

Comparison of UAS COVID-19 data with the Census Pulse and the NORC COVID impact surveys¹

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We are comparing aggregate results across three data collection efforts: NORC COVID Impact survey, Census 2020 Household Pulse survey, and the UAS Understanding COVID in America survey. All results are weighted, based on sample weights provided by each of the surveys.

For NORC we have only data on three waves (end of April; Early May; Early June; the web-site does not show any newer waves). UAS collects data continuously. Census has collected data through July 16. It has started a new series of surveys in August, but these are not part of this memo yet. In contrast with the UAS COVID surveys, which are waves of biweekly panels, the NORC surveys are mostly cross sections (possibly with some overlap of respondents across surveys). The sample sizes for the three nationally representative NORC surveys are respectively 2190, 2044, and 2047, with interview completion rates equal to 19.7%, 26.1%, and 19.7% respectively. The respondents are drawn from the NORC Amerispeak panel. A small percentage of respondents is interviewed by phone.

The Census pulse sample sizes vary between 41,996 and 108,062; response rates vary between 1.3% and 3.8% ([Source of the data and accuracy of the estimates for the 2020 household pulse survey](#), Table 7). The Census pulse re-invites respondents from a wave to participate in the next wave and then adds new sample to reach sufficient sample sizes in each wave. Defining response rates relative to the respondents who were invited the first time, these range from 1.3% to 3.8%. When comparing responses to the total number of respondents invited to a certain wave (which now also includes respondents to the previous wave), we see that 8-10% of the invited respondents complete an interview. Consecutive waves are therefore likely to have considerable overlap in respondents.

Interview completion rates for the UAS corona tracking surveys vary from 96.7% to 80.7%. However, these percentages take as a base only respondents who have consented to participate in the tracking surveys. The response rate to the consent survey was 85.4%, with a 97.4% consent rate. Taking the complete UAS sample as a base, the corona tracking surveys show interview completion rates between 80.4% and 67.1%.

If possible, we will update the memo with new information when that becomes available. For each topic we first quote the question text in the three surveys and then provide results.

Employment

UAS: Ir003a

Do you currently have a job?

Yes/No

Ir005

In your primary job, are you self-employed or do you work for an employer?

1. self-employed

¹ We thank Haoliang Chu for excellent research assistance

2. work for an employer
3. Other

Census: Q11

In the last 7 days, did you do ANY work for either pay or profit?

Yes/No

Q12

Are you employed by government, by a private company, a nonprofit organization or were you self-employed or working in a family business?

1. Government
2. Private company
3. Non-profit organization including tax exempt and charitable organizations
4. Self-employed
5. Working in a family business

NORC: ECON1

In the past 7 days, did you do any work for pay at a job or business?

1. Yes, I worked for someone else for wages, salary, piece rate, commission, tips, or payments 'in kind,' for example, food or lodging received as payment for work performed
2. Yes, I worked as self-employed in my own business, professional practice, or farm
3. No, I did not work for pay last week.

Table 1 presents a comparison of the job data we have currently. We have only three data points for NORC and their dates do not correspond exactly with the dates of UAS and Census. Note that the UAS question is different from NORC and Census, which are very similar. Figure 1 shows upper- and lower bounds of the 95% confidence interval for the UAS, and the line graph for Census and the three data points for NORC. NORC starts at the lower end of the range. But the second and third data point and essentially the whole Census graph is contained in the UAS confidence intervals. Thus, at least through July, our numbers seem compatible with the Census and NORC numbers.

time	UAS	Confidence Interval	Census	NORC
4.23-5.5	0.506	[0.488,0.523]	0.524	0.472
5.7-5.12	0.514	[0.488,0.540]	0.521	0.495
5.14-5.19	0.529	[0.503,0.555]	0.516	
5.21-5.26	0.494	[0.468,0.520]	0.529	
5.28-6.2	0.535	[0.509,0.561]	0.525	0.512
6.4-6.9	0.506	[0.480,0.532]	0.535	
6.11-6.16	0.536	[0.510,0.563]	0.543	
6.18-6.23	0.526	[0.500,0.552]	0.543	
6.25-6.30	0.523	[0.493,0.553]	0.538	
7.2-7.7	0.526	[0.501,0.551]	0.533	
7.9-7.14	0.543	[0.517,0.568]	0.517	
7.16-7.21	0.510	[0.484,0.537]	0.524	

