, unw	(6) Applied t+1, wtd
Obtained at t	0.8930***	0.8366***	0.1605***	0.1943***	0.4399***	0.3613***
	(0.0052)	(0.0165)	(0.0064)	(0.0158)	(0.0089)	(0.0198)
Rejected at t	0.8949***	0.8795***	0.2467***	0.2801***	0.4341***	0.4260***
	(0.0127)	(0.0247)	(0.0194)	(0.0371)	(0.0218)	(0.0384)
Discouraged at t	0.8861***	0.8197***	0.2609***	0.2956***	0.2504***	0.2000***
	(0.0072)	(0.0157)	(0.0103)	(0.0196)	(0.0098)	(0.0152)
p: rejected = discouraged	0.384	0.652	0.908	0.566	0.001	0.332
Observations	6590	6569	6550	6529	6547	6527

Standard errors in parentheses
Regression-adjusted margins (covariates of equation 1 plus the family interaction). Sample: firms with a stated three-year sales-growth ambition and a defined credit state at t, observed at t+1.
unw = unweighted, wtd = weighted (base-year xweight).
* p<0.10, ** p<0.05, *** p<0.01

Three facts stand out. First, no change in the growth ambition is detected. Adjusted retention of the ambition at t+1 is 89.3 percent for firms that obtained finance, 89.5 percent for rejected firms, and 88.6 percent for discouraged firms, with p = 0.38 on the discouraged-against-rejected contrast and smaller differences elsewhere. The banded size of the retained ambition is statistically indistinguishable across states (p = 0.97). No evidence is found that even outright rejection reduces the stated growth ambition.

Second, the financing need persists but applications do not resume. At t+1 the discouraged still report an unmet financing need at 26.1 percent, statistically indistinguishable from rejected firms at 24.7 percent (p = 0.91) and above firms that obtained finance at 16.1 percent. Yet their application rate at t+1 is 25.0 percent against 43.4 percent for rejected firms and 44.0 percent for firms that obtained finance, so rejected firms return to the market at the full rate and discouraged firms do not re-enter (p = 0.001 on the discouraged-rejected difference). Weighted, the discouraged deficit against firms that obtained finance is 16.1 points (p < 0.001), while the discouraged-rejected contrast loses precision (p = 0.33). The deficit persists, and at t+2 and t+3 the discouraged remain 10 to 13 percentage points below firms that obtained finance. Rejection operates as a transitory event and discouragement as a persistent state.

Third, the state is insensitive to the factors that would resolve an information or cost friction. It does not vary detectably with the stated reason for discouragement, since none of the reason categories predicts who returns, and the firms with the most objective grounds for pessimism, those citing poor credit history, return at the highest rate of 33 percent. It survives the firms' own stated intentions. Among discouraged firms describing themselves as likely to approach providers, only 35.1 percent apply in the following year against 51.9 percent of comparable firms that had obtained finance, a gap of 16.8 percentage points (p < 0.001, and 14.8 points weighted) that is larger among the stated-likely than the stated-unlikely, while rejected firms show no such gap. And it survives the removal of the application barrier itself (Table A2). Under the 2020 to 2021 government Covid-19 loan schemes, firms discouraged in 2019 applied for finance at 14.3 percent, half the rate of firms that had obtained finance (27.3 percent) or been rejected (27.2 percent) in 2019, though more than twice the rate of firms with no need (6.1 percent), with both contrasts at p < 0.001 and weighted rates of 12.3, 23.7, 25.8, and 4.6 percent. Application to the schemes specifically shows the same ordering on thinner cells. The near-disappearance of application costs did not normalise the participation of the previously discouraged, which is difficult to reconcile with a screening account and is consistent with a preference-based account of non-participation.

