Did Wine Consumption Change During the COVID-19 Lockdown in France, Italy, Spain, and Portugal?

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Abstract

This article documents how the COVID-19 crisis has affected the drinking behavior of Latin European wine consumers. Using a large online survey conducted during the first lockdown in France, Italy, Portugal, and Spain ($n = 7{,}324$ individuals), we reconstruct the purchasing and consumption patterns of the respondents. The number of people who maintained their wine consumption frequency is significantly higher than those who increased or decreased their consumption. Wine consumption frequency held up better than other types of alcohol (beer and spirits). We analyze heterogeneities among countries and individuals by employing the Marascuilo procedure and an ordered logit model. The latter identifies the impact of demographic, commercial, and psychosocial factors on wine consumption frequency. The results shed light on changes in wine consumer behavior during the first lockdown and consider possible post-lockdown trends that could be useful to industry players. (JEL Classifications: D5, L66, Q1)

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> *"Gentlemen, in the little moment that remains to us between the crisis and the catastrophe, we may as well drink a glass of champagne."*

<div align="right">

—Paul Claudel ("In Time of Trouble," 1956, p. 264)

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I. Introduction

The COVID-19 pandemic is a once-in-a-lifetime event that has already shown major effects on societies and economies around the globe. In this article, we use survey data to investigate its impact on the drinking behavior of wine consumers in France, Italy, Spain, and Portugal. More specifically, we assess if the lockdown led to a change in the frequency of wine consumption. Then, we explore possible heterogeneities at country and individual levels controlling for demographic, behavioral, and psychosocial variables. For more details about lockdown policies across Europe, see Plümper and Neumayer (2020).

The objectives of this article are twofold. From a practical perspective, the wine industry is confronted with an unprecedented level of uncertainty. It is, therefore,

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important for all market players to have precise data about how wine consumption and purchasing patterns have evolved during the first lockdown. Moreover, reliable information on emerging trends, which may affect the demand for wine in the coming months, is urgently required. From an academic point of view, this situation represents a unique opportunity to investigate the drivers of wine consumption during periods of high uncertainty. Some researchers already expect a public health crisis resulting from alcohol use and abuse in the context of social isolation and stress during the COVID-19 lockdown (Clay and Parker, 2020),[1] yet some of the most reputed newspapers have published advice to help their readers organize virtual happy hours to maintain some form of socialization.[2]

To achieve the article's objectives, we conducted a large-scale online survey in France, Italy, Portugal, and Spain—Latin countries that share several cultural similarities. The survey includes questions related to consumer consumption and purchasing habits of wine and other alcoholic beverages (beer and spirits) before and during the lockdown; possible economic, emotional, and psychological effects of the lockdown; and sociodemographic variables. The study comprises 7,324 respondents from these four countries (6,920 living in those countries and 404 living abroad).

Our results can be summarized as follows. First, we explore the first lockdown trends in wine consumption in the whole sample and by country using, respectively, chi-square tests and the Marascuilo procedure. More respondents maintained their wine consumption frequency than increased or decreased their consumption. Wine consumption frequency significantly held up better than other alcoholic beverages. Nevertheless, country specificities appear in France, where the proportion of respondents who increased their wine consumption frequency is not significantly different from the proportion of those who maintained it, and in Portugal, where maintenance is significantly higher than elsewhere.

Second, we explore the individual heterogeneity of behaviors for the whole sample and by country using an ordered logit model. We note both substitution effects with other alcoholic beverages and the loyalty of wine consumers to wine. Respondents who increased their wine consumption frequency were moderate drinkers before the lockdown. They also increased their spending per bottle of wine.

Changes in consumption situations also have appeared. Consumption frequency has been maintained overall. The fewer digital gatherings, the more Italian and Portuguese respondents reduced their wine consumption. Family consumption

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[1] Using data for 1,547 patients diagnosed with COVID-19 in four large hospitals in Wuhan, China, Dai et al. (2020) find that COVID-19 patients with a history of cigarette smoking tend to have more severe outcomes than nonsmoking patients. However, alcohol consumption was neither associated with increased illness severity nor with higher death rates.

[2] See, for instance, https://www.nytimes.com/2020/03/20/well/virus-virtual-happy-hour.html and https://www.forbes.com/sites/alywalansky/2020/03/26/virtual-happy-hours-are-the-new-way-to-go-out-heres-how-to-plan-a-great-one/#f7bc4022a34e.

increased in Italy. The relationship between anxiety and wine consumption frequency increasing is more ambiguous than suggested by the literature, except partially in France. However, the significant association of wine consumption frequency with certain consumption motivations (relaxing, health), or low perception of the crisis as an opportunity for positive social and environmental changes, suggests that anxiety could be related to the increase in consumption.

The remainder of the article is organized as follows. Section II briefly reviews the existing literature resulting in four research questions. Section III presents the dataset. Section IV is devoted to the empirical analysis, and Section V concludes.

II.   Uncertainty and the Consumption of Alcoholic Beverages

A.   *Review of the Literature*

Mass tragic events such as infectious diseases or epidemic events often generate waves of intense fear and anxiety, negatively affecting individuals' well-being (Balaratnasingam and Janca, 2006), as well as increasing psychological disorders, traumatic stress, depression, and anxiety (Holmes et al., 2020; Liu et al., 2020; Peters et al., 2020). Specifically, COVID-19 has disrupted people's routines and generated extreme fear and anxiety. Arpaci, Karataş, and Baloğlu (2020) go as far as to propose the use of the term *corona phobia* in addition to already existing types of fears (natural environment, animal, blood-infection injury, situational, social phobia, and agoraphobia) (APA, 2013). As a consequence, people can "develop disproportional cognitive, affective, or behavioral responses to the objects and situations that they associate with the COVID-19 pandemic and severe deteriorations may occur in the physiological and psychological functionalities" (Arpaci, Karataş, and Baloğlu, 2020, p. 2).

Sensationalist headlines in the mass media foster anxiety and fear, inducing people to oscillate between denial and phobia (Pappas et al., 2009). The generalized fear that affects people worldwide has been further fueled by the disease's severe symptoms, uncertainty about its outcome, implementation of massive containment measures (Guan et al., 2020; Huang et al., 2020), and the fact that the event is unprecedented for most individuals (Soraci et al., 2020).

From an economic perspective, the COVID-19 crisis has been an exogenous shock to most local and international markets. For an empirical case study of impacts of the COVID-19 pandemic on global beverage markets see Wittwer and Anderson (2021). In the past, the wine industry has been affected by wars (Chavis and Leslie, 2009), terrorist attacks (Gergaud, Livat, and Song, 2018), natural disasters such as wildfires (Thach, 2018), and earthquakes (Forbes and Wilson, 2018), among other events. The COVID-19 crisis is another extreme and tragic event that can have an immediate impact on alcohol consumption because it generates stress and anxiety among virtually all populations. The lockdown has seriously disrupted social habits and consumption. Indeed, the desire to reduce negative affect

and to enhance positive affect are central motivational processes underlying alcohol consumption. Research has shown that alcohol consumption is associated with stress exposure and drinkers anticipate a stress-relieving effect (see Bartone et al., 2017, in a military context). In that sense, people drink to be able to cope better with negative emotions. People also drink alcohol for social reasons and/or for sensation seeking, leading to enhancement drinking (drinking to enhance positive affect) (Cooper et al., 1995). Additionally, high scores on extraversion (associated with sociability) increase the expected frequency of wine consumption (Gustavsen and Rickertsen, 2019).

Due to the COVID-19 pandemic, physical separation (or social distancing) to prevent the spread of the virus has led to feelings of isolation and loneliness, increasing the prevalence of depression, anxiety, post-traumatic stress disorders, and insomnia in the population (Banerjee and Rai, 2020). However, during the lockdown, technological devices have provided a way for people to maintain social connections with friends, family, their social networks, and/or the wider community (Marston, Musselwhite, and Hadley, 2020). Digital socialization has created new occasions for alcohol consumption. The mobile phone application WhatsApp, for example, provides opportunities for synchronous drinking in virtually connected, spatially separated locations (Moewaka Barnes et al., 2016).

B. Research Agenda

Based on this discussion, we examine four related research questions. The literature is yet inconclusive about the impact of uncertainty on wine consumption. The COVID-19 crisis has disrupted distribution channels and reduced social interactions, suggesting a strong reduction in wine consumption frequency. The data enables us to analyze from the perspective of wine drinkers whether their consumption of other alcoholic beverages has been affected in the same way during the lockdown. This leads us to the first question.

Question 1: Did respondents consume wine more frequently during the lockdown in both absolute terms and relative to other types of alcohol (beer and spirits)?

If wine has well-known social and cultural roles, these contexts could introduce heterogeneity in wine consumption behavior during the lockdown. Thus, our second question investigates possible country heterogeneity.

Question 2: Did wine consumption patterns of respondents during the lockdown significantly depend on their country of residence in Latin Europe?

The heterogeneity of behaviors can be not only social and cultural but also individual. Status, consumption patterns, supply habits, perception of risk and loneliness, and substitution drink effects are all relevant individual factors. Our last two questions investigate this individual level of heterogeneity.

Question 3: Which individual factors explain the observable evolution in wine consumption frequency of respondents during the first lockdown in Latin Europe?

Question 4: Did the effect of individual heterogeneity have a different profile depending on the country of residence?

Our study is purposely biased toward wine drinkers to discover recent trends that are relevant to the wine industry.

III. Survey and Dataset

Between April 17 and May 10, 2020, exactly 7,324 respondents completed our questionnaire through the SurveyMonkey platform. We used an exponential non-discriminative chain-referral sampling method. Each author used social networks and word of mouth to recruit respondents, which in their turn used social networks and word of mouth to recruit other respondents. We selected this convenience sampling method to find respondents that meet certain criteria to participate in the survey (here wine consumers) and to ease data collection. Although this method is adequate given the urgency of the survey, it also generates a potential sampling bias that we hope to reduce through the large size of the sample. Table 1 details a sample structure that is relatively homogeneous across the four countries.[3]

Impression management (tendency to give favorable self-descriptions) often biases self-report data, questioning the validity of survey research (Rosenman, Tennekoon, and Hill, 2011), especially about alcohol consumption (Midanik, 1982; Stockwell, Zhao, and Macdonald, 2014). Because we cannot control this bias, readers should be aware of it but also assess its magnitude. Smith, Wesson, and Apter-Marsh (1984) examine this bias in alcohol consumption surveys in the United States by comparing self-reported data with actual sales. Their findings show a strong correlation (.84), especially because they survey adults who are free to participate or not in the study. More recently, Simon et al. (2015) and Karns-Wright et al. (2018) use transdermal alcohol monitoring to measure the validity of self-reported data on alcohol consumption with a correlation varying from .73 to .85. We, therefore, assume that although a bias may exist, its impact theoretically remains only moderate. The survey will not necessarily unveil information about over-consumption but rather in terms of under-consumption.

Our outcome variable concerns changes in individual wine consumption frequency through three modalities: less, as usual, more. For comparison and discussion of possible substitution effects, respondents were asked the same question about their consumption of beer and spirits. In line with our literature review, we explored five categories of individual characteristics that may have affected wine

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[3] We considered respondents' country of residence, not nationality. As a result, of the 404 respondents living outside their home country, some have been counted twice. For example, the respondent resides in France but is Italian. The person, therefore, belongs both to the group Resid FR, where they are marginal, and Living Abroad. In the latter group, they are mixed with Austrians living in France or Germany. In short, the total population is not the sum of the categories of residence but the nationalities.

