# Compliance/ adherence to official orders

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## Personal thoughts

Compliance is a fairly broad term. In this context, we are interested in the reaction of the public following official orders re. Covid-19.

To simply matters, we measure compliance through movement reduction. Alternative measures might include: wearing masks, washing hands, not panic buying etc. We don’t explore such adherence.

There are several dimensions of compliance:

1. By how much was movement reduced
2. How soon after the order
3. For how long

Most other papers I have seen, explore only some of these aspects. For example, #1 measures compliance through the % of people that opted to stay at home on a given day (minus those that had to work).

Therefore, one challenge is to find the appropriate way to construct an index for compliance that: a) incorporates as many of these dimensions as possible b) it is relatively novel c) passes certain robustness checks.

It would be neat if we can provide a geometrical representation of the index (surface under a line plot and slope for example).

* It would also be neat if we find that the slope (capturing adherence) correlates with patience and surface (capturing overall alarmness) with risk (for example).
* The slope can have a simple geometric representation but then explain why we use lags.

It would also be useful to provide reasons why the simpler indices might be problematic.

In my hitherto background dig, I was surprised to see no study addressing how to measure the rate with which a certain policy has been adapted in a society. The one exception to this is wrt Tax Compliance. Even though the literature on Tax compliance is rich, still, it does not address how fast and efficiently a new policy is absorbed. Rather, it focuses on either extrapolations of loss in revenue or lab experiments with subjects playing public good games. Perhaps we need to look with different search criteria; policy appraisal perhaps?

## #1 Political Beliefs affect Compliance with COVID-19 Social Distancing Orders

Link: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3569098>

Authors: Marcus Painter (Saint Louis University - Department of Finance), Tian Qiu (University of Kentucky - Gatton College of Business and Economics).

Date Written: April 30, 2020

Citations: 23

Key findings:

1. Residents in Republican counties are less likely to completely stay at home after a state order has been implemented relative to those in Democratic counties.
2. Democratic counties are more likely to shift to online spending relative to Republican counties after a state-policy is implemented.
3. the difference in compliance to social distancing orders based on partisanship is likely due to how credible residents find government officials and not an information transmission channel. (they test whether a government was aligned with Trump or not).

Method:

* we create a measure of social distance based on the location of a sample of smartphones throughout the day. From this data we measure social distancing as the percentage of people who stay home for an entire day relative to all people identified in a census block group. This daily data covers January through April 23rd of 2020. We also collect data on debit card transactions, government-sanctioned social distancing orders, county-level demographics, and county-level voting results from the 2016 presidential election. The union of these datasets allows us to study whether partisanship a\_ects adherence to social distancing orders through a difference-in-differences framework.
* Findings are robust to the inclusion of county and date fixed effects, state\*date fixed effects, and controls for county demographics (e.g., population and income), other local policies (e.g., closing schools), and reports of county-level coronavirus cases and deaths.
* Formula for measuring social distancing:
  + Where CompletelyHome is the number of devices in county c on day t that never left home. Home is measured as the common night time location of each mobile device over a 6 week period to a Geohash-7 granularity (about 153 square meters). Total Device Count is the total number of devices identified in county c on day t, and Working is the number of devices that leave home and go to another location for more than three hours during the period of 8 am to 6 pm local time.6 A higher percentage of Social Distancec;t indicates more residents in the area are complying with the social distancing order.

Data source:

* geolocation data from SafeGraph,
* debit card transaction data from Facteus,
* the timing and location of government-sanctioned social distancing orders from the New York Times, and
* county-level election results from the 2016 Presidential election.

## Compliance with COVID-19 Social-Distancing Measures in Italy: The Role of Expectations and Duration

Authors: Guglielmo Briscese (U. Chicago), Nicola Lacetera (U. Toronto), Mario Macis (John Hopkins Uni), Mirco Tonin (Free Uni Bolzano-Bozen)

Citations: 41

Link: <https://www.nber.org/papers/w26916>

* Is it easy to post a paper as part of NBER working papers?

Method: this is an intentions study. Not of direct interest in our case but perhaps worth considering for the discussion section, under, what can gvts do to enhance compliance.

Results: Respondents are more likely to express the intention to reduce, and less willing to increase their self-isolation effort if negatively surprised by a given hypothetical extension, i.e. if the extension is longer than what they expected. These intentions are stronger among respondents who reported high compliance with the isolation prescriptions. In a context where individual compliance has collective benefits, but full enforcement is costly and controversial, communication and persuasion have a fundamental role. Our findings provide insights to public authorities on how to manage people’s expectations in public health emergencies that require prolonged lockdown measures.

