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Small Business Planning is Sticky but neither a Universal Practice nor a Guaranteed Path to Success.

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ABSTRACT

Business planning is widely promoted as a hallmark of good management and a prerequisite for small firm success. However, prior research offers mixed evidence on its effectiveness, and some studies suggest that planning may be more symbolic than functional. While planning has been linked to venture survival and growth, other work highlights the persistence of non-planning behaviour and the existence of successful firms that operate without formal plans. This study adopts a behavioural and contingency-based approach to examine planning persistence, its relationship with productivity, and the characteristics of successful non-planners. Using longitudinal panel data on small firms, we analyse planning behaviour over time, productivity (measured by turnover per employee), and firm attributes, including age, size, exporting, and technology use. Methods include latent class analysis, fixed and random effects regressions, and treatment effects modelling to estimate causal impacts.

We find that planning is sticky: firms that plan tend to continue planning, while non-planners rarely adopt planning. Planning is not consistently associated with higher productivity, and in some cases, non-planners outperform planners. Notably, a distinct group of older, export-orientated, highly productive firms emerges that do not engage in formal planning. However, treatment effects models suggest that planning may confer productivity benefits when adopted, particularly for micro and small firms. These findings challenge the assumption that planning is universally beneficial and highlight the need for more nuanced, inclusive models of small business strategy. By identifying successful non-planners and disentangling planning's behavioral and performance effects, this study contributes to theory and policy by showing that planning is neither a universal practice nor a guaranteed path to success.

Keywords:. Business planning, Firm Productivity, Latent Class Analysis, Business Practices

CONTENTS

1. INTRODUCTION

Business planning has long been regarded as a cornerstone of entrepreneurial and managerial practice, particularly within small and medium-sized enterprises (SMEs). A substantial body of research has explored who engages in planning and why, with studies highlighting the influence of human capital (Brinckmann et al., 2019), entrepreneurial and managerial experience (Ma et al., 2021), and cognitive antecedents such as education and exposure to entrepreneurship (Block & Petty, 2023). These studies suggest that planning behaviours are shaped by both individual dispositions and institutional norms, often resulting in a tendency toward formal planning among certain groups.

At the same time, the effectiveness of planning remains contested. While some scholars argue that planning facilitates decision-making and venture development (Delmar & Shane, 2003), others question its practical utility, noting that plans are often written and then abandoned (Karlsson & Honig, 2009), or that their value depends heavily on context and quality (Chwolka & Raith, 2012). This tension between planning as a normative expectation and planning as a performed behaviour raises important questions about its actual role in firm success.

This study seeks to explore a paradox within this literature: the existence of relatively successful firms that do not engage in formal business planning. By examining this group, we aim to challenge the assumption that planning is universally beneficial or necessary. We propose a conceptual framework that positions planning along two axes: the perceived quality or utility of planning (good vs. bad) and the degree to which planning behaviour is imprinted or discretionary (sticky vs. flexible). This 2x2 framework allows us to investigate whether planning is a deeply ingrained behaviour or a strategic choice, and whether non-planners can achieve comparable levels of productivity and success.

Our hypotheses are as follows:

- Planning is sticky: Firms that plan tend to continue planning, while non-planners rarely adopt planning behaviours.
- Planners are no more productive: The presence of planning does not necessarily correlate with higher productivity.
- There exists a group of successful non-planners: Some firms achieve success without engaging in formal planning, suggesting alternative pathways to performance.

By focusing on these questions, we aim to contribute to a more nuanced understanding of business planning, moving beyond binary assessments of its value to explore the diversity of planning behaviours and their implications for firm performance. This study makes several important contributions to the literature on small business management and entrepreneurial planning.

1. **Reframing Planning as a Non-Universal Practice**

By demonstrating that planning behaviour is persistent but not ubiquitous, the study challenges the assumption that business planning is a default or universally desirable practice among small firms. The asymmetry in behavioural persistence—with non-planners more likely to remain non-planners than planners are to continue planning—suggests that planning is not merely a matter of choice but may be shaped by deeper cultural, cognitive, or structural factors. This insight contributes to the literature on planning, imprinting and path dependency, offering a behavioural lens through which planning adoption can be understood.

2. **Decoupling Planning from Performance**

The finding that planning is not consistently associated with superior performance — and that non-planners sometimes outperform planners — adds nuance to the long-standing debate on the efficacy of business planning. While treatment effects models reveal that planning can confer productivity benefits under certain conditions, descriptive and panel analyses show that planning is not a reliable predictor of performance. This duality contributes to the literature by distinguishing between potential and realised benefits of planning and by highlighting the importance of methodological choices in evaluating planning outcomes.

3. **Identifying Successful Non-Planners**

The identification of a distinct class of successful non-planning firms — older, export-orientated, and productive businesses that rely on internal capabilities — challenges dominant models of professionalised management that equate planning with good practice. These firms demonstrate that success can be achieved through routinised operations, experiential learning, and strategic autonomy rather than formal planning or external advice. This contributes to a growing body of work that recognises heterogeneity in entrepreneurial pathways and questions the universality of planning as a performance driver.

4. **Advancing a Contingency-Based View of Planning**

The study's findings support a contingency-based perspective, where the value of planning depends on firm size, age, capabilities, and context. The interaction effects in regression models—showing that planning benefits micro, small, and medium-sized firms more than larger ones—reinforce the idea that planning is not a one-size-fits-all solution. This aligns with recent calls in the literature for more adaptive and situational approaches to planning and contributes to theory by specifying conditions under which planning is likely to be beneficial.

5. **Informing Policy and Support Interventions**

From a policy perspective, the study cautions against blanket promotion of business planning as a universal good. Given the persistence of non-planning behaviour and the existence of successful non-planners, support programmes should be more targeted and flexible, recognising that planning may not be appropriate or necessary for all firms. This contributes to the design of more inclusive and effective business support interventions, particularly for firms that operate successfully outside conventional planning paradigms.

2.LITERATURE REVIEW

Business planning has long been a central concern in entrepreneurship and small business research. While widely promoted as a rational and strategic activity, the empirical evidence surrounding its effectiveness is mixed, and its adoption varies significantly across contexts. This literature review synthesises key findings across five thematic areas: (1) who plans and why, (2) planning as practice, (3) planning and performance, (4) plans as performed, and (5) constraints and alternatives to planning. These themes provide a foundation for exploring the paradox of successful non-planners and inform the conceptual framework of this study.

