

# The mitigating effect of electronic commerce adoption on the negative relationship between public tendering and export: evidence from Italian food & beverage SMEs

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**Framing of the research.** *The European economic growth and development depend on small and medium-sized enterprises (SMEs). SMEs make up 99% of European (EU) firms (European Commission, 2020). The EU's largest manufacturing sector by value and employment is the food and beverage (F&B) industry (European Commission, 2022), making it crucial to the region's development. Due to market instability and heightened hazards, recent times have been challenging to all organisations (Hadjielias et al., 2022; Hamid et al., 2022). Thus, F&B SMEs must diversify their portfolio and seek dependable revenue streams to survive. Internationalization and stable funding sources from public procurement and grants are needed to strengthen their survivability (Bertello et al., 2021; Loader and Norton, 2015). However, small businesses struggle to engage in public procurement due to their size and resources constraints (Loader, 2011).*

*According to the literature, enterprises often lack the necessary knowledge and resources to explore and understand public procurement regulations and contract requirements (Karjalainen and Kemppainen, 2008; Saastamoinen et al., 2017). Furthermore, smaller SMEs may also struggle to enter new markets due to their resource constraints (Dethine et al., 2020; Paul et al., 2017). Therefore, the previously published empirical data raise the issue of whether enterprises constrained by their size and capabilities may pursue both pathways when they typically fail to pursue and attain one of the foregoing revenue streams. Capabilities and performance have been studied in most export performance research (Falahat et al., 2020). Despite their importance, electronic commerce, public procurement, and exports in F&B Businesses are seldom studied. Hence, further empirical studies are needed to better comprehend their kinship. Due to F&B SMEs' crucial role in the EU economy, this kind of investigation is of great theoretical and managerial relevance. (European Commission, 2022). SMEs' health and growth are crucial to national progress (Ensari and Karabay, 2014; Etuk et al., 2014). Consequently, it is vital to reveal how such governmental tenders might affect businesses' capacity to develop beyond their domestic market, which is crucial to their competitive advantage (Kalinic and Brouthers, 2022). In addition, the literature suggests that more research is needed to understand how electronic commerce affects exports (Ballerini et al., 2021; Dethine et al., 2020; Jia et al., 2022), how public procurement affects exports (Flynn and Davis, 2015; Loader, 2015; Loader and Norton, 2015; McKeivitt and Davis, 2015; Saastamoinen et al., 2017), and whether companies' resilience matters in the investigated sector (Hadjielias et al., 2022; Iborra et al., 2020; Khurana et al., 2022).*

**Purpose of the paper.** *In light of the aforementioned literature and the underlined research gap, the current study aims to provide empirical evidence to answer the following questions: Does participation in public procurement have a detrimental impact on a company's attempts to export? Are F&B SMEs that support public procurement able to reduce the possible detrimental impacts of this on exports by utilizing electronic commerce platforms? Thereafter, the authors formulate the following hypotheses to be empirically tested:*

*(H1) In the context of SMEs working in the F&B sector, the electronic commerce adoption contributes favourably to internationalisation.*

*(H2) There is a negative influence on the internationalisation of F&B SMEs engendered by governmental tenders' application.*

*(H3) In the context of SMEs working in the F&B sector, the electronic commerce adoption favourably adjusts the negative relationship between governmental tenders' application and internationalization performances.*

**Methodology.** *The generated hypothesis will be put to the test in this research by means of an empirical inquiry that will be accomplished via the development of a structured equation model. The following criteria were used to sample firms. First, the companies should have their location in Italy. Second, only enterprises in the European Community statistical categorization of economic activities (NACE) C.10 group - "manufacturing of food products" - were included. Finally, the research comprises only enterprises who reveal their latest turnover, with a limit of 50 million*

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Euros and a range of workers between 1 and 250, following the 2020 European Commission definition of SMEs. On 30 September 2022, 2186 firms met the requirements.

Prior research has shown that the solution is workable despite data observations being secondary (Caputo et al., 2022). Electronic commerce platforms, governmental procurement, and export performance are the factors. Digital selling platform deployment covers not only electronic commerce websites but also social media sites that allow social commerce (Cassetta et al., 2020). A web scraping algorithm in Margò database can detect whether a company has an official social media presence on Facebook, LinkedIn, Instagram, Vimeo, Pinterest, Youtube, Twitter, and e-commerce solutions. Government procurement dependence is measured by corporations' 2020-2022 open tender wins (pandemic and post-pandemic period). Third, internationalization performance involves determining whether SMEs can sell overseas (Kapri, 2019) and what proportion of revenue exports comprise (Eramudugoda and Ramos, 2022). Company owners disclose exports and intensity in Margò database. An exploratory factor analysis is needed initially since there are no measuring scales for these constructs based on these items (EFA).