## Functional Fear Predicts Public Health Compliance in the COVID-19 Pandemic

Authors: psychologists – one from Trent Nottingham!

Citations: 35

Link: <https://link.springer.com/content/pdf/10.1007/s11469-020-00281-5.pdf>

Methods: self-reported questionnaire (in a small sample despite their claims!). Not really relevant for us.

Results: we recruited a large international community sample (N= 324) to complete measures of self-perceived risk of contractingCOVID-19, fear of the virus, moral foundations, political orientation, and behavior change in response to the pandemic. Consistently, **the only predictor** of positive behavior change (e.g., social distancing, improved hand hygiene**) was fear of COVID-19**, with noeffect of politically relevant variables

## Poverty and Economic Dislocation Reduce Compliance with COVID-19 Shelter-in-Place Protocols

Authors: Wright, Sonin, Wilson (all 3 from U. Chicago) and Driscoll (U. Cal)  
Date: 15 April 2020/ revised: 17 June  
Citations: 25

Link: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3573637>

Data: county-day measures on population movement derived from cellphone location data. Location pings via Global Positioning System (GPS) capabilities of smartphones enable data processing firms to trace population movement across space from an origin site (‘home’). Data used in our analysis was shared by UNACAST and is accessible for academic research upon request (<https://bit.ly/2RoEN4w> ). To standardize the scale of movement across counties, the data provider deseasonalizes variation after the onset of COVID-19 in the United States (March 8) using county-specific day-of-week trends from the period before (March 7 and before). Reductions in movement correspond to social distancing and, on average, reduced interpersonal mechanisms for viral transmission.

Results: we investigate whether compliance with local shelter-in-place ordinances varies across US counties with different economic endowments. Our theoretical model implies economic endowments will influence compliance with social distancing. We find evidence that low income areas do comply less than counties with stronger economic endowments. Findings suggest targeted economic relief could improve future compliance with public health interventions.

## Evaluating COVID-19 Public Health Messaging in Italy: Self-Reported Compliance and Growing Mental Health Concerns

Authors: More than 10…

Link: <https://www.medrxiv.org/content/10.1101/2020.03.27.20042820v2.full.pdf>

Citations: 12

Date: April 5th

Data/ Methods: We implement one of the first nationally representative surveys about this unprecedented public health crisis and use it to evaluate the Italian government’ public health efforts and citizen responses.

Results:

* Public health messaging is being heard. Except for slightly lower compliance among young adults,​all subgroups we studied understand how to keep themselves and others safe from the SARS-Cov-2 virus.
* Remarkably, even those who do​ not trust the government​, or ​think the government has been untruthful​about the crisis believe the messaging and claim to be acting in accordance.
* The quarantine is beginning to have serious negative effects on the population’s mental health

## Self-Isolation Compliance In The COVID-19 Era Influenced By Compensation: Findings From A Recent Survey In Israel

Authors: Bodas and Peleg: published in health affairs

Citations: 10

Date: April 9th

Link: <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2020.00382>

Results: Public compliance rates with self-quarantine were assessed, depending on whether lost wages would be compensated for. When compensation was assumed, the compliance rate was 94 percent. When compensation was removed, the compliance rate dropped to less than 57 percent.

Method: non-incentivised survey

## The Persuasive Effect of Fox News: Non-Compliance with Social Distancing During the Covid-19 Pandemic

Date: 21st May

Link: <https://www.nber.org/papers/w27237>

Citations: 9

Authors: Simonov, Sacher (Columbia), Dube, Biswas (Chicago)

Result: We find that a 10% increase in Fox News cable viewership (approximately 0.13 higher viewer rating points) leads to a 1.3 percentage point reduction in the propensity to stay at home. We find a persuasion rate of Fox News on non-compliance with stay-at-home behavior during the crisis of about 11.9% - 25.7% across our various social distancing metrics.

Method: quasi-experimental design to estimate the causal effect of Fox News viewership on stay-at-home behavior by using only the incremental local viewership due to the quasi-random assignment of channel positions in a local cable line-up.

