

## THE UNEVEN EFFECTS OF COVID-19 ON THE GERMAN RESTAURANT AND BAR INDUSTRY

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With 1 figure and 3 tables

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**Summary:** The COVID-19 crisis in the restaurant and bar industry is affecting an industry that has been under significant pressure before. Using the concept of organizational resilience from a spatial perspective, we analyze how individual/company factors and regional factors influence owner's assessment of resilience in the German restaurant and bar industry. Findings from an online survey with 445 owners and managers and 46 qualitative interviews in Germany show that enterprises in peripheral locations are perceived as more resilient. Similarly, the age of the respondents, the ownership of property and the provision of delivery and takeaway service play a positive role in enterprises being seen as resilient, while, owner-managed enterprises, financing by loans or credit, and lower ex-ante sales reduce the likelihood of the assessment of resilience. Overall, the study contributes to the evolving strand of research that aims to analyze the resilience of enterprises from a spatial perspective.

**Zusammenfassung:** Die COVID-19-Krise im Gaststättengewerbe betrifft eine Branche, die bereits zuvor unter erheblichem Druck stand. In diesem Artikel analysieren wir mit Hilfe des Konzepts der organisationalen Resilienz, wie individuelle/betriebliche Faktoren und regionale Faktoren die Einschätzung der Resilienz durch die Eigentümer im deutschen Gaststättengewerbe beeinflussen. Die Ergebnisse einer Online-Befragung von 445 befragten Unternehmen und 46 qualitativen Interviews in Deutschland zeigen, dass Unternehmen in peripheren Lagen als widerstandsfähiger wahrgenommen werden. Ebenso spielen das Alter der Befragten, der Besitz von Immobilien und das Angebot von Liefer- und Abholdiensten eine Rolle dabei, dass Unternehmen als resilienter eingeschätzt werden, während inhabergeführte Unternehmen, Finanzierung durch Kredite und geringere Vorjahresumsätze die Wahrscheinlichkeit der Einschätzung der Resilienz verringern. Insgesamt trägt die Studie zu dem sich entwickelnden Forschungsstrang bei, in dem die organisationale Resilienz aus einer räumlichen Perspektive analysiert wird.

**Keywords:** Economic geography, corona, crisis, hospitality, resilience, Germany

### 1 Introduction

The temporary closure of restaurants and bars, and the implementation of social distancing as a mitigation strategy of the COVID-19 pandemic in many countries, poses many challenges for restaurants and bars in recovering from the crisis (GÖSSLING et al. 2021). While this specific crisis and its effects, as well as the reactions of the affected actors in themselves create a need for research, there is also a general need to study the consequences for the restaurant and bar industry; a sector that is highly vulnerable to crises due to its dependence on direct consumption. So far, there are only a few studies that deal specifically with the impacts of, and reactions to, the crisis in this industry (e.g. SEO et al. 2014, WILKESMANN & WILKESMANN 2020, NEISE et al. 2021b).

While the literature on crises in this industry is limited, there is more extensive literature on the success factors, or reasons for the closure of restau-

rants and bars (e.g. SCHNEIDER 2008, PARSA et al. 2011, LE 2015). Studies in this strand of literature emphasize the impact of the location (e.g. PARK & KHAN 2006, PRAYAG et al. 2012, SELF et al. 2015), but it has not yet been analyzed as to how the regional context influences the resilience of the restaurant and bar industry.

We use the concept of organizational resilience from a spatial perspective, to analyze the consequences of the first COVID-19 lockdown (March–May 2020) for the German restaurants and bars, using an online-survey with a data set of 445 respondents. During the lockdown all restaurants and bars were closed for on-site consumption, but take-away and delivery services were still permitted.

Until now, most studies in economic geography have used the concept of resilience to explain how regions manage successfully short- or long-term economic shocks. Recent studies emphasize that the more enterprises and other economic actors in

the region are robust and able to adapt to changes (e.g. DUSCHL 2016, BILLINGTON et al. 2017, CANELLO & VIDOLI 2020), the more the region will be seen as resilient. However, these studies rather neglect the micro-level, the individual enterprises. Therefore, the present study turns the question of recent studies on regional economic resilience “how does the performance of enterprises influence regional resilience?” into the question “how do regional context factors influence the resilience of enterprises?” Thereby, the study considers the mutual relationship between companies and regional economies. This is based on the fact that not only does the performance of companies influence regional economies, but that the institutional and structural nature of the regional economy also determines the viability of companies (TSIAPA & BATSIOLAS 2018: 2).

The organizational resilience approach has its roots in organization and business studies (see NEISE 2019). In this strand of literature, determinants at the individual level of the owner/manager and the firm level are especially considered in assessing the resilience of companies. Due to its conceptual origins, work on organizational resilience tends to focus less on the spatial context. However, several recent studies highlight the influence of the spatial context on the resilience of enterprises (see TSIAPA & BATSIOLAS 2018, HERBANE 2019, SCUDERI et al. 2020). With its focus on regional context factors, this study contributes to the concept of organizational resilience, and its application in economic geography. The gained insights are helpful to understand the uneven spatial impacts of the COVID-19 crisis on businesses.

