Can BRI Win Minds and Hearts on Social Media?
Evidence from Twitter

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Outline

Motivation

- The Belt and Road Initiative (BRI)
  - grand strategy of China
  - growing from its roots in a Kazakh university speech to a worldwide initiative, involving 153 countries as of 2023
  - encompassing 50% of global GDP and 70% of the world's population as of 2020 (Garlick, 2020)

- Dual Objectives (Chan et al., 2022; Shambaugh, 2020) :
  - hard power: boost internal and external economic growth (Lall and Lebrand, 2020)
  - soft power: improve international influence and image, a crucial yet understudied aspect of BRI

Motivation

- The BRI Paradox: Divergent Global Perceptions

  - win-win opportunity, catalyst for cul&tech exchanges and modernization (Haggai, 2016; Shah, 2016)

  - debt trap, strategic threat and economic colonisation (Van Noort and Colley, 2021; Rajah, Dayant and Pryke, 2019)

  - digital amplification: social media as key battleground; challenges for China's soft power projection in a hyper-mediatized world (Page, 2018)

- *One Initiative but mixed images, how to explain the variation?*

  - theoretical: advancing understanding of soft power dynamics in digital age

  - policy: informing China's strategic communication to win minds and hearts

Outline

Soft Power Under BRI

- Soft Power: Conceptual Evolution

    - the ability to shape what others want by being attractive (Nye, 1990)

    - power by means of cultural, political ideas and foreign policies rather than imposing coercive force (Nye, 2004)

    - strategic turn of soft power in the digital age (Nye, 2023)

- More Complicated: Digital Transformations

    - networked: complex web of state and non-state actors; agenda-setting and reverse agenda-setting

    - real-time: rapid diffusion and feedback loops

    - interactive: co-creation and contestation of narratives

BRI's Soft Power Paradox: Competing Perspectives

- Buy Influence:
    - economic statecraft and public diplomacy (Yağcı, 2018)
    - narratives of BRI as public good shape positive (Ittefaq, Ahmed and Martínez Pantoja, 2023)

- Trojan Horse:
    - BRI triggers anxiety, threat perceptions (Wang, 2016)
    - debt-trap accusations undermine legitimacy (Rosenberg, 2022)

- Missing Link:
    - increased material capabilities $\neq$ Automatic soft power gains
    - dependent on alignment with norms and expectations of target audiences
    - social media diffuses and complicates soft power, loose boundaries

Measurement of Soft Power:

- Easy to touch, hard to measure

- Qualitative Analysis:
    - studies focused on single or few countries, lack of systematic view
    - vivid but not generalizable, indicators hard to operationalize given intangible nature

- Quantitative analysis:
    - media data: GDELT (official attitude rather than public opinion)
    - cross-country surveys: Pew Research Data or Soft Power 30 Index (most Global South countries have not yet been researched; manipulative results; high costs)

