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ORGANISATIONAL CAPABILITIES AND SMALL AND MEDIUM SIZED FIRMS' ATTAINMENT OF INNOVATION OUTCOMES: THE MODERATING ROLES OF EXPORTS AND FORMAL BUSINESS NETWORKS

Abstract

Purpose:
We examine the influence of planning and execution capability (PEC) and operational improvement capability (OIC) on small-and-medium-sized firms' (SMEs) attainment of different innovation outcomes under the conditions of exports and formal business networks, based on the capability-based perspective and organisational learning literature.

Design/methodology/approach:
We analyse time-series data about UK SMEs, extracted from the 2015 and 2016 UK Longitudinal Small Business Surveys (LSBS).

Findings:
We failed to find any direct effects of PEC and OIC on product innovation outcomes. However, we discovered that OIC supports the generation of process innovation outputs more strongly than PEC. Additionally, exports and formal business networks provide SMEs with different learning opportunities. We find limited support that exports amplify the beneficial effect of PEC on product innovation outcomes more than formal business networks. On the other hand, formal business networks strengthen the effect of PEC on process innovation outcomes more than exports. As a result, exports reduce the beneficial effect of OIC on product innovation outcomes more than formal business networks. However, formal business networks weaken the beneficial effect of OIC more than exports.

Originality:
We distinguish between two types of organisational capabilities - PEC and OIC - and examine their impact on SMEs in achieving innovation outcomes. We also identify SMEs' involvement in exports and formal business networks as the important boundary conditions for such effects.

Keywords: Organisational Capability; Organisational Learning; SME; Exports; Formal Business Networks

INTRODUCTION

Innovation outcomes reflect the new products or processes[1] that firms create that are novel, unique, and new to the market (Kim et al., 2012; Oke et al., 2007). The successful attainment of innovation outcomes continues to be of significant interest to the managers of small and medium sized firms (SMEs) (Hervas-Oliver et al., 2014; Oke et al., 2007). According to the European Innovation Scoreboard[2], SMEs' innovation outputs[3] is one of the major contributors to the European Union's overall increased innovation performance (EIS, 2020). Despite this prominence, SMEs still face limited resource reserves when generating different types of innovation outcomes simultaneously (Madrid-Guijarro et al., 2009). One way to overcome such a challenge is for SMEs to be selective (Oke et al., 2007). Nevertheless, we still do not fully understand how SMEs make selection decisions about devoting their resources to attain one type of innovation outcome over another. The current research attempts to clarify this. Based on the capability-based perspective and organisational learning literature, we explore how the possession of different organisational capabilities can affect SMEs' innovation outcomes under the boundary conditions of different learning opportunities.

[1] We acknowledge that innovation can be broadly categorised into two types: non-technological and technological (Kim et al., 2012; Opazo-Basáez et al., 2021a). Non-technological innovation involves implementing new methods to perform organisational/administrative or commercial/marketing practices, such as workplace innovation, pricing innovation, etc. On the other hand, technological innovation has predominantly focused on integrating technological advancements with meaningful strategic values into goods and services, and operations activities – i.e., product and process innovation. Furthermore, the recent development in the digital servitization literature also suggests the inclusion of digital service innovation (the development of new services and/or improvement of the existing ones through the use of digital technologies) as another kind of technological innovation (Opazo-Basáez et al., 2021a). In this research, we explore various factors that can successfully influence SMEs' outcomes with regard to introducing goods and services that are new to the market and also processes (for producing or supplying goods and services) that are new to the industry. Therefore, we focus on product and process innovation.

[2] The annual European Innovation Scoreboard reveals the European Union's innovation performance, which provides a comparative assessment (strengths and weaknesses of the research and innovation systems) of the research and innovation performance of the countries within the union and selected third countries (EIS, 2020).

[3] The term "*innovation outcomes*" used in this paper refer to the firms' innovation "outputs"; i.e., the successful introduction of new products to the market or new processes to the industry. This differs from the innovation "inputs" (R&D practices, etc.) which firms pursue to generate innovation outputs (Anzola-Román et al., 2018).

More specifically, from the capability-based perspective of innovation, SMEs' ability to perform specific value-creating tasks effectively (knowledge management, external sourcing, etc.) to support the implementation of innovation is an important antecedent condition for innovation outcomes (e.g., Alegre et al., 2013; Maes and Sels, 2014; Uhlaner et al., 2013). Building on this logic, this research examines the differential effects of two specific organisational capabilities related to SMEs' operations management and innovation outcomes. A crucial aspect of operations management involves the careful planning and execution (or implementation) of those activities. Their planning and execution capability (PEC) reflects firms' capacity to narrow the time gap between planning and implementation (Bryson and Bromiley, 1993; Moorman and Miner, 1998). Another crucial aspect of operations management emphasises the implementation of continuous improvements to enhance a firm's competitive position. Operational improvement capability (OIC) refers to firms' capacity to continue to improve their operational practices (Kim et al., 2012; Wu et al., 2010). Prior studies examine the impacts of these two organisational capabilities separately on the product and process innovation outcomes (e.g., Kim et al., 2012; Moorman and Miner, 1998), but no study has examined the relative effects of these in general or in the SME context. It is important to distinguish between these two types of organisational capabilities because they purportedly differ in terms of their operation, project design and problem-solving (Bryson and Bromiley, 1993). SME managers must understand the relative effects of PEC and OIC on different innovation outcomes when making innovation outcome selection decisions.

Furthermore, the capability-based perspective also suggests that a firm's strategic capabilities may achieve their full potential depending on certain boundary conditions (Eisenhardt and Martin, 2000; McKelvie and Davidsson, 2009). The previous research suggests

that a firm's knowledge base is an important condition because it can either assist or limit the effective utilisation of the firm's capabilities to achieve beneficial outcomes (Kusunoki et al., 1998). The organisational learning literature identifies two learning opportunities whereby SMEs can accumulate knowledge – partaking in exports and formal business networks[4]. More specifically, the learning-by-exporting literature highlights that export SMEs are more likely to obtain knowledge from foreign customers and firms (Love and Ganotakis, 2013; Salomon and Shaver, 2005). On the other hand, SMEs can also acquire knowledge from their formal business networks (e.g., small business associations or network groups) (Idris and Saridakis, 2018; Tiwasing and Sawang, 2021). Although the prior work shows that SMEs can accumulate different kinds of knowledge from these two learning opportunities, it remains unknown how they interact with PEC and OIC to produce different innovation outcomes. Such insights are critical for managers in charge of leveraging the firm's organisational capabilities and learning opportunities to achieve innovation outcomes.

We build our theoretical framework (see Figure 1) in two steps. We first draw on the capability-based view (Helfat and Winter, 2011; Krasnikov and Jayachandran, 2008) to theorise the relationships between organisational capabilities and innovation outcomes. We explain how PEC and OIC differentially influence the attainment of successful product and process innovation. Next, we explore the contingency role of different learning opportunities in such relationships. Using insights from the organisational learning literature, particularly the works on learning-by-exporting (Love and Ganotakis, 2013; Salomon and Shaver, 2005) and learning via formal business networks (Idris and Saridakis, 2018; Tiwasing and Sawang, 2021), we explain

[4] The term "formal business networks" used in this study refers to small business associations or networking groups, which can be national- or local-based, focused on one specific industry or generalist (Hurst, 2021). SMEs in the UK have a rich tradition of joining various business associations or network groups to take advantage of the support (business advances, third-party services, etc.) and networking opportunities (e.g., knowledge exchange) that such business networks offer (Hurst, 2021; Idris and Saridakis, 2018; Tiwasing and Sawang, 2021).

how exports and formal business networks influence the effects of PEC or OIC on different innovation outcomes. We test our framework using a time-series data set about UK SMEs.

"Insert Figure 1 Here"

Our findings make three contributions to the relevant literature. First, instead of focusing on the impact of one type of organisational capability on specific innovation outcomes in a general context, we examine PEC and OIC's relative effects in terms of supporting SMEs to obtain successful product and process innovation. We aim to extend the capability-based perspective of innovation research (e.g., Alegre et al., 2013; Maes and Sels, 2014; Uhlaner et al., 2013) by clarifying the differential effects of various organisational capabilities on the generation of SMEs' product and process innovation outcomes. Our second and third contributions are interrelated. More specifically, we aim to extend the learning-by-exporting literature (e.g., Love and Ganotakis, 2013; Salomon and Shaver, 2005) and learning via formal social networks literature (e.g., Idris and Saridakis, 2018; Tiwasing and Sawang, 2021) by theorising that partaking in exports and formal business networks provides SMEs with different learning opportunities, respectively. Taken together, our efforts contribute to the organisational learning literature concerning organisational capability (Alegre and Chiva, 2008; Maes and Sels, 2014) by suggesting that learning from different knowledge sources influences how SMEs apply different organisational capabilities to achieve specific innovation outcomes.

THEORY AND HYPOTHESES

The Capability-Based Perspective of SME Innovation

Innovation outcomes are an important source of competitive advantage for SMEs (Terziovski, 2010). Unlike large corporations, with abundant resources that allow them to

conduct marketing actions (advertising, price discounts, etc.) to attract their customers' interest or engage in nonmarket strategies (corporate social responsibility, political connections, etc.) to shape the marketplace, SMEs often focus on generating successful product or process innovations to offer superior value to their customers. However, due to their limited resources, SMEs must often be selective and cannot pursue different types of innovation outcomes simultaneously (Oke et al., 2007; Terziovski, 2010). The product innovation outcomes help to create new or significantly improved products[5] that are new to the market, while the process innovation outcomes help to introduce new or significantly improved processes for producing or supplying products that are new to the industry (Anzola-Román et al., 2018; Hervas-Oliver et al., 2014).

The capability-based perspective defines organisational capabilities as a firm's purposeful creation, extension, or modification of its resources (Eisenhardt and Martin, 2000; McKelvie and Davidsson, 2009). The theory provides the theoretical foundation for linking organisational capabilities and innovation outcomes. According to the capability-based perspective, different organisational capabilities enable a firm to perform various value-creating tasks effectively (Helfat and Winter, 2011; Krasnikov and Jayachandran, 2008), which favours the attainment of specific innovation outcomes. A stream of literature examines this association (e.g., Alegre and Chiva, 2008; Sok and O'Cass, 2011). More specifically, Alegre et al. (2013) suggest that SMEs' ability to perform knowledge management practices can affect their product innovation performance. Uhlaner et al. (2013) find that SMEs' external sourcing capability (performing practices that lead to knowledge being acquired from outside the firm) can affect

[5] We acknowledge the distinction between products and service but, in many operations management studies, the term "products" is used to define both goods and service offers or, at the extreme, combined (product and service) package offers. To improve the flow of the discussion, the research uses the term "product" to refer to all of these offers to customers.

both product and process innovation outcomes, while employee involvement in renewal activities capability (performing practices to enable employee participation in both idea development and the implementation of innovations) can only affect the process innovation outcomes. Maes and Sels (2014) argue that SMEs benefit from different organisational capabilities (internal capability – training and external capability – collaboration) that support the successful attainment of product innovation outcomes, depending on the firm's age. Hervas-Oliver et al. (2014) show that SMEs' ability to acquire embodied knowledge and external support from suppliers and assemble an R&D and absorptive capacity can influence their process innovation outcomes.

In comparison to these studies, our research is unique. We study two crucial organisational capabilities linked to operations management: PEC and OIC. A firm with high levels of PEC can effectively plan and implement new operational projects (Bryson and Bromiley, 1993; Moorman and Miner, 1998). On the other hand, a firm with high levels of OIC can improve the efficiency of its operations by seeking to make continuous improvements (Kim et al., 2012; Wu et al., 2010). Thus far, scholars have not examined their effects on different innovation outcomes in a single study (e.g., Kim et al., 2012; Moorman and Miner, 1998) or in the SME context. This study focuses on their relative effects on SMEs' product and process innovation outcomes to offer new insights to managers when deciding on innovation priorities depending on SMEs' organisational capabilities.

Drawing on the capability-based view (Eisenhardt and Martin, 2000; Helfat and Winter, 2011), we anticipate a positive association between PEC and product innovation outcomes. SMEs with strong PEC are more responsive to customer needs (Moorman and Miner, 1998). Customers' needs change quickly in the current turbulent marketplace. SMEs with high levels of

PEC have a shorter business planning-execution cycle, which favours a capacity to respond instantly to these changes (Liu et al., 2018). The strategies for responding to unanticipated changes in consumer behaviour often involve new product development or making significant improvements to the current product offers. Thus, SMEs with high levels of PEC are more likely to devote more resources and efforts to generating product innovation outcomes.