The remainder of this article is organized as follows: In the next section we develop our conceptual framework. Section 3 presents the German restaurant and bar industry, and its structural and format changes, as well as the measures taken in the context of the COVID-19 pandemic. Before the empirical results are presented and discussed, we introduce our data as well as the methodology. Finally, we draw a conclusion and provide recommendations.

## 2 Organizational resilience from a multilevel perspective

To analyze the resilience of enterprises within the COVID-19 crisis, we use the concept of organizational resilience. In the literature, the notion of resilience is characterized by the existence

of different perspectives and definitions. In its original understanding, resilience is defined as a simple bounce back from shocks into the original situation (HOLLING 1973). Especially since the 1990s, different understandings and applications of the resilience concept have been evolved in different disciplines. One of the emergent understandings of resilience is organizational resilience that originated in the organization and business studies.

The concept of organizational resilience has been developed to explain how organizations survive, respond and adapt to disruptive changes and crises. As a result of numerous crises in the last two decades this strand of research has received a lot of attention (SAHEBJAMNIA 2018). According to BARASA et al. (2018: 496) recent research conceptualizes organizational resilience as a capability to withstand shocks and transform in the face of challenges. Organizational resilience can thus be defined as “a firm’s ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten the firm’s survival” (LENGNICK-HALL et al. 2011: 244). Thereby, we take into account the capacity for resilience of enterprises during a crisis “as a result of not only current adjustments but also of cumulative previous experience obtained from historical structural changes and transformations” (TSIAPA & BATSIOLAS 2018: 2).

A large number of determinants influence the resilience of companies. So far research on organizational resilience focuses on factors internal to the company. Although several recent studies emphasize the influence of external factors on organizational resilience (see TSIAPA & BATSIOLAS 2018, HERBANE 2019, SCUDERI et al. 2020), these have so far remained understudied. From the current theoretical and empirical literature, determinants at three levels can be identified: the individual level of the owner/manager, the firm level and the regional level (cf. Fig. 1).

### 2.1 Individual level

Research shows that organizational resilience is related to education and work experience of company owners and managers (PARSA et al. 2005, SYDNOR 2009, KHAN & SAYEM 2013). This knowledge can be used to better respond to crises. The same applies to knowledge from formal education.

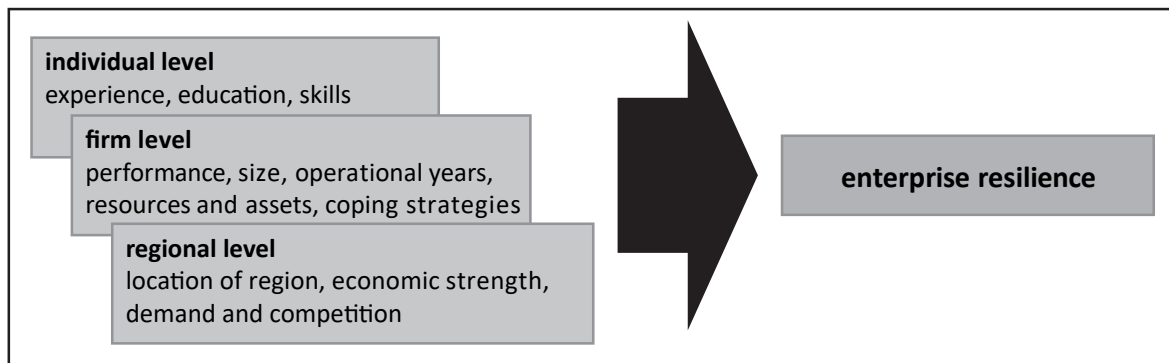


Fig. 1: Analytical framework explaining enterprise resilience

Studies especially addressing the restaurant and bar sector emphasize the importance of the work experience of owners and managers both for the general success of companies in normal times and for the specific situation in times of crisis. PARSA et al. (2005) show that when managers lack work experience and the skills to run a restaurant, they are less successful “in adapting to environmental turbulence, and usually show inadequate planning” (PARSA et al. 2005: 307). Work experience, as a basis for adaptive capacity, takes on special significance in crisis situations. TIBAY et al. (2018) emphasize the importance of leadership and management skills as core competencies of owners or managers in achieving resilience based on a study about the hospitality sector in Auckland.

