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SMES AS VICTIMS OF COMPETITION VIOLATIONS IN THE EU: AN EMPIRICAL INVESTIGATION

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Abstract. This paper investigates the nature and extent of competition violations experienced by SMEs in the EU-27 countries. Using data from the Flash Eurobarometer 510 Survey, this study employs a Heckman sample selection model to correct for potential selection bias. The findings reveal that while most SMEs do not face significant competition problems, those that do mainly struggle with high prices and powerful suppliers imposing unfair conditions. Interestingly, SME size and age do not significantly affect exposure to antitrust offenses, but industry sector and geographical location do. The paper emphasizes the potential roles of SMEs in competition authorities' market oversight activities, given their unique market position and ability to detect competition violations early. Finally, the article calls for continuous engagement with SMEs by policymakers, regulators, and competition authorities to improve market competition.

Keywords: SMEs, competition, antitrust, microeconometric analysis, Heckman sample selection model, European Union.

JEL Classification: L40, M21, K21.

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1. Introduction

Small- and Medium-Sized Enterprises (SMEs) form the cornerstone of global economic landscapes. These enterprises, comprising approximately 90% of all businesses, are instrumental in promoting economic growth and creating employment opportunities. This is especially true in developing economies, where SMEs contribute to more than half of the total employment and up to 40% of the national income (World Bank, 2023).

SMEs also wield substantial influence in developed economies. In the United States, for instance, small businesses classified as independent entities with fewer than 500 employees make up nearly 99.9% of all firms and 99.7% of firms with paid employees. They represent 97.3% of all exporting businesses in international trade. The importance of small businesses also extends to job creation. From 1995 to 2021, they generated 17.3 million net new jobs, accounting for 62.7% of net new job creation during this period (US Small Business Administration Office of Advocacy, 2023).

The role of SMEs in the European Union (EU) is equally significant. SMEs in the EU are defined as entities that employ fewer than 250 personnel and generate an annual turnover that does not exceed EUR 50 million. As of 2021, the EU-27 witnessed the presence of

approximately 22.8 million active SMEs, constituting 99.8% of all enterprises within the Non-Financial Business Sector (NFBS). These SMEs employed over 83 million individuals, accounting for just under two-thirds of the total employment and slightly more than half of the total value added in the NFBS (European Commission, 2022a).

Thus, the vitality of SMEs deeply influences macroeconomic dynamics, given their significant role in employment generation (e.g., Deijl et al., 2013; Rao et al., 2023), economic diversification (e.g., Callen et al., 2014), innovation (e.g., Audretsch & Guenther, 2023; Saunila, 2020; Rosenbusch et al., 2011), regional development (e.g., Beckman et al., 2023; Fiseha & Oyelana, 2015), and as crucial cogs in larger business supply chains (e.g., Stekelorum, 2020). Considering SMEs' role in the economy, public policies often aim to foster a conducive environment for these entities to prosper. Key areas of focus typically include facilitating access to finance (e.g., Beck & Demirguc-Kunt, 2006; Finnegan & Kapoor, 2023), cultivating a favourable regulatory climate (e.g., van der Horst et al., 2017), enhancing skills and training (e.g., Marchese et al., 2019; Idris et al., 2023), promoting innovation (e.g., Chiappini et al., 2022), aiding internationalization (e.g., Wright et al., 2007; Munteanu et al., 2023), encouraging public procurement (e.g., Flynn, 2018; Liu et al., 2024), extending business support services (e.g., Boter & Lundström, 2005; Padilla-Angulo et al., 2023), and advancing digital transformation (e.g., Strilets et al., 2022; Dörr et al., 2023), among many others.

In brief, it is important to underscore the critical role that SMEs play in an economy. Any challenges SMEs face can ripple through the economy, potentially leading to negative consequences that extend far beyond the SME sector. One particularly prominent issue among the challenges that SMEs confront is competition or antitrust problems.

This paper seeks to fill a gap in the literature on the competitive harm suffered by SMEs. Specifically, it investigates the difficulties arising from the competition problems encountered by SMEs in the European Union context. The study leverages data from the "Flash Eurobarometer 510 Survey on SMEs' Expectations for an Effective Competition Policy" and conducts analyses to test a set of hypotheses. The paper first presents descriptive statistics on the nature and extent of antitrust violations experienced by SMEs in the EU. Following the descriptive analysis, it proceeds to the estimation of a Heckman sample selection model. This two-step econometric model corrects for potential selection bias in the data, which could otherwise distort the results. Given that not all firms may have the same likelihood of experiencing an antitrust offense, the Heckman model is particularly appropriate for the study.

The structure of the paper is as follows: The next section provides a literature review and presents the conceptual background. The third section details the methodology used in the study. The fourth section presents the empirical findings. Finally, the paper discusses the implications of the findings.

2. Literature review and conceptual background

Understanding the exposure of SMEs to antitrust violations by their suppliers, buyers, or peers is crucial for enabling informed regulatory actions, especially given the adverse macroeconomic consequences this exposure can have. Firstly, such knowledge guides the enhancement of monitoring and enforcement of competition laws, particularly in sectors where anti-competitive behaviour is prevalent. As Harrington (2008) suggests, developing structural screens represents a cost-effective strategy for identifying industries in which practices among firms sufficiently indicate antitrust violations. Antitrust authorities can utilize these screens as part of an activist approach to screen for anti-competitive behavior proactively. Furthermore, an-

titrust authorities should be more vigilant in industries with relatively high violation reporting (Brouwer & Ozbugday, 2011). This vigilance aligns with a policy shift towards more active and preventative measures rather than a purely reactive stance, ensuring that the competition remains fair and conducive to the growth and sustainability of SMEs.

Secondly, a deep understanding of antitrust offenses is paramount for analysing the market structure and power distribution among firms within various industries. Such offenses often manifest as barriers that entrench incumbent firms' dominance, stifle competition, or inhibit the entry of innovative newcomers. By identifying and dissecting the mechanisms through which these antitrust violations occur – be it through monopolistic practices, predatory pricing, exclusive contracts, or collusion among established players – policymakers and regulatory bodies can gain valuable insights into the underlying dynamics that skew market conditions in favour of a few at the expense of many.

Finally, understanding the exposure of SMEs – often susceptible to competition violations owing to their limited market power and resources – to antitrust violations is indispensable for formulating protective measures. This knowledge is fundamental for identifying the specific challenges and vulnerabilities faced by SMEs within the competitive environment, thereby enabling the development of targeted interventions. More importantly, given the foundational role of SMEs in driving employment, innovation, and economic growth (see the Introduction section), addressing antitrust offenses and tailoring protective measures are critical to bolster economic development.