We also anticipate a positive association between OIC and product innovation outcomes. SMEs with strong OIC can construct efficient operations (Kim et al., 2012). With more efficient operational procedures, SMEs, which often lack spare resources (Madrid-Guijarro et al., 2009), can avoid engaging in non-value-adding activities and generate some slack time and resources. SMEs can reallocate this slack time and resources to perform product innovation-related tasks. However, researchers also argue that the emphasis on efficiency could potentially prevent employees from devoting time and effort to non-productive activities, such as innovation-related activities, during their initial stages (Martinez-Costa and Martínez-Lorente, 2008; Prajogo and Sohal, 2001). Therefore, although both PEC and OIC can help SMEs to achieve product innovation outcomes, we anticipate that PEC is more likely to influence the product innovation outcomes than OIC.

Hypothesis 1: PEC has a stronger positive effect on the product innovation outcomes than OIC in the SME context.

Drawing on the capability-based view (Eisenhardt and Martin, 2000; Helfat and Winter, 2011), we also anticipate a positive relationship between PEC and the process innovation outcomes. A strong PEC presence requires effective internal communication and strong coordination functions (Liu et al., 2018; Moorman and Miner, 1998). Effective internal communication facilitates a speedy information flow within the organisation and overcomes the

departmental boundaries (Vendrell-Herrero et al., 2021a), which aids the narrower planning-execution cycle. As a result, employees from different functional groups and departments of SMEs are able to access knowledge about the firms' operational procedures. This improves the likelihood of employees identifying new approaches – from inconsistent and wasteful activities – to implement production processes (Thomä and Zimmermann, 2020), which exert a positive impact on the process innovation outcomes. Similarly, strong coordination functions allow SMEs to assemble multiple actors (employees from different departments) to complete various projects (Vendrell-Herrero et al., 2021a), favouring effective planning and execution. This strength helps SMEs to experiment with different production processes without restriction and inertia. Consequently, SMEs are more likely to identify new production processes, that are more effective and efficient than their current ones. Together, PEC influences SMEs' process innovation outcomes.

Furthermore, we expect a positive relationship between OIC and the process innovation outcomes. Strong OIC promotes engagement with data collection and analysis concerning the production processes. To improve the production processes, firms must collect quality data and analyse them thoroughly to identify any redundant actions (Bustinza et al., 2021; Vendrell-Herrero et al., 2021b). This leads to simpler, more flexible production processes. According to Eisenhardt and Martin (2000), simple, flexible production processes allow for unexpected adaptations and provide more opportunities for employees to discover new, better ways to produce products in a highly uncertain business environment, which fosters positive process innovation outcomes. Furthermore, possessing and making use of abundant data is also closely linked to the design of new production processes (Vendrell-Herrero et al., 2021b). More specifically, data analytics engagement allows SMEs to identify problems, diagnose their root

causes, and develop solutions that often lead to the generation of novel ideas concerning changes in the production methods (Bustinza et al., 2021; Kim et al., 2012). Together, SMEs are more likely to utilise the benefits arising from possessing strong OIC to generate process innovation outcomes.

We also do not expect to observe an equally strong effect of PEC and OIC on the process innovation outcomes. Overly strengthened internal communication may reduce the recipients' (employees') information search activities and make them excessively dependent on the senders to feed them information (Van Wijk et al., 2008). This provides a chance for senders who are overly optimistic regarding their understanding of the transaction to transfer only information that they consider important. Both situations can decrease the recipients' likelihood of encountering new/unexpected information that is the source for generating breakthrough ideas for process innovation. Furthermore, strong coordination over a long period will create strong solidarity among the employees within the firm. In such a condition, the employees may become less likely to challenge each other's ideas and more inward-focused (Ancona and Bresman, 2013). Strong coordination also encourages interactions among employees but, over time, can also lead them to possess similar knowledge concerning the operational processes. A high degree of knowledge similarity among the employees may discourage the generation of innovative ideas (for modifying the production processes) because such ideas often require the input of new knowledge (Cheung et al., 2016). Together, they create an unfavourable environment, that hinders the process innovation outcomes. Thus, we anticipate that OIC is more likely to influence the SMEs' process innovation outcomes than PEC, leading to:

Hypothesis 2: OIC has a stronger positive effect on the process innovation outcomes than PEC in the SME context.

Organisational Learning Opportunities

Capability-based view scholars also suggest that realising the full value of the organisational capabilities must consider important boundary conditions (Eisenhardt and Martin, 2000; McKelvie and Davidsson, 2009). Drawing on the organisational learning literature, we suggest that SMEs' learning opportunities can serve as important boundary conditions regarding the organisational capabilities and innovation outcomes. This consideration is similar to Sok and O'Cass (2011)'s finding that SMEs' ability to learn enables the managers to foresee environmental and market changes and then make adjustments by applying the organisational capabilities to attain innovation outcomes. In this research, we take a further step in this direction and suggest that SMEs can learn industry and market knowledge via different learning opportunities. According to the organisational learning theory, different learning opportunities provide SMEs with distinct knowledge, which can influence how the organisational capabilities are applied to achieve different outcomes (Salomon and Jin, 2008). We focus on two specific SMEs' external learning opportunities in this study – partaking in exports and formal business networks. These opportunities allow SMEs to acquire knowledge beyond the firm's boundaries.

According to the learning-by-exporting literature, SMEs can accumulate knowledge by engaging in exports (Love and Ganotakis, 2013; Salomon and Jin, 2010). Exports involve selling products in foreign markets, which is the most common way for SMEs to internationalise (Ko et al., 2020). Dealing with international customers or foreign firms provides SMEs with additional information that is unavailable to non-exporters. More specifically, customers in foreign countries may have different tastes and preferences regarding products, while foreign firms may embrace new technologies or different strategies for operating the business (Ko et al., 2020; Salomon and Jin, 2008; Salomon and Shaver, 2005). SMEs can gather external knowledge

through exposure to the market (i.e., foreign customers) and making meaning from foreign firms' practices. Vendrell-Herrero et al. (2021c) refer to this as vicarious learning, that focuses on observation and learning from best practices.

On the other hand, SMEs can also acquire knowledge from participating in formal business networks (Schoonjans et al., 2013; Tiwasing and Sawang, 2021). Formal business networks constitute a specific set of relationships compared to informal business networks that consist of flexible relationships (Idris and Saridakis, 2018). This form of network relationship is different from a strategic alliance, industrial clusters and project-lead consortia, as it usually has a central governing body and requires the participants (individual business owners or firms) to join as formal/general members[6] (some formal networks charge a membership fee) (Idris and Saridakis, 2018; Tiwasing and Sawang, 2021). Formal business networks provide SMEs with opportunities to learn about business development via regular meetings (e.g., seminars) and advisory services (e.g., legal), as well as knowledge exchange with other members (e.g., networking events) (Hurst, 2021; Smith and Romeo, 2016). SMEs can acquire external knowledge by obtaining direct or indirect feedback from the other members of their formal business networks. This learning approach is what Vendrell-Herrero et al. (2021c) refer to as learning-by-feedback, focusing on engaging with and collecting feedback from others with more expertise in specific areas.

Drawing on the capability-based perspective and organisational learning theory, we explore how these learning opportunities affect the relationship between PEC and the product innovation outcomes in the SME context. In particular, we expect that SMEs' partaking in exporting or formal business networks can strengthen the effects of PEC on their product

[6] We recognise that it is possible that the strategic alliances, industrial clusters, or project-lead consortia of the participating SMEs may belong to the same business networks. Moreover, it is also common for SMEs to belong to multiple business networks.

innovation outcomes. Our logic in predicting the relationship between PEC and the product innovation outcomes highlights that SMEs with high levels of PEC are more responsive to their customers' needs. Partaking in exports (Salomon and Shaver, 2005) and formal business networks (Tiwasing and Sawang, 2021) allows SMEs to acquire market knowledge. SME managers can compare and contrast their knowledge about customer behaviour and their experience of dealing with customers day-to-day in order to gain better insights into the customers' needs in general (Vendrell-Herrero et al., 2021c). Such insights improve the SMEs' capacity to foresee changes in customer behaviour, which will enable SMEs to respond to their customers' needs more effectively. Furthermore, as SMEs possess more intelligence about their customers, they can capitalise on their PEC quickly to meet their customers' demands by developing and introducing new products. This is because high-levels of PEC enable SMEs to have shorter planning-execution cycles and develop a better responsiveness to unanticipated changes in their customers' needs (Liu et al., 2018). Thus, we can conclude that the beneficial effect of PEC on the product innovation outcomes should increase when SMEs engage in exports and formal business networks.

However, we do not expect to observe equally strong moderating effects because the knowledge obtained from these two learning opportunities differs. More specifically, foreign customers may have essentially different tastes regarding product appearance and preferences about product functions (Love and Ganotakis, 2013; Salomon and Jin, 2010). As formal business networks are often domestic (or region) based (Hurst, 2021; Tiwasing and Sawang, 2021), their members will be more likely to share knowledge about customers that the SMEs already possess. This means that the marginal benefits of learning from participating in formal business networks are lower compared with obtaining market knowledge from exports. As a result, the potential

value of PEC regarding the product innovation outcomes is less likely to be fully realised when SMEs are learning from their formal business networks. This leads to:

> *Hypothesis 3: SMEs with PEC benefit more from partaking in exports than formal business networks concerning fostering their product innovation outcomes.*

We also anticipate that the beneficial effect of PEC on the process innovation outcomes should increase when SMEs partake in exports and formal business networks. Our earlier discussions indicate that the relationship between PEC and the process innovation outcomes is due to the fact that SMEs with high levels of PEC have effective internal communication and strong coordination functions. Engaging in exports allows SMEs to observe and learn how foreign firms conduct their internal communication and coordination practices (Love and Ganotakis, 2013; Salomon and Jin, 2010). A similar claim can also be made that SMEs can learn about these matters by engaging in knowledge exchange with and collecting feedback from the other members of their formal business networks (Hurst, 2021; Smith and Romeo, 2016). Through the input of new knowledge, SME managers can connect and integrate their experience of organising their business operations to develop a better understanding of how to coordinate multiple actors and activities and perform their internal communication practices (Vendrell-Herrero et al., 2021c). Such know-how can further enhance SMEs' effectiveness in performing these tasks. Furthermore, exposure to this knowledge-rich environment allows employees to take a fresh look at the firm's current production processes and question any inconsistent actions (Vendrell-Herrero et al., 2021c). This increases the likelihood that SMEs will develop novel and unique production processes. Thus, engaging in exports and formal business networks amplifies the effects of PEC on the process innovation outcomes.

However, we do not expect to observe equally strong moderating effects. Engagement in exports allows SMEs to learn how to organise their internal communication and coordination practices effectively. However, the methods used by foreign firms may not suit domestic firms. Domestic firms recruit employees with different skill levels and cultural beliefs (López-Duarte et al., 2016) who may feel uncomfortable about implementing the practices used by the foreign firms. Compared with exports, formal business networks, where domestic firms represent a significant portion of the membership mix (Hurst, 2021; Tiwasing and Sawang, 2021), provide more useful information about how SMEs can improve their internal communication and coordination practices. As a result, the potential value of PEC on the process innovation outcomes are less likely to be fully realised when SMEs are learning from exports:

Hypothesis 4: SMEs with PEC benefit more from partaking in formal business networks than exports in terms of fostering their process innovation outcomes.

Further drawing on the capability-based perspective and organisational learning theory, we explore how these learning opportunities affect the relationship between OIC and product innovation outcomes in the SME context. Our logic in predicting the relationship between OIC and the product innovation outcomes highlights that SMEs with high levels of OIC can construct efficient operational practices. Partaking in exports (Salomon and Shaver, 2005) and formal business networks (Tiwasing and Sawang, 2021) allows SMEs to acquire technological knowledge about the operational practices used by other firms through observation and collecting feedback (Vendrell-Herrero et al., 2021c). SMEs with high levels of OIC focus on improving their operational efficiency continuously, which emphasises analytical, structured, and linear thinking (Prajogo and Sohal, 2001). Such an approach focuses more on processing factual information during the actual operational practices. As a result, it is difficult to make connections

within the external knowledge about other firms' operational practices obtained from exports and formal business networks, which leads to improved operational efficiency. Furthermore, as SMEs must allocate additional resources to participate in networking activities to access knowledge from foreign firms (via exports) and members of the formal business networks (Schoonjans et al., 2013), they may not fully use the resources saved from efficient business operations activities, that can lead to product innovation outcomes. Thus, the beneficial effects of OIC on the product innovation outcomes will decrease when SMEs partake in exports or formal business networks.