Table 1
Socio-Economic Characteristics of Respondents

	All Respondents		Portuguese Residents		Spanish Residents		Italian Residents		French Residents		Living Abroad	
	N	%	N	%	N	%	N	%	N.	%	N	%
Sample size	7,324	100	1,940	26.4	2,549	34.8	1,146	15.6	1,374	18.7	404	5.5
Gender (male)	4,328	59.09	1,200	61.85	1,518	59.55	659	57.5	747	54.36	260	64.35
Urban	4,085	55.77	972	50.1	1,588	62.29	539	47.03	776	56.47	263	65.09
Suburban	1,704	23.26	481	24.79	481	18.87	354	30.89	314	22.85	97	24
Rural	1,535	20.95	487	25.1	480	18.83	253	22.07	284	20.66	44	10.89
Agriculture	943	12.87	298	15.36	334	13.1	157	13.69	144	10.48	15	3.71
Industry	877	11.97	201	10.36	346	13.57	115	10.03	176	12.8	51	12.62
Services	4,122	56.28	1,043	53.76	1,461	57.31	626	54.62	759	55.24	297	73.51
Unemployed	601	8.2	260	13.4	111	4.35	56	4.88	166	12.08	10	2.47
Student	380	5.18	77	3.96	82	3.21	127	11.08	84	6.11	15	3.71
Retired	437	5.96	88	4.53	213	8.35	64	5.58	58	4.22	15	3.71

consumption behavior during the lockdown. In addition to respondent sociodemographic characteristics, we also include variables (detailed in the Online Appendix) describing these characteristics:

- Drinking habits. The nature and volume of alcohol usually consumed may influence respondents' behavior during the lockdown. Three Likert scale variables (Pre-lockdown consumption) self-report the consumption of respondents for each beverage. We consider the possible bias of self-reported alcohol consumption.

- Expenditure pattern before and during the lockdown. Two scale variables (Pre-lock exp bottle, Lock exp bottle) describe the respondents' average expenditure in euros to get a bottle of wine before and during the lockdown. To better describe potential cross effects of expenditure among alcoholic beverages, we dispose of three dummies (Lock add exp) describing an additional average expenditure during the lockdown, respectively, for wine, beer, and spirits. Figure 1 indicates that average wine expenditures have been reduced during the lockdown. It may partly explain an increase in the quantities consumed but a decrease in quality consumed. These variables must therefore be considered in the explanation of volume consumption during the lockdown. The respondents who did not buy wine are not represented so that the sum of frequencies is not equal to 1. Figure 1 shows the differences in distribution between a pre-lockdown period and the lockdown period.

Figure 1

Proportion of Wine Expenditure per Level (in euros) and by Country, Before and During the Lockdown, for One 75cl Bottle
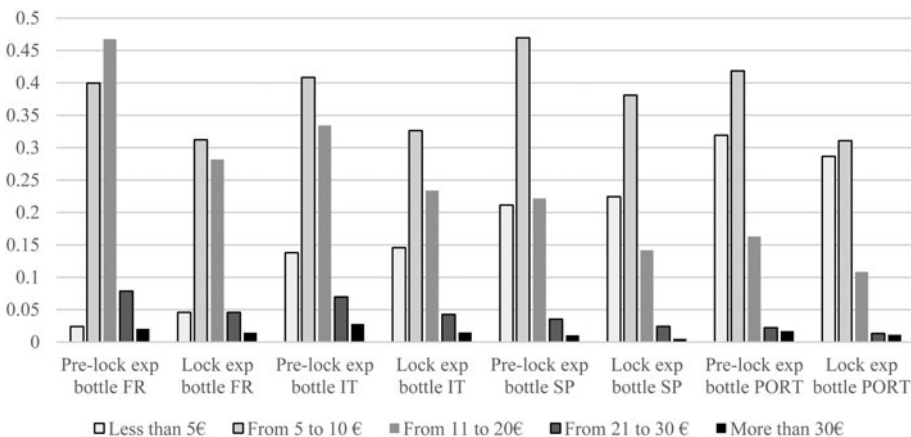
- Change in procurement patterns. The specific conditions during the lockdown influence alcohol availability to individuals. A vector of dummies indicates the use of different distribution channels by the respondents before (Pre-lockdown procurement) and during (Lockdown procurement) the lockdown. Figures 2a and 2b describe changes in procurement patterns by

Figure 2

Procurement Pattern Before (a) and After (b) the Lockdown (Proportion)
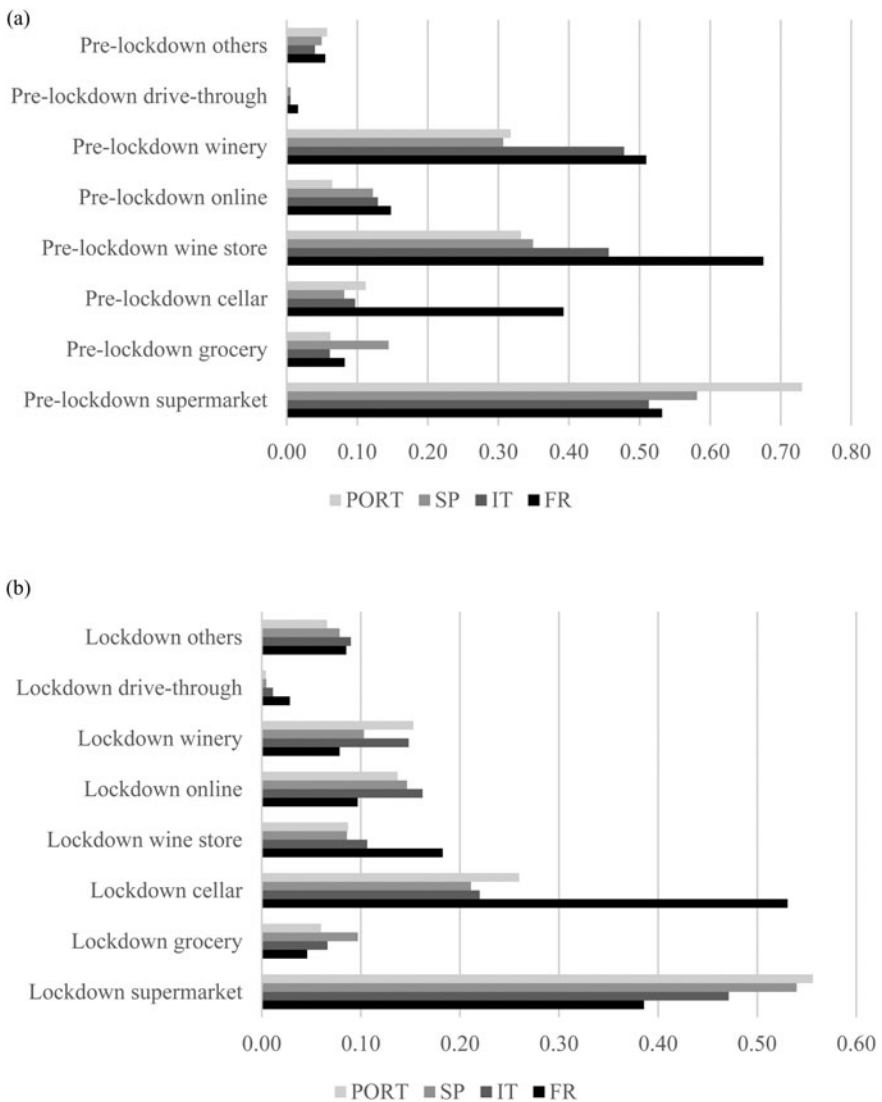
country. It appears that the lockdown greatly reduced the proportion of respondents purchasing their alcohol in wineries (particularly in France and Spain) and wine stores (particularly in Italy). Although declining, supermarkets remained the most frequent source, particularly in Italy and Spain. Drive-through supermarkets and online supplies certainly have increased, but less than expected depending on the country.[4] Consumption of wines held in cellars has dramatically increased, notably in France. These changes in procurement patterns, different in each country, may influence the outcome variable.

- Change in consumption situations. The lockdown has reduced the number of drinking occasions. A vector of dummies indicates the respondents' consumption situations before (Pre-lockdown consumption) and during (Lockdown consumption) the lockdown. Figures 3a and 3b indicate the proportion of respondents for each situation by country. As expected, we note a dramatic reduction of opportunities to have a drink with friends and colleagues but a significant increase in self-consumption, notably in Portugal and Spain. Family consumption has also held up fairly well. Online consumption situations were far more frequent than before the lockdown, especially in France. Thus, the heterogeneity of consumption situations before and during the lockdown according to the country shows potential changes in wine consumption frequency during the lockdown.

- Motives of wine consumption. The lockdown has contributed to reducing certain motives ("conviviality") but increased others ("relax," "sleep," and so on), resulting in changes in respondents' consumption patterns. A vector of dummies (motive) describes the usual motivations of respondents. Figure 4 indicates a prominence of taste and food-pairing motivations and a very specific distribution by country, notably in France and Portugal.

- Insecurity regarding health (fear of virus) and wealth (fear of economic crisis). Relationships between stress and alcohol consumption have been discussed in the literature (e.g., Keyes et al., 2012). Insecurity feelings are self-reported on Likert scales. The heterogeneity of the reports (Figure 5) according to the respondents and their country of residence suggests differentiated effects on alcohol consumption frequency. Overall, the proportion distributions suggest that the Spanish were more afraid of the virus than of the economic crisis. The French were more afraid of the economic crisis than of the virus, whereas the Italians and especially the Portuguese feared both.

- Relational connectedness and self-centering. Loneliness is a well-known driver of alcohol consumption (e.g., Akerlind and Hörnquist, 1992). Its influence is assessed through a measure of "feeling of isolation," referring to the psychometric

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[4] To better explore this finding, we added variables highlighting the proportion of online offers received by respondents (online offers received) and the proportion of respondents with wine apps on their smartphone (wine app smartphone).

Figure 3

Consumption Situation Pattern Before (a) and During (b) the Lockdown (Proportion)

(a)

(b)
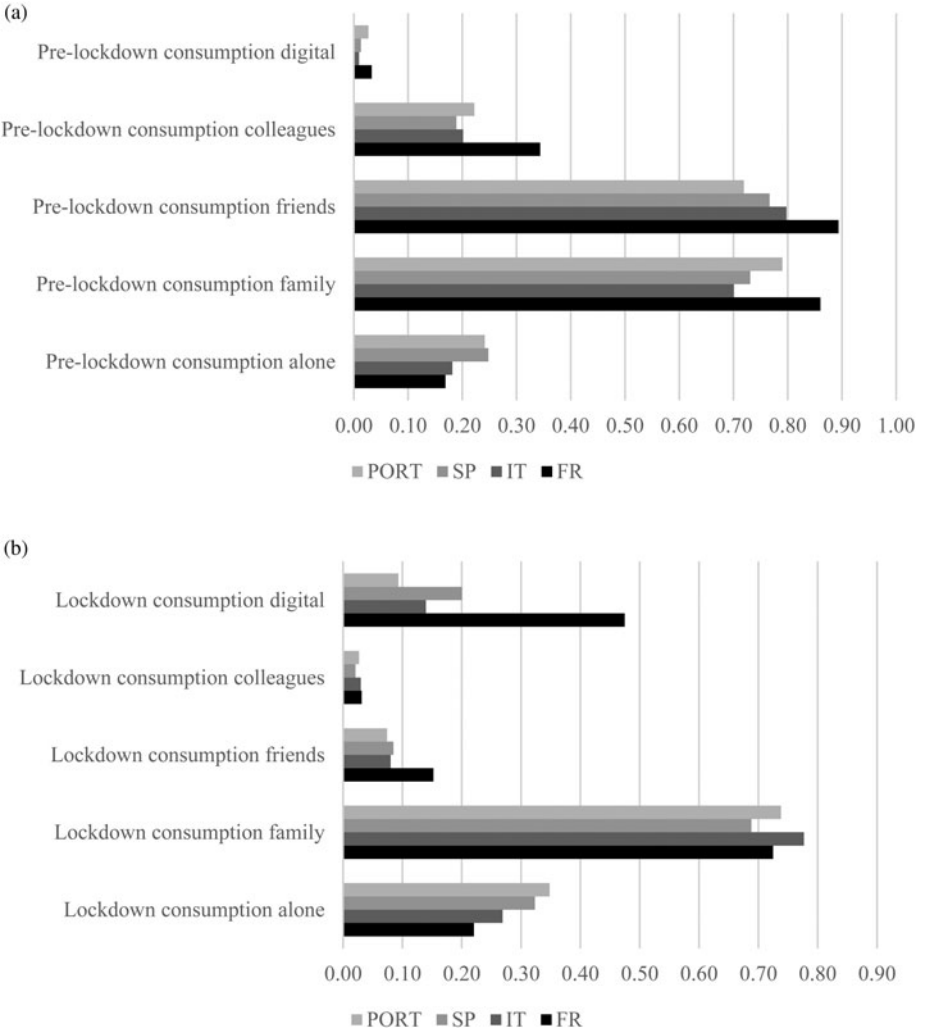
loneliness scale (UCLA),[5] and by a measure of "feeling of refocusing on oneself" (reported on a five-point Likert scale). Figure 6 shows the distribution of each scale variable with very specific features depending on the country. Note that "feeling of isolation" is a reverted scale; strongly disagree means a

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[5] The three items measuring the sense of isolation (from the QCAL scale) were reduced by factor analysis ($\alpha = .87$; $KMO = .72$). The individuals' perceptions are recorded in five categories (Fisher's algorithm) to form an inverted Likert scale (1 strong, 5 weak feelings of isolation).

