

## **COVID19, DIGITAL COMPETENCIES AND APPROACH TOWARD SUSTAINABILITY IN THE UK<sup>1</sup>**

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### **1. Introduction**

This paper aims to investigate if, in the dramatic scenario caused by the recent pandemic, a new approach toward a more sustainable lifestyle has emerged in the UK. This could have happened for two main reasons. First of all, the restrictions to mobility associated with lockdown norms may have indeed, as an unexpected positive side-effect, convinced people that their digital competencies are vital to accomplishing their job just as effectively both remotely and face to face (Ragnedda and Ruiu 2020). This could, in turn, encourages new eco-friendly ways of working. Secondly, the COVID-19 pandemic occurred parallel to the Climate Change crisis and it was responsible for unintended, short-term, positive consequences on environmental systems due to, e.g., decreased pollution from industries and vehicle emissions (European Environment Agency, 2020). Therefore, the period of forced sedentary life might have triggered individual reflective practices concerning societal lifestyles, and the social impact on the environment and future generations.

Investigating this topic in the UK is particularly interesting since its population seems less concerned about climate change and its anthropogenic nature in comparison with other developed countries (EPCC, 2017). Moreover, despite increasing awareness of the climate change threat in the UK (Poushter and Huang, 2020), some studies show that people are less likely to be committed to solving the problem (BrightBlue, 2020; Steentjes *et al.*, 2020). Furthermore, the World Value Survey 2017-2020 (WVS 17-20) shows that among developed countries, the population of the UK seems to be among the less disposed to renounce economic growth in favour of better environmental protection. Indeed, considering the following WVS 17-20 question: “Here are two statements people sometimes make when discussing the environment and economic growth. Which of them comes closer to your own point of view? 1 Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs; 2 Economic growth and creating jobs should be the top priority, even if the environment suffers to some

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<sup>1</sup> The authors contributed equally to each section of the paper.

extent". Even though most of the respondents from the UK opt for option 1 (57%), there is a considerable gap concerning other Northern European Countries (for instance, in Sweden, more than 70% of people answer indicating their preference for option 1).

In this paper, we employ original data from an online survey carried out in the summer of 2020 on a sample of the UK population (1013 respondents) to propose<sup>2</sup> an indicator to capture the perception of Coronavirus as the starting point for a new approach toward environmental sustainability (from here on *Cov\_Sust\_Index*).

This paper is organised as follows: the next section presents data and method; in the third section, results are presented and discussed. Finally, some considerations will be drawn.

## 2. Data and Method

In July 2020, a quota sample of 1033 individuals aged 18 years and older, was recruited to complete an online survey through a national survey panel hosted by Toluna Inc.<sup>3</sup> Quotas were established based on the geographic distribution of the UK population among the following area: South, Midlands and Wales, Northern Ireland, North and Scotland. In table 1 sample quotas are confronted with those obtained from the official UK estimates of the mid-2019 population. The sample seems to fit quite precisely the distribution of the UK population among geographical areas. Other descriptive statistics are reported in the Appendix.

**Table 1** – *Geographic composition of the sample.*

	Number of respondents	In %	Official mid -2019 Population composition
South	472	45.69%	44.91%
Midlands and Wales	216	20.91%	20.84%
North and Scotland	318	30.78%	31.40%
Northern Ireland	27	2.61%	2.83%

*South includes the following regions: London, South-East, South-West, East*

*North and Scotland include: Yorkshire and the Humber, North East, North West, Scotland*

*Midlands and Wales include: West Midlands, East Midlands, Wales*

<sup>2</sup> More exactly the survey was carried out in July 2020, when the UK had the first wave of COVID19 behind and the lockdown norms had just been relaxed.

<sup>3</sup> Toluna Inc is a marketing company specialised in furnishing data for market analysis. However, their data have been frequently used also for scientific works. See for instance Robbins *et al.* (2017).

Panellists are recruited into the Toluna sample using a variety of methods, including Web banners, public relations, Web site referrals, and others. Panellists are validated using GeoIP and postal codes, double opt-in procedures, and the use of cookies to prevent duplication.