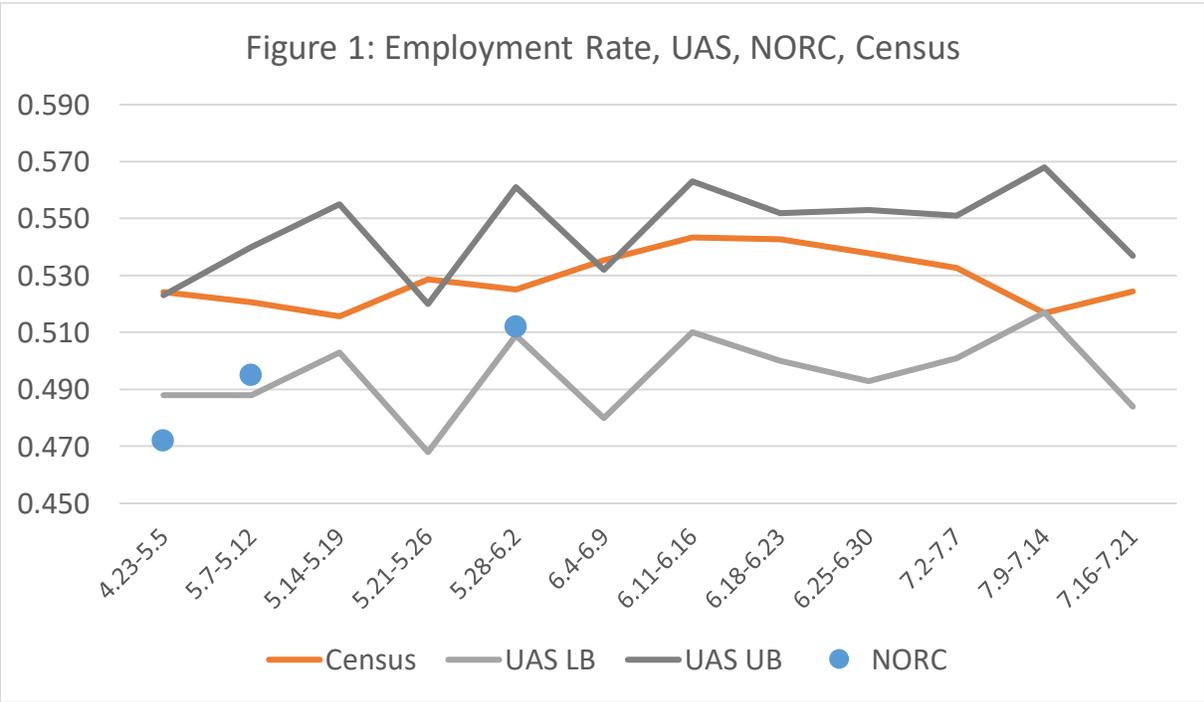
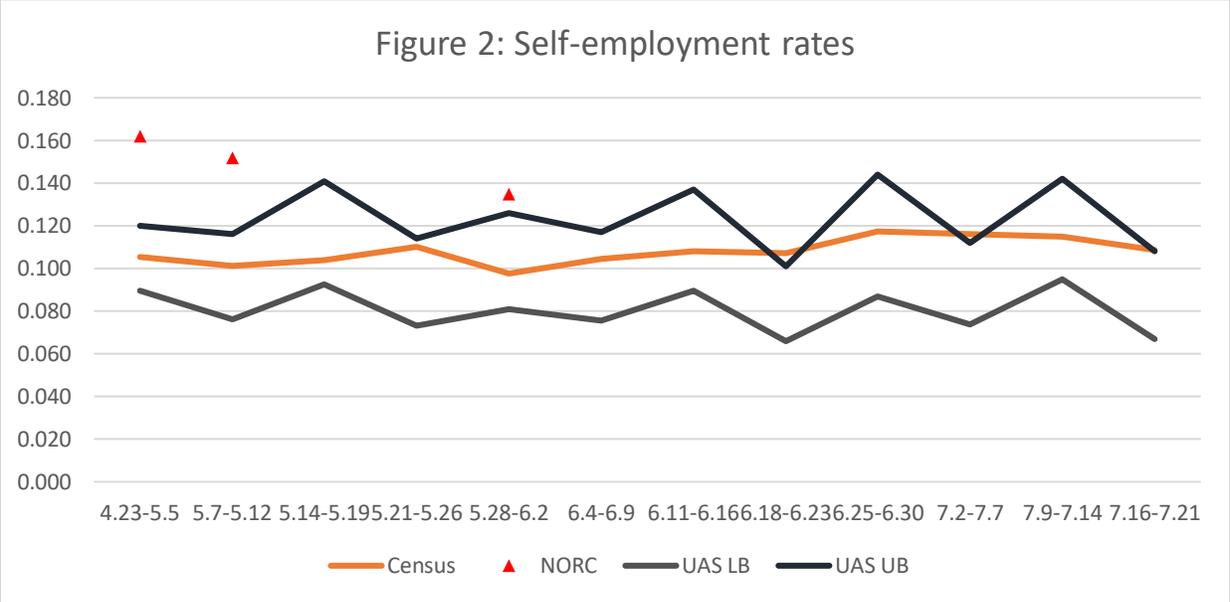


Table 2 compares self-employment numbers analogously to Table 1, while Figure 2 compares the results graphically. The most striking result is the much higher share of self-employed measured by NORC in comparison with both Census and UAS. Although the questions of UAS, Census, and NORC are not identical, they seem sufficiently similar that one would expect to obtain similar percentages of self-employed. The UAS and Census numbers seem to be consistent with BLS estimates (for 2015): <https://www.bls.gov/spotlight/2016/self-employment-in-the-united-states/home.htm>

Table 2: Proportion self-employed				
time	UAS	Confidence Interval	Census	NORC
4.23-5.5	0.105	[0.0896,0.120]	0.105	0.162
5.7-5.12	0.096	[0.0760,0.116]	0.101	0.152
5.14-5.19	0.117	[0.0924,0.141]	0.104	
5.21-5.26	0.094	[0.0732,0.114]	0.110	
5.28-6.2	0.103	[0.0810,0.126]	0.098	0.135
6.4-6.9	0.096	[0.0755,0.117]	0.105	
6.11-6.16	0.113	[0.0895,0.137]	0.108	
6.18-6.23	0.084	[0.0659,0.101]	0.107	
6.25-6.30	0.115	[0.0870,0.144]	0.117	
7.2-7.7	0.093	[0.0738,0.112]	0.116	
7.9-7.14	0.118	[0.0949,0.142]	0.115	
7.16-7.21	0.087	[0.0670,0.108]	0.109	



The most obvious difference between the NORC questions and those of Census and UAS, is that the latter first ask whether one has a job and then secondly ask what kind of job.

Anxiety/Worry

UAS: cr027a

Over the past fourteen days, how often have you been bothered by any of the following problems?

