



EUROPEAN CENTRAL BANK

EUROSYSTEM

Working Paper Series

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The COVID-19 consumption
game-changer:
evidence from a large-scale
multi-country survey

No 2599 / October 2021

Abstract

Prospective economic developments depend on the behavior of consumer spending. A key question is whether private expenditures recover once social distancing restrictions are lifted or whether the COVID-19 crisis has a sustained impact on consumer confidence, preferences, and, hence, spending. The elongated and profound experience of the COVID-19 crisis may durably affect consumer preferences. We conducted a representative consumer survey in five European countries in summer 2020, after the release of the first wave's lockdown restrictions, and document the underlying reasons for households' reduction in consumption in five key sectors: tourism, hospitality, services, retail, and public transports. We identify a large confidence shock in the Southern European countries and a shift in consumer preferences in the Northern European countries, particularly among high-income earners. We conclude that the COVID-19 experience has altered consumer behavior and that long-term sectoral consumption shifts may occur.

Keywords: COVID-19; household behavior; consumption; expectations; experiences; consumer preferences; economic resilience; sectoral changes; zombification; fiscal policy.

JEL Classifications: D12, D81, D84, E21, E60, E71, G51, H30.

Non-technical Summary

This paper seeks to provide insight into how different the post-COVID-19 equilibrium might be from what preceded it. We are primarily interested in whether the profound lockdown *experience* may have altered consumption trends and whether long-term sectoral consumption shifts are likely to result.

Novel multi-country survey data is used to provide insights on *why* consumption is shifting. The sample consists of 7,500 households and represents the general population in France, Germany, Italy, The Netherlands, and Spain. The data was collected after the first lockdown experience in July 2020, at a point when those initial restrictions were completely lifted. This paper identifies the underlying drivers for consumption changes in five sectors: tourism, hospitality, services, retail, and public transport.

We report five key findings: First, and compared to before the COVID-19 outbreak, a large proportion of households reports consuming “less than before” or “not at all”, ranging between a 38 and 66 percent—depending on the sector. Second, the fraction of households reducing their consumption correlates on aggregate with the severity of the COVID-19 health crisis, and on an individual level with a personal COVID-experience. Third, the largest fraction of households that report consuming now “less often than before” or “not at all” cite the infection risk as the main reason for changing their behavior. Fourth, the fraction of households reporting to consume certain products and services now “less than before” because the lockdown experience has permanently altered their preferences is substantial. Specifically, we observe many households reporting “the realization of not missing it” what they consumed before. “Not missing it” is the second most prominent reason for consumption reductions in France, Germany, and the Netherlands, during Summer 2020. Fifth, precautionary saving is a substantial driver for changing consumption patterns in Spain and Italy. In these countries, increased saving appetite is the second most important reason for reductions in consumption across almost all product categories. In the Northern European countries, the precautionary savings motive is the third most often cited reason. Sixth, the fraction of households reporting financial constraints’ as the main reason for reducing consumption is small.

These results provide initial evidence that in response to the COVID-19 experience consumers may have very different demands. That so many households report “not missing” what they cut back on during lockdown—even after restrictions are lifted—signals that permanent changes to consumer demand may be occurring. The fraction of households reporting the “realization of not missing it anymore” is especially large in the hospitality and services sectors. Within the retail sector, a substantial fraction of households

reported shifting their consumption away from high street stores and into online alternatives.

We identify three key policy implications from these findings. First, the results should be taken into account in the design of fiscal programmes to support businesses through the pandemic. If it is true that the COVID-19 experience is shifting consumer demand in large and long-lasting ways, this would imply that the economy itself will need to shift in order to meet new needs. Some incumbent firms will find that the services or products that they offer are no longer required in the post-COVID environment. If those firms cannot adapt to remain relevant for consumers, they could become obsolete. In this context, fiscal policy should be alert to the risks of extending support too broadly, and assess firms' future viability whenever possible. Second, our results suggest that broad-based policies aiming to restore consumption to pre-pandemic levels by reducing the pricing of products and services (e.g. VAT cuts) are unlikely to be effective. Financial constraints are the least reported reason for consumption drops. Instead, fiscal support should target those households who are particularly hard hit by the crisis. Such support might be better oriented towards helping displaced workers to retrain and find new jobs. Third, our results indicate that the objectives of protecting citizens from the virus risk and preserving economic prosperity do not lead to any trade-offs. Governments should treat the control of the infection risk as a prerequisite to achieving their objectives of preserving economic prosperity.

1 Introduction

“Recovery is sound only if it does come of itself. For any revival which is merely due to artificial stimulus leaves part of the work of depressions undone”

Schumpeter (1934)

The COVID-19 pandemic swiftly transformed life as we knew it and plunged the world into the worst economic downturn since the 1930s (IMF, 2020). Following the onset of the COVID-19 crisis, governments initially responded with a huge fiscal stimulus, including a range of generous support packages for firms. The premise of these wholesale support schemes is that the crisis is facing businesses with a temporary liquidity shock, and that normal revenues will resume once this difficult period has been bridged. However, as the extended duration of the crisis is becoming clear, governments are facing critical questions on how best to design their continuing support to the economy. The longer the crisis lasts, the higher the likelihood that the post-COVID-19 economy will fundamentally differ from what preceded it. If consumer preferences have changed in response to the COVID-19 experience, many firms and sectors will become obsolete. Bailing out such firms is likely to create unsustainable so-called “zombies” and mismatch unemployment in the long run.

This paper seeks to provide insight into how different the post-COVID-19 equilibrium might be from what preceded it by using a large scale multi-country survey. We are primarily interested in whether the profound lockdown *experience* may have altered consumption trends and whether long-term sectoral consumption shifts may result. This question is motivated by recent research in behavioral macroeconomics and finance that documents robust and permanent experience effects on agents’ preferences, expectations, and resulting economic behaviors.¹ Our study falls within this literature, as it treats the COVID-19 pandemic as a profound personal experience that could induce durable effects on consumers’ preferences. To the best of our knowledge, this paper is the first to study whether and how the personal lockdown experience altered households’ consumption behavior.

¹The examples in the related literature are numerous. Extrapolative behaviors from local experiences to aggregate conditions have been widely documented; see, e.g., Andrade et al. (2022). In the same vein, Malmendier and Nagel (2011) show that personal experience of stock returns influences financial expectations and long-run investing behavior among households, while Malmendier and Nagel (2016) report on how recent inflation experience shapes inflation expectations and the resulting lending and borrowing behaviors of households. Kuchler and Zafar (2019) find that personal experience of unemployment induces pessimistic views about economic outlooks. Growing up under adverse economic conditions has been found to permanently alter preferences, be it political preferences and beliefs (Giuliano and Spilimbergo, 2014) or job preferences (Cotofan et al., 2022). Overall, the literature shows that personal experiences of large macroeconomic shocks have the potential to change preferences and behavior permanently.

For this purpose, a survey method is needed to provide insights on *why* consumption is shifting.² The sample consists of 7,500 households and is representative for the general population in France, Germany, Italy, The Netherlands, and Spain. These five countries represent most of the EU economy but have experienced differing health crisis severities and lockdown intensities.³

We collected the data after the first lockdown experience in July 2020, at a point when those initial restrictions were completely lifted, and all surveyed consumption and travel possibilities were available, as illustrated in Figure 1. Further, the COVID-19 health impact was less salient in July 2020 than at other times during the pandemic, such as Spring 2020. These two factors (lockdown restrictions lifted, health risk low) combine to allow one to identify rather cleanly the effect of the lockdown experience on the post-lockdown consumption choices.⁴

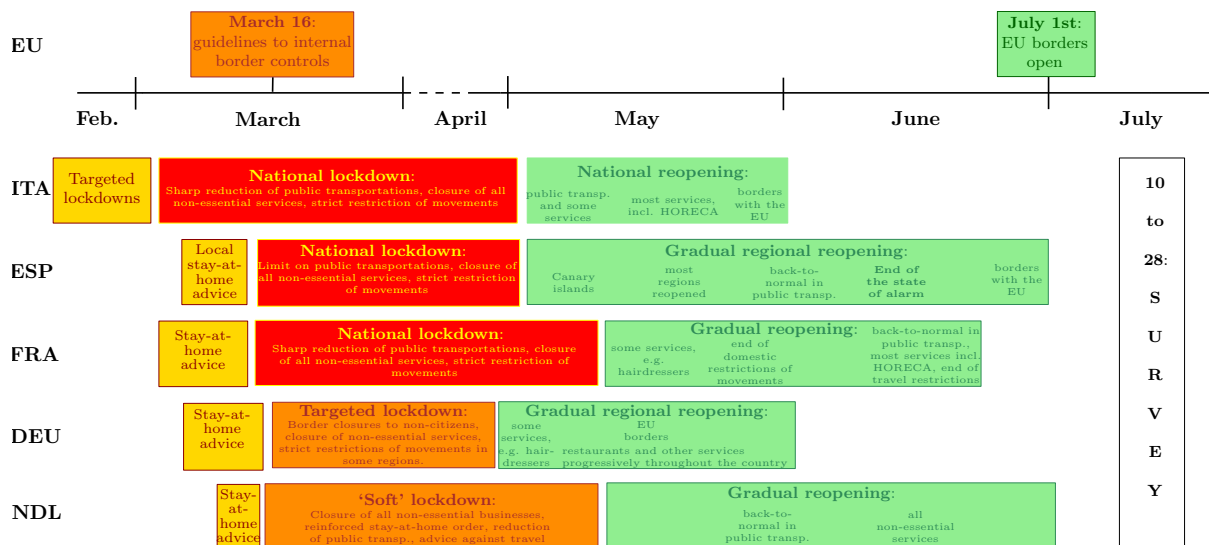
The survey covers five sectors and activities: tourism (traveling abroad for private reasons), hospitality (restaurants, bars, and cafes), services (such as hairdressers), retail (shopping in malls and other stores), and public transport. The survey asks households how their consumption has changed as a result of the COVID-19 lockdown experience. Households are specifically asked to state the main reason for their consumption changes. We focus on five possible drivers of consumption changes: (i) financial constraints, (ii) worry of infection risk, (iii) a lack of confidence in the future that induces a rise in precautionary savings, (iv) substitution to online alternatives, or (v) permanent shifts in taste and preferences arising from the lockdown experience. We focus on these key reasons, as each would imply a different optimal policy response.

Our focus on households' self-reported reasoning for the shifts in their consumption behavior allows us to identify the underlying drivers for consumption changes for each sector. We thus provide initial evidence on *the nature* of the COVID-19 demand shock, and on *how durable* the reported consumption shifts could turn out in the post-COVID-19 environment. Are we merely experiencing a transitory income shock? A shock to consumer confidence? Or is the COVID-19 experience a game-changer, creating permanent shifts in consumer preferences?

²The revealed preferences approach could provide a more precise quantitative estimate of how consumption aggregates are shifting. However, this paper aims not to predict quantitative consumption changes, but instead to identify the underlying drivers and potential persistence of consumption changes. Parker and Souleles (2019) study the difference between reported (survey) data and revealed consumption expenditures. This research shows that self-reported data works well in predicting consumption behavioral changes, and in estimating population aggregates—which is the goal of this study.

³In 2019, these five countries account for 70% the EU's GDP; 25% was generated by Germany, followed by France 17% and Italy 13%, ahead of Spain 9% and the Netherlands 6% (Eurostat).

⁴For instance, the average number of daily COVID-19 related deaths across the whole EU had fallen below 100 during July 2020 after a peak above 3,000 in April 2020 (source: Johns Hopkins CSSE).



Source: government response tracker team at Oxford University; <https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker>, the raw data are retrieved from https://raw.githubusercontent.com/OxCGRT/covid-policy-tracker/master/data/OxCGRT_latest_responses.csv

Figure 1: Timing of the adaption and easing of the restrictive COVID-19 related policies in the countries and sectors included in our survey

More broadly, our paper contributes to the fast-emerging literature studying the effect of the COVID-19 outbreak on households’ consumption behavior. This related literature is generally descriptive in nature, quantifying shifting consumption patterns during the first lockdown in spring 2020—often using financial transaction data⁵ and, less frequently, large-scale survey data from households.⁶ Zwanka and Buff (2021) discuss the potential channels through which the COVID-19 crisis could generate lasting changes to consumption habits, and conclude by emphasising the need for detailed empirical work.

We add three dimensions to this literature. First, and most importantly, the data on households’ self-reported reasons for consumption changes allows us to go beyond the mere description of realized consumption changes. The reasons for consumption drops can vary across sectors and countries and may be related to households’ health and economic experiences during the pandemic. Second, the cross-country dimension allows us to link the survey outcomes to the economic fundamentals and the intensity of the COVID-19 experience. Third, we identify which types of consumers are shifting their consumption

⁵Andersen et al. (2020) for Denmark; Baker et al. (2020) for the US; Bounie et al. (2020) for France; Carvalho et al. (2020) for Spain; Chronopoulos et al. (2020) for the UK.

⁶For the US, Coibion et al. (2020a) document the impact of lockdown measures on a wide range of household variables, including consumption patterns. Coibion et al. (2020b) show that public communication amid the COVID-19 crisis had little impact on households’ beliefs and consumption decisions. Guglielminetti and Rondinelli (2021) show how the pandemic impacts on household consumption and saving patterns in Italy. Using cross-country survey data, Adams-Prassl et al. (2020) find that the COVID-19 crisis exacerbates inequalities in the UK, US, and German labor market. Piyapromdee and Spittal (2020) report similar findings for the UK.

the most, and for what reasons. We need to know *why* consumption patterns are shifting and *who* is shifting them to support policy-makers in devising the optimal design of fiscal policies.

Our analysis reveals six main findings, each of which has relevant policy implications. First, and compared to before the COVID-19 outbreak, a large proportion of households report consuming “less than before” or “not at all”, ranging between 38 and 66 percent—depending on the consumption category. We observe the largest decline for the tourism sector: sixty-six percent of households report that they will now travel less abroad for private reasons. The second-largest drop is found in the public transport sector, with 58 percent of households reporting to use public transport less. The third-largest drop concerns the hospitality sector, with 55 percent of households reporting a drop in their appetite to visit restaurants, bars, and cafes.⁷ A similarly large impact in consumption demand is observed in the retail sector, with 46 percent of households reporting a drop in the frequency of their visits to shops, malls, and other physical retail outlets. Services such as hairdressers see the smallest decline, with thirty-eight percent of households reporting to use these services less often. It is important to stress that these drops are not due to lockdown measures, as these restrictions were not in place in July 2020 at the point when the survey was carried out.

Second, for almost all sectors and countries, the fraction of households reducing their consumption correlates with the severity of the COVID-19 health crisis. A personal COVID-19 infection experience explains a substantial part of households’ consumption reduction, while standard socio-economic household characteristics such as income and education are not relevant. By contrast, behavioral factors such as personal experiences, macroeconomic expectations (pessimism), and psychological factors such as fear about the future matter for households’ change in consumption. This finding confirms that the COVID-19 crisis may be understood as a profound experience that may, as such, durably affect behavior, beyond the adverse economic effect.

Third, the largest fraction of households that report consuming now “less often than before” or “not at all” cite the infection risk as the main reason for changing their behavior. This result holds for all sectors and countries.

Fourth, the fraction of households reporting to consume less because the lockdown has changed their preferences is substantial. Specifically, we observe high proportions of households reporting the “realization of not missing” consuming certain products and

⁷This sector faces the second-largest decline in France, Germany, and Spain; and the third-largest decline in Italy and The Netherlands. The drop ranges from 66 percent of households visiting restaurants less often in Spain to 48 percent in France.

services that they consumed before the COVID-19 outbreak. Such preference shifts are particularly apparent in the services and hospitality sectors. For example, the fraction of households realizing that they do not miss services such as hairdressers amounts to 23 percent in France. Similarly, the fraction of households realizing they do not miss going to restaurants amounts to 21 percent in Germany. In France and Germany, households report that—across all sectors—“not missing it” is the second most powerful driver for households’ reduced consumption in Summer 2020. Similarly, in The Netherlands, the preference shift is the second most frequently cited reason for reduced consumption in all but one sector.⁸ Interestingly, these households are mainly middle-aged, high-income households and the least likely to have had a personal COVID-19 infection experience. The fact that mainly high-income households realized through the lockdown experience, that they do not miss consuming certain things, might reinforce the magnitude of the change in consumption habits.

Fifth, precautionary saving is a substantial driver for changing consumption patterns in Spain and to a lesser extent in Italy. In these countries, increased saving appetite is the second most important reason for reductions in consumption for almost all product categories. While in Germany, France, and the Netherlands, the saving motive is the third most popular reason—after the infection risk and the preference shift. Households citing the precautionary saving motive are mainly young families.

Sixth, the fraction of households reporting “financial constraints” as the main reason for reducing consumption is small. The fraction of households that cite either “precautionary saving motives” or “changes in preferences” as the key reason for lower consumption is far greater than the fraction reporting “financial constraints”. This observation is valid for all countries and sectors. This result surely reflects the unprecedented size of the governmental financial support programs that have protected households to a great extent in all countries during 2020.

The remainder of this paper is organized as follows. Section 2 describes the data and the survey design. Section 3 summarizes our key findings, Section 4 concludes and highlights the policy implications of this paper.

⁸In the retail sector, Dutch households’ second primary reason is the substitution for online shopping.

2 Survey Design and Data

2.1 Data collection

To investigate households’ consumption behavior during the COVID-19 “dance phase”⁹, we conducted a representative survey in five countries: France, Germany, Italy, The Netherlands, and Spain. The company IPSOS collected the data on our behalf using their online i-Say panel of consumers (IIS). Panel members are contacted via email or via the app they have installed on their phone, and are then invited to fill out the questionnaire in an online environment (device agnostic). The survey was conducted during the period from July 10th–28th, 2020. The sample size equals 7,501, see Appendix Table A1.

The representativeness of the samples is ensured by setting a non-interlocking quota. Samples are selected based on (1) the selected background variables and (2) the response rates which are based on records of respondents’ participation in previous surveys. Taking into account both the desired representativeness of the sample and response rates, sampling algorithms design the optimal sample composition.¹⁰ The representativeness of our sample is investigated in detail in Appendix 2, which shows that the samples are representative for the general population (aged 18 year-old and older) on gender, age, education, region of residence and—to a lesser extent—on occupation and income (based on the one-digit ISCO-classification).