Family status, which is associated with higher entry into the state, shows no discernible association with behaviour within it. The family interaction is insignificant for ambition retention (p = 0.30 to 0.66 across cells), for the return decision within every legal form including partnerships (joint p = 0.34 to

0.88), and for the response to the loan schemes (p = 0.12). No substitution into family and director loans is detected either. In the constrained year the discouraged use private loans at 32.6 percent, close to rejected firms at 32.0 percent and 2.0 points below firms that obtained finance (p = 0.039), and in the following year, conditional on current use, no difference remains (p = 0.88 against rejected and p = 0.91 against obtained). One cell departs from this pattern. In the weighted multi-owner sample, discouraged family firms retain their ambition 9.1 points more than discouraged non-family firms (p = 0.020). Since discouraged family ambition-holders also exit the panel more often, by 4.4 points in the multi-owner sample (p = 0.058) and 4.6 points in the broad sample (p = 0.025), this estimate conditions on a more selected group of survivors and is not emphasised.

5.7 The two gaps decomposed: mirror-image roles of composition

This subsection completes the evidence for the readings of H1 and H3 by setting the productivity decomposition against the discouragement decomposition of Section 5.1, and it reverses the industry-mix intuition. The raw family productivity deficit is 19.7 log points in the unweighted broad sample, or 17.9 percent (Table A3). Composition explains none of it. The explained component is positive at +1.9 log points (p = 0.037), because the industry mix of family firms favours them under a turnover-per-head measure, and the industry block alone contributes +4.8 log points in their favour (p < 0.001). The within-composition residual is therefore 21.6 log points, or 19.4 percent, which is 110 percent of the raw gap. In the multi-owner sample the raw gap is 6.8 log points or 6.6 percent (p = 0.007), the residual is 12.8 log points or 12.0 percent, and the residual share is 188 percent, against 138 percent for the same sample unweighted. The family productivity deficit is a within-industry, within-size-class phenomenon that the sector mix partially masks. Set against Section 5.1, the two gaps are mirror images. The productivity gap looks compositional and is in fact a within-composition residual, whereas the discouragement gap could have been compositional and is a family residual. Neither gap reflects the sectors family firms occupy, and both persist within sectors.

5.8 Weighting diagnostics

This subsection reports the diagnostics promised in Section 4.3, collected in Table A4. Re-estimating the unweighted models on exactly the weighted estimation sample moves no coefficient materially, at 0.0059 against 0.0058 for broad discouragement and −0.2154 against −0.2161 for broad productivity, so any weighted-unweighted divergence is the estimand rather than the sample.

The DuMouchel-Duncan tests reject weight-invariance of the full discouragement model in the broad sample (p = 0.001), locating heterogeneity across the strata the design samples at different rates, but they do not reject weight-invariance of the family coefficient itself in either discouragement model (p = 0.33 broad, p = 0.22 multi-owner). The weighted and unweighted family differentials in equation (1) are therefore statistically compatible, and the point divergence is consistent with the differential being larger among the smaller firms that weighting up-weights. Two specifications differ. The family coefficient in the multi-owner productivity gap is weight-sensitive (p = 0.001), where weighting shrinks the raw gap faster than the residual and so enlarges the residual share from 138 to 188 percent, as Section 5.7 reports. The family coefficient in the conditional application rate of Section 5.2 is also weight-sensitive (p = 0.0005 broad, p = 0.019 multi-owner). In both cases the weighted estimate is the one with a population interpretation, and the unweighted estimate is reported only to show where the divergence lies.

Key Insight

Family-owned SMEs are discouraged, not denied. Lenders do not reject them more often than non-family firms, and about four in five discouraged firms would have been approved had they applied yet once discouraged they do not return to the credit market, even when the COVID loan schemes removed almost every application barrier.

6. Discussion

6.1 Theoretical and Empirical Contributions

Family-owned SMEs represent a dominant and influential part of the global economic landscape, significantly contributing to job creation and economic growth (Xu et al, 2020). This study has enabled us to cast new light into the complexities and specificities of finance in family-owned SMEs, particularly in relation to the nature and impact of borrower discouragement within this cohort of firms. Discouraged borrowers are a non-trivial cohort of firms and outnumber those denied credit (Han et al, 2009; Cowling et al, 2016; Brown et al, 2022). While in recent years FOFs have been found to exhibit certain characteristics with respect to their investment and financing decisions compared to non-family firms (Jansen et al, 2023; Cordoba et al, 2024), to date scholars have yet to fully draw out how these distinctions influence and shape investment and financing preferences of this cohort of firms. By undertaking this study, it has enabled us to make a number of novel and interesting contributions to the literature surrounding small business finance and FOFs. In doing so we are also able to draw some important policy implications which merit consideration in light of this important empirical study.