Despite extensive research on the influence of competition policy on larger businesses and consumers (e.g., Motta, 2004), there is scarcely any investigation exploring the connection between competition policy and SMEs (Schaper, 2010). Likewise, while there is a substantial body of research (e.g., Naradda Gamage et al., 2020; Eggers, 2020) suggesting that SMEs frequently encounter issues related to market access (e.g., Paul et al., 2017), resource acquisition, including credit (e.g., Organisation for Economic Cooperation and Development [OECD], 2023; Simba et al., 2024) and human capital (e.g., OECD, 2021; Abraham et al., 2023), and adaptation to technological shifts (e.g., Prasanna et al., 2019) and evolving manufacturing and business models (e.g., Rymaszewska, 2014; Le-Dain et al., 2023), there exists a gap in the literature concerning the exploration of SMEs as victims of antitrust offenses.

The findings of the scanty literature suggest that SMEs often perceive their markets as highly competitive and risky. They are keenly aware of competitive threats from large firms, other small firms, and potential new entrants. However, it is important to note that the perception of competition and risk may vary significantly among SMEs. One key finding from the literature is that a significant proportion of SMEs have experienced what they regard as anti-competitive practices, such as price fixing, cartels, or collusive tendering arrangements (Golodner, 2001; Wyld et al., 2012). However, it is not always clear whether these practices are genuinely anti-competitive or simply reflect the competitive advantages of other firms. Another important finding is that SMEs are typically reluctant to report anti-competitive practices. This reluctance may stem from various factors, including a general suspicion of the government, a lack of awareness of their rights, or a desire to avoid the hassle of legal proceedings (Storey, 2010).

To address the limited existing research, our study examines a collection of hypotheses, each offering a perspective on the relationship between SMEs' characteristics and their susceptibility to competition violations.

Firstly, our research posits that smaller SMEs, by their scale, are inherently more vulnerable and thus more likely to become victims of antitrust offenses than their larger counterparts

(***Hypothesis 1***). This vulnerability is not limited to size but encompasses various difficulties exclusive to these entities. Smaller firms typically possess limited bargaining power (Hancké, 1998; Czakon, 2009), which diminishes their ability to negotiate favourable terms in transactions with suppliers and buyers. This imbalance often disadvantages them, making them susceptible to unfair practices, such as price fixing, exclusive dealing agreements, or predatory pricing, to squeeze them out of the market.

Moreover, the scarcity of resources, which is characteristic of smaller SMEs, exacerbates their vulnerability. With less capital, fewer human resources, and limited access to legal and regulatory expertise, these firms find it challenging to not only manage the dynamics of market competition but also to identify and respond to antitrust violations effectively. Unlike larger firms, which can use their market presence to deter anti-competitive behaviour, smaller SMEs lack the influence and power to shape market norms or draw regulatory attention to their concerns.

The potential for anti-competitive or unfair practices by suppliers, buyers, or larger competitors, as noted by scholars such as Peel et al. (2000), Golodner (2001), Wyld et al. (2012), and Foer (2001), underscores a critical aspect of this vulnerability. For instance, smaller enterprises may be subjected to unfair terms and inflated prices by suppliers. Conversely, buyers can wield their purchasing power to secure unreasonably low prices. Moreover, larger competitors may engage in exclusionary or predatory pricing strategies to undermine the positions of smaller SMEs.

We further hypothesize that the susceptibility of SMEs to antitrust violations is inversely related to their age, with older SMEs enjoying a measure of immunity not afforded to their younger counterparts (***Hypothesis 2***). This hypothesis is based on the notion that time in operation is not merely a chronological marker but also a significant contributor to a firm's adaptive capabilities and competitive resilience. Older SMEs, which have endured various market cycles and competitive challenges, have accumulated invaluable experience in strategic decision-making. This accumulated experience enables them to comprehend the business ecosystem, identify potential threats, and implement preemptive strategies to mitigate such risks.

The established market presence of older SMEs further bolsters their defence against anti-competitive practices. Over time, these firms develop a recognizable brand, secure customer loyalty, and establish a stable position within their industry. This visibility and market share can deter potential violators, who may be discouraged from targeting established entities because of the difficulty of displacing established market players.

Moreover, the longevity of these enterprises enables them to develop enduring relationships with customers, suppliers, industry associations, and regulatory bodies. These relationships are essential for building a support network that can provide early warnings about emerging threats, advice on navigating complex legal environments, and solidarity in instances where collective action against anti-competitive practices is necessary. Smallbone and North (1995) highlight the importance of such relationships, emphasizing how they contribute to a firm's strategic advantage and resilience.

Hypothesis 3 posits that the antitrust risks faced by SMEs vary depending on the industry in which they operate, with certain sectors being more susceptible to anti-competitive practices than others (Symeonidis, 2003). This variation in vulnerability can be attributed to a range of factors specific to each industry, such as regulatory environments, market entry barriers, market concentration levels, and the nature of the goods or services provided.

Regulatory frameworks significantly influence the competitive dynamics within an industry. In sectors with less stringent regulatory oversight, dominant companies may engage in anti-competitive practices, such as predatory pricing, exclusive arrangements, or collusion, without facing immediate legal consequences. On the other hand, highly regulated industries typically provide more robust safeguards against such actions.

The nature of goods and services offered by an industry can influence the prevalence of antitrust offenses. For instance, industries that rely heavily on intellectual property rights may see higher instances of anti-competitive practices aimed at controlling or limiting access to patented technologies or creative content. Similarly, sectors that exhibit high fixed costs and significant economies of scale may naturally lend themselves to a smaller number of larger players, increasing the likelihood of monopolistic or oligopolistic behaviour.

The unique structure and dynamics of industries also play a critical role. Industries with few dominant players (high market concentration) are more prone to collusion and abuse of market power, as these entities might find it easier to coordinate their actions to the detriment of competition and, by extension, SMEs. On the other hand, industries that are fragmented with many small players may witness anti-competitive practices emerge in the form of aggressive competitive tactics aimed at consolidation or market share expansion.

Furthermore, barriers to market entry are a significant industry-specific factor affecting the likelihood of antitrust offenses (Dick, 1996). High barriers, whether in the form of capital requirements, technological expertise, or customer loyalty, can discourage new entrants, limiting competition and enabling established firms to engage in anti-competitive practices with less fear of retaliation or disruption.

Gual and Mas (2011) emphasize the importance of understanding these industry-specific dynamics, as they significantly influence firms' competitive behaviours and strategies within those sectors. It is important to acknowledge that the vulnerability of SMEs to antitrust violations is not uniformly distributed across all industries but rather concentrated in those with specific characteristics and structures. Consequently, policymakers and regulatory authorities can develop more targeted interventions by considering these industry-specific factors.

Our research additionally considers the global context, positing that the susceptibility of SMEs to antitrust violations is not homogenous but exhibits substantial disparities across national boundaries (***Hypothesis 4***). This disparity is rooted in the notion that the legal, economic, and cultural frameworks that shape business practices and competitive behaviour vary considerably from one country to another, thereby impacting the frequency and nature of antitrust violations experienced by SMEs.