Figure 4

Alcohol Consumption by Motivation During the Lockdown (Proportion by Country)
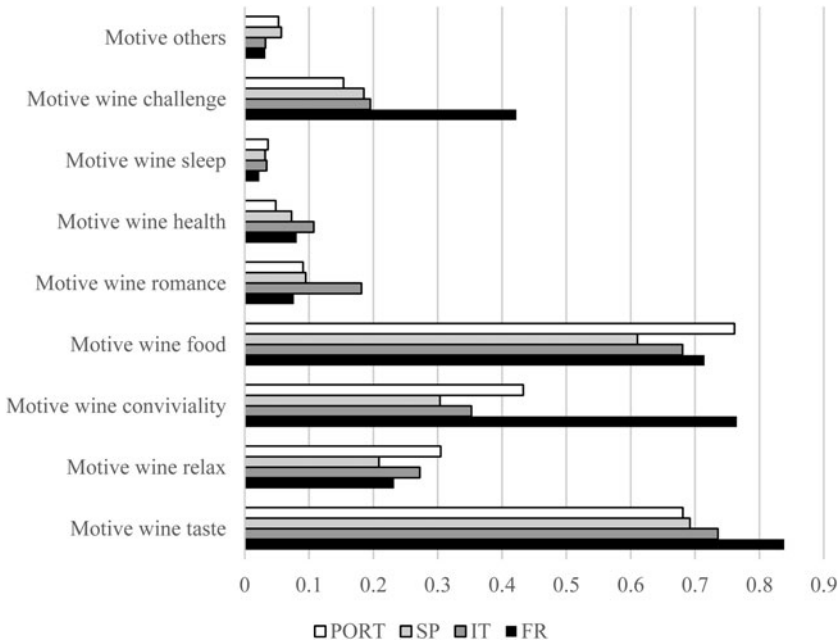
Figure 5

Distribution of Respondents According to Their Feelings of Fear of the Virus and of the Economic Crisis by Country
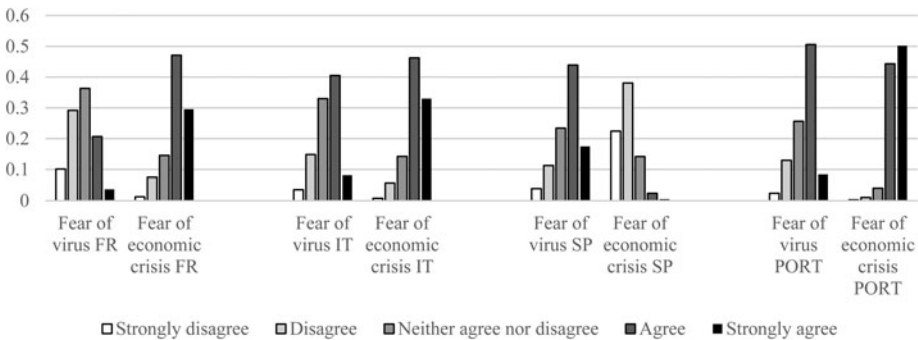
high level of perceived loneliness, and strongly agree is a low level of perceived loneliness. "Feeling of refocusing on oneself" is a conventional scale that describes a more psychological than sociological isolation because we can refocus on ourselves even in a family or friendship context.

- Emerging positive initiatives. The lockdown is associated with a negative perception that may favor alcohol consumption. However, we add a scale variable

Figure 6

Distribution of Respondents According to their Feeling of Isolation (Reverted Scale) and Their Feeling of Refocus on Oneself
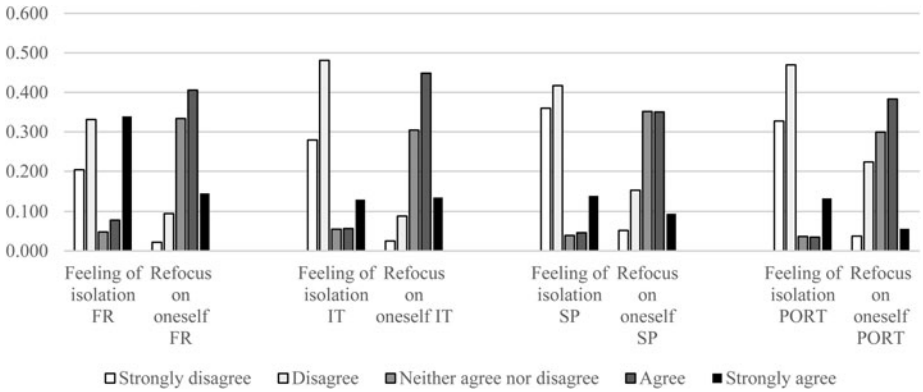
(opportunity for initiatives) enabling respondents to express a vision in which this crisis has also a positive influence on a friendlier environmental and social society. Exploring this positivity also enables us to glimpse a happier drinking experience (drinking to enhance positive affect). Figure 7 indicates a general agreement among Latin European populations about an optimistic vision of the first lockdown.

Figure 7

From This Period Are Emerging Positive Initiatives
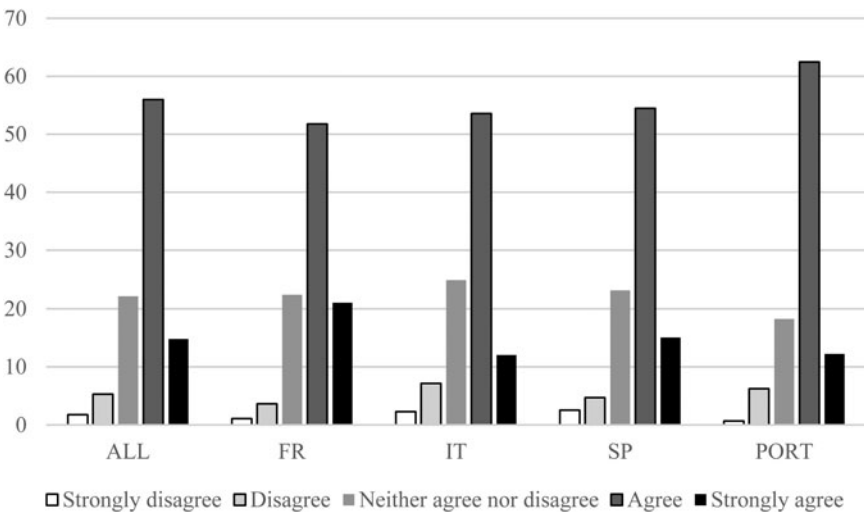
In the following analysis, we will not consider scale variables as continuous but discretized to better capture the specific distribution of respondents per degree (through a Likert scale). From this survey material, we can now address our research questions.

IV. Empirical Analysis

A. Changes in Wine Consumption During the Lockdown

To deal with our first research question, we consider the frequency of changes (less, as usual, more) in wine consumption and comparison with other alcoholic beverages. Figure 8 displays the observed frequency of changes in alcohol consumption by country and type of drink. The proportion of the respondents who have maintained or increased their wine consumption is significantly higher than the proportion of those who have decreased their consumption. And this phenomenon is all the more visible when compared to other alcohols. The answer to our first research question is, therefore, yes; respondents consume wine more frequently during the lockdown in both absolute terms and relative to other alcohol types (beer and spirits).

Figure 8 shows that this effect may be different according to the beverage and the country. To examine this intuitive observation, we explore the significant differences in drink consumption change by country (within) (Table 2) and as compared to other countries (between) (Table 3). Each table provides a chi-squared test to assess the equality of proportions (H0) considering the number of responses in each country (Table 2) and the number of respondents for each modality (Table 3). The rejection of the H0 hypothesis confirms significant differences. Below the chi-square test, we perform the Marascuilo procedure (Marascuilo and Serlin, 1988) comparing all pairs of proportions, which helps to identify which proportions are responsible for the rejection of H0, as well as identifying the homogeneous group of proportions.

On the one hand, the consumption frequency for all three types of drinks has been mostly stable over the whole sample as well as in every specific country. Wine consumption has been reduced the least, and spirit consumption the most. Most respondents have maintained their alcohol consumption frequency during the lockdown with no significant difference among alcoholic drinks.

On the other hand, we note that the increase in alcohol consumption frequency may be significantly different according to the beverage. Increased consumption frequency of spirits was significantly less common everywhere (except for living abroad respondents). Increased beer consumption was significantly more frequent than spirits (except in Portugal and for foreigners). Finally, wine consumption frequency has increased more than other alcoholic beverages in each of the countries.

Finally, the discussion of research question 1 is more ambiguous than suggested by Figure 8. First, more people maintained their consumption frequency of all alcoholic beverages during the lockdown compared to all other alternatives ("more" or

Figure 8

**Proportion Distribution of Change in Alcohol Consumption During the Lockdown
by Type of Beverage and Country of Residence**
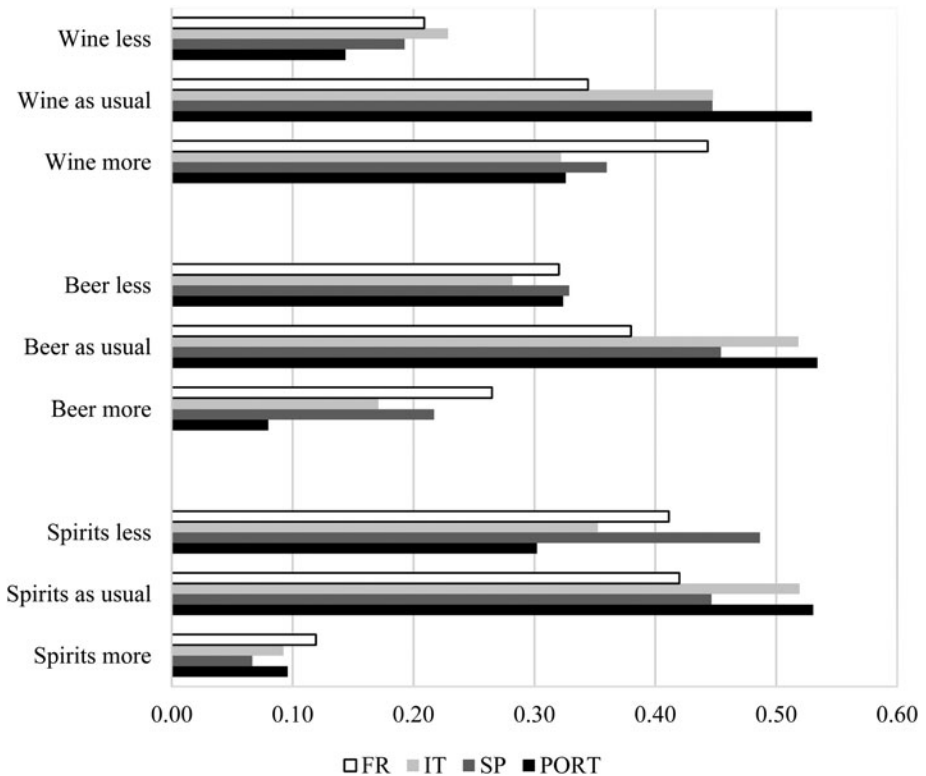
"less"), except for the French and abroad respondents, for which the maintenance in wine consumption is not significantly different from all other alternatives. Second, more people increased their wine consumption as compared to beer and spirits.