Who Plans and Why

The decision to engage in business planning is shaped by a range of individual, organisational, and institutional factors. Human capital plays a significant role: Brinckmann et al. (2019) showed education and work experience influence whether and how individuals plan, distinguishing between substantive planning processes and the creation of formal documents. Similarly, Ma, Kor and Seidl (2020) found that both entrepreneurial and

managerial experience positively affect planning behaviours, with managerial experience particularly associated with formal plan creation. Gender also moderates these effects, with female entrepreneurs more likely to engage in planning.

Institutional and cognitive antecedents further explain planning behaviour. Block and Petty (2023) highlighted the influence of entrepreneurship education and general life experience on early planning, suggesting that exposure to formal learning environments may imprint planning behaviours. Barraket et al. (2016) extended this view in the context of social enterprises, where planning is often driven more by legitimacy-seeking than operational necessity. Honig and Samuelsson (2021) compared entrepreneurial and intrapreneurial ventures, finding that planning prevalence varies with environmental dynamism and venture type.

Planning as Practice: Timing, Sequencing, and Adaptation

Beyond the decision to plan, the timing and execution of planning activities are critical. Hopp and Greene (2018) identified three temporal dimensions that affect venture viability: plan sequencing, plan duration, and intraentrainment (synchronisation with other startup activities). Their findings suggest that early planning is beneficial, but only when appropriately timed and integrated with other gestation activities.

Liao and Gartner (2006) similarly emphasised the importance of timing, showing that planning early in uncertain environments and later in more stable ones increases venture persistence. Gibson and Cassar (2005) added that planning is often introduced after a period of growth, rather than before, challenging the assumption that planning precedes success. Gruber (2007) advocated for a contingency-based approach, arguing that planning regimes should be adapted to environmental conditions. In dynamic contexts, selective and rapid planning is more effective, while in stable environments, a more comprehensive approach may be warranted.

Mixed Evidence on Planning and Performance

The relationship between planning and performance is one of the most contested areas in the literature. Delmar and Shane (2003) argued that planning facilitates decision-making and accelerates venture development, reducing the likelihood of disbanding. Shane and Delmar (2004) further show that ventures with pre-marketing plans have lower termination hazards. Perry (2001) found non-failed small firms engage in more planning than failed ones, suggesting a protective effect.

However, other studies complicate this narrative. Kirsch, Goldfarb and Gera (2009) reported only weak associations between planning documents and venture capital decisions. Greene and Hopp (2017) disentangled selection effects from performance effects, showing that while planning correlates with venture viability, it is also influenced by founder characteristics such as education, growth orientation, and financing needs. Burke, Fraser and Greene (2010) confirmed that planning promotes employment growth but emphasise the importance of accounting for selection bias.

Rue and Ibrahim (1998) examined planning sophistication, finding that detailed plans with quantified objectives and performance monitoring are associated with better outcomes. Yet, such sophistication is rare among small firms. Upton, Teal and Felan (2001) showed that fast-growth family firms use planning primarily for internal management and performance alignment, rather than for external funding.

Plans as Performed: Loose Coupling and Symbolic Use

Despite its widespread promotion, planning is often loosely coupled with actual entrepreneurial behaviour. Karlsson and Honig (2009) find entrepreneurs who write business plans rarely update or refer to them, suggesting that planning may be more symbolic than functional. Similarly, Barraket et al. (2016) e argue that planning serves communicative and relational functions, particularly in legitimacy-sensitive contexts. Sykes and Dunham (1995) offer an alternative: critical assumption planning (CAP). This approach emphasises learning and iterative testing of key assumptions, allowing ventures to adapt and redirect based on evidence. CAP contrasts with traditional planning by focusing on uncertainty reduction rather than predictability, making it particularly suitable for new business development in dynamic environments.

Constraints and Alternatives to Planning

Environmental constraints and founder characteristics can limit the feasibility or desirability of planning. Kozan, Öksoy and Özsoy (2006) find that financing difficulties and lack of know-how hinder growth intentions and planning among Turkish small business owners. Other barriers, such as entry restrictions and role conflicts, are less predictive. Foster (1993) advocates for scenario building as a flexible planning technique that even small firms can adopt to manage uncertainty.

These findings suggest that planning is not universally accessible or beneficial. Instead, entrepreneurs may rely on alternative strategies such as effectuation, experiential learning, or adaptive heuristics. The literature increasingly recognises that planning is not a one-size-fits-all solution and that successful ventures may emerge through diverse pathways. The literature reveals a nuanced and often contradictory picture of business planning. While planning can support venture viability and growth, its effectiveness depends on timing, context, and execution. Moreover, planning behaviours are shaped by individual dispositions, institutional pressures, and environmental constraints. Importantly, planning is not always performed as intended, and its symbolic functions may outweigh its operational utility.

These insights provide a foundation for this study's focus on relatively successful non-planners. By examining firms that achieve success without formal planning, we aim to challenge normative assumptions and explore alternative mechanisms of entrepreneurial performance. The proposed 2x2 framework—distinguishing between plan quality (good/bad) and planning imprinting (sticky/discretionary)—offers a novel lens through which to understand the diversity of planning behaviours and their implications for firm success.

Hypothesis Development

This study investigates the role of business planning in small firm performance, focusing on behavioural persistence, productivity outcomes, and the existence of successful non-planners. Drawing on prior literature and empirical insights, we propose three hypotheses.

Planning is Sticky

Business planning behaviour tends to persist over time, suggesting that once adopted (or rejected), planning becomes part of a firm's routine. This aligns with the concept of behavioural imprinting, where early strategic choices become embedded in organisational practice (Beckman and Burton 2008). Brinckmann et al. (2019) and Block Block and Petty (2023) & Petty (2023) show that planning is influenced by education, experience, and exposure to entrepreneurship norms, which may reinforce habitual planning behaviour. This asymmetry suggests that planning is not easily adopted or abandoned and may reflect deeper cognitive or cultural orientations within firms. We can split these into two hypotheses:

Hypothesis 1a: Planning is sticky: firms that plan tend to continue planning.

Hypothesis 1b: Planning is sticky: non-planners rarely adopt planning behaviours.

Planners Are No More Productive

The assumption that planning leads to superior performance is widespread in both academic and policy discourse. However, empirical findings are mixed. While some studies report positive associations between planning and venture survival or growth (Delmar and Shane 2003, Greene and Hopp 2017), others find weak or inconsistent effects (Kirsch et al. 2009, Karlsson and Honig 2009). Small business planning remains poorly understood (Albuquerque, Escrivao and Mendonca 2023). There has often been a view that the plan is less important than the planning process; Henry Mintzberg (1990) developed a view that the presence of plans can act to constrain managers.