## 2.2 Firm level

A key indicator as to whether or not companies are able to robustly withstand a crisis, is their performance before the crisis. When companies already face problems of profitability prior the disruptive event, they have a higher probability of not being able to withstand the shock, and close (cf. ESTEVE-PÉREZ & MAÑEZ-CASTILLEJO 2008). Debts are a particularly critical constraint in a crisis, as interest payments must be met even if the company makes no profit. Hence, low levels of indebtedness give companies more financial flexibility; and thus, more response capabilities in the event of a crisis, including the potential to raise new loans more easily (FREEAR 1980). CONZ & MAGNANI (2019) argue that enterprise resilience requires that firms should hold on to resources and own assets (e.g. technological, human and financial) to maintain business performance in a crisis. Resource constraints can make it more dif-

ficult for enterprises to overcome a disruptive crisis (NEISE & REVILLA DIEZ 2019). In addition to financial capital, the ownership of real estate is an important influencing factor – this is especially true for the restaurant and bar industry. On the one hand, the ownership of corporate real estate represents a resource that ensures that one is not burdened with rental costs and the real estate can serve as security for loans. On the other hand, the ownership of real estate can also trigger costs, real estate can lose value and the ownership of real estate can make business decisions inflexible (SELF et al. 2015).

The literature also shows that the resilience of companies during a crisis is particularly evident in their ability to make short-term responses (i.e. coping). Coping is understood as an immediate response to the challenges and impacts of disruptive events (BERMAN et al. 2012). Coping strategies are often reactive and aim to minimize the negative effects of disruptive events (NEISE & REVILLA DIEZ 2019). TIBAY et al. (2018) found that companies in the hospitality sector in Auckland are very vigilant in responding to slow changes, but rarely have real mitigation strategies in the case of large disruptions. The reason is that natural disasters or other disruptive events occur too infrequently. Therefore, there is a need to stress the implementation of long term mitigation plans (TIBAY et al. 2018).

Research also shows that a bigger size (PARSA et al. 2015) and older age (e.g. HEADD 2003, KANIOVSKI & PENEDER 2008) are important factors for the resilience of enterprises. Moreover, the form of ownership has a significant influence on organizational resilience, as corporate owned enterprises have a higher probability of survival compared to owner- or family-managed enterprises (PARSA et al. 2005, HAYNES et al. 2019).

### 2.3 Regional level

In the literature on organizational resilience, little attention has been paid to the influence of spatial context conditions on the resilience of companies (STEVENSON 2014). However, recent studies try to overcome the under-spatialized understanding of organizational resilience (e.g. TSIAPA & BATSIOLAS 2018, HERBANE 2019, SCUDERI et al. 2020).

Most studies investigate the influence of the location on organizational resilience. For example, in their study on micro shops in Uganda, SCUDERI et al. (2020) found that shops that are located closer to the capital Kampala are more resilient. ANDRES & ROUND (2015) illustrate, in their study on small and medium sized companies in the creative economy, that location helps to cope with economic downturn, and thus can be seen as a crucial determinant of organizational resilience during crisis.

There are a few studies that focus on the regional context. An exception is the study by TSIAPA & BATSIOLAS (2018) on firm resilience in East European regions, which shows that the economic performance of the region is a significant determinant for enterprise resilience. They argue that “[t]he initial GDP per capita level of regions is associated with firm resilience of more developed areas (central EU countries), while the GDP per capita growth of regions is related with firm resilience of less developed areas (Balkan and non-EU countries)” (TSIAPA & BATSIOLAS 2018: 13).

The lack of attention to regional context factors is also reflected in the literature on the restaurant and bar industry. While not referring directly to the concept of resilience, the literature highlights the location of companies as an important factor for company success or failure (PARSA et al. 2005, 2011, Self et al. 2015). “A prime location can mean a positive impact on customer convenience, customer loyalty, and a faster payoff on capital investment” (SELF et al. 2015: 330). However, few studies emphasize the influence of regional context factors on business success or failure. For example, SHRIBER et al. (1995) show that the demand for restaurants does not only depend on population density, but that there are also regional differences in the frequency with which people eat out, and this affects the demand for restaurants. HOPFINGER et al. (2013) show, for the German state of Bavaria, that the decline of beverage-oriented Inns (*Wirtshäuser*) is more noticeable in rural districts than in cities. Whereas DRÖGE & KRÄMER-BADONI (1987) assume that bars in rural areas can survive especially in remote and structurally weak regions.

### 3 Spatial patterns of structural change in the German the restaurant and bar industry

The developments in the restaurant and bar industry are receiving little attention from a spatial science perspective. Exceptions are the contributions of PÄTZOLD (e.g. 2014) on the restaurant and bar industry and urban planning, HOPFINGER et al. (2013) on the change in Inn culture in Bavaria, the work of Schmid and colleagues on the so-called night economy (e.g. KRÜGER et al. 2015, SCHMID et al. 2017), the dissertation by KEENAN (2017) on the changing relationships between breweries and pubs from a financialization perspective and FRANZ (2020a, 2020b) on the importance of the restaurant and bar industry for the local economy and urban development.

The restaurant and bar industry in Germany comprises 128,231 companies (BUNDESAGENTUR FÜR ARBEIT 2020: n.p.). In general, the hospitality industry (including hotels) in Germany is shaped by small and medium-sized enterprises – 99.6% of all companies have less than 100 employees (LICHTBLAU et al. 2017: 4). Franchise restaurants and bars generate approximately 30% of the total restaurant and bar industry turnover in Germany (DEHOGA 2019: 3). Overall, the trend is that the number of restaurants and bars in Germany is declining (DEHOGA 2012, DEHOGA 2020).