Based on these findings, we investigate a possible heterogeneity of wine consumption patterns by country to answer our second research question. Table 3 examines whether the proportion of less, more, or as usual alternatives for each type of alcoholic drink is significantly different or not by country.

Wine consumption changes during the lockdown vary by country. French and respondents who live abroad from France, Italy, Spain, and Portugal had a significant and higher proportion of answering "more." Portuguese respondents had a significant and lower proportion for answering "less." The proportion of those who answered "as usual" is significantly different: we observe a very low frequency in

Table 2
Chi-square Test and Marascuilo Test of Proportions Equality of Beverage Changes by Country

Sample	ALL		FR		IT		SP		PORT		Abroad	
Chi-square test (H0: proportions are equals)												
Chi-2 (Obs. value)	4,087.971		445.242		711.154		1,454.356		1,872.994		181.511	
Chi-2 (Critical value)	15.507		15.507		15.507		15.507		15.507		15.507	
p-value	<0.0001		<0.0001		<0.0001		<0.0001		<0.0001		< 0.0001	
H0	Rejected		Rejected		Rejected		Rejected		Rejected		Rejected	
Marascuilo procedure tests the significant difference among proportion (Pr), and classifies the proportion by group (Gr)												
Sample	Pr	Gr	Pr	Gr	Pr	Gr	Pr	Gr	Pr	Gr	Pr	Gr
Lockdown consumption spirits more	0.031	A	0.041	A	0.032	A	0.022	A	0.03	A	0.043	A
Lockdown consumption wine less	0.064	B	0.072	B	0.078	B/C	0.064	B	0.05	B	0.06	A/B
Lockdown consumption beer more	0.062	B	0.091	B/C	0.058	B	0.072	B	0.03	A	0.072	A/B
Lockdown consumption beer less	0.108	C	0.11	C/D	0.096	C/D	0.11	C	0.11	C	0.103	B/C
Lockdown consumption wine as usual	0.153	E	0.118	D/E	0.153	E/F	0.149	D	0.18	D	0.142	C/D
Lockdown consumption beer as usual	0.161	E	0.13	D/E/F	0.177	F	0.151	D	0.19	D	0.157	C/D
Lockdown consumption spirits less	0.135	D	0.141	E/F	0.12	D/E	0.162	D	0.11	C	0.121	C/D
Lockdown consumption spirits as usual	0.162	E	0.144	E/F	0.177	F	0.149	D	0.19	D	0.163	D
Lockdown consumption wine more	0.124	D	0.152	F	0.11	D	0.12	C	0.11	C	0.139	C/D

Notes: Two non-significantly different proportions belong to the same group, identified by a single letter. Two significantly different proportions belong to two different groups, each identified by a specific letter (A, B, C, D, E, F).

Table 3

Chi-2 Test and Marascuilo Test of Proportions Equality of Countries per Beverage Change

		Marascuilo Procedure		
	Chi-Square Test	*Sample*	*Proportion*	*Group*
Lockdown consumption wine more	Chi-2(9.5) = 84.47 [0.000] (H0 rejected)	IT	0.322	A
		PORT	0.326	A
		SP	0.36	A
		FR	0.443	B
		Abroad	0.502	B
Lockdown consumption wine as usual	Chi-2(9.5) = 116.59 [0.000] (H0 rejected)	FR	0.344	A
		SP	0.447	B
		IT	0.448	B
		Abroad	0.514	B/C
		PORT	0.529	C
Lockdown consumption wine less	Chi-2(9.5) = 43.07 [0.000] (H0 rejected)	PORT	0.144	A
		SP	0.193	B
		FR	0.209	B
		Abroad	0.218	B
		IT	0.229	B
Lockdown consumption beer more	Chi-2(9.5) = 232.19 [0.0000] (H0 rejected)	PORT	0.08	A
		IT	0.171	B
		SP	0.217	C
		Abroad	0.262	C/D
		FR	0.265	D
Lockdown consumption beer as usual	Chi-2(9.5) = 100.6 [0.0000] (H0 rejected)	FR	0.38	A
		SP	0.454	B
		IT	0.518	C
		PORT	0.534	C
		Abroad	0.566	C
Lockdown consumption beer less	Chi-2(9.5) = 12.75 [0.000] (H0 rejected)	IT	0.282	A
		FR	0.32	A
		PORT	0.324	A
		SP	0.329	A
		Abroad	0.372	A
Lockdown consumption spirits more	Chi-2(9.5) = 48.45 [0.0000] (H0 rejected)	SP	0.067	A
		IT	0.092	A/B
		PORT	0.096	B
		FR	0.119	B
		Abroad	0.157	B
Lockdown consumption spirits as usual	Chi-2(9.5) = 73.2 [0.0000] (H0 rejected)	FR	0.42	A
		SP	0.446	A
		IT	0.519	B
		PORT	0.53	B
		Abroad	0.588	B
Lockdown consumption spirits less	Chi-2(9.5) = 170.19 [0.000] (H0 rejected)	PORT	0.302	A
		IT	0.353	A/B
		FR	0.411	B
		Abroad	0.437	B/C
		SP	0.486	C

Notes: Two non-significantly different proportions belong to the same group, identified by a single letter. Two significantly different proportions belong to two different groups, each identified by a specific letter (A, B, C, D, E, F).

France and a very high one in Portugal. These findings are not specific to wine and do not concern the same countries. These decreases in consumption amount reveal an initial heterogeneity of behavior by country. Our third question is more precise, questioning possible individual heterogeneity at the Latin European level and by country.

B. Individual Variables Affecting Changes in Wine Consumption Patterns

To the extent that we focus on the relationship between individual (i) characteristics (X_i) and a latent variable ($y*_i^w$) describing individual wine consumption in volume during the lockdown, we estimate an ordered logistic model.[6] The latent variable takes three values noted k ($k = 1, 2, 3$)

$$y_i^w = \begin{cases} 1 \text{ if } y*_i^w < \gamma_i^w \\ 2 \text{ if } y*_i^w = \gamma_i^{Bw}, \\ 3 \text{ if } y*_i^w > \gamma_i^w \end{cases} \tag{1}$$

where γ_i^w is the threshold describing the previous individual wine consumption level. The probability distribution function is specified (F), the probability that $y_i^w = k$ is noted.

$$Prob(y_i^w = k^w) = F(\gamma_k^w - X_i\beta^w) - F(\gamma_{k-1}^w - X_i\beta^w) \tag{2}$$

We can then determine the parameters (β^w) of this model by maximizing the likelihood function.

$$L(y^w, \gamma^w, \beta^w) = \prod_{i=1}^{n} \prod_{k^B=1}^{3} [(\gamma_k^w - X_i\beta^w) - F(\gamma_{k-1}^w - X_i\beta^w)] \tag{3}$$

After testing different forms of probability distribution on all data, we retain a logit form for all estimates to facilitate the comparison. The likelihood function is then

$$L(y^w, \gamma^w, \beta^w) = \prod_{i=1}^{n} \prod_{k^w=1}^{3} \left(\frac{exp^{(\gamma_k^w - X_i\beta^w)}}{1 + exp^{(\gamma_k^w - X_i\beta^w)}} \right) - \left(\frac{exp^{(\gamma_{k-1}^w - X_i\beta^w)}}{1 + exp^{(\gamma_{k-1}^w - X_i\beta^w)}} \right). \tag{4}$$

Heteroskedasticity is controlled by using quasi-ML algorithms (Huber-White standard errors). The statistical impact of variables is based on the p-values. Due to their length, we fragment the results and their commentaries by category of variables (see Section III).

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[6] Given the number of variables, we assume that data verify the conditions for implementing the ordered logit model (Long and Freese, 2014). Based on the number of correctly predicted cases, the ordered logit model was preferred to the ordered probit model. Our comments focus on marginal effects.

Each table presents the estimated coefficients of the ordered logit model and the marginal effects for each k value. Marginal effects are calculated at the means. For continuous variables, marginal effects indicate the change in the probability ($Pr(y = k)$) when the explanatory variable increases by one unit. For dummies, the marginal effect represents the change in probability ($Pr(y = k)$) when the variable changes from 0 to 1.

The following findings discuss our research questions 3 and 4 together, referring to Table 4 for the whole sample and Tables 5a to 5e for country samples (threshold values and predicted performance of each country model are included in Table 5e).

• *Status effects on wine consumption during the lockdown (Tables 4 and 5a).*

The overall sample reveals a significant effect of status variables on changes in wine consumption frequency during the lockdown for age and household size. All age categories are significantly correlated to an increase in wine consumption frequency, and the older the respondents, the lower the probability of reduced consumption. The age has different effects by country: in France, the categories of respondents between 18 and 29 and older than 51 years increase its probability of additional consumption, while it is the 30–40 years old segment for Italy and below 18 years old segment for Spain (no significant effect in Portugal). Concerning household size (number of children), a positive effect is significantly observed in France and Italy. Does this mean that the lockdown has increased the consumption frequency of older children who have returned home with their families? Or did the continuous and exhausting presence of young children encourage parents to drink more often in the evening? No doubt, a study of drinking motivations will tell us more about the effects of household size on alcohol consumption.

Gender has a significant negative effect on consumption, verified in Italy, where males consumed wine less often during the lockdown. We note that income levels do not have any significant effect on consumption in the whole sample. Only in France respondents with the lowest incomes increased their wine consumption.

• *Expenditure effects on wine consumption during the lockdown (Tables 4 and 5b).*

Because wine price scales are different from one country to another, we focus our comments on variables describing the change in expenditure among the different types of alcoholic beverages. The variable lockdown additional expenditure is a dummy that takes the value 1 if the respondent has increased the average expenditure during the lockdown. In the whole sample, as well as in all subsamples, we note that an increase in wine expenditure is associated with maintenance or an increase in consumption frequency. Beyond what we learn from Figure 4, we may conclude that the lockdown has had a positive effect on both the volume of wine consumed and on quality (price) for a significant proportion of respondents. Results also reveal a significant cross-effect among alcoholic beverages. A substitution effect appears

Table 4
Ordered Logit Estimates (ME: Marginal Effects; k = 1: less; k = 2: as usual; k = 3: more), All Data (n = 7,324)

Procurement Patterns and Consumption Situations	Coeff.	ME (k =1)	ME (k = 2)	ME (k = 3)	Motives of Wine Consumption and Status	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)
Pre-lockdown procurement supermarket	0.169***	–0.041**	0.022**	0.019**	Motive wine taste	–0.049	0.012	–0.006	–0.006
Pre-lockdown procurement grocery	0.087	–0.021	0.011	0.01	Motive wine relax	0.103*	–0.025*	0.013*	0.012*
Pre-lockdown procurement cellar	–0.011	0.002	–0.001	–0.001	Motive wine conviviality	0.159***	–0.039**	0.02**	0.019**
Pre-lockdown procurement wine store	0.078	–0.019	0.01	0.009	Motive wine food	–0.196***	0.048**	–0.024**	–0.024**
Pre-lockdown procurement online	–0.004	0.001	–0.001	0	Motive wine romance	0.074	–0.018	0.009	0.009
Pre-lockdown procurement winery	–0.122**	0.03**	–0.016**	–0.014**	Motive wine health	–0.311***	0.077**	–0.044**	–0.033**
Pre-lockdown procurement drive-through	–0.012	0.003***	–0.001***	–0.001***	Motive wine sleep	–0.014	0.004	–0.002	–0.002
Pre-lockdown procurement others	–0.065	0.016	–0.009	–0.007	Motive wine challenge	–0.005	0.001	–0.001	–0.001
Lockdown procurement supermarket	–0.085	0.021	–0.011	–0.01	Motive others	–0.128	0.031	–0.017	–0.014
Lockdown procurement grocery	–0.083	0.02	–0.011	–0.009	Age_1 (below 18)	1.419	–0.264***	0.029***	0.235***
Lockdown procurement cellar	0.008	–0.002	0.001	0.001	Age_2 (18 > 29)	0.559***	–0.11**	0.049**	0.061**
Lockdown procurement wine store	–0.054	0.013	–0.007	–0.006	Age_3 (30 > 40)	0.441**	–0.084**	0.04**	0.044**
Lockdown procurement online	–0.071	0.017	–0.009	–0.008	Age_4 (41 > 50)	0.378*	–0.069**	0.034**	0.035**