As mentioned previously, much of the literature on FOF is strongly theoretically anchored in the literature surrounding SEW and how these firms have acutely different belief systems which mould and influence their decision-making behaviour. Owing to these theoretical expectations, *a priori*, we assumed that FOFs would have a higher likelihood of being prone to borrower discouragement than non-FOFs. As shown by the strong support for **H1**, this proved to be the case. FOFs do have a higher rate of borrower discouragement than their non-family-owned counterparts. Importantly, we also found that some types of FOFs are more prone to discouragement than others. In support of **H2**, the FOFs with the greatest predilection towards discouragement are LLPs which suggests that financial exposure and risk aversion are strongly correlated. This would align with the central tenets of SEW which highlight the need for business sustainability and the importance of non-economic goals in firm decision making.

However, not all our results were intuitive and in keeping with theoretical expectations. In support of **H3** FOFs are no more likely to incur credit rationing than non-FOFs and no rejection differential was found within different financing types. Despite being less likely to offer collateral to access bank loans (Steijvers and Voordeckers, 2009; Steijvers et al, 2010), banks do not necessarily discriminate against FOFs when making lending decisions. So contrary to theoretical expectations, the results of this study are in line with other studies and indicate that family firms were no more susceptible to external financing constraints than their non-family owned counterparts (Bopaiah, 1998; Andres, 2011). It appears that discouragement in these firms may be irrational decision-making behaviour as the counterfactual approval probability of discouraged firms is high. In other words, four in five discouraged firms would have been approved if they had applied therefore we find no support for **H4**. This risk aversion may play to the self-constraints that owners place on their own attitudes towards risk which leads to credit self-rationing.

Finally, and crucially, the research sought to examine the impact of discouragement on FOFs. Hitherto, until recently the impact in terms of observable firm performance of this non-borrowing state in firms has been overlooked by scholars (Cowling et al, 2026). Somewhat counterintuitively, here we found no difference between FOFs and non-FOFs which goes against our expected outcomes in **H5**. Credit constraints do not reduce productivity, growth, innovation, or exporting by more in family firms than in non-family firms. Despite being more susceptible towards discouragement, this does not impart a material impact in terms of firm productivity and performance. This may owe to greater resource parsimony in FOFs coupled with a greater use of retained earnings which help allay any external credit constraints (Lappalainen and Niskanen, 2013; Romano et al, 2001). This is also consistent with the academic literature on intermingling which refers to the use of household assets for the support of the business and represents a resource exchange made to benefit either the business or the family (Yilmazer and Schrank, 2010).

Importantly, and corroborating **H6** the discouraged status of FOFs seems to be a permanent state rather than a transient phase. So despite the persistence of the need for financing, credit

applications do not resume which shows the longer-term “scarring” impact bestowed on firms from discouraged status. Despite this, again counterintuitively, no change in the growth ambition is detected in firms suffering from discouragement. This resilience may owe to the fact that small businesses are also adept at financial bootstrapping strategies which enables them to acquire finances creatively without resorting to banks by raising money from personal and other external sources, such as personal credit cards, to the business (Harrison et al, 2004; Brown et al, 2019). Indeed, the literature on family firm finances strongly recognises that financial resources of small businesses are often closely intertwined with those of the family household (Yilmazer and Schrank, 2010). This could partly insulate FOFs from the downside of credit rationing from a business perspective but enables them to grow due to the entrepreneurial behaviours of the families involved.