Some argue for the individual antecedence of planning behaviour including their experience and education (Block and Petty 2023). Optimistic entrepreneurs may focus on internal goals at the expense of market standards and industry changes (Cassar 2010). Additionally, structured planning can reduce indecision and increase clarity, but it can also cause important actions to be delayed (Ivanova and Tornikoski 2024). Formal planning techniques are more beneficial for NEs with an abstract conceptualisation learning style (Honig and Hopp 2019). Furthermore, because of their intrinsic complexity and long-term emphasis, science-based initiatives frequently call for more rigorous planning, including

detailed financial estimations and market definitions (Villani, Linder and Grimaldi 2018). In the end, planning's overall worth in entrepreneurial settings is greatly influenced by its context. These findings support the following hypothesis:

Hypothesis 2: Planners are no more productive: The presence of planning does not necessarily correlate with higher productivity.

There Exists a Group of Successful Non-Planners

The existence of high-performing firms that do not engage in formal planning challenges the normative assumption that planning is essential for business success. Cross-national studies have suggested that planning is more prevalent in cultures with high uncertainty avoidance (Rauch, Frese and Sonnentag 2000), a finding echoed by Hamann, Halw and Guenther (2023), who noted that for smaller firms, the benefits of planning are less clear-cut. Frese, van Gelderen and Ombach (2000) identified five distinct action strategies and found that a combination of critical point and opportunistic strategies — rather than formal planning — was more strongly associated with success. These strategies focus on addressing the most pressing problems facing the business, a logic that resonates with the concept of “decision weaving” (Ott and Eisenhardt 2020). Frese also emphasized the role of proactiveness, a key dimension of entrepreneurial orientation (e.g. Wales, Covin and Monsen 2020), which has been consistently linked to firm performance (Rauch et al. 2009). However, Frese et al. (2000) also found that reactive, unplanned strategies were the least successful.

Despite the centrality of planning in strategic management discourse, small business planning remains poorly understood (Albuquerque et al. 2023). Many successful firms appear to rely on internal routines and experiential knowledge rather than formal strategic tools. Verreynne, Meyer and Liesch (2016) suggest that participative strategy-making contributes to performance in some contexts, while centralized planning may be more effective for conservative firms. This aligns with prior research suggesting that some entrepreneurs operate effectively through adaptive, non-linear processes (Frese and Gielnik 2023, Ratinho and Sarasvathy 2024, Sarasvathy 2024). These findings support the following hypothesis:

Hypothesis 3: There exists a group of successful non-planners: some firms achieve success without engaging in formal planning, suggesting alternative pathways to performance.

3.METHODS

Data and variables

As per Idris, Saridakis and Johnstone (2023), we utilise data from the UK LSBS, a comprehensive survey conducted by the Department for Business and Trade (DBT) every year among owners and managers of small firms in the UK (those with fewer than 250 employees) from 2016 to 2023. This is the most thorough study of SMEs in the UK, and it highlights several concerns regarding business practices and firm performance outcomes. Unlike other UK SME surveys, this one is longitudinal rather than cross-sectional. Every year, a sample of the SMEs interviewed the year before is selected for follow-up interviews in the LSBS to give a comprehensive comparison analysis of the way certain combinations of factors effect business success over time.

In terms of the variables used in the study. Labour productivity is measured by sales per employee. Natural logarithms are used to incorporate these variables into the regressions to reduce the skewness of the observations. One of the primary independent variables in this study that relates to business planning is whether the organisation has a plan that has been updated at least once annually.

Besides firm size we further control for other measures of business demographics and operating activities that are commonly found to be associated with productivity. Firm demographic measures include firm age, and sector. Specifically, we collect information on product (goods or services) innovation outcomes. We also have a measure for whether the business had exported goods or services in the past year. Since exports are linked to productivity (Gkypali, Love and Roper 2021). We develop a measure of whether the business uses technology which is a binary measure derived from the use of digital tools reported by the business. Those businesses which have survived 10 years were classified as ‘older businesses’ again a binary measure. Then we made the logged productivity into a binary measure for whether the business was in the top half of the productivity

distribution. In the regressions we also controlled for whether the business used information or advice in the last 12 months, whether they use bank finance. We also asked whether the business had limited liability and whether it was in an urban setting.

Analytical methods

To develop a better understanding of how businesses without formal plans improve their productivity using panel data, we consider the following methodological approaches:

1. **Descriptive Analysis:**
    - Examine trends in productivity over time for businesses that report having no plan. We will be interested in both the average but also the variance because it might be quite likely that the average might be lower but there may be a group of businesses who do not plan but are proactive.
    - Compare their productivity growth to businesses with formal plans.
2. **Latent Class Analysis (LCA)**
    - Latent Class Analysis (LCA) is a statistical method used to identify unobserved (latent) subgroups within a population based on patterns in categorical or continuous data (Nylund-Gibson and Choi 2018, Weller, Bowen and Faubert 2020). It is particularly useful for detecting hidden structures when traditional group classifications (e.g., having a business plan vs. not) might be too simplistic.
    - Within the LSBS Instead of assuming predefined groups, LCA estimates the probability that each observation belongs to a certain latent class.
3. **Propensity Score Matching (PSM):**
    - Match firms with and without plans based on observable characteristics to estimate the impact of planning on productivity. Propensity Score Matching (PSM) helps reduce differences between businesses that have a formal plan and those that do not (Rosenbaum and Rubin 1985). It does this by matching firms with similar observable characteristics (e.g., size, sector, age, prior performance) to create a comparison group that is as statistically similar as possible. This helps isolate the effect of having no formal plan on productivity. However, PSM cannot account for unobserved factors (like managerial mindset), so combining it with an event study or further robustness checks would strengthen the analysis.

4.RESULTS

Analysis of longitudinal data from 2015 to 2023 reveals distinct patterns in the persistence of planning behaviour among small firms see table 1. Firms that reported having an up-to-date plan in one year were, on average, 82.4% likely to maintain it the following year. In contrast, firms without a plan exhibited even greater consistency, with 89.1% remaining without a plan in the subsequent year. This asymmetry suggests that non-planning is a more stable state than planning, raising questions about the durability of planning interventions. Notably, in two consecutive years (2018–2020), both planning and non-planning behaviours showed perfect persistence, though this may reflect data anomalies or external influences. Overall, the findings indicate that while some firms do sustain planning practices, a larger proportion consistently avoid them, implying that efforts to encourage planning may face structural or cultural resistance.

