Neutral, non-disruptive, and native:
Why do Chinese nonprofit scholars cite English articles?

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# Neutral, non-disruptive, and native:
## Why do Chinese nonprofit scholars cite English articles?

**Abstract**

Language shapes diverse cultures and creates natural barriers between human societies. The landscape of nonprofit and philanthropic studies in non-English languages is barely charted, impeding the globalization of this research field. This project (1) describes the topics shared between English and Chinese scholarship on nonprofits and philanthropy and (2) explores why English scholarship is cited in Chinese journal articles from five aspects: *rationale of scholarship*, *novelty*, *relevance*, *social network*, and *reputation*. The English articles cited by Chinese scholars tend to: (1) focus on instrumentality but not expressive values, (2) develop rather than disrupt existing paradigms, and (3) be relevant to topics popular in the Chinese literature and have authors with Chinese scholarly connections. In general, Chinese scholars tend to cite English articles that are value-*neutral*, *non-disruptive*, and *native*. Theoretical and methodological implications for examining nonprofit studies in other languages are discussed.

*Keywords*: comparative; nonprofit and philanthropic studies, knowledge production, sociology of knowledge, computational social science, multilingual topic modeling, social network analysis

# Introduction

The social sciences aspire to provide a shared understanding of human society, but scholarship does not move as easily across linguistic boundaries as we might hope. Languages create diverse cultures and moral communities, yet they can impede the sharing of ideas.

The status of English as an international language of science and humanities has been well documented, and English is widely used by academic communities (Tardy, 2004). However, the dominance of English in academia can deflect attention from other non-Anglophone countries and researchers (Ferguson et al., 2011; Gomez et al., 2022; Salager-Meyer, 2008). Social scientists have only recently started addressing these challenges, thanks in part to advances in open science and computational linguistics. For example, Linkov et al. (2021) created a Linguistic Diversity Index to encourage citing articles in less widely used languages. Chinese and Korean scholars have studied how Western literature is used by scholars who publish in their respective languages (Gong et al., 2019; Shin et al., 2021).

In nonprofit and philanthropic studies (NPS), scholarly communities have spread globally but extremely unevenly. Smith (2013, pp. 641–643) estimated that dozens of national and international academic associations were contributing to this research field, but the majority were in a handful of developed countries. Of the top three countries, the United States and the United Kingdom each accounted for 19%; France, for 8%. The geographic concentration of scholarship published by core journals in the field is even more striking—over 60% of the papers were written by authors in the US, followed by Canada (5%) and the UK (4%), all of which are Anglophone countries (Ma & Konrath, 2018, p. 1146).

A few notable but sporadic efforts to globalize research and education on the nonprofit sector have emerged in the past few years. For example, Zhang and Guo (2021b) reviewed the Chinese-language scholarship on nonprofit-government relations, An et al. (2022) mapped the core research themes of nonprofit studies in Korean, and Mirabella et al. (2022) convened the study of nonprofit education in non-Western and non-English speaking countries. However, given

the importance both of building a mutual understanding of "civil society" in an increasingly polarized world and of diversity in this research field, the examination of nonprofit studies in non-English languages is still woefully lacking.

This study aims to fill this gap by exploring why NPS articles written in one language are cited by the literature in another language. Specifically, I focus on the knowledge interactions between English and Chinese language communities.[1] I found that Chinese NPS scholars cite a substantial body of English literature as their knowledge base to build their research, and these English references tend to be value-*neutral* and *non-disruptive* to existing research paradigms, and to focus on *native* contexts. Methodologically, this study also shows that, with the help of state-of-the-art multilingual language models, exploring the knowledge interactions between scholarship in different languages is an exciting and promising direction. Finally, this study calls for a social constructionist approach to theorizing the sector and defining the research field, an endeavor that is conceptually inclusive, methodologically feasible, and theoretically indispensable.

## The use of knowledge across language communities

Why is the knowledge produced in one language community cited by another? Scholars suggest two major perspectives for examining the causes: (1) a *substantive perspective*, which emphasizes the rationale of scholarship and domain knowledge, and (2) a *meta-science perspective*, which focuses on bibliographic patterns, such as author reputation and the structure of coauthor network (Bornmann & Daniel, 2008; Tahamtan & Bornmann, 2018, 2019; Tahamtan et al., 2016). From each perspective, existing studies suggest major contributing factors.