Although either exports or business networks combined with OIC can hinder process innovation, we do not anticipate observing an equally strong negative effect. This is because the technological knowledge obtained from the members of the formal business networks (via feedback) about the operational practices (Vendrell-Herrero et al., 2021c) may be more similar to that of the SMEs (Schoonjans et al., 2013; Tiwasing and Sawang, 2021). Therefore, SMEs may still be able to use them to a certain degree to improve their operational efficiency and so generate some slack time and resources that they can then reallocate to innovation practices. Furthermore, the additional resources invested in accessing the technological knowledge of foreign firms (via exports) are usually less than those invested in accessing the technological knowledge of domestic firms (the members of the formal business networks). Thus, the collective negative effects of formal business networks and OIC on the product innovation outcomes are less severe, leading to:

Hypothesis 5: SMEs with OIC harm more from exporting than business networks in terms of discouraging their product innovation outcomes.

Finally, our logic in predicting the relationship between OIC and the process innovation outcomes highlights that SMEs with high levels of OIC can develop simple, flexible production

processes. Partaking in exports and formal business networks allow SMEs to learn how to develop efficient operational practices from foreign firms (Salomon and Jin, 2008) and the members of their formal business networks (Schoonjans et al., 2013) through observation and collecting feedback (Vendrell-Herrero et al., 2021c). As such knowledge is readily available, SMEs can simply use it to improve their operational practices. This reduces the opportunities for the firm's employees to think outside the box and try new things that lie outside the existing production processes (Martinez-Costa and Martínez-Lorente, 2008). This could inhibit the employees' creativity, which is an important source of cutting-edge ideas for process innovation outcomes. Thus, we anticipate that the beneficial effect of OIC on the process innovation outcomes will decrease when SMEs partake in exports and formal business networks.

Although either exports or formal business networks combined with OIC can hinder the process innovation outcomes, we do not anticipate observing an equally strong negative effect. In particular, the technological knowledge obtained from foreign firms (via exports) about their operational practices differs more from the SMEs' current operational practices than does the technical knowledge obtained from the members of the formal business networks. Foreign firms operate in a different institutional environment (Jafari-Sadeghi et al., 2019), so their operational practices are designed to be aligned with their stakeholders' demands (legal, sustainability requirements, etc.). Opazo-Basáez et al. (2021b) refer to this as an institutional barrier that reduces the benefits of knowledge accessed from external linkages. In applying these insights to this study's context, we argue that SMEs are less likely to adopt foreign firms' operational practices in full. This leaves more room for their employees to think creatively and develop novel ideas concerning the new production processes. Therefore, the collective negative effects of exporting and OIC on the process innovation outcomes are less severe. This leads to:

Hypothesis 6: SMEs with OIC harm more from business networks than exporting in terms of discouraging their process innovation outcomes.

DATA AND METHOD

The data for this study were extracted from the 2015 and 2016 UK Longitudinal Small Business Surveys (LSBS), a large-scale survey of the owners and managers of small UK businesses (businesses with fewer than 250 employees), commissioned by the Department for Business, Energy and Industrial Strategy (BEIS). Of the 15,502 businesses interviewed (0.1 percent of the UK SME population) for the 2015 LSBS, 7,279 were re-interviewed in 2016, allowing a detailed analysis of how certain combinations of factors had affected business performance over time. These surveys document the SMEs' drivers and barriers regarding growth as well as the economic health and business behaviour (e.g., innovation, exports, financing and training) of the UK SME population. Previously, the Small Business Survey datasets that researchers used (e.g., Cowling et al., 2015; Ko et al., 2020) contained only cross-sectional data. This study is among the first to use longitudinal data.

The surveys use computer-assisted telephone interviews (CATI) and a stratified random sample selection method that reflects the 13 regions of the UK and SME size (as defined by the number of employees). To ensure that the data were representative of the UK's SME population, a complex weight was applied according to the BEIS's business population estimate targets. Hence, to create robust sub-samples, larger SMEs are over-sampled compared to their natural occurrence within the SME population, while businesses that report zero employees are under-sampled. Amongst the 7,279 completed questionnaires (response rate = 56 percent) across the merged surveys, 53 percent are micro-enterprises or non-employer businesses (0-9 employees),

27 percent small enterprises (10-49 employees), and 19 percent medium-sized enterprises (50-249 employees).

The two dependent variables of this study are the measures of the product and process innovation outcomes in 2016, and all of the independent variables are lagged valued in 2015. In total, there were 5,669 SMEs with available information on the 2016 innovation outcomes, but not all the observations are relevant. Specifically, since our theoretical model is concerned with the effect of different variables and their interactions in stimulating future innovation outcomes, including SMEs with existing innovation outcomes was likely to distort our analysis by adding unnecessary noise. Therefore, we restricted the estimation sample to firms with no innovation outcome in 2015 and then checked whether the determinants that we identified helped subsequently to increase the probability of recording new innovation outcomes in 2016. The final effective numbers of observations for the econometric analyses are 4,806 and 5,326 for the product and process innovation outcomes, respectively[7].

The 2015 LSBS survey[8] also contained questions about SMEs' organisational capabilities, exports, and formal business networks, that form the independent variables. The types of formal business networks in our dataset include chambers of business, trade organisations and regular meetings with entrepreneurs to share business knowledge and experience, which is consistent with the definition employed in previous studies (Parker, 2008). Throughout our analyses, we control for business and owner/entrepreneur characteristics that previous studies suggest influencing innovation-related behaviour. These include firm size, age, sector, region, legal form, and owner characteristics (*gender and ethnic origin of the owner-*

[7] Eliminating firms with innovation outcomes in 2015 will reduce the sample size by 11.29% and 4.36% for the product and process innovation outcomes, respectively. Appendix 2 reports the temporal changes in innovation outcomes using a four-way classification by cross-tabulating the innovation outcomes in 2015 and 2016.

[8] The interview questions on organizational capability were removed from the post-2015 LSBSs, so our data cut-off point is 2016.

manager). We also control for firm-level accounting information, such as turnover (*expected sales growth*) and profitability, as well as proxies that capture the availability of financial resources (*credit rationing*). We account for ownership structure by employing a simple family-owned indicator. Finally, we control for entrepreneurial growth intention, as growth-oriented businesses are usually more likely to engage in innovation activities (McKelvie and Davidsson, 2009). The detailed measurements are displayed in Appendix 1.

RESULTS

Table 1 reports the correlation coefficients, and Appendix 1 the descriptive statistics for all of the variables[9]. All of the significant correlations between the variables are below 0.3 in absolute value. The variance inflation factors (VIFs) are well below the critical value of 5, indicating a low likelihood of multicollinearity. On average, a sample SME is a family-owned, limited liability company, over ten years old, run by a male manager, with two employees excluding the owner.

Table 2 reports the regression results for the probit models on the product and process innovation outcomes. The marginal effects of the variables are reported next to the coefficient estimates to show the economic significance of our findings. All of the independent variables are in lagged values (i.e., 2015 values), so that the causality relations between the independent and dependent variables are explicitly and temporally established. We use PEC and OIC capabilities' standardised values instead of the original five-point scale measures to minimise the potential multicollinearity problems. For all four models, the likelihood ratio chi-squares are significant at the one percent level and, according to the model classification statistics, the (overall) accuracy

[9] Table 1 and Appendix 1 are based on the 'unrestricted' sample of 5,669 SMEs for ease of presentation. The statistics when considering the restrictions on the dependent variables (discussed in the previous section) are extremely similar and are available upon request.

is 60-90%[10], with Youden indices mostly above 0.25, which is usually the threshold for low-bias estimation (Želinský et al., 2020) and areas under ROC around 0.7, suggesting the overall goodness of fit of our empirical specifications.

Model 1 examines the individual effects of the two capability variables on product innovation outcomes. We found that PEC is positively related to the product innovation outcomes, but the estimate is insignificant. A unit's increase in PEC will increase the likelihood of achieving product innovation outcomes by 0.4 percentage points, which is a nearly 7-percent increase from the sample mean of 5.7 percent. The coefficient estimate for OIC is statistically insignificant. The p-value of the one-tail test difference between the PEC and OIC coefficients is below the 20-pecent level, so Hypothesis 1 is not supported.

The same regression is run for the process innovation outcomes (Model 2). Contrary to the product innovation outcomes, OIC is significantly positively related to the process innovation outcomes (b = 0.10, p = 0.018), while PEC is insignificant, and the difference in the coefficient estimates is significant at the 5-percent level (p = 0.033). Marginally, the probability of having process innovation outcomes increases by 0.7 percentage points when OIC increases by one unit, which is more than 20 percent higher than the average in relative terms. Therefore, our findings support Hypothesis 2.

Models 3 and 4 include the interactions between the exports/formal business networks and the two capability measures. Model 3 shows that the coefficient estimate of the interaction term between exports and PEC is positively related to the product innovation outcomes but with only marginal significance (p < 15%). Following Gomes et al. (2018) and Vendrell-Herrero et al.

[10] The overall accuracy changes with the cut-off point chosen to calculate the classification statistics. Generally, the improved sensitivity is at the cost of reduced specificity and vice versa. Since our sample is largely biased towards non-innovators, the increased sensitivity is likely to reduce the overall accuracy. Table 3 follows Želinský et al. (2020) and reports classification statistics with cut-off points that maximise the Youden index to balance the trade-off between sensitivity and specificity (Youden, 1950).

(2018), we further use graphical analyses (Figures 2-A to 2-H) to complement the numerical statistical results, since the coefficient estimates of the interaction terms only represent the average effect (Ai and Norton, 2003). Figure 2-A shows that, when the predicted likelihood is below 8 percent, the interaction term is significant at a 5-percent level. Considering that over three-quarters of SMEs have a predicted product innovation outcome likelihood of 8 percent or less, we conclude that the synergy between PEC and exports influenced the majority of the SMEs, and precisely those with otherwise low propensity of product innovation outcomes. The interaction between formal business networks and PEC is insignificant and consistent with the graphical analysis shown in Figure 2-B. Moreover, the difference in the coefficient estimates between the two interaction terms is statistically insignificant. Therefore, we only find limited support for Hypothesis 3. Regarding the process innovation outcomes (Model 4), we find a significantly stronger positive moderating effect of formal business networks on PEC than exports (the difference in the coefficient estimate = 0.17, p = 0.071). This translates into a 0.7 percentage point higher marginal effect of PEC for SMEs belonging to formal business networks than those that do not. Therefore, Hypothesis 4 is supported.

In terms of the interactions of exports and formal business networks with OIC, the coefficient estimate of the former is significant and negative (β = -0.16, p = 0.041) for the product innovation outcomes, while that of the latter is insignificant (Model 3). Marginally, OIC's effect on process innovation outcomes is 2.1 percentage points lower for exporting than non-exporting SMEs. Detailed graphical analyses show that the moderating effect of exports on OIC is stronger when the predicted likelihood of the product innovation outcomes is below 15 percent (> 95 percent of sample SMEs, Figure 2-E), while the null hypothesis of the zero moderating effect of formal business networks cannot be rejected (Figure 2-F). However, the

difference between the coefficient estimates is insignificant, and thus our findings do not fully support Hypothesis 5[11]. Regarding the process innovation outcomes (Model 4), formal business networks negatively moderate the effect of OIC, and the effect is positive for exports. OIC's effect on process innovation outcomes is lowered by 0.6 percentage points if an SME is a member of a formal business network, representing an almost 20 percent reduction in relative terms. These results are confirmed by the graphic analysis reported in Figures 2-H, with an insignificant PEC/formal-business-network interaction effect, and 2-G, where the moderating effect of exports is most prominent with a predicted likelihood of a process innovation outcome below 6 percent (90 percent of the sample SMEs). Although the coefficient estimates are both insignificant, the test statistics show that business networks' moderating effect differs significantly from exports ($p = 0.046$), so Hypothesis 6 is supported. We also include a graphical representation of the interactions between entrepreneurial capabilities and exports/formal business networks in Figure 3, to show the impacts of the changing values of the moderators on the marginal effect of PEC and OIC.