In parallel with the decline of individual restaurants and pubs, in particular, existing companies are increasingly concentrated in central locations. A growing attraction of restaurants and bars in the centers of medium-sized and large cities, together with increased mobility of potential guests, has led to longer distances being accepted for visiting restaurants and bars. This development began in the various regions of Germany at different times between the 1970s and 1990s. Whereas large parts of the population traditionally had a small-scale orientation in their choice of restaurants and bars (DRÖGE & KRÄMER-BADONI 1987), certain establishments and locations were now able to expand their catchment areas. This resulted in a wave of closures of those restaurants and bars, which were not able to expand their catchment area in this way - this particularly affects restaurants and bars in residential and rural areas. HOPFINGER et al. (2013) show, for Bavaria, that the decline of beverage-oriented companies is even stronger than that of food-oriented companies, and that this decline is more distinct in the rural districts than in the cities. Thus, while more and more restaurants and bars, which previously had a local supply function, are closing in residential ar-

eas in large and medium-sized towns as well as in villages or small towns, more and more restaurants and bars are being concentrated in central locations increasing the uneven distribution of restaurants and bars in Germany. This also includes a growing number of restaurants in pedestrian zones and shopping centers, where they partly close the gaps left behind by the decline in stationary retail trade as a result of competition from other locations and online trade (FRANZ 2020b). At the same time, however, the enterprises have entered into more intense competition often accompanied with a lower base of loyal (often recurring) customers.

#### 4 Methodology

From a methodological perspective, we define the restaurant and bar industry in Germany, which comprises 128,231 companies (BUNDESAGENTUR FÜR ARBEIT 2020: n.p.), as our target population. To analyze how the regional context influences enterprise resilience in the German restaurant and bar industry, we used an online-survey. The questionnaire includes information on the responses to the COVID-19 pandemic, the use of government assistance, business performance before the crisis, and general enterprise characteristics. As we did not have access to a full list of all these 128,231 companies, the survey was sent to business associations, such as regional entities of the Chambers of Industry and Commerce, the German Hotel and Restaurant Association (DEHOGA), as well as local and regional business development agencies throughout Germany, which distributed the survey to their members. In total, we received 623 responses between April 19 and June 10 2020. Ninety percent of respondents completed the survey within the first lockdown period (until 11th May 2020). But all respondents were instructed to consider the situation in April, when the first immediate effect of the lockdown appeared. We excluded 178 enterprises from the analysis due to missing values. Consequently, our sample is based on 445 observations, clustered in 129 counties (Landkreise), which are equal to the NUTS3-level. Our sample can be defined as large enough for a meaningful statistical analysis. While this non-probability sampling approach does not allow for statistical inferences for the industry as a whole, it, nevertheless, provides statistical insights into the factors driving perceived resilience of the sampled companies. Of all enterprises included in our sample, 37.8% are situated in rural areas and 62.2% in urban areas; 23.8% in peripheral

locations and 76.2% in central locations. Our sample differs slightly from the target population, where 29.4% of the companies are situated in rural areas and 70.6 % in urban areas. With respect to the peripheral and central location, our sample represents much better the target population: 21.3% are located in peripheral locations and 78.7% in central locations (own calculation based on BUNDESAGENTUR FÜR ARBEIT 2020 and BBSR 2020). The respondents were mainly owners (82.8%) or managing directors (16.5%) and on average 50 years old. Of those included in our sample, 30.8% were female and 69.2% male. Table 1 presents our derived independent variables.

We developed a dichotomous dependent variable, named ‘enterprise resilience’, where 1 indicates that in the assessment of the owner or manager the viability of his/her enterprise is not threatened. Less than half (43.6%) of respondents evaluated their business as resilient. It should be emphasized that the variable “enterprise resilience” is not based on objectively measurable criteria, but on a self-assessment by the owner or managing director (cf. HERBANE 2020). This self-assessment allowed us to gain a deeper insight into the organizational resilience from the point of view of the respondents. For the owners in particular, emotional and personal preferences also play an important role in the ability to survive as they need to invest their savings, skills and knowledge to recover from the crisis (PARSA et al. 2005).

To analyze how the individual level influences the assessment of enterprise resilience, we developed four independent variables that are based on the mentioned studies in section 2. The variable ‘work experience’ represents how many years the respondent has worked in the restaurant and bar industry. The dichotomous variable ‘apprenticeship’ controls whether the owner or managers obtained a formal educational qualification in the restaurant and bar sector. The dichotomous variable ‘training’ means the respondents completed further training in business management. Furthermore, we included the control variable ‘age of respondents’ that indicates the age of the owner or manager. Earlier studies show that enterprises with older owners are more resilient (e.g. HEADD 2003: 56).