2.2 Descriptive Statistics

The survey first collected background information on the households. Data was collected on households’ socio-economic situation, personal experience with a COVID-19 infection, concerns related to the COVID-19 crisis, macroeconomic expectations, and levels of trust and satisfaction with their government. Having answered these background questions, households were asked questions about their consumption behavior. This section provides descriptive statistics of the data.

⁹The “hammer” phase refers to the lockdown. The “dance” phase describes times when lockdown restrictions are entirely lifted—while no effective treatment or vaccine is widely available (i.e., infection risk remains). We borrow this terminology from Pueyo (2020), who describes this “hammer and dance” pandemic management from an epidemiological perspective.

¹⁰For example, the algorithm would oversample younger respondents if the sample needs to be representative on age since it is known that younger respondents have lower response rates than older respondents.

2.2.1 Households' socio-economic background

For each country, Appendix Tables A2–A4 report descriptive statistics of the socio-economic characteristics of the sample. Appendix Table A2 documents that the average respondent is 50 years old and shows the average household size and the distribution across three education categories (low, middle, high).

Financial Statistics: The distribution of households' income—yearly total income, after tax and compulsory deductions, from all sources (per deciles)—is reported in Appendix Table A4. Column 5 of Appendix Table A3 shows the fraction of households having the ability to make an unexpected payment of one-month of income. More than two-thirds of the households have this ability. Interestingly, the variation across countries is negligible ($\chi^2(4) = 7.71$).¹¹

Column 6 of Appendix Table A3 reports households' perception of how they cope financially with their current income. The survey question is “Which of these descriptions comes closest to how you feel about your household's income nowadays?”, with five answer categories, ranging from 1: “Very difficult on present income and insufficient to cover all the expenses” to 5= “Living comfortably on present income and able to save”. The cross-country variation is significant, ranging from 2.6 to 3.5 ($\chi^2(4) = 456^{***}$). The average household is coping on current income in most countries. Spanish households are facing the most financial difficulties, with an average value of 2.6.

Employment statistics: Appendix Table A3 reports the employment statistics. Column 1 reports the fraction of households in paid work, Column 2 the fraction not being part of the labor force, and Column 3 the unemployment rate. Column 4 reports the fraction of households having experienced an unemployment spell for more than three months over the past five years. The fraction of households falling into this category significantly varies between 13 percent in Germany to 39 percent in Spain ($\chi^2(4) = 341^{***}$).

2.2.2 Households' COVID-19 experience, concerns and expectations

Personal Experiences: Table 1 documents the number of confirmed COVID-19 death per 1M population (July 10th, 2020) and the fraction of households that report having been personally exposed to a COVID-19 infection. Households were asked, “Did you or a person close to you suffer from severe COVID-19 infection?” Spain reports the highest fraction with 17 percent, followed by The Netherlands (9 percent), France (8 percent),

¹¹Here and in the subsequent sections, we use: the Kruskal-Wallis test when comparing distributions of multiple-point scaled answers, the two-sided Pearson's chi-squared statistic when comparing proportions, and the Marascuilo procedure in case of rejection of the null hypothesis of equality of proportions to identify which pairs of proportion values are statistically different from each other. We then report the corresponding test statistic along with the significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Italy (7 percent), and Germany (3 percent). The proportions of COVID-10 exposure are significantly lower in Germany and greater in Spain than in the other three countries ($\chi^2(4) = 179^{***}$).

Financial and job-related concerns: Panel A in Table 2 reports how worried households are about losing their job in the near future. There are significant cross-country differences ($\chi^2(4) = 392^{***}$): the median household in France, Germany, and The Netherlands is “not worried”, while the median household in Spain and Italy are “somewhat worried”. Panel B in Table 2 shows that households report to be more worried about the broad negative effects that the coronavirus might have on their financial situation than about losing their job outright. We observe again a significant cross-country heterogeneity ($\chi^2(4) = 1,079^{***}$). Households in Spain are most concerned, followed by Italy, France, the Netherlands, and Germany.

Country	Survey data			COVID-19 statistics	
	personal experience mean	st. dev.	N	deaths	deaths/ 1M pop
France	0.08	0.27	1478	29,979	459
Germany	0.03	0.17	1487	9,130	109
Italy	0.07	0.26	1474	35,092	580
The Netherlands	0.09	0.29	1487	6,135	358
Spain	0.17	0.38	1483	28,403	607
Total	0.09	0.29	7409	108,739	398

Notes: The first column reports the percentage of households with a personal COVID-19 experience. The survey question is “Did you or a person close to you suffer from severe COVID-19 infection?” (1=yes; 0=no). The last two columns provide the number of confirmed COVID-19 deaths and the number of deaths/1M population for July 10th, 2020. Source: <https://www.worldometers.info/coronavirus/>.

Table 1: Personal COVID-19 infections experiences

Macroeconomic expectations and pessimism: Table 3 documents households’ expectations on when the COVID-19 crisis will end. Households were asked: “In your opinion, when will COVID-19 be totally under control such that it is safe to release all COVID-19 containment measures in your country?”. The respondents could choose among five different time windows: July-September 2020, October-December 2020, January-June 2021, July-December 2021, and later. We observe considerable and significant cross-country variation ($\chi^2(4) = 286^{***}$). Italy seems to be the most optimistic country in their predictions of the length of the crisis. Twenty-four percent believe that it is safe to release all COVID-19 containment measures by the end of 2020, while 41 percent think it will be later than July 2021. The second most optimistic country is The Netherlands, followed by Germany, then France. Spanish households have the most pessimistic outlook. Only 9 percent expect the crisis to be over by the end of 2020, while 64 percent expect the crisis

Panel A: Job Loss Concerns	mean	st. dev.	p10	p25	p50	p75	p90	N
France	1.63	0.74	1	1	1	2	3	859
Germany	1.49	0.66	1	1	1	2	2	897
Italy	1.87	0.77	1	1	2	2	3	886
The Netherlands	1.52	0.67	1	1	1	2	2	838
Spain	2.04	0.73	1	2	2	3	3	1017
Total	1.72	0.75	1	1	2	2	3	4497
Panel B: Financial Concerns	mean	st. dev.	p10	p25	p50	p75	p90	N
France	5.79	2.54	2	4	6	8	9	1460
Germany	4.44	2.98	1	2	5	7	8	1459
Italy	6.45	2.54	3	5	7	8	10	1457
The Netherlands	4.87	2.62	1	3	5	7	8	1463
Spain	7.42	2.20	5	6	8	9	10	1458
Total	5.79	2.80	1	4	6	8	9	7297

Panel A: The survey question is “How worried are you about losing your job in the near future?” Answer options: 1-3. 1 = not worried; 2 = somewhat worried; 3 = very worried. Panel B: The survey question is “How concerned are you about the effects that the coronavirus might have for the financial situation your household?” Answer options: 0-10. 0 (= not at all concerned) to 10 (= extremely concerned).

Table 2: COVID-19 related financial concerns

to last later than July 2021.

	France	Germany	Italy	Netherlands	Spain
	Percent	Percent	Percent	Percent	Percent
July-September-2020	3.33	4.27	7.47	6.93	2.73
October-December 2020	9.13	10.07	16.73	14.13	6.4
January-June 2021	28.73	28.67	35.20	34.80	26.98
July-December 2021	26.47	26.27	22.87	24.87	34.58
Later	32.33	30.73	17.73	19.27	29.31
Total	100	100	100	100	100

Notes: The survey question is “In your opinion, when will COVID-19 be totally under control such that it is safe to release all COVID-19 containment measures in your country?”

Table 3: Expectations about the duration of COVID-19 containment measures

Turning to our proxy for pessimism, Table 4 reports households’ predictions about the unemployment rate before the crisis and their expectations about the current and future unemployment rates. In all countries, the average household overestimates the pre-crisis and current unemployment rates compared to the actual figures (source: OECD). This systematic expectation bias is common in household surveys and may not reflect pessimism but rather the misperception of macroeconomic variables. For this reason, in the sequel, we use the predicted *change* in the unemployment rate as a proxy for households’ pessimism. This predicted change at one year ahead directly reflects the expected macroeconomic impact of the COVID-19 crisis and significantly varies from 5 percentage points in Germany to 10 in Spain ($\chi^2(4) = 321^{***}$).

Trust and Satisfaction with the Government: Panel A of Table 5 documents households’ trust level with the prospective government. Households were asked, “Please tell us how much you personally trust or distrust the (*country name*) government?”. Governments are most trusted in The Netherlands, followed by Germany, Italy, France, and finally, Spain ($\chi^2(4) = 368^{***}$). Panel B of Table 5 shows that a similar pattern for the satisfaction with governments. Households are most satisfied in The Netherlands, followed by Germany, Italy, and Spain ($\chi^2(4) = 486^{***}$). French households are the most dissatisfied with their government.

	France	Germany	Italy	The Netherlands	Spain
<hr/>					
Unemployment rate point prediction					
before the crisis	14.58 (14.39)	9.55 (12.06)	21.62 (17.56)	11.56 (12.54)	19.67 (14.11)
now (July 2020)	20.89 (18.57)	14.21 (15.66)	31.39 (22.91)	19.68 (18.28)	20.30 (20.30)
one-year-ahead	21.82 (19.09)	14.40 (15.58)	30.81 (22.80)	20.37 (18.53)	29.62 (19.16)
in the next 2-3 years	19.49 (19.37)	13.10 (15.66)	26.48 (22.67)	16.25 (17.02)	24.08 (18.41)
<hr/>					
Unemployment rate OECD data					
July 2019	8.5	3.0	9.7	3.4	14.3
July 2020	6.9	4.4	9.7	4.5	15.8

Notes: The first four rows report the (mean) point prediction, standard deviation in parentheses. The survey question is “Please indicate what you think the unemployment rate was or will be in your country at different points in time.” The last two rows show the realized unemployment rates, measured in numbers of unemployed as % of the labour force (seasonally adjusted). Source: OECD (2020), Unemployment rate (indicator). doi: 10.1787/52570002-en (Accessed on 2020-09-17).

Table 4: Macroeconomic Expectations

Next, we investigate the relationship between personal COVID-19 experiences and the variables discussed in this section. We measure the average COVID-19 experience using the two variables presented in Table 1; that is, the self-reported infection rate and the officially confirmed COVID-19 deaths per 1M population. Table 6 shows meaningful cross-country correlations. The severity of the COVID-19 experience correlates positively with the level of worry and fear, pessimism (unemployment increase and the end date of infection risk), and negatively correlates with trust and satisfaction with the government.

Panel A: Trust	mean	st. dev.	p10	p25	p50	p75	p90	N
France	3.30	1.24	2.00	2.00	3.00	4.00	5.00	1462
Germany	2.79	1.19	1.00	2.00	3.00	4.00	5.00	1451
Italy	3.22	1.27	2.00	2.00	3.00	4.00	5.00	1454
The Netherlands	2.68	1.28	1.00	2.00	2.00	4.00	5.00	1469
Spain	3.43	1.43	1.00	2.00	4.00	5.00	5.00	1469
Total	3.08	1.32	1.00	2.00	3.00	4.00	5.00	7305
Panel B: Satisfaction	mean	st. dev.	p10	p25	p50	p75	p90	N
France	3.51	1.23	2.00	2.00	4.00	5.00	5.00	1449
Germany	2.75	1.28	1.00	2.00	2.00	4.00	5.00	1458
Italy	2.96	1.34	1.00	2.00	3.00	4.00	5.00	1445
The Netherlands	2.59	1.34	1.00	2.00	2.00	4.00	5.00	1462
Spain	3.37	1.43	1.00	2.00	3.00	5.00	5.00	1464
Total	3.04	1.37	1.00	2.00	3.00	4.00	5.00	7278

Panel A: The survey question is “Please tell us how much you personally trust or distrust the (*country name*) government?”. Panel B: The survey question is “How satisfied are you with the way the (*country name*) government led by (*country leader name*) is doing its job?” Answer categories: 1= Very much trust, 2= Somewhat trust, 3= Neither trust nor distrust, 4= Somewhat distrust, 5= Very much distrust. Dropped: 6= I don’t know and 7= I prefer not to answer.

Table 5: Trust and Satisfaction with Government

	experience		concerns		expectations		government	
	deaths/ 1M pop	infection rate	job loss concern	financial concern	crisis end	unempl. rate	trust	satis- faction
Panel A:								
France	459	0.08	1.63	5.79	3.3	21.82	3.3	3.51
Germany	109	0.03	1.49	4.44	2.79	14.4	2.79	2.75
Italy	580	0.07	1.87	6.45	3.22	30.81	3.22	2.96
The Netherlands	358	0.09	1.52	4.87	2.68	20.37	2.68	2.59
Spain	607	0.17	2.04	7.42	3.43	29.62	3.43	3.37
Panel B: Cross-Country Correlation with COVID-19 experience								
deaths/1M pop	1	0.73	0.86	0.92	0.80	0.96	0.80	0.58
infection rate	0.73	1	0.77	0.81	0.60	0.65	0.60	0.50

Notes: Column 1: number of confirmed COVID-19 deaths/1M population for July 10th, 2020. Source: <https://www.worldometers.info/coronavirus/>. Column 2, question: “Did you or a person close to you suffer from severe COVID-19 infection?” (1=yes; 0=no). Column 3, question: “How worried are you about losing your job in the near future?” Answer options: 1-3. 1= not worried; 2 = somewhat worried; 3 = very worried. Column 4, question: “How concerned are you about the effects that the coronavirus might have for the financial situation your household?” Answer options: 0-10. 0 (= not at all concerned) to 10 (= extremely concerned). Column 5, question: “In your opinion, when will COVID-19 be totally under control such that it is safe to release all COVID-19 containment measures in your country?”. Column 6, question: “Please indicate what you think the unemployment rate was or will be in your country in one year from now.” Column 7, question: “Please tell us how much you personally trust or distrust the (*country name*) government?”. Column 8, question: “How satisfied are you with the way the (*country name*) government led by (*country leader name*) is doing its job?” Answer categories: 1= Very much trust, 2= Somewhat trust, 3= Neither trust nor distrust, 4= Somewhat distrust, 5= Very much distrust. Dropped categories 6= I don’t know and 7= I prefer not to answer.

Table 6: Cross-Country Correlations with COVID-19 infection and death experience

2.2.3 Households' consumption-specific questions

Households were surveyed about their consumption behavior in five sectors (*activities*): (i) public transports (*usage*), (ii) tourism (*traveling abroad for private reasons*), (iii) services (*use services such as hairdressers or beauty salons*), (iv) hospitality (*visiting restaurants, bars and cafes*), and (v) retail (*shopping in malls or other stores*). We chose these five sectors because they constitute a large part of total household consumption expenditure in normal times and because these sectors have been particularly affected by the lockdown (social-distancing) measures.

For each sector, households are asked whether they are now consuming more, less, not at all, or the same compared to before the COVID-19 outbreak. We also screen for households who never consumed pre-pandemic.¹²

If a household reports a change in consumption behavior, the household is asked to provide the main reason for the change. Households can select between six main reasons: (i) "I cannot afford it anymore", (ii) "I am worried to get infected with COVID-19", (iii) "I want to save more", (iv) "I realized I don't miss it anymore", (v) "I buy more online instead", and (vi) "other reason". We interpret the alternatives as (i) financial constraints due to the COVID-19 income shock, (ii) worry of temporary infection risk, (iii) precautionary saving motives due to drop in consumer confidence, (iv) lockdown has altered preferences, and (v) substitution to online consumption.

The next section analyzes for each country and consumption sector, the changes in household consumption behavior, and the reported primary reason for these changes.

3 Survey results

This section first presents the households' reported consumption changes for each sector and country. The change refers to consumption during the dance phase (where restrictions were lifted) compared to before the COVID-19 outbreak. Second, this section analyzes the reported consumption changes in light of the demographic and other background information collected. Finally, this section documents the self-reported main reason for the change in consumption behavior.

¹²To uncover potential long-lasting consumer preference changes, we framed the survey questions along the extensive margin, i.e. focusing on whether households plan to engage in particular activities more or less often than before. This focus on the extensive margin captures well consumption shifts in the services, hospitality, public transport, and tourism sectors. However, for the retail sector the focus on the extensive margin may provide a somewhat incomplete picture. Documenting the intensive margin, namely whether a household spends more or less during a visit to a retail store, would be necessary to comprehensively assess the impact of the COVID-19 lockdown experience on the broad outlook for consumption demand in the retail sector.

3.1 Overview of consumption changes during dance phase

We find that a substantial fraction of households changed their consumption behavior during the dance phase in all sectors for all countries (compared to before the COVID-19 outbreak). For each country and sector, Appendix Figures A13-A17 provide the percentage of households reporting to consume “now more often than before”, “same as before”, “less often than before”, “not at all”, “never did this before”.

Two clear patterns emerge. First, the share of households reporting a consumption rise is negligible if not nonexistent. And second, the fraction of households consuming less is substantial. Depending on the country and sector, the share of households reporting a consumption drop ranges from 18% to 57%. The share of households reporting a complete consumption stop ranges from 4% to 31%. Compared to before the COVID-19 outbreak, Figures 2-6 show for each country the fraction of households that reduced their consumption—conditional on having consumed before.¹³ Across all sectors, the largest proportion of households that reduce their consumption is found in Spain and Italy, which leads us to highlight the first observation:

Observation 1 (Consumption drop). *In all sectors, households substantially reduced their consumption during the dance phase, with the largest drop in Spain and Italy.*

These cross-country differences may reflect differences in the severity of the health crisis: At the time of the survey (July 10th, 2020), Spain had the highest number of confirmed COVID-19 death per 1M population, followed by Italy, France, The Netherlands, and Germany; see Table 1. A higher COVID-19 death rate in a given country seems to go hand-in-hand with a larger fraction of households that reduce their consumption. The only exception is France. It is striking to see that France is the country that displays the lowest fraction of households consuming less in each sector during the dance phase. In the remainder of this section, we analyze further the cross-country differences in households’ consumption response. However, this finding provides anecdotal evidence for the view that during a pandemic governments might not face any trade-off in designing policies to both protect lives and rescue the economy.

