

Applying ML to Study India's COVID-19 Policies



The nudge theory is known to be useful in effecting behaviour change. Using the nudge of 'nationalism' in the fight against COVID 19, the government of India was able to motivate its large population to abide by lockdown rules and basic health protocols (e.g. wearing of face masks and frequent handwashing).

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During the country's phase 1 lockdown (25 March-14 April 2020), "Prime Minister Narendra Modi's nudges were driving the COVID preparedness, action and mitigation strategies in the country," says a new study from the University of Cambridge (Debnath and Bardhan 2020).

As the pandemic was taking its toll on public health and the economy, PM Modi would make frequent public appearances, which were a key factor that created policy nudges. Notably, these nudges were critical in forming herd-effects on lockdown and social distancing norms across the nation of 1.3 billion people, the study points out.

With the help of machine learning (ML), study authors were able to examine how India's government formed reactive policies to combat coronavirus across its policy sectors. Data for this study was collected mostly from the Press Information Bureau (PIB) in the form of press releases about government policies, programme initiatives, and achievements from the different ministries.

From a total of 396 documents collected from the PIB, a text corpus of 260,852 words was created. An ML-based technique called topic modelling, using Latent Dirichlet Allocation (LDA) algorithm, was performed on the text corpus.

The application of LDA to identify policy nudges from government press releases defines the novelty of this study, according to the authors, noting that the integration of computational social science tools like the LDA for nudge identification and for channelising public behaviour in the wake of coronavirus outbreak expands the scope of machine learning and AI for public policy applications.

"We believe we are the first in applying LDA to account for the reactivity of COVID-19 induced public policy at multisectoral scale," the authors say.

Observing how the Prime Minister's nudges created the herd-effect across various policy sectors, the study reported these key findings:

- The nudges from electronics and IT-related policies were aggressive on tackling fake news in social media and keeping people indoors during the lockdown.
- The repeated telecast of popular '80s and '90s family-centred and religious TV shows were one of the distinct public policy nudges, as nostalgia became a powerful nudge to make the people stay at home.
- Extensive nudging was done to encourage the manufacturing sector to design and develop low-cost ventilators, personal protective equipment (PPE), masks and sanitisers.

Additionally, a similar herd-effect was observed around public health (e.g. wearing masks in public; yoga and Ayurveda for immunity),

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transportation (e.g. old trains converted to isolation wards), urban policies (e.g. drones, GIS-tools), home affairs (e.g. surveillance and lockdown), and education (e.g. online learning).

The authors conclude, "From a behavioural public policy perspective, the stochastic interpretation of the topic models through LDA derived critical policy heuristics that must be leveraged during the lockdown easing planning."

Source: [PLoS ONE](#)

Image credit: Debnath and Bardhan 2020

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