7. Conclusions and Recommendations

7.1 Summary of Key Findings

FOFs are more predisposed to discouragement than non-FOFs. Weighted, 6.9 percent of family firms and 6.0 percent of non-family firms in the UK SME population are discouraged borrowers in an average year. Conditional on size, age, industry, region, legal form, and year, the family differential is +0.99 percentage points in the broad sample, with a 95 percent interval from 0.15 to 1.83 points, and +0.83 points in the multi-owner sample, with an interval from −0.11 to +1.77. Composition explains none of the weighted gap.

Some types of FOFs are more prone to discouragement than others. Interactions of the family effect with size, age, broad sector, and knowledge intensity are jointly insignificant, with p between 0.20 and 0.80. The legal-form interaction is significant ($p = 0.018$), and the differential is +3.5 percentage points among partnerships and LLPs against +0.5 within company-type entities and −0.3 among sole proprietors. Across the two separately measured components, the family effect on applying does not vary by legal form (joint $p = 0.25$ and 0.40) and the family effect on discouragement varies through the partnership cell (+3.7 points, $p < 0.001$).

FOFs are no more likely to incur credit rationing than non-FOFs. Conditional on applying, the family rejection differential in the multi-owner sample is −1.7 percentage points ($p = 0.46$), and the interval rules out a family rejection penalty above about 2.7 points. No rejection differential is found within finance types, and the null survives selection correction in the three-stage model. The discouragement differential decomposes into a 1.07 point lower unconditional application rate ($p = 0.073$) and a 0.99 point higher discouragement rate ($p = 0.023$), with total credit-market participation unchanged at −0.08 points ($p = 0.91$).

The counterfactual approval probability of discouraged firms is high -i.e. four in five discouraged firms would have been approved if they had applied- meaning credit self-rationing is irrational decision-making behaviour. Predicted from the applicant model, 76 to 82 percent of discouraged firms would have obtained at least some of the finance they needed. Discouraged firms observed applying in the following wave are approved at 81.9 percent against a predicted 82.8 percent for the same firms ($p = 0.60$). For discouraged family partnerships, predicted approval is about 85 percent and realised approval of returners is 88.6 percent, on 44 firm-years.

There is no significant evidence that discouraged FOFs incur a productivity disadvantage compared to non-FOFs. The productivity interaction runs from −11.3 log points ($p = 0.11$) in the lagged-dependent-variable specification to +8.0 log points ($p = 0.46$) under firm fixed effects, and the span contains zero. The null holds within all eight constraint channels, within the 2015 to 2019, COVID, and 2022 to 2024 regimes, under coarsened exact matching, and for sales growth and exporting. Innovation is the one significant interaction and its sign is positive, at +21.7 percentage points ($p = 0.018$) on the thin within-firm sample.

Growth orientation seems unaffected by discouragement in FOFs. Retention of the growth ambition at t+1 is 88.6 to 89.5 percent across credit states and does not differ between the discouraged and

the rejected (p = 0.38). At t+1 the discouraged still report an unmet need at 26.1 percent, indistinguishable from the rejected at 24.7 percent, yet apply at 25.0 percent against 43.4 percent for the rejected (p = 0.001), and the deficit persists at 10 to 13 points to t+3. Among discouraged firms describing themselves as likely to approach providers, 35.1 percent apply in the following year against 51.9 percent of firms that had obtained finance (p < 0.001). Firms discouraged in 2019 applied in 2020 to 2021 at 14.3 percent against 27.3 percent for the previously obtained and 27.2 percent for the previously rejected (p < 0.001). No family differential is detected in any of these within-state outcomes (p = 0.12 to 0.88). The two decompositions are mirror images. The discouragement gap could have been compositional and is a family residual, whereas the productivity gap of 17.9 percent looks compositional and is a within-composition residual of 19.4 percent that the sector mix partially masks.