To prevent heterogeneity, the research will add manifest control factors to the model along with the three factors to verify. First, intellectual resource is thought to affect enterprises' export performance (Azar and Ciabuschi, 2017), hence the analysis includes the number of workers and their hiring pattern from the previous year as control variables. Given that company size affects export success (Faria et al., 2020), the research incorporates the number of controlled branch locations and income assessed using its natural logarithmic format to reduce confidence interval (Nirino et al., 2020). Scholars also believe innovation level might impact foreign trade (Azar and Ciabuschi, 2017). Thus, this analysis relies on Crif's 1-5 innovation score for organisations in the dataset, evaluating multiple indicators. Lastly, recognising that authorized standards of quality licenses are further determinants boosting businesses' exportation (Moya et al., 2019), the analysis controlled for firms' Accredia licences using a 1-0 dummy variable.

EFA verifies the framework's latent constructs. Sample size and item correlation are the first steps in assessing data for EFA. KMO yielded  $> 0,6$  and Bartlett's test yielded  $p < 0,05$ , making both tests positive. After 13 to 8 item exclusions, the authors found a solid factors loading setup. Only Facebook and Instagram have enough PCA extraction commonality. All retained commonalities exceed 0.55, indicating excellent correlation. Promax rotation shows all components loading their factor with a coefficient above 0.600 and Std. Cronbach Alfa coefficients exceed 0,700. Three components with eigenvalues  $> 1$  explain 70,25% of the cumulative variance. Given that the panel dataset was partially based on survey information, the authors use Harman's single factor test with a robust result of or squared variance of 30,35%, much below the 50% threshold, to discover common method variance and probable biases.

The study used Confirmatory Factor Analysis to verify the constructions' suitability for CB-SEM models (CFA). The CFA methodology initially checks the goodness of fit indices of the three correlated latent components. Table III shows that all absolute and incremental fit indices exceed the thresholds: GFI  $> 0,95$ , AGFI  $> 0,90$ ,  $X^2/df < 5$ , RMSEA  $< 0,07$ , PCLOSE  $> 0,05$ , NFI and CFI  $> 0,95$ , PNFI and PCFI  $> 0,5$

Second, the EFA-retained items' factor loadings are examined. As these latent construct components are new, the result is sufficient. Every item loads the latent variables at least the minimal 0,50 level necessary in this sort of research, although the construct reliability (CR) of each component still showed solid overall loadings over the 0,7 barrier. The study then calculates the AVE value for each concept, which was above the 0.5 criterion for convergent validity. The study conducted the discriminant validity test by comparing the AVE square root of each component to their correlation coefficient. All were higher than the correlation coefficient, proving the components' discriminant validity.

**Results.** The Structural Equation Model was used to evaluate hypotheses after EFA and CFA processes. Tests support all hypotheses. Electronic selling platforms increase business exports, assisting hypothesis one ( $\beta = 0,230$ ;  $p$ -value  $< 0,01$ ). Nevertheless, earning public tenders, hurts company international competitiveness assisting hypothesis two ( $\beta = -0,061$ ;  $p$ -value  $< 0,01$ ). Notwithstanding, the interplay involving relying on public procurement and adopting electronic commerce tools has a significantly favourable effect on the internationalization success of the enterprises corroborating hypothesis three ( $\beta = 0.034$ ;  $p$ -value  $< 0.05$ ). Earnings, staff hiring trend, and Accredia certification had a statistically meaningful beneficial influence on internationalization. Yet, the amount of regional branches, workers, and innovation score significantly hurt internationalization success. The model has a strong R-square of 0.624, much over the minimal value of 0.250 used in business and marketing research (Sarstedt and Mooi, 2014). The model predicts to capture 62,4% of the export performance variation across Italian F&B Firms.