Continued

Table 4
Continued

	Procurement Patterns and Consumption Situations					Motives of Wine Consumption and Status			
	Coeff.	ME (k =1)	ME (k = 2)	ME (k = 3)		Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)
Lockdown procurement winery	0.072	–0.017	0.009	0.008	Age_5 (51 > 60)	0.351*	–0.063**	0.031**	0.032**
Lockdown procurement drive-through	–0.001	0	0	0	Gender	–0.092*	0.023*	–0.012*	–0.011*
Lockdown procurement others	0.314**	–0.075**	0.035**	0.04**	Urban	0.079	–0.019	0.01	0.009
Lockdown proc online frequency_1(no)	–0.023	0.005	–0.003	–0.003	Suburban	0.064	–0.016	0.008	0.008
Lockdown proc online frequency_2(first time)	0.007	–0.002	0.001	0.001	Agriculture sector	–0.228	0.057	–0.032	–0.025
Lockdown proc online frequency_3(as usual)	ref				Industrial sector	–0.11	0.027	–0.015	–0.013
Wine app smartphone	0.01	–0.003	0.001	0.001	Services sector	–0.002	0.001	0	0
Lockdown wine knowl-edge improvement	0.024	–0.006	0.003	0.003	Unemployed	–0.205	0.051	–0.028	–0.023
Online offers received	0.021	–0.005	0.003	0.002	Student	0.064	–0.015	0.008	0.008
Pre-lockdown consump-tion alone	–0.188**	0.046**	–0.025**	–0.021**	Other sector	–0.071	0.017***	–0.009***	–0.008***
Pre-lockdown consump-tion family	–0.183***	0.045**	–0.022**	–0.022**	Retirees	–0.01	0.008	–0.004	–0.004
Pre-lockdown consump-tion friends	0.205***	–0.051**	0.028**	0.023**	Number of adults in the household	0.001	0	0	0
Pre-lockdown consump-tion colleagues	0.052	–0.013	0.007	0.006	Number of chil-dren in the household	0.064**	–0.016**	0.008**	0.007**

Table 4
Continued

	Procurement Patterns and Consumption Situations					Motives of Wine Consumption and Status			
	Coeff.	*ME (k =1)*	*ME (k = 2)*	*ME (k = 3)*		*Coeff.*	*ME (k = 1)*	*ME (k = 2)*	*ME (k = 3)*
Pre-lockdown consumption digital	−0.2	0.05	−0.028	−0.022	Income_1 (living comfortably)	0.005	0.017	−0.009	−0.008
Lockdown consumption alone	−0.133*	0.032*	−0.017*	−0.015*	Income_2 (coping on present income)	−0.067	0.016	−−0.009	−0.007
Lockdown consumption family	−0.477***	0.114**	−0.054**	−0.06**	Income_3 (difficult on present income)	−0.065	−0.06	0.028	0.032
Lockdown consumption friends	−0.033	0.008	−0.004	−0.004	Income_4 (very difficult on present income)	0.247	−0.059302	0	0.031464
Lockdown consumption colleagues	−0.246	0.061	−0.035	−0.026*					
Lockdown digital drink_1 (daily)	−0.261**	0.064**	−0.034**	−0.03**					
Lockdown digital drink_2 (at least once a week)	−0.209*	0.052*	−0.028	−0.023*					
Lockdown digital drink_3 (rarely)	−0.215**	0.053**	−0.029	−0.025**					
Lockdown exp bottle_2 (less than 5€)	−0.342	0.085	−0.048	−0.037	Feeling of isolation_1 (high)	0.026	−0.006	0.003	0.003
Lockdown exp bottle_3 (5 € > 10€)	−0.384	0.095	−0.052	−0.043*	Feeling of isolation_2	−0.061	0.016	−0.008	−0.007
Lockdown exp bottle_4 (11€ > 20€)	−0.475**	0.118**	−0.068*	−0.05**	Feeling of isolation_3	−0.014	0.004	−0.002	−0.002

Continued

Table 4
Continued

	Procurement Patterns and Consumption Situations					*Motives of Wine Consumption and Status*			
	Coeff.	*ME (k =1)*	*ME (k = 2)*	*ME (k = 3)*		*Coeff.*	*ME (k = 1)*	*ME (k = 2)*	*ME (k = 3)*
Lockdown exp bottle_5 (21€ > 30€)	–0.301	0.074	–0.043	–0.032	Feeling of isolation_4 (low)	0.034	–0.008	0.004	0.004
Pre-lockdown exp bottle_2 (less than 5€)	–0.508**	0.125**	–0.073**	–0.053**	Fear of virus_1 (low)	–0.074	0.018	–0.01	–0.008
Pre-lockdown exp bottle_3 (5€ > 10€)	–0.331	0.081	–0.043	–0.038	Fear of virus_2	–0.017	0.004	–0.002	–0.002
Pre-lockdown exp bottle_4 (11€ > 20€)	–0.24	0.059	–0.032	–0.027	Fear of virus_3	0.017	–0.004	0.002	0.002
Pre-lockdown exp bottle_5 (21€ > 30€)	–0.042	0.011	–0.006	–0.005	Fear of virus_4 (high)	–0.059	0.014	–0.008	–0.007
Lockdown additional expenditure wine	0.707***	–0.167**	0.075**	0.093**	Fear of economic crisis_1 (low)	–0.252	0.063	–0.036	–0.027
Lockdown additional expenditure beer	0.064	–0.016	0.008	0.008	Fear of economic crisis_2	0.164	–0.04	0.019	0.02
Lockdown additional expenditure spirit	–0.276***	0.069**	–0.039**	–0.029**	Fear of economic crisis_3	–0.219**	0.054**	–0.03**	–0.024**
Pre-lock cons wine_1 (daily)	0.858***	–0.199**	0.084**	0.116**	Fear of economic crisis_4 (high)	–0.081	0.02	–0.011	–0.01
Pre-lock cons wine_2 (at least once a week)	1.645***	–0.382**	0.182**	0.2**	Refocusing on oneself_1 (low)	–0.016	0.004	–0.002	–0.002
Pre-lock cons wine_3 (at least once a month)	1.76***	–0.352**	0.049**	0.303**	Refocusing on oneself_2	–0.195*	0.048*	–0.027*	–0.022*
Pre-lock cons wine_4 (less than once a month)	1.614***	–0.314**	0.024	0.29**	Refocusing on oneself_3	–0.205**	0.051**	–0.027**	–0.023**
Pre-lock cons beer_1 (daily)	0.233**	–0.057**	0.027**	0.03*	Refocusing on oneself_4 (high)	–0.116	0.029	–0.015	–0.013

Table 4
Continued

Procurement Patterns and Consumption Situations					*Motives of Wine Consumption and Status*				
	Coeff.	*ME (k =1)*	*ME (k = 2)*	*ME (k = 3)*		*Coeff.*	*ME (k = 1)*	*ME (k = 2)*	*ME (k = 3)*
Pre-lock cons beer_2 (at least once a week)	0.186**	−0.046**	0.024**	0.022**	Opportunity for initiatives_1 (low)	0.343*	−0.081*	0.036**	0.045
Pre-lock cons beer_3 (at least once a month)	0.142	−0.035	0.018	0.017	Opportunity for initiatives_2	−0.016	0.004	−0.002	−0.002
Pre-lock cons beer_4 (less than once a month)	0.187*	−0.046*	0.023**	0.023*	Opportunity for initiatives_3	0.205**	−0.05**	0.025**	0.025**
Pre-lock cons spirits_1 (daily)	0.059	−0.014	0.007	0.007	Opportunity for initiatives_4 (high)	0.131*	−0.032*	0.017*	0.015*
Pre-lock cons spirits_2 (at least once a week)	0.124	−0.03	0.015	0.015	Cut 1 (threshold)	−0.434			
Pre-lock cons spirits_3 (at least once a month)	−0.04	0.01	−0.005	−0.005	Cut 2 (threshold)	1.7***			
Pre-lock cons spirits_4 (less than once a month)	−0.037	0.009	−0.005	−0.004	No. cases "correctly predicted"	4,282 (58,5%)			
Lockdown consumption beer_2 (as usual)	−1.221***	0.292**	−0.15**	−0.142**					
Lockdown consumption beer_1 (more)	−0.621***	0.154**	−0.091**	−0.063**					
Lockdown consumption spirit_2 (as usual)	−0.673***	0.164**	−0.086**	−0.078**					
Lockdown consumption spirit_1 (more)	−0.035	0.008	−0.004	−0.004					

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5a
Status Effect (ME: Marginal Effects; k = 1: less; k = 2: as usual; k = 3: more)

	FR (n = 1,374)				IT (n = 1,146)				SP (n = 2,549)				PORT (n = 1,940)			
	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)
Gender	−0.046	0.01	−0.004	−0.006	−0.291*	0.07*	−0.03*	−0.04*	0.003	0.001	0	0	−0.139	0.034	−0.023	−0.011
Age_1 (below 18)	−0.086	0.019***	−0.008***	−0.011***	20.861***	−0.422***	−0.419***	0.841***	1.539	−0.235***	0.048***	0.186***				
Age_2 (18 > 29)	0.798**	−0.154**	0.036**	0.118**	0.829	−0.189	0.058**	0.131	0.795**	−0.094	0.044*	0.05	0.406	−0.101	0.064	0.037
Age_3 (30 > 40)	0.667**	−0.133**	0.038**	0.095	0.969*	−0.215**	0.055***	0.16*	0.625*	−0.056	0.029	0.027	0.047	−0.012	0.008	0.004
Age_4 (41 > 50)	0.585*	−0.115*	0.03**	0.085	0.905*	−0.207**	0.065***	0.142	0.39	0	0	0	0.214	−0.053	0.035	0.018
Age_5 (51 > 60)	0.601*	−0.116**	0.028**	0.089*	0.797	−0.183*	0.058***	0.125	0.376	0.004	−0.002	−0.002	0.3	−0.075	0.049	0.026
Urban	−0.079	0.017	−0.006	−0.01	0.161	−0.039	0.017	0.022	0.108	−0.025	0.014	0.011	0.009	−0.002	0.001	0.001
Suburban	0.067	−0.014	0.005	0.009	−0.102	0.025	−0.011	−0.014	0.104	−0.025	0.013	0.011	0.047	−0.012	0.008	0.004
Agriculture sector	0.03	−0.006	0.002	0.004	−0.528	0.131	−0.068	−0.063	−0.646	0.169	−0.107	−0.062	−0.674*	0.16**	−0.115*	−0.045**
Industrial sector	−0.354	0.079	−0.037	−0.042	0.253	−0.06	0.024	0.037	−0.476	0.127	−0.078	−0.049	−0.433	0.105	−0.074	−0.03
Service sector	−0.191	0.04	−0.015	−0.025	0.026	−0.006	0.003	0.004	−0.271	0.075	−0.04	−0.034	−0.604*	0.149	−0.099*	−0.05
Unemployed	−0.385	0.086	−0.041	−0.045	−0.596	0.148	−0.081	−0.067	−0.445	0.119	−0.075	−0.045	−0.615	0.147	−0.105	−0.041*
Student	0.057	−0.012	0.004	0.007	0.632	−0.145	0.044***	0.1	−0.503	0.134	−0.085	−0.049	−0.768	0.178	−0.131*	−0.047**
Other sector	−22.964***	0.702***	−0.545***	−0.156***	0.581	−0.131	0.037***	0.095	−0.302	0.073***	−0.044***	−0.029***	−0.29	0.071***	−0.05***	−0.021***
Retirees	−0.275	0.061	−0.029	−0.033	0.665	−0.15	0.041***	0.109	−0.411	0.133	−0.083	−0.05	−0.524	0.125	−0.09	−0.035
Income_1 (comfortable)	−0.122	0.025	−0.01	−0.016	0.019	−0.005	0.002	0.003	0.035	0.025	−0.014	−0.011	−0.074	0.018	−0.012	−0.006
Income_2 (suitable)	−0.08	0.017	−0.007	−0.01	0.073	−0.018	0.008	0.01	−0.1	0.038	−0.022	−0.016	−0.091	0.023	−0.015	−0.007
Income_3 (difficult)	0.175	−0.036	0.012	0.024	0.065	−0.016	0.007	0.009	−0.157	−0.083	0.039	0.044	−0.227	0.056	−0.039	−0.017
Income_4 (very difficult)	0.446	−0.086***	0.019***	0.067***	0.454	−0.105	0.034	0.071	0.352	−0.082913	0.039139	0.043774	0.024	−0.006	0.004	0.002
Number of adults	−0.036	0.008	−0.003	−0.005	0.021	−0.005	0.002	0.003	0.001	−0.001	0	0	−0.002	0.001	0	0
Number of children	0.163***	−0.035**	0.014**	0.021**	0.164*	−0.04*	0.018*	0.022**	0.03	−0.007	0.004	0.003	0.009	−0.002	0.001	0.001