_Feeling nervous, anxious, or on edge

1. Not at all
2. Several days
3. More than half of the days
4. Nearly every day

Census: Q32

Over the **last 7 days**, how often have you been bothered by the following problems ... Feeling nervous, anxious, or on edge? Would you say not at all, several days, more than half the days, or nearly every day? *Select only one answer.*

- Not at all
- Several days
- More than half the days
- Nearly every day

NORC: SOC5

In the past 7 days, how often have you?

_Felt nervous, anxious, or on edge

1. Not at all or less than 1 day
2. 1-2 days
3. 3-4 days
4. 5-7 days

These questions are comparable, except for the slightly different response categories used by NORC and for the fact that UAS asks about the last 14 days, rather than 7 days as both Census and NORC do. Figures 3a and 3b provide the comparisons between respectively UAS and Census, and UAS and NORC. Strikingly, UAS and NORC show very similar patterns, despite the slight differences in question format, while the Census results indicate a much higher level of feeling nervous, anxious or on edge (and an increasing level over time). The qualification here has to be that we only have NORC data for the early part of the pandemic, but also during this early period, Census appears to be the outlier compared to the two other surveys.

Figure 3a: Feeling Nervous, Anxious, or on Edge

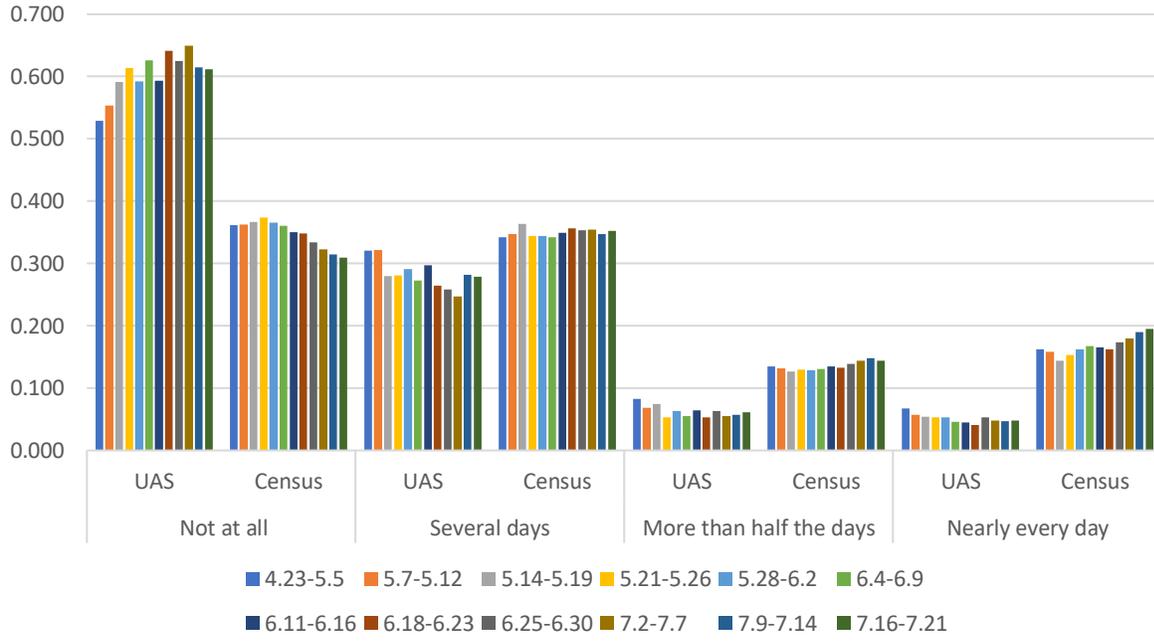
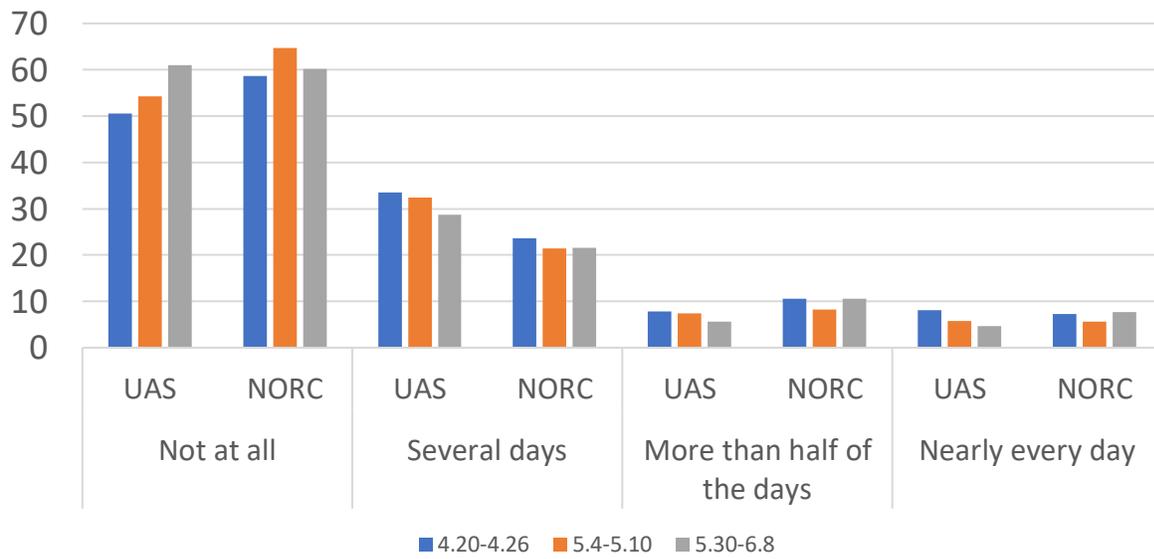


Figure 3b: Feeling Nervous, Anxious, or on Edge



Other Mental Health Questions

The anxiety question is the only one included in all three surveys. Both UAS and Census have three more mental health questions. The difference in recall period (two weeks vs. one), is the same as with the anxiety question.