**Research limitations.** There are various limitations connected to our research that might be overcome by further investigation into strategic flexibility, procurement practices, and company websites. First, the most significant constraint is the sample that was used, which was made up of Italian SMEs who operate within the F&B production business. More empirical data on the issue under investigation may be gleaned through research conducted with a more representative sample size. Second, our investigation highlights some of the drawbacks of using a structural equation model. Despite the fact that SEM has been used well in a number of different studies in the past, it does have a number of inherent flaws, particularly when it comes to the assessment and depiction of the salient components that have been found. In addition, the employment of different qualitative research methods may prove to be beneficial in the process of offering a more in-depth analysis of the findings that were obtained via quantitative research in this study.

In conclusion, further investigation might test our theory in a variety of settings and investigate the possibility of differences being seen across nations and industries. In addition, further research might include a variety of factors to evaluate the dexterity of businesses and validate our empirical results in connection with hypothesis number three (Andrade et al., 2022).

**Managerial implications.** *Our research has numerous important pragmatic ramifications for business leaders in the F&B sector. Before anything else, our research bolsters the fact that digital online channels are helpful to manufacturers internationalisation (Dethine et al., 2020; Jia et al., 2022). Second, despite previous literature supporting the hypothesis that awarded grants increases companies' research and development and ESG scores (Forliano et al., 2022), this study's findings support that F&B SMEs with a strong focus on public procurement tend to have worse export success. SMEs' management must carefully weigh the strategic goals of their organisations before committing to the lengthy process of submitting bids for public procurement contracts. Also, businesses who seek to engage in public procurement as one of their core business focus are urged to consider the implementation of one or more electronic commerce. By adopting them, SMEs may increase their bidirectional flexibility and attain international results which are on a par with those of enterprises that do not pursue procurement contracts (Saastamoinen et al., 2018).*

*In conclusion, this research proves particularly useful to legislators. It is because of SMEs with scarce funds that apply for tendering process to obtain procurement partnering with government entities suffer a drop in internationalisation success, lawmakers must consider methods to make it easier and abbreviate the time span for these competitive tendering (Flynn, 2018; Reis and Cabral, 2015), such as increasing adaptability and speed, reducing the over procedural prerequisites, shortening agreements, and consolidating web page availability into one central location (Loader, 2015). Government agencies might also do their part to make things easier for vendors and grantees by streamlining their ordering procedures and billing bureaucracies, which would help speed up both choosing and collaboration phases of any agreements (Flynn, 2018; Loader, 2015). Yet, laws that encourage the use of electronic commerce platforms by SMEs, particularly those operating in the F&B beverage sector, would surely improve the international prospects of these businesses.*

**Originality of the paper.** *By investigating the connections among internet and electronic commerce, procurement practices, and exporting, this investigation adds to the existing body of research on SMEs working within F&B industry. The overarching implication of this study is to emphasise evidence based proof indicating that public procurement management and reliance has a detrimental impact on companies' internationalisation. Additionally, the study provided empirical data suggesting that electronic commerce platforms adoption have a beneficial influence on firms' internationalisation. As a result, we are responding to the need for investigation about such issues (Dethine et al., 2020; Jia et al., 2022; Loader and Norton, 2015; Loader, 2015; Flynn and Davis, 2015; McKeivitt and Davis, 2015; Saastamoinen et al., 2017).*

*A second innovative and original input to the theorists is to offer evidence based proof that suggests that the mixture of dependence on procurement contracts and embracing electronic commerce significantly mitigates the adverse impacts that public procurement has on the internationalization of F&B SMEs. According to current research, firms can enhance their agility with a correct adoption of digital technologies (Ciampi et al., 2022) and may overcome constraints to win public tenders without affecting their international success. These publications also emphasise how these businesses can pursue various business goals at the same time (Hadjielias et al., 2022; Iborra et al., 2020; Khurana et al., 2022). In addition, the advent of electronic commerce helps increase the strategic flexibility of SMEs since it requires less assets from enterprises in order to internationalise; as a result, these companies are better able to devote their efforts upwards to the quest for government tenders (Iborra et al., 2020). In addition to this, public procurement may be seen as a reliable source of income and service for businesses to depend on. As a result, it makes it possible for them to explore other kinds of ventures that have fairly predictable customers' behaviours (Saastamoinen et al., 2018). Accordingly, the study results shed light on the significance of utilising online technologies within F&B SMEs in order to expand in foreign markets and enhance the firm's strategic flexibility, thereby mitigating the adverse effects that public procurement contracts have on internationalisation.*

**Keywords:** *Agility; F&B; Electronic commerce; Public procurement; Internationalisation; Export*

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