Table 1 The Persistence of Planning

Year	If have an up to date plan % have an up to date plan next year	Have no plan year 1 then % have no plan next year
2015-2016	99.97	98.36
2016-2017	71.07	84.41
2017-2018	75.65	82.99
2018-2019	100.00	100.00
2019-2020	100.00	100.00
2020-2021	64.82	81.57
2021-2022	72.02	83.62
2022-2023	75.49	81.91
Average	82.3775	89.1075

To assess the relationship between planning and firm performance, we compared logged turnover per employee between firms with and without up-to-date plans across nine years, see table 2. The mean logged turnover per employee was generally similar between the two groups, with differences fluctuating year to year. In 2018 and 2021, statistically significant differences were observed ($p = 0.0284$ and $p = 0.0188$, respectively), suggesting that planning may be associated with performance in specific contexts. However, in most years, the differences were not statistically significant, and in some cases, firms without plans had slightly higher average turnover per employee. These findings suggest that while planning may confer advantages in certain periods, its overall impact on performance is not consistently strong across time.

Table 2 Up to date plans and labour productivity

Year	Up to date plan		Not up to date plan		Two sample T-test for unequal variances (Pr(|T| > |t|)
	Mean ln(Turnvr/emp)	N	Mean ln(Turnvr/emp)	N	
2015	11.05123	3,759	11.10027	4,117	1.7871 (0.0740)
2016	11.14159	2,853	11.11092	2,662	-1.0176 (0.3089)
2017	11.13975	1,620	11.17346	1,857	0.9224 (0.3564)
2018	11.23569	3,628	11. 28885	4,375	2.1925 (0.0284)
2019	11.28279	2,735	11.30607	3,359	0.8591 (0.3903)
2020	11.11569	1,762	11.12545	2,406	0.2633 (0.7923)
2021	11.19061	2,206	11.11913	3,603	-2.3496 (0.0188)
2022	11.2769	2,552	11.26326	3,983	-0.4887 (0.6251)
2023	11.29953	2,631	11.26474	3,978	-1.2583 (0.2083)

To explore the relationship between planning and productivity, we examined the proportion of firms without a business plan across productivity quartiles in 2023 see table 3. The percentage of firms answering "No" to having a business plan was relatively consistent across quartiles, ranging from 46.2% in the lowest quartile to 51.0% in the third quartile. Interestingly, the highest productivity quartile (Quartile 4) had a slightly lower proportion of non-planners (48.2%) than Quartiles 2 and 3. Overall, 48.8% of firms across all quartiles reported not having a business plan. These findings suggest that the absence of planning is not confined to lower-productivity firms and is prevalent even among more productive businesses.

Table 3 Many firms do not plan but have high levels of labour productivity

Quantiles of LnProd 2023	Answer No to the business plan	Percentage of the total businesses in the quartile	Total businesses in the quartile
1	777	46.17	1683
2	858	49.77	1724
3	836	51.01	1639
4	753	48.18	1563
Total	3224	48.78	6609

Pearson chi2(3) = 8.7511 Pr = 0.033

Latent Class Analysis (LCA) identified two distinct subgroups of firms based on their planning behaviour, technology use, exporting status, age, and productivity. In Class 1, firms were significantly less likely to have an up-to-date business plan ($\beta = -0.34$, $p < 0.001$) and less likely to use technology ($\beta = -0.52$, $p < 0.001$), yet they were more likely to be older ($\beta = 1.46$, $p < 0.001$) and highly productive ($\beta = 1.12$, $p < 0.001$). Exporting was positively associated ($\beta = 2.12$), though not statistically significant ($p = 0.116$). This class appears to represent established, productive firms that may rely on embedded routines and external market reach rather than formal planning or technological adoption.

In contrast, Class 2 firms were much less likely to plan (β = -0.72, p < 0.001), export (β = -5.33, p < 0.001), or use technology (β = -2.82, p < 0.001). They were also older (β = 1.01, p < 0.001), though to a lesser extent than Class 1, and less likely to be highly productive (β = -0.36, p < 0.001). This class likely represents less productive, tech-averse, non-exporting firms, possibly smaller or more resource-constrained.

While planning behaviour was low across both classes, the model revealed stronger differentiation in terms of technology use, exporting, and productivity, suggesting that these dimensions may be more central to how small firms cluster. The Bayesian Information Criterion (BIC = 70,330.84) supports the model's fit. Overall, the findings imply that planning may not be the primary axis of differentiation among small firms and that capability and engagement with external markets and technology are more defining characteristics.

Table 4 Latent Class Analysis 2023 (logit response)

Variable	Co-efficient	Standard error	Z	P>|z|
Class 1				
Updated biz plan	-.3367164	.0555163	6.07	0.000
Exporter	2.123887	1.349969	1.57	0.116
Use Tech	-.5187943	.0793777	-6.54	0.000
Old Biz	1.463688	.0712347	20.55	0.000
High Productive	1.12269	.1031244	10.89	0.000
Class 2	obs	6,609?		
Updated biz plan	-.7184484	.0252659	-28.44	0.000
Exporter	-5.334496	.3814861	-13.98	0.000
Use Tech	-2.816081	.0425175	-66.23	0.000
Old Biz	1.009481	.0269223	37.50	0.000
High Productive	-.3572831	.0369658	-9.67	0.000
BIC	70330.84			

To further explore the characteristics of firms likely to belong to Class 1 (identified in the latent class analysis as comprising approximately 15% of the sample), we estimated models predicting the posterior probability of Class 1 membership, see table 5. The results show that being an exporter is the strongest predictor ($\beta = 0.831$, SE = 0.002), indicating that Class 1 firms are overwhelmingly export orientated. Firms that aim to increase exports also have significantly higher probabilities of Class 1 membership ($\beta = 0.447$ in Model 1; $\beta = 0.013$ in Model 2, both $p < 0.001$).

Firm age is positively associated with Class 1 membership, particularly for firms aged 11–20 years ($\beta = 0.093$) and more than 20 years ($\beta = 0.098$), suggesting that Class 1 firms tend to be more established. Firm size also plays a role, with medium-sized firms (50–249 employees) showing a higher likelihood of Class 1 membership ($\beta = 0.059$ in Model 1; $\beta = 0.011$ in Model 2, both $p < 0.001$).

Interestingly, firms that used external information or advice in the past year were less likely to be in Class 1 ($\beta = -0.023$, $p < 0.01$), as were those reporting product innovation ($\beta = -0.020$, $p < 0.05$), suggesting that Class 1 firms may rely more on internal capabilities or established routines. Sectoral effects were also evident: firms in manufacturing ($\beta = 0.176$), wholesale/retail ($\beta = 0.126$), and information/communication ($\beta = 0.147$) were significantly more likely to be in Class 1, while those in education, health/social work, and arts/entertainment were less likely.