Outline
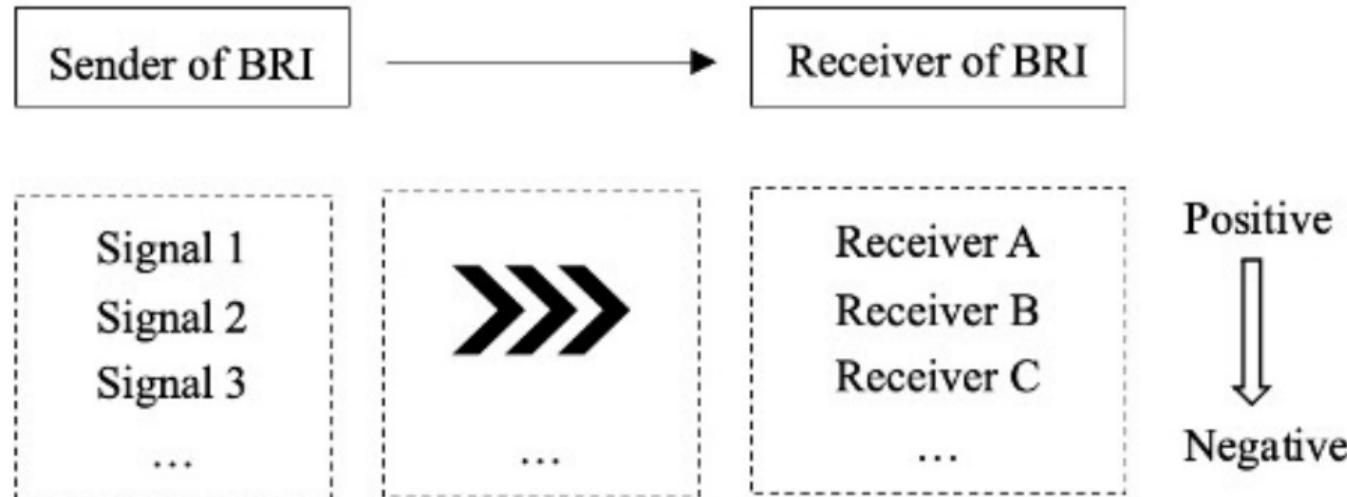
Argument:

- Conceptualizing soft power in BRI context

- multidimensional:
  - BRI as economic, political, cultural, and normative toolkit
  - E.g., Infrastructure (economic) vs. Health Silk Road (social)

- heterogeneous:
  - differentiated resonance with diverse audiences
  - E.g., Developed vs. Developing countries; Political elites vs. General public

- two-way dynamic:
  - not unilateral projection, but interactive co-construction
  - the process is a complex black box

Argument:
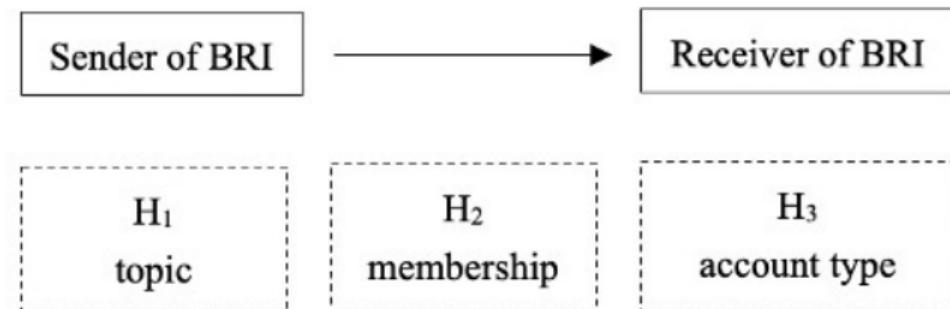
- Conceptualizing soft power in BRI context

- multidimensional, heterogeneous, two-way dynamic

Argument:

- Use Twitter as data source to integrate global perceptions
  - open access, low cost
  - wide coverage
  - free report
  - real-time capture
  - fine-grained measurement

- However
  - selection bias of user demographics (e.g., more educated, urban)
  - noise and manipulation (e.g., bots, trolls)
  - representativeness for general population: findings interpreted as Twitter users' views rather than entire societies'

Hypotheses:

- H1 Low political BRI tweets are more positive than high political BRI tweets

- H2 Tweets from BRI participating countries are more positive than non-participating countries