Robustness tests

We also ran different specifications to test the robustness of our primary results. The results are reported as additional appendices. First, we investigated whether or not our findings still hold for alternative organisational capability measures (Appendix 3). Instead of continuous variables based on a five-point Likert scale, we re-defined PEC/OIC as a dummy variable equal to one if the self-reported capability is strong or very strong, and zero otherwise. Most of the survey respondents had positive perceptions of their capabilities (65 percent for PEC and 71

[11] It is common in scientific research to draw inferences regarding the strength of the effect of multiple variables based on a comparison of significance and non-significance (Blanchard and Bogaert, 1996).

percent for OIC). It appears that, except for the slightly lower significance levels regarding the individual effects of PEC and OIC, the signs and significance levels of all of the other key variables are consistent with the main results. Exports and formal business networks have variable moderating effects on PEC and OIC, which is in line with our previous findings.

Since not all of the SMEs interviewed in the 2015 LSBS were included in the 2016 LSBS, endogeneity may affect our results due to potential survival, or other types of selection bias[12]. Nonetheless, to ensure that the possibility of non-random sample selection does not drive our results, we employ a two-stage probate model with a selection effect. Appendix 4 displays the results. In particular, the first stage includes all of the survey respondents in 2015 (10,717 SMEs, after eliminating the missing values) and estimates a probit model for whether or not the firm was 'selected' to be interviewed again in 2016. The second-stage, or the outcome equations, are identical to the four specifications in Table 2 but corrected for the sample selection in the first stage. As the 2015 survey participants were asked about any anticipated ownership change to their business, their responses[13] helped to create the exclusion restriction for the selection equation.

As expected, anticipated business closure has a significantly negative effect on sample selection (p = 0.000 for all specifications). Unlike the two-step Heckman (1979) model for the continuous dependent variables, we used the maximum likelihood estimator proposed by Van de Ven and Van Praag (1981), which is more appropriate for binary outcome variables than the original Heckman model. The maximum likelihood estimation does not use the inverse Mills

[12] According to the 2016 survey, the main reasons for not selecting 2015 LSBS SMEs for the 2016 LSBS include (a) did not agree to a follow-up interview (31%); (b) agreed to a follow-up interview but incomplete/refused subsequently (41%); (c) ineligible respondent (17%); (d) technical issues (3%) and (e) business no longer trading (4%).

[13] 87.7 percent anticipated no change in ownership, 6.4 percent anticipated full ownership transfer and 5.8 percent anticipated business closure.

ratio (lambda) in the outcome equation but, instead, the correlation between the error terms of the selection and outcome equations (ρ) to identify the existence (or otherwise) of selection bias. We cannot reject the null hypothesis of $\rho = 0$ at the 10-percent level for all four specifications, so our models have little selection or survival bias evidence. Moreover, even after controlling for the sample selection, our main findings regarding the two capabilities and their interaction with the other variables remain largely unchanged and consistent with our hypotheses.

DISCUSSION AND IMPLICATIONS

Theoretical Implications

Our work makes several significant contributions to the relevant theories and literature. First, we extend the literature on organisational capability and SME innovation (e.g., Alegre et al., 2013; Hervas-Oliver et al., 2014; Maes and Sels, 2014; Uhlaner et al., 2013) by examining the relative impacts of PEC and OIC on SMEs' different innovation outcomes. We found that OIC has a stronger positive effect on the process innovation outcomes than PEC. However, to our surprise, we did not find any direct effects of PEC and OIC on the product innovation outcomes. A possible explanation for this is that, due to their less complex organisational structure and business operations (Mosey, 2005), SMEs are already very responsive to customers' needs (with or without high levels of PEC) and have efficient operational procedures in place that can provide additional slack time and resources (with or without high levels of OIC). Thus, the beneficial effects of PEC and OIC on the product innovation outcomes are limited under normal circumstances (without taking into account the specific boundary conditions).

To date, scholars have studied the impacts of PEC (e.g., Liu et al., 2018; Moorman and Miner, 1998) or OIC (e.g., Kim et al., 2012; Madrid-Guijarro et al., 2009; Prajogo and Sohal, 2001) on different innovation outcomes separately and only in a general context. We study them together in the SME context. These results reveal new insights into how SMEs' distinct organisational capabilities can affect different innovation outcomes. Furthermore, these findings also extend the capability-based perspective of innovation research (e.g., Alegre et al., 2013; Maes and Sels, 2014; Uhlaner et al., 2013) by studying the relationship between organisational capability and SME innovation outcomes. We provide new insights into the theory by identifying and distinguishing the roles of SMEs' different "capabilities" (i.e., PEC and OIC) in supporting the process innovation outcomes. Our findings highlight that not all "abilities" have equal effects concerning generating process innovation outcomes for SMEs.

Our second and third theoretical implications are interrelated. More specifically, we extend the learning-by-exporting (e.g., Love and Ganotakis, 2013; Salomon and Jin, 2010; Tse et al., 2017) and learning via formal business networks (e.g., Idris and Saridakis, 2018; Smith and Romeo, 2016; Tiwasing and Sawang, 2021) by recognising the influential role of SMEs' different learning opportunities with regard to how SMEs apply their organisational capabilities to obtain different innovation outcomes. In particular, we find that SMEs' engagement in exports is more beneficial than their participation in formal business networks when SMEs apply PEC to obtain product innovation outcomes, but more detrimental when SMEs apply OIC to obtain product innovation outcomes. Despite the fact that the differential moderating effects are not statistically significant, as we predicted, detailed graphical analysis shows that it is firms with a low predicted propensity of product innovation outcomes that are most likely to benefit from the positive synergy between export and PEC, whereas formal business networks negatively and

significantly moderate the impacts of OIC on product innovation outcomes. Furthermore, we also find that exports lessen the beneficial effect of OIC on the product innovation outcomes more than formal business networks, while formal business networks weaken the beneficial effect of OIC on the process innovation outcomes more than exports. These moderating effects are significantly different, as we predicted.

Combined, these results have important implications for the organisational learning literature concerning organisational capability (Alegre and Chiva, 2008; Maes and Sels, 2014), suggesting that scholars should consider how knowledge derived from learning opportunities influences the organisational capabilities with regard to different performance-related outcomes. Our results highlight that the influence of different organisational capabilities on the SME product and process innovation outcomes depends on different learning opportunities (e.g., exports and formal business networks). This supports the application of the capability-based view and organisational learning theory when analysing the factors that contribute to SMEs' innovation outcomes.

Managerial Implications

Our findings have several implications for SME managers. First, we recommend that SME managers should distinguish between PEC and OIC and understand their distinct influence on the process innovation outcomes. Our findings indicate that OIC has stronger positive effects on the process innovation outcomes in the SME context. Thus, we recommend that managers should devote more resources and efforts to building SMEs' OIC if they wish to lead SMEs towards engaging in successful process innovation.

Second, we recommend that SME managers should consider their learning opportunities when they leverage different organisational capabilities to generate specific innovation outcomes.

We find that SMEs with high levels of PEC are more likely to obtain successful product innovation when engaging in exports than when participating in formal business networks. SMEs with high levels of PEC are more likely to obtain successful process innovation when they are involved in formal business networks rather than exports. This means that SMEs can take advantage of these learning opportunities to pursue different innovation outcomes if they are also highly capable of planning and execution. Our results also show that OIC and exports together can hinder product innovation outcomes, while OIC and formal business networks together can impede process innovation outcomes. Thus, managers must be cautious about pursuing product and process innovation outcomes when SMEs have high OIC levels.

Limitations and Directions for Further Research

Firstly, while the SME dataset is large and based on sound sampling methods, its reliance on self-reporting can lead to various response biases. Future research should consider obtaining objective data to overcome this limitation. Second, we deliberately narrowed our focus down to two organisational capabilities (PEC and OIC) and learning opportunities (exports and formal business networks) which are important in relation to SMEs' innovation management. While a deliberate choice, the scope of our research is narrow. Future research should widen this scope by investigating the impacts of different types of organisational capabilities and learning opportunities that may affect SMEs' pursuit of innovation activities. Third, following the learning-by-exporting and learning via networks literature, we argue that exports and formal

business networks allow SMEs to accumulate different kinds of knowledge. However, the database that we use for this study prevents us from directly testing the moderating roles of knowledge. In the future, researchers might design a more detailed survey to assess how specific types of knowledge (e.g., knowledge accumulated from exports or formal business networks) can affect how SMEs apply PEC and OIC to achieve innovation outcomes. Fourth, triangulating our findings by conducting interviews with SME managers would enrich our interpretation while also adding to its empirical legitimacy. This would require additional funding but would most certainly help to uncover fresh research avenues. Finally, following the insights gained from the learning-by-exporting literature, one might also argue that SMEs' engagement in exporting acts as a potential mediator in the relationship between organisational capabilities and innovation outcomes. In this case, SMEs' capabilities would increase their export propensity, which in turn leads to learning and results in stronger innovation outcomes. This is not the focus of this research. Nevertheless, we encourage researchers to explore this possibility to join the efforts to reconcile the learning-by-exporting and export propensity literature (e.g., Vendrell-Herrero et al., 2022) further in future studies.

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Table 1: Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)