***Substantive perspective: Scholarship rationale.*** Scholars explore the activities of nonprofits and philanthropy in different societies primarily through two epistemological lenses: a *positivist*

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[1]Studying the sharing of knowledge between English and Chinese communities should examine citations from two directions (i.e., how English articles cite Chinese, and how Chinese articles cite English). In reality, English articles are often cited in Chinese literature, but they barely mention Chinese references (such citations counted using a random sample of our dataset equals almost to none). Therefore, this study only explores how English articles are cited in Chinese scholarship, which is a limitation in the present and a direction for future studies.

view, which justifies and rationalizes functions and utilities, and an *interpretivist* view, which contextualizes nonprofits and philanthropy within their historical and cultural environments. Depending on epistemological stance, scholars may focus on either an instrumental or an expressive role of the nonprofit sector in society (Frumkin, 2002, pp. 22–23). The *instrumental rationale* takes a positivist worldview and treats nonprofits and philanthropy as means to accomplish important tasks in a society. It explores the objective characteristics of the subjects in question. The *expressive rationale* takes an interpretivist stance, treating nonprofits and philanthropy as demonstrating spiritual values, commitments, or social norms residing in a moral community. Rejecting the prevailing conception of universality, the expressive rationale stresses indigenous perspectives and local historical and cultural contexts.

    ***Meta-science perspective: Bibliographic patterns.*** An article might be referenced by scholars for many reasons beyond its knowledge contribution and quality (which are also hard to define). The reasons can be journal-dependent. For example, articles published in prestigious journals are more likely to be cited (e.g., van Dalen & Henkens, 2005). They can also be institution-dependent. For example, articles written by scholars in higher-ranking universities are more likely to receive attention. The bibliographic choices usually operate independently of domain knowledge and substantive research area and can be grouped into four principal categories: *research novelty*, *reputation*, *research relevance*, and *scholarly networks* (Bornmann & Daniel, 2008; Tahamtan & Bornmann, 2018, 2019; Tahamtan et al., 2016).

    The subsections below review the above factors in detail.

## Scholarship rationale

How are the two scholarship rationales presented in nonprofit comparative scholarship? We first need to review the major scholarly efforts. From a comparative perspective, scholars in this research field have initiated numerous projects to understand the nonprofit sector and philanthropy in different societies. Anheier et al. (2020) and Wiepking et al. (2021) suggest that these projects can be grouped into two primary streams: the *comparative nonprofit sector*

research line, which tries to understand the similarities and differences in the reasons why nonprofit organizations exist in different countries; and the research line of *comparative philanthropic and prosocial behavior*, which studies giving and altruistic behaviors in different cultures. Online Appendix A reviews the publications of the two streams in detail, and Table 1 lists selected publications by geographic region.

The two streams of scholarship share two important rationales: should nonprofits and philanthropy be treated as instrumental means to accomplish important tasks in a society (i.e., instrumental rationale), or do they demonstrate expressive values and social norms (expressive rationale)? Articles with an instrumental focus emphasize universal characteristics and frameworks that are value-neutral across cultures (e.g., educational level, income, and government expenditure). The English-language scholarship with an expressive rationale, on the other hand, discusses moral values or social norms that may be inapplicable to, or even rejected by, researchers in other societies (e.g., Fowler, 2021). As the table shows, a shared theme of works applying expressive rationale across different societies is to interpret indigenous conceptions of nonprofits and philanthropy instead of mechanically applying prevailing theories.

Given their apparent universality, we might expect that articles with an instrumental rationale are more likely to be cited across language communities because of their supposedly wider applicability.

## Bibliographic patterns

***Research novelty: Developing and disrupting.*** From a Kuhnian perspective, a study's novelty can be measured in terms of the degree to which it develops or disrupts existing research paradigms (Kuhn, 1970). According to this viewpoint, scholarship often accumulates based on existing research paradigms—the so-called "normal-science" phase of knowledge production. However, existing theories can be disrupted by novel studies that offer new frameworks instead of developing existing ones. Scholarly articles across all disciplines are reported to be less disruptive over time (Park et al., 2023).