- H3 BRI tweets form grassroots are more positive than political elites

Outline
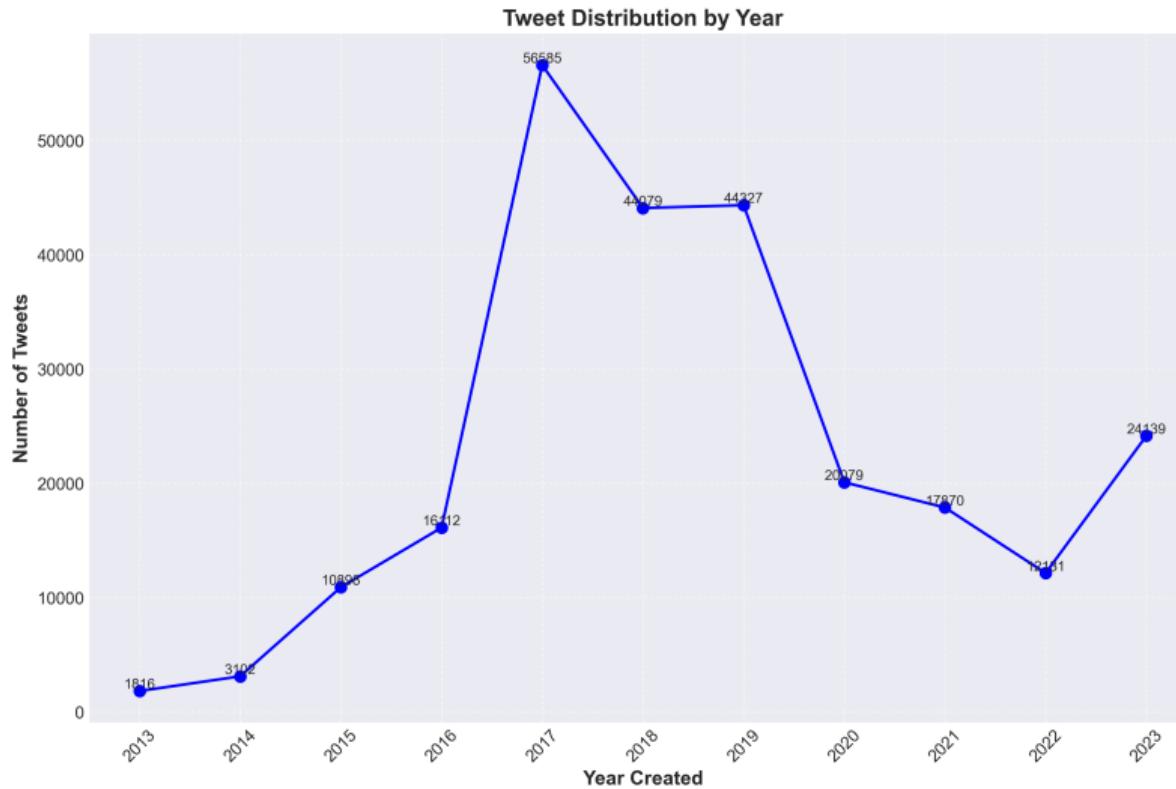
Research Design: A Novel Dataset