Observation 2 (Sectoral variation in the consumption drop). *Across all countries, the tourism sector experienced the largest consumption drop and services the smallest.*

The second pattern that stands out is the sectoral variation in the consumption drop. For the whole sample, we observe the largest decline for the tourism sector: 66 per-

¹³The cross-country differences are statistically significant. We refer to the notes of Figures 2-6 for the detail of the statistical tests.

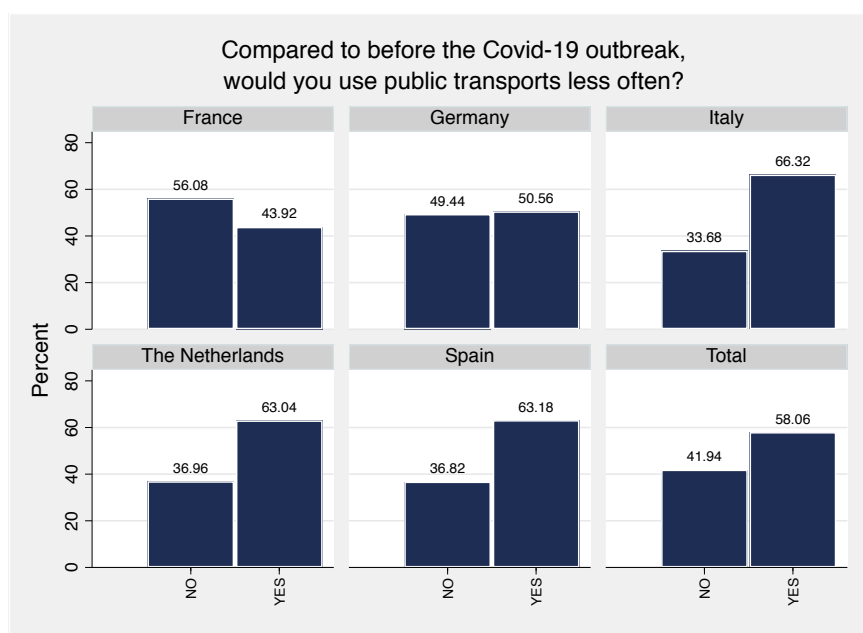
cent of households say that they will now travel less abroad for private reasons.¹⁴ The second-largest drop is found for the public transport sector, with 58 percent of households reporting to use this now less. For the whole sample, the third-largest drop concerns the hospitality sector: 55 percent of households report visiting restaurants, bars, and cafes less often. Then comes the retail sector: 46 percent of households shop less in malls and other stores. Services such as hairdressers see the smallest, albeit still substantial, decline with 38 percent of households reporting to now use these services less.^{15 16}

One caveat to the result that the tourism sector experienced the largest consumption drop is that the measure used for tourism focuses on international travel ('travel abroad') and does not ask explicitly for domestic travel. In 2020, the decline in domestic tourism was not as drastic as the collapse in international travel. It is therefore possible that the consumption drop in the tourism sector *as a whole* may be overestimated in our data. However, domestic tourism revenues still decreased in all countries surveyed (source: World Travel and Tourism Council 2020). Hence, there was no perfect substitution between international holiday-making and 'staycation' in the five countries under investigation.

¹⁴The vast majority of European households' pre-pandemic travels took place within Europe (source: Eurostat 2018) and during the time of the survey travel restrictions within the EU had been entirely lifted. However, most governments were still recommending to consider holiday-making in the home country, which may partly account for the magnitude of the drop in international tourism.

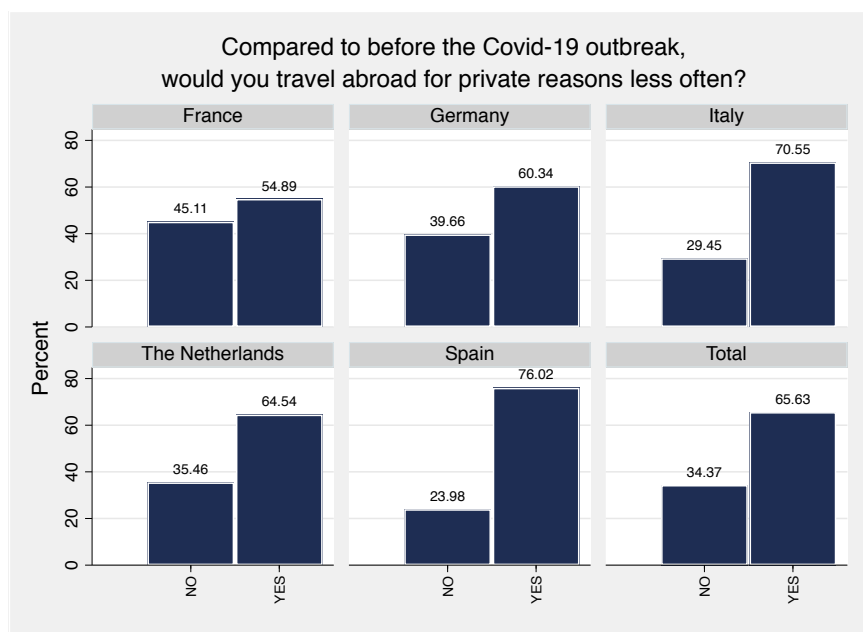
¹⁵For each country: the tourism sector faces the largest decline, ranging from 76 percent of households traveling less abroad in Spain to 55 percent in France. The public transport sector faces the second-largest decline in Italy and in The Netherlands and the third-largest decline in Germany, France, and Spain. The drop ranges from 66 percent of households using less public transport in Italy to 44 percent in France. The hospitality sector faces the second-largest decline in France, Germany, and Spain. And the third-largest decline in Italy and The Netherlands. The drop ranges from 66 percent of households visiting less often restaurants in Spain to 48 percent in France. For each country, the retail sector faces the fourth-largest decline, ranging from 52 percent of households shopping less often in malls and other stores in Spain to 36 percent in France. For each country, the services sector faces the fifth-largest decline, ranging from 47 percent of households using these services less often in Spain to 26 percent in France.

¹⁶Cross-sector differences are statistically significant in all countries: $\chi^2(4) = 245^{***}$ in France, $\chi^2(4) = 224^{***}$ in Germany, $\chi^2(4) = 231^{***}$ in Italy, $\chi^2(4) = 328^{***}$ in The Netherlands and $\chi^2(4) = 312^{***}$ in Spain. All pairwise comparisons are statistically significant at 5%, except the drops in consumption in transport versus hospitality in France, Germany and Spain, in services versus retail in Germany and Spain, in hospitality versus retail in Italy and in transport versus tourism in Italy and The Netherlands.



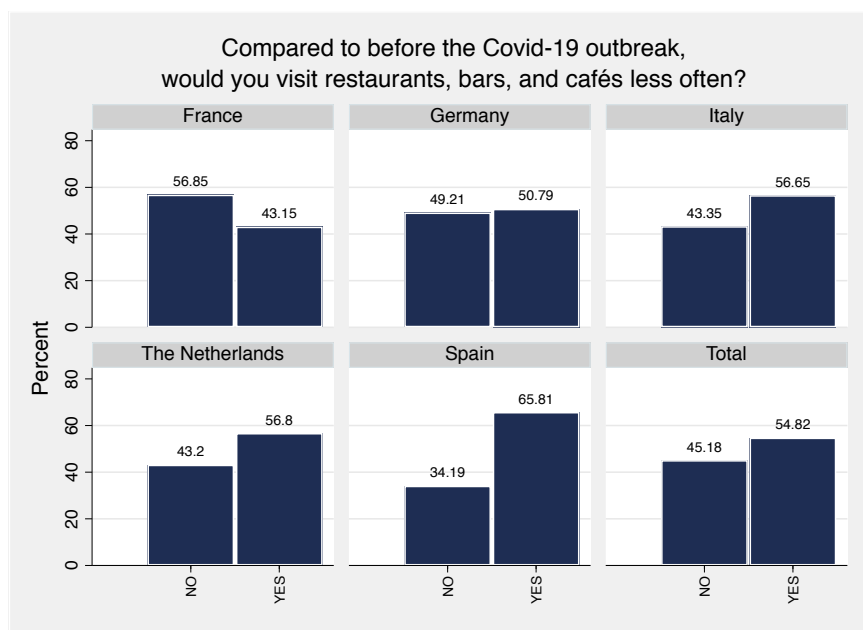
The survey question is: Compared to before the COVID-19 outbreak, how would you behave? I would use public transports: 1= more often than before; 2= same as before; 3= less often than before; 4= not at all; 5= I never did this before. Responses =5 are dropped and a dummy is created, which is equal to one for answers in categories 3 or 4, and zero otherwise. The fraction of households that reported “more often” equals 1.6 percent.

Figure 2: Lower usage of public transports (yes/no)



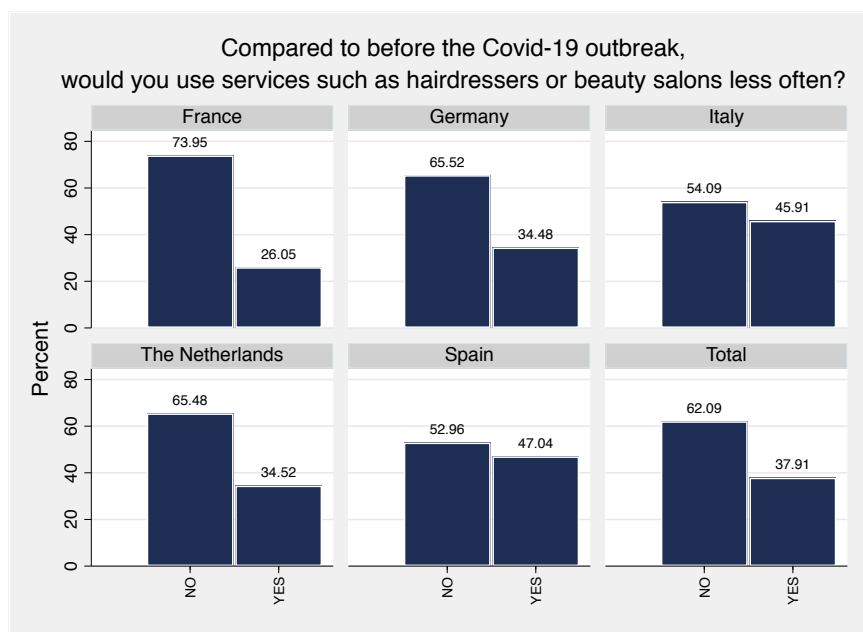
The survey question is: Compared to before the COVID-19 outbreak, how would you behave? I would travel abroad for private reasons: 1= more often than before; 2= same as before; 3= less often than before; 4= not at all; 5= I never did this before. Responses =5 are dropped and a dummy is created, which is equal to one for answer in categories 3 or 4, and zero otherwise. The fraction of households that reported “more often” equals 1.6 percent.

Figure 3: Less traveling abroad (yes/no)



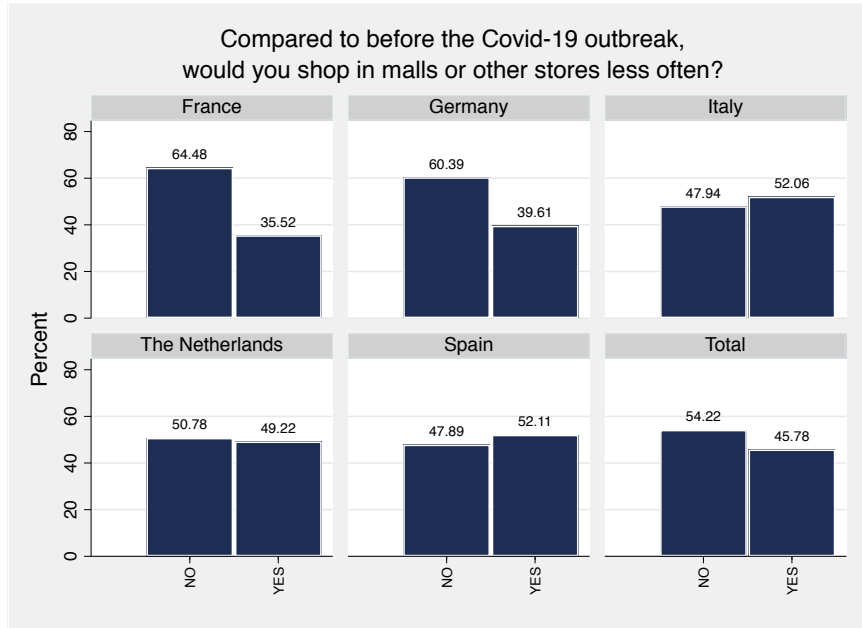
The survey question is: Compared to before the COVID-19 outbreak, how would you behave? I would visit restaurants, bars, and cafes: 1= more often than before; 2= same as before; 3= less often than before; 4= not at all; 5= I never did this before. Responses =5 are dropped and a dummy is created, which is equal to one for answer in categories 3 or 4, and zero otherwise. The fraction of households that reported “more often” equals 1.7 percent.

Figure 4: Less visits to restaurants, bars, and cafes (yes/no)



The survey question is: Compared to before the COVID-19 outbreak, how would you behave? I would use services such as hairdressers or beauty salons: 1= more often than before; 2= same as before; 3= less often than before; 4= not at all; 5= I never did this before. Responses =5 are dropped and a dummy is created, which is equal to one for answer in categories 3 or 4, and zero otherwise. The fraction of households that reported “more often” equals 1.2 percent.

Figure 5: Less usage of services such as hairdressers or beauty salons (yes/no)



The survey question is: Compared to before the COVID-19 outbreak, how would you behave? I would shop in malls or other stores: 1= more often than before; 2= same as before; 3= less often than before; 4= not at all; 5= I never did this before. Responses =5 are dropped and a dummy is created, which is equal to one for answer in categories 3 or 4, and zero otherwise. The fraction of households that reported “more often” equals 1.6 percent.

Figure 6: Less shopping in malls or other stores (yes/no)

3.2 Consumption changes and households’ characteristics

Next, we investigate households’ characteristics that could explain the reported consumption changes during the dance phase on a individual level. Using the whole data set, we perform probit estimations of the following specification:

$$Less_{isc} = \beta_0 + \beta_1 X_i + \beta_2 \tilde{Z}_i + \varepsilon_{isc} \quad (3.1)$$

$Less_{isc}$ denotes the household i ’s consumption behavior in sector s surveyed in July 2020, and who resides in the country c . This indicator is equal to one if household i reports to consume “less often than before” or “not at all” in sector s (compared to before the COVID-19 outbreak) and zero otherwise. X_i denotes a vector of standard controls for household i : we include age, gender, household size, income, employment status, and the education level.¹⁷ \tilde{Z}_i denotes a vector of additional behavioral controls, which vary depending on the specification considered: it includes households’ personal experiences, households’ macroeconomic expectations, and psychological factors such as worry and

¹⁷These standard controls X_i might also capture changes in current and expected income. Notably, two major determinants of household consumption, e.g., used in the Keynesian rule-of-thumb consumer model and the standard New-Keynesian model (Euler Equation). Controlling for exogenous socio-economic characteristics, such as age and gender, is essential to capture potential differences in risk aversion and discount factors that both influence consumption.

fear. The standard errors are clustered at the country level and denoted by ε_{isc} .

Socio-economic characteristics First, we present the results of the baseline specification (3.1), where we only include the standard socio-economic characteristics X_i that may affect households' consumption behavior during a recession. The first column of Tables 7–11 shows the relevant results for each sector, respectively.

We find that gender is consistently significant: females are more likely to reduce consumption—this result holds across all sectors. We find that age does not drive changes in households' consumption behavior in the hospitality and public transport sectors. However, we find age to play a significant role in shifting consumption trends in the retail sector, services sector, and tourism sector. Compared to before the COVID-19 outbreak, older households are now more likely to travel less often abroad for private reasons than younger households. In contrast, younger households are more likely to cut their consumption in the hospitality and services sectors. As age is recognized as a major risk factor associated with more severe health consequences from COVID-19 infections, this finding is somewhat surprising. One could have expected the opposite effect: the older the household, the more likely the household will cut non-essential consumption to reduce social interactions and, hence, the infection risk. Our results do not support this narrative, but are in line with recent research on the preception of personal health risks associated with Covid-19. Bordalo et al. (2020) find that perceived personal health risks associated with Covid-19 fall sharply with age. The role of age may instead be read in light of expected future income, where younger individuals may find themselves more financially insecure than older respondents in the wake of the pandemic.

Turning to the role of income, we find that income is only significant for consumption changes in two sectors. Higher-income households are more likely to decrease the use of public transport compared to before the outbreak. For the services sector, we observe the opposite result. The higher the household income, the less likely that the household uses services like hairdressers less often. This result echoes those of Baker et al. (2020) and Carvalho et al. (2020). While these authors find no correlation between income and changes in consumer behavior during lockdown (i.e., the hammer phase), we report a limited role of current income for consumption changes during the dance phase. Yet, the unemployment status increases the probability of having reduced consumption during the dance phase in the tourism and services sectors, while not being in the labor force makes the household more likely to consume less in the tourism, hospitality, and public transport sector. Education does not play a large role in explaining changes in consumption behavior. We consider three education categories (low, middle, high) and find that high

educational attainment does not affect the change in consumption behavior. Households with middle educational attainment are less likely to report consumption changes in the hospitality and service sectors (compared to the low-educated households). These insights are summarized by the first finding:

Finding 1 (Consumption drop and socio-economic profile). *Gender is the only socio-economic household characteristic that is consistently and significantly associated with consumption changes during the dance phase, while income, age, employment status, and education play a minor role.*

Behavioral factors and expectations Next, we investigate whether households' consumption changes can be explained by behavioral factors and expectations, such as households' personal experiences with a COVID-19 infection and previous unemployment spells, households' macroeconomic expectations, and psychological factors such as worry and fear. We add these behavioral factors sequentially.

First, we add households' personal experiences. The second column of Tables 7–11 reports the results for each sector, respectively. We find that a personal COVID-19 infection experience (i.e., exposure to a close person that suffered from a severe COVID-19 infection) makes households more likely to reduce consumption during the dance phase in the hospitality, services, and retail sectors. In contrast, this experience does not affect the tourism and public transport sectors. The same result holds for the experience of an unemployment spell of at least three months in the past five years. In terms of magnitude, the personal COVID-19 infection experience has roughly twice as large of an impact than a personal unemployment spell experience.