Regulatory frameworks play a significant role in creating legal foundations for market competition. These frameworks, which include robust antitrust laws and clear regulatory guidelines, provide a structured environment in which SMEs can operate with a degree of protection against unfair competition. However, the effectiveness of these frameworks depends not only on the laws themselves but also on the rigor and consistency of their enforcement (Nicholson, 2008). As a result, countries with rigorous antitrust laws may experience lower incidences of antitrust violations due to the deterrent effect of potential legal consequences.

Enforcement practices further delineate the extent of competition. The existence of vigilant and empowered regulatory authorities endowed with ample resources and the power to detect and penalize anti-competitive behaviour is vital. Conversely, SMEs may face a heightened risk of becoming victims of such practices in nations where enforcement is weak or inconsistent.

Market conditions also play an important role in affecting the exposure of SMEs to antitrust violations. Developed economies with mature markets may offer SMEs more stable operating conditions, including greater access to legal and financial resources (Wang et al., 2023), to combat antitrust offenses.

Although less tangible, cultural factors also influence the incidence of antitrust violations. Norms and attitudes towards competition, business ethics, and the role of government in regulating market activities can vary widely across cultures. These differences can affect the perception of what constitutes fair and unfair competition, potentially leading to variations in the frequency and types of antitrust offenses observed. Cheng (2011) articulates the significance of understanding these country-specific factors and highlights how disparities in legal, economic, and cultural contexts can shape the competitive experiences of SMEs.

3. Materials and methods

Our research methodology relies on a survey that collects a wide range of data relevant to our study objectives. This survey, called "SMEs' Expectations for an Effective Competition Policy," was conducted by Ipsos European Public Affairs for the European Commission's Directorate-General for Competition (European Commission, 2022b). The survey includes various sections that focus on different aspects of the responding companies' profiles and experiences.

The survey was carried out between May 30 and June 15, 2022. It targeted SMEs active in various sectors, such as manufacturing, industry, retail, and services within the EU. The respondents were individuals with decision-making responsibilities in these enterprises, such as managing directors, general managers, chief executive officers (CEOs), financial directors, commercial managers, sales managers, marketing managers, or legal officers.

The survey was conducted via Computer-Assisted Telephone Interviewing (CATI). The sample was selected from an international business database, with sampling targets defined based on both company size (1–9 employees, 10–49 employees, and 50–249 employees) and sectors (industry, manufacturing, retail, and services). These sampling targets were adjusted according to each country's universe but were also reasoned to ensure that the sample was large enough. The survey was conducted in all EU27 countries, with a total of 12,809 observations.

In the empirical analysis, we employ a series of variables drawn from the responses to the survey questions. Our main variables of interest are '*PROBLEM*' and '*DIFFICULTY*,' both of which are categorical in nature.

The variable '*PROBLEM*' is derived from a question about whether the firm has ever encountered issues attributable to a lack of competition in a variety of business activities. These activities range from sourcing raw material inputs, using transport services, availing financial services, acquiring energy supply (e.g., gas, electricity), accessing retail or other distribution channels to reach customers, leveraging digital platforms for customer reach, and other unspecified activities. From the responses to this question, we construct a set of binary variables: *PROBLEM_INPUT*, *PROBLEM_TRANSPORT*, *PROBLEM_FINANCIAL*, *PROBLEM_ENERGY*, *PROBLEM_DISTRIBUTION*, and *PROBLEM_DIGITAL*. Each of these variables is a dummy variable that is equal to 1 if the SME has experienced problems related to a lack of competition in the respective area and 0 otherwise.

Next, the '*DIFFICULTY*' variable captures the main challenges an SME has faced as a result of the competition problems they have experienced, conditional on the respondent

affirming that such problems existed. This variable encompasses several difficulties, including high prices, powerful suppliers imposing unfair selling conditions, difficulty comparing prices, difficulty changing suppliers, insufficient choice, lack of innovation, unsatisfactory quality of goods or services, and powerful buyers imposing unfair buying conditions, among others. A set of binary variables is created for each category of difficulty faced by SMEs (*DIFFICULTY_HIGH_PRICES*, *DIFFICULTY_POWERFUL_SUPPLIERS*, *DIFFICULTY_COMPARE_PRICES*, *DIFFICULTY_CHANGE_SUPPLIERS*, *DIFFICULTY_ENOUGH_CHOICE*, *DIFFICULTY_ENOUGH_INNOVATION*, *DIFFICULTY_SATISFACTORY_QUALITY*, *DIFFICULTY_POWERFUL_BUYERS*, *DIFFICULTY_OTHER*).

Thus, the binary variables constructed from the responses of SMEs reveal the competitive environment faced by these enterprises. The '*PROBLEM*' variables, indicating the presence of competition-related issues in these critical areas, are telling indicators of market conditions that could potentially stifle SMEs' operational efficacy and growth potential. Moreover, the '*DIFFICULTY*' variables, which capture specific challenges arising from these competition problems, further emphasize the gravity of these issues.

The difficulties captured by these binary variables – such as high prices, unfair selling conditions imposed by powerful suppliers, challenges in comparing prices or switching suppliers, insufficient choice, lack of innovation, subpar quality of goods or services, and coercive purchasing conditions imposed by dominant buyers – represent significant barriers to the efficient and sustainable operation of SMEs. Such conditions not only impede the day-to-day business activities of these firms but can also have far-reaching implications for their strategic decision-making, growth trajectory, and overall contribution to the economy. Since SMEs are often heralded as engines of economic growth, innovation, and job creation, these competition violations are not merely isolated business challenges but systemic issues that can undermine the broader economic system. This potential harm extends beyond individual firms to the wider economy, impacting employment, consumer choice, market dynamism, and innovation. Thus, the identified competition problems and ensuing difficulties faced by SMEs warrant serious attention from policymakers, regulators, and stakeholders in the business community.

Our independent variables include '*NACE*,' '*EMPLOYEE*,' '*AGE*,' '*TURNOVER*,' and '*COUNTRY*.' The '*NACE*' variable corresponds to the main activity of the SME according to NACE classifications. '*EMPLOYEE*' shows the number of employees in three categories (1–9, 10–49, and 50–249), while '*AGE*' indicates how long the SME has been in operation, grouped into four categories: less than 1 year, between 1 and 5 years, between 6 and 10 years, and more than 10 years. '*TURNOVER*' reflects the SME's total turnover in 2021, presented in various bands, and '*COUNTRY*' signifies the country where the SME operates. All these independent variables have been transformed into indicator variables.

