

Analysis: Relationship between policy announcements and emergency response levels

Page purpose: This page summarizes our assessment of the relationship between policy announcements and emergency response levels

Analysis objective: can we find trends in the relationship between policy announcements and emergency response levels?

Analysis takeaways:

- We find that the WHO dataset is significantly different than the SUL dataset for Beijing and from the Solomon Hsiang dataset
- As a next step, we propose conducting a deep dive into the business closure information in the WHO dataset and also exploring the underlying data sources for Solomon's dataset

Links:

Code	policy-database / notebooks / explore-china-policy-databases.R
WHO data	World Health Organization Public Health and Social Measure policy database, updated as of 06 Oct 2020, available: policy-database / data / external / who-phsm / WHO_PHSM_Cleaned_V1_20_09_23.csv
Emergency Response data	Data collected by MIT SUL, the MassCPR emergency level database, available: policy-database / notebooks / clean-masscpr-emergency-db.R
Output data	policy-database / notebooks / outputs

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Tabular summary of policy announcements across regions, by Emergency Response Level

Validating the WHO dataset

We compared the WHO dataset to two other datasets that we regard having a higher level of quality control. Those datasets are :one: the MassCPR policy database overview built by MIT SUL over the summer of 2020 and :two: the dataset built by Solomon Hsiang in his publication The effect of large-scale anti-contagion policies on the COVID-19 pandemic

We find that the WHO dataset is significantly different than the SUL dataset for Beijing and from the Solomon Hsiang dataset.

Comparison to MassCPR dataset for Beijing

We compare all relevant policy announcements in the WHO dataset to the MIT SUL policy database for Beijing. We first compare these policy announcements at their highest level categories. If we find enough overlap, we will then make more granular policy comparisons

At the highest level, we find big differences in the number of policy announcements between WHO and SUL, even when we expand our scope to include broader regions or regions where we might expect more policy announcements

	WHO				SUL
Category	N_Beijing	N_Wuhan	N_China	N_total	N_Beijing

domestic travel	14	7	NA	21	19
gatherings	1	3	4	8	13
individual	3	1	3	7	11
international travel	16	2	32	50	NA
offi, busi, inst	8	3	10	21	66
school	7	1	10	18	5
special populations	NA	NA	1	1	NA
surveillance	6	6	9	21	NA

When we compare these datasets over time we observe similarly disparate outputs between the two datasets