Next, we add two types of household macroeconomic expectation—inspired by the traditional expectation channel of standard macroeconomic models. The third column of Tables 7–10 shows the results for each sector, respectively. Households' expectations about the one-year-ahead change in the unemployment rate compared to the pre-crisis perception levels are significant for all sectors. The more pessimistic the household (i.e., the larger the expected Covid-19 induced increase in unemployment), the more likely the household reduces consumption in all sectors. Expectation about the pandemic's severity and length is the most significant variable for all sectors. The survey question is: "In your opinion, when will the COVID-19 virus be totally under control such that it is safe to release all COVID-19 containment measures in your country?". The later the expected date, the more likely the household to reduce consumption during the dance phase compared to before the COVID-19 outbreak.

Turning to psychological factors, we add to the regression a variable that captures households' worries about the consequences that the COVID-19 pandemic might have on their financial situation. The last column of Tables 7–11 shows that worries about the personal financial future is an important explanatory factor for households' decision to reduce consumption during the dance phase (compared to before the virus outbreak).¹⁸ The effect is highly statistically significant in all sectors. Those insights lead us to the second finding:

Finding 2 (Consumption drop and behavioral factors). *Personal COVID-19 experiences, pessimistic macroeconomic expectations, and concerns about the future are strongly and significantly associated with a consumption drop during the dance phase.*

Using probit estimations, we find that most standard socio-economic household characteristics (except gender) do not explain much of the large changes in household consumption behavior. Females (compared to men) are more likely to consume less in all sectors across all estimation specifications. Findings 1-2 indicate that financial hardship is not the primary driver for reducing consumption.¹⁹ Instead, we find relevant behavioral factors explaining households' consumption changes such as personal experiences with a COVID-19 infection and previous unemployment spells, households' degree of pessimism, and psychological factors such as fear about the future. In light of this finding, the next section explores the self-reported reasons for changing (reducing) consumption and investigates to what extent the consumption shifts may be transitory or durable.

¹⁸Appendix Table A5 shows that worries about the financial future correlate highly with worries about future job security. Respondents' job worry correlates with their past unemployment experience and their expectations about the unemployment rate. Using job worries instead of financial worries leaves the main picture unchanged but results in fewer observations.

¹⁹This is consistent with households' reported perception of how they cope financially with their current income. We refer to Column 6 of Appendix Table A3.

	(1)	(2)	(3)	(4)
age	0.000583 (0.00)	0.000829 (0.00)	0.000510 (0.00)	0.000565 (0.00)
male	-0.167*** (0.02)	-0.163*** (0.02)	-0.116*** (0.02)	-0.112*** (0.03)
household size	0.0607** (0.02)	0.0642** (0.03)	0.0629** (0.03)	0.0422 (0.03)
income	0.0268*** (0.01)	0.0288*** (0.01)	0.0321*** (0.01)	0.0381*** (0.01)
unemployed	0.118 (0.09)	0.112* (0.06)	0.0857 (0.06)	0.0771 (0.07)
not in labor force	0.0563*** (0.01)	0.0635*** (0.02)	0.0819*** (0.02)	0.0955*** (0.02)
middle education	-0.00149 (0.03)	0.00700 (0.04)	0.0252 (0.03)	0.0441 (0.04)
high education	-0.0167 (0.07)	-0.00574 (0.07)	0.0214 (0.07)	0.0313 (0.07)
<i>Personal Experiences</i>				
past unemployment		0.0450 (0.07)	0.0362 (0.06)	0.0106 (0.06)
infection		0.00414 (0.06)	0.0172 (0.07)	-0.0172 (0.06)
<i>Expectations</i>				
unemployment prediction			0.00459*** (0.00)	0.00372*** (0.00)
expectation pandemic severity and length			0.120*** (0.01)	0.105*** (0.01)
<i>Psychological Factors</i>				
worry finance				0.0431*** (0.01)
<i>N</i>	5583	5504	5504	5425

Notes: Probit estimation. Marginal effects; Clustered standard errors (at country level) are reported in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The dependent variable is a dummy that is equal to one if individual i reports to consume "less often than before" or "not at all"—compared to before the COVID-19 outbreak; and zero otherwise. Equalized income categories in deciles (for details see Table A4). Employment status categories are: has a paid job (omitted), unemployed, not in labor force (including education or training, permanently sick or disabled, retired, (unpaid) community or military service, housework, looking after children and/or other persons). Education categories are: low (omitted), middle, high. Past unemployment experience, the survey question is: "Have you been unemployed and seeking work for more than 3 months in the last 5 years?" (1=yes; 0=no). COVID-19 infection experience, the survey question is: "Did you or a person close to you suffer from severe COVID-19 infection?" (1=yes; 0=no). Unemployment expectation, the two survey questions are: "Please indicate what you think the unemployment rate was before the crisis in your country" (point prediction) and "Please indicate what you think the unemployment rate will be in your country in one year from now" (point prediction). We use the difference of the two unemployment point predictions (one year from now – before the crisis). Expectation about COVID-19 pandemic severity and length, the survey question is: "In your opinion, when will COVID-19 be totally under control such that it is safe to release all COVID-19 containment measures in your country?". Answer: 1= July-September 2020, 2= October-December 2020, 3= January-June 2021, 4= July-December 2021, and 5= later. Worry-finance, the survey question is "How concerned are you about the effects that the coronavirus might have for the financial situation your household?" Answer: 0= not at all concerned to 10= extremely concerned.

Table 7: Public Transports: Socio-economic and Behavioral Factors

	(1)	(2)	(3)	(4)
age	0.00514*** (0.00)	0.00536*** (0.00)	0.00478*** (0.00)	0.00491*** (0.00)
male	-0.237*** (0.03)	-0.239*** (0.03)	-0.193*** (0.03)	-0.198*** (0.03)
household size	0.0705*** (0.02)	0.0731*** (0.02)	0.0742*** (0.03)	0.0511** (0.02)
income	0.00923 (0.01)	0.00993 (0.01)	0.0119 (0.01)	0.0182 (0.01)
unemployed	0.142** (0.07)	0.142*** (0.04)	0.114*** (0.04)	0.0797* (0.04)
not in labor force	0.0865** (0.03)	0.0978*** (0.03)	0.117*** (0.03)	0.139*** (0.02)
middle education	0.0346 (0.04)	0.0473 (0.03)	0.0583* (0.03)	0.0866*** (0.03)
high education	0.0249 (0.07)	0.0350 (0.07)	0.0473 (0.07)	0.0650 (0.07)
<i>Personal Experiences</i>				
past unemployment		0.0261 (0.07)	0.0272 (0.07)	-0.00914 (0.06)
infection		0.102 (0.07)	0.132** (0.06)	0.0839 (0.06)
<i>Expectations</i>				
unemployment prediction			0.00331*** (0.00)	0.00226** (0.00)
expectation pandemic			0.168*** (0.01)	0.156*** (0.01)
<i>Psychological Factors</i>				
worry finance				0.0583*** (0.02)
<i>N</i>	5570	5495	5495	5423

Notes: Probit estimation. Marginal effects; Clustered standard errors (at country level) are reported in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The dependent variable is a dummy that is equal to one if individual i reports to consume "less often than before" or "not at all"—compared to before the COVID-19 outbreak; and zero otherwise. Equalized income categories in deciles (for details see Table A4). Employment status categories are: has a paid job (omitted), unemployed, not in labor force (including education or training, permanently sick or disabled, retired, (unpaid) community or military service, housework, looking after children and/or other persons). Education categories are: low (omitted), middle, high. Past unemployment experience, the survey question is: "Have you been unemployed and seeking work for more than 3 months in the last 5 years?" (1=yes; 0=no). COVID-19 infection experience, the survey question is: "Did you or a person close to you suffer from severe COVID-19 infection?" (1=yes; 0=no). Unemployment expectation, the two survey questions are: "Please indicate what you think the unemployment rate was before the crisis in your country" (point prediction) and "Please indicate what you think the unemployment rate will be in your country in one year from now" (point prediction). We use the difference of the two unemployment point predictions (one year from now – before the crisis). Expectation about COVID-19 pandemic severity and length, the survey question is: "In your opinion, when will COVID-19 be totally under control such that it is safe to release all COVID-19 containment measures in your country?". Answer: 1= July-September 2020, 2= October-December 2020, 3= January-June 2021, 4= July-December 2021, and 5= later. Worry-finance, the survey question is "How concerned are you about the effects that the coronavirus might have for the financial situation your household?" Answer: 0= not at all concerned to 10= extremely concerned.

Table 8: Tourism: Socio-economic and Behavioral Factors

	(1)	(2)	(3)	(4)
age	-0.00221** (0.00)	-0.00148 (0.00)	-0.00178 (0.00)	-0.00174 (0.00)
male	-0.0978** (0.04)	-0.0943** (0.05)	-0.0420 (0.05)	-0.0400 (0.05)
household size	0.117*** (0.01)	0.117*** (0.01)	0.114*** (0.01)	0.0861*** (0.02)
income	-0.0345*** (0.01)	-0.0322*** (0.01)	-0.0292*** (0.01)	-0.0213*** (0.01)
unemployed	0.115* (0.06)	0.0662 (0.05)	0.0365 (0.06)	0.0334 (0.06)
not in labor force	-0.0148 (0.02)	-0.00316 (0.02)	0.0147 (0.03)	0.0337 (0.03)
middle education	-0.120*** (0.03)	-0.0985*** (0.03)	-0.0755** (0.04)	-0.0382 (0.04)
high education	-0.105 (0.07)	-0.0887 (0.07)	-0.0574 (0.07)	-0.0364 (0.06)
<i>Personal Experiences</i>				
past unemployment		0.0880*** (0.03)	0.0737*** (0.02)	0.0272 (0.02)
infection		0.138* (0.08)	0.150* (0.08)	0.101 (0.08)
<i>Expectations</i>				
unemployment prediction			0.00521*** (0.00)	0.00393*** (0.00)
expectation pandemic severity and length			0.112*** (0.03)	0.0940*** (0.03)
<i>Psychological Factors</i>				
worry finance				0.0687*** (0.01)
<i>N</i>	6007	5928	5928	5843

Notes: Probit estimation. Marginal effects; Clustered standard errors (at country level) are reported in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The dependent variable is a dummy that is equal to one if individual i reports to consume "less often than before" or "not at all"—compared to before the COVID-19 outbreak; and zero otherwise. Equalized income categories in deciles (for details see Table A4). Employment status categories are: has a paid job (omitted), unemployed, not in labor force (including education or training, permanently sick or disabled, retired, (unpaid) community or military service, housework, looking after children and/or other persons). Education categories are: low (omitted), middle, high. Past unemployment experience, the survey question is: "Have you been unemployed and seeking work for more than 3 months in the last 5 years?" (1=yes; 0=no). COVID-19 infection experience, the survey question is: "Did you or a person close to you suffer from severe COVID-19 infection?" (1=yes; 0=no). Unemployment expectation, the two survey questions are: "Please indicate what you think the unemployment rate was before the crisis in your country" (point prediction) and "Please indicate what you think the unemployment rate will be in your country in one year from now" (point prediction). We use the difference of the two unemployment point predictions (one year from now – before the crisis). Expectation about COVID-19 pandemic severity and length, the survey question is: "In your opinion, when will COVID-19 be totally under control such that it is safe to release all COVID-19 containment measures in your country?". Answer: 1= July-September 2020, 2= October-December 2020, 3= January-June 2021, 4= July-December 2021, and 5= later. Worry-finance, the survey question is "How concerned are you about the effects that the coronavirus might have for the financial situation your household?" Answer: 0= not at all concerned to 10= extremely concerned.

Table 9: Services: Socio-economic and Behavioral Factors

	(1)	(2)	(3)	(4)
age	0.00200 (0.00)	0.00259* (0.00)	0.00206 (0.00)	0.00186 (0.00)
male	-0.192*** (0.02)	-0.196*** (0.02)	-0.159*** (0.02)	-0.157*** (0.02)
household size	0.0562*** (0.02)	0.0544*** (0.02)	0.0574** (0.02)	0.0281 (0.02)
income	-0.00763 (0.01)	-0.00462 (0.01)	-0.00415 (0.01)	0.00382 (0.01)
unemployed	0.107 (0.08)	0.0709 (0.08)	0.0519 (0.09)	0.0283 (0.09)
not in labor force	0.0588* (0.03)	0.0650** (0.03)	0.0799** (0.03)	0.102*** (0.03)
middle education	-0.0616*** (0.02)	-0.0438* (0.02)	-0.0400* (0.02)	-0.00742 (0.03)
high education	-0.000157 (0.07)	0.0164 (0.07)	0.0191 (0.07)	0.0366 (0.07)
<i>Personal Experiences</i>				
past unemployment		0.0783*** (0.02)	0.0826*** (0.02)	0.0419** (0.02)
infection		0.161*** (0.06)	0.184*** (0.06)	0.136*** (0.05)
<i>Expectations</i>				
unemployment prediction			0.00183*** (0.00)	0.000542 (0.00)
expectation pandemic severity and length			0.165*** (0.02)	0.151*** (0.02)
<i>Psychological Factors</i>				
worry finance				0.0620*** (0.02)
<i>N</i>	6261	6177	6177	6088

Notes: Probit estimation. Marginal effects; Clustered standard errors (at country level) are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable is a dummy that is equal to one if individual *i* reports to consume "less often than before" or "not at all"—compared to before the COVID-19 outbreak; and zero otherwise. Equalized income categories in deciles (for details see Table A4). Employment status categories are: has a paid job (omitted), unemployed, not in labor force (including education or training, permanently sick or disabled, retired, (unpaid) community or military service, housework, looking after children and/or other persons). Education categories are: low (omitted), middle, high. Past unemployment experience, the survey question is: "Have you been unemployed and seeking work for more than 3 months in the last 5 years?" (1=yes; 0=no). COVID-19 infection experience, the survey question is: "Did you or a person close to you suffer from severe COVID-19 infection?" (1=yes; 0=no). Unemployment expectation, the two survey questions are: "Please indicate what you think the unemployment rate was before the crisis in your country" (point prediction) and "Please indicate what you think the unemployment rate will be in your country in one year from now" (point prediction). We use the difference of the two unemployment point predictions (one year from now – before the crisis). Expectation about COVID-19 pandemic severity and length, the survey question is: "In your opinion, when will COVID-19 be totally under control such that it is safe to release all COVID-19 containment measures in your country?". Answer: 1= July-September 2020, 2= October-December 2020, 3= January-June 2021, 4= July-December 2021, and 5= later. Worry-finance, the survey question is "How concerned are you about the effects that the coronavirus might have for the financial situation your household?" Answer: 0= not at all concerned to 10= extremely concerned.

Table 10: Hospitality: Socio-economic and Behavioral Factors

	(1)	(2)	(3)	(4)
age	-0.00236*** (0.00)	-0.00152** (0.00)	-0.00185** (0.00)	-0.00198** (0.00)
male	-0.275*** (0.05)	-0.277*** (0.05)	-0.241*** (0.05)	-0.244*** (0.06)
household size	0.0656*** (0.01)	0.0641*** (0.01)	0.0640*** (0.01)	0.0433*** (0.01)
income	0.00525 (0.01)	0.00820 (0.01)	0.0103 (0.01)	0.0174 (0.01)
unemployed	0.0224 (0.05)	0.00385 (0.04)	-0.0220 (0.05)	-0.0205 (0.05)
not in labor force	0.0203 (0.03)	0.0208 (0.02)	0.0347 (0.02)	0.0568*** (0.02)
middle education	-0.0576 (0.06)	-0.0376 (0.06)	-0.0244 (0.06)	0.00161 (0.06)
high education	0.0458 (0.06)	0.0586 (0.06)	0.0763 (0.06)	0.0896* (0.05)
<i>Personal Experiences</i>				
past unemployment		0.0786** (0.03)	0.0751*** (0.03)	0.0442* (0.02)
infection		0.208*** (0.08)	0.223*** (0.08)	0.175** (0.08)
<i>Expectations</i>				
unemployment prediction			0.00303** (0.00)	0.00181 (0.00)
expectation pandemic severity and length			0.118*** (0.03)	0.105*** (0.03)
<i>Psychological Factors</i>				
worry finance				0.0540*** (0.01)
<i>N</i>	6374	6290	6290	6200

Notes: Probit estimation. Marginal effects; Clustered standard errors (at country level) are reported in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The dependent variable is a dummy that is equal to one if individual i reports to consume "less often than before" or "not at all"—compared to before the COVID-19 outbreak; and zero otherwise. Equalized income categories in deciles (for details see Table A4). Employment status categories are: has a paid job (omitted), unemployed, not in labor force (including education or training, permanently sick or disabled, retired, (unpaid) community or military service, housework, looking after children and/or other persons). Education categories are: low (omitted), middle, high. Past unemployment experience, the survey question is: "Have you been unemployed and seeking work for more than 3 months in the last 5 years?" (1=yes; 0=no). COVID-19 infection experience, the survey question is: "Did you or a person close to you suffer from severe COVID-19 infection?" (1=yes; 0=no). Unemployment expectation, the two survey questions are: "Please indicate what you think the unemployment rate was before the crisis in your country" (point prediction) and "Please indicate what you think the unemployment rate will be in your country in one year from now" (point prediction). We use the difference of the two unemployment point predictions (one year from now – before the crisis). Expectation about COVID-19 pandemic severity and length, the survey question is: "In your opinion, when will COVID-19 be totally under control such that it is safe to release all COVID-19 containment measures in your country?". Answer: 1= July-September 2020, 2= October-December 2020, 3= January-June 2021, 4= July-December 2021, and 5= later. Worry-finance, the survey question is "How concerned are you about the effects that the coronavirus might have for the financial situation your household?" Answer: 0= not at all concerned to 10= extremely concerned.

Table 11: Retail: Socio-economic and Behavioral Factors

3.3 Self-reported reasons for consumption changes

Conditional on having reported consuming “less often than before” or “not at all”, households were asked: “What is your main reason for doing now less of this activity?”. For each sector and country, Figures 7-11 provide an overview of the percentage of households that report as the primary reason (i) financial constraints, (ii) worry of infection risk, (iii) precautionary saving motives, (iv) lockdown has altered preferences, and (v) substitution to online consumption.²⁰ Four main observations stand out, leading to four additional findings.