Our proposed econometric study aims to understand the factors that determine the difficulties SMEs face due to competition problems, conditional on the SME affirming that such problems exist. This is captured by the dependent variable *DIFFICULTY*, which represents the difficulties experienced by each SME. To this end, we estimate the following equation:

$$DIFFICULTY\_K_i = \gamma_0 + \gamma_1 EMPLOYEE_i + \gamma_2 TURNOVER_i + \gamma_3 AGE_i + \gamma_4 NACE_i + \gamma_5 COUNTRY_i + \varepsilon_i . \quad (1)$$

In this equation, the subscript i denotes an individual SME, and K refers to the specific challenge the SME has faced due to the competition problems they have experienced. At the

same time, γ represents a vector of parameters to be estimated, and ε is the error term. *EMPLOYEE*, *TURNOVER*, *AGE*, *NACE*, and *COUNTRY* are explanatory variables that may impact the difficulty level an SME experiences. The significance of the coefficients on these independent variables allows us to test the hypotheses stated in the previous section.

However, it is important to note that our dependent variable, *DIFFICULTY,* is conditional on the respondent affirming that they have experienced a competition problem. This implies a self-selection issue where SMEs self-select themselves into the sample if they have faced such challenges. This is not a random process and could lead to selection bias, potentially confounding our estimates. To correct this sample selection bias, we employ the Heckman Correction, a technique introduced by Nobel laureate James Heckman (1979). The Heckman Correction is a two-step process that includes a selection equation and an outcome equation.

The Selection Equation estimates a model of the selection process. This step is typically carried out using a Probit model or similar. The variables in this model should include all the variables from the outcome equation, plus at least one additional variable – an "instrument" or "exclusion restriction" – that affects selection but does not directly affect the outcome. This variable is instrumental in identifying the selection process separately from the outcome process.

The Outcome Equation is estimated after the selection equation. It involves predicting the inverse Mills ratio from the selection equation – a measure of the likelihood of selection given the observed variables – and then including this ratio as an additional predictor in the regression model. The goal here is to account for the self-selection of SMEs into the sample, thereby addressing the potential selection bias and producing more reliable estimates of the γ parameters in our initial equation.

Thus, in the first stage of the Heckman model, also known as the selection equation, we model the probability of an SME experiencing an antitrust violation using a Probit model. In this stage, we incorporate variables that are likely to influence whether a firm has experienced an antitrust violation or not. In the second stage, also known as the outcome equation, we model the impact of antitrust violations on our dependent variables of interest, conditional on the firm having experienced an antitrust violation. This is where we test our hypotheses regarding the effect of company size, turnover growth rate, company age, industry, and country on the likelihood of an SME experiencing a competition problem.

Nevertheless, in our study, it is key to find a variable that influences the selection process – that is, whether an SME experiences competition problems – but does not directly impact the outcome process, namely, the difficulties faced by an SME due to competition problems. This variable serves as an instrument to correct for potential sample selection bias in our model.

However, identifying such a variable can indeed be challenging, particularly because it must satisfy two key conditions: it must be correlated with the selection (experiencing competition problems) and uncorrelated with the error term in the outcome equation. The challenge is further amplified by the limited options available in the survey data we are working with.

A potential candidate variable for this role could be the SME's perception of the significance of effective competition among their direct competitors and themselves. This variable is likely to influence whether an SME perceives itself as having experienced competition problems, thus satisfying the relevance condition for a valid instrument. For instance, if an SME perceives high competition among its direct competitors, it might be more likely to perceive itself as facing competition problems due to the heightened competitive environment.

At the same time, while this variable is expected to influence whether an SME experiences competition problems, it is reasonable to assume that it does not directly affect the difficulties an SME faces due to competition, thus satisfying the exclusion restriction condition. The difficulties an SME faces due to competition problems could be influenced by a host of other factors – such as the SME's size, age, or turnover – but the perception of direct competition from rivals might not directly impact these difficulties. It is essential, however, to keep in mind that the validity of this instrument is an assumption and should be tested in the analysis.

Accordingly, we also include '*EFFECTIVE_COMPETITION*' to estimate the selection model as an ordered response variable. This variable captures the respondent's perception of the significance of effective competition among direct competitors, rated on a four-point scale from 'very important' to 'not at all important.' The main identifying assumption here is that the perception of the significance of effective competition among direct competitors affects the selection process (experiencing competition problems) but does not directly affect the outcome process (difficulties faced).

Table 1 summarizes the variables used in the estimation.

Table 1. The summary of the variables

Variable Name	Details	Formulation in the Questionnaire
PROBLEM	The '*PROBLEM*' variable is based on whether the firm has encountered issues due to a lack of competition in various business activities. We create a set of binary variables, including *PROBLEM_INPUT*, *PROBLEM_TRANSPORT*, *PROBLEM_FINANCIAL*, *PROBLEM_ENERGY*, *PROBLEM_DISTRIBUTION*, and *PROBLEM_DIGITAL*, from the responses to this question. Each variable is a dummy variable, equalling 1 if the SME has experienced competition-related problems in the respective area and 0 otherwise.	Have you ever experienced problems caused by a lack of competition in carrying out any of the following activities necessary for your business? • Sourcing raw materials inputs • Using transport services • Using financial services • Sourcing energy supply (e.g., gas, electricity) • Using retail channels or other distribution channels to reach customers • Using digital platforms to reach customers • Other • None
DIFFICULTY	The '*DIFFICULTY*' variable captures the main challenges faced by SMEs as a result of competition problems, including high prices, powerful suppliers, difficulty comparing prices, difficulty changing suppliers, insufficient choice, lack of innovation, unsatisfactory quality of goods or services, and powerful buyers imposing unfair buying conditions. A set of binary variables is created for each category of difficulty faced by SMEs (*DIFFICULTY_HIGH_PRICES*, *DIFFICULTY_POWERFUL_SUPPLIERS*, *DIFFICULTY_COMPARE_PRICES*...)	Thinking about the competition problem you just mentioned, what are the main difficulties you experience? • Prices are too high • Powerful suppliers are able to impose unfair selling conditions • It is difficult to compare prices • It is difficult to change suppliers • There is not enough choice • There is not enough innovation • The quality of the goods or services is not satisfactory • Powerful buyers are able to impose unfair buying conditions • Other