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Table 1: TYPES AND RATIONALES OF SELECTED COMPARATIVE SCHOLARSHIP BY GEOGRAPHIC FOCUS

| Reference | Type | Rationale | |
|---|---|---|---|
| | | Instrumental | Expressive |
| *Africa* | | | |
| Obadare and Krawczyk (2021), special issue. | CNS/CPP | | Call for a reconceptualization of civil society and philanthropy in Africa using indigenous perspectives. |
| Fowler and Mati (2019) | CPP | | Reconceptualize philanthropy according to Africa's unique history, culture, and governance structure. |
| Everatt et al. (2005) | CPP | The extent and character of giving: who gives, to whom, with what intention? | |
| *China* | | | |
| Zhang and Guo (2021a), special issue. | CNS/CPP | The state's prevailing role in nonprofit-facilitated community reconstruction after disaster and in influencing private donations to nonprofits. | Research on nonprofits in China is susceptible to political interference and lacks indigenous perspectives. |
| Yang and Wiepking (2021) | CPP | Compulsory donations crowd out voluntary giving. | |
| Bies and Kennedy (2019), special issue. | CNS/CPP | The state plays a dominant role in social services, collaboration, and the sector's development. | Theoretical and normative implications of the sector's development in non-democratic countries. |
| *India* | | | |
| Syal et al. (2021) | CPS | | How civil society organizations navigate and make an impact in their relationship with the state, rather than focusing on the crackdown on freedom and simple view of co-optation. |
| Sen et al. (2020) | CPP | Individual and household characteristics that influence giving. | |
| Ebrahim (2001) | CPS | | The sector is heavily influenced by its surrounding discourses of international development; local NGOs can also challenge and adapt certain discourses. |
| *Japan* | | | |
| Haddad (2011) | CNS | A state-in-society approach can better explain complex state-society relations in social welfare service provision in diverse cultural contexts. | |
| Taniguchi (2010) | CPP | | Local religiosity and social capital are strong predictors of volunteering. Distant and immediate social ties may influence volunteering differently. |
| James (1986, 1987) | CNS | Economic analysis of nonprofits' service provision in education. | |

*Note*: CNS = Comparative nonprofit sector studies. CPP = Comparative philanthropic and prosocial behavior studies. See Appendix A for details.

The Chinese scholarly community may prefer to cite English classics that are developing rather than disruptive. Zhang and Guo (2021b, p. 87) found that the Chinese scholarship on nonprofits largely applies only Western theories, thus serving as "a testing ground for theories and

concepts derived from realities in the West." In comparison to works citing disruptive studies, those citing developing references can enjoy a broader audience and are less likely to be criticized by reviewers. In an academic system where publication quantity rather than originality governs ranking, Chinese scholars need to play on the safe side (Peng, 2011).

*Reputation.* An English article may be cited by a Chinese scholar simply because the article itself is a well-known classic—a "concept marker" or "exemplar citation" (Shadish et al., 1995, p. 482; Case & Higgins, 2000, p. 642). The reputation of author and institution can also increase citations of an article, and older articles have more chances to garner citations (Amara et al., 2015; Clemens et al., 1995).

*Research relevance.* Scholarship gets cited because it is relevant. If an English article is pertinent to a popular research topic within the Chinese community, the article is more likely to be cited than other less pertinent literature. Therefore, an article's thematic relevance to Chinese research topics is of interest to us. Given that citation is also field-dependent (i.e., papers on topics with more publications are more likely to be cited; King, 1987, p. 265; Moed et al., 1985, p. 141), we also need to consider topic size.

*Social networks.* Scholars cite for social reasons, too. Researchers tend to cite those with whom they are familiar, and citations become reciprocal over time (Mählck & Persson, 2000; White, 2001). We can expect that scholars with more Chinese coauthors are more likely to be mentioned by their Chinese colleagues, and by the Chinese scholarly community in general. Therefore, I consider an author's social closeness to the Chinese scholarly community. Following the same rationale, scholarly embeddedness (i.e., the number of a scholar's total coauthors) and team size (i.e., the number of an article's authors) should also be considered because well-connected researchers and articles are more likely to be cited.

## Guiding research questions and contributions

Motivated by the puzzle why Chinese-language NPS scholarship cites some English articles more than others, this paper explores the knowledge interaction between different language

communities and makes three contributions: 1) exploring what are the shared research interests between Anglophone and Sinophone academic communities, 2) understanding what drives the sharing of English scholarship among Chinese NPS scholars, and 3) serving as a stimulus for extending similar inquiry to other languages, building the methodological foundation for the Nonprofit Studies in Many Languages project. Given this study's exploratory nature, I use a set of open questions below to guide my inquiries rather than confining to the formal hypotheses in the preceding sections.

