Capturing Dynamics in Online Public Discourse: A Case Study of Universal Basic Income Discussions on Reddit

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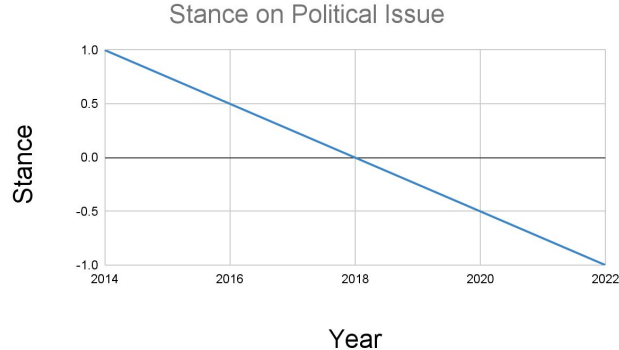* Work done while at the University of Toronto.

Societal change is often driven by *shifts in public opinion*.
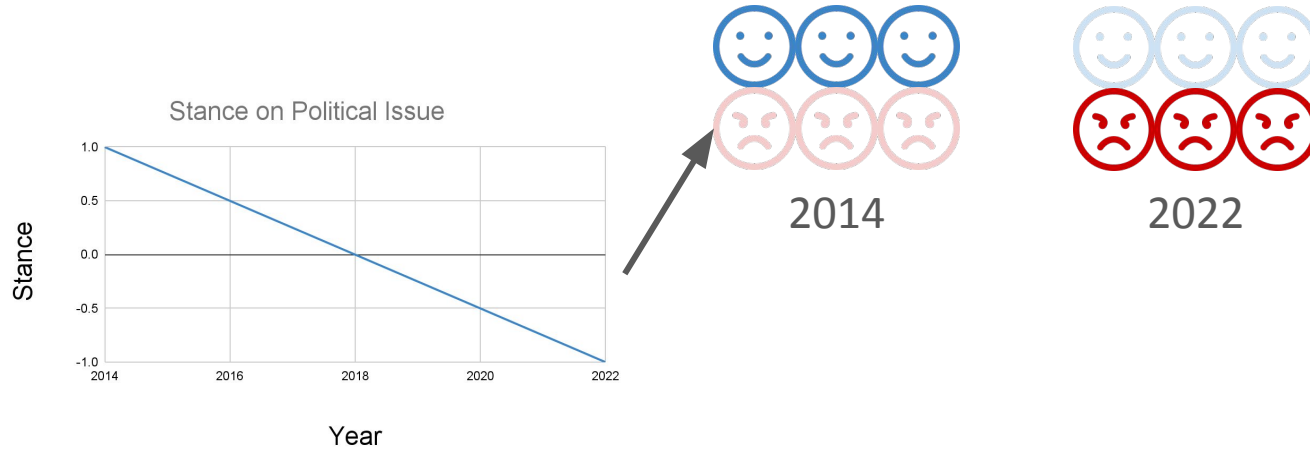
Overall trends in public opinion on *online platforms* can be driven by **different mechanisms**, with **important ramifications** depending on which is responsible.