End of Table 1

Variable Name	Details	Formulation in the Questionnaire
EFFECTIVE_ COMPE-TITION	'*EFFECTIVE_COMPETITION*' captures the respondent's perception of the significance of effective competition among direct competitors, rated on a four-point scale from 'very important' to 'not at all important.'	Thinking about your business, how important do you think it is to have effective competition among your direct competitors and yourself • Very important • Fairly important • Not very important • Not at all important
NACE	The '*NACE*' variable corresponds to the main activity of the SME according to NACE classifications.	What is the main activity of your company? • MINING AND QUARRYING • MANUFACTURING • ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY • …
EMPLOYEE	'*EMPLOYEE*' shows the number of employees in three categories (1–9, 10–49, and 50–249)	How many employees (in full-time equivalents) does your company currently have? • 1 to 9 employees • 10 to 49 employees • 50 to 249 employees
AGE	'*AGE*' indicates how long the SME has been in operation, grouped into four categories: less than 1 year, between 1 and 5 years, between 6 and 10 years, and more than 10 years.	How long has your company been in business? • Less than 1 year 1 • Between 1 and 5 years 2 • Between 6 and 10 years 3 • More than 10 years 4
TURNOVER	'*TURNOVER*' reflects the SME's total turnover in 2021, presented in various bands.	What was your company's total turnover in 2021? • Less than 25,000 euro • More than 25,000 to 50,000 euro • More than 50,000 to 100,000 euro • …
COUNTRY	'*COUNTRY*' signifies the country where the SME operates.	In which (region) is your company headquarters located? • LOCAL CODES

Taking all of these into account, we can write the selection and outcome equations as follows:

Selection equation:

$$PROBLEM\_M_i = \alpha_0 + \alpha_1 EMPLOYEE_i + \alpha_2 TURNOVER_i + \alpha_3 AGE_i + \alpha_4 NACE_i + \alpha_5 COUNTRY_i + \alpha_6 EFFECTIVE\_COMPETITION_i + u_{1i}. \quad (2)$$

Outcome equation:

$$DIFFICULTY\_K_i = \beta_0 + \beta_1 EMPLOYEE_i + \beta_2 TURNOVER_i + \beta_3 AGE_i + \beta_4 NACE_i + \beta_5 COUNTRY_i + \beta_6 \lambda + u_{2i}, \quad (3)$$

where λ is the inverse Mills ratio calculated from the selection equation, *M* refers to the area in which the SME has experienced problems related to a lack of competition, and *u*'s are unobserved error terms. We estimate the selection equation using a Probit model because $PROBLEM\_M_i$ is a binary variable. This step provides estimates of $\hat{\alpha}$'s, which are then used to estimate the inverse Mills ratio (λ), which is the ratio of the probability density function (PDF) to the cumulative distribution function (CDF) of the standard normal distribution. Finally, λ is included as an additional regressor in the outcome equation to capture the extent of selection bias. The coefficient of the inverse Mills ratio (the Lambda term) is a measure of the correlation between the error terms in the selection and outcome equations. The null hypothesis is that this coefficient is zero, indicating no correlation between the errors in the two equations. Thus, the parameter β_6 is the measure of the correlation between u_{1i} and u_{2i}. If β_6 is significantly different from zero, it suggests that there is sample selection bias.

Given the nature of our data and the research question at hand, we are faced with a unique situation. We have identified six distinct problems (*PROBLEM_INPUT*, *PROBLEM_TRANSPORT*, *PROBLEM_FINANCIAL*, *PROBLEM_ENERGY*, *PROBLEM_DISTRIBUTION*, *PROBLEM_DIGITAL*) and nine different difficulties (*DIFFICULTY_HIGH_PRICES*, *DIFFICULTY_POWERFUL_SUPPLIERS*, *DIFFICULTY_COMPARE_PRICES*, *DIFFICULTY_CHANGE_SUPPLIERS*, *DIFFICULTY_ENOUGH_CHOICE*, *DIFFICULTY_ENOUGH_INNOVATION*, *DIFFICULTY_SATISFACTORY_QUALITY*, *DIFFICULTY_POWERFUL_BUYERS*, *DIFFICULTY_OTHER*), each of which we need to consider separately. Therefore, to capture the full complexity and variety of these interactions, we must estimate a total of 54 Heckman selection models. This figure is simply the product of the six problems and nine difficulties, as each problem can be associated with each of the difficulties.

4. Results

In analysing the challenges SMEs face in the EU-27 countries, we begin by reviewing the descriptive statistics derived from the survey responses (Table 2). Interestingly, more than half of the SMEs surveyed (about 53%) reported that they had not experienced any issues due to a lack of competition in their business operations.

However, a closer look at the data reveals that competition problems are more prevalent in certain areas, particularly when accessing necessary inputs. For instance, 11.91% of the surveyed SMEs highlighted specific hurdles related to competition when attempting to source raw materials. Similarly, 9.66% of SMEs reported encountering competition issues in securing energy supply. Given the essential nature of raw materials and energy as an input in business operations, these challenges can have far-reaching implications for SMEs' operational viability and sustainability. Moreover, these findings highlight systemic issues within supply chains and the broader market environment that disproportionately affect SMEs.

Our analysis further presents a breakdown of the various difficulties that SMEs face in different areas (Table 3). We also tabulate the percentage of SMEs that agree with a series of statements about the difficulties they face in these areas.

Among SMEs that report difficulties due to the absence of competition in various business activities, many identify high prices as a major challenge across all areas. In particular, sourcing energy supplies (70.17%) and raw materials (63.04%) poses significant problems for these SMEs. This finding indicates that these enterprises confront substantial cost pressures in critical areas of their operations, which may negatively affect their profitability and competitive positions. Additionally, a substantial proportion of SMEs report that they are subject to unfair selling conditions by powerful suppliers. This issue is particularly pronounced in the context

of retail or other distribution channels (60.81%) and sourcing energy supply (59.42%). These unfair conditions may include restrictive contracts or pricing strategies that disadvantage SMEs and reflect the power imbalance between SMEs and their suppliers.

Table 2. Descriptive statistics of SMEs' experience with competition problems in business activities

Have you ever experienced problems caused by a lack of competition in carrying out any of the following activities necessary for your business? (Yes = 1 / No = 0)	Frequency	Percent
Sourcing raw materials inputs	1,526	11.91
Using transport services	691	5.39
Using financial services	698	5.45
Sourcing energy supply (e.g., gas, electricity)	1,237	9.66
Using retail channels or other distribution channels to reach customers	467	3.65
Using digital platforms to reach custom	850	6.64
Other	198	1.55
None	6,785	52.97
Don't know/No answer	357	2.79
Total	12,809	100

Many SMEs subject to competition problems in respective areas find it difficult to compare prices and change suppliers, especially in sourcing energy supply (40.58% and 41.23%, respectively) and using financial services (34.24% and 32.09%, respectively). This finding points to market rigidity and a lack of transparency, making it challenging for SMEs to seek more competitive or favorable terms. Moreover, a notable percentage of SMEs that report difficulties attributable to lack of competition express concerns about the lack of choice and innovation in their supply chains, particularly in sourcing raw materials (42.20%) and energy supply (42.20% and 26.19%, respectively). These difficulties could hinder SMEs' ability to innovate in their offerings and adapt to market demand.