UAS: CR027a-d (the first question was analyzed above)

Over the past fourteen days, how often have you been bothered by any of the following problems?

Feeling nervous, anxious, or on edge	Not at all	Several days	More than half the days	Nearly every day
Not being able to stop or control worrying				
Feeling down, depressed, or hopeless				
Little interest or pleasure in doing things				

Census:

Q33 Over the **last 7 days**, how often have you been bothered by the following problems ... Not being able to stop or control worrying? Would you say not at all, several days, more than half the days, or nearly every day? *Select only one answer.*

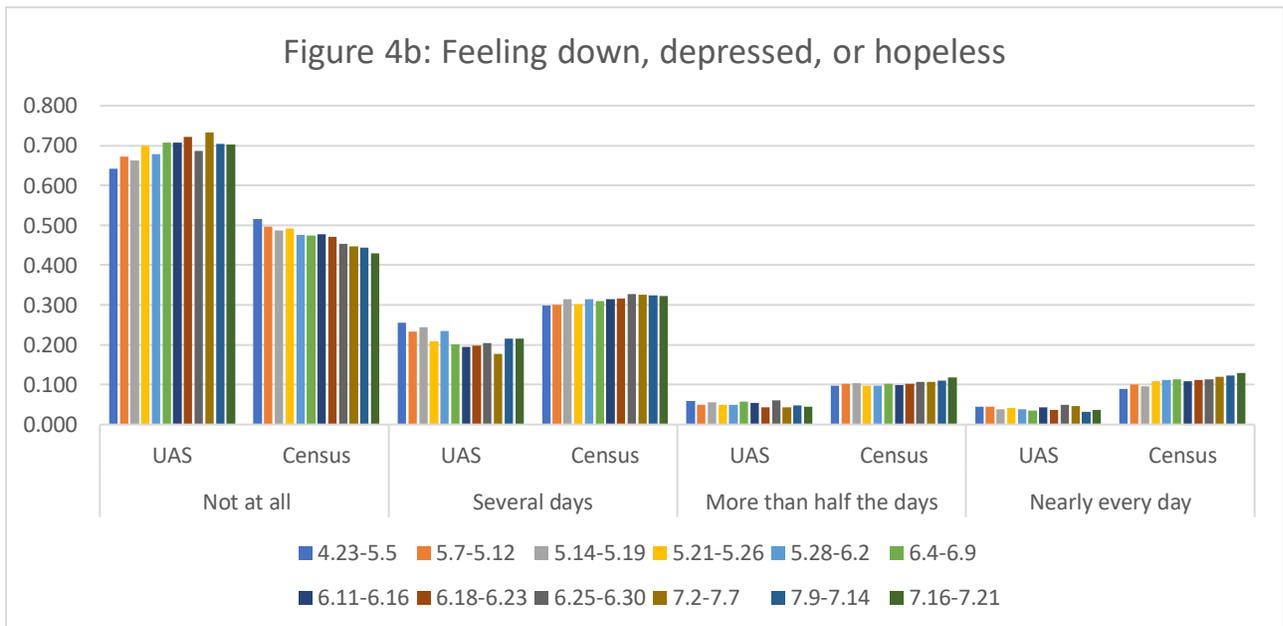
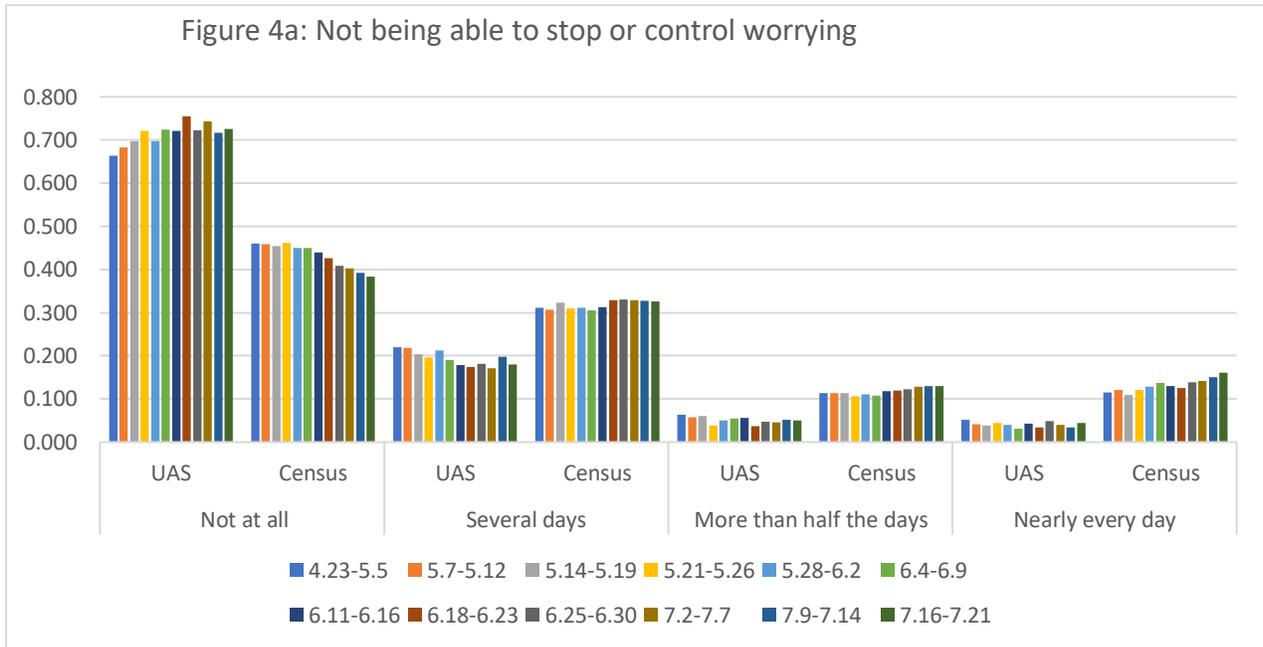
- Not at all
- Several days
- More than half the days
- Nearly every day