- Data Collection and Processing:
    - Queried Twitter's Academic API (and data scraping) for BRI-related tweets from Sep 2013 to Dec 2023
    - Search keywords: "the Belt and Road", "One Belt One Road" and "the New Silk Road" as well as common hashtags - #beltandroad, #obor, #bri, and #beltandroadinitivative
    - Initial data cleaning: removing duplicates, non-English tweets, irrelevant content
    - Final dataset: 421898 unique tweets from 107461 users
    - Geo-tagged subset: 251179 tweets from 63986 users
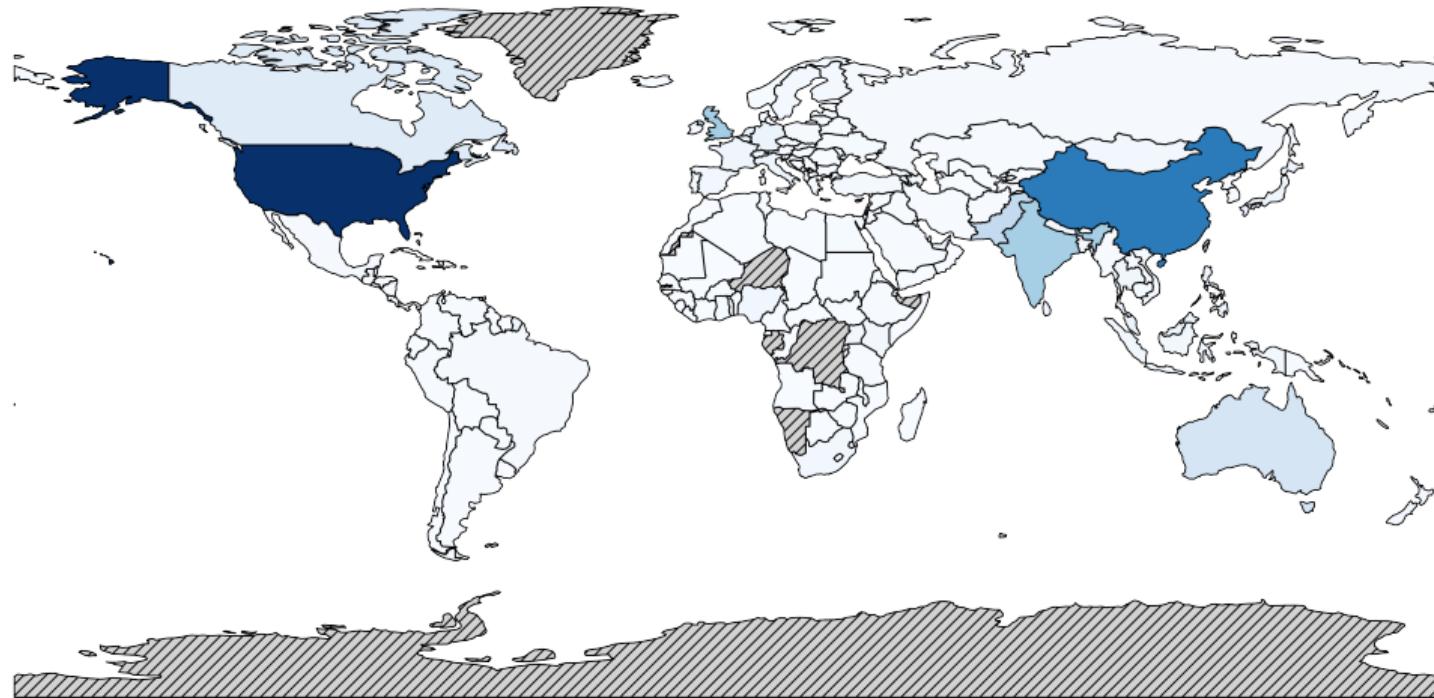
Research Design: A Novel Dataset

Tweet Distribution by Year
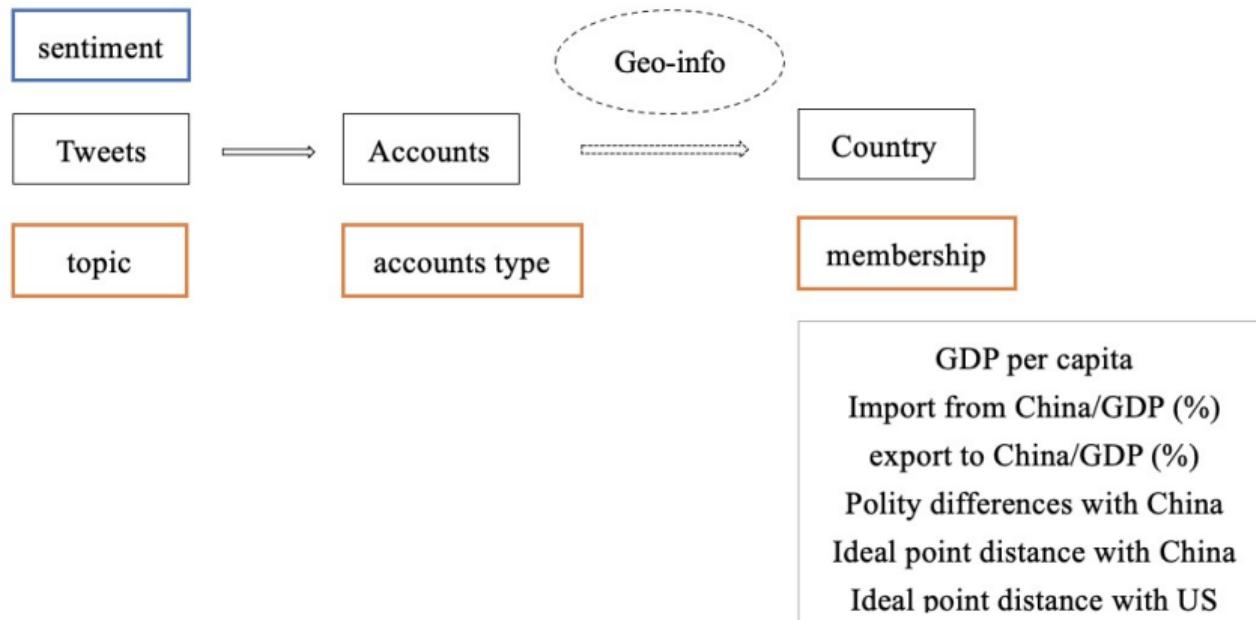
Spatial Distribution of Tweets by Country