Quality issues are a major concern for SMEs across a range of services, with transport and financial services being the areas where the highest percentage of SMEs report dissatisfaction with the quality of goods or services received. This dissatisfaction can significantly affect SMEs' ability to provide quality products or services, potentially leading to reduced customer satisfaction and loyalty.

SMEs that report competition problems in respective areas also face unfair buying conditions from powerful buyers, most notably in using retail or other distribution channels to reach customers (43.90%) and using financial services (41.26%). This result suggests that SMEs are not only disadvantaged in their relationships with suppliers but also in their interactions with large customers or clients.

Turning to econometric estimations, we present the results of the Heckman selection models in Table 4 (detailed results have not been reported due to space constraints). The variables of interest in the selection and outcome equations are displayed in the first and second columns, respectively. The fourth and fifth columns are dedicated to two sets of p-values: those for the Wald chi-squared statistic, testing the joint null hypothesis that all coefficients of the explanatory variables in the models (excluding the constant term) are zero, and those for the inverse Mills' ratio.

The succeeding columns present the p-values related to the joint significance of our explanatory variables. The statistical significance here confirms our previously stated hypotheses. It is important to note that in most models, the p-values for the Wald chi-squared statistic are close to zero. This implies that the coefficients of the explanatory variables in these models (excluding the constant term) differ from zero. However, an exception arises in the model containing the variable *PROBLEM_TRANSPORT*, which exhibits large p-values for the Wald chi-squared statistic.

The p-values for the inverse Mills' ratio are very large, suggesting that the parameter β_6 in the outcome equation is not significantly different from zero. This lack of correlation between the errors in the two equations implies that the errors follow a bivariate normal distribution and that there is no sample selection bias.

Turning to SME size, we find that the p-values for the joint significance of the number of employees and turnover categories largely exceed conventional statistical levels (1%, 5%, and 10% levels). This finding suggests that SME size does not influence their propensity to fall victim to antitrust offenses. Consequently, ***Hypothesis 1*** is not supported by our data. Thus, this finding challenges the common perceptions about the vulnerability of smaller enterprises. Furthermore, the lack of support for Hypothesis 1 suggests that regulatory protections and interventions should focus on more than just enterprise size.

Similarly, the age of SMEs does not appear to significantly affect their likelihood of experiencing antitrust violations, as the p-values for the joint significance of the age categories are mostly larger than the conventional statistical levels. This leads to the conclusion that ***Hypothesis 2*** has not been validated. Thus, the age of SMEs, much like their size, does not determine their vulnerability to antitrust offenses. The lack of a significant relationship between SME age and antitrust violation exposure challenges the assumptions about the protective benefits of longevity in the market. This finding suggests that factors other than the age of the enterprise are more critical in influencing their risk of being subject to antitrust violations.

However, the sector in which an SME operates does play a role in its exposure to difficulties experienced by SMEs. The p-values for the joint significance of the sector classifications are generally lower than conventional statistical levels, apart from SMEs reporting problems in using financial services. Thus, ***Hypothesis 3***, which proposes an industry-dependent likelihood of SMEs encountering antitrust violations, is supported by our findings. Consequently, the support for ***Hypothesis 3*** provided by our data highlights the importance of considering industry-specific factors when analysing antitrust violations. This finding has significant implications for policymakers, regulatory authorities, and industry stakeholders, suggesting that antitrust enforcement and protective measures may need to be tailored to the unique characteristics and vulnerabilities of SMEs in different sectors.

Finally, our results indicate that the likelihood of an SME being subjected to difficulties arising from competition problems varies across countries. This is shown by the small p-values for the joint significance of country-fixed effects, confirming ***Hypothesis 4.*** This result indicates a clear variation in the likelihood of SMEs facing difficulties arising from competition problems based on their country of operation. The confirmation of Hypothesis 4 underscores the importance of considering the country-specific context when analysing SMEs' competition-related difficulties. It highlights the need for policies and regulatory interventions that are not only tailored to the specific challenges faced by SMEs within different sectors but are also adapted to address the unique conditions and requirements of SMEs operating in diverse national environments.

Table 3. Cross-tabulation of SMEs' experience with competition problems and associated difficulties

	Prices are too high	Powerful suppliers are able to impose unfair selling conditions	It is difficult to compare prices	It is difficult to change suppliers	There is not enough choice	There is not enough innovation	The quality of the goods or services is not satisfactory	Powerful buyers are able to impose unfair buying conditions	Other
Sourcing raw materials inputs	63.04%	51.57%	28.37%	39.97%	42.20%	18.87%	26.80%	37.81%	6.29%
Using transport services	56.15%	43.56%	32.56%	35.17%	35.02%	21.71%	30.82%	31.98%	5.64%
Using financial services	51.00%	54.01%	34.24%	32.09%	34.53%	27.22%	32.09%	41.26%	6.45%
Sourcing energy supply (e.g., gas, electricity)	70.17%	59.42%	40.58%	41.23%	42.20%	26.19%	25.06%	39.94%	2.18%
Using retail channels or other distribution channels to reach customers	51.82%	60.81%	36.40%	35.76%	28.05%	20.99%	29.76%	43.90%	6.00%
Using digital platforms to reach customers	47.76%	46.71%	35.41%	31.76%	27.29%	22.94%	32.35%	36.00%	5.18%
Other	39.90%	36.36%	28.79%	25.76%	22.73%	15.15%	22.22%	25.76%	11.62%

Notes: The final category of 'Other' has been excluded from the analysis because it does not have an economic interpretation.

Table 4. Heckman selection model estimation results

Dependent Variable of The Selection Equation	Dependent Variable of The Outcome Equation	Number of Observations	p-value for the Wald chi-squared Test Statistic	p-value for the Inverse Mill's Ratio	p-value for the Joint Significance of Number of Employees Categories	p-value for the Joint Significance of Turnover Categories	p-value for the Joint Significance of the Age Categories	p-value for the Joint Significance of NACE Classifications	p-value for the Joint Significance of Country Variables
1	2	3	4	5	6	7	8	9	10
PROBLEM_ INPUT	DIFFICULTY_ HIGH_PRICES	10,295	0.000	0.354	0.243	0.016	0.405	0.000	0.000
PROBLEM_ INPUT	DIFFICULTY_ POWERFUL_ SUPPLIERS	10,295	0.000	0.011	0.309	0.097	0.393	0.000	0.000
PROBLEM_ INPUT	DIFFICULTY_ COMPARE_ PRICES	10,295	0.000	0.252	0.209	0.072	0.545	0.000	0.000
PROBLEM_ INPUT	DIFFICULTY_ CHANGE_ SUPPLIERS	10,295	0.000	0.084	0.466	0.058	0.805	0.000	0.000
PROBLEM_ INPUT	DIFFICULTY_ ENOUGH_ CHOICE	10,295	0.000	0.442	0.042	0.211	0.278	0.000	0.000
PROBLEM_ INPUT	DIFFICULTY_ ENOUGH_ INNOVATION	10,295	0.000	0.040	0.373	0.163	0.336	0.000	0.000
PROBLEM_ INPUT	DIFFICULTY_ SATISFACTORY_ QUALITY	10,295	0.007	0.037	0.448	0.133	0.616	0.000	0.000
PROBLEM_ INPUT	DIFFICULTY_ POWERFUL_ BUYERS	10,295	0.000	0.398	0.280	0.079	0.456	0.000	0.000
PROBLEM_ INPUT	DIFFICULTY_ OTHER	10,295	0.000	0.580	0.141	0.143	0.763	0.000	0.000
PROBLEM_ TRANSPORT	DIFFICULTY_ HIGH_PRICES	10,295	1.000	0.837	0.134	0.721	0.797	0.002	0.003
PROBLEM_ TRANSPORT	DIFFICULTY_ POWERFUL_ SUPPLIERS	10,295	1.000	0.837	0.155	0.763	0.813	0.003	0.004
PROBLEM_ TRANSPORT	DIFFICULTY_ COMPARE_ PRICES	10,295	0.062	0.992	0.158	0.445	0.652	0.000	0.000