Finding 3 (Infection risk). *The infection risk is the most reported reason for decreasing consumption (for all countries and sectors).*

While the infection risk is the most reported reason for decreasing consumption (across countries and sectors)²¹, a substantial fraction of households report what seems to be a shift in preferences, i.e. households report that they decreased their consumption because they realized after the lockdown experience that they do not miss it anymore. It is striking that in France and Germany, the reason “not missing it” is even the second invoked reason after the infection risk for all sectors. In the Netherlands, we observe the same pattern, except for the retail sector “shopping in malls or other stores”.²²

Households’ consumer preference shifts are substantial but heterogeneous across countries.²³ In all countries, households’ preference shifts are particularly prominent in the services sector (such as hairdressers), the hospitality industry (i.e., restaurants), and the retail sector. For example, the fraction of households that realized that they do not miss services such as hairdressers amounts to 23 percent in France, 19 percent in Germany and Italy, 14 percent in The Netherlands, and 10 percent in Spain. At the same time, the fraction of households that realized that they do not miss going to the restaurants

²⁰The answer options for the main reason are: “I buy more online instead”; “I realized I don’t miss it”; “I want to save more”; “I cannot afford it anymore”; “I am worried to get infected with COVID-19”; “Other reason”.

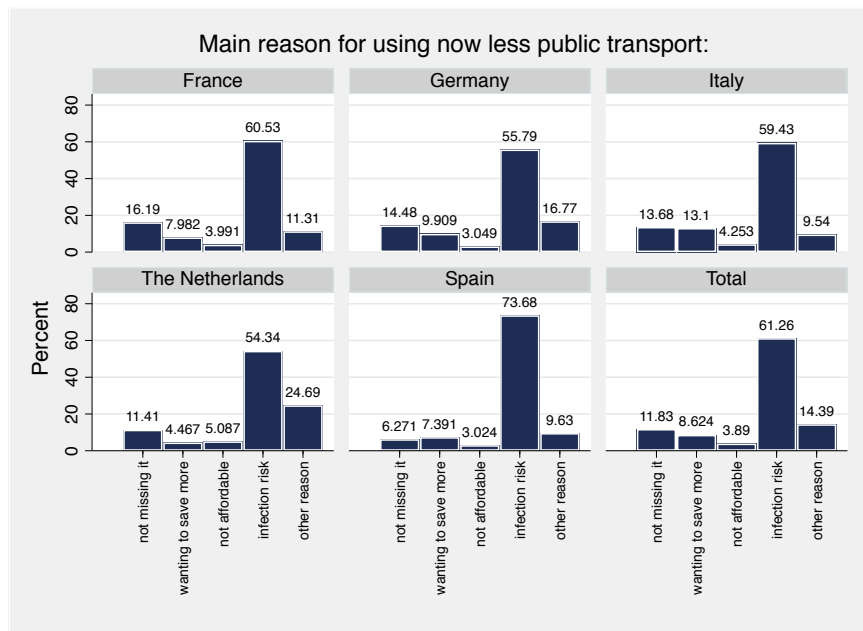
²¹Aggregating over all countries, the proportions of households reporting each of the five or six reasons for reducing consumption are statistically significant different from each other ($\chi^2(4) = 5,139^{***}$ for transport on Fig. 7, $\chi^2(4) = 3,596^{***}$ for tourism on Fig. 8, $\chi^2(4) = 1,061^{***}$ for services on Fig. 9, $\chi^2(5) = 3,784^{***}$ for the hospitality sector on Fig. 10 and $\chi^2(5) = 2,209^{***}$ for retail on Fig. 11). The cross-reason comparisons are all significant except ‘not missing it’ versus ‘saving more’ in the retail and the hospitality sectors, and ‘not affordable’ versus ‘save more’ in the tourism sector. Significantly more households report ‘infection risk’ than any other reason for decreasing consumption in all countries and sectors, except for the services sector in France and Italy, and the retail sector in France.

²²For the retail sector, Dutch households report as the second main reason a substitution to online shopping, followed by the reason “not missing it”.

²³Cross-country differences in the fraction of households reporting ‘not missing it’ are significant in all sectors, with $\chi^2(4) = 42^{***}$ for public transports, $\chi^2(4) = 76^{***}$ for tourism, $\chi^2(4) = 43^{***}$ for services, $\chi^2(4) = 58^{***}$ for the hospitality sector, and $\chi^2(4) = 88^{***}$ for retail. In each sector, this fraction is significantly smaller in Spain than in the other countries.

amounts to 19 percent in France, 21 percent in Germany, 18 percent in Italy, 15 percent in The Netherlands, and 9 percent in Spain.²⁴ These figures lead us to the next finding:

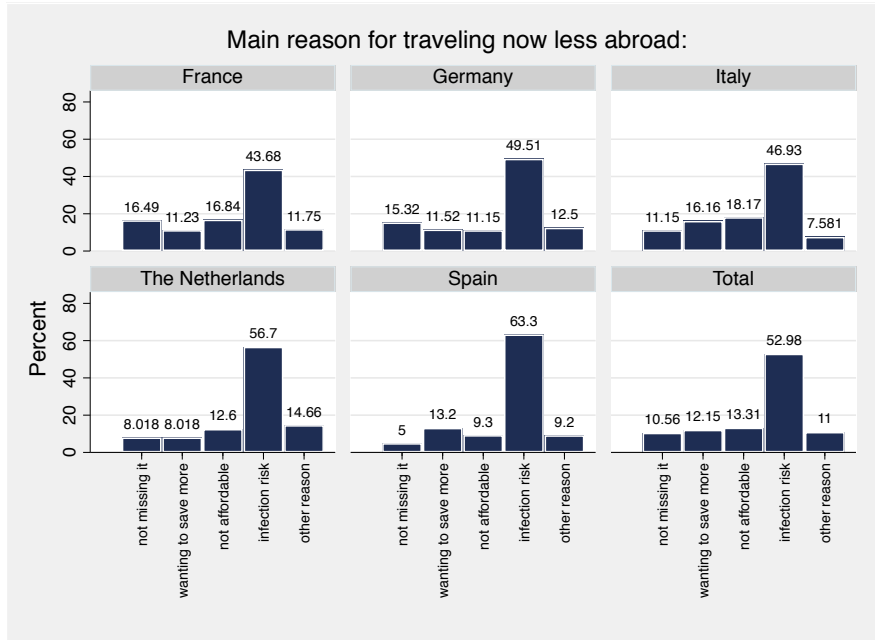
Finding 4 (Change in consumers’ preferences). *For all sectors, the fraction of households that explain their reported consumption drop by a change in preferences is substantial (the realization of not missing it). It is even the second invoked reason behind the infection risk in France, Germany, and The Netherlands.*



This survey question is only asked for people who reported “less often than before” or “not at all” in the previous question. The survey question is: “What is your main reason for doing now less of the following activity: Public transport?” 1= I realized I don’t miss it; 2= I want to save more; 3= I cannot afford it anymore; 4= I am worried to get infected with COVID-19; 5= Other reason.

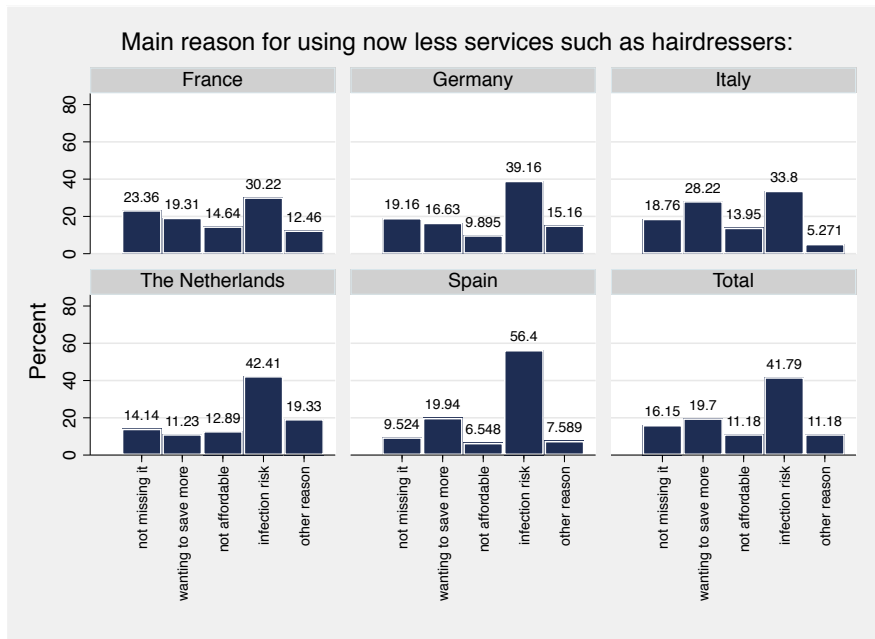
Figure 7: Reasons for lower usage of public transports during dance phase

²⁴The fraction of households reporting ‘not missing it’ is significantly larger than the fraction reporting saving motives or affordability issues (or online alternatives) for the public transport sector in France, Germany, and The Netherlands and the retail sector in France.



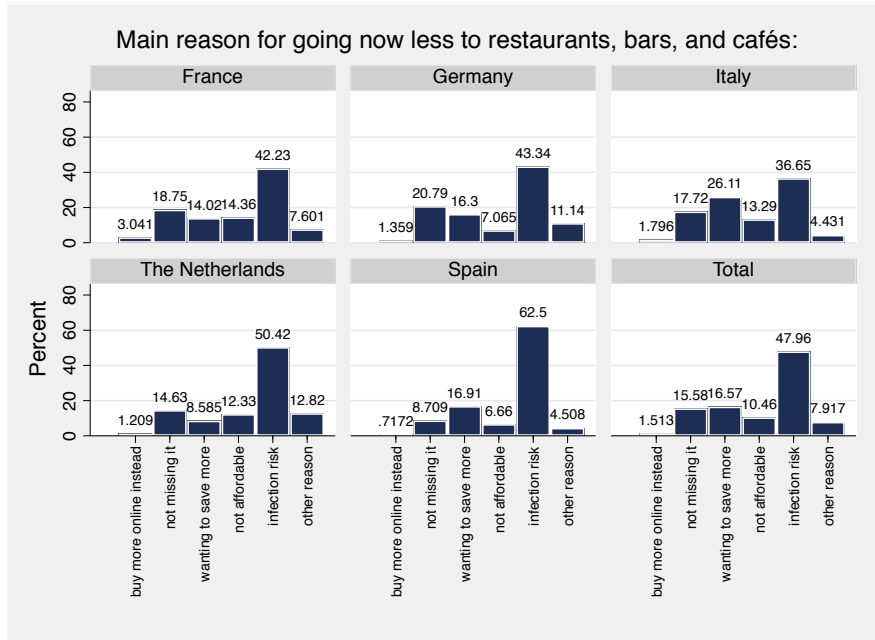
This survey question is only asked for people who reported “less often than before” or “not at all” in the previous question. The survey question is: “What is your main reason for doing now less of the following activity: Traveling abroad for private reasons?” 1= I realized I don’t miss it; 2= I want to save more; 3= I cannot afford it anymore; 4= I am worried to get infected with COVID-19; 5= Other reason.

Figure 8: Reasons for fewer private travels abroad during dance phase



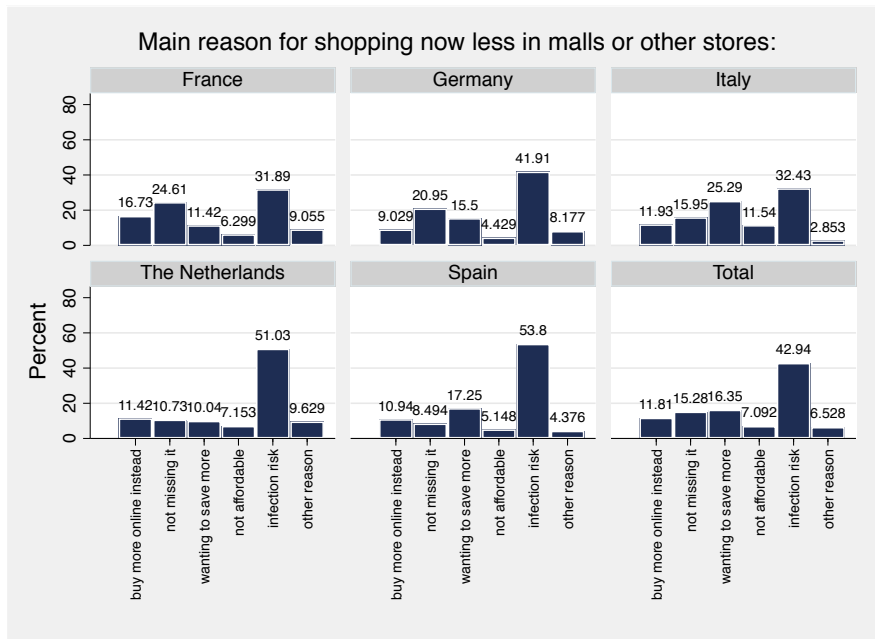
This survey question is only asked for people who reported “less often than before” or “not at all” in the previous question. The survey question is: “What is your main reason for doing now less of the following activity: use services such as hairdressers or beauty salons?” 1= I realized I don’t miss it; 2= I want to save more; 3= I cannot afford it anymore; 4= I am worried to get infected with COVID-19; 5= Other reason.

Figure 9: Reasons for using less services during dance phase



This survey question is only asked for people who reported “less often than before” or “not at all” in the previous question. The survey question is: “What is your main reason for doing now less of the following activity: visiting restaurants, bars, and cafes?” 1= I plan to buy more online; 2= I realized I don’t miss it; 3= I want to save more; 4= I cannot afford it anymore; 5= I am worried to get infected with COVID-19; 6= Other reason.

Figure 10: Reasons for going less to restaurants, bars, and cafes during dance phase



This survey question is only asked for people who reported “less often than before” or “not at all” in the previous question. The survey question is: “What is your main reason for doing now less of the following activity: shopping in malls and other stores?” 1= I plan to buy more online; 2= I realized I don’t miss it; 3= I want to save more; 4= I cannot afford it anymore; 5= I am worried to get infected with COVID-19; 6= Other reason.

Figure 11: Reasons for shopping less in malls and other stores during dance phase

To the best of our knowledge, this paper is the first to provide evidence on the *nature of the COVID-19 demand shock* and on how durable the reported consumption shifts could turn out in the post-COVID-19 environment. Beyond the question of how much households are consuming, one must also reflect upon how they are making their purchases. A particularly policy-relevant question is whether the COVID-19 experience may reinforce the pre-existing trend substituting away from brick and wall stores into online shopping. This trend is relevant for monetary policy because the online evolution of shopping habits may influence consumers' perceptions and expectations of prices.

In our survey, respondents had the opportunity to indicate *online alternatives* as the primary reason for reducing consumption in the hospitality and retail sectors. We find that amongst respondents indicating fewer shopping trips to malls and other stores, a significant number report that this was due to shopping online instead. The fraction of households reporting online substitution as the main reason for shopping less in malls and other stores is highest in France with 16% and lowest in Germany with 9%.²⁵ As the crisis becomes prolonged, consumers may become further accustomed to this new way of consumption, which could lead to a long-term shift in the retail sector away from high-street shops. However, for the hospitality sector, households rarely report “buy more online instead” to explain their less frequent visits to restaurants, bars, and cafes. The fraction of households reporting to compensate these visits by delivery services or pick-ups is negligible and not significantly different across countries, ranging from 3% in France to 0.7% in Spain ($\chi^2(4) = 7.2$).

Aside from the main reasons “infection risk” and the “change in preferences”, precautionary saving motives are substantial. A rise in savings is traditionally associated with pessimistic views about the future economic outlook. This phenomenon reads as a confidence shock that may have a long-lasting impact on demand. For the whole sample, the fraction of households reporting as the main reason “wanting to save more” to explain their consumption reduction varies between 8.6% to 19.7%—depending on the sector. The hospitality and services sectors are the most impacted by precautionary savings, followed by the retail, tourism, and finally by the public transport sector. We observe important cross-country variations in the fraction of households reporting as a primary reason precautionary savings.²⁶ In Spain and Italy, the desire to save more represents the

²⁵This cross-country variation is significant ($\chi^2(4) = 16.9^{**}$) and cannot be explained by cross-country differences in the importance of e-commerce in the retail sector. In 2019, the percentage of online sales (of total retail sales) was 15.9% in Germany and 10.9% in France. (sources: Center for Retail Research; Statistica).

²⁶These cross-country differences in the fraction of households reporting saving motive for reducing consumption are significant in all sectors: $\chi^2 = 45^{***}$ in the transport sector, $\chi^2 = 47^{***}$ in the tourism sector, $\chi^2 = 55^{***}$ in the service sector, $\chi^2 = 58^{***}$ in the hospitality industry and $\chi^2 = 47^{***}$ in the retail

second most cited main reason for reducing consumption in almost all sectors. While in France, Germany, and The Netherlands, precautionary saving motives are the third most cited reason.²⁷ We highlight the following finding:

Finding 5 (Precautionary savings). *The fraction of households explaining their consumption drop by a desire to save more is substantial for all sectors. In France, Germany, and The Netherlands, the saving motive is the third most cited reason (after infection risk and change in preferences), and the second most popular reason (after the infection risk) in Italy and Spain.*

Financial constraints are the least reported reason for reducing consumption in most sectors and countries.²⁸ This observation should be understood in light of the unprecedented size of governmental fiscal support before and at the time of the survey (July 2020). For the public transport, retail, hospitality, and services sector, the fraction of households reporting as the main reason for reducing consumption “I cannot afford it anymore” is significantly smaller than the fraction reporting the infection risk, a shift in preferences, or precautionary saving motives. The only sector that seems to substantially lose demand because of households feeling financially constrained is the tourism sector. However, even for the tourism sector, almost twice as many households report either precautionary saving motives or the “realization of not missing it” to explain their reduced travels abroad (compared to those citing financial constraints).