The influence of the firm level was tested by the following four variables. The dichotomous independent variable ‘decreased sales 2018-2019’ aims to test how weak performance before the COVID-19 pandemic determines the enterprise resilience assessment. The dichotomous variable ‘self-owned commercial property’ takes into account the assump-

Tab. 1: Derived independent variables

Independent variable	Mean	Std. Dev.	Min	Max	Observations
<i>Individual level</i>					
Work experience (years)	24.88	12.11	1	60	445
Apprenticeship (yes = 1)	0.55	0.50	0	1	445
Training (yes = 1)	0.80	0.40	0	1	445
Age of respondent (years)	50.00	9.72	22	75	445
<i>Firm level</i>					
Decreased sales 2018 - 2019 (yes = 1)	0.08	0.27	0	1	445
Investment via loans or credits (yes = 1)	0.47	0.50	0	1	445
Self-owned commercial property (yes = 1)	0.51	0.50	0	1	445
Managed by owner (yes = 1)	0.95	0.21	0	1	445
Employees per enterprise	16.50	15.61	1	102	445
Operational years	31.17	54.52	2	830	445
Delivery and take-away service (yes = 1)	0.41	0.49	0	1	445
Corona relief program (yes = 1)	0.87	0.33	0	1	445
Short-time work scheme (yes = 1)	0.78	0.42	0	1	445
<i>Regional level</i>					
Market concentration	0.06	0.01	0.04	0.08	445
Peripheral location (yes = 1)	0.24	0.43	0	1	445
Rural area (yes = 1)	0.38	0.49	0	1	445
Purchasing power per inhabitant	22269.59	1896.15	18021	31953	445
GDP per capita	69982.67	15527.19	51833	163592	445

tion that the ownership of assets supports enterprise resilience (BARASA et al. 2018: 497). Furthermore, we developed two control variables to analyze the impact of the enterprises' assets on the resilience assessment. First, the dichotomous variable 'investment via loans or credits' indicates that the enterprise does not own sufficient financial assets. Second, the 'employees per enterprise' is a proxy for the size of the enterprise. The variable takes into account the literature showing that the smaller the enterprise, the fewer assets it has at its disposal (PARSA et al. 2005, ISMAIL et al. 2011). The control variable 'operational years' tests whether enterprises with longer market presence tend to be assessed as resilient (e.g. HEADD 2003, KANIOVSKI & PENEDER 2008).

With respect to the coping activities of the enterprise, we included four independent variables. First, the dummy variable 'delivery and takeaway service' serves as a proxy as to whether the enterprise copes with the ban of in-situ consumption by delivering their products or offering takeaway menus during the lockdown period to generate some income. Second, the dichotomous variable 'corona relief program' takes into account whether the enterprise took advantage of the government rapid loan scheme to compensate for the missing income. The relief program should enable the enterprises to stabilize their

cashflow during the lockdown. Third, the dichotomous variable 'short-time work scheme' means that the enterprise used the common crisis program from the Federal Employment Agency. The short-time work scheme helps enterprises if normal working hours of employees have to be reduced due to temporary and unavoidable economic situations. In addition, we included the dichotomous variable 'managed by owner' that considers the literature showing that owner-managed enterprises have less coping capacity than corporate-owned enterprises (e.g. PARSA et al. 2005, 2011).

To analyze the regional context - our main research focus - we developed four explanatory variables. All variables refer to the county-level. The variable 'market concentration' covers the share of enterprises in the restaurant and bar industry in comparison to all enterprises in the county in 2019. The data has been provided by the Federal Employment Agency that collects all companies at their main location at the county level. We used all companies assigned to the business sector "Gastronomie", which includes all companies with direct food consumption (STATISTISCHES BUNDESAMT 2008). To assess whether a peripheral location makes it harder to be resilient, we included the dichotomous variable 'peripheral location'. In addition, we developed the dichotomous

variable ‘rural area’ to test whether enterprises in rural areas are perceived as less resilient. The data for both variables has been extracted from the Federal Office for Building and Regional Planning that categorizes each county according to their location. Rural areas are those counties with less than 150 inhabitants per square kilometer. The categorization ‘peripheral location’ is based on the ‘accessible daily population’ within the county (BBSR 2020). Furthermore, we included the variables ‘purchasing power per inhabitant’ and ‘GDP per capita’ of each county as proxies for the regional demand in the analysis. We used the latest data from 2017, provided by the Federal Statistics Office.

To decipher the impact of the individual, firm, and regional factors on perceived enterprise resilience, we estimated a two-level binary-logistic random intercept model, as running standard regression models with nested data would bear the problem of spatial autocorrelation, resulting in the assumption of independence of the observations being violated (HOX 2010, SOHNS & REVILLA DIEZ 2018). Due to the intertwined nature of characteristics of the owner and the characteristics of their companies, particularly in small and medium-sized companies, we treat the individual and firm characteristics as the lower level, while the regional characteristics are treated as the higher level in this multilevel approach. This hierarchical structure enables us to analyze the differences and interdependencies between variables at the individual/firm, and regional level (SOHNS & REVILLA DIEZ 2018, NEISE et al. 2021a).