End of Table 4

1	2	3	4	5	6	7	8	9	10
PROBLEM_ TRANSPORT	DIFFICULTY_ CHANGE_ SUPPLIERS	10,295	0.000	0.971	0.159	0.296	0.694	0.000	0.000
PROBLEM_ TRANSPORT	DIFFICULTY_ ENOUGH_ CHOICE	10,295	1.000	0.837	0.155	0.704	0.822	0.003	0.004
PROBLEM_ TRANSPORT	DIFFICULTY_ ENOUGH_ INNOVATION	10,295	0.993	0.837	0.156	0.680	0.837	0.002	0.000
PROBLEM_ TRANSPORT	DIFFICULTY_ SATISFACTORY_ QUALITY	10,295	0.841	0.837	0.148	0.627	0.772	0.001	0.000
PROBLEM_ TRANSPORT	DIFFICULTY_ POWERFUL_ BUYERS	10,295	0.000	0.886	0.068	0.347	0.811	0.000	0.000
PROBLEM_ TRANSPORT	DIFFICULTY_ OTHER	10,295	0.916	0.837	0.135	0.486	0.798	0.001	0.000
PROBLEM_ FINANCIAL	DIFFICULTY_ HIGH_PRICES	10,295	0.000	0.823	0.188	0.584	0.388	0.003	0.000
PROBLEM_ FINANCIAL	DIFFICULTY_ POWERFUL_ SUPPLIERS	10,295	0.000	0.451	0.142	0.720	0.460	0.127	0.000
PROBLEM_ FINANCIAL	DIFFICULTY_ COMPARE_ PRICES	10,295	0.001	0.559	0.212	0.480	0.108	0.375	0.000
PROBLEM_ FINANCIAL	DIFFICULTY_ CHANGE_ SUPPLIERS	10,295	0.048	0.505	0.057	0.336	0.407	0.430	0.000
PROBLEM_ FINANCIAL	DIFFICULTY_ ENOUGH_ CHOICE	10,295	0.101	0.499	0.217	0.627	0.152	0.390	0.000
PROBLEM_ FINANCIAL	DIFFICULTY_ ENOUGH_ INNOVATION	10,295	0.437	0.437	0.230	0.643	0.086	0.198	0.000
PROBLEM_ FINANCIAL	DIFFICULTY_ SATISFACTORY_ QUALITY	10,295	0.001	0.428	0.062	0.543	0.190	0.034	0.000
PROBLEM_ FINANCIAL	DIFFICULTY_ POWERFUL_ BUYERS	10,295	0.000	0.708	0.196	0.302	0.461	0.486	0.000
PROBLEM_ FINANCIAL	DIFFICULTY_ OTHER	10,295	0.000	0.603	0.177	0.400	0.276	0.074	0.000

Notes: The models with *PROBLEM_DISTRIBUTION* as the dependent variable of the selection equation could not be estimated due to convergence problems. The coefficient on *EFFECTIVE_COMPETITION* is significant at the 5% level in all selection equations except for *PROBLEM_TRANSPORT*. The number of observations decreased from 12,809 to 10,295 because of missing values for some variables.

5. Discussion

As a key component of the economic system, SMEs may be susceptible to competitive harm. SMEs can fall prey to anti-competitive practices or be victims of antitrust violations, albeit via slightly divergent mechanisms. Price increases can harm SMEs when dominant suppliers resort to anti-competitive practices that allow price hikes. In terms of quality, SMEs might encounter a decline if a dominant entity employs anti-competitive tactics that curtail the motivation to uphold high-quality standards. This can affect SMEs as consumers of those products or services. Anti-competitive practices can also lead to limited market choice for SMEs. A case in point could be a merger between two major suppliers, potentially narrowing the selection of suppliers available to an SME. Lastly, innovation, a critical driver for SMEs, can be stifled by anti-competitive practices. For instance, a dominant firm might indulge in predatory practices to push innovative SMEs out of the market.

Thus, this paper takes a 'victim' point of view and rules out the possibility of anti-competitive behaviour by SMEs themselves. In addressing the potential for anti-competitive behaviour among SMEs, it is important to consider the inherent characteristics of these entities. Typically, SMEs are constrained by their limited market share, resources, and operational scale, which significantly reduces their ability to engage in or sustain anti-competitive practices, such as price fixing or market manipulation. This diminished capacity to exert market power often positions SMEs as more likely to be victims rather than perpetrators of anti-competitive behaviour. Larger firms with more market power can feasibly engage in practices that disadvantage smaller competitors, such as predatory pricing or exclusive contracts. Consequently, while not dismissing the theoretical possibility of SMEs participating in anti-competitive activities, either independently or in collusion, the practical reality, supported by empirical evidence (e.g., Karlinger et al., 2020; Baltzopoulos et al., 2021; Buettner et al., 2022), suggests that large firms with market power are offenders for such anti-competitive practices.

Furthermore, this study does not advocate a dichotomized approach to competition policy in which SMEs are shielded from anti-competitive behaviour at the expense of larger firms. Rather, it takes a comprehensive view of competition advocacy, which applies uniformly across the entire spectrum of firm sizes. The emphasis on SMEs in parts of the analysis stems from their unique characteristics and the specific challenges they face in the market, which are often distinct from those encountered by larger firms. However, this focus does not imply an exclusive protectionist stance towards SMEs.

The empirical results presented here provide insights into the competition dynamics experienced by SMEs. It is important to note that many SMEs in the EU, 53%, as per the data, do not experience significant issues related to competition. This suggests that the competitive environment is conducive to the operation of SMEs, although it is worth acknowledging the remaining portion that encounters competition challenges. These issues manifest in input acquisition through high prices and powerful suppliers imposing unfavourable selling conditions. This finding aligns with the empirical findings of Golodner (2001) and Storey (2010), as well as the theoretical findings of Wyld et al. (2012), who noted similar challenges faced by SMEs.