One drawback of using Internet panels is the volunteer nature of recruiting panellists, allowing no basis to calculate sampling error. Therefore, all the results that are obtained in this paper must be interpreted as a first explorative analysis based on a qualitative sample. A representative sample constructed with a probabilistic design must be used to ensure the possibility of extending the results to the population.

Another frequent drawback of using online sampling is the over-representation of young individuals. This problem also affects our data (see Table 4 in the appendix). However, given the aims of the paper, it should be said that it is particularly important that younger generations have perceived Covid19 also as a turning point toward a more sustainable lifestyle since these cohorts will be the main actors in implementing the changes needed to tackle Climate Change.

We propose a four-item Likert scale to construct an indicator to capture the perception of Coronavirus as the starting point for a new approach toward environmental sustainability. In particular, the proposed items are the following:

To what extent do you agree or disagree with the following statements:

- i)** Coronavirus pandemic might be a chance for an eco-friendly world;
- ii)** We can Use Coronavirus to Reset our Life for Sustainability;
- iii)** I'll use my digital skills to reduce the impact of my lifestyle on the environment even after the Coronavirus crisis will be over;
- iv)** Coronavirus pandemic made me realise that digital skills are vital to reduce my environmental footprint.

Individuals were asked to provide their level of agreement on a five-point scale going from 1 "Strongly disagree" to 5 "Strongly agree".

We then construct the *Cov\_Sust\_Index* by summing the score obtained for each item. Higher scores indicate a higher degree of agreement with the idea that COVID19 may represent an occasion for a more sustainable lifestyle. Internal consistency among items is assessed using Cronbach's alpha.

As a first explorative analysis, we run a hierarchical cluster analysis (Euclidean distance is used as the distance metric, and the Ward algorithm is chosen to form the cluster). The final number of clusters is decided using the Calinski-Harabasz index.

After the following multivariate regression is estimated to investigate which socio-demographic characteristics are related to a higher propensity to believe that Covid19 has also been an opportunity to redirect one's lifestyle towards greater sustainability:

$$Cov\_Sust\_Index_i = \alpha + \beta_1 CC_i + \beta_2 X_i + \varepsilon_i \quad (1)$$

CC is a dummy equal to one when individuals have answered “Agree” or “Strongly Agree” to the following question: “Please indicate how much you agree or disagree with the following statements about climate change: Climate change is just a natural fluctuation in earth’s temperatures”. Respondents were allowed to graduate their answer from “Strongly disagree” to “Strongly Agree”. The recognition that Climate Change is a consequence of human activity may be fundamental to strengthening the will to adopt new and more sustainable behaviour.

X is a set of socio-economic characteristics (age, gender, education, income, etc.).  
 $\varepsilon$  is a normally distributed random error with zero mean and constant variance.

### 3. Results

Good internal consistency was reached for the proposed Cov\_Sust\_Index given that the Cronbach’s alpha associated with our scale is 0.815. The average score was 13.63 (st. dev. 3.33). Considering that the maximum value for the scale is 20, we confirm in our sample the difficulty of the UK population to accept lifestyle change even after the pandemic. Figure 1 shows the distribution of the answers to each of the four items used for our Index.

The majority of individuals tend to at least “agree” to item 1 and item 2. In contrast, a high percentage of individuals do not express a position for item 3 and item 4. It seems that most individuals in our sample have perceived the pandemic as an opportunity to change, but at the same time, are not fully convinced that the use of digital skills will drive this change.

Table 2 summarises the characteristics of the three groups individuated through the above describe cluster analysis. Table 2 also reports for each group the percentage of individuals for which CC is equal to one.