1. What are the characteristics of the English articles cited in the Chinese literature? (subsections "Overall publication and citation trends" and "Research novelty of cited English articles" in Results)

2. What are the shared research interests, and what are the English knowledge bases for developing nonprofit scholarship in Chinese? (subsection "English articles as a knowledge base for Chinese scholarship" in Results)

3. What factors influence the citation of English-language articles in Chinese literature? (subsection "Predicting cross-language citations" in Results)

4. What are the theoretical and methodological implications for studying scholarship in other languages? (subsection "Toward 'Nonprofit Studies in Many Languages' " in Discussion)

# Methods

There are typically five types of knowledge production studies, as Appendix Table E6 summarizes. (1) *Sociology of knowledge* studies focus on social process and mechanisms. (2) *Meta-science* studies mainly consider bibliometric patterns. (3) *Literature review* and (4) *Meta-analysis* studies aim to summarize and build consensus about existing findings on a specific research topic. (5) *Disciplinary development* studies focus on the intellectual maturation of a research field. Different types of studies often share research methods. However, the first two types usually intend to uncover the common patterns in knowledge production and are independent of domain expertise, while the latter three types are linked to substantive research areas.

This study takes a *disciplinary development* approach to advance our understanding of this field's development in different linguistic communities. It builds on curated datasets from or according to existing studies (Ma, 2022; Ma & Bekkers, 2023; Ma et al., 2021; Smith, 2013; Walk & Andersson, 2020). It also applies advanced and novel computational methods such as network analysis and multilingual topic modeling in natural language processing. Given this study's complexity and computational nature, its publication consists of three components. (1) The main text introducing theoretical background, empirical analysis, and discussion is published as a regular journal article and speaks to a wide range of readers regardless of their methodological background. (2) The appendix published online includes more technical details and guidance for replication. (3) The code scripts hosted on the Open Science Framework (https://osf.io/nyt5x/) provide the source codes for replication and reuse in future studies or teaching. To assist code review and verification, results in the main text and appendix are linked to specific code blocks using unique IDs.

## Datasets

It is challenging to gather comprehensive datasets that represent knowledge about nonprofits and philanthropy in English and Chinese languages. Below I briefly introduce the three datasets for this study; Table 2 lists the datasets' roles in operationalizing variables. Appendix B.1 furnishes technical details about how each dataset was compiled.

*Set A: Nonprofit scholarship in the Chinese language.* This dataset consists of the bibliographic records of 12,869 Chinese peer-reviewed journal articles on nonprofits and philanthropy published from 1998 to 2018.[2] The records were generated by searching for relevant keywords within articles' titles, keywords, and abstracts in the Chinese Social Sciences Citation Index database. Appendix B.1.1 has details.

*Set B: English-language references cited by Chinese NPS articles.* This dataset consists of the bibliographic records of 10,307 English-language references cited by the articles in *Set A*. The majority of these English references are peer-reviewed journal articles, but the set also includes books and book chapters, unpublished manuscripts, and technical reports. I disambiguated these records using multiple strategies and obtained additional bibliographic information (e.g., author's affiliation and cited references) from Scopus and Google Scholar. Appendix B.1.2 has details.

*Set C: Extended dataset of English articles.* This dataset is mainly used to calculate research novelty (i.e., developing or disrupting existing research paradigms). It has detailed bibliographic information of 1,407,285 references and over 21.6 million citation relationships. Appendix B.1.3 has details.

## Measures

A unit of analysis in this study is an English-language journal article cited in the Chinese-language scholarship, and an observation for analysis consists of various measures of an English article (e.g., the article's citation count and its closeness to Chinese articles, etc.). Table 2

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[2]The time span is determined by data availability—the primary data source, the Chinese Social Science Citation Index, was created in 1998.

summarizes how the variables are measured using respective instruments, data type and range, and expected direction of correlation with the dependent variable. Here I briefly introduce these variables and instruments conceptually; Appendices B.2 and B.3 have technical details.

*Instruments for operationalizing variables*

The operationalization of some of the variables requires two important instruments. (1) The *Document-Topic Similarity Matrix (DTSM)* scales the distance between articles or themes in the same or different languages and is used to measure an English article's scholarship rationale (i.e., *(1) Instrumental*) and its *(3) thematic relevance* to Chinese research topics. The *coauthor network* maps the relationships between authors in different scholarly communities and is used to measure an English article's social closeness to the Chinese scholarly community (i.e., *(5) ZH closeness*) and the article's scholarly *(6) Embeddedness*. Appendix B.2 has technical details.