Resource Dependence Theory (Pfeffer & Salancik, 1978) provides a framework for understanding the challenges faced by SMEs regarding high input prices. Inputs, the fundamental resources for production, are a significant determinant of the cost structure of these firms. The prices of inputs critically influence SMEs' cost structures and operational efficiency, which are paramount for their survival and competitiveness in the market. Owing to their smaller

size, SMEs generally operate with narrower profit margins than larger corporations, making them particularly susceptible to price fluctuations in essential inputs. This susceptibility not only underscores a power imbalance – where larger firms wield greater negotiating power and financial resilience – but also heightens SMEs' dependency on securing inputs at competitive rates.

The position of SMEs in relation to input costs can trigger a detrimental cycle. High input costs may thin out already slim margins, potentially driving SMEs towards unsustainable operations. This margin erosion can force SMEs to increase their product prices, which may diminish their competitive edge, especially against larger firms that benefit from economies of scale and stronger bargaining positions. The dominance of powerful suppliers over critical inputs further complicates this scenario. These suppliers may impose unfavourable terms – such as steep prices and strict contractual conditions – exploiting their advantageous position to extract superior terms from the more dependent SMEs.

Interesting insights emerge when we consider the role of firm characteristics in being exposed to competition violations. Contrary to conventional expectations, our study reveals that the size and age of SMEs are not significant determinants of their vulnerability to competition offenses. This finding challenges the traditional view, as discussed in Penrose (2009), that smaller and younger firms are inherently more at risk in competitive environments. This implies that SMEs, regardless of their age or size, seem capable of navigating their business environments without disproportionate exposure to competition risks.

The finding that the size and age of SMEs are not significant determinants of their vulnerability to competition violations suggests that the inherent capabilities and resources within a firm, regardless of its size or age, play a pivotal role in its ability to manage competition risks. This perspective aligns with the Resource-Based View (RBV) of the firm, which posits that a firm's internal resources and capabilities are crucial determinants of its competitive advantage and performance (e.g., Wernerfelt, 1984; Teece et al., 1997). From an RBV standpoint, our findings imply that even smaller or newer SMEs might possess unique and valuable resources, such as innovative business models, agile management practices, specialized industry knowledge, or strong relational networks, which enable them to deal with competitive challenges effectively. These attributes do not necessarily correlate with firm size or age.

Thus, SMEs should focus on developing and leveraging unique capabilities and resources to manage competition risks rather than relying solely on growth in size or operational years. SMEs can leverage their agility to respond to competitive threats and opportunities more effectively than larger, less flexible competitors (Zastempowski & Cyfert, 2023) or collaborate with other firms, universities, or research institutions to access resources and capabilities that SMEs might not possess internally (Zahoor et al., 2020). For policymakers and regulators, these insights underscore the importance of not assuming vulnerability based solely on firm size or age.

The impact of industry-specific factors on SMEs' susceptibility to difficulties arising from competition problems is also evident in our analysis. Our findings suggest that each industry's unique characteristics and conditions significantly shape SMEs' competitive experiences. This finding aligns with the earlier studies that verify the role of industry characteristics in affecting the likelihood of antitrust violations (e.g., Frass & Greer, 1977; Symeonidis, 2003; Feuerstein, 2005).

The geographical variability in SMEs' experiences with various difficulties that originate from competition problems underscores the influence of national contexts in shaping these

dynamics, even within an economic union (the EU) where a unified set of antitrust regulations is in place. The empirical results highlighting geographical variability in SMEs' experiences with competition problems can be insightfully interpreted through Institutional Theory (e.g., Scott, 1995). This theory emphasizes the profound impact of different national contexts, including regulatory environments, cultural norms, and political systems, on organizational behaviour and market dynamics.

Finally, these findings add to the discussion on the potential roles of SMEs in competition authorities' market oversight and screening activities. The unique position of SMEs in the marketplace provides them with an invaluable perspective on the operations of their specific market. Often closer to the realities of everyday business practices, SMEs can offer insightful information on possible instances of antitrust breaches and inequitable competition practices. Furthermore, SMEs tend to be the first to feel the impacts of antitrust violations due to their direct involvement in the market. Instances of predatory pricing or market monopolization can be spotted early by SMEs, providing antitrust authorities with valuable first-hand evidence.

However, it is vital to consider that this approach also has substantial challenges. SMEs might hesitate to report anti-competitive behaviour due to the risk of retaliation from larger, more powerful companies. Additionally, SMEs might lack the necessary resources and legal knowledge to compile evidence and present a persuasive case to antitrust authorities. They may also not fully comprehend what actions constitute an antitrust violation (Schaper, 2010).

6. Conclusions

SMEs are integral to the global economic landscape, driving job creation and contributing significantly to the national gross domestic product (GDP). As vital agents of economic dynamism and innovation, these businesses need to operate in environments that foster fair competition. This paper has explored the nature and extent of competition violations experienced by SMEs in the EU.

The theoretical contribution of this paper lies in its victim perspective on SMEs in the context of anti-competitive behavior. This approach, which highlights the unique vulnerabilities of SMEs to anti-competitive practices, differs from traditional competitive harm theories that ignore SMEs. Additionally, the paper reevaluates the role of firm characteristics such as size and age in competitive dynamics, suggesting that inherent firm capabilities and resources play a more critical role in managing competition risks than previously assumed.

On a practical level, this paper demonstrates that effective competition policies for SMEs should focus more on enhancing capabilities and resources rather than merely adjusting for firm size or age. This insight is crucial for developing effective competition regulations. Furthermore, it offers strategic recommendations for SMEs, encouraging them to develop unique capabilities and leverage their agility to respond to competitive threats. This study also highlights the potential of SMEs to contribute significantly to market oversight and antitrust screenings, suggesting that competition authorities could benefit from SMEs' unique market insights and experiences.

However, it is important to acknowledge the limitations of this study. The data analysed in this research covers only one wave, which may not fully capture the dynamism and temporal variations in competition dynamics. Furthermore, the lack of more disaggregated data restricts the ability to investigate the competition issues SMEs face at a more granular level, such as by sub-sector or region within countries. Future research could address these

limitations by including multiple data waves and employing more detailed datasets to gain more precise insights.

Finally, the empirical work in this study was derived from secondary data. Although secondary data offer valuable insights and broaden the empirical scope of our study, its perceptual basis inherently carries certain limitations. These include potential biases in the original data collection process and the interpretation of these datasets. Future research could benefit from incorporating primary data sources and employing mixed-method approaches to validate and complement the findings derived from secondary data.

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