Overall, the model reinforces the interpretation of Class 1 as comprising established, export-orientated, medium-sized firms, often in traditional or tech-intensive sectors, but less reliant on external advice or innovation. These characteristics align with the earlier latent class findings and suggest that planning behaviour may be secondary to other structural and strategic factors in defining firm types.

Table 5 Regression Results: LCA group 1

	(1)	(2)
	Predicted posterior probability (1.A)	Predicted posterior probability (1.A)
Exporter		0.831***
		(0.002)
To Increase	0.447***	0.013***
	(0.014)	(0.003)
6 - 10 years	0.059***	-0.004
	(0.020)	(0.003)
11 - 20 years	0.093***	0.013***
	(0.017)	(0.003)
More than 20	0.098***	0.013***
	(0.017)	(0.003)
Don't know	0.033	0.017
	(0.084)	(0.013)
No employees	0.000	0.000
	(.)	(.)
Micro 1 - 9	0.013	-0.001
	(0.014)	(0.002)
Small 10 - 49	0.022	0.004*
	(0.015)	(0.002)
Medium 50 - 249	0.059***	0.011***
	(0.019)	(0.003)
Large 250+	-0.036	-0.001
	(0.138)	(0.022)
K2. Whether used	-0.023**	-0.004**
	(0.011)	(0.002)
Use Bank	0.002	0.000
	(0.014)	(0.002)
Product	-0.020*	-0.002
	(0.011)	(0.002)
ABDE - Primary	0.000	0.000

	(.)	(.)
C - Manufacturing	0.176***	-0.007
	(0.031)	(0.005)
F - Construction	-0.007	-0.001
	(0.030)	(0.005)
G - Wholesale/	0.126***	-0.003
	(0.028)	(0.005)
H - Transport/	0.051	0.003
	(0.036)	(0.006)
I -	-0.037	-0.007
	(0.031)	(0.005)
J - Information/	0.147***	-0.015***
	(0.034)	(0.005)
KL - Financial/	-0.037	-0.003
	(0.034)	(0.005)
M - Professional/	0.077***	-0.008*
	(0.029)	(0.005)
N -	0.006	-0.007
	(0.031)	(0.005)
P - Education	-0.039	-0.013**
	(0.037)	(0.006)
Q - Health/ Social	-0.039	-0.012**
	(0.032)	(0.005)
R - Arts/	0.029	-0.014**
	(0.037)	(0.006)
S - Other service	-0.034	-0.006
	(0.034)	(0.005)
Constant	0.027	0.008
	(0.039)	(0.006)
R-squared	0.375	0.984
Observations	3220.000	3220.000

Standard errors in parentheses

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

Treatment effects

To estimate the causal impact of planning on productivity, a treatment effects model using propensity score matching (PSM) was employed (Rosenbaum and Rubin 1985). The analysis reveals a statistically significant positive effect of having an up-to-date business plan on logged labour productivity in 2023. The Average Treatment Effect (ATE) is 0.097 ($p = 0.001$), and the Average Treatment Effect on the Treated (ATET) is 0.095 ($p = 0.001$), indicating that firms with a plan outperform matched firms without a plan by approximately 9.5% in terms of productivity.

Covariate balance diagnostics confirm the robustness of the matching procedure, see tables 7,8. After matching, standardised differences and variance ratios for key covariates—including firm size, age, exporting status, technology use, and innovation—are substantially reduced, with most values near zero and variance ratios close to one. This suggests that the matched sample provides a credible basis for estimating the treatment effect.

These results provide strong evidence that planning is associated with higher productivity, even after controlling for observable firm characteristics. Unlike the descriptive and latent class analyses, which showed mixed or weak associations, the treatment effects model isolates a meaningful and statistically significant benefit from planning.

Table 6 Treatment-effects estimation

Lab Prod 2023	Co-efficient	std. err	z	P>|z|	95% conf. interval	
ATE	.0969221	.0292339	3.32	0.001	.0396248	.1542194
ATET	.0946904	.0291493	3.25	0.001	.0375588	.151822

Table 7 Covariate balance summary

	Raw	Matched
Number of obs	6,609	5,262
Treated obs	2,631	2,631
Control obs	3,978	2,631

Table 8 Standardized differences

Variables	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
Limited	.0113189	-.003766	.9712462	1.009953
Firm age	.0485267	-.0152485	.9876234	1.016488
Small firm (10-49	.2228626	.0023045	1.123783	1.000677
Medium Firm (50-249)	.3951937	.0027342	2.25259	1.003626
Large Firm (250+)	.0755203	0	4.516315	1
Exporter	.1171619	-.0017377	1.160655	.9980761
Use tech	.0297153	.0080343	1.021451	1.005523
Older biz	.0369972	-.0082426	.953858	1.011148
Discouraged borrower	.0216112	0	1.073578	1
Bank finance	.0910427	.0070004	1.185172	1.012048
Innovation	-.3273297	.0007624	1.17512	.9998802

Panel data regressions

Table 9 presents regression estimates of the relationship between having an up-to-date business plan and logged labour productivity, using both fixed effects (Column 1) and random effects (Column 2) specifications. The Hausman test reveals a very strong preference for the fixed effect model (chi2(32) = 631.00, p = 0.000). In both models, the coefficient on planning is negative and statistically significant (β = -0.299 in fixed effects; β = -0.292 in random effects), suggesting that, on average, firms with a plan have lower productivity once other factors are controlled for. However, this effect is moderated by firm size.

Interaction terms between planning and firm size reveal that the productivity penalty associated with planning is offset for firms of all sizes. For example, the interaction between planning and being a medium-sized firm is positive and significant in both models (β = 0.314 in fixed effects; β = 0.399 in random effects), indicating that planning may be more beneficial for larger firms. Similar positive interactions are observed for micro and small firms, though the effect is strongest for medium-sized businesses.

Other covariates behave as expected. Productivity increases with firm age and is positively associated with being located in an urban area, using bank finance, and exporting (significant only in the random effects model). The latter is notable divergence between the models emerges in the role of exporting. In the fixed effects model, exporting is not significantly associated with productivity (β = 0.023), whereas in the random effects model, it is strongly positive and significant (β = 0.318, p < 0.01). This discrepancy may reflect the limited number of firms that enter or exit exporting during the panel period, which constrains within-firm variation and reduces the explanatory power of exporting in the fixed effects model. In contrast, the random effects model leverages between-firm variation, capturing the broader productivity advantage of exporters.

Sectoral effects are pronounced, with firms in manufacturing, accommodation/food, health/social work, and arts/entertainment showing significantly lower productivity relative to the reference category.