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5b

Expenditure Effects (ME: Marginal Effects; k = 1: less; k = 2: as usual; k = 3: more)

	FR (n = 1,372)				IT (n = 1,146)				SP(n = 2,549)				PORT(n = 1,936)			
	Coeff.	*ME (k = 1)*	*ME (k = 2)*	*ME (k = 3)*	*Coeff.*	*ME (k = 1)*	*ME (k = 2)*	*ME (k = 3)*	*Coeff.*	*ME (k = 1)*	*ME (k = 2)*	*ME (k = 3)*	*Coeff.*	*ME (k = 1)*	*ME (k = 2)*	*ME (k = 3)*
Pre-lock exp bottle_1	0.177	–0.034	–0.01	0.04	–0.55	0.13	–0.043	–0.093	–0.295	0.072	–0.012	–0.061	–0.773	0.18	–0.056	–0.129*
Pre-lock exp bottle_2	–0.803	0.182	–0.001	–0.18	–1.22**	0.29**	–0.109	–0.187***	–0.347	0.085	–0.012	–0.072	–0.496	0.12	–0.028	–0.095
Pre-lock exp bottle_3	–0.63	0.129	0.024*	–0.15	–0.78	0.19	–0.042	–0.147	–0.096	0.023	–0.002	–0.021	–0.41	0.1	–0.022	–0.08
Pre-lock exp bottle_4	–0.421	0.084	0.019	–0.1	–0.66	0.16	–0.039	–0.122	–0.056	0.014	–0.001	–0.012	–0.071	0.02	–0.004	–0.014
Pre-lock exp bottle_5	–0.19	0.039	0.007	–0.05	–0.56	0.14	–0.043	–0.097	–0.06	0.014	–0.002	–0.013	0.073	–0.02	0.003	0.015
Lockdown exp bottle_1	0.254	–0.05	–0.013	0.06	0.51	–0.12	0.013*	0.104	0.924	–0.206	–0.008	0.214	–0.772	0.19	–0.048	–0.141
Lockdown exp bottle_2	0.574	–0.101	–0.041	0.14	0.64	–0.14	0.008	0.137	0.987	–0.218	–0.01	0.229	–0.874	0.21	–0.055	–0.159
Lockdown exp bottle_3	0.05	–0.01	–0.002	0.01	0.14	–0.03	0.006	0.027	0.836	–0.194	0.009*	0.186	–1.271*	0.3*	–0.079*	–0.224*
Lockdown exp bottle_4	–0.289	0.059	0.011	–0.07	–0.09	0.02	–0.005	–0.018	0.653	–0.147	–0.004	0.151	–1.266*	0.29**	–0.095	–0.194**
Lockdown exp bottle_5	–0.099	0.02	0.004	–0.02	–0.49	0.12	–0.036	–0.085	0.625	–0.138	–0.009	0.147	–0.619	0.15	–0.044	–0.106
Lockdown add exp wine	1.993***	–0.312***	–0.141***	0.45***	2.67***	–0.49***	–0.079***	0.568***	2.402***	–0.477***	–0.049***	0.526***	2.508***	–0.52***	–0.025*	0.545***
Lockdown add exp beer	0.758***	–0.137***	–0.05***	0.19***	0.69***	–0.16***	0.009	0.147***	0.262**	–0.062**	0.004**	0.058**	0.954***	–0.23***	0.01	0.216***
Lockdown add exp spirit	–1.087***	0.25***	–0.014	–0.24***	–1.09**	0.27**	–0.102*	–0.164***	–0.301	0.074	–0.012	–0.062	–0.28	0.07	–0.017	–0.053

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

between wine and spirits to the extent that a higher expenditure in spirits decreases the frequency of wine consumption globally, and notably in France. Conversely, a complementary effect appears between wine and beer: a higher expenditure on beer increases the frequency of wine consumption in France.

- *Procurement pattern effects on wine consumption during the lockdown (Tables 4 and 5c).*

We expected that purchasing habits, as well as the ability of consumers to adapt to the local lockdown conditions, could have a significant influence on consumption frequency.

First, we could expect that an autonomous wine supply (personal cellar) could encourage wine consumption during the lockdown. Throughout Latin Europe, the availability of a personal cellar is not significantly associated with wine consumption frequency. However, the estimates by country reveal different profiles. The influence of a personal cellar is significant only in Portugal. These results raise questions about purchasing behavior after the lockdown. Some households will certainly refill their depleted stocks, which might reinforce existing relationships with wine stores and wineries.

Second, we expected that disruption and overcrowding anxiety in common distribution channels (supermarket, grocery, wine stores) could contribute to reducing respondents' wine consumption frequency during the lockdown. However, in the whole of Latin Europe, people using these distribution channels have not significantly changed their consumption patterns. Here, again, some differences appear depending on the country. Wine procurement in supermarkets and wine stores has not been sufficient to guarantee the stability of wine consumption frequency in Spain, perhaps because of a specific epidemiologic and psychological context (Rodriguez-Rey, Garrido-Hernansaiz, and Collado, 2020).

Third, we anticipated that online and drive-through distribution channels would facilitate wine consumption during the lockdown. However, the findings are ambiguous. In the whole of Latin Europe, drive-through wine purchasing had no significant impact on wine consumption. It even hurt consumption frequency in Spain and Portugal. Further research is needed to explain these findings. Surprisingly, despite its development, online shopping did not contribute significantly to changes in wine consumption frequency across Latin Europe.

The strengthening of the relationship between consumers and wineries is an interesting fact to consider in the future. An additional question to our survey regarding the intention to purchase local wines after confinement sheds more light on this trend (Figure 9). All countries show high or very high intentions for replenishing with local supply, creating opportunities for local winemakers.

- *Drinking habits and substitution effects (Tables 4 and 5d).*

Table 5c

Procurement Patterns' Effects (ME: Marginal Effects; k = 1: less; k = 2: as usual; k =3: more)

	FR (n = 1,374)				IT (n = 1,146)				SP(n = 2,549)				PORT(n = 1,940)			
	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)
Pre-lockdown proc supermarket	0.443***	−0.094**	0.038**	0.056**	−0.197	0.048	−0.021	−0.027	0.247**	−0.059**	0.033**	0.026**	0.086	−0.021	0.014	0.007
Pre-lockdown proc grocery	−0.164	0.036	−0.015	−0.02	−0.057	0.014	−0.006	−0.008	0.158	−0.037	0.019	0.017	0.366*	−0.091*	0.058*	0.034
Pre-lockdown proc cellar	0.16	−0.034	0.013	0.021	−0.189	0.046	−0.022	−0.024	−0.133	0.033	−0.019	−0.014	−0.026	0.006	−0.004	−0.002
Pre-lockdown proc winestore	−0.009	0.002	−0.001	−0.001	0.057	−0.014	0.006	0.008	0.192*	−0.047*	0.025*	0.022*	0.014	−0.003	0.002	0.001
Pre-lockdown proc online	0.127	−0.026	0.01	0.017	−0.554**	0.137**	−0.072*	−0.065**	−0.1	0.022	−0.012	−0.01	0.457**	−0.114**	0.07**	0.043*
Pre-lockdown proc winery	−0.035	0.007	−0.003	−0.005	−0.156	0.038	−0.017	−0.021	−0.079	0.019	−0.01	−0.008	−0.35***	0.086**	−0.059**	−0.027**
Pre-lockdown proc drive-through	0.515	−0.097	0.019**	0.078	−0.868	0.213	−0.126	−0.087	0.564	−0.133***	0.054***	0.079***	−0.045	0.011***	−0.008***	−0.004***
Pre-lockdown proc others	0.038	−0.008	0.003	0.005	−0.8	0.197	−0.113	−0.084**	0.38	−0.09	0.042*	0.048	−0.388	0.094	−0.067	−0.027*
Lockdown proc supermarket	−0.081	0.017	−0.007	−0.01	−0.071	0.017	−0.008	−0.01	−0.273*	0.067*	−0.036*	−0.03*	0.052	−0.013	0.009	0.004
Lockdown proc grocery	0.055	−0.012	0.004	0.007	−0.073	0.018	−0.008	−0.01	−0.183	0.043	−0.025	−0.018	−0.124	0.031	−0.021	−0.01
Lockdown proc cellar	0	0	0	0	−0.51*	0.126*	−0.063*	−0.063**	−0.189	0.05	−0.028	−0.021	0.42**	−0.105**	0.068**	0.037**
Lockdown proc wine store	0.142	−0.03	0.011	0.019	−0.058	0.014	−0.006	−0.008	−0.288*	0.072*	−0.043*	−0.029*	−0.172	0.042	−0.029	−0.013
Lockdown proc online	−0.018	0.004	−0.001	−0.002	0.259	−0.062	0.025	0.037	−0.179	0.045	−0.026	−0.019	0.113	−0.028	0.019	0.009
Lockdown proc winery	0.008	−0.002	0.001	0.001	−0.16	0.039	−0.018	−0.021	−0.135	0.035	−0.02	−0.015	0.306*	−0.076*	0.049	0.027*
Lockdown proc drive-through	−0.014	0.003	−0.001	−0.002	0.014	−0.003	0.001	0.002	−0.319	0.079***	−0.048***	−0.031***	−0.302	0.073***	−0.052***	−0.022***
Lockdown proc others	0.763***	−0.139**	0.018	0.121**	0.015	−0.004	0.002	0.002	−0.173	0.047	−0.028	−0.02	0.747***	−0.184**	0.105**	0.079**
Wine app smartphone	−0.065	0.014	−0.005	−0.008	−0.099	0.024	−0.011	−0.013	−0.015	0.003	−0.001	−0.001	0.123	−0.031	0.021	0.01
Lockdown wine knowledge improvement	0.068	−0.014	0.005	0.009	−0.158	0.039	−0.018	−0.021	0.024	−0.006	0.003	0.003	0.18	−0.045	0.03	0.015
Online offers received	−0.147	0.031	−0.012	−0.019	−0.094	0.023	−0.01	−0.013	0.083	−0.02	0.011	0.009	0.148	−0.037	0.025	0.012
Lockdown proc online frequency_1 (no)	0.215	−0.047	0.02	0.026	0.229	−0.056	0.027	0.03	−0.109	0.025	−0.014	−0.012	0.015	−0.004	0.002	0.001
Lockdown proc online frequency_2 (first time)	0.166	−0.034	0.012	0.023	0.301	−0.071	0.027	0.044	−0.051	0.012	−0.007	−0.005	−0.196	0.048	−0.033	−0.015