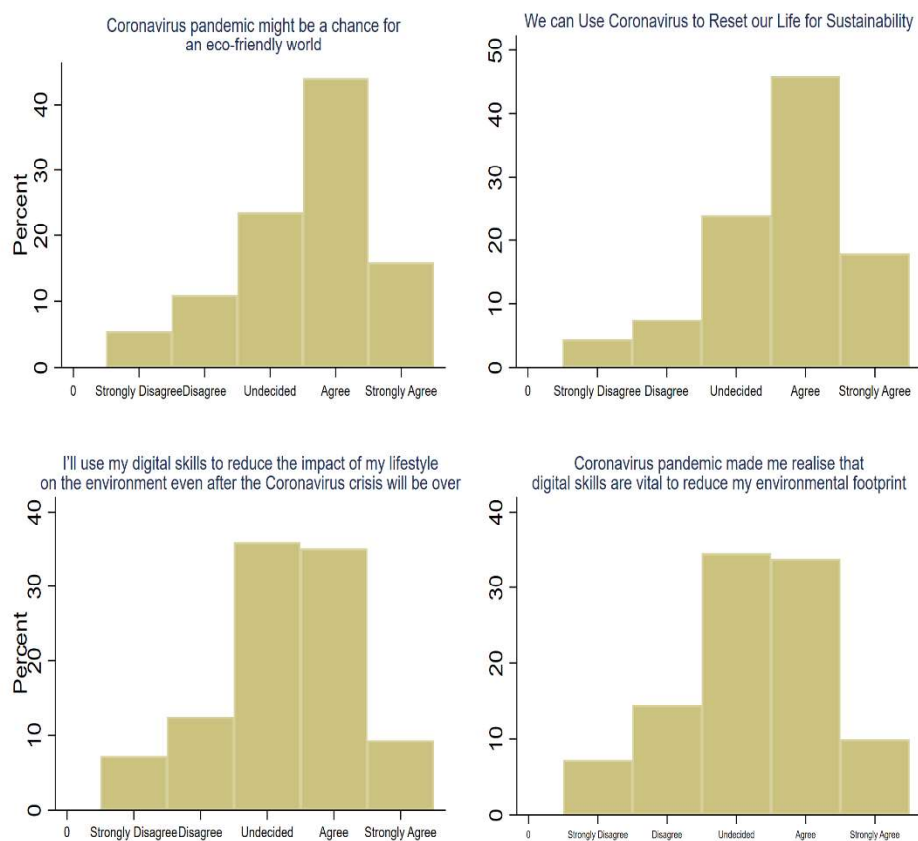
The three clusters numbered 1, 2, 3 may be labelled as “the Undecided ones”, “the Sceptics” and the “Change drivers”, respectively. The *Sceptics* is the smaller group. It is characterised by: the highest mean age of its components, the highest concentration of males, the highest percentage of people who believe that CC is not related to human activity. At the same time, this group is characterised by a low percentage of individuals with an elevated title of education and a particularly low mean score in the Cov\_Sust\_Index.

The *Change drivers* express a lower degree of scepticism toward the human origin of CC and, at the same time, are also characterised by a high mean score in the Cov\_Sust\_Index. They are, on average younger than the components of other groups, have an elevated title of education. This group is prevalently composed of females.

The *Undecided ones* represent the relative majority of the sample and are somehow in the middle between the other two groups: they tend to score an intermediate value

in the Cov\_Sust\_Index. The 12% of them is convinced that CC is only a natural phenomenon.

**Figure 1 – Distribution of the items used to construct the Cov-Sust\_Index.**



**Table 2 – Descriptive statistics for the individuated clusters.**

Cluster	N (%)	Mean age	Cov_Sust_Index	% Male	% CC sceptics	% MSC_PHD
1	429 (45)	48.4	13.3	45.9	11.6	9.3
2	51 (5.3)	51	8.39	56.7	27.7	7.0
3	369 (38.7)	44.5	16.41	44.7	4.9	14.6

Note: % MSC\_PHD is the percentage of individuals with a Master of Science or a PhD.

Finally, Table 3 reports the results of the estimation of equation 1. Note that the sample size reported in table 3 is not 1033 because of several missing observations in

both the dependent and the independent variables. The names of the independent variables are self-explicative.