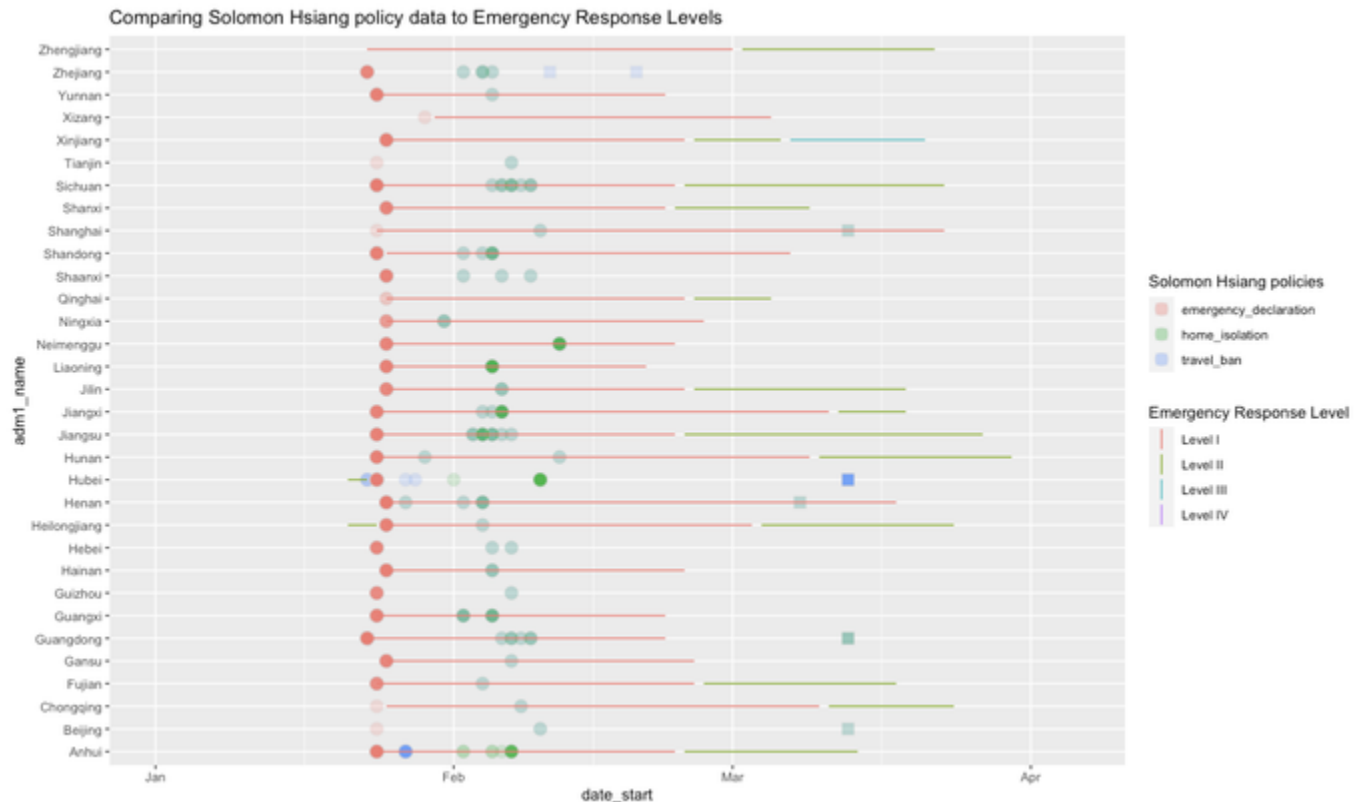
Comparison to Solomon Hsiang paper

Solomon Hsiang provides time-panel data for three broad policy types: Emergency declarations, home isolations, and travel bans. We clean this data and compare these start and end dates to announcements in the WHO data of policy announcements. Again, we do not find a strong correlation between these datasets



Solomon Hsiang also provides data at the city-level (each circle or square above is for a specific city). While in most cases the same policies are enacted across cities within a province, we see some scenarios where policies have variable rollout dates for home isolation policies.

While we do find a strong relationship between Solomon Hsiang's policy data and the start of Emergency Response Level 1, we do not see a similar relationship with his home isolation and travel ban policies



Appendix A: Notes and assumptions

1	<p>This analysis only includes announcements for provinces in China: <code>announcements = 206</code>, <code>provinces = 25</code></p> <p>This analysis excludes</p> <ul style="list-style-type: none"> • Announcements for all of China: <code>announcements = 69</code> • Announcements for specific cities or sub-regions: <code>announcements = 384</code>, <code>regions = 26</code> <ul style="list-style-type: none"> • Announcements for Hong Kong, Taiwan, Wuhan: <code>announcements = 285</code>
2	For all regions in the WHO database that are not provinces, all analyses are performed assuming that the emergency response levels are the same as those in <code>Beijing</code>
3	This analysis uses a 7-day buffer when looking at the overlap between policies and emergency levels. The implication of this is that if there is a policy announcement within 5 days of a change in emergency levels, that policy announcement will get included into both of the emergency level time periods. In total, this buffer duplicates 38 <code>policy announcements</code>
4	In the tabular analyses, <code>Level II Emergency Response Levels</code> that preceded <code>Level I Emergency Response Levels</code> (this occurs in 4 provinces), are distinguished from all other <code>Level II Emergency Response Levels</code> because they are considered to be significantly different environments

Appendix B: Policy databases considered

Policy dataset	Time range	Regional granularity	Geographic coverage	Policies	Cleaning required
Solomon Hsiang data	10 Jan 2020 - 06 Apr 2020	City-level	All provinces	travel ban (y/n), emergency declaration (y/n), home isolation (y/n)	Low
WHO Public Health and Social Measures	20 Jan 2020 - 07 Aug 2020	Province-level and city-level	Most provinces, some cities	High granularity	High
MIT SUL Beijing policies	01 Jan 2020 - 31 Jul 2020	City-level	Beijing only	High granularity	Low