(1)	Process Innovation outcomes	1														
(2)	Product Innovation outcomes	0.261*	1													
(3)	Planning and Execution Capability	0.005	0.061*	1												
(4)	Operational Improvement Capability	0.017	0.008	0.264*	1											
(5)	Exports	0.067*	0.212*	0.005	-0.010	1										
(6)	Formal Business Networks	0.027	0.083*	0.079*	0.078*	0.033	1									
(7)	Size (Employee)	0.037*	0.035	0.057*	0.044*	0.068*	0.055*	1								
(8)	Firm Age (6 -10 yrs)	-0.011	0.058*	0.003	0.039*	0.037*	0.030	-0.053*	1							
(9)	Firm Age (11 - 20 yrs)	0.027	0.022	-0.019	-0.022	0.024	-0.003	-0.029	-0.218*	1						
(10)	Firm Age (> 20 yrs)	-0.014	-0.051*	-0.016	-0.040*	-0.034	-0.019	0.119*	-0.410*	-0.459*	1					
(11)	Limited Liability	0.039*	0.081*	0.057*	0.049*	0.151*	-0.006	0.037*	0.071*	0.045*	-0.194*	1				
(12)	Transport, Retail & Food	-0.056*	-0.035	-0.005	-0.057*	0.024	-0.067*	0.084*	-0.019	-0.059*	0.074*	-0.091*	1			
(13)	Business Services	0.094*	0.052*	0.088*	0.097*	0.137*	0.112*	-0.082*	0.052*	0.066*	-0.157*	0.276*	-0.435*	1		
(14)	Other Services	-0.044*	-0.032	-0.049*	-0.070*	-0.148*	0.040*	-0.008	-0.001	0.036	-0.012	-0.261*	-0.229*	-0.402*	1	
(15)	East of England	-0.023	0.005	0.014	-0.002	0.015	0.002	-0.002	-0.028	-0.025	0.067*	-0.017	-0.007	-0.049*	0.005	1
(16)	London	-0.011	0.000	-0.01	-0.049*	0.024	0.008	-0.004	0.014	-0.078*	-0.008	0.049*	-0.036*	0.107*	0.003	-0.150*
(17)	North East	0.070*	-0.039*	-0.039*	-0.033	-0.02	-0.001	0.018	0.016	-0.018	0.008	-0.026	-0.013	0.02	0.014	-0.063*
(18)	North West	-0.018	-0.01	-0.039*	-0.021	-0.004	0.026	-0.005	-0.025	0.039*	-0.006	0.014	0.012	-0.015	-0.026	-0.131*
(19)	South East	0.011	-0.011	-0.004	0.03	0.017	0.012	-0.027	-0.032	0.059*	0.001	0.022	-0.056*	0.041*	0.067*	-0.198*
(20)	South West	-0.004	-0.011	-0.02	0.027	-0.005	0.006	-0.01	-0.004	-0.044*	0.054*	-0.007	0.063*	-0.054*	-0.015	-0.159*
(21)	West Midlands	0.010	0.019	0.044*	-0.002	0.005	-0.011	0.020	0.049*	0.030	-0.063*	-0.044*	-0.013	-0.032	0.004	-0.110*
(22)	Yorkshire and The Humber	-0.015	0.026	0.050*	0.039*	-0.034	-0.018	0.005	0.035	0.056*	-0.070*	-0.023	0.019	0.007	-0.026	-0.105*
(23)	Wales	0.007	0.014	0.012	-0.002	-0.006	-0.026	0.009	0.004	-0.026	-0.017	-0.021	-0.019	0.005	-0.023	-0.075*
(24)	Expected Sales Growth	0.079*	0.119*	0.057*	0.070*	0.118*	0.103*	0.091*	0.056*	0.003	-0.158*	0.079*	0.023	0.050*	0.002	-0.028
(25)	Growth Objective	0.068*	0.170*	0.045*	0.043*	0.079*	0.055*	-0.041*	0.055*	-0.007	-0.189*	0.097*	-0.048*	0.098*	-0.061*	-0.017
(26)	Profitability	-0.020	0.001	0.070*	0.035	0.052*	-0.022	0.027	0.001	0.014	0.030	0.109*	-0.062*	0.112*	-0.115*	-0.013
(27)	Credit Ration	0.026	0.002	-0.03	0.019	0.050*	-0.008	-0.018	0.049*	0.000	-0.056*	0.047*	-0.044*	0.091*	-0.024	-0.040*
(28)	Family-Owned	-0.023	-0.033	-0.037*	0.013	-0.009	-0.056*	-0.111*	0.023	-0.009	-0.052*	0.116*	0.042*	0.063*	-0.211*	0.053*
(29)	Women-led	-0.031	-0.002	-0.015	0.024	-0.045*	0.096*	0.000	-0.003	0.005	-0.023	-0.060*	-0.018	-0.015	0.168*	-0.022
(30)	Ethnic Minority-led	0.015	0.001	-0.016	-0.011	-0.008	0.028	-0.014	0.033	-0.023	-0.078*	0.012	-0.019	0.086*	-0.023	0.016
(16)	London	1														
(17)	North East	-0.065*	1													
(18)	North West	-0.135*	-0.057*	1												
(19)	South East	-0.204*	-0.085*	-0.178*	1											
(20)	South West	-0.164*	-0.069*	-0.143*	-0.216*	1										
(21)	West Midlands	-0.113*	-0.047*	-0.099*	-0.149*	-0.119*	1									
(22)	Yorkshire and The Humber	-0.109*	-0.045*	-0.095*	-0.143*	-0.115*	-0.079*	1								
(23)	Wales	-0.078*	-0.033	-0.068*	-0.102*	-0.082*	-0.057*	-0.054*	1							
(24)	Expected Sales Growth	0.116*	0.053*	-0.048*	-0.028	-0.046*	0.001	-0.008	0.042*	1						
(25)	Growth Objective	0.004	-0.005	-0.008	0.027	-0.009	-0.002	-0.012	-0.019	0.320*	1					
(26)	Profitability	-0.035	0.013	0.031	0.001	0.012	-0.008	0.027	0.017	-0.037*		1				
(27)	Credit Ration	-0.008	0.042*	-0.019	0.031	0.021	-0.029	0.046*	-0.014	0.034	0.090*	-0.051*	1			
(28)	Family-Owned	-0.070*	0.021	-0.023	0.007	0.048*	-0.032	-0.016	-0.026	-0.070*	0.001	0.123*	0.024			
(29)	Women-led	0.082*	-0.021	-0.026	-0.007	0.003	0.004	-0.002	-0.034	0.003	0.013	-0.058*	-0.027	-0.057*	1	
(30)	Ethnic Minority-led	0.181*	0.021	-0.048*	-0.019	-0.084*	0.006	-0.023	-0.040*	0.092*	0.082*	-0.004	0.118*	0.066*	-0.033	1

Notes: * p < 0.010

Table 2: Probit Regression Results

	Model 1 Product Innovation Outcomes		Model 2 Process Innovation Outcomes		Model 3 Product Innovation Outcomes		Model 4 Process Innovation Outcomes	
	Coefficient	**dy/dx**	**Coefficient**	**dy/dx**	**Coefficient**	**dy/dx**	**Coefficient**	**dy/dx**
Predictors								
Planning and Execution Capability (β_1)	0.038	0.004	-0.024	-0.002	-0.008	0.005	-0.042	-0.001
	(0.035)		(0.040)		-0.050		(0.059)	
	[0.279]		[0.547]		[0.879]		[0.478]	
Operational Improvement Capability (β_2)	-0.010	-0.001	0.101	0.007	0.081	0.000	0.122	0.007
	(0.035)		(0.042)		(0.051)		(0.063)	
	[0.781]		[0.018]		[0.111]		[0.052]	
Exports					0.315	0.040	0.233	0.018
					-0.072		(0.081)	
					[0.000]		[0.004]	
Formal Business Networks					0.123	0.014	0.143	0.009
					(0.064)		(0.075)	
					[0.056]		[0.057]	
Planning and Execution Capability x Exports (β_3)					0.118	–	-0.065	–
					(0.078)		(0.084)	
					[0.130]		[0.444]	
Planning and Execution Capability x Formal Business Networks (β_4)					0.031	–	0.108	–
					(0.074)		(0.084)	
					[0.675]		[0.199]	
Operational Improvement Capability x Exports (β_5)					-0.156	–	0.104	–
					(0.077)		(0.092)	
					[0.041]		[0.256]	
Operational Improvement Capability x Formal Business Networks (β_6)					-0.080	–	-0.112	–
					(0.073)		(0.087)	
					[0.273]		[0.195]	
Controls								
Size (Ln(#Employee+1))	0.053	0.006	0.080	0.005	0.039	0.004	0.070	0.005
	(0.022)		(0.026)		-0.022		(0.026)	
	[0.016]		[0.002]		[0.086]		[0.008]	
Limited Liability	0.198	0.022	-0.003	0.000	0.178	0.019	-0.019	-0.001
	(0.076)		(0.087)		-0.077		(0.088)	
	[0.009]		[0.974]		[0.021]		[0.830]	
Expected Sales Growth	0.003	0.000	0.006	0.000	0.003	0.000	0.006	0.000
	(0.002)		(0.002)		-0.002		(0.002)	
	[0.137]		[0.000]		[0.147]		[0.001]	
Growth Objective	0.322	0.036	0.125	0.008	0.283	0.031	0.094	0.006
	(0.083)		(0.096)		-0.084		(0.097)	
	[0.000]		[0.192]		[0.001]		[0.333]	
Profitability	-0.050	-0.006	-0.075	-0.005	-0.066	-0.007	-0.085	-0.006
	(0.081)		(0.093)		-0.082		(0.094)	
	[0.536]		[0.425]		[0.421]		[0.368]	
Credit Rationing	0.073	0.008	0.379	0.026	0.074	0.008	0.364	0.024
	(0.259)		(0.238)		-0.260		(0.240)	
	[0.778]		[0.111]		[0.776]		[0.128]	
Family-Owned	-0.106	-0.012	-0.114	-0.008	-0.080	-0.009	-0.086	-0.006
	(0.067)		(0.077)		-0.068		(0.078)	
	[0.111]		[0.141]		[0.236]		[0.272]	
Women-led	-0.065	-0.007	-0.172	-0.012	-0.043	-0.005	-0.168	-0.011
	(0.082)		(0.103)		-0.083		(0.104)	
	[0.430]		[0.096]		[0.599]		[0.107]	
Ethnic Minority-led	-0.203	-0.022	0.205	0.014	-0.172	-0.019	0.228	0.015
	(0.168)		(0.160)		(0.169)		(0.161)	
	[0.227]		[0.199]		[0.309]		[0.157]	
Constant	0.053	0.006	0.080	0.005	0.039	0.004	0.070	0.005
	(0.022)		(0.026)		-0.022		(0.026)	
	[0.016]		[0.002]		[0.086]		[0.008]	
Firm age	Yes		Yes		Yes		Yes	
Sector effect	Yes		Yes		Yes		Yes	
Region effect	Yes		Yes		Yes		Yes	
# Observations	4,806		5,326		4,806		5,326	
LR χ^2	82.93***		75.43***		114.13***		91.68***	
Pseudo R^2	0.040		0.051		0.054		0.062	
Log likelihood	-1,009.445		-704.852		-993.841		- -696.730	
Classification (%)	60.6; 61.3; 61.3		68.3; 62.4; 70.1		58.8; 66.8; 66.4		65.3; 68.7; 68.6	
Youden J	0.22		0.31		0.26		0.34	
Area under ROC	0.655		0.692		0.681		0.711	
One-tail test of coefficient differences (p-value)								
$\beta_1 > \beta_2$ (H1)	0.204							
$\beta_1 < \beta_2$ (H2)			0.033					
$\beta_3 > \beta_4$ (H3)					0.212			
$\beta_3 < \beta_4$ (H4)							0.071	
$\beta_5 < \beta_6$ (H5)					0.236			
$\beta_5 > \beta_6$ (H6)							0.046	

Notes: Coefficients are reported with robust standard errors in parentheses and p-values in brackets. Marginal effect of variables (individual effects only) reported next to coefficients estimates. Classification (%) reports sensitivity, specificity and overall accuracy, respectively (cutoff points: product = 0.06 and process = 0.03).

Figure 1: Theoretical Framework

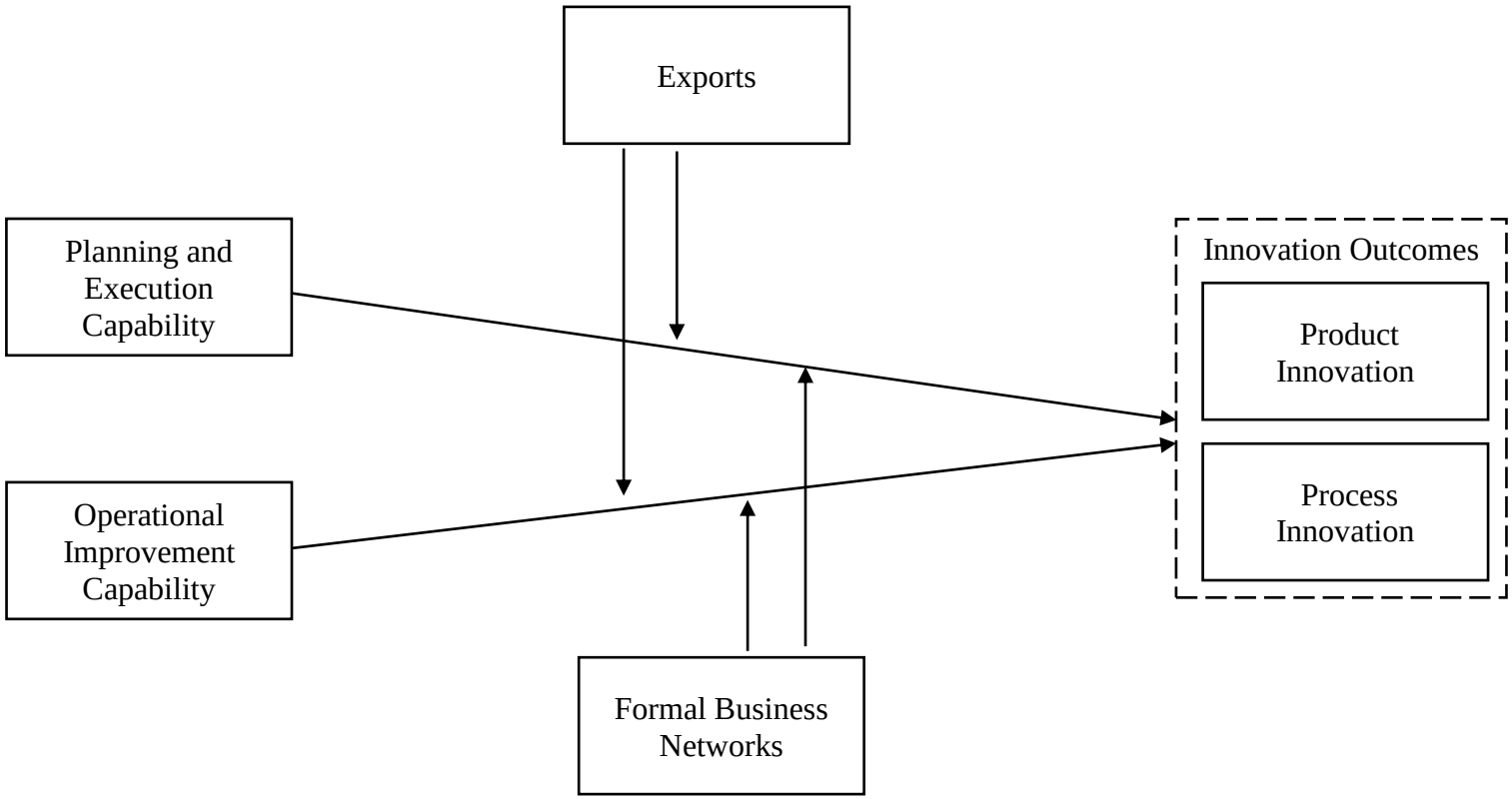
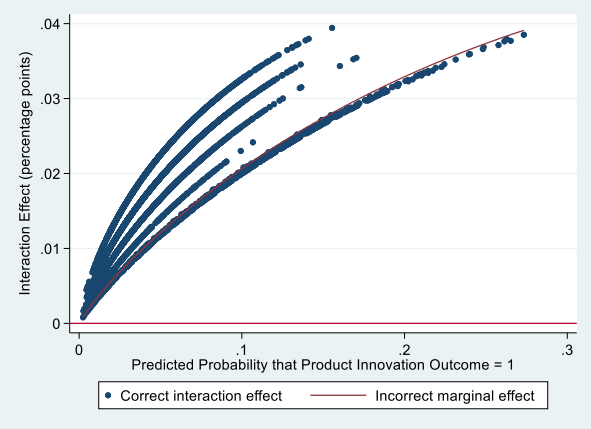