7.2 Policy Recommendations

This research carries important policy implications, especially given the numerical size and importance of family-owned SMEs. Credit self-rationing is a complex cognitive phenomenon which is often based on crude heuristics which is largely based on the “gut feel” of the entrepreneurs and owner managers concerned (Barasal Morales, 2022). This is crucially important as research shows that only about 20% of the discouraged borrowers would be rejected if they applied, but about 40% has a reasonable likelihood and another 40% has a high likelihood of being approved if they would apply for a loan (Ferrando and Mulier, 2022). At the core of discouragement are informational problems which hinder the decision-making capabilities of these actors and ultimately lead to excessive credit self-rationing in SMEs. To address these informational problems, we wish to propose two main policy initiatives to help mitigate borrower discouragement in SMEs. Unlike other policies aimed at addressing credit rationing in SMEs, such as loan guarantee schemes or interest rate subsidies, the policies advocated are relatively inexpensive and quite easy to implement.

First, research shows that borrower discouragement is often a function of low levels of human and entrepreneurial capital in those afflicted by this cognitive mindset (Nguyen et al, 2021). For example, research using novel survey data on Italian micro-enterprises, found that less financially knowledgeable entrepreneurs are more likely to be discouraged from applying for new financing, especially due to higher application costs (Aristei et al, 2024). Financial literacy is impacted by external and internally generated factors. In terms of the former, financial literacy is more than the acquisition of financial knowledge; it is the ability of managers to use basic financial knowledge in conjunction with wider skill sets, networks, communication and cognitive skills to achieve the desired objectives (Hussain et al, 2018). Regarding internal factors, financial literacy assists owners/managers to optimise the use of scarce resources by efficient and effective financial management systems. These skillsets do seem capable of being taught so policymakers should continue encouraging financial literacy training programmes for entrepreneurs, managers and founding team members because it is a critical factor in terms of managing SME organisations in difficult scenarios such as the unmet need for external finance (Aristei et al, 2024; Graña-Alvarez et al, 2024).

A second key policy recommendation arising from our analysis is related to the first and concerns the need for greater assistance in terms of the provision of advice in SMEs. Obtaining external sources of advice from independent experts has been shown to play a powerful role in increasing business performance across a large number of studies (Cumming and Fischer, 2012; Rotger et al, 2012; Brown et al, 2026). While most of these studies have typically conflated various forms of advice into categories such as strategic and operational sources of advice (Brown et al, 2026), some research has specifically examined the role of external business advice on financial matters. For example, research in the UK drawing on data from the SME Finance Monitor shows concrete evidence of the usefulness of advice in ameliorating, both structural and strategic, business risk and improving the prospects of successful debt applications to banks (Rostamkalaei and Freel, 2017). While research has yet to fully establish whether the use of external financial advice decreases discouragement, we feel the enhanced financial knowledge in SMEs arising from external advice is likely to increase their options in terms of accessing external finance and at the appropriate cost.

Overall Conclusion

The family-firm credit problem in the UK is one of not asking rather than of being refused. Family ownership raises the probability of borrower discouragement, most of all where business debt reaches private wealth, but it does not raise rejection and it does not make the consequences of a credit constraint worse. Policy should therefore address the beliefs and information behind credit self-rationing rather than the supply of credit per se.

8. References

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Appendices

Appendix A: Appendix Tables

Table A1, Panel A. Family share of each SIC section (weighted)

	(1) Broad	(2) Multi-owner
ABDE - Primary	0.925	0.887
	(0.006)	(0.009)
C - Manufacturing	0.881	0.668
	(0.005)	(0.013)
F - Construction	0.926	0.747
	(0.004)	(0.011)
G - Wholesale/ Retail	0.868	0.706
	(0.004)	(0.008)
H - Transport/ Storage	0.934	0.739
	(0.007)	(0.024)
I - Accommodation/ Food	0.832	0.737
	(0.007)	(0.010)
J - Information/ Communication	0.854	0.596
	(0.007)	(0.016)
KL - Financial/ Real Estate	0.794	0.611
	(0.009)	(0.016)
M - Professional/ Scientific	0.895	0.637
	(0.003)	(0.009)
N - Administrative/ Support	0.883	0.633
	(0.006)	(0.015)
P - Education	0.918	0.544
	(0.008)	(0.035)
Q - Health/ Social Work	0.913	0.522
	(0.008)	(0.032)
R - Arts/ Entertainment	0.861	0.493
	(0.011)	(0.029)
S - Other service	0.868	0.403
	(0.009)	(0.026)
N	96269	56703

Standard errors in parentheses
Weighted means of the family indicator by SIC section.