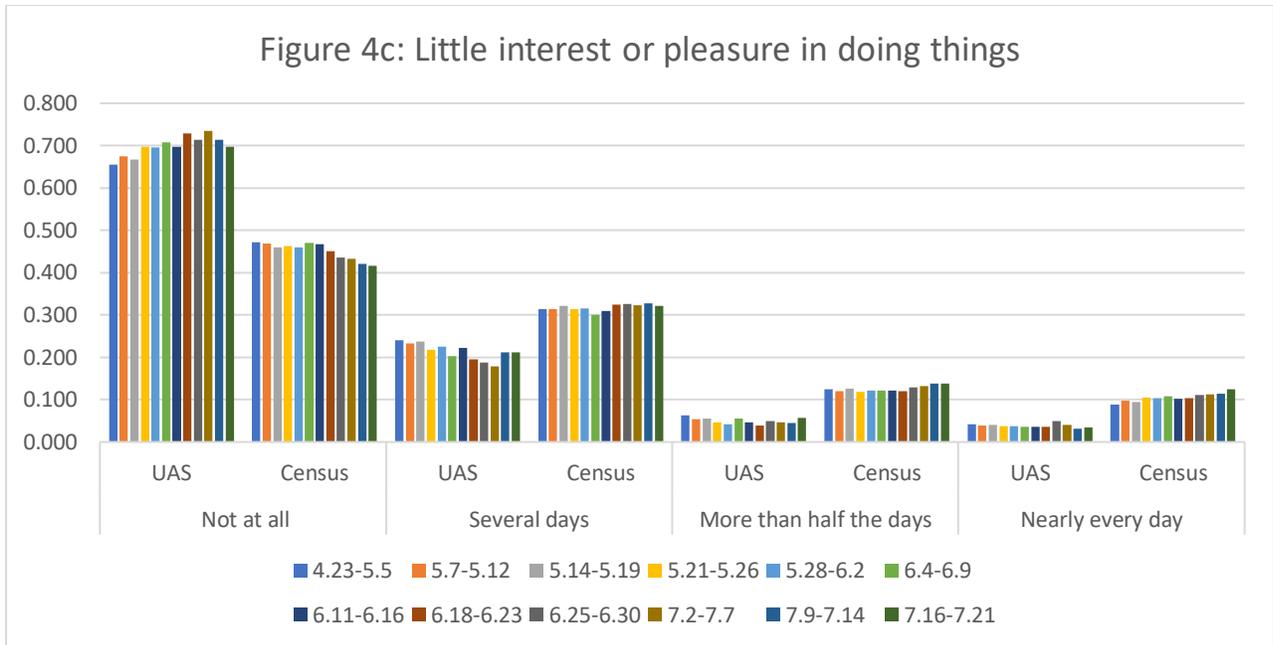
Q34 Over the **last 7 days**, how often have you been bothered by ... having little interest or pleasure in doing things? Would you say not at all, several days, more than half the days, or nearly every day? *Select only one answer.*

- Not at all
- Several days
- More than half the days
- Nearly every day

Q35 Over the **last 7 days**, how often have you been bothered by ... feeling down, depressed, or hopeless? Would you say not at all, several days, more than half the days, or nearly every day? *Select only one answer.*

- Not at all
- Several days
- More than half the days
- Nearly every day





Figures 4a-4c present comparisons similar to Figure 3a. Not surprisingly, we see the same overall pattern as for anxiety. Census estimates much higher levels than UAS

Food insecurity

UAS:

ei002

In the past seven days, were you worried you would run out of food because of a lack of money or other resources?

1. Yes
2. No
3. Unsure

ei003

In the past seven days, did you eat less than you thought you should because of a lack of money or other resources?

1. Yes
2. No
3. Unsure

ei004

In the past seven days, did you go without eating for a whole day because of a lack of money or other resources?

1. Yes
2. No
3. Unsure

Census:

Q24 In the last 7 days, which of these statements best describes the food eaten in your household?
Select only one answer.

- (1) Enough of the kinds of food (I/we) wanted to eat
- (2) Enough, but not always the kinds of food (I/we) wanted to eat
- (3) Sometimes not enough to eat
- (4) Often not enough to eat

Comparison is hindered by noticeable differences between the two sets of questions. If anything, we may think of pooling together Census (3) – sometimes not enough to eat – and Census (4) – often not enough to eat – and compare the resulting proportion with that of individuals who answered yes to UAS ei003 – In the past seven days, did you eat less than you thought you should because of a lack of money or other resources?

If we compare the proportion of Census (3) + (4) to the proportion of yes in UAS ei003, we get the following table. The numbers are substantially higher in Census.

	UAS			Census
	Proportion	95% CI Lower	95% CI Upper	
4.23-5.5	0.084	0.074	0.094	0.098
5.7-5.12	0.065	0.051	0.079	0.106
5.14-5.19	0.070	0.055	0.084	0.107
5.21-5.26	0.060	0.046	0.074	0.099
5.28-6.2	0.065	0.051	0.079	0.107
6.4-6.9	0.060	0.047	0.073	0.103
6.11-6.16	0.054	0.041	0.066	0.101
6.18-6.23	0.060	0.046	0.073	0.097
6.25-6.30	0.054	0.039	0.069	0.104
7.2-7.7	0.060	0.047	0.073	0.108
7.9-7.14	0.054	0.041	0.066	0.108
7.16-7.21	0.058	0.045	0.071	0.121

Miss or delay rent of mortgage

UAS:

ei0011

Do you have a mortgage?