Finding 6 (Financial constraints). *Across all sectors and countries, the fraction of households explaining their consumption drop by financial constraints is small.*

Finally, we investigate whether households differ systematically (in terms of socioeconomic characteristics) by their reported reason for consumption reduction. In light of the pandemic’s asymmetric impact on labor market outcomes (and its resulting distributional effects), this information is crucial to quantify the COVID-19 demand shock, besides its persistence. The next section is dedicated to this analysis.

sector. In particular, in the retail and the hospitality sectors, this fraction is significantly higher in Spain than in any other country. In the transport, tourism and services sectors, this fraction is significantly lower in the Netherlands than in any country.

²⁷Precautionary saving motives are significantly more often reported than a change in consumer preferences in the services, hospitality, and retail sectors in Italy and Spain and the tourism sector in Spain. By contrast, in France, Germany, and The Netherlands, the desire to save more is never significantly more prominent than the reported change in consumer preferences.

²⁸Except for the tourism sector, where the share of households (across all countries) reporting affordability constraints is not significantly different from the share reporting precautionary saving motives. However, the share reporting affordability constraints is significantly smaller than the share reporting infection risk, saving motive, or changing preferences.

3.4 Which consumers changed behavior for what reason?

Appendix Tables A9-A10 document for each sector the average socio-economic and behavioral household characteristics for each self-reported reason for decreasing consumption.²⁹ These tables reveal a remarkably stable pattern across the five sectors, with four distinct household types arising—each corresponding to a different reason for consumption reduction. This household-level perspective provides further insight regarding the magnitude of the COVID-19 consumption game-changer.

The first household type is “financially struggling” and is characterized by lower-income, a lower ability to save, lower educational attainment, a higher likelihood of being unemployed, and unsatisfied with one’s income level. Women are disproportionately represented in this category. This result is most striking for the services sector, where 76 percent of the households consuming fewer services due to financial constraints are female. This result is consistent with the finding that the downturn triggered by the Covid-19 pandemic has created larger employment losses for women than for men (Alon et al., 2020). Also, this household type is most likely to have had personal Covid-19 experiences and reports the lowest trust in and satisfaction level with the government. Notably, Ross et al. (2020) find that households that face a contracting budget tend to experience non-transitional refinement in their consumption preferences, even after normal financial circumstances are restored. Therefore, if financially struggling households are left unsupported to manage this hardship period, this may tend to reinforce structural changes to the economy—as this group will be forced to fundamentally re-assess their consumption priorities, thereby leading to structural behavioral changes.

Implication 1 (Asymmetry of the income shock). *The negative income shock induced by COVID-19 is strikingly asymmetric: low-income households and women are disproportionately represented among the households reporting affordability issues as the primary reason for decreasing their consumption.*

The second household type are “Young Families”. These larger households are mostly employed, and are most likely to report precautionary savings motives as the primary reason for decreasing their consumption. These households are also more likely to be less satisfied with their income level, despite not reporting the lowest income level.

Implication 2 (Uneven confidence shock). *Policies designed to address the COVID-19 confidence shock should primarily target younger and larger households (families).*

²⁹In this section, we test for group differences pairwise using the nonparametric Wilcoxon-Mann-Whitney test. Detailed results, including breakdowns per sector, are available upon request. We only discuss systematic differences in household characteristics that are statistically significant at $p < 0.05$.

The third household type is the “Middle-aged and Rich”. This group is more likely than younger and lower-income households to report long-term changes in their preferences resulting from the lockdown experience. Individuals within households that report the “realization of not missing it anymore” as a primary reason for consuming less have an average age of 50. These households are the least worried about the future and have the highest level of trust and satisfaction with the government. They are the least likely to have personally experienced a severe COVID-19 health issue in their group of friends and family. That these “Middle-aged and Rich” households with higher saving capacities report this consumer preference shift indicates that the magnitude of the consumer preference shock may be more substantial than the actual share of these households suggests.

The fourth household type are “Young Rich (Families)”. These households report substitution away from the high street retail sector and into online alternatives. These high-income households are mostly in the labor force. This bias towards higher income can also amplify the preference shock and accelerate the retail market transformation—away from high-street shops to more e-commerce.

Implication 3 (Preference shock amplifier). *The lockdown experience has disproportionately shifted consumer preference of high-income households. This may amplify the magnitude of sectoral consumer demand changes and reinforce zombification risk.*

4 Conclusions and Policy Implications

This paper provides novel survey-based evidence on the underlying reasons for the shifts in household consumption following the first COVID-19 lockdown experience. The representative survey covers five European countries: France, Germany, Italy, The Netherlands, and Spain. At the time of the survey, July 2020, lockdowns and travel restrictions were entirely lifted.

We find that there has been a substantial reduction in household consumption in five sensitive sectors since the onset of COVID-19. Exploiting the cross-country dimension of the survey, we find that countries that have been heavier hit by the health consequences of COVID-19 saw in Summer 2020 bigger consumption drops than those that have survived more unscathed. The infection risk, precautionary saving motives and, perhaps more surprisingly, a change in consumption habits were the primary reasons for reduced consumption, while financial constraints were not cited by many respondents. In particular, we find that the reported drop in consumption strongly and significantly correlates with past personal unemployment and COVID-19 infection experiences, rather than with

the usual socio-economic determinants of consumption.

In summer 2020 and compared to before the COVID-19 outbreak, households report to have reduced physical shopping, while a significant fraction of these households report to use online alternatives instead. This crisis might have reinforced and speeded-up structural changes that were on the way already. Consumers might become used to online consumption, which could lead to a long-term shift in the retail sector away from high-street shops to much more e-commerce. In all countries and particularly for the hospitality and services sectors, a large share of households reported the “realization of not missing it” as their primary reason for cutting consumption. This finding indicates a shift in consumer preferences after the first lockdown experience. Hence, our results show signs that consumption demands in the new-normal after the pandemic will look rather different to before. We do not know the extent of the game changer yet; but our paper provides early hints.

These results should be considered as part of the growing and important debate on zombification. Two potential drivers for zombification in the COVID-19 context are already widely discussed. First, the ready availability of cheap debt in today’s highly liquid markets may be acting to impede necessary exits from the market (Jordà et al., 2020). Second, a geographical mechanism exists (Gathergood et al., 2020)—relating to the relocation out of city centres and into suburban and rural areas by the new cadre of home-office-workers. Such shifts of activity could leave many city-centre service providers facing obsolescence, irrespective of preferences.

Our findings highlight a third possible zombification driver, relating to the long-term impacts of the profound and protracted COVID-19 experience on consumer preferences. For this channel to operate, all that is needed is that consumption is partially reallocated. An aggregate long-term drop in consumption is not required, and this is not a prediction the paper makes. In short, consumers may want very different things after the pandemic and thus we may never return to the old pre-existing “normal”.³⁰ If this is the case, then the introduction of health policies such as vaccine roll-outs or health passes may not be sufficient for pre-pandemic consumption patterns to be restored. In such circumstances, a substantial number of incumbent firms could face sustained drops in revenue and profitability in the post-pandemic economy. These considerations may lead to concerns about the “zombification” of the economy i.e. a situation where public support programmes and bank lending actions keep unviable firms alive. In other words, the very

³⁰ The finding that a significant fraction of households report reducing consumption because of the realization of not missing it opens the questions of what these households might do with the unspent funds. Whether they will save the money or use it for debt repayments, education, or different types of consumer goods is beyond the scope of this paper and left for future research.

broad fiscal support that has been provided to firms during the COVID-19 crisis may have masked the deteriorating long-term prospects of some firms. If this market exit mechanism doesn't work, then various long-term problems arise—mismatch-unemployment, inefficient resource allocation, and lower growth.

At this early stage of the pandemic's life-cycle, one must be careful about making quick judgements about the long-term viability of firms in receipt of government support. As argued by Laeven et al. (2020), the pandemic may be simply causing certain firms and sectors (e.g. tourism) to experience a temporary liquidity squeeze. If those firms and sectors rebound back to pre-pandemic revenue and profitability levels after the crisis, then zombification risks will not materialise. However, this bounce-back remains uncertain—and thus the build-up of debts by companies based in pandemic-hit sectors remains worthy of close monitoring. Our data shows that the fraction of households reporting the “realisation of not missing it anymore” is smallest (10%) in the tourism sector, although this remains substantial.

Our findings complement insights on consumption dynamics drawn from transaction data; see, *inter alia*, Bounie et al. (2020) for France and Carvalho et al. (2020) for Spain. After the severe fall during the lockdown episode of Spring 2020, aggregate consumption experienced a solid and steady rebound during summer 2020. However, the bounce-back is heterogeneous across sectors and product types, and especially large for durable goods such as cars, IT products, and furniture. Bounie et al. (2020) find that certain non-durable consumption expenditures did not reach pre-crisis (2019) levels (e.g., leisure, hotels, travel agency, restaurant, transport, clothing). Our survey results on non-durable consumption patterns provide one possible explanation for these unequal recovering dynamics.

Against this background, analysis by the OECD (Demmou et al., 2021) has evaluated the potential forthcoming impacts of the COVID-19 crisis on the balance sheet health of firms of differing sizes and in different sectors since the outbreak. Their simulations point to a build-up of vulnerabilities of firms becoming distressed. These vulnerabilities are concentrated in smaller firms, younger firms, and those in sectors that have been particularly exposed to the impacts of the crisis—e.g. accommodation & food, arts & entertainment, and travel. This finding is particularly notable when paired with our result that—especially in the hospitality and services sectors—a large proportion of households report the “realisation of not missing it anymore” as the primary reason for consuming now less. These two sectors may be particularly exposed to changes in consumer behavior, especially amongst smaller and younger firms.

Furthermore, our findings speak to the literature on the role of “pent-up demand” for economic recoveries. According to Beraja and Wolf (2021), basic consumer theory

suggests that pent-up demand effects should be stronger for more durable goods, as consumers might simply postpone spending on durable goods during a recession. In contrast, spending on non-durable consumption goods and services, such as hairdressers, might be simply foregone. This pent-up demand mechanism, together with our finding that a large fraction of households continue to cut non-durable consumption, suggests that the recovery path may be long and unevenly experienced across sectors and products.

We draw three policy conclusions from these results. First and foremost, Government support to businesses should consider the idea that this crisis is not purely a liquidity shock and that everything might not snap back to normal once it is over. Profound and elongated experiences, such as the COVID-19 pandemic, have the potential to create new habits and produce a long-lasting shift in behavior. This paper shows initial evidence that consumer demand is already changing in ways that may have lasting consequences for the economy.³¹ This evidence suggests that the post-COVID 19 economy's equilibrium may look substantially different from the one the world left behind in February 2020.

Second, our results suggest that broad-based policies aiming to restore non-durable consumption to pre-pandemic levels by reducing the pricing of products and services (e.g., VAT cuts) are unlikely to be effective. Financial constraints are the least reported reason for consumption drops. Instead, fiscal support should be laser-like in targeting those low-educated, low-income households who are particularly hard hit by the crisis. Such support should be oriented towards helping displaced workers to retrain and find new jobs.

Third, our results indicate that the objectives of protecting citizens from the virus risk and preserving economic prosperity may not lead to any trade-offs. During the time of the survey, lockdowns and travel restrictions were lifted in the countries under investigation. However, the fraction of households reducing consumption during this time highly correlates with the number of deaths per 1M population and the personal infection experience that mostly occurred during the lockdown phase. Also, we find that standard socio-economic characteristics (except for gender) do not explain the drop in individual households' consumption. By contrast, behavioral factors such as macroeconomic expectations (pessimism) and psychological factors such as fears about the future are significant variables explaining individual households' drop in consumption. Hence, governments should treat the control of the infection risk as a prerequisite to achieving their objective to preserve economic prosperity.

³¹In preliminary support of our survey results, data on household consumption expenditure on goods in the Fall 2020 with respect to the Fall 2019 show that the recovery in aggregate consumption hides striking variations across sectors. While some categories, such as household durables, have strongly recovered, some other, such as textile-clothing, keep experiencing a decline; see, e.g. INSEE (2020).

Bibliography

- ADAMS-PRASSL, A., T. BONEVA, M. GOLIN, AND C. RAUH (2020): “Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys,” *Journal of Public Economics*, 189, 104245.
- ALON, T., M. DOEPKE, J. OLMSTEAD-RUMSEY, AND M. TERTILT (2020): “This Time It’s Different: The Role of Women’s Employment in a Pandemic Recession,” Working Paper 27660, National Bureau of Economic Research.
- ANDERSEN, A., E. T. HANSEN, N. JOHANNESEN, AND A. SHERIDAN (2020): “Consumer Responses to the COVID-19 Crisis: Evidence from Bank Account Transaction Data,” *Covid Economics: Vetted and Real-time Papers*, Issue 7, 93–118.
- ANDRADE, P., O. COIBION, E. GAUTIER, AND Y. GORODNICHENKO (2022): “No Firm is an island? How industry conditions shape firms’ aggregate expectations,” *Journal of Monetary Economics (CRN)*, forthcoming.
- BAKER, S. R., R. A. FARROKHANIA, S. MEYER, M. PAGEL, AND C. YANNELIS (2020): “How Does Household Spending Respond to an Epidemic? Consumption during the 2020 COVID-19 Pandemic,” *The Review of Asset Pricing Studies*, 10, 834–862.
- BERAJA, M. AND C. K. WOLF (2021): “Demand Composition and the Strength of Recoveries,” MIT mimeo.
- BORDALO, P., K. B. COFFMAN, N. GENNAIOLI, AND A. SHLEIFER (2020): “Older People are Less Pessimistic about the Health Risks of Covid-19,” Working Paper 27494, National Bureau of Economic Research.
- BOUNIE, D., Y. CAMARA, E. FIZE, J. GALBRAITH, C. LANDAIS, C. LAVEST, T. PAZEM, AND B. SAVATIER (2020): “Consumption dynamics in the COVID crisis: Real-time insights from French transaction and bank data,” *Covid Economics: Vetted and Real-time Papers*, Issue 59, 1–39.
- CARVALHO, V., S. HANSEN, A. ORTIZ, J. RAMON GARCIA, T. RODRIGO, S. RODRIGUEZ MORA, AND J. RUIZ (2020): “Tracking the COVID-19 Crisis with High-Resolution Transaction Data,” CEPR Discussion Paper 14642, C.E.P.R. Discussion Papers.
- CHRONOPOULOS, D. K., M. LUKAS, AND J. O. S. WILSON (2020): “Consumer Spending Responses to the COVID-19 Pandemic: An Assessment of Great Britain,” Available at SSRN: <https://ssrn.com/abstract=3586723>.

- COIBION, O., Y. GORODNICHENKO, AND M. WEBER (2020a): “The Cost of the Covid-19 Crisis: Lockdowns, Macroeconomic Expectations, and Consumer Spending,” Working Paper 27141, National Bureau of Economic Research.
- (2020b): “Does Policy Communication During Covid Work?” Working Paper 27384, National Bureau of Economic Research.
- COTOFAN, M., L. CASSAR, R. DUR, AND S. MEIER (2022): “Macroeconomic Conditions When Young Shape Job Preferences for Life,” *Review of Economics and Statistics*, forthcoming.
- DEMMOU, L., S. CALLIGARIS, G. FRANCO, D. DLUGOSCH, M. A. MCGOWAN, AND S. SAKHA (2021): “Insolvency and debt overhang following the COVID-19 outbreak: Assessment of risks and policy responses,” *OECD Economics Department Working Papers*, 1651.
- GATHERGOOD, J., F. GUNZINGER, B. GUTTMAN-KENNEY, E. QUISPE-TORREBLANCA, AND N. STEWART (2020): “Levelling Down and the COVID-19 Lockdowns: Uneven Regional Recovery in UK Consumer Spending,” Available at SSRN: <https://ssrn.com/abstract=3798679>.
- GIULIANO, P. AND A. SPILIMBERGO (2014): “Growing up in a Recession,” *The Review of Economic Studies*, 2, 787–817.
- GUGLIELMINETTI, E. AND C. RONDINELLI (2021): “Consumption and saving patterns in Italy during Covid-19,” *Bank of Italy, Questioni di Economia e Finanza (Occasional Papers)*, n. 620.
- IMF (2020): “The Great Lockdown,” *World Economic Outlook*, (April).
- INSEE (2020): “Informations Rapides,” November, No. 304, retrieved from <https://www.insee.fr/en/statistiques/4984641>.
- JORDÀ, O., M. KORNEJEW, M. SCHULARICK, AND A. M. TAYLOR (2020): “Zombies at large? Corporate debt overhang and the macroeconomy,” Working Paper 2020-36, Federal Reserve Bank of San Francisco.
- KUHLER, T. AND B. ZAFAR (2019): “Personal Experiences and Expectations about Aggregate Outcomes,” *The Journal of Finance*, 74, 2491–2542.
- LAEVEN, L., G. SCHEPENS, AND I. SCHNABEL (2020): “Zombification in Europe in times of pandemic,” *VoxEU.org*, 11 October.

- MALMENDIER, U. AND S. NAGEL (2011): “Depression Babies: Do Macroeconomic Experiences Affect Risk Taking?” *The Quarterly Journal of Economics*, 126, 373–416.
- (2016): “Learning from Inflation Experiences,” *The Quarterly Journal of Economics*, 131, 53–87.
- PARKER, J. A. AND N. S. SOULELES (2019): “Reported Effects versus Revealed-Preference Estimates: Evidence from the Propensity to Spend Tax Rebates,” *American Economic Review: Insights*, 1, 273–90.
- PIYAPROMDEE, S. AND P. SPITTAL (2020): “The Income and Consumption Effects of COVID-19 and the Role of Public Policy,” *Fiscal Studies*, 41, 805–827.
- PUEYO, T. (2020): “Coronavirus: The Hammer and the Dance,” *Blog Medium (March 19)*.
- ROSS, G. R., M. G. MELOY, AND K. A. CARLSON (2020): “Preference Refinement after a Budget Contraction,” *Journal of Consumer Research*, 47, 412–430.
- SCHUMPETER, J. A. (1934): “Depressions. Can We Learn from Past Experience?” in: *D.V. Brown et al. (eds.) The Economics of the Recovery Program, reprinted in R.V. Clemence (ed.), Joseph A. Schumpeter. Essays on Entrepreneurs, Innovations, Business Cycles and the Evolution of Capitalism, Cambridge 1951, re-published, with a new Introduction by Richard Swedberg, New Brunswick (U.S.A.) and Oxford (U.K.) 1989: Transaction Publishers.*
- ZWANKA, R. J. AND C. BUFF (2021): “COVID-19 Generation: A Conceptual Framework of the Consumer Behavioral Shifts to Be Caused by the COVID-19 Pandemic,” *Journal of International Consumer Marketing*, 33, 58–67.