Table A1, Panel B. Knowledge-intensive-core share by family status (weighted)

	(1) Multi-owner
Non-family firms	0.226
	(0.006)
Family firms	0.185
	(0.004)
N	56703

Standard errors in parentheses

Table A1, Panel C. Family gap in knowledge-intensive participation, by founding cohort

	(1) Multi-owner, weighted
Founded pre-1980	-0.1102*** (0.0352)
1980-99	-0.0201 (0.0241)
2000-09	-0.0030 (0.0295)
2010-16	-0.0788** (0.0314)
2017 on	-0.0563* (0.0305)
N	38476

Standard errors in parentheses
Average marginal effect of family status on locating in sections J or M, within founding cohort.
Sample: survey years 2017 on (founding year near-complete). Controls: size band, region, legal form, year.
* p<0.10, ** p<0.05, *** p<0.01

Table A2. The removal of the application barrier: 2020-21 applications by 2019 credit state (broad sample)

	(1) Any application, unw	(2) Any application, wtd	(3) Scheme application, unw	(4) Scheme application, wtd
Obtained in 2019	0.2729*** (0.0158)	0.2368*** (0.0314)	0.0437*** (0.0084)	0.0419*** (0.0145)
Rejected in 2019	0.2721*** (0.0478)	0.2581*** (0.0628)	0.0486** (0.0238)	0.0461* (0.0277)
Discouraged in 2019	0.1433*** (0.0180)	0.1234*** (0.0317)	0.0201*** (0.0071)	0.0148* (0.0090)
No need in 2019	0.0614*** (0.0032)	0.0464*** (0.0050)	0.0087*** (0.0012)	0.0048*** (0.0013)
p: discouraged = obtained	0.000	0.010	0.033	0.108
p: discouraged = no need	0.000	0.017	0.116	0.280
Observations	7816	7794	7172	7155

Standard errors in parentheses
Adjusted margins. Scheme application = applied to the 2020-21 government-backed loan schemes (H5_12), unconditional. The no-need-2019 group is included here as the natural comparison for the unlock.
unw = unweighted, wtd = weighted.
* p<0.10, ** p<0.05, *** p<0.01

Table A3. Oaxaca-Blinder decomposition of the family productivity gap (log turnover per employee)

	(1) Broad, weighted	(2) Broad, unweighted	(3) Multi-owner, weighted	(4) Multi-owner, unweighted
Overall decomposition				
Family firms	11.2007*** (0.0113)	11.1229*** (0.0085)	11.3182*** (0.0148)	11.1859*** (0.0111)
Non-family firms	11.3865*** (0.0207)	11.3198*** (0.0142)	11.3861*** (0.0206)	11.3192*** (0.0143)
Raw family gap	-0.1858***	-0.1969***	-0.0679***	-0.1333***