Figure 2: Graphical Analyses of the Interaction Terms

*Figure 2-A: PEC * Export on product innovation outcomes*

Interaction effects of PEC and Export



z-statistics of interaction effects

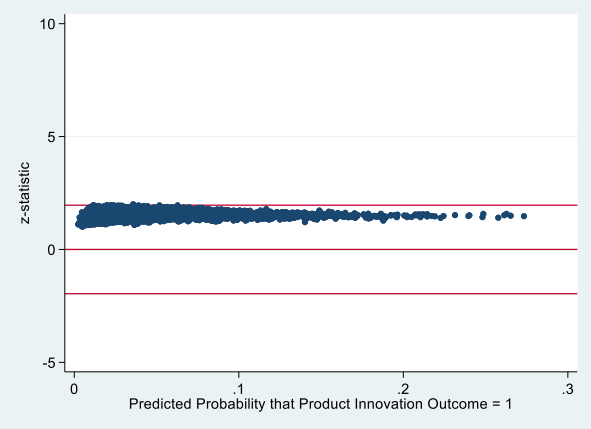
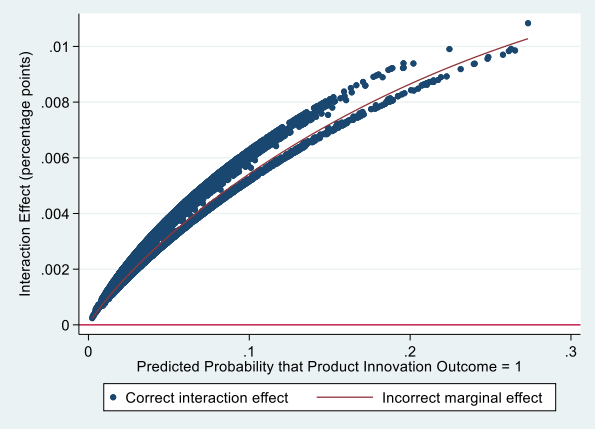


*Figure 2-B: PEC * Formal Business Networks on product innovation outcomes*

Interaction effects of PEC and Formal Business Networks



z-statistics of interaction effects

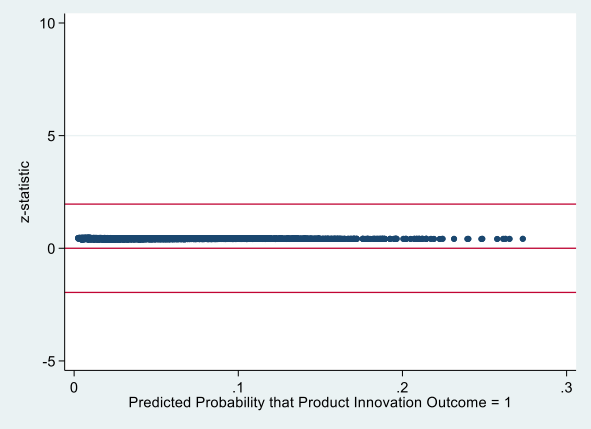
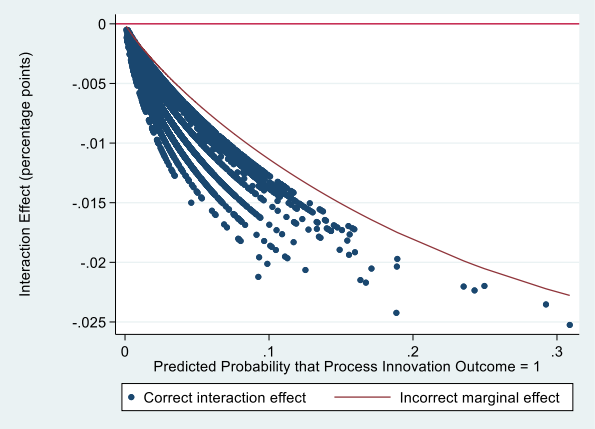


*Figure 2-C: PEC * Export on process innovation outcomes*

Interaction effects of PEC and Export



z-statistics of interaction effects

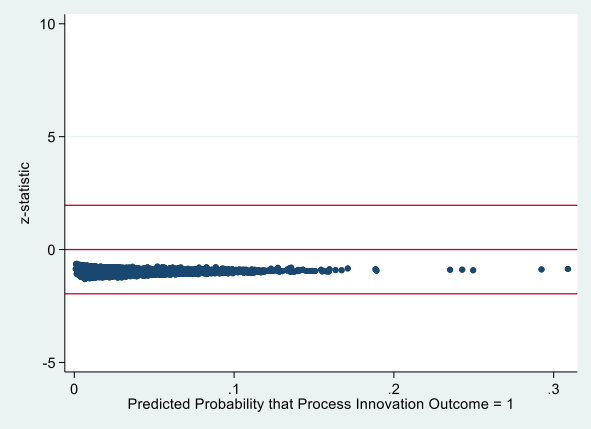
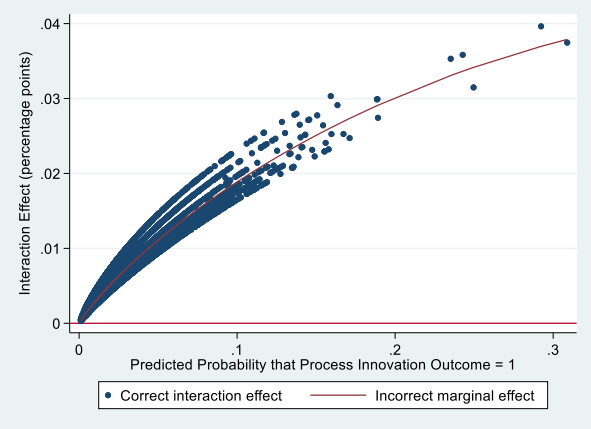


Figure 2 (Continued)

*Figure 2-D: PEC * Formal Business Networks on process innovation outcomes*

Interaction effects of PEC and Formal Business Networks



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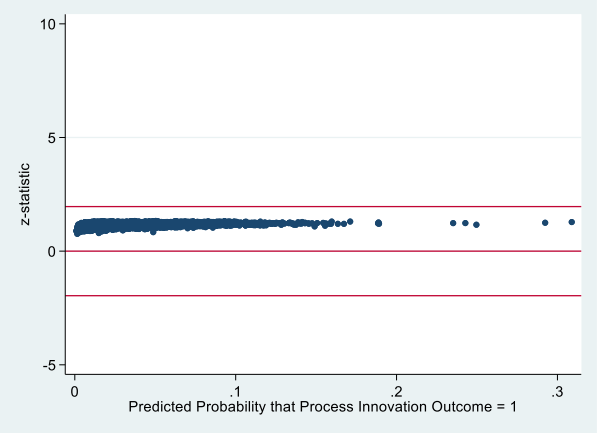
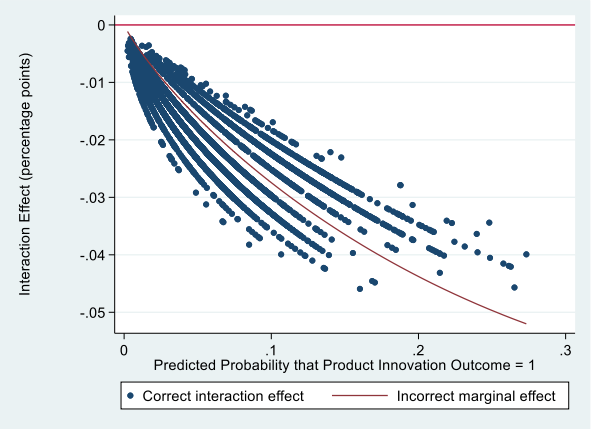


*Figure 2-E: OIC * Export on product innovation outcomes*

Interaction effects of OIC and Export



z-statistics of interaction effects

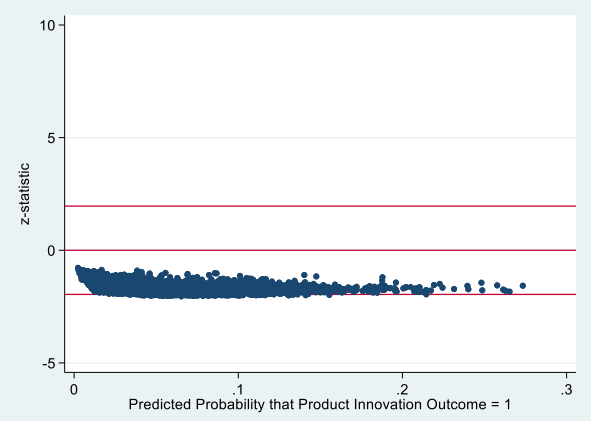
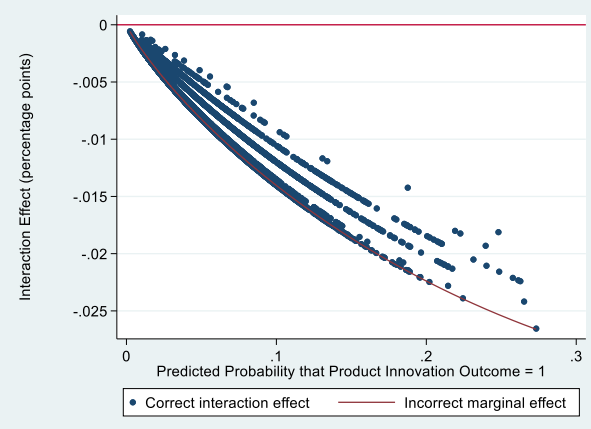


*Figure 2-F: OIC * Formal Business Networks on product innovation outcomes*

Interaction effects of OIC and Formal Business Networks



z-statistics of interaction effects

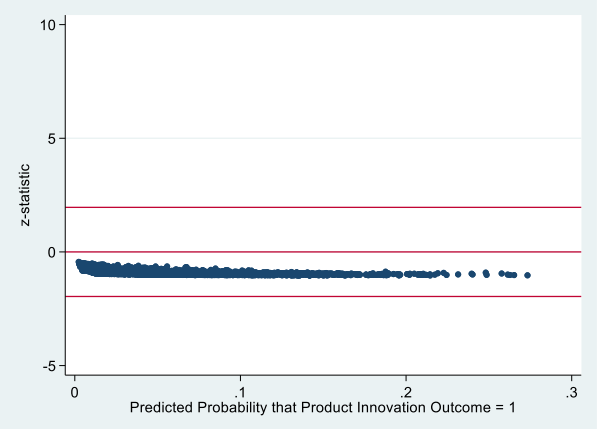
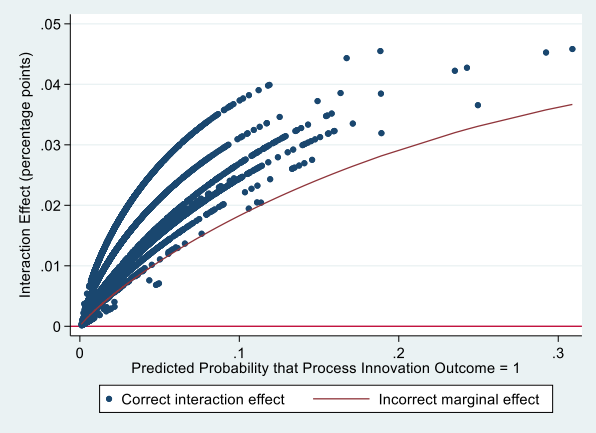