The COVID-19 consumption game-changer:
Evidence from a large-scale multi-country survey

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Online Appendix

1. Descriptive statistics
2. Representativeness of the data
3. Additional results

1 Descriptive Statistics

Sample Size		
France	1,500	20 %
Germany	1,500	20 %
Italy	1,500	20 %
The Netherlands	1,500	20 %
Spain	1,501	20 %
Total	7,501	100 %

Table A1: Number of observations by country

Country		household size					education		
		age (1)	male (2)	children (3)	adults (4)	total (5)	low (6)	middle (7)	high (8)
France	mean	50.85	0.48	1.43	1.06	2.4	0.25	0.44	0.31
	st. dev	17.90	0.50	0.78	0.88	1.16	0.43	0.5	0.46
	N	1500	1500	1176	1500	1500	1500	1500	1500
Germany	mean	50.97	0.49	1.37	0.94	2.21	0.2	0.55	0.25
	st. dev	17.04	0.50	0.76	0.86	1.13	0.40	0.50	0.43
	N	1500	1496	1106	1500	1500	1500	1500	1500
Italy	mean	50.44	0.49	1.44	1.56	2.96	0.41	0.43	0.17
	st. dev	16.91	0.50	0.75	0.99	1.14	0.49	0.49	0.37
	N	1500	1499	1380	1500	1500	1500	1500	1500
The Netherlands	mean	50.24	0.50	1.41	1.02	2.33	0.26	0.41	0.32
	st. dev	17.23	0.50	0.85	0.99	1.25	0.44	0.49	0.47
	N	1500	1500	1109	1500	1500	1500	1500	1500
Spain	mean	48.49	0.49	1.46	1.53	2.96	0.41	0.26	0.34
	st. dev	15.39	0.50	0.76	0.98	1.15	0.49	0.44	0.47
	N	1501	1500	1377	1501	1501	1501	1501	1501
Total	mean	50.2	0.49	1.42	1.22	2.57	0.31	0.42	0.28
	st. dev	16.93	0.50	0.78	0.98	1.21	0.46	0.49	0.45
	N	7501	7495	6148	7501	7501	7501	7501	7501

Notes: Column (1) reports the average age of the household, Column (2) the fraction of male households. Column (3)-(5) report the households' average number of children younger than 14 years, the average number of adults, and the average number of people within a household. Columns (6)-(8) report the fraction of households having attained low, middle, and high education levels, respectively.

Table A2: Descriptive socio-economic statistics by country I

Country		employment statistics				financial statistics	
		employment	not in labor force	unemployment rate	past spell of unemployment	savings	income satisfaction
		(1)	(2)	(3)	(4)	(5)	(6)
France	mean	0.5	0.45	0.06	0.19	0.65	3.16
	st. dev	0.5	0.5	0.23	0.39	0.48	1.23
	N	1443	1443	1443	1481	1351	1469
Germany	mean	0.54	0.43	0.03	0.13	0.69	3.3
	st. dev	0.5	0.49	0.17	0.34	0.46	1.19
	N	1460	1460	1460	1470	1354	1454
Italy	mean	0.4	0.48	0.12	0.3	0.64	2.59
	st. dev	0.49	0.5	0.32	0.46	0.48	1.04
	N	1426	1426	1426	1468	1270	1451
The Netherlands	mean	0.47	0.47	0.05	0.19	0.67	3.51
	st. dev	0.5	0.5	0.22	0.4	0.47	1.19
	N	1454	1454	1454	1473	1268	1456
Spain	mean	0.55	0.32	0.13	0.39	0.64	3.03
	st. dev	0.5	0.47	0.34	0.49	0.48	1.16
	N	1464	1464	1464	1471	1295	1455
Total	mean	0.49	0.43	0.08	0.24	0.66	3.12
	st. dev	0.5	0.5	0.27	0.43	0.47	1.2
	N	7247	7247	7247	7363	6538	7285

Notes: Column (1) reports the fraction of households in paid work, Column (2) the fraction not being part of the labor force, and Column (3) the fraction being unemployed. Column (4) reports the fraction of households having experienced an unemployment spell over the past 5 years. The survey question is “Have you been unemployed and seeking work for more than 3 months in the last 5 years?”. Column (5) reports the fraction of households that have the ability to make an unexpected payment of one-month of income. The survey question is “Does your household have savings (excluding the value of your home) worth at least one month of the total net income of your household?” (1=yes, 0=no). Column (6) reports households’ perception of how they cope financially with their income. The survey question is “Which of these descriptions comes closest to how you feel about your household’s income nowadays?” The variable is numeric, 5 categories: 1= Very difficult on present income and insufficient to cover all the expenses; 2= Difficult on present income; 3= Coping on present income; 4= Living comfortably on present income, but unable to save; 5= Living comfortably on present income and able to save.

Table A3: Descriptive employment and financial statistics by country II

Country	mean	st. dev	p10	p25	p50	p75	p90	N
France	5.44	2.79	1	3	6	8	9	1384
Germany	5.60	2.81	1	3	6	8	9	1329
Italy	5.83	2.62	2	4	6	8	9	1369
The Netherlands	6.08	2.70	2	4	6	8	10	1283
Spain	6.03	2.78	2	4	6	9	10	1323
Total	5.79	2.75	2	4	6	8	10	6688

Notes: The survey question is “Can you tell us which value describes your household’s yearly total income, after tax and compulsory deductions, from all sources?” The reported income is then equalized using the OECD formula on the grounds of family composition and compared with the empirical equalized household income distribution in the given country to attribute the respondent to one of the 10 income deciles. The variable is then numeric, 10 categories. The non-adjusted income brackets are:

In France: 1= Less than 13,300 euros; 2= Between 13,301 and 19,800 euros; 3= Between 19,801 and 23,000 euros; 4= Between 23,001 and 26,700 euros; 5= Between 26,701 and 30,600 euros; 6= Between 30,601 and 34,900 euros; 7= Between 34,901 and 39,200 euros; 8= Between 39,201 and 44,800 euros; 9= Between 44,801 and 54,100 euros; 10= More than 54,100 euros.

In Germany: 1= Less than 13,670 euros; 2= Between 13,671 and 18,740 euros; 3= Between 18,741 and 23,360 euros; 4= Between 23,361 and 27,910 euros; 5= Between 27,911 and 32,900 euros; 6= Between 32,901 and 38,420 euros; 7= Between 38,421 and 45,040 euros; 8= Between 45,041 and 53,680 euros; 9= Between 53,681 and 68,030 euros; 10= More than 68,030 euros.

In Italy: 1= Less than 9,000 euros; 2= Between 9,001 and 14,000 euros; 3= Between 14,001 and 17,500 euros; 4= Between 17,501 and 21,000 euros; 5= Between 21,001 and 25,000 euros; 6= Between 25,001 and 29,500 euros; 7= Between 29,501 and 36,000 euros; 8= Between 36,001 and 43,500 euros; 9= Between 43,501 and 56,000 euros; 10= More than 56,000 euros.

In The Netherlands: 1= Less than 13,000 euros; 2= Between 13,001 and 17,000 euros; 3= Between 17,001 and 20,000 euros; 4= Between 20,001 and 24,000 euros; 5= Between 24,001 and 28,000 euros; 6= Between 28,001 and 33,000 euros; 7= Between 33,001 and 39,000 euros; 8= Between 39,001 and 46,000 euros; 9= Between 46,001 and 58,000 euros; 10= More than 58,000 euros.

In Spain: 1= Less than 9,350 euros; 2= Between 9,350 and 12,000 euros; 3= Between 12,001 and 15,000 euros; 4= Between 15,001 and 18,000 euros; 5= Between 18,001 and 21,600 euros; 6= Between 21,601 and 26,400 euros; 7= Between 26,401 and 30,000 euros; 8= Between 30,001 and 34,200 euros; 9= Between 34,201 and 44,400 euros; 10= More than 44,400 euros.

Table A4: Descriptive household income statistics by country III

	worry finance	worry job	past unemployment experience	unemployment prediction
worry finance	1.0000			
worry job	0.5538	1.0000		
past unemployment	0.2159	0.3127	1.0000	
unemployment prediction	0.2409	0.2548	0.1714	1.0000

Notes: Worry finance is measured by the survey question is “How concerned are you about the effects that the coronavirus might have for the financial situation your household?” Answer options: 0-10. 0 (= not at all concerned) to 10 (= extremely concerned). Worry job is measured by the survey question is “How worried are you about losing your job in the near future?” Answer options: 1-3. 1= not worried; 2 = somewhat worried; 3 = very worried. Past unemployment experience measured by the survey question is “Have you been unemployed and seeking work for more than 3 months in the last 5 years?” Answer options: yes/no. Unemployment prediction is measured using the two survey questions “Please indicate what you think the unemployment rate was before the crisis in your country” (point prediction) and “Please indicate what you think the unemployment rate will be in your country in one year from now” (point prediction). We use the difference of the two unemployment point predictions (one year from now – before the crisis).

Table A5: Correlations of explanatory variables

2 Representativeness of the data

This section investigates the representativeness of our sample. We have set ‘hard quotas’ for the dimensions of gender, age, education, and region of residence. Appendix Table A6, A7 and A8 compare the key socio-economic characteristics of the samples to nationally representative statistics from Eurostat and the OECD. Appendix Table A6 and A7 show that our sample matches the nationally representative statistics in all five countries when comparing the gender distribution between men and women, the age distribution, the distribution on educational attainment, as well as the region of residence.

In addition, occupation and income were set as ‘soft quotas’, which means that there could be some flexibility, up to 10 p.p., in achieving the required distributions. Appendix Table A8 shows that the sample distribution is hence roughly comparable to the employment distribution across occupational groups in the EU (Q3 2020), although some categories (e.g., "Clerical support workers" and "Service and sales workers" occupations) are over-represented. However, it is important to note that our response rate for the occupational employment question was low (missing values: 3,931/7,501), hence the discrepancy. Figure A12 reports on the representativeness of our sample along the income dimension. In most countries, the high-income category is underrepresented—the under-coverage of top incomes (the missing rich) is a known issue in the literature of household finance and often the case in household surveys.

Furthermore, we have also looked into the representativeness of our sample beyond these five dimensions. When it comes to household size, our sample includes slightly larger households compared to the national statistics from Eurostat. This observation holds in all countries. The unemployment rate from Eurostat for June 2020 differs slightly to the July 2020 unemployment rate prevailing in our sample. One explanation for this could be the different measurement of the unemployment rate between the sample and the nationally representative statistics and the difference age spans considered. For the sample, the unemployment rate measures the fraction of unemployed respondents (aged 18-74). It includes individuals that are actively looking for a job and those who want a job but who are not actively looking for one. However, Eurostat defines unemployed persons as persons aged 15 to 74 who are without work, are available to start work within the next two weeks, and have actively sought employment at some time during the previous four weeks. The unemployment rate is the number of people unemployed as a percentage of the labor force. In June 2020, the unemployment rate in the Euro area was 8.0 percent compared to 8.2 percent for our whole sample in July 2020. (Source: Eurostat; [unertm]).

	FRA		DEU		NLD		ITA		ESP	
	Sample	OECD	Sample	OECD	Sample	OECD	Sample	OECD	Sample	OECD
Male (%)	48	48	49	49	50	50	49	49	49	49
Household size (avg.)	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat
	2.4	2.1	2.2	2.0	2.3	2.1	2.9	2.3	2.9	2.5
Age (%)	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat
18-34	24.33	25.55	24.20	24.50	25.93	27.23	21.13	21.22	23.58	22.39
35-54	34.20	33.29	33.47	32.29	34.20	32.73	36.80	35.03	34.84	38.47
55+	41.47	41.16	42.33	43.20	39.87	40.03	42.07	43.75	41.57	39.14
Education (%)	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat
low	25	22.3	20	20.1	26	24.0	41	39.0	41	38.2
middle	44	42.8	55	54.5	41	39.7	43	42.8	26	25.3
high	31	33.8	25	26.0	32	34.8	17	17.4	34	35.1
Unemployment rate (%)	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat	Sample	Eurostat
	6.1	7.4	3.4	3.9	5.5	4.3	12.2	9.5	13.5	15.9

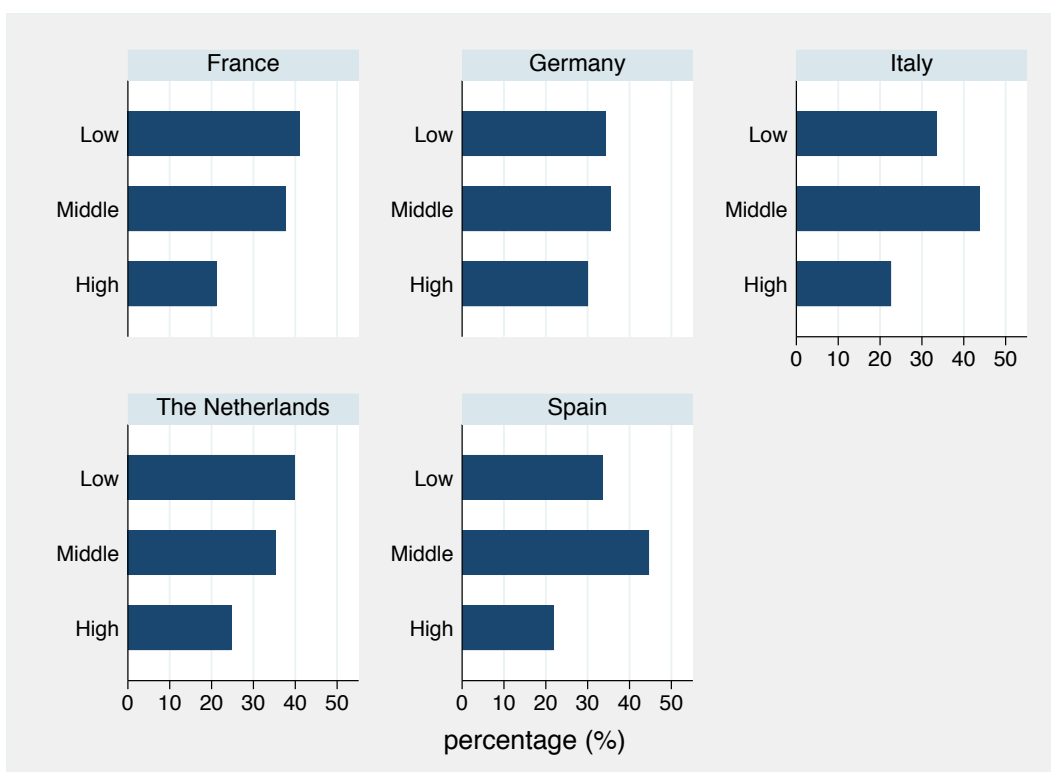
Notes: The table shows the mean demographics of the July 2020 sample, which only includes individuals at least 18 years old. The nationally representative samples are collected from the following sources. The fraction of men as the % of the total population for 2020 (Source: OECD statistics, data extracted on September 7th 2021 10:21 UTC (GMT) from OECD.Stat). The average household size for 2019 (Source: Eurostat; EU-SILC survey [*ilc_ypb01*]). We computed the age distribution using the raw data on the total number of the population by age for 2020 (Source: Eurostat; Population on January 1st, 2020 by age [*demo_p_jan*]). For education, we use the ISCED classification for 2019. Low education measures the fraction having attained less than primary, primary, and lower secondary education (levels 0-2). Middle education measures the fraction having attained upper secondary and post-secondary non-tertiary education (levels 3 and 4). High education measures the fraction having attained tertiary education (levels 5-8). Source: Eurostat; population by educational attainment level (%); main indicators [*edat_1fse03*]. Unemployment statistics: The measurement of the unemployment rate differs between the sample and the nationally representative statistics. For the sample, the unemployment rate measures the fraction of unemployed respondents (aged 18-74). It includes individuals that are actively looking for a job and those that are wanting a job but who are not actively looking for a job. However, Eurostat defines unemployed persons as persons aged 15 to 74 who are without work, are available to start work within the next two weeks, and have actively sought employment at some time during the previous four weeks. The unemployment rate is the number of people unemployed as a percentage of the labor force. In June 2020, the unemployment rate in the Euro area was 8.0 percent compared to 8.2 percent for our sample in July 2020. (Source: Eurostat; [*une_t_m*]).

Table A6: Representativeness of the sample by country (I)

	Sample	Eurostat
Managers	6.9	5.0
Professionals	14.8	20.3
Technicians and associate professionals	13.8	16.1
Clerical support workers	25.4	9.7
Service and sales workers	17.3	15.8
Skilled agricultural, forestry and fishery workers	1.1	3.6
Craft and related trades workers	8.6	11.5
Plant and machine operators, and assemblers	3.8	7.5
Elementary occupations	6.8	8.4
Armed forces	1.5	0.6

Notes: The table shows the employment distribution by occupational group (in % of the total employment). The first column reports the distribution for our July 2020 sample, which only includes individuals at least 18 years old. The second column reports the representative sample for the European Union (Source: Eurostat; Q3 2020; [*lfsq_eisn2*]).