First of all, note that R-square is particularly low. The linear relationship with our independent variables can explain only about 14% of the variability of the Cov\_Sust\_Index. This means that the heterogeneity in the positions about Covid19 as a possible turning point in the approach toward sustainability is far from being explained using the main socio-economic variables and the attitude toward Climate Change. This remarks the complexity of the issue under investigation.

Our results indicated that controlling for the effect of the other independent variables, an individual with a PhD is characterised on average by a score in the Cov\_Sust\_Index that is about 1.6 points higher than that associated with an individual with an incomplete secondary education.

Concerning income, we have that, keeping constant the value of the other right-hand side variables, only one dummy is highly significant from a statistical point of view, i.e. that associated with the highest level of income (a family income that is more than 100.000£ per annum). In particular, we have that the wealthiest individuals tend to report the lowest score on our dependent variable. One possible interpretation is that for these individuals is particularly difficult to modify their lifestyle toward a more sustainable one.

The multivariate regression results confirm that older individuals tend to be characterised by the lowest score on the Cov\_Sust\_Index. We believe that this is quite reasonable since older individuals may find it more challenging to modify their habits than the youngster. In addition, they are likely to have not perceived the potential role of digital skills in reducing the impact of mobility on the environment (Liu *et al.*, 2019; Desjardins *et al.*, 2013). Among demographic variables, also female respondents tend to be characterised by a score that is 0.5 points higher than male ones. This is in line with the findings obtained by McCright (2010) regarding the attitude toward climate change. Despite women tended to underestimate their scientific knowledge about this phenomenon, they were more informed than men. At the same time, they expressed a higher degree of concern on the issue, in line with what the market research firm Mintel has termed an “eco-gender gap” (Mintel, 2018). Thus, we believe that it is quite reasonable that in the context of the pandemic, they may have more involvement in reflective reasoning about the impact of human activity on the environment.

Finally, those who perceive climate change as a natural event not related to human activity also tend to have a score that is 3 points lower than those who recognise the human role in this phenomenon. This is the most important effect in terms of magnitude and confirms the importance of improving the correct perception of Climate change for motivating people to change their behaviours (see Ruiu *et al.*, 2020).

**Table 3** – *Socio-economic characteristics related to the Cov\_Sust\_Index.*

	$\beta$	s.e.
<b>Education</b>		
Bachelor	0.782*	(0.406)
PhD.	1.582**	(0.635)
High School	0.091	(0.418)
Master Degree	1.431***	(0.524)
Some University	0.065	(0.415)
Less than h. school		Ref
<b>Income</b>		
<10000 £	-0.849	(0.531)
≥10000 - <15000 £	-0.443	(0.447)
≥15000- < 20000 £	-0.448	(0.456)
≥20000 - < 30000 £	-0.572	(0.356)
≥30000 - < 40000 £	-0.306	(0.380)
≥ 40000 - <50000 £		Ref
≥50000 - <60000 £	0.284	(0.503)
≥ 60000 - <70000 £	-0.078	(0.467)
≥70000 -<100000 £	0.126	(0.470)
More than 100000 £	-1.311**	(0.625)
<b>Age</b>		
18 - 34		Ref
35- 54	-0.513**	(0.254)
55+	-0.680***	(0.254)
<b>Geographic area</b>		
Midlands and Wales	-0.123	(0.272)
North and Scotland	-0.074	(0.240)
Northern Ireland	0.221	(0.638)
South		Ref
Female=YES	0.485**	(0.207)
CC	-2.959***	(0.387)
Unemployed=YES	-0.010	(0.418)
Urban Context=YES	0.113	(0.206)
_cons	14.105***	(0.521)
N		953
r2		0.143

*Heteroskedasticity robust standard errors in parentheses*

Sign: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

#### 4. Discussion and Conclusions

This paper highlighted a need to promote awareness around the possibility of increasing individual environmental engagement through specific digital behaviour. On the one hand, the Covid crisis seems to have activated some reflective practices (Shove, 2004) around the necessity to break societal anti-environmental practices by showing an interest in using the crisis as a turning point. On the other hand, our respondents are not aware of the possibility of reducing their environmental impact through an increasing application of digital tools in their everyday life. Increasing interest has been devoted to the study of the effects produced by e-commerce on the environment. Despite contrasting results, depending e.g., by the delivery and return models and packaging materials (Gee *et al.*, 2020; Matthews *et al.*, 2001; Sievering, 2020; Siikavirta *et al.*, 2002), the reduced movement of people during the lockdowns - replaced by the use of technologies for shopping, socialising and working/studying - has contributed to produce benefits for the environment and the quality of air (European Environment Agency, 2020).