Overall trends in public opinion on online platforms can be **driven by different mechanisms**.
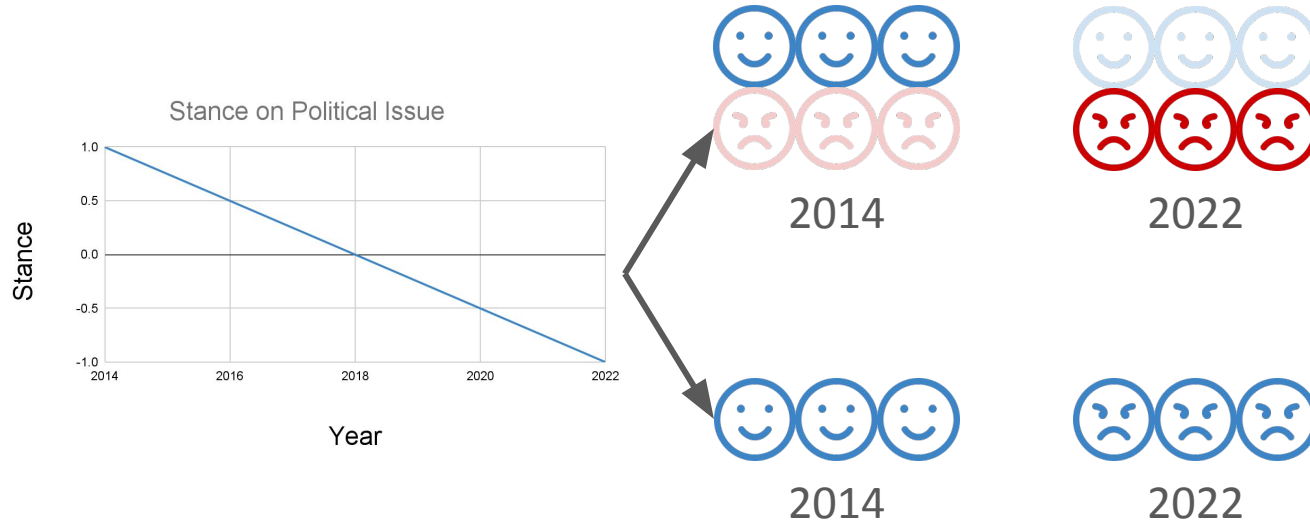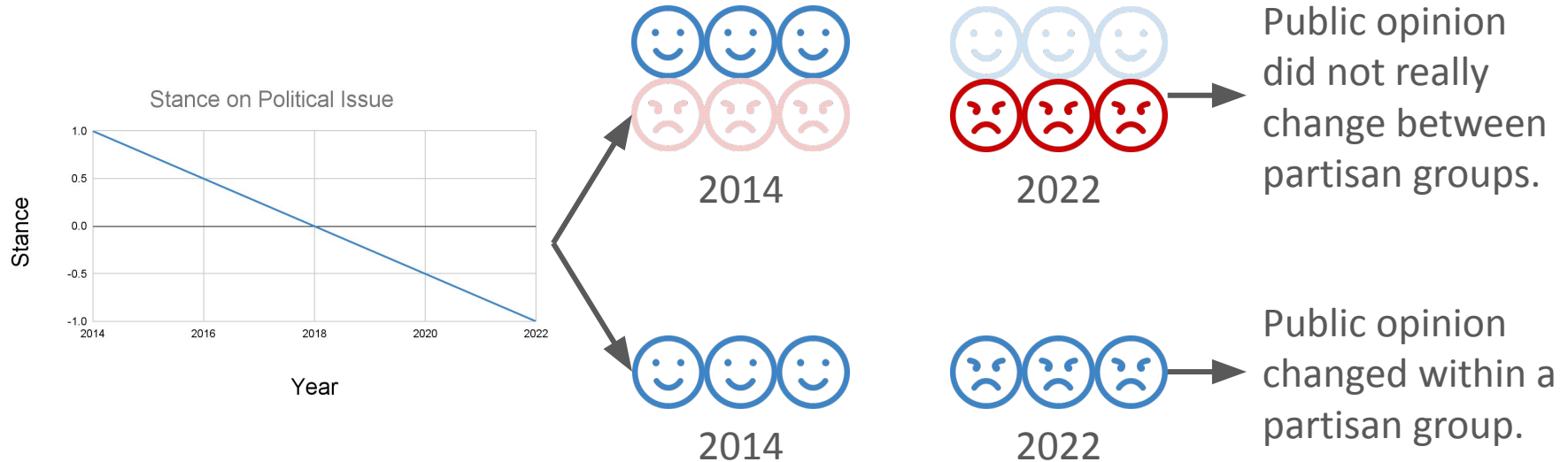

Stance on Political Issue

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Stance on Political Issue

2014   2022

Public opinion did not really change between partisan groups.

2014   2022

Public opinion changed within a partisan group.

We use a *case study* surrounding *Universal Basic Income (UBI)* to study the different mechanisms that drive overall trends in public opinion on online platforms.

Universal Basic Income (UBI): an unconditional, periodic cash payment provided to every citizen.