The underlying equation of the resulting two-level binary-logistic random intercept model is:

$$\text{logit}(Y_{ij}) = \beta_0 + \beta_p X_{pij} + \beta_q Z_{qj} + \varepsilon_{ij} + \mu_j$$

with logit ( $Y_{ij}$ ) representing the logarithmic likelihood of being seen as resilient for observation  $i$  in county  $j$ . In addition,  $\beta_0$  represents the constant term of the regression. Furthermore,  $\beta_p$  and  $\beta_q$  represent the coefficients of the explanatory variables  $X_{pij}$ , and  $Z_{qj}$ . Here,  $X_{pij}$  represents the explanatory variables at the individual and firm level, and  $Z_{qj}$  represents those at the county level. The error terms are represented by  $\mu_j$  (county level) and  $\varepsilon_{ij}$  (individual and firm level).

In addition, we conducted 46 qualitative interviews with managers and owners of restaurants and bars as well as different experts, including representatives of the German Hotel and Restaurant Association (DEHOGA). Of these interviews, 33 were conducted before the COVID-19 pandemic in

the years 2018 to 2020, while 13 interviews were conducted between April and June 2020 after the outbreak of the pandemic. The 13 interviews were conducted with people who had not yet been approached before. All interviews were evaluated within the framework of a qualitative content analysis. The interviews are used to put the results of the quantitative analysis into the context of the general change in the restaurant and bar industry in Germany and to illustrate the results of the quantitative analysis with exemplary statements. Interview quotes were translated from German into English.

## 5 Results

### 5.1 Descriptive results of the regional level

To understand the importance of the regional level for the assessment of resilience, we first present the descriptive results of the respective variables (cf. Tab. 2). First, we focus on the location of the company, as the literature emphasizes its importance for the resilience of companies (cf. ANDRES & ROUND 2015, SCUDERI et al. 2020).

The results show that business owners and managers in a peripheral county rate their business as resilient more often (55.7%) than business owners and managers in central locations (39.8%). The chi-square test shows that this result is significant. Similar to peripheral location, being located in a rural area leads respondents to rate their business as resilient more often (48.8%) than owners and managers in urban areas (40.4%). With respect to the local market concentration the results do not show a clear distinction between respondents who evaluated their business as resilient (0.06) and not resilient (0.05).

Next to the location it is important to look at the economic strength of the respective location as it determines the demand side for the companies. Both variables, purchasing power and GDP per capita do not indicate clear differences between resilient and non-resilient perceived firms. It appears that overall regional economic strength has no impact on the resilience of restaurants and bars.

### 5.2 Discussion of multilevel results

As the first step for the multilevel analysis, we calculated the intercept null model, which estimates whether a multi-level approach is needed.

Tab. 2: Descriptive results of variables at the regional level

	Company is perceived as resilient		Pearson chi2(1)	Pr
	Yes	No		
<i>Peripheral location</i>				
Yes	55.7%	44.3%	8.2368	0.004
No	39.8%	60.2%	8.2368	0.004
<i>Rural area</i>				
Yes	48.8%	51.2%	2.9839	0.084
No	40.4%	59.6%	2.9839	0.084
	Company is perceived as resilient		z	Prob >  z
	Yes	No		
<i>Market concentration</i>				
mean	.06	.05	-0.573	0.5667
<i>Purchasing power</i>				
mean	22122.49	22383.28	1.544	0.1226
<i>GDP per capita</i>				
mean	69989.37	69977.5	0.179	0.8583

In addition, the null-model was used to calculate the Intraclass Correlation Coefficient (ICC), indicating the share of the variance accounted for by the random effect of the county level. The result indicates that the regional level explains 3.7% of the overall variance. However, the likelihood-ratio statistic ( $\text{Prob} > \chi^2 = 0.1286$ ) does not provide strong evidence that the between-council variation is non-zero ( $> 0.1$ ). Therefore, it would be possible to run an ordinary least squares model without expecting a bias. The deviance of the null-model is 608. In the second step, we added the individual/firm-level variables to the model (i.e. model 1), which leads to a small decrease of the ICC to 3.4%, indicating that some of the random effect of the county level is captured by individual/firm-level variables. The deviance declined significantly to 568, indicating an improvement of the model. In the third step, we included the county-level variables to the model (i.e. model 2), which leads to a significant decrease of the ICC to 0.2%, indicating that some of the council variables capture a significant part of the random effect of the county level. Moreover, the deviance declined further to 560, indicating an improvement of the model (cf. Tab. 3).

Regarding the individual level, the analysis does not reveal any significant effects with respect to the education and experience of the owner or manager. Thus, our analysis does not confirm previous evidence, which highlighted that formal education and leadership skills are important for

achieving enterprise resilience (KHAN & SAYEM 2013, TIBAY et al. 2018). As the COVID-19 crisis is an unknown challenge for owners and managers, it seems that knowledge and skills obtained through formal education, as well as work experience in the hospitality industry, do not help to manage the situation. However, the significant effect of the variable 'age of respondents' gives a hint that life experience contributes positively to coping with the COVID-19 crisis. The analysis shows that with every additional year of age, the likelihood of an enterprise being perceived as resilient by its owner or manager increases by 3.1% (significant at the 5% level). This result confirms the findings of PARSA et al. (2005) who suggest that life experience, as a form of adaptive capacity, enables owners or managers to handle crises.