- Variables: nested data structure


```
┌──────────┐              ╭ ─ ─ ─ ─ ─ ╮
│ sentiment │             (  Geo-info  )
└──────────┘              ╰ ─ ─ ─ ─ ─ ╯

┌──────────┐    ┌──────────┐      ┌──────────┐
│  Tweets  │ ⟹ │ Accounts │ ⟹⟹ │ Country  │
└──────────┘    └──────────┘      └──────────┘

┌──────────┐    ┌──────────────┐   ┌──────────────┐
│  topic   │    │ accounts type │  │  membership  │
└──────────┘    └──────────────┘   └──────────────┘

                    ┌────────────────────────────────┐
                    │        GDP per capita          │
                    │  Import from China/GDP (%)     │
                    │    export to China/GDP (%)     │
                    │  Polity differences with China │
                    │  Ideal point distance with China │
                    │  Ideal point distance with US  │
                    └────────────────────────────────┘
```

Research Design: Variables

- Variables: data source

Dependent variable	sentiment of tweets	Positive; Neutral; Negative	NLP sentiment analysis; human coding; LLM
Independent variable	topic of tweets	Politics; Economy; Culture and technology; Society; Environment; Covid-19 and General discussion	LDA topic modeling; human coding; LLM
	BRI membership	BRI participant countries (China); non-BRI participant countries	human coding
	account type of tweets	Official account; Media account; Enterprise account; Academic account; General user; as well as Social organization and elite	human coding; LLM
Control variable	GDP per capita		WB dataset
	Import from China/ GDP (%); export to China/ GDP(%)		WB dataset
	Polity differences with China		Polity IV Project dataset
	Ideal point distance with China; Ideal point distance with US		UN General Assembly voting dataset

Research Design: Information Inference

- Use Language Models (GPT3.5-turbo-0125) for inferring Geolocation, User, Topic, and Sentiment in Tweets

    - Konwledge pool + Human-coding experience + Self-report information

    - Contextual Understanding: Captures nuanced meanings for better geolocation and user inference

    - Accuracy: Advanced tokenization and fine-tuning enhance precision.