	(0.0233)	(0.0163)	(0.0252)	(0.0178)
Explained by composition	0.0114	0.0192**	0.0598***	0.0501***
	(0.0113)	(0.0092)	(0.0127)	(0.0106)
Family residual	-0.1972***	-0.2161***	-0.1277***	-0.1834***
	(0.0212)	(0.0146)	(0.0232)	(0.0158)
Detail of the explained component				
Industry	0.0526***	0.0484***	0.0696***	0.0655***
	(0.0085)	(0.0077)	(0.0104)	(0.0092)
Size band	0.0182***	0.0300***	0.0145***	0.0226***
	(0.0030)	(0.0032)	(0.0022)	(0.0027)
Age band	-0.0016	-0.0075***	0.0068***	0.0009
	(0.0017)	(0.0014)	(0.0019)	(0.0013)
Legal form	-0.0342***	-0.0243***	0.0110**	0.0011
	(0.0052)	(0.0029)	(0.0046)	(0.0024)
Region	-0.0173***	-0.0203***	-0.0322***	-0.0320***
	(0.0032)	(0.0024)	(0.0048)	(0.0033)
Year	-0.0063***	-0.0070***	-0.0099***	-0.0080***
	(0.0017)	(0.0011)	(0.0024)	(0.0014)
Detail of the family residual				
Industry	-0.0659***	-0.0615***	-0.0773***	-0.0653***
	(0.0177)	(0.0118)	(0.0201)	(0.0134)
Size band	0.2817*	0.0223	0.0281	-0.0203
	(0.1550)	(0.0744)	(0.1079)	(0.0854)
Age band	0.0095	0.0106	0.0076	0.0019
	(0.0110)	(0.0103)	(0.0131)	(0.0118)
Legal form	-0.0911**	-0.0836**	-0.1110**	-0.0989**
	(0.0419)	(0.0359)	(0.0500)	(0.0411)
Region	-0.0165	-0.0157***	-0.0039	-0.0087
	(0.0114)	(0.0059)	(0.0122)	(0.0062)
Year	0.0045	0.0050**	0.0047	0.0036
	(0.0041)	(0.0024)	(0.0042)	(0.0026)
Constant	-0.3195*	-0.0932	0.0240	0.0043
	(0.1673)	(0.0855)	(0.1227)	(0.0981)
Observations	55111	55245	37421	37516
Distinct firms	27687	27701	19364	19377

Standard errors in parentheses
Construction as Table 3. The productivity measure is gross output per head, so cross-sector level differences mix intermediate intensity with efficiency.
* p<0.10, ** p<0.05, *** p<0.01

Table A4. Weighting diagnostics: same-sample comparison and DuMouchel-Duncan tests

	(1) Discouraged, broad	(2) Discouraged, multi-owner	(3) Productivity, broad	(4) Productivity, multi-owner
Family firm (weighted)	0.0099**	0.0083*	-0.1972***	-0.1277***
	(0.0043)	(0.0048)	(0.0214)	(0.0233)
Unweighted, same sample	0.0059	0.0033	-0.2154	-0.1830
Unweighted, full sample	0.0058	0.0032	-0.2161	-0.1834

DuMouchel-Duncan p (family term)	0.333	0.223	0.208	0.001
DuMouchel-Duncan p (all terms)	0.001	0.103	0.000	0.000
Observations	92806	54469	55111	37421
Distinct firms	45089	27520	27687	19364

Standard errors in parentheses
Coefficient row: weighted family differential. Scalar rows: the unweighted family coefficient on the identical estimation sample and on the full sample, and DuMouchel-Duncan interaction tests.
* p<0.10, ** p<0.05, *** p<0.01

Table A5. The financing process as a three-stage selection model (multi-owner sample)

	(1) **In the credit market**	**(2)** **Applies, given in market**	**(3)** **Rejected, given applied**	**(4)** **Selection-corrected, unweighted**	**(5)** **Selection-corrected, weighted**
Family firm	0.0227***	0.0059	-0.0017	-0.0009	-0.0033
	(0.0048)	(0.0098)	(0.0081)	(0.0086)	(0.0232)
rho (rejection, application)				-0.777	0.823
p: rho = 0				0.168	0.183
Applicants (selected)				7516	7489
Observations	51847	11169	7489	10523	10494

Standard errors in parentheses
Probit average marginal effects of family status. Columns (1) to (4) are unweighted and replicate the original specification. Columns (4) and (5): probit with sample selection, where application is the selection equation, growth ambition and exporting enter the first two stages and the selection equation but are excluded from the rejection equation, and profit status enters the rejection equation. The reported effect is on rejection conditional on applying. Column (5) re-estimates column (4) with cross-sectional weights (xweight), matching the paper's baseline. Sample restricted to observations with non-missing exclusions and profit status. Clustered by firm.
* p<0.10, ** p<0.05, *** p<0.01

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