- 1. Yes
- 2. No

ei012

[if ei011 = 1] Have you received permission from your lender to delay or reduce payment on your mortgage?

1. Yes
2. No

ei013

[if ei011 = 1] In the past month, did you miss or delay payment on your mortgage, or did you pay less than the full amount?

1. Yes
2. No

ei014

Do you rent your primary residence?

1. Yes
2. No

ei015

[if ei014 = 1] Have you received permission from your landlord to delay or reduce payment of your rent?

1. Yes
2. No

ei016

[if ei014 = 1] In the past month, did you miss or delay payment of your rent, or did you pay less than the full amount?

1. Yes
2. No

Census:

Q39 Is your house or apartment...? *Select only one answer.*

- Owned free and clear?
- Owned with a mortgage or loan (including home equity loans)?
- Rented?
- Occupied without payment of rent?

Q40 Did you pay your last month's rent or mortgage on time? *Select only one answer.*

- Yes
- No
- Payment was deferred

Unfortunately, these questions seem to differ too much to facilitate a sensible comparison.

Symptoms

Symptom questions are only asked in UAS and NORC.

UAS:

Have you experienced any of the following symptoms in the past 7 days? [Randomize the order of items in the list]

Yes No Unsure	Fever or chills
Yes No Unsure	Runny or stuffy nose
Yes No Unsure	Chest congestion
Yes No Unsure	Cough
Yes No Unsure	Sore throat
Yes No Unsure	Sneezing
Yes No Unsure	Muscle or body aches
Yes No Unsure	Headaches
Yes No Unsure	Fatigue or tiredness
Yes No Unsure	Shortness of breath
Yes No Unsure	Abdominal Discomfort
Yes No Unsure	Vomiting
Yes No Unsure	Hair Loss
Yes No Unsure	Dry skin
Yes No Unsure	Body temperature higher than 100.4 F or 38.0 C
Yes No Unsure	Diarrhea
Yes No Unsure	Lost sense of smell
Yes No Unsure	Skin rash

NORC: PHYS1

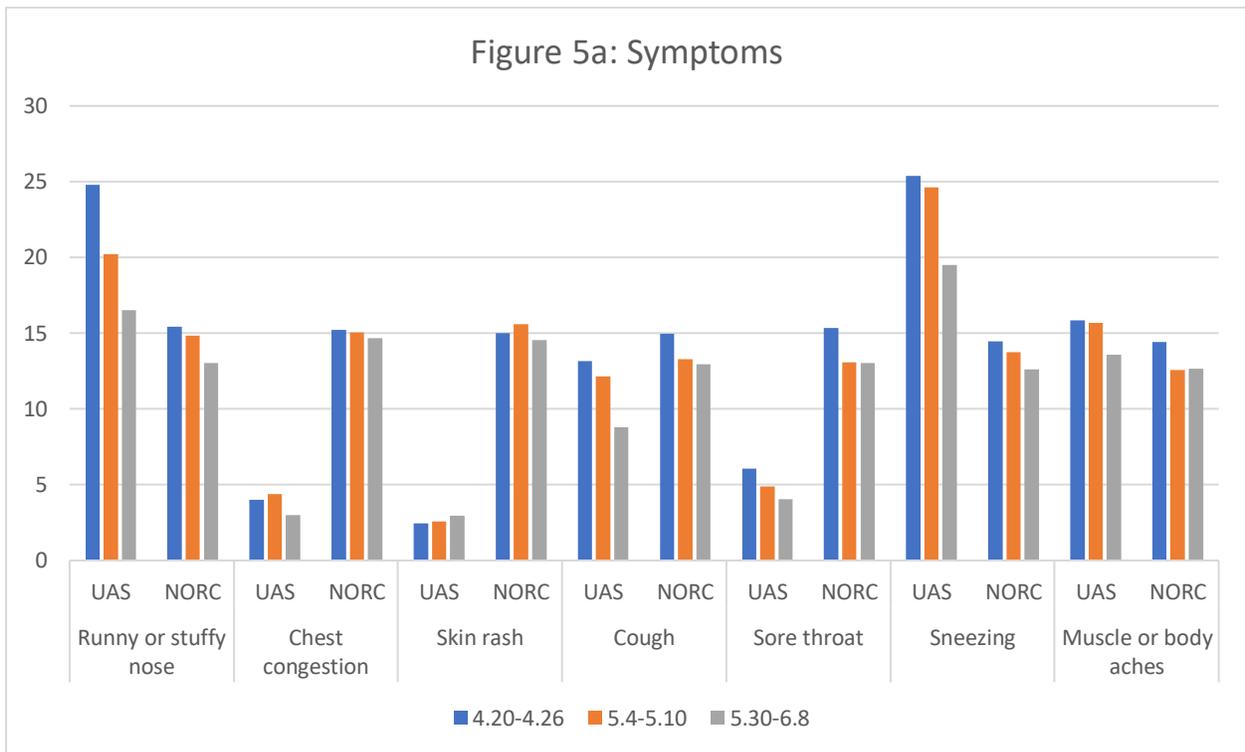
Have you experienced any of the following symptoms in the past 7 days, or not?