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Figure 9

Since the Lockdown I Feel I Should Purchase More Local Wine

■ Strongly disagree ■ Disagree ■ Neither agree nor disagree ▪ Agree □ Strongly Agree
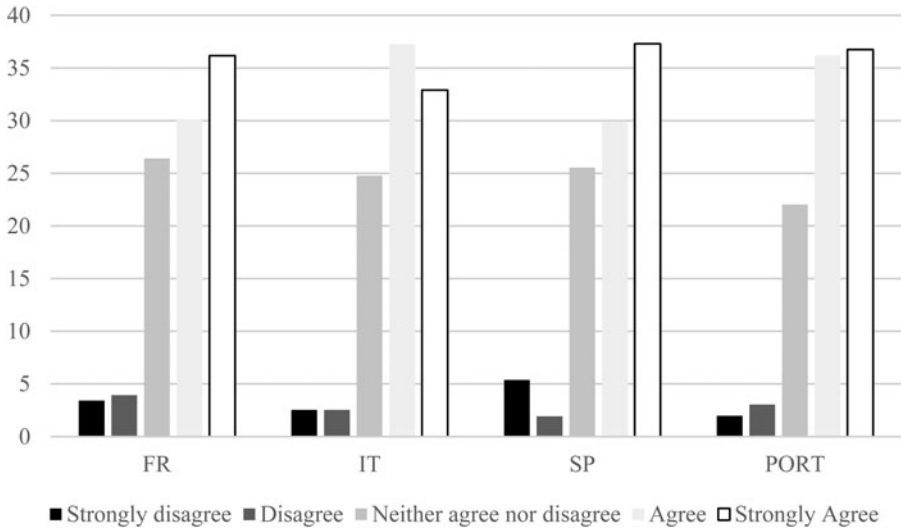
In terms of drinking habits, our results confirm the possible effects of the lockdown on greater alcohol consumption. Regular wine consumers were the least inclined to reduce their consumption frequency and were most prone to increasing it, particularly for the moderate among them (drinking wine at least once a week). Marginal effects by country all confirm this result.

Concerning substitution effects, beer or spirits drinking habits have had a significant negative effect on wine consumption during the lockdown. This result in the overall sample has been verified in all four countries. Complementary effects among alcoholic beverages can be detected in France, where a usual high consumption of spirits reduces the probability of consuming wine as frequently as before the lockdown. In Portugal, it significantly increases the probability of decreasing wine consumption during the lockdown.

During the lockdown, we have detected substitution effects among the types of alcoholic beverages. When beer drinkers increased their consumption, they limited the maintenance or increase of their consumption of wine. We observe certain loyalty of consumers toward their favorite drinks in the whole sample as well as in the country samples. To conclude, the lockdown induced a substitution effect among alcoholic beverages that could lead to significant modifications in market share in the future.

• *Consumption situation and motives of consumption (Tables 4 and 5e).*

Table 5d
Drinking Habits and Substitution Effects (ME: Marginal Effects; k = 1: less; k = 2: as usual; k = 3: more)

	FR (n = 1,374)				IT (n = 1,146)				SP(n = 2,549)				PORT(n = 1,940)			
	Coeff.	*ME (k = 1)*	*ME (k = 2)*	*ME (k = 3)*	*Coeff.*	*ME (k = 1)*	*ME (k = 2)*	*ME (k = 3)*	*Coeff.*	*ME (k = 1)*	*ME (k = 2)*	*ME (k = 3)*	*Coeff.*	*ME (k = 1)*	*ME (k = 2)*	*ME (k = 3)*
Pre-lockdown cons wine_1	1.438**	−0.239**	−0.012	0.251*	1.272	−0.283*	0.077***	0.206	0.52	−0.122	0.06	0.062	0.939*	−0.231*	0.145*	0.086
Pre-lockdown cons wine_2	1.619**	−0.349**	0.156**	0.193**	2.031***	−0.461***	0.189***	0.272***	1.659***	−0.38**	0.185**	0.195**	1.736***	−0.409**	0.242**	0.167**
Pre-lockdown cons wine_3	1.823***	−0.292**	−0.034	0.327**	1.69**	−0.33***	0.007	0.323*	1.925***	−0.371**	0.048	0.323**	1.922***	−0.42**	0.147**	0.273**
Pre-lockdown cons wine_4	1.449**	−0.219**	−0.055	0.274	1.441*	−0.28***	0.001	0.28	1.73***	−0.327**	0.026	0.301**	1.898***	−0.408**	0.127**	0.281**
Pre-lockdown cons beer_1	0.488*	−0.094**	0.02**	0.073	0.535	−0.123*	0.038***	0.085	−0.072	0.017	−0.009	−0.007	0.267	−0.067	0.043	0.024
Pre-lockdown cons beer_2	0.245	−0.051	0.019	0.032	0.458*	−0.111*	0.047*	0.063*	−0.254	0.061	−0.033	−0.028	0.4**	−0.099**	0.065**	0.034**
Pre-lockdown cons beer_3	0.256	−0.053	0.018	0.035	0.314	−0.075	0.03	0.045	−0.268	0.066	−0.039	−0.027	0.346*	−0.086**	0.056**	0.03
Pre-lockdown cons beer_4	0.327	−0.066	0.02**	0.046	0.384	−0.091	0.034*	0.057	−0.225	0.056	−0.033	−0.023	0.424**	−0.106**	0.068**	0.038**
Pre-lockdown cons spirits_1	0.254	−0.051***	0.015***	0.036***	0.146	−0.035	0.014	0.021	−0.285	0.074	−0.044	−0.029	−0.066	0.016	−0.011	−0.005
Pre-lockdown cons spirits_2	0.222	−0.045	0.015	0.03	0.028	−0.007	0.003	0.004	0.21	−0.051	0.026	0.025	−0.073	0.018	−0.012	−0.006
Pre-lockdown cons spirits_3	0.402**	−0.082**	0.027**	0.055**	0	0	0	0	−0.112	0.028	−0.016	−0.012	−0.395**	0.096**	−0.067**	−0.029**
Pre-lockdown cons spirits_4	0.118	−0.025	0.009	0.015	−0.08	0.02	−0.009	−0.011	0.044	−0.01	0.006	0.005	−0.211	0.052	−0.036	−0.017
Lockdown cons beer_1 (more)	−0.886***	0.199**	−0.1*	−0.099**	−0.753***	0.186***	−0.1***	−0.086***	−0.695***	0.17**	−0.105**	−0.066**	−0.433**	0.105**	−0.075**	−0.03**
Lockdown cons beer_2(as usual)	−1.348***	0.295**	−0.136**	−0.158**	−1.511***	0.351***	−0.139***	−0.211***	−1.52***	0.358**	−0.195**	−0.163**	−0.882***	0.216**	−0.142**	−0.074**
Lockdown cons spirit_1 (more)	0.076	−0.016	0.006	0.01	−0.441*	0.109*	−0.056	−0.053**	−0.074	0.018	−0.01	−0.008	0.028	−0.007	0.005	0.002
Lockdown cons spirit_2 (as usual)	−0.727***	0.156**	−0.066**	−0.09**	−0.727***	0.175***	−0.075***	−0.1***	−0.698***	0.169**	−0.095**	−0.075**	−0.744***	0.183**	−0.121**	−0.062**

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5e

Consumption Situation and Motivation Effects (ME: Marginal Effects; k = 1: less; k = 2: as usual; k = 3: more)

	FR (n = 1,374)				IT (n = 1,146)				SP (n = 2,549)				PORT (n = 1,940)			
	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)
Pre-lockdown consumption alone	−0.139	0.03	−0.013	−0.017	−0.291	0.072	−0.035	−0.037	−0.281**	0.068**	−0.039**	−0.029**	−0.03	0.008	−0.005	−0.002
Pre-lockdown consumption family	−0.61***	0.118**	−0.027**	−0.091**	−0.185	0.045	−0.019	−0.026	−0.072	0.019	−0.01	−0.008	0.041	−0.01	0.007	0.003
Pre-lockdown consumption friends	0.22	−0.048	0.021	0.027	0.095	−0.023	0.011	0.013	0.231**	−0.057**	0.033*	0.024**	0.221*	−0.055*	0.037	0.017*
Pre-lockdown consumption colleagues	−0.012	0.003	−0.001	−0.002	0.321*	−0.077*	0.03**	0.046*	0.029	−0.008	0.004	0.003	0.121	−0.03	0.02	0.01
Pre-lockdown consumption digital	−0.186	0.041	−0.018	−0.023	0.219	−0.052	0.02	0.032	0.071	−0.012	0.007	0.006	−0.265	0.065	−0.046	−0.019
Lockdown consumption alone	−0.113	0.024	−0.01	−0.014	−0.227	0.056	−0.026	−0.03	0.067	−0.016	0.009	0.007	−0.301**	0.074**	−0.051**	−0.023**
Lockdown consumption family	−0.58***	0.116**	−0.034**	−0.082**	−0.447**	0.106**	−0.04**	−0.066**	−0.308**	0.074**	−0.039**	−0.035**	−0.72***	0.178**	−0.111**	−0.067**
Lockdown consumption friends	−0.039	0.008	−0.003	−0.005	−0.297	0.073	−0.036	−0.037	−0.132	0.032	−0.018	−0.014	0.309	−0.077	0.049	0.028
Lockdown consumption colleagues	−0.413	0.093	−0.047	−0.046*	−0.181	0.044	−0.021	−0.023	−0.196	0.05	−0.029	−0.021	0.11	−0.027	0.018	0.009
Lock digital drink_1 (daily)	−0.311	0.068	−0.03	−0.038	−0.043	0.01	−0.005	−0.006	0.14	−0.033	0.018	0.015	−0.825*	0.203**	−0.124**	−0.079
Lock digital drink_2	−0.055	0.012	−0.005	−0.007	0.051	−0.012	0.005	0.007	−0.003	0.002	−0.001	−0.001	−1.029**	0.234**	−0.173**	−0.061**
Lock digital drink_3 (rarely)	−0.03	0.006	−0.003	−0.004	−0.348*	0.085*	−0.038*	−0.047*	0.131	−0.031	0.017	0.014	−0.744*	0.175*	−0.127*	−0.048**
Motive wine taste	−0.007	0.001	−0.001	−0.001	−0.076	0.018	−0.008	−0.01	−0.034	0.008	−0.004	−0.004	−0.03	0.008	−0.005	−0.002
Motive wine relax	−0.09	0.019	−0.008	−0.011	0.19	−0.046	0.019	0.027	0.007	−0.002	0.001	0.001	0.197*	−0.049*	0.033*	0.016*
Motive wine conviviality	−0.027	0.006	−0.002	−0.004	0.27*	−0.065*	0.028*	0.038*	0.348***	−0.084**	0.044**	0.04**	0.134	−0.033	0.022	0.011
Motive wine food	−0.222*	0.046*	−0.017*	−0.03*	−0.007	0.002	−0.001	−0.001	−0.26***	0.063**	−0.034**	−0.029**	−0.272**	0.068**	−0.044**	−0.023**
Motive wine romance	0.22	−0.045	0.015	0.03	0.095	−0.023	0.01	0.013	0.011	−0.003	0.002	0.001	−0.105	0.026	−0.018	−0.008
Motive wine health	−0.147	0.032	−0.014	−0.018	−0.762***	0.188***	−0.104***	−0.084***	−0.229	0.057	−0.034	−0.024	−0.464*	0.111*	−0.08*	−0.032**
Motive wine sleep	0.289	−0.058	0.017	0.041	−0.019	0.005	−0.002	−0.003	−0.192	0.047	−0.027	−0.019	0.277	−0.069	0.044	0.025
Motive wine challenge	0.086	−0.018	0.007	0.011	−0.17	0.042	−0.019	−0.022	0.072	−0.018	0.01	0.008	−0.01	0.003	−0.002	−0.001
Motive others	−0.18	0.039	−0.017	−0.022	0.007	−0.002	0.001	0.001	0.033	−0.008	0.004	0.004	−0.426*	0.103*	−0.073*	−0.029*

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

During the lockdown in Latin Europe, overall, most respondents reduced their consumption in all investigated situations except digital consumption. It is nevertheless interesting to note that the effects are of different amplitudes. Those who consumed wine alone or with family and colleagues before the lockdown were significantly more prone to decrease their wine consumption. Conversely, those who consumed with friends were significantly more prone to maintain or increase their wine consumption. However, these results are very partially confirmed in the subsamples by country, and only in Spain and France.