*Rationale of scholarship*

An English-language journal article is coded as *(1) Instrumental* or expressive according to its labelled English research topic. Conceptually, this process involves the following steps:

1. I first extract all the major topics in the form of keywords (e.g., "protest_mobilization_movement" and "board_executive_director") from the cited English articles using a topic modeling algorithm.
2. Topics that are not relevant to our research, such as publisher names, are removed from further analysis. Topics remaining are manually coded as expressive or instrumental.
3. I calculate the pair-wise similarities between English articles' abstracts and research topics (i.e., the single-language Document-Topic Similarity Matrix; s-DTSM).
4. An English article is labeled with a topic according to its highest similarity value in the s-DTSM.
5. Finally, an English article can be coded as either expressive or instrumental according to the rationale of its assigned topic.

Table 2: OPERATIONALIZATION OF VARIABLES

| Dimension | Variable | Operationalization | Data type and range | Expected direction | Dataset |
|---|---|---|---|---|---|
| *Dep. Var:* | (0) Chinese citation | Total citations made by Chinese scholarship on nonprofits and philanthropy. | Discrete $[0, +\infty]$ | + | A, B |
| *Rationale* | (1) Instrumental | Instrumental or expressive scholarship rationale (Frumkin, 2002; Payton & Moody, 2008). | Dummy $1 = Inst.$ $0 = Expr.$ | + | B |
| *Novelty* | (2) Disruptive | Disrupting (1) or developing (-1) existing research paradigm, or neutral (0), coded according to Funk and Owen-Smith (2016) and Wu et al. (2019). | Continuous $[-1, 1]$ | – | B, C |
| *Relevance* | (3) Thematic relevance | Relevance to Chinese research themes. Average of the highest 5 similarity values in c-DTSM. | Continuous $[-1, 1]$ | + | A, B |
| | (4) Topic size | Number of Chinese articles for the top 5 most relevant Chinese topics, averaged by topics. | Continuous $(0, +\infty]$ | + | A |
| *Networks* | (5) ZH closeness | Social closeness to Chinese scholarly community measured by the number of two-degree neighbors with Chinese affiliations in coauthor networks, averaged by the number of article authors. | Continuous $[0, +\infty]$ | + | B |
| | (6) Embeddedness | Number of total coauthors in coauthor networks, averaged by the number of article authors. | Continuous $[0, +\infty]$ | + | B |
| | (7) Team size | Number of an article's authors. | Discrete $(0, +\infty]$ | + | B |
| *Reputation* | (8) Overall impact | Total citation count recorded by Google Scholar. | Discrete $[0, +\infty]$ | + | B |
| | (9) Reference age | Average difference between the publication year of an English article and the publication years of the Chinese articles that cite the English article. | Continuous $[0, +\infty]$ | + | B |

*Note*: c-DTSM = Cross-language Document-Topic Similarity Matrix (Appendix B.2.2). Appendix Table E7 lists the descriptive statistics of these variables.

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Essentially, I am using the manually coded topics as an instrument to automatically code the articles. Appendix B.2.2 has technical details.

*Research novelty*

The Kuhnian concepts of developing and disrupting can be operationalized by citation relationships. For a focal study that develops existing theories, subsequent work tends to cite both the focal work and the sources reviewed by the focal work. If the focal work is novel and disruptive, however, subsequent work tends to cite only the focal work but not its references (Wu et al., 2019, p. 379).

According to this rationale, scholars developed a measure, commonly referred to as $D$ value, to quantify research novelty and applied it in numerous influential meta-science studies (Funk & Owen-Smith, 2016; Park et al., 2023; Wu et al., 2019) and in nonprofit studies (Ma, 2022). Generally speaking, if an article $q$ is extremely disruptive, the articles that cite $q$ will cite only $q$ but not its references ($D_q = 1$); if $q$ is extremely developing, all its citing articles will also cite all of $q$'s references ($D_q = -1$).

*Research relevance*

The process for calculating an English article's *(3) thematic relevance* resembles that for calculating research rationale (see Appendix B.2.2 for technical details).

1. I first extract all the major topics in the form of keywords from the Chinese NPS articles using a topic-modeling algorithm. Topics that are not relevant to our research, such as publisher names, are removed from further analysis.
2. I calculate the pair-wise similarities between English articles' abstracts and Chinese research topics (i.e., the cross-language Document-Topic Similarity Matrix; c-DTSM).
3. Given that an English article can be relevant to multiple Chinese research topics, an English article's thematic relevance to Chinese research topics is calculated by averaging its five largest similarity values in the c-DTSM.