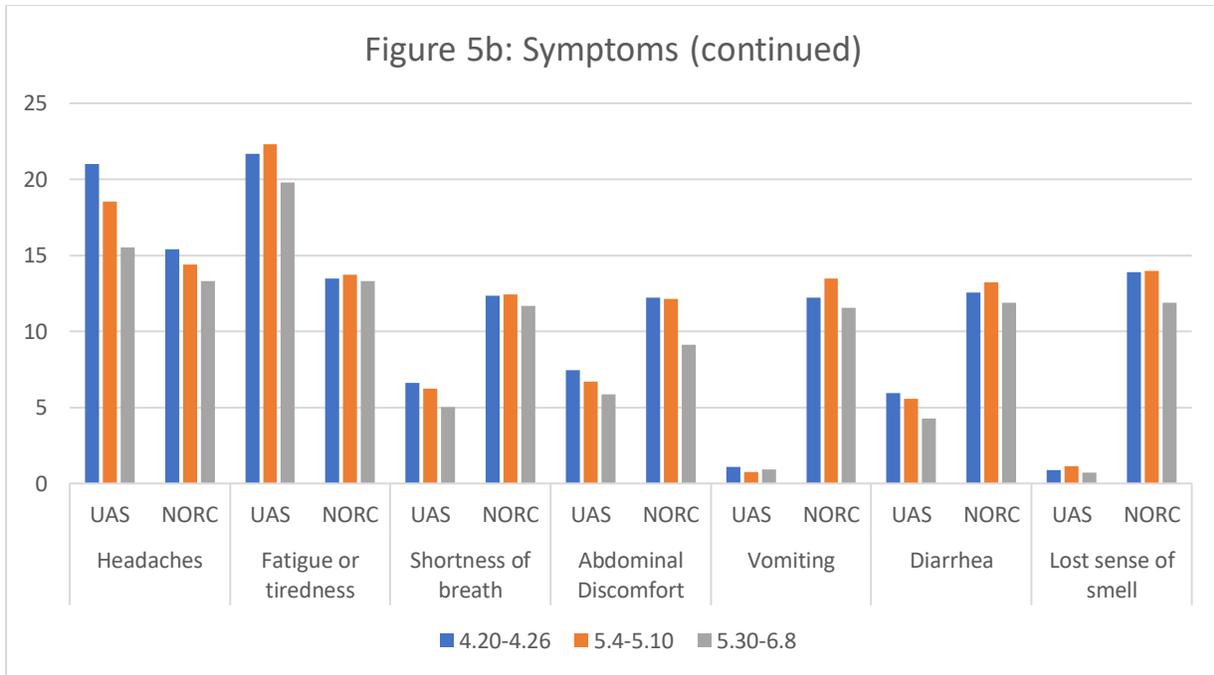
- A. Fever
- B. Chills
- C. Runny or stuffy nose
- D. Chest congestion
- E. Skin rash
- F. Cough
- G. Sore throat
- H. Sneezing
- I. Muscle or body aches
- J. Headaches
- K. Fatigue or tiredness
- L. Shortness of breath
- M. Abdominal discomfort
- N. Nausea or vomiting
- O. Diarrhea
- P. Changed or lost sense of taste or smell
- Q. Loss of appetite

Response categories: 1. Yes 2. No 3. Not sure

The main difference between the questionnaires is that UAS asks for “Fever or chills”, while NORC asks this in two separate questions. Since it is unclear how to compare the answers across surveys (e.g. if a respondent says “yes” to the fever question and “no” to the chills question in the NORC questionnaire), we exclude that question from the comparison. For some other categories, response categories are sometimes different. We will note these when we compare the outcomes.

Figures 5a and 5b show the results. Since the unsure categories generally get endorsed by about 1% of the respondents in both surveys, we compare the surveys by only considering the “yes” responses. The graphs show some remarkable differences: Chest congestion is mentioned four times as often by NORC respondents than by UAS respondents; skin rash five times as often; Sore throat three times more; Shortness of breath more than twice as often; Abdominal discomfort and diarrhea about twice as often. The large difference in observed frequency of vomiting is the result of the fact that the NORC questionnaire is asking for “Nausea or vomiting”. UAS asks for loss of smell, while NORC asks for loss or change of taste or smell. We note that the number of NORC respondents endorsing this symptom is 10-15 times larger than the number of UAS respondents reporting to have lost a sense of smell.





Emergency Expense

UAS: ei018_intro, (ei018a – ei018h)

Suppose you have an emergency expense that costs \$400. Based on your current financial situation, how would you pay this expense? If you would use more than one method, please select all that apply. [randomize order]

- Yes No Unsure By putting it on my credit card and paying it off in full at the next statement.
- Yes No Unsure By putting it on my credit card and paying it off over time.
- Yes No Unsure With the money currently in my checking/savings account or with cash.
- Yes No Unsure Using a bank loan or line of credit.
- Yes No Unsure By borrowing from a friend or family member.
- Yes No Unsure Using a payday loan, deposit advance, or overdraft
- Yes No Unsure By selling something
- Yes No Unsure I wouldn't be able to pay for the expense right now.

ECON7(NORC)