We chose UBI because it is a *clearly-defined policy proposal*, and has been brought-up in mainstream political discourse through trends such as *increased automation* and the *development of AI*, as well as the *COVID-19 pandemic*.

We use a *case study* surrounding *Universal Basic Income (UBI)* to study the different mechanisms that drive overall trends in public opinion on online platforms.

Using **1.2M UBI-related Reddit comments** from **January 2014 to June 2022**, we studied the following questions:

- *Why* do changes in public opinion on online platforms occur?
- Are changes **caused by shifts at the content-, user-, or community-level**?
- *Within* each of these potential drivers, **are changes caused by opinion or distribution shifts**?

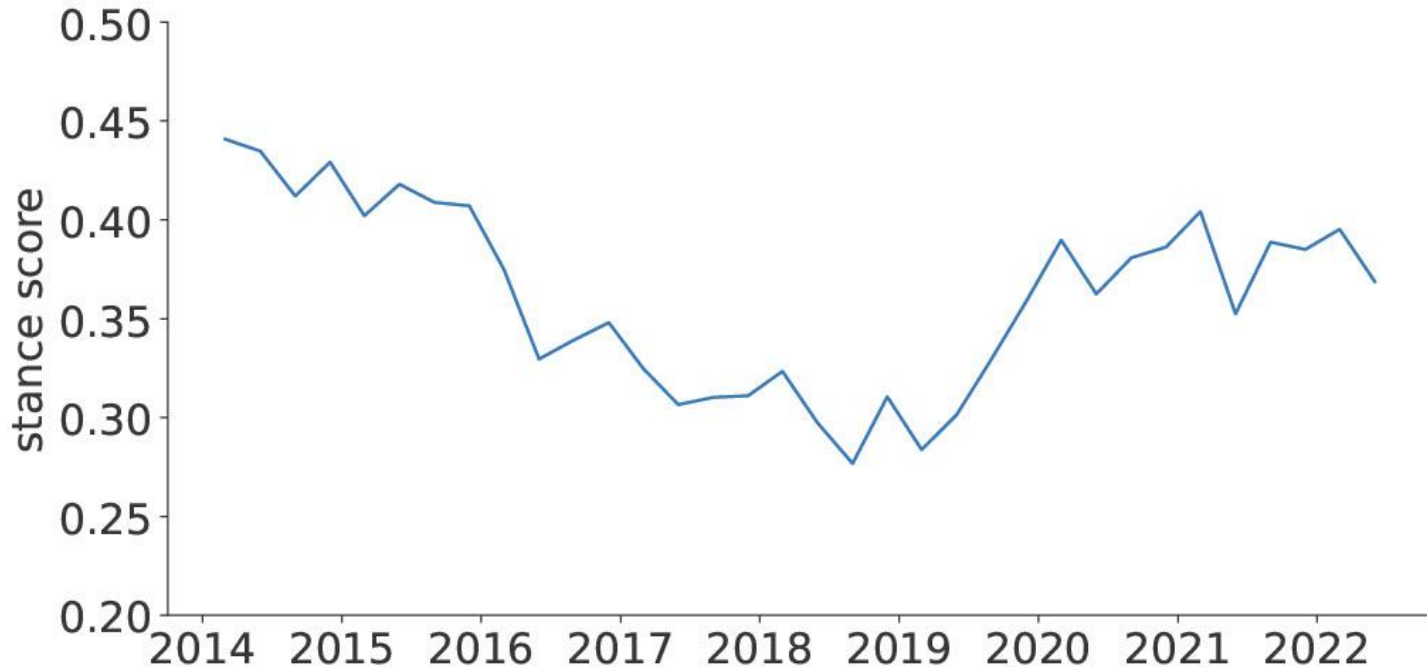We study *1.2M UBI-related Reddit comments* from *January 2014 to June 2022*.

Stance Detection: Using *LLMs*, each comment is labelled as being "supportive," "neutral," or "against" UBI.

Subtopic Detection: Using *LDA topic modelling* and *LLMs*, we extract 15 UBI subtopics from the entire set of comments.