Figure 2 (Continued)

*Figure 2-G: OIC * Export on process innovation outcomes*

Interaction effects of OIC and Export



z-statistics of interaction effects

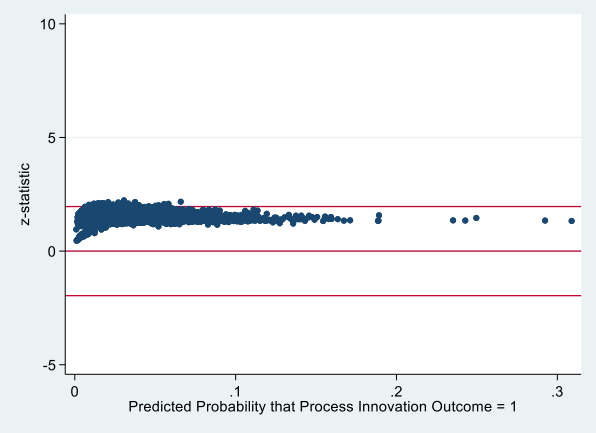
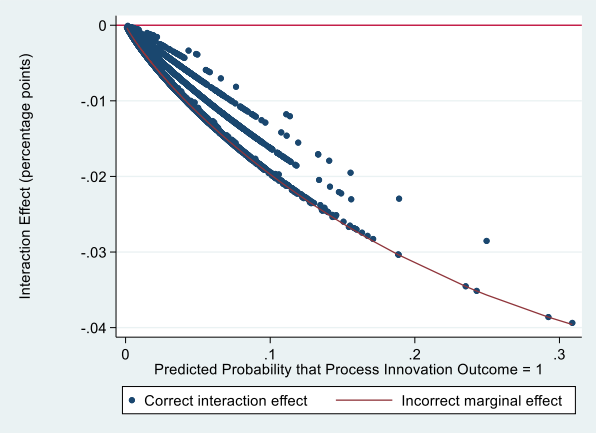


*Figure 2-H: OIC * Formal Business Networks on process innovation outcomes*

Interaction effects of OIC and Formal Business Networks



z-statistics of interaction effects

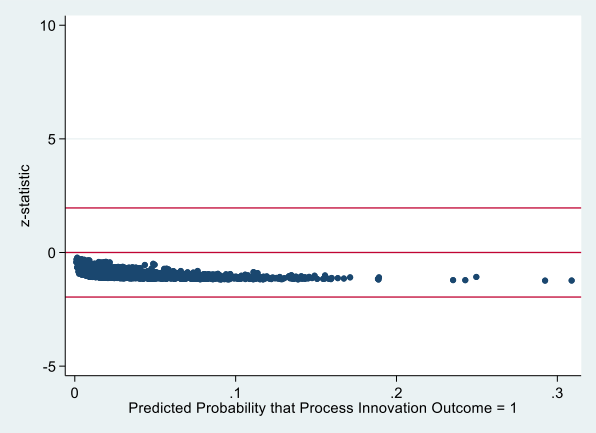
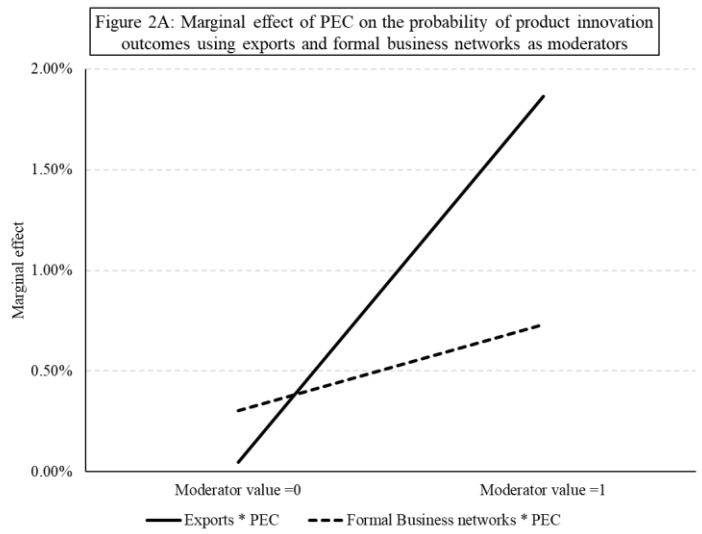
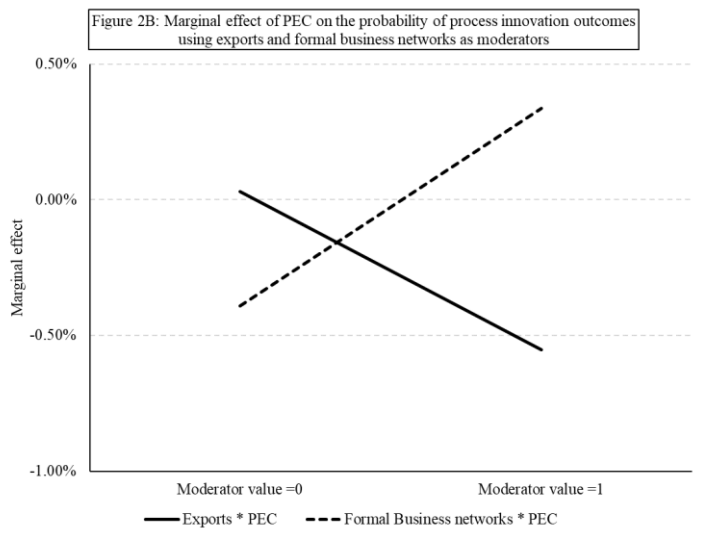


Figure 3: Graphical Representation of the Marginal Effect of Entrepreneurial Capabilities

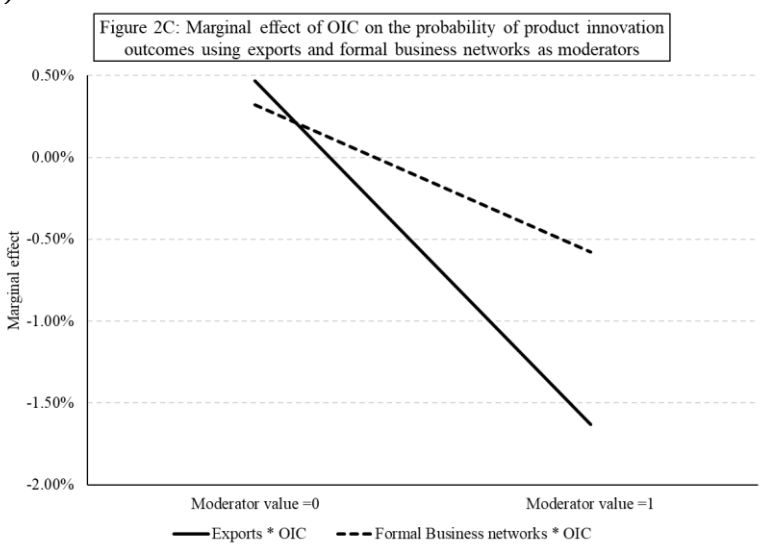
(a)



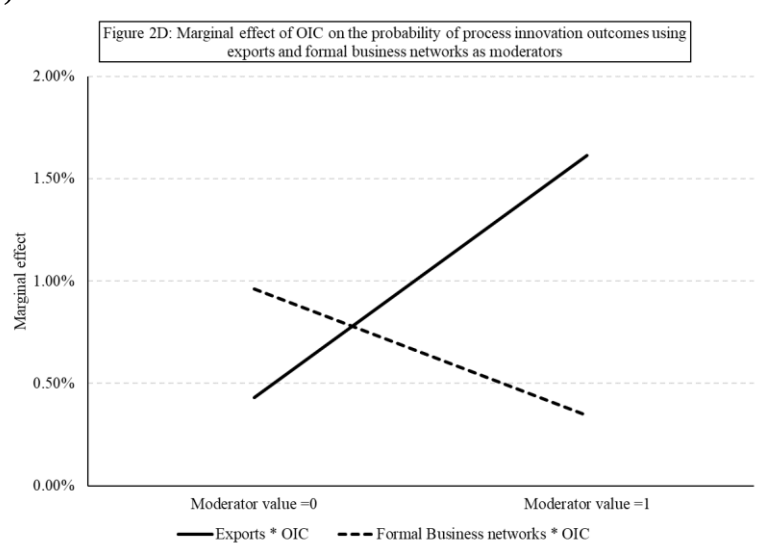
(b)



(c)



(d)



Appendix 1: Variable Definition, Measurements and Descriptive Statistics

		Full Sample (N = 5,669*)			Process Innovation = 1 (N = 247)	Product Innovation = 1 (N = 640)
Variables	**Measurements/Definition**	**Mean**	**Standard Deviation**	**VIF**	**Mean**	**Mean**
Process Innovation Outcomes	Introducing new or significantly improved process new to the industry in the last three years (0,1)	0.025	0.157	---	---	---
Product Innovation Outcomes	Introducing new or significantly improved goods and service new to the market in the last three years (0,1)	0.081	0.273	----	---	---
Planning and Execution Capability	Capability for developing and implementing a business plan and strategy (1 = very poor to 5 = very strong)	3.583	1.070	1.23	3.607	3.820
Operational Improvement Capability	Capability for operational improvement (1 = very poor to 5 = very strong)	3.799	0.991	1.21	3.865	3.910
Exports	Firm selling goods/services or license product outside the UK (0,1)	0.155	0.362	1.12	0.273	0.387
Formal Business Networks	Firm part of formal business network (0,1)	0.270	0.444	1.07	0.303	0.395
Size (Employee)	No. of employees	2.019	8.234	1.23	3.614	3.132
Firm Age (0 to 5 years)	Firm age: 0 to 5 years (0,1)	0.150	0.357	(Base)	0.170	0.138
Firm Age (6 to10 years)	Firm age: 6 to 10 years (0,1)	0.187	0.390	1.87	0.141	0.181
Firm Age (11 to 20 years)	Firm age: 11 to 20 years (0,1)	0.240	0.427	2.19	0.309	0.322
Firm Age (> 20 years)	Firm age: > 20 years (0,1)	0.423	0.494	2.82	0.380	0.358
Limited Liability	Limited liability company (0,1)	0.450	0.498	1.13	0.619	0.591
Production & Construction	Sector dummy	0.232	0.422	(Base)	0.272	0.246
Transport, Retail & Food	Sector dummy	0.179	0.383	1.60	0.056	0.103
Business Services	Sector dummy	0.381	0.486	1.82	0.578	0.494
Other Services	Sector dummy	0.207	0.405	1.88	0.094	0.157
East Midlands	Region dummy	0.075	0.264	(Base)	0.059	0.083
East of England	Region dummy	0.127	0.333	2.25	0.087	0.136
London	Region dummy	0.115	0.319	2.34	0.086	0.129
North East	Region dummy	0.035	0.183	1.38	0.065	0.006
North West	Region dummy	0.100	0.300	1.95	0.044	0.078
South East	Region dummy	0.203	0.402	2.69	0.300	0.208
South West	Region dummy	0.149	0.356	2.38	0.145	0.120
West Midlands	Region dummy	0.074	0.262	1.88	0.073	0.090
Yorkshire and The Humber	Region dummy	0.084	0.277	1.81	0.119	0.075
Wales	Region dummy	0.038	0.192	1.40	0.023	0.074
Expected Sales Growth (%)	Expected sales growth for the next 12 months (%), winsorized at 1%	7.942	22.468	1.15	17.095	17.488
Growth Objective	Firm aiming to grow in the next three years	0.605	0.489	1.19	0.756	0.800
Profitability	Firm generating a surplus (profit) in the last 12 months (0, 1)	0.816	0.388	1.06	0.811	0.804
Credit Ration	Firm rejected partly/fully finance applied in the last 12 months (0, 1)	0.019	0.135	1.02	0.069	0.018
Family-Owned	Family owned (0,1)	0.839	0.368	1.17	0.774	0.784
Women-led	Women-led business (0,1)	0.202	0.401	1.10	0.114	0.213
Ethnic Minority-led	Ethnic minority-led (0,1)	0.043	0.203	1.05	0.049	0.044

Notes: Process and product innovation outcome are collected from 2016 LSBS and all other variables from 2015 LSBS, for a total of 5,669 SMEs. Base categories: Firm Age = less than 3 years; Sector = Agriculture; Region = East Midlands. Weights applied.