With regard to the firm level, the analysis provides additional significant results: First, enterprises that had faced declining turnovers ahead of the lockdown show a 63.2% less likelihood of being perceived as resilient by their owner or manager (significant at the 5% level) than enterprises that had not faced declining turnovers ahead of the lockdown. This result confirms that prior weak business performance causes enterprises to have difficulty withstanding a crisis (ESTEVE-PÉREZ & MAÑEZ-CASTILLEJO 2008). "Many in the restaurant business, they just have their income and that's it. And when they don't have any income, it's like a catastrophe" (interview restaurant manager, 20.5.2020).



Tab 3: Multilevel binary-logistic regression results for enterprise resilience perception

Fixed effects	Odds ratio (standard error) model 0	Odds ratio (standard error) model 1	Odds ratio (standard error) model 2
<i>Individual level</i>			
Work experience		0.993 (0.012)	0.994 (0.012)
Apprenticeship		1.386 (0.353)	1.390 (0.355)
Training		0.710 (0.200)	0.687 (0.193)
Age of respondent (years)		1.034** (0.015)	1.031** (0.015)
<i>Firm level</i>			
Decreased sales 2018 - 2019		0.366** (0.161)	0.368** (0.162)
Investment via loans or credits		0.561*** (0.121)	0.555*** (0.119)
Self-owned commercial property		1.622** (0.368)	1.506* (0.351)
Managed by owner		0.411* (0.214)	0.395* (0.202)
Employees per enterprise		0.996 (0.007)	0.997 (0.007)
Operational years		0.996 (0.003)	0.996 (0.003)
Delivery and take-away service		1.417 (0.302)	1.471* (0.311)
Corona relief program		0.773 (0.245)	0.770 (0.242)
Short-time work scheme		0.971 (0.258)	0.927 (0.243)
<i>Regional level</i>			
Market concentration			0.052 (0.654)
Peripheral location			2.055** (0.654)
Rural area			0.959 (0.294)
Purchasing power			1.000 (0.000)
GDP per capita			1.000 (0.008)
Constant	0.770** (0.846)	0.653 (0.579)	0.604 (1.093)
Random effects			
Counties (_cons)	0.125	0.114	0.005
Model fit statistics			
Observations	445	445	445
ICC counties	0.037	0.034	0.002
Prob > chibar2	0.129	0.167	0.482
Deviance	608.296	567.773	560.239
Prob > chi2		0.001	0.001

\*\*\*Significant at 1% level ( $p < 0.01$ ); \*\*Significant at 5% level ( $p < 0.05$ ), \*Significant at 10% level ( $p < 0.1$ );

Second, enterprises that are financed by external capital show a 45.5% less likelihood of being perceived as resilient by their owner or manager (significant at the 10% level) than enterprises that are not financed by external capital. This indicates that interest payments are a critical constraint for resilience assessment. Due to the crisis, the enterprises received less income, and their indebtedness makes it difficult to raise new loans or credits that might be needed to overcome the crisis. This must be seen in connection with the financial situation before the crisis: “Well, we were healthy before. Of course, this makes it much easier to raise outside funds, and our shareholders are also healthy. They have also invested another seven-figure sum, which of course makes the banks themselves a little more relaxed about taking risks themselves. This is due to our structure and the fact that we are simply a healthy company” (interview manager restaurant chain, 04.03.2020).

Third, enterprises with their own real estate show 50.6% greater likelihood of being perceived as resilient by their owner or manager than enterprises that do not own the real estate. This corresponds with the literature, which emphasizes that the ownership of corporate real estate ensures that the company is not burdened with rental costs (SELF et al. 2015), and the results of the qualitative interviews, such as: “The cost of my rent and insurance go on. It costs me 7,000 euros a month. And if you have zero income, 7,000 euros is a lot. It’ll be a month or two with the savings, but then it’s over” (interview bar owner, 26.5.2020).

Fourth, owner-managed enterprises show a 60.5% lower likelihood of being assessed as resilient by the respondent (significant at the 10% level) than non-owner-managed enterprises. This result corresponds with the literature showing that owner-managed enterprises have less coping capacity (PARSA et al. 2005, 2011).

Fifth, we cannot confirm the findings from PARSA et al. (2015) showing a positive impact of an enterprise’s size on its resilience. As the COVID-19 crisis affected all kinds of enterprises, the size cannot be seen as a critical indicator of whether an enterprise is assessed as resilient.

Sixth, enterprises that offer delivery and take-away services show 47.1% greater likelihood of being perceived as resilient (significant at the 10% level) than enterprises that do not offer delivery and take-away services. This result shows that the enterprises who could compensate for the losses due to the ban on in-situ consumption can better

withstand the crisis. The enterprises might also find this to be a useful additional income source, and continue to offer the service to their customers after the lockdown period.