Therefore, the COVID-19 pandemic has shown a lesson that should be valorised to emphasise the positives and negatives of a new pro-environmental technological routine (Kirby, 2017; Shove and Warde, 2002) that might be kept also in the post-Covid era. This insight should be valuable for policymaking aimed at promoting digital inclusion by combining it with pro-environmental engagement, especially considering the “green recovery” from COVID-19 announced by the UK government and the COP26 climate summit in Glasgow in 2021. In this direction, creating the contextual conditions to valorise the positives, which might be also interpreted as “convenient” by digital users (because they might not cause discomfort, such as, e.g., in the case of having the choice to work from home) might support not only those who are already environmental advocate but also those who are sceptic and undecided about climate change. In fact, a specific increase in the use of technologies (such as e.g. for limiting physical movements) might produce beneficial effects on the environment voluntary and involuntary, if the technological practice is perceived as advantageous.

The exploration of the characteristics of these different groups, plus the understanding of their perception of technology, is pivotal for future studies that explore how to reduce the individual impact on the environment. However, the heterogeneity in the perception of COVID-19 as a possible turning point in the approach toward sustainability shows the complexity of the intersection between the crisis, the need for a pro-environmental shift and the potential contribution of technologies. However, younger generations might be more oriented to adapt their digital habits to more sustainable practice and their formal education might represent



an effective route to introduce the combination of digital and environmental awareness.

It should also be noted the individual changes (Shove, 2010) in both awareness and practice might not be sufficient if contextual changes at a macro-level (in terms of market orientation and policies implementation, Spaargaren, 2011) are not activated. The COVID-19 crisis and its related restrictions have imposed a new model for social interaction, which, despite disadvantages, has introduced a new technological routine. The creation and increase of opportunities at the contextual level structural (e.g., by ensuring that whenever possible people can work from home) in combination with an individual predisposition towards both environment and technologies might therefore trigger routinised pro-environmental behaviours.

## Appendix

**Table 4 – Other descriptive statistics.**

Variables	N	In %	Official mid -2019 Population composition
Less than 18	0	0	
18 – 34	273	26.43%	21.9%
35 – 54	375	36.3%	26.2%
55 -64	200	19.36%	12.2%
65+	185	17.9%	18.5%
Av. Age	47.4		
Male	492	47.63%	49.04%
Female	541	52.37%	50.86%
Education			
Bachelor	327	31.66%	
PhD.	24	2.32%	
High School	269	26.04%	
Master Degree	104	10.07%	
Some University	219	21.20%	
Less than h. school	90	8.71%	
Average Score Item 1	3.53 (sd 1.05)		
Average Score Item 2	3.65 (sd 1.00)		
Average Score Item 3	3.27 (sd 1.03)		
Average Score Item 4	3.24 (sd 1.05)		

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## SUMMARY

### **Covid19, Digital competencies and approach toward sustainability in the UK**

In this paper, we employ original data from a survey carried out in the summer of 2020 on an online sample of the UK population (1013 respondents) to investigate if, in the dramatic scenario caused by the recent pandemic, a new approach toward a more sustainable lifestyle has emerged in this Country. Our results indicate that, on average the individuals in our sample are not very convinced that the recent pandemic could be an opportunity to rethink our lifestyles in a sustainable way. Considering socio-demographic groups, We find that young individuals, predominantly female individuals and those with an elevated title of study, tend to perceive Covid19 also as an opportunity for a new approach toward sustainability.

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