Overall, these results suggest that the impact of planning on productivity is not uniform and may depend on firm size and other contextual factors. While planning alone is associated with lower productivity, its interaction with firm size reveals a more complex and potentially positive relationship.

Table 9 Regression Results: Productivity and Planning

	(1)	(2)
	Log Productivity	Log Productivity
Up to date Biz Plan=1	-0.299*	-0.292*
	(0.181)	(0.171)
Micro 1 - 9	0.036	0.150**
	(0.064)	(0.061)
Small 10 - 49	-0.339***	-0.000
	(0.070)	(0.063)
Medium 50 - 249	-0.725***	-0.093
	(0.080)	(0.067)
Large 250+	-1.150***	-0.475***
	(0.203)	(0.172)
Up to date Biz Plan=1 # Micro 1 - 9	0.304*	0.392**
	(0.181)	(0.171)
Up to date Biz Plan=1 # Small 10 - 49	0.298	0.363**
	(0.182)	(0.172)

Up to date Biz Plan=1 # Medium 50 - 249	0.314*	0.399**
	(0.184)	(0.174)
Up to date Biz Plan=1 # Large 250+	0.223	0.331
	(0.281)	(0.251)
Limited	0.049	0.281***
	(0.042)	(0.021)
Urban	0.132*	0.033**
	(0.076)	(0.016)
6 - 10 years	0.105***	0.151***
	(0.037)	(0.023)
11 - 20 years	0.172***	0.230***
	(0.047)	(0.024)
More than 20 years	0.237***	0.304***
	(0.058)	(0.023)
Product Innovation	0.034***	0.013

	(0.013)	(0.010)
Use Tech	-0.008	-0.003
	(0.011)	(0.010)
Exporter	0.023	0.318***
	(0.025)	(0.016)
Discouraged Borrower	0.007	-0.042**
	(0.023)	(0.019)
Use Bank Finance	0.008	0.052***
	(0.017)	(0.014)
ABDE - Primary	0.000	0.000
	(.)	(.)
C - Manufacturing	-0.053	-0.306***
	(0.186)	(0.046)
F - Construction	0.960***	0.076
	(0.237)	(0.046)

G - Wholesale/ Retail	0.054	0.054
	(0.201)	(0.044)
H - Transport/ Storage	0.495	-0.182***
	(0.396)	(0.055)
I - Accommodation/ Food	-0.066	-1.044***
	(0.394)	(0.047)
J - Information/ Communication	-0.481	-0.510***
	(0.560)	(0.053)
KL - Financial/ Real Estate	-0.483	-0.128**
	(0.370)	(0.054)
M - Professional/ Scientific	-0.148	-0.490***
	(0.212)	(0.046)
N - Administrative/ Support	0.497	-0.671***
	(0.303)	(0.048)
P - Education	0.239	-1.180***
	(0.330)	(0.062)

Q - Health/ Social Work	-0.389	-1.413***
	(0.310)	(0.050)
R - Arts/ Entertainment	-0.182	-1.073***
	(0.482)	(0.061)
S - Other service	-0.504	-0.982***
	(0.317)	(0.056)
Constant	11.037***	10.982***
	(0.193)	(0.080)
R-squared	0.052	
Observations	23351.000	23351.000

Standard errors in parentheses

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

5.DISCUSSION

This study set out to examine whether small firms should be encouraged to develop business plans by analysing planning behaviour, its persistence, and its relationship with performance and firm characteristics. The results suggest a nuanced picture that challenges dominant assumptions in both policy and academic discourse.

First, longitudinal data show that planning behaviour is relatively stable but not universal. Firms that plan are moderately likely to continue doing so (82.4%), while those that do not plan are even more likely to persist in non-planning (89.1%). This asymmetry implies that

planning may not be a default behaviour for many small firms and that interventions aimed at promoting planning may face cultural or structural resistance.

Second, the relationship between planning and performance, measured by logged turnover per employee, is not consistently strong. In most years, differences in performance between planners and non-planners are statistically insignificant, and in some cases, non-planners outperform planners. This challenges the assumption that planning directly drives performance and suggests that other factors may be more influential.

Third, analysis of productivity quartiles reveals that the absence of planning is widespread across all levels of productivity. Nearly half of firms in each quartile report not having a business plan, including those in the highest productivity group. This further undermines the notion that planning is a hallmark of high-performing firms.

Latent Class Analysis (LCA) provides deeper insight into firm heterogeneity. Two distinct classes emerged: Class 1, comprising approximately 15% of firms, includes older, highly productive, export-orientated businesses that are less likely to plan or use technology. Class 2, the majority, consists of less productive, tech-averse, non-exporting firms that also do not plan. These findings suggest that planning is not a defining feature of either group. Instead, differences in productivity, exporting, and technology use are more salient.

Regression analysis predicting Class 1 membership reinforces this interpretation. Exporting, firm age, and medium size are strong predictors of Class 1 membership, while use of external advice and product innovation are negatively associated. This suggests that Class 1 firms may rely on internal capabilities and established routines rather than formal planning or external inputs.

However, when estimating the causal impact of planning using a treatment effects model, a different picture emerges. The model shows that having an up-to-date business plan is associated with a statistically significant increase in productivity (ATE = 0.097; ATET = 0.095, both $p = 0.001$). This suggests that planning may confer real benefits when adopted, even if it is not widespread or strongly correlated with performance in descriptive analyses.

Further nuance is added by comparing fixed and random effects regressions. Both models show a negative average association between planning and productivity, but interaction

terms reveal that planning is more beneficial for micro, small, and medium-sized firms. Additionally, the role of exporting differs across models: it is insignificant in the fixed effects model but strongly positive in the random effects model. This likely reflects the limited number of firms that enter or exit exporting during the panel period, which constrains within-firm variation and highlights the importance of model choice in interpreting results.

These findings contribute to ongoing debates in the literature. While the professionally managed firm model (Flamholtz and Randle 1990) has long positioned planning as a hallmark of good management, and business support often culminates in the production of an action plan, this study aligns with research showing that some firms perform well without formal planning (Mole and Wishart 2023, Herbane 2019). It also engages with the entrepreneurship literature, where planning has been both advocated (Greene and Hopp 2017, Hopp and Greene 2018) and questioned (Hopp et al. 2018, Honig and Karlsson 2004, Ratinho and Sarasvathy 2024, Beckman and Burton 2008). The effectuation perspective, in particular, challenges the centrality of planning in entrepreneurial strategy (Frese and Gielnik 2023, Ratinho and Sarasvathy 2024).