The influence of the type of consumption situation reveals a break in the relationship between consumption situation and consumption frequency during the lockdown. Consuming alone is associated with less frequent consumption globally, and especially in Portugal. The result shows possible negative correlations between isolation and maintenance or an increase in wine consumption frequency. A second interesting feature is a positive association in the whole sample between family consumption and a decrease in the frequency of consumption. Conversely, the whole sample shows a significant positive association between the habit of drinking among friends before the lockdown and the tendency to maintain or increase drinking frequency during the lockdown.

The lockdown has generated new contexts for wine consumption, such as digital happy hours. We expected this substitution with real social interactions to contribute to the maintenance or increase in consumption. However, the results are more complex. In the whole sample, digital gatherings reduced the alcohol drinking frequency compared to before the lockdown. This may be because respondents participating in virtual gatherings were younger than the average respondents, and they usually consume less wine than their older counterparts.

Conviviality and consumption for relaxation motives are positively correlated to maintenance or an increase of wine consumption frequency during the lockdown in the whole sample (verified in Italy and Spain for conviviality and in Portugal for relaxation). Conversely, motives of health and matching wine with foods are negatively correlated to maintenance or an increase of wine consumption frequency. The absence of correlation of consumption change with hedonic motives (taste, food, romance) and the study of motivations reveal a possible link between wine consumption frequency and anxiety. These results question a potential anxiety effect that the variables of loneliness and insecurity could better highlight.

-     *Feelings of loneliness and insecurity (Tables 4 and 5f).*

Surprisingly feelings of isolation did not significantly explain any change in wine consumption in the whole sample. A low feeling of isolation has a significant impact in only two countries: in Spain, where it encourages the maintenance of wine consumption, and in France, where it encourages the decrease of wine consumption. According to the motivation results, we can suspect an impression management bias self-reported by respondents. The variable "feeling of refocusing on

Table 5f
Loneliness and Insecurity Feelings' Effects (ME: Marginal Effects; k = 1: less; k = 2: as usual; k = 3: more)

	FR (n = 1,374)				IT (n = 1,146)				SP (n = 2,549)				PORT (n = 1,940)			
	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)	Coeff.	ME (k = 1)	ME (k = 2)	ME (k = 3)
Feeling of isolation_1 (high)	0.089	−0.019	0.007	0.011	−0.161	0.039	−0.018	−0.021	−0.1	0.028	−0.016	−0.012	0.726	−0.179	0.108	0.071
Feeling of isolation_2	−0.168	0.036	−0.015	−0.021	−0.172	0.042	−0.019	−0.023	−0.2	0.053	−0.029	−0.023	0.701	−0.172	0.114	0.058
Feeling of isolation_3	−0.033	0.007	−0.003	−0.004	0.086	−0.021	0.009	0.012	−0.132	0.035	−0.019	−0.015	0.606	−0.15	0.096	0.055
Feeling of isolation_4 (low)	−0.642	0.149	−0.081	−0.067*	0.112	−0.027	0.011	0.016	0.431	−0.099	0.046*	0.053	0.289	−0.072	0.046	0.026
Fear of virus_1(low)	−0.051	0.011	−0.004	−0.006	0.395	−0.092	0.032	0.06	−0.203	0.05	−0.029	−0.021	0.075	−0.019	0.012	0.006
Fear of virus_2	0.201	−0.042	0.015	0.027	−0.091	0.022	−0.01	−0.012	−0.302*	0.074*	−0.044*	−0.03**	0.173	−0.043	0.028	0.015
Fear of virus_3	0.073	−0.015	0.006	0.01	0.194	−0.047	0.02	0.027	0.039	−0.011	0.006	0.005	0.005	−0.001	0.001	0
Fear of virus_4 (high)	−0.068	0.015	−0.006	−0.009	0.139	−0.034	0.015	0.019	−0.193	0.047	−0.026	−0.021	0.09	−0.022	0.015	0.007
Fear of economic crisis_1 (low)	0.162	−0.033	0.011	0.022	−0.743	0.184	−0.106	−0.078	−0.521	0.132	−0.084	−0.048*	0.552	−0.137***	0.081***	0.056***
Fear of economic crisis_2	0.031	−0.006	0.002	0.004	0.104	−0.025	0.011	0.014	0.447	−0.104	0.047**	0.057	−0.506	0.121	−0.087	−0.033
Fear of economic crisis_3	−0.241	0.053	−0.023	−0.029	−0.184	0.045	−0.021	−0.024	−0.177	0.045	−0.026	−0.019	−0.402	0.097	−0.069	−0.028*
Fear of economic crisis_4 (high)	−0.193	0.041	−0.016	−0.025	−0.039	0.009	−0.004	−0.005	−0.003	0.001	−0.001	0	−0.079	0.02	−0.013	−0.006
Refocusing on oneself_1 (low)	−0.043	0.009	−0.004	−0.005	0.358	−0.084	0.03	0.054	0.369	−0.087	0.041*	0.046	−0.213	0.052	−0.036	−0.016
Refocusing on oneself_2	−0.41	0.092	−0.045	−0.047*	−0.218	0.054	−0.026	−0.028	0.087	−0.021	0.011	0.01	−0.195	0.048	−0.033	−0.015
Refocusing on oneself_3	−0.497**	0.108**	−0.048**	−0.061**	−0.405*	0.099*	−0.047	−0.052*	0.089	−0.022	0.012	0.01	−0.098	0.024	−0.017	−0.008
Refocusing on oneself_4 (high)	−0.089	0.019	−0.008	−0.011	−0.17	0.041	−0.019	−0.023	0.083	−0.02	0.011	0.009	−0.148	0.037	−0.025	−0.012
Opportunity for initiatives_1 (low)	0.437	−0.084***	0.019***	0.065***	−0.54	0.106**	0.066**	0.04**	0.547	−0.121	0.052**	0.069	−0.167	0.041***	−0.028***	−0.013***
Opportunity for initiatives_2	0.318	−0.063***	0.018***	0.045***	−0.491	0.09*	0.054*	0.036*	−0.637**	0.159**	−0.103**	−0.057***	0.464*	−0.115**	0.071**	0.044*
Opportunity for initiatives_3	0.395**	−0.08***	0.025***	0.055***	−0.078	0.066	0.03	0.035	0.128	−0.03	0.016	0.014	0.114	−0.028	0.019	0.009
Opportunity for initiatives_4 (high)	0.306*	−0.065***	0.026***	0.039***	−0.359	0.056	0.024	0.032	0.037	−0.008	0.005	0.004	0.174	−0.043	0.029	0.014
cut1 (p–value)	−0.89 (0.415)				−0.50 (0.726)				−0.334 (0.784)				−0.427 (0.698)			
cut2 (p-value)	1.652 (0.132)				1.478 (0.303)				1.92(0.11)				1.736 (0.117)			
No. cases "correctly predicted"	808 (58.9%) 922 (59.1%)				715 (62.4%)				1,559(61.2%)				1,205 (62.1%)			

Notes: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

oneself" describes a more psychological than physical isolation and does not reveal any positive association between isolation and wine consumption. Conversely, this variable tends to reduce the probability of over-consumption overall, in each country, but in a decreasing (or less significant) way as the feeling of refocusing increases.

Conversely to what was expected, fear of the virus did not significantly alter wine consumption in any country sample. The fear of an economic crisis is significantly associated with wine consumption frequency, but negatively. It decreases the proportion of people who have maintained or increased their wine consumption frequency during the lockdown. It also increases the number of those who have reduced their consumption frequency. Only in Portugal, the low fear of economic crisis is significantly correlated to maintenance or increase of wine consumption frequency.

To conclude, loneliness and insecurity feelings have not had any significant effect on wine consumption or were negatively associated with wine consumption (feeling of refocusing on oneself, less negative as the variable increases; fear of economic crisis). According to our results, the expected relationship between anxiety and an increase in alcohol consumption is undetermined. The motivation effect suggests that bias may affect the self-reported feeling perception. We note that the variable describing an optimistic perception of the lockdown is positively and significantly associated with an increase or maintenance of wine consumption frequency in the whole sample. However, findings by country specify these general results. In France and Italy, to disagree or strongly disagree with the idea that the lockdown might contribute to positive initiatives is significantly associated with increased wine consumption frequency. In this last finding only, we can observe a correlation between wine consumption and perceived anxiety.

V. Conclusion

This article documents how the first COVID-19 lockdown has affected the drinking behavior of wine consumers in France, Italy, Spain, and Portugal. Using a large online survey ($n = 7,324$ individuals), we analyze respondents' purchasing and consumption patterns during that time. Our study examines wine consumption trends during the lockdown and its national and individual heterogeneity. Given the design of the survey and the methodological choices made in its treatment, several major results emerge.

Our first research question concerns the possible increase of wine consumption resulting from anxiety and the feeling of loneliness, as well as commercial and social disruption. The findings indicate that the proportion of people maintaining their wine consumption frequency during the lockdown has been significantly higher than all other alternatives ("more" or "less"). Additionally, when the

lockdown contributed to increased alcohol consumption, wine was the most frequently consumed alcoholic beverage.

Our second research question explores the wine consumption heterogeneities across countries through the social and cultural specificities of wine consumption. Findings indicate that French and abroad respondents display an increase in wine consumption frequency that is not significantly different from the maintenance in wine consumption frequency. Portuguese respondents display significant maintenance of their wine consumption frequency.

Our third and fourth research questions explore the individual heterogeneity of behavior, respectively, for the whole sample and by country. Some key results with strategic implications for market players are worth highlighting. We have found substitution between alcoholic beverages everywhere. But we observe a loyalty of wine consumers to wine, and those who increased their consumption frequency also increased its quality. Average pre-lockdown consumption is positively associated with an increase in consumption frequency during the lockdown.

There have also been situational changes in the consumption of alcohol. The shift from personal meetings to online meetings has lowered the proportion of those who decrease their consumption frequency only in two countries. The vast majority of European respondents do not have the intention to continue digital gatherings after the lockdown. The supply structure has also changed.

Finally, the correlation between the context of anxiety (fear of the economic crisis, fear of the virus, feelings of loneliness, or refocusing on oneself) and wine consumption frequency increase was not significant, except partially in France. However, the significant influence of certain consumption motivations (relaxing, health), or low perception of the crisis as an opportunity for social and environmental changes, leaves doubt as to the impact of this anxiety-provoking context. This result suggests that we could have performed a better measurement of those perceptions. Sales data and sociological surveys will come within a few months to confirm or clarify some of our inferences. Undoubtedly, concerning the threshold values and predictive performance of our models, country-specific functional forms and better measurement of the variables will improve these results. Our reactivity in front of the surge of the COVID-19 crisis has come at this cost.

Supplementary Material

To view supplementary material for this article, please visit https://doi.org/10.1017/jwe.2021.19.

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