Appendix 2: Cross-tabulation of innovation outcomes in 2015 and 2016

Survey Response on Product Innvoation Outcomes

	2016	
2015	No	Yes
No	(1) No innovation outcome in 2013 – 2016 (79.74%)	(2) Innovation outcomes in 2013 only (8.77%)
Yes	(3) Innovation outcomes in 2016 only (4.83%)	(4) Innovation outcomes in 2013 – 2016 (6.46%)

Survey Respose on Process Innovation Outcomes

	2016	
2015	No	Yes
No	(1) No innovation outcome in 2013 – 2016 (91.00%)	(2) Innovation outcomes in 2013 only (4.64%)
Yes	(3) Innovation outcomes in 2016 only (2.95%)	(4) Innovation outcomes in 2013 – 2016 (1.41%)

Appendix 3: Robustness Check: Alternative Capability Measures

	Model 9 Product Innovation Outcomes	Model 10 Process Innovation Outcomes	Model 11 Product Innovation Outcomes	Model 12 Process Innovation Outcomes
Predictors				
Planning and Execution Capability (β_1)	0.053	-0.067	-0.022	-0.126
	(0.066)	(0.076)	(0.095)	(0.113)
	[0.422]	[0.380]	[0.816]	[0.262]
Operational Improvement Capability (β_2)	-0.013	0.103	0.126	0.109
	(0.069)	(0.083)	(0.102)	(0.123)
	[0.852]	[0.214]	[0.214]	[0.377]
Exports			0.371	0.120
			(0.142)	(0.165)
			[0.009]	[0.467]
Formal Business Networks			0.147	0.115
			(0.141)	(0.164)
			[0.297]	[0.482]
Planning and Execution Capability x Exports (β_3)			0.236	-0.120
			(0.146)	(0.160)
			[0.106]	[0.453]
Planning and Execution Capability x Formal Business Networks (β_4)			0.022	0.257
			(0.137)	(0.158)
			[0.874]	[0.103]
Operational Improvement Capability x Exports (β_5)			-0.298	0.253
			(0.149)	(0.175)
			[0.045]	[0.150]
Operational Improvement Capability x Formal Business Networks (β_6)			-0.056	-0.200
			(0.145)	(0.169)
			[0.697]	[0.236]
Controls				
Size (Ln(#Employee+1))	0.053	0.082	0.039	0.074
	(0.022)	(0.026)	(0.022)	(0.026)
	[0.016]	[0.002]	[0.085]	[0.005]
Limited Liability	0.199	0.004	0.180	-0.016
	(0.076)	(0.087)	(0.077)	(0.088)
	[0.009]	[0.962]	[0.019]	[0.854]
Expected Sales Growth	0.003	0.006	0.003	0.006
	(0.002)	(0.002)	(0.002)	(0.002)
	[0.128]	[0.001]	[0.138]	[0.001]
Growth Objective	0.323	0.121	0.285	0.093
	(0.083)	(0.096)	(0.084)	(0.097)
	[0.000]	[0.204]	[0.001]	[0.337]
Profitability	-0.049	-0.070	-0.066	-0.080
	(0.081)	(0.093)	(0.081)	(0.094)
	[0.543]	[0.450]	[0.418]	[0.393]
Credit Rationing	0.072	0.364	0.067	0.357
	(0.258)	(0.238)	(0.260)	(0.241)
	[0.780]	[0.126]	[0.796]	[0.138]
Family-Owned	-0.108	-0.113	-0.082	-0.089
	(0.066)	(0.077)	(0.068)	(0.078)
	[0.105]	[0.143]	[0.223]	[0.255]
Women-led	-0.064	-0.167	-0.041	-0.158
	(0.082)	(0.103)	(0.082)	(0.104)
	[0.434]	[0.105]	[0.615]	[0.129]
Ethnic Minority-led	-0.205	0.200	-0.169	0.232
	(0.168)	(0.160)	(0.169)	(0.161)
	[0.223]	[0.212]	[0.316]	[0.148]
Constant	-1.909	-1.957	-1.979	-1.945
	(0.193)	(0.220)	(0.202)	(0.231)
	[0.000]	[0.000]	[0.000]	[0.000]
Firm age	Yes	Yes	Yes	Yes
Sector effect	Yes	Yes	Yes	Yes
Region effect	Yes	Yes	Yes	Yes
# Observations	4,806	5,326	4,806	5,326
LR χ^2	82.38***	71.53***	112.82***	88.71
Pseudo R^2	0.039	0.048	0.054	0.060
Log likelihood	-1,009.718	-706.802	-994.496	-698.213
One-tail test of coefficient differences (p-value)				
$\beta_1 > \beta_2$ (H1)	0.266			
$\beta_1 < \beta_2$ (H2)		0.086		
$\beta_3 > \beta_4$ (H3)			0.145	
$\beta_3 < \beta_4$ (H4)				0.048
$\beta_5 < \beta_6$ (H5)			0.129	
$\beta_5 > \beta_6$ (H6)				0.033

Notes: Coefficients are reported with robust standard errors in parentheses and p-values in brackets. Base categories: Firm Age = less than 3 years; Sector = Agriculture

Appendix 4: Robustness Check: Probit Models with Selection

	Model 13		Model 14		Model 15		Model 16	
	Product Innovation Outcomes		Process Innovation Outcomes		Product Innovation Outcomes		Process Innovation Outcomes	
	Selection	Outcome	Selection	Outcome	Selection	Outcome	Selection	Outcome
Predictors								
Planning and Execution Capability (β_1)	-0.050	0.057	-0.048	-0.037	-0.053	0.019	-0.053	-0.053
	(0.014)	(0.031)	(0.014)	(0.036)	(0.018)	(0.050)	(0.017)	(0.054)
	[0.000]	[0.063]	[0.000]	[0.312]	[0.003]	[0.697]	[0.002]	[0.327]
Operational Improvement Capability (β_2)	0.006	-0.012	0.003	0.091	0.015	0.060	0.016	0.117
	(0.014)	(0.029)	(0.013)	(0.038)	(0.017)	(0.055)	(0.017)	(0.057)
	[0.640]	[0.683]	[0.847]	[0.017]	[0.399]	[0.279]	[0.344]	[0.042]
Exports					-0.036	0.278	0.046	0.223
					(0.032)	(0.108)	(0.031)	(0.077)
					[0.266]	[0.010]	[0.133]	[0.004]
Formal Business Networks					0.095	0.055	0.117	0.167
					(0.027)	(0.100)	(0.026)	(0.069)
					[0.000]	[0.582]	[0.000]	[0.015]
Planning and Execution Capability x Exports (β_3)					-0.062	0.129	-0.057	-0.077
					(0.034)	(0.067)	(0.033)	(0.077)
					[0.073]	[0.056]	[0.081]	[0.317]
Planning and Execution Capability x Formal Business Networks (β_4)					0.046	0.002	0.055	0.112
					(0.031)	(0.070)	(0.030)	(0.077)
					[0.136]	[0.975]	[0.063]	[0.145]
Operational Improvement Capability x Exports (β_5)					0.020	-0.140	0.006	0.093
					(0.034)	(0.078)	(0.033)	(0.085)
					[0.565]	[0.073]	[0.861]	[0.271]
Operational Improvement Capability x Formal Business Networks (β_6)					-0.056	-0.040	-0.057	-0.120
					(0.031)	(0.080)	(0.030)	(0.079)
					[0.069]	[0.619]	[0.054]	[0.132]
Controls								
Size (Ln(#Employee+1))	-0.011	0.047	-0.016	0.066	-0.014	0.038	-0.022	0.057
	(0.009)	(0.023)	(0.009)	(0.024)	(0.009)	(0.020)	(0.009)	(0.026)
	[0.231]	[0.045]	[0.076]	[0.005]	[0.121]	[0.065]	[0.013]	[0.025]
Limited Liability	-0.039	0.177	-0.016	-0.007	-0.034	0.163	-0.016	-0.021
	(0.029)	(0.083)	(0.029)	(0.078)	(0.029)	(0.080)	(0.029)	(0.081)
	[0.186]	[0.033]	[0.577]	[0.933]	[0.249]	[0.041]	[0.567]	[0.792]
Expected Sales Growth	-0.002	0.003	-0.000	0.005	-0.002	0.003	-0.001	0.005
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
	[0.017]	[0.058]	[0.524]	[0.001]	[0.017]	[0.066]	[0.454]	[0.003]
Growth Objective	0.118	0.183	0.136	0.164	0.116	0.166	0.126	0.132
	(0.030)	(0.189)	(0.030)	(0.086)	(0.031)	(0.172)	(0.030)	(0.089)
	[0.000]	[0.332]	[0.000]	[0.056]	[0.000]	[0.335]	[0.000]	[0.139]
Profitability	0.090	-0.089	0.088	-0.038	0.085	-0.098	0.081	-0.052
	(0.032)	(0.071)	(0.032)	(0.083)	(0.033)	(0.071)	(0.032)	(0.086)
	[0.006]	[0.205]	[0.005]	[0.644]	[0.009]	[0.170]	[0.010]	[0.551]
Credit Rationing	0.282	-0.070	0.282	0.424	0.267	-0.050	0.266	0.411
	(0.118)	(0.255)	(0.115)	(0.214)	(0.118)	(0.256)	(0.115)	(0.220)
	[0.017]	[0.783]	[0.014]	[0.048]	[0.024]	[0.844]	[0.020]	[0.062]
Family-Owned	-0.051	-0.057	-0.075	-0.128	-0.048	-0.042	-0.065	-0.099
	(0.029)	(0.083)	(0.028)	(0.069)	(0.029)	(0.076)	(0.028)	(0.072)
	[0.077]	[0.489]	[0.007]	[0.064]	[0.093]	[0.582]	[0.020]	[0.164]
Women-led	-0.038	-0.033	-0.047	-0.168	-0.039	-0.018	-0.045	-0.166
	(0.032)	(0.078)	(0.031)	(0.093)	(0.032)	(0.077)	(0.031)	(0.096)
	[0.235]	[0.671]	[0.127]	[0.070]	[0.223]	[0.817]	[0.146]	[0.083]
Ethnic Minority-led	-0.242	-0.031	-0.271	0.079	-0.247	-0.018	-0.272	0.112
	(0.057)	(0.227)	(0.056)	(0.140)	(0.057)	(0.222)	(0.056)	(0.156)
	[0.000]	[0.891]	[0.000]	[0.575]	[0.000]	[0.937]	[0.000]	[0.471]
Expecting closure	-0.342		-0.318		-0.345		-0.321	
	(0.060)		(0.058)		(0.060)		(0.058)	
	[0.000]		[0.000]		[0.000]		[0.000]	
Expecting ownership transfer	-0.038		-0.043		-0.041		-0.045	
	(0.061)		(0.049)		(0.059)		(0.049)	
	[0.531]		[0.380]		[0.489]		[0.363]	
Constant	-0.323	-0.824	-0.267	-2.303	-0.323	-0.921	-0.276	-2.317
	(0.076)	(1.100)	(0.074)	(0.190)	(0.076)	(1.103)	(0.074)	(0.207)
	[0.000]	[0.454]	[0.000]	[0.000]	[0.000]	[0.404]	[0.000]	[0.000]
Firm age	Yes		Yes		Yes		Yes	
Sector effect	Yes		Yes		Yes		Yes	
Region effect	Yes		Yes		Yes		Yes	
# Observations	10,717		10,717		10,717		10,717	
# Uncensored observations	4,806		5,326		4,806		5,326	
Wald χ^2	48.51***		71.86***		61.56***		73.86***	
Log likelihood	-8,288.04		-8,382.02		-8,243.02		-8,335.18	
χ^2 ($\rho = 0$)	0.72	$p = 0.395$	1.29	$p = 0.255$	0.64	$p = 0.422$	1.13	$p = 0.288$
One-tail test of coefficient differences (p-value)								
$\beta_1 > \beta_2$ (H1)		0.080						
$\beta_1 < \beta_2$ (H2)				0.018				
$\beta_3 > \beta_4$ (H3)						0.093		
$\beta_3 < \beta_4$ (H4)								0.039
$\beta_5 < \beta_6$ (H5)						0.137		
$\beta_5 > \beta_6$ (H6)								0.037

Notes: Coefficients are reported with standard errors in parentheses and p-values in brackets. Base categories: Firm Age = less than 3 years; Sector = Agriculture