    - Scalability: Efficiently handles large tweet volumes; Reduces manual effort through automation

Research Design: Information Inference

```
# [to infer sentiment]
Below is a list of Twitter text details, each row containing row ID, user's country, username, and
[row ID] Sentiment Score; Reason
[row ID] Sentiment Score; Reason

Sentiment Labelling Guidelines:
General guidelines:
- The sentiment label should reflect the stance/sentiment of the author rather than face value.
- Keywords can sometimes be misleading as the author of a tweet may quote someone they disagree wit
or use rhetorical devices such as sarcasm to convey their stance and message to their audience.

1. Label "1" for Positive Tweets:
- Tweets that express appreciation, praise, or support for the Belt and Road Initiative (BRI)
2. Label "0" for Neutral Tweets:
- Tweets that present a balanced view, factual information, or are unrelated to BRI
3. Label "-1" for Negative Tweets:
- Tweets that show criticism, concern, fear, etc. about BRI

Twitter text details:
Xxx
Xxx
```

# Outline
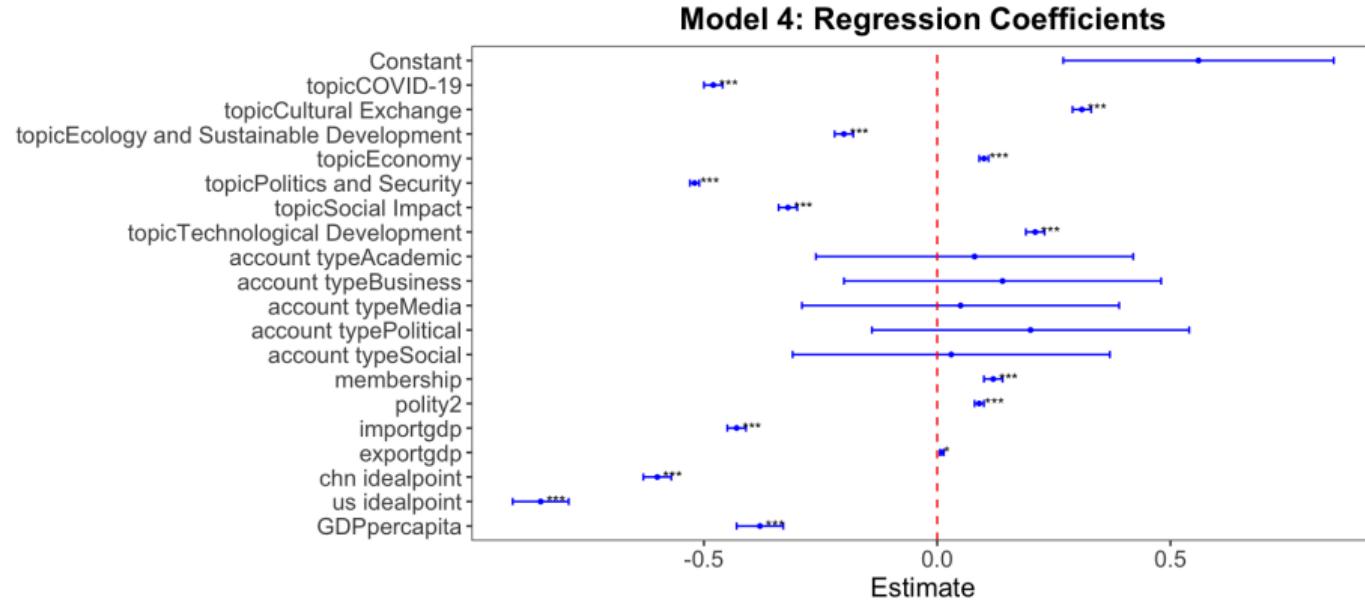
Key Findings

```
============================================================================
                                            Dependent variable:
                                  ------------------------------------------
                                                    sentiment
                                  ------------------------------------------
                                     (1)        (2)         (3)        (4)
----------------------------------------------------------------------------
Constant                          0.49*** (0.15)  0.47** (0.22)  0.83*** (0.24)  0.56* (0.29)

topicCOVID-19                     -0.49*** (0.02)                              -0.48*** (0.02)
topicCultural Exchange             0.31*** (0.02)                               0.31*** (0.02)
topicEcology and Sustainable Development -0.20*** (0.02)                        -0.20*** (0.02)
topicEconomy                       0.10*** (0.01)                               0.10*** (0.01)
topicPolitics and Security        -0.52*** (0.01)                              -0.52*** (0.01)
topicSocial Impact                -0.32*** (0.02)                              -0.32*** (0.02)
topicTechnological Development     0.21*** (0.02)                               0.21*** (0.02)

account_typeAcademic                           0.10*** (0.01)                   0.08 (0.34)
account_typeBusiness                           0.21*** (0.01)                   0.14 (0.34)
account_typeMedia                              0.03*** (0.01)                   0.05 (0.34)
account_typePolitical                          0.18*** (0.01)                   0.20 (0.34)
account_typeSocial                             0.02 (0.01)                      0.03 (0.34)

membership                                                   0.22*** (0.02)    0.12*** (0.02)

polity2_filled                     0.10*** (0.01)  0.16*** (0.01)  0.15*** (0.01)  0.09*** (0.01)
importgdp_filled                  -0.41*** (0.02) -0.67*** (0.02) -0.69*** (0.02) -0.43*** (0.02)
exportgdp_filled                  -0.01*** (0.003) -0.01*** (0.003) 0.03*** (0.005)  0.01** (0.004)
chn_idealpoint_filled             -0.59*** (0.03) -0.65*** (0.03) -0.68*** (0.03) -0.60*** (0.03)
us_idealpoint_filled              -0.65*** (0.05) -0.83*** (0.06) -1.19*** (0.06) -0.85*** (0.06)
GDPpercapita_filled               -0.34*** (0.05) -0.56*** (0.05) -0.61*** (0.05) -0.38*** (0.05)
----------------------------------------------------------------------------
Model                               Model 1       Model 2       Model 3       Model 4
Observations                        86,131        86,131        86,131        86,131
Log Likelihood                     -88,996.74    -95,196.30    -95,140.39    -88,984.11
Akaike Inf. Crit.                  178,027.50    190,422.60    190,302.80    178,014.20
Bayesian Inf. Crit.                178,186.70    190,563.10    190,405.80    178,229.60
============================================================================
Note:                                                   *p<0.1; **p<0.05; ***p<0.01
```