Taken together, this study suggests that planning is not universally practised nor uniformly beneficial. While it may support productivity under certain conditions, especially for firms with latent capabilities, it is not a prerequisite for success. Understanding how non-planning firms operate and thrive is essential for developing more inclusive models of small business management and more targeted policy interventions.

6.POLICY RECOMMENDATIONS

Given that planning is not universally practised nor consistently associated with performance, policy should move away from assuming that all firms benefit equally from planning. Instead, support should be targeted at firms with latent capabilities—such as medium-sized, growth-orientated, or export-aspiring businesses—where planning shows measurable productivity gains. While planning may not be a universal trait of high-performing firms, the treatment effects model shows it can enhance productivity when adopted. Planning should be framed as a developmental tool, not a benchmark of professionalism. Support should help firms build planning capacity incrementally, aligned with their growth stage and strategic needs.

Recognise and Support Non-Planning Firms

A substantial proportion of firms do not plan yet perform reasonably well. These firms may rely on embedded routines, tacit knowledge, or adaptive strategies. Business support programmes should recognise alternative strategic models, including effectuation and emergent strategy, and avoid penalising firms for not producing formal plans. Current support models often culminate in the production of an action plan. While useful for some, this may not reflect how all firms operate. Policymakers should broaden the definition of successful intervention outcomes to include improved decision-making, resource access, or strategic clarity—even if not formalised in a plan. The heterogeneity revealed through latent class analysis and regression models underscores the need for more nuanced data and segmentation in policy design. Future programmes should be informed by typologies that reflect real-world variation in firm behaviour, rather than idealised models of management.

Encourage Exporting and Capability Development

Exporting emerged as a strong predictor of productivity and Class 1 membership. Support should focus on building export readiness, especially for firms that do not currently plan but show potential for international engagement. This includes sector-specific advice, market intelligence, and peer learning.

While this study provides new insights into the role of planning in small firm productivity, several limitations should be acknowledged. First, the analysis relies on observational data, which—even with techniques like propensity score matching—cannot fully eliminate the possibility of unobserved confounding. Although the treatment effects model suggests a causal link between planning and productivity, future research could benefit from experimental or quasi-experimental designs, such as randomised controlled trials or natural experiments, to strengthen causal inference. Second, the fixed effects model may understate the role of exporting due to limited within-firm variation in export status. Many firms either consistently export or do not, which constrains the ability to detect changes over time. Future studies could explore entry and exit dynamics in exporting more explicitly, perhaps using event history analysis or panel data with finer temporal resolution.

Third, the study focuses on firms in the UK in 2023. While this provides a timely snapshot, the findings may not generalise to other national contexts or time periods. Replication in different institutional environments or longitudinal tracking over multiple years would help assess the stability of these patterns. Fourth, planning is treated as a binary variable—whether a firm has an up-to-date business plan or not. This simplification may obscure important variation in planning quality, scope, and integration into decision-making. Future research could incorporate richer measures of planning behaviour, including qualitative assessments or multi-dimensional planning indices. Finally, the latent class analysis revealed distinct firm types, but further work is needed to understand how firms transition between classes over time. Longitudinal latent class models or growth mixture modelling could illuminate how planning, exporting, and technology use evolve within firms and influence performance trajectories. In sum, future research should aim to deepen our understanding of non-planning firms, explore planning as a developmental process, and investigate how strategic behaviours interact to shape small firm outcomes.

7.CONCLUSION

This study examined the role of business planning in small firm productivity, using a combination of longitudinal analysis, latent class modelling, treatment effects estimation, and panel regression. The findings reveal that planning is not universally practised nor consistently associated with performance. While some firms benefit from planning—particularly those with growth potential or larger size—many firms operate successfully without formal plans. The latent class analysis and regression models highlight firm heterogeneity, suggesting that planning is just one of many strategic behaviours and not necessarily the most defining.

Importantly, the treatment effects model shows that planning can yield measurable productivity gains when adopted, indicating its value as a developmental tool rather than a universal benchmark. These insights challenge the dominant view of the professionally managed firm and call for more nuanced policy approaches. Rather than promoting planning as a one-size-fits-all solution, support should be tailored to firm context, capabilities, and strategic orientation. Future research should continue to explore how non-planning firms adapt and thrive and how planning interacts with other strategic choices over time.

8.REFERENCES

Albuquerque, A. F., E. Escrivao & P. S. M. Mendonca (2023) Small business success map. *Revista De Gestao E Secretariado-Gesec,* 14**,** 3298-3318.

Barraket, J., C. Furneaux, S. Barth & C. Mason (2016) Understanding Legitimacy Formation in Multi-Goal Firms: An Examination of Business Planning Practices among Social Enterprises. *Journal of Small Business Management,* 54**,** 77-89.

Beckman, C. M. & M. D. Burton (2008) Founding the Future: Path Dependence in the Evolution of Top Management Teams from Founding to IPO. *Organization Science,* 19**,** 3-24.

Block, J. & J. S. Petty (2023) How knowledge shapes the scope of early business planning. *Journal of Small Business Management,* 61**,** 411-440.

Brinckmann, J., N. Dew, S. Read, K. Mayer-Haug & D. Grichnik (2019) Of those who plan: A meta-analysis of the relationship between human capital and business planning. *Long Range Planning,* 52**,** 173-188.

Burke, A., S. Fraser & F. J. Greene (2010) The Multiple Effects of Business Planning on New Venture Performance. *Journal of Management Studies,* 47**,** 391-415.

Cassar, G. (2010) Are individuals entering self-employment overly optimistic? An empirical test of plans and projections on nascent entrepreneur expectations. *Strategic Management Journal,* 31**,** 822-840.

Delmar, F. & S. Shane (2003) Does business planning facilitate the development of new ventures? *Strategic Management Journal,* 24**,** 1165-1185.

Flamholtz, E. & Y. Randle. 1990. *Growing pains: How to make the transition from an entrepreneurship to a professionally managed firm*. Jossey-Bass Inc Pub.

Foster, M. J. (1993) Scenario Planning for Small Businesses. *Long Range Planning,* 26**,** 123-129.

Frese, M. & M. M. Gielnik (2023) The psychology of entrepreneurship: action and process. *Annual Review of Organizational Psychology and Organizational Behavior,* 10**,** 137-164.

Frese, M., M. van Gelderen & M. Ombach (2000) How to plan as a small scale business owner: Psychological process characteristics of action strategies and success. *Journal of Small Business Management,* 38**,** 1-18.

Gibson, B. & G. Cassar (2005) Longitudinal analysis of relationships between planning and performance in small firms. *Small Business Economics,* 25**,** 207-222.