The other coping strategies, the corona relief program and the short-time work scheme, does not provide any significant result. It might be too early for the owners and managers to conclude how government assistance influences the long-term viability of their enterprise. It is possible that the loans provided might not be enough, and the enterprises need more financial compensation during the ongoing decline in sales. For example, a restaurant owner explained (20.5.2020) the low impact of the relief program: “And the help, it’s [...] nice now, but I have 10,000 euros in fixed costs every month.”

Regarding the influence of the regional level, the model shows that enterprises that are located in peripheral counties show 105.5% greater likelihood of being perceived as resilient by their owner or manager (significant at the 5% level) than enterprises that are located in central counties. It seems that enterprises in peripheral regions might have a greater number of loyal customers. Also, during the lockdown, enterprises in central regions lost a considerable number of the daily accessible population, which is important as walk-in customers, as many people worked from home and tourists were hardly present. In contrast, enterprises in peripheral locations did not lose as much of their daily population, but gained more potential customers as the commuters remained in their peripheral residential locations. Moreover, especially in peripheral areas, the changes in the restaurant and bar industry in recent decades have already led to the closure of many enterprises. Those enterprises that still exist in such locations could therefore be regarded as particularly resilient. For example, the owner of an inn in a rural location said (20.5.2020) that due to the structural change, already only the strong companies are left in his region, and that he therefore does not expect that many will give up because of COVID-19:

“There has been a dying out of restaurants and bars here for quite some time and so far, it has been the case that the enterprises that still exist have been virtually overwhelmed by work. Because such structural change has already taken place.”

In contrast, the other regional variables, such as rural area, market concentration, GDP per capita and purchasing power do not seem to have a significant effect on an enterprise’s likelihood of being assessed as resilient.

## 6 Conclusion

COVID-19 has fundamentally affected the restaurant and bar industry, a sector that is highly vulnerable due to its dependence on direct consumption. To shed light on the uneven spatial impacts of this crisis for the restaurant and bar industry, we applied the concept of organizational resilience. To analyze the perceived organizational resilience of companies in the restaurant and bar industry from a spatial perspective we used determinants at three levels: the individual level of the owner/manager, the firm level and the regional level. By using multi-level analysis, we simultaneously considered individual/company factors and spatial factors, which had previously been analyzed separately in corresponding studies.

The analysis confirms the high influence of individual and firm level factors on the perceived resilience of companies during crises. The age of the respondents, the ownership of property and the provision of delivery and takeaway service increase the likelihood of enterprises being perceived as resilient. While owner-managed enterprises, those financed by loans or credit, and those with lower ex-ante sales show a lower likelihood of being assessed as resilient by the respondent. Thereby our study highlights the important role of ex-ante conditions in analyzing organizational resilience. Even before the crisis, many companies made hardly any profit, but many managers and owners lack the know-how and an appropriate business model to be able to change this. The quantitative results show that those companies with a prior weak business performance had problems withstanding the crisis.

Moreover, our study shows that the integration of regional level factors into the analysis of organizational resilience complements the individual and firm level. The location of companies has an impact on their perceived organizational resilience, while other regional variables, such as market concentration, GDP per capita, and purchasing power do not seem to explain the perceived resilience of an enterprise. Enterprises in a peripheral location show a higher likelihood of being perceived as resilient by their owners or managers. It seems that those enterprises are more robust because they did not lose as much of their daily population during the lockdown and the experience of survival of a prior structural change in the restaurant and bar industry in the periphery of Germany. This finding is consistent with previous studies (Andres and Round 2015, Scuderi et al. 2020) that have highlighted the

location as determinant of organizational resilience during crisis. Overall, the study contributes to the evolving strand of research that aims to analyze the resilience of enterprises from a spatial perspective (e.g. TSIAPA & BATSIOLAS 2018, HERBANE 2019).

Our study is not without limitations. It is important to mention that the resilience assessment by the owners or managers should be interpreted carefully. The assessment is based on the subjective evaluation of the respondents. The financial situation, as well as business performance, could not be evaluated externally. Thus, it is possible that the respondents misjudged the resilience of their company. As the COVID-19 crisis continues, it is also likely that the assessment of the owners or managers will change. However, our study provides meaningful insights on how the owners or managers perceive the crisis amid the lockdown. Although the study shows that the regional context only plays a complementing role, it might be true that local factors (e.g. location, potential customer frequency) can explain enterprise resilience. After the strict lockdown, some places experience a faster return to the ex-ante situation (e.g. tourist areas at the coast and in the mountain) than others. Moreover, the restrictions have been relaxed differently in the German federal states. Therefore, studies that focus on the situation after the lockdown might see a more regionally differentiated impact of the COVID-19 crisis. To sum up, the COVID-19 crisis will challenge the restaurant and bar industry for a long period. Hence, our results can be used for a comparison of how the perceived resilience of enterprises might change.

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