Key Findings

Model 4: Regression Coefficients

Key Findings

- Topic Framing Matters

    - Negative frames: COVID-19, Ecology and Sustainable Development, Politics and Security, Social Impact

    - Positive frames: Cultural Exchange, Technological Development, Economy

- Participant-Nonparticipant Divide

    - BRI participants express more positive sentiment: partly explained by vested interests

    - Non-participants, esp. US-aligned states, more skeptical: reflecting threat perceptions and balancing motives

- Account Type Does Not Significantly Influence Sentiment

Key Findings

- Socioeconomic Conditions Shape Reception

  - Higher development level $\rightarrow$ More negative sentiment: Complicates "win-win" narrative

  - Trade dependence has mixed effects: export ties boost positivity, import reliance breeds caution

- Domestic Institutions Filter Perceptions

  - Democracy linked to more positive sentiment: suggests openness to engagement

  - Ideology and geopolitical alignment drive skepticism: US-leaning states more critical of BRI

Implications and Future Directions

- Theoretical Contributions:
  - Advances a multi-dimensional, context-contingent understanding of soft power in the digital era
  - Problematizes linear, unidirectional conceptions of soft power projection

- Methodological Innovations:
  - Pioneers a data-driven, multi-level approach to measuring soft power perceptions at scale
  - Validates the utility of language models for complex social scientific inference tasks

Implications and Future Directions

- Policy Implications:
    - Underscores the importance to tailor BRI to specific audiences and issues
    - One-size-fits-all messaging likely to fail given diverse interests and concerns
    - Highlights the double-edged nature of economic statecraft in an interconnected world

- Future Research Directions:
    - Incorporate more languages, platforms, and time periods for robustness
    - Explore potential interaction effects between variables
    - Revisit and engage with more interesting topics like misinformation and strategic narrative
    - Develop interactive dashboard to visualize evolving BRI dynamics

Thank you!
Questions & Comments?

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