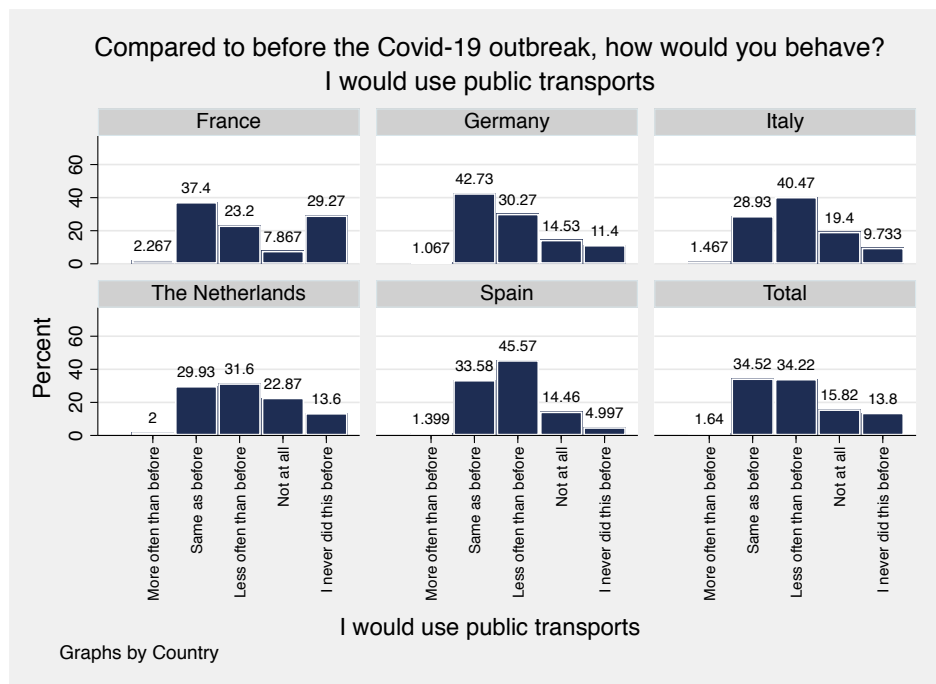
Table A8: Employment distribution by occupational group



Notes: The low income category represents the first three deciles, the middle income category gathers the next four deciles and the high income category the last three deciles. See Table A4 for the deciles per country. Hence, the empirical distribution of each category in the general population of each country is, respectively, 30, 40 and 30% (Source: OECD equivalized household income distribution on the grounds of family composition; Q3 2020).

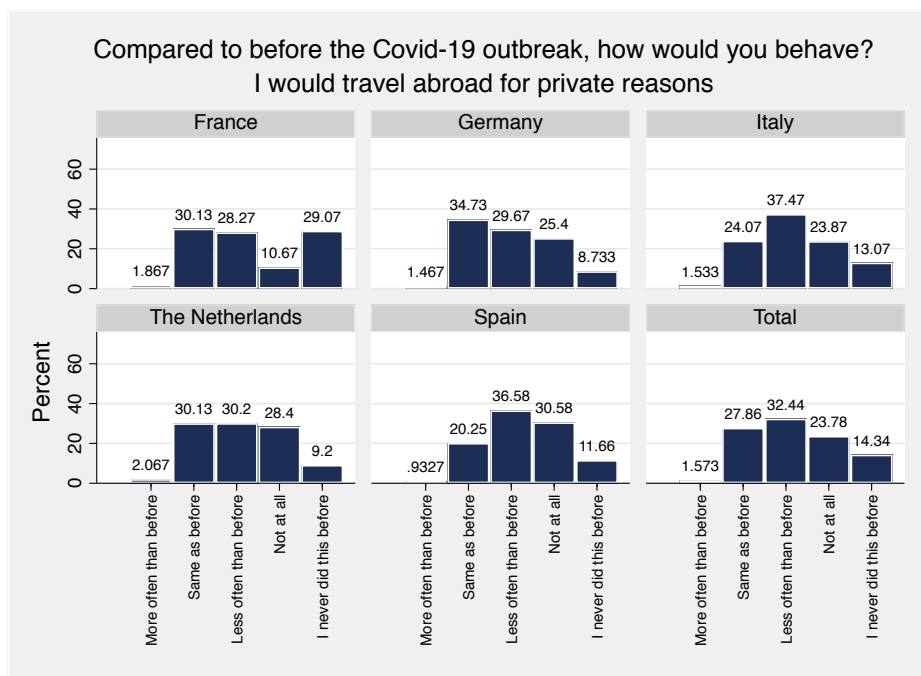
Figure A12: Distribution of household income by country

3 Additional Results



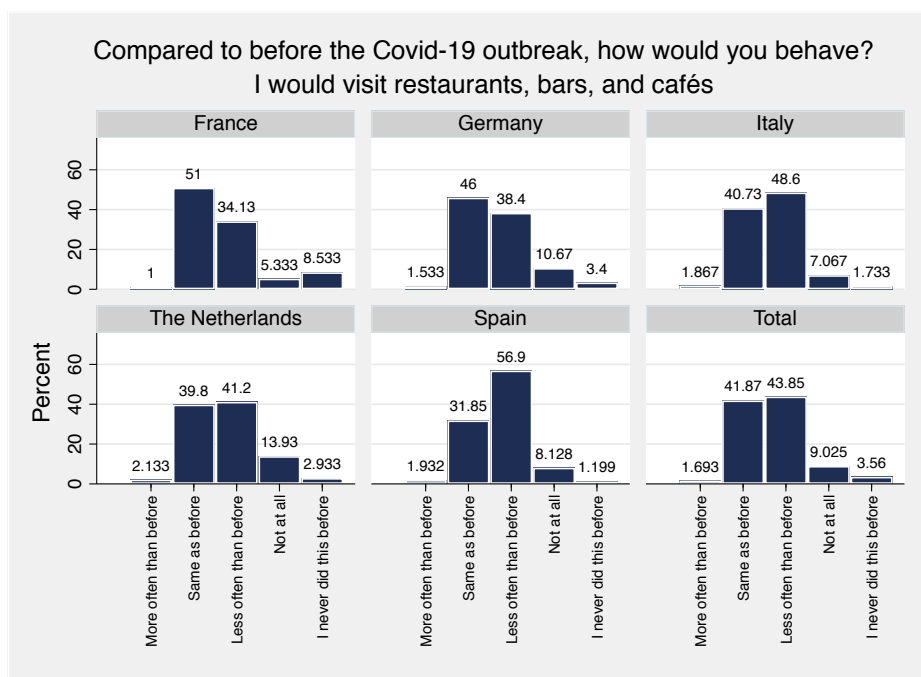
The survey question is: Compared to before the COVID-19 outbreak, how would you behave? I would use public transports: 1= more often than before; 2= same as before; 3= less often than before; 4= not at all; 5= I never did this before.

Figure A13: Usage of public transports



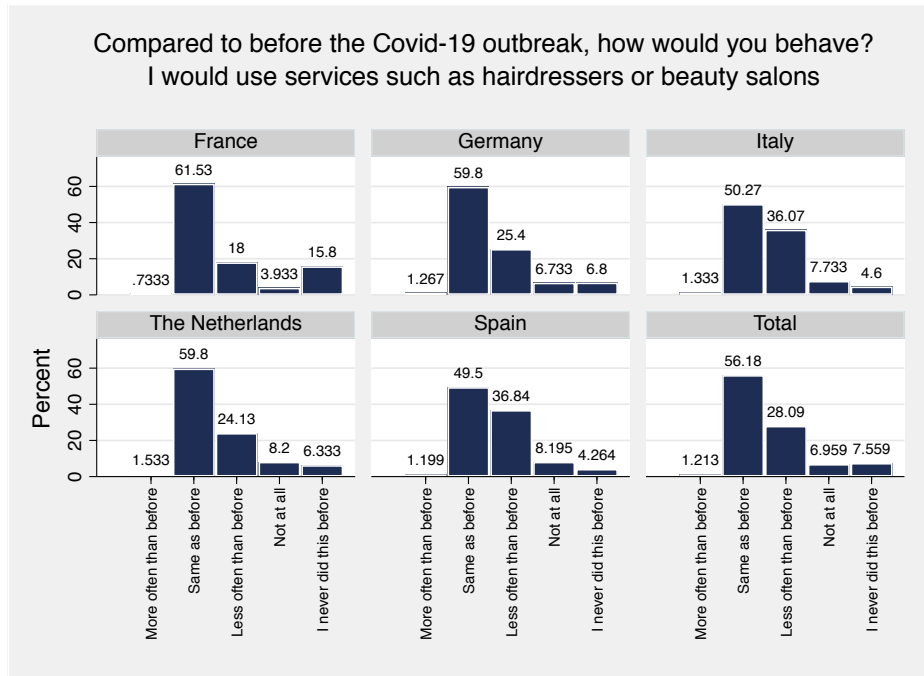
The survey question is: Compared to before the COVID-19 outbreak, how would you behave? I would travel abroad for private reasons: 1= more often than before; 2= same as before; 3= less often than before; 4= not at all; 5= I never did this before. .

Figure A14: Traveling abroad for private reasons



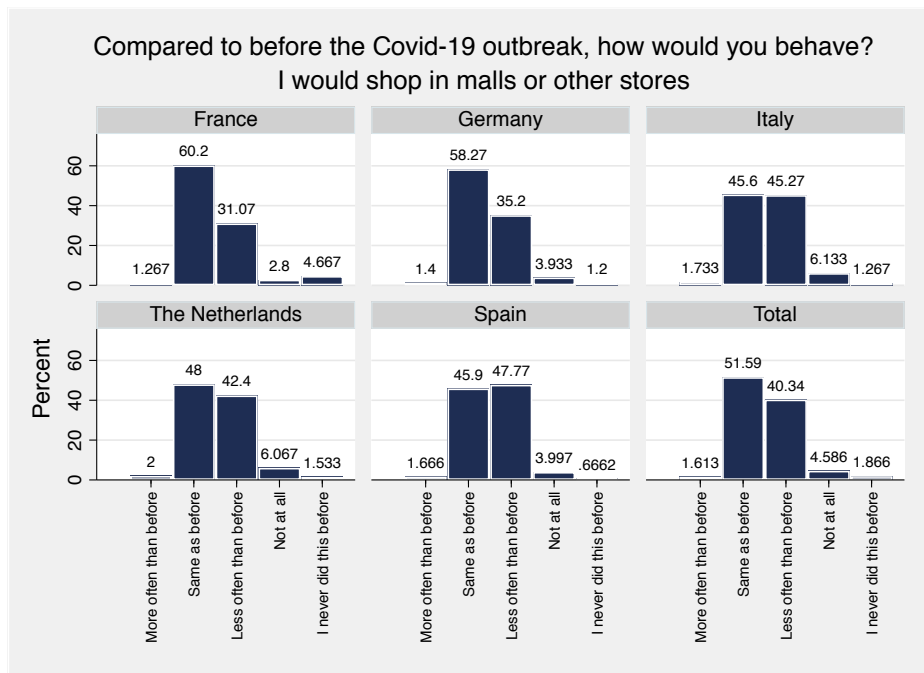
The survey question is: Compared to before the COVID-19 outbreak, how would you behave? I would visit restaurants, bars, and cafes: 1= more often than before; 2= same as before; 3= less often than before; 4= not at all; 5= I never did this before.

Figure A15: Visiting restaurants, bars, and cafes



The survey question is: Compared to before the COVID-19 outbreak, how would you behave? I would use services such as hairdressers or beauty salons: 1= more often than before; 2= same as before; 3= less often than before; 4= not at all; 5= I never did this before. Responses =5 are dropped and dummy created.

Figure A16: Usage of services such as hairdressers or beauty salons



The survey question is: Compared to before the COVID-19 outbreak, how would you behave? I would shop in malls or other stores: 1= more often than before; 2= same as before; 3= less often than before; 4= not at all; 5= I never did this before.

Figure A17: Shopping in malls or other stores

	standard statistics			education			employment statistics			financial statistics			
	age	male	hh size	low	middle	high	emp.	not in LF	un-emp.	spell of unemp.	savings	income	income satisfaction
Public transports													
not missing it	50.26	0.53	2.58	0.29	0.45	0.26	0.48	0.43	0.08	0.21	0.67	3.12	5.84
wanting to save	40.95	0.53	2.94	0.32	0.39	0.28	0.58	0.29	0.13	0.39	0.52	2.65	5.45
not affordable	45.34	0.48	2.96	0.46	0.32	0.22	0.4	0.4	0.2	0.43	0.3	2.12	3.84
infection risk	51.56	0.46	2.64	0.28	0.4	0.31	0.49	0.44	0.07	0.24	0.72	3.22	6.28
	standard statistics			education			employment statistics				financial statistics		
	age	male	hh size	low	middle	high	emp.	not in LF	un-emp.	spell of unemp.	savings	income	income satisfaction
Tourism													
not missing it	53.31	0.58	2.52	0.27	0.47	0.25	0.47	0.48	0.05	0.18	0.72	3.28	5.93
wanting to save	43.34	0.52	2.85	0.29	0.4	0.3	0.62	0.29	0.09	0.32	0.66	2.85	5.78
not affordable	48.71	0.45	2.63	0.38	0.42	0.2	0.41	0.45	0.14	0.39	0.39	2.16	4.51
infection risk	52.25	0.45	2.6	0.26	0.41	0.33	0.49	0.45	0.06	0.21	0.76	3.39	6.53
	standard statistics			education			employment statistics				financial statistics		
	age	male	hh size	low	middle	high	emp.	not in LF	un-emp.	spell of unemp.	savings	income	income satisfaction
Services													
not missing it	48.32	0.49	2.68	0.31	0.45	0.24	0.49	0.44	0.07	0.23	0.68	3.08	5.59
wanting to save	43.54	0.46	3.01	0.37	0.36	0.28	0.56	0.32	0.11	0.36	0.58	2.64	5.42
not affordable	46.82	0.33	2.6	0.4	0.38	0.22	0.38	0.45	0.17	0.41	0.32	2.02	4.2
infection risk	51.07	0.44	2.71	0.31	0.39	0.3	0.49	0.43	0.08	0.25	0.7	3.12	6.14
	standard statistics			education			employment statistics				financial statistics		
	age	male	hh size	low	middle	high	emp.	not in LF	un-emp.	spell of unemp.	savings	income	income satisfaction
Hospitality													
not missing it	51.97	0.53	2.57	0.29	0.46	0.25	0.46	0.48	0.06	0.19	0.7	3.23	5.82
wanting to save	44.2	0.46	2.81	0.34	0.39	0.26	0.56	0.34	0.1	0.35	0.59	2.71	5.38
not affordable	49.11	0.41	2.63	0.4	0.41	0.19	0.38	0.45	0.17	0.38	0.36	2.09	4.3
infection risk	52.36	0.45	2.6	0.29	0.38	0.33	0.48	0.46	0.06	0.22	0.74	3.32	6.29
online alternatives	40.22	0.48	2.77	0.25	0.42	0.33	0.58	0.32	0.11	0.28	0.56	2.69	5.65
	standard statistics			education			employment statistics				financial statistics		
	age	male	hh size	low	middle	high	emp.	not in LF	un-emp.	spell of unemp.	savings	income	income satisfaction
Retail													
not missing it	51.97	0.46	2.58	0.26	0.44	0.3	0.49	0.46	0.05	0.19	0.7	3.19	5.96
wanting to save	43.07	0.49	2.89	0.33	0.39	0.28	0.56	0.3	0.13	0.35	0.55	2.68	5.52
not affordable	46.1	0.36	2.77	0.42	0.37	0.21	0.35	0.46	0.19	0.45	0.32	1.92	4.12
infection risk	52.28	0.42	2.57	0.3	0.39	0.31	0.47	0.47	0.06	0.22	0.71	3.27	6.19
buy more online	45.37	0.42	2.84	0.26	0.42	0.32	0.6	0.34	0.06	0.24	0.71	3.12	6.09

Table A9: Descriptive socio-economic household statistics by sector and by reason for consumption reduction

	experiences		macro expectations		feelings about government		Psychological factors	
	deaths/1M pop	infection rate	unempl	crisis duration	trust	satisfaction	concern	job loss
Public transports								
not missing it	413.36	0.07	0.21	3.41	2.98	2.93	1.65	5.63
wanting to save	450.09	0.12	0.39	3.53	3.27	3.2	1.98	6.82
not affordable	440.34	0.18	0.43	3.49	3.37	3.41	2.23	6.95
infection risk	453.5	0.09	0.24	3.79	3.07	2.97	1.79	6.26
Tourism								
not missing it	387.66	0.08	0.18	3.45	2.91	2.95	1.58	5.42
wanting to save	453.28	0.1	0.32	3.49	3.25	3.11	1.89	6.58
not affordable	441.87	0.1	0.39	3.53	3.31	3.25	2.18	7.23
infection risk	437.76	0.1	0.21	3.81	2.97	2.87	1.72	5.98
Services								
not missing it	424.14	0.09	0.23	3	2.95	1.67	1.67	5.91
wanting to save	476.12	0.14	0.36	3.62	3.33	3.16	1.98	6.93
not affordable	440.69	0.12	0.41	3.62	3.28	3.32	2.31	7.36
infection risk	456.02	0.11	0.25	3.88	3.18	3.09	1.89	6.59
Hospitality								
not missing it	401.91	0.09	0.19	3.56	2.85	2.75	1.59	5.53
wanting to save	461.48	0.11	0.35	3.55	3.22	3.11	1.98	6.85
not affordable	445.87	0.13	0.38	3.61	3.33	3.26	2.24	7.25
infection risk	445.09	0.1	0.22	3.86	3.03	2.95	1.78	6.16
online alternatives	431.35	0.12	0.28	3.58	3.07	3.35	1.68	6.07
Retail								
not missing it	407.98	0.09	0.19	3.58	2.93	2.86	1.65	5.72
wanting to save	466.63	0.12	0.35	3.5	3.23	3.09	1.93	6.87
not affordable	468.78	0.11	0.45	3.56	3.4	3.38	2.37	7.78
infection risk	437.26	0.11	0.22	3.86	2.99	2.91	1.79	6.14
online alternatives	450.91	0.13	0.24	3.69	3.11	3.04	1.71	6.17

Table A10: Descriptive behavioral household statistics by sector and by reason for consumption reduction

Acknowledgements

We are indebted to the Amsterdam Centre for European Studies (ACES), Radboud Universiteit Nijmegen, and Gent University for funding this project. We would like to thank participants at the JHU-LSE conference on “Behavioral Economics Experiments & Insights on Covid-19”, the 2021 ZEW Public Finance Conference, the RCEA Future of Growth Conference, the 36th Annual Congress of the European Economic Association (EEA), and at the IAAE 2021 Annual Conference for comments and suggestions. The views and opinions expressed in this article are those of the authors and do not necessarily reflect the view of the Bank of Canada or the European Central Bank.

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ISBN 978-92-899-4822-7

ISSN 1725-2806

doi: 10.2866/736606

QB-AR-21-090-EN-N