# Relation between SARS and COVID-19

## Can we contain the COVID-19 outbreak with the same measures as for SARS?

Published in Lancet – infectious diseases (very prestigious)

Citations: 200+

Date: May

Link: <https://www.sciencedirect.com/science/article/pii/S1473309920301298?casa_token=bB1fomizFC4AAAAA:omwVpQ3KksOLDKF5yj3mAKDCEqByHDRR3KZfIq5BFUOvSfCRcPywijEabnuk8haAL7mPGA>

Result: SARS is like COVID-19 but not really…

Method: overview of other papers

# Mobility and infection rate

## The effect of human mobility and control measures on the COVID-19 epidemic in China

Date: May 1st

Journal: Science

Link: <https://science.sciencemag.org/content/368/6490/493.abstract?casa_token=7Oqrr6VWUfYAAAAA:QIwpNsZeV51DI4r4oUxTrF-4eNB4IfsVO340XjQk9-Nz64d6uDq2XrU2EW5NjJR6EcPw8dqlexE>

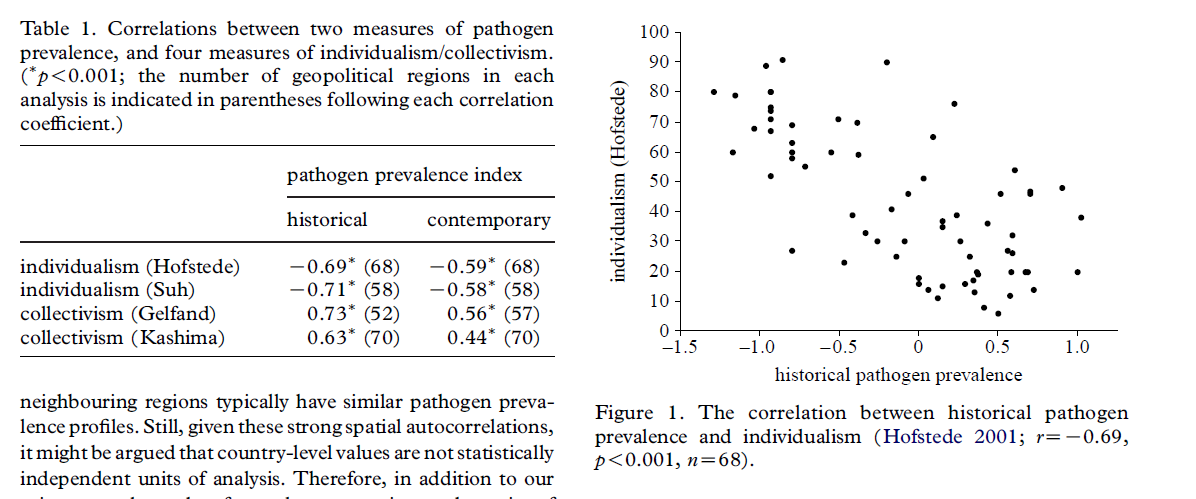
Citations: 270

Result: Early on, the spatial distribution of COVID-19 cases in China was explained well by human mobility data. After the implementation of control measures, this correlation dropped and growth rates became negative in most locations, although shifts in the demographics of reported cases were still indicative of local chains of transmission outside of Wuhan. This study shows that the drastic control measures implemented in China substantially mitigated the spread of COVID-19.

Interpretation: Movement reduction matters in the beginning more than later?

## Pathogen prevalence predicts human cross-cultural variability in individualism/collectivism

* Published in Proceedings of the Royal Society (2008), 737 citations
* Summary : Countries with historical prevalence of pathogens develop more collectivist cultures.
  + Pathogens:
    - leishmanias, trypanosomes, malaria, schistosomes, filariae, leprosy, dengue, typhus and tuberculosis)
    - TBQ: National Geo Sociery (2005), the others thorough old atlases….
    - Also data on recent pathogens from this site: and Epidemiology Online Network (<http://www.gideononline.com/> ), which reports current distributions of infectious diseases in each country of the world. (The database is updated weekly; our data were obtained during the period April–June 2007.) We focused on seven classes of pathogens (leishmanias, trypanosomes, malaria, schistosomes, filariae, spirochetes and leprosy).
      * What about the WB data for communicable diseases?
  + Collectivism/ individualism: from 4 pre-existing papers
    - Hofstede (2001; book; more than 36000 citations). Culture's consequences: Comparing values, behaviors, institutions and organizations across nations
    - Gelfand et al. 2004 (he is the author of the next paper as well on Covid)



* + Other variables: Therefore, we obtained measures of variables bearing on these constructs: gross domestic product per capita (GDP per capita), inequity in the distribution of wealth (Gini index) and population density (computed from population size divided by land area and then log transformed). Region-specific data

on these variables were obtained from the World Factbook 2007 (<http://www.cia.gov/>).