Community Embeddings: Using previous work by Waller and Anderson (2021), we position each Reddit community along meaningful dimensions like partisan-leaning and affluence.

Supportive comments always **outnumber** those that are **against UBI**. Support *decreases* between June 2016 and March 2019, and *increases* between April 2019 and June 2022.
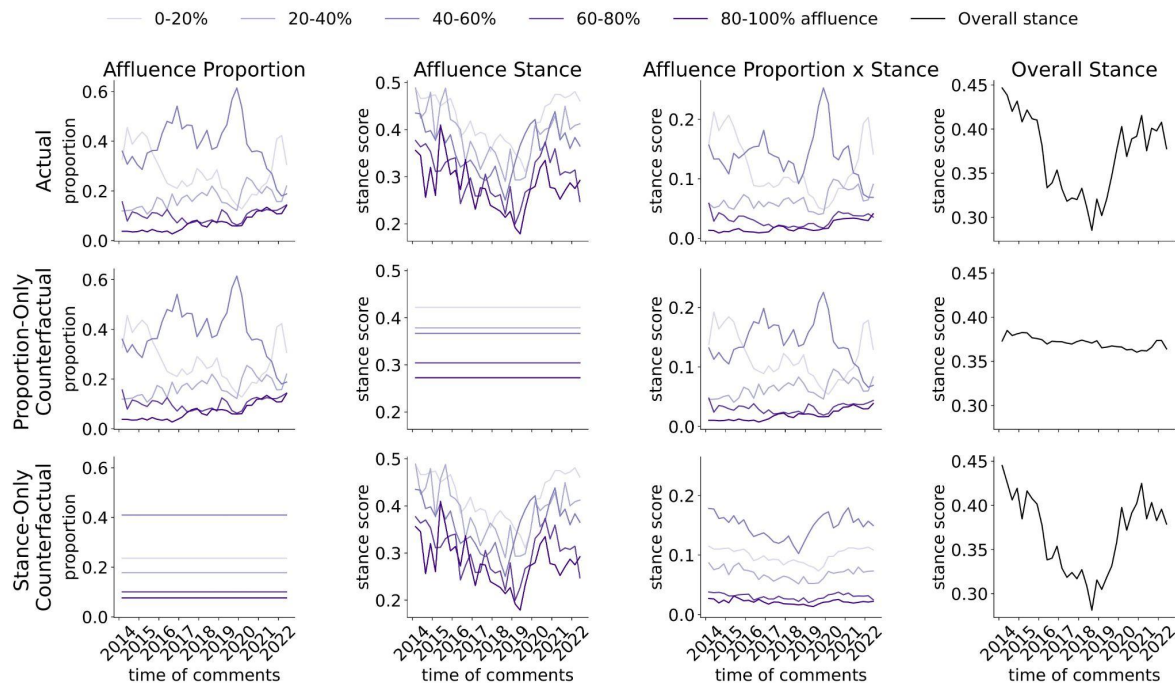
How did **community-level changes** contribute to **overall stance change on UBI?**

For **community affluence**, we test **two counterfactual scenarios**.

- **Proportion-Only Counterfactual:** a world where the stances of comments made by *communities with different affluence levels* are constant, while proportions vary as they did.
- **Stance-Only Counterfactual:** a world where the proportions of comments made by *communities with different affluence levels* are constant, while stances vary as they did.

Stance changes within communities with different affluence levels better explains overall stance shifts in UBI than proportion changes.

The stance-only counterfactual has **a higher Pearson r correlation with the empirical stance** than the proportion-only counterfactual.

We also test stance-only and proportion-only counterfactuals for the **subtopics**, **user cohorts**, and **community partisanships**.

We find that **stance changes within the content-, user-, and community-level are better at describing overall stance change on UBI than proportion changes**.

This signifies that **people's opinions on UBI have been changing over time**.

Our methodology helps **measure the drivers behind public opinion change on an online platform** in a *high-resolution* and *fine-grained manner*.

There has been a recent increase in calls for UBI by companies like OpenAI and countries like Switzerland. The analyses in our work provide several findings that can inform future policy.