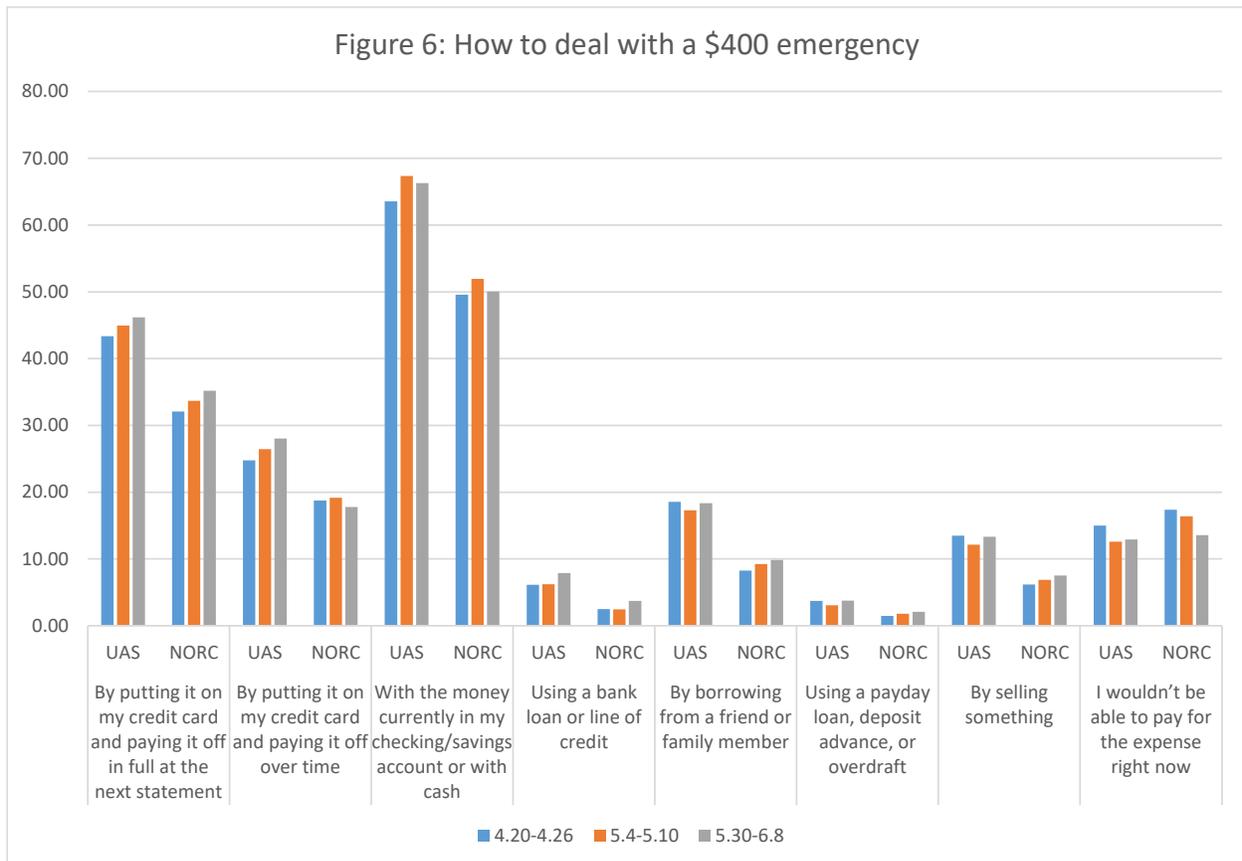
Suppose that you have an unexpected expense that costs \$400. Based on your current financial situation, how would you pay for this expense? If you would use more than one method to cover this expense, please select all that apply.

- By putting it on my credit card and paying it off in full at the next statement
- By putting it on my credit card and paying it off over time
- With the money currently in my checking/savings account or with cash
- Using a bank loan or line of credit
- By borrowing from a friend or family member
- Using a payday loan, deposit advance, or overdraft
- By selling something

_I wouldn't be able to pay for the expense right now

Response categories; No/Yes

The questions seem to be the same, but the response categories are not. Generally the “unsure” category gets endorsed by less than 5% of the UAS respondents. To compare the answers between NORC and UAS we can either treat “unsure” as missing in the UAS data or simply tabulate the “yes” answers (and hence treat “unsure” as “No”). Figure 6 below treats “unsure” as missing, but when only tabulating the “yes” responses in UAS, qualitatively the graphs look very similar.



Essentially, UAS respondents select more options, so that for every action we see higher frequencies among UAS respondents. But eyeballing the relative frequencies of the choices separately for UAS and NORC, suggests similar patterns. We can compare the responses with one other source. The Federal Reserve has fielded [supplements](#) to its annual Survey of Household Economics and Decisionmaking (SHED). Table 4 in the newest report shows that in July, about 70% of the respondents would be able to pay for a \$400 emergency completely by using cash or its equivalent; This compares roughly with the percent of people in the UAS saying they would pay for the emergency with the money currently in their checking/savings account or with cash (Figure 6).

Protective behaviors

UAS: cr016_intro, (cr016a – cr016r)

Which of the following have you done in the last seven days to keep yourself safe from coronavirus?

Only consider actions that you took or decisions that you made personally.

- | | | |
|-----|----|--|
| Yes | No | Washed your hands with soap or used hand sanitizer several times per day |
| Yes | No | Canceled or postponed air travel for work |
| Yes | No | Canceled or postponed air travel for pleasure |
| Yes | No | Canceled or postponed work or school activities |
| Yes | No | Canceled or postponed personal or social activities |
| Yes | No | Visited a doctor |
| Yes | No | Canceled a doctor's appointment |
| Yes | No | Stockpiled food or water |
| Yes | No | Avoided contact with people who could be high-risk |
| Yes | No | Avoided public spaces, gatherings, or crowds |
| Yes | No | Prayed |
| Yes | No | Avoided eating at restaurants |
| Yes | No | Stockpiled hand sanitizer or disinfectant wipes |
| Yes | No | Worked or studied at home |
| Yes | No | Worn a mask or other face covering |
| Yes | No | Stockpiled medication |

NORC: PHYS2(NORC)

Which of the following measures, if any, are you taking in response to the coronavirus?

1. Washed or sanitized hands
2. Canceled or postponed work or school activities
3. Canceled or postponed pleasure, social, or recreational activities
4. Visited a doctor or hospital
5. Canceled a doctor appointment
6. Stockpiled food or water
7. Avoided contact with high-risk people
8. Avoided public or crowded places
9. Prayed
10. Avoided some or all restaurants
11. Worked or studied at home
12. Worn a face mask

Response categories: Yes/No

Note that UAS asks about the last seven days, while NORC asks "... if any, are you taking in response to the coronavirus".

Figure 6 shows similar prevalences of the various protective behavior across datasets.

Figure 6: Protective behaviors