Gkypali, A., J. H. Love & S. Roper (2021) Export status and SME productivity: Learning-to-export versus learning-by-exporting. *Journal of Business Research,* 128**,** 486-498.

Greene, F. J. & C. Hopp (2017) Are formal planners more likely to achieve new venture viability? A counterfactual model and analysis. *Strategic Entrepreneurship Journal,* 11**,** 36-60.

Gruber, M. (2007) Uncovering the value of planning in new venture creation: A process and contingency perspective. *Journal of Business Venturing,* 22**,** 782-807.

Hamann, P. M., O. Halw & T. W. Guenther (2023) Meta-analysis of the corporate planning-organizational performance relationship: A research note. *Strategic Management Journal,* 44**,** 1803-1819.

Herbane, B. (2019) Rethinking organizational resilience and strategic renewal in SMEs. *Entrepreneurship & Regional Development,* 31**,** 476-495.

Honig, B. & C. Hopp (2019) Learning orientations and learning dynamics: Understanding heterogeneous approaches and comparative success in nascent entrepreneurship. *Journal of Business Research,* 94**,** 28-41.

Honig, B. & T. Karlsson (2004) Institutional Forces and the Written Business Plan. *Journal of Management,* 30**,** 29-48.

Honig, B. & M. Samuelsson (2021) Business planning by intrapreneurs and entrepreneurs under environmental uncertainty and institutional pressure. *Technovation,* 99.

Hopp, C. & F. J. Greene (2018) In Pursuit of Time: Business Plan Sequencing, Duration and Intraentrainment Effects on New Venture Viability. *Journal of Management Studies,* 55**,** 320-351.

Hopp, C., F. J. Greene, B. Honig, T. Karlsson & M. Samuelsson (2018) Revisiting the influence of institutional forces on the written business plan: a replication study. *Management Review Quarterly,* 68**,** 361-398.

Idris, B., G. Saridakis & S. Johnstone (2023) Training and performance in SMEs: Empirical evidence from large-scale data from the UK. *Journal of Small Business Management,* 61**,** 769-801.

Ivanova, S. & E. T. Tornikoski (2024) Termination of nascent entrepreneurship: The central effects of action crisis in new venture creation. *Journal of Small Business Management,* 62**,** 1385-1429.

Karlsson, T. & B. Honig (2009) Judging a business by its cover: An institutional perspective on new ventures and the business plan. *Journal of Business Venturing,* 24**,** 27-45.

Kirsch, D., B. Goldfarb & A. Gera (2009) Form or substance: the role of business plans in venture capital decision making. *Strategic Management Journal,* 30**,** 487-515.

Kozan, M. K., D. Öksoy & O. Özsoy (2006) Growth plans of small businesses in Turkey: Individual and environmental influences. *Journal of Small Business Management,* 44**,** 114-129.

Liao, J. W. & W. B. Gartner (2006) The effects of pre-venture plan timing and perceived environmental uncertainty on the persistence of emerging firms. *Small Business Economics,* 27**,** 23-40.

Ma, S. H., Y. Y. Kor & D. Seidl (2020) CEO Advice Seeking: An Integrative Framework and Future Research Agenda. *Journal of Management,* 46**,** 771–805.

Mintzberg, H. (1990) The Design School: Reconsidering the Basic Premises of Strategic Management. *Strategic Management Journal,* 11**,** 171-195.

Mole, K. & M. Wishart. 2023. Crisis, What Crisis? Business Resilience and Risk Planning in Rural SMEs in Three English Regions. In *Paper presented at the ISBE Conference* Aston, 8-10 November. .

Nylund-Gibson, K. & A. Y. Choi (2018) Ten frequently asked questions about latent class analysis. *Translational issues in psychological science,* 4**,** 440.

Ott, T. E. & K. M. Eisenhardt (2020) Decision weaving: Forming novel, complex strategy in entrepreneurial settings. *Strategic Management Journal,* 41**,** 2275-2314.

Perry, S. C. (2001) The Relationship between Written Business Plans and the Failure of Small Businesses in the U.S. *Journal of Small Business Management,* 39**,** 201-208.

Ratinho, T. & S. D. Sarasvathy (2024) Entrepreneurial actions under uncertainty: the role of psychological variables and decision logics. *International Journal of Entrepreneurial Behavior & Research*.

Rauch, A., M. Frese & S. Sonnentag (2000) Cultural differences in planning/success relationships: A comparison of small enterprises in Ireland, West Germany, and East Germany. *Journal of Small Business Management,* 38**,** 28-41.

Rauch, D., J. Wiklund, G. T. Lumpkin & M. Frese (2009) Entrepreneurial Orientation and Business Performance: an Assessment of Past Research and Suggestions for the Future. *Entrepreneurship Theory and Practice,* 33**,** 761-787.

Rosenbaum, P. R. & D. B. Rubin (1985) Constructing a control group using multivariate matched sampling methods that incorporate the propensity score. *The American Statistician,* 39**,** 33-38.

Rue, L. W. & N. A. Ibrahim (1998) The relationship between planning sophistication and performance in small businesses. *Journal of Small Business Management,* 36**,** 24-32.

Sarasvathy, S. D. (2024) Lean Hypotheses and Effectual Commitments: An Integrative Framework Delineating the Methods of Science and Entrepreneurship. *Journal of Management*.

Shane, S. & F. Delmar (2004) Planning for the market: business planning before marketing and the continuation of organizing efforts. *Journal of Business Venturing,* 19**,** 767-785.

Sykes, H. B. & D. Dunham (1995) Critical Assumption Planning - A Practical Tool for Managing-Business Development Risk. *Journal of Business Venturing,* 10**,** 413-424.

Upton, N., E. J. Teal & J. T. Felan (2001) Strategic and business planning practices of fast growth family firms. *Journal of Small Business Management,* 39**,** 60-72.

Verreynne, M. L., D. Meyer & P. Liesch (2016) Beyond the Formal-Informal Dichotomy of Small Firm Strategy-Making in Stable and Dynamic Environments. *Journal of Small Business Management,* 54**,** 420-444.

Villani, E., C. Linder & R. Grimaldi (2018) Effectuation and causation in science-based new venture creation: A configurational approach. *Journal of Business Research,* 83**,** 173-185.

Wales, W. J., J. G. Covin & E. Monsen (2020) Entrepreneurial orientation: The necessity of a multilevel conceptualization. *Strategic Entrepreneurship Journal,* 14**,** 639-660.

Weller, B. E., N. K. Bowen & S. J. Faubert (2020) Latent class analysis: a guide to best practice. *Journal of black psychology,* 46**,** 287-311.

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