* + - So still, not from the WorldBank.
  + Further controls: One could also speculate that differences in individualism/ collectivism might be predicted by pathogen-irrelevant influences on health and mortality. That is, just as collectivistic values may maintain cultural buffers against pathogen transmission, they might also maintain cultural buffers against other sources of morbidity and mortality independent of the direct effects of pathogens (e.g. interpersonal violence). **To create a measure of pathogen independent**

**health threats, we regressed average life expectancy (obtained from the World Health Organization; http://www.who.int) on our index of historical pathogen prevalence and saved the residuals**. These region-specific residual values represent variation in life expectancy that cannot be attributed to variation in pathogen prevalence.

## Cultural and Institutional Factors Predicting the Infection Rate and Mortality Likelihood of the COVID-19 Pandemic

* Authors: Gelfand et al.
  + Gelfand is involved in the collectivisim index studies.
* Source: <https://psyarxiv.com/m7f8a/>
* Summary: nations with efficient gvts and tight cultures have been most effective. This is robust to controls of underreporting of cases, economic development, inequality, median age, population density and authoritarianism. They also provide an evolutionary model suggesting that the observed cross-cultural trends may be driven by variation in how much groups adhere to cooperative norms under conditions of high threat.
  + For the gvt efficiency we can use the WorldAttitudesSurvey: Perceptions of government/public response & efficacy.

# Behavioural Measures

## GLOBAL EVIDENCE ON ECONOMIC PREFERENCES

Authors: ARMIN FALK, A. BECKER, T. DOHMEN, B. ENKE, D. HUFFMAN, U. SUNDE

The Global Preference Survey (GPS) elicits experimentally (through survey data) behaviour in:

* Time preferences (patience)
* Risk preference (risk taking)
* Positive and negative reciprocity
* Altruism
* Trust

80,000 people from 76 countries. Mostly face-to-face interviews but also some telephone interviews (in 18/76 countries).

Each score is comprised of a linear combination of two items: a qualitative and a quantitative one. For example for the risk taking preference, participants were asked “How likely are you to take risks: 0-10” (qualitative) and, was asked to make choices between lotteries (quantitative).

* How were these weights calculated? And, can we reverse engineer the qualitative score and quantitative score? It might be that our Covid-elicited measures correlate with the quantitative but not the qualitative component, suggesting a gap between observed and stated preferences.
  + As Table I indicates, the quantitative item has a weight of 71% in the time preference measure. So, if weight is given in aggregate then we can take each score and break it down to its quantitative and qualitative component. For example:
    - I will decompose everything in two scores.
    - What is the “wgt” variable in the Excel? I thought it stood for weight but it is different for every individual.
* Were the quantitative measures monetarily incentivised or hypothetical?

Moreover, each score is standardized at the individual level, so that, by construction, each preference has a mean of zero and a sd of one in the ind.-level world sample.

Results:

1. Substantial heterogeneity across countries but **even larger heterogeneity within countries**. Suggesting that individual characteristics are even more important for explaining preference differences than national borders.
   1. Highlights the importance to increase granularity of its application. Better to use city-level?
2. Patience and willingness to take risks are one pair of positively correlated preferences, and the prosocial traits of positive reciprocity, altruism, and trust form another grouping.
   1. Somewhat surprising result that patience and risk taking are positively correlated. So much for being impulsive as a causal personality trait for risk seeking…
3. Trust correlates with development, patience with income. Patience is more important than trust in this analysis. Risk taking correlates with entrepreneurial activities and with the propensity to be self-employed. Negative reciprocity correlates with frequency of armed conflicts (civil or against other countries?). Social preferences correlate with volunteering.

## Global Behaviours and Perceptions in the Covid-19 Pandemic

* Summary: Our >100k participants think their governments aren't doing enough to combat COVID-19. This perception is associated with higher levels of worries and depression. Most respondents reacted strongly by engaging in social distancing and hygiene measures.
* Source: <https://psyarxiv.com/3kfmhhttps://covid19-survey.org/>
* Interesting variables re. Gvt’s perception:
  + perceivedreaction - Do you think the reaction of your country’s government to the current coronavirus outbreak is appropriate, too extreme, or not sufficient?
  + govtrust - How much do you trust your country’s government to take care of its citizens?
  + govfact - How factually truthful do you think your country’s government has been about the coronavirus outbreak
  + react pub appr - Do you think the reaction of your country’s public is appropriate, too extreme, or not sufficient?
  + perceivedeffectivnes - What do you think: How effective are social distancing measures (e.g., through a general curfew) to slow down the spread of the coronavirus?