Because larger Chinese research topics are more active and generate more citations of English articles, I also include the *(4) topic size* of Chinese research topics as a control variable.
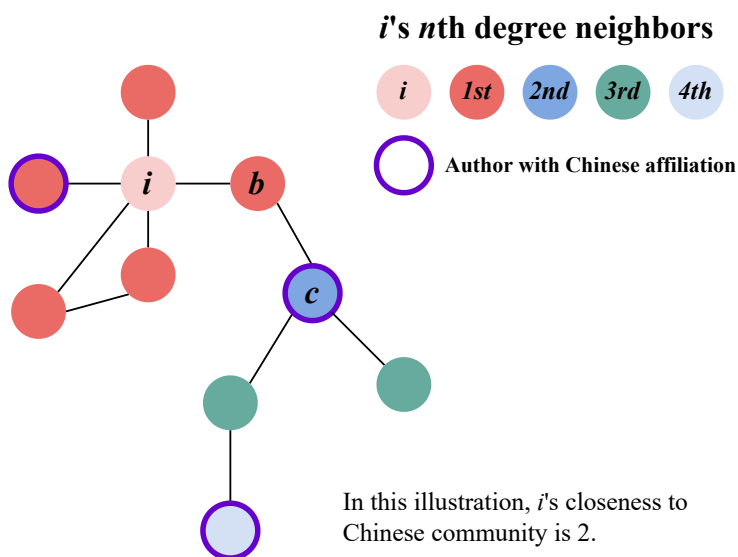
*Networks*

**Social closeness to the Chinese scholarly community.** The variable, *(5) ZH closeness*, measures the distance between an English article's authors and the Chinese scholarly community. Conceptually, it is calculated by counting the number of neighboring scholars with Chinese affiliations in coauthor networks. Mathematically, the variable is defined as $CloseZH_q = \frac{\sum_{i=1}^{n} \#NeighborsZH_i}{n}$, in which article $q$ has $n$ authors, and $\#NeighborsZH_i$ is the number of authors with Chinese affiliations within the two-degree network of author $i$. A two-degree network is defined as, for example, $i$ connected to $b$, $b$ connected to $c$, and $i$ and $c$ have no direct connection; therefore, $i$, $b$, and $c$ constitute a two-degree network (Figure 1). Influence on $i$ that goes beyond the two-degree network tends to be marginal. Using Figure 1 as an example, author $i$'s closeness to the Chinese community is 2.

Figure 1: ILLUSTRATION OF SOCIAL CLOSENESS TO CHINESE SCHOLARLY COMMUNITY



In this illustration, $i$'s closeness to Chinese community is 2.

**Scholarly embeddedness.** The variable, *(6) Embeddedness*, measures how well an English article's authors are connected in coauthor networks. It is calculated by $Conn_q = \frac{\sum_{i=1}^{n} \#Coauthors_i}{n}$,

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in which article *q* has *n* authors, and *#Coauthors$_i$* is author *i*'s number of coauthors in the coauthor network (e.g., author *i* in Figure 1 has five coauthors).

Because articles with more authors can have more exposure in the scholarly community, *(7) team size*, measured by the number of coauthors of an article, is also included as a control variable.

*Reputation*

An article's *(8) overall impact* measures how well the article is recognized by scholarly communities using different languages. It is approximated by an article's citation count recorded by Google Scholar, the largest multilingual bibliographical database (Martín-Martín et al., 2020). The *(9) reference age* of an English article is calculated as the average difference between the publication year of the article and the publication years of its citing Chinese articles. This operationalization can distinguish active articles from non-active ones. For example, English article *A* was published in 1985 and cited by two Chinese articles published in 1995 and 1998 ($Age_A = \frac{(1995-1985)+(1998-1985)}{2} = 11.5$); English article *B* was also published in 1985 and cited by two Chinese articles published in 1990 and 2010 ($Age_B = \frac{(1990-1985)+(2010-1985)}{2} = 15$). Article *B* has a longer citation life cycle than *A*.

# Results

## Overall publication and citation trends

*Publication trends: Chinese NPS articles and their cited English references*

Figure 2 shows the number of Chinese articles on nonprofits and philanthropy and their cited English articles by publication year. The publication years of the Chinese articles run from 1998 to 2018 (both ends included). The earliest English references cited were published in the 1920s, and most of the English articles were published around 2000 ($Mean = 2003$, $Std = 8.9$).

Figure 2: NUMBER OF CHINESE ARTICLES ON NONPROFITS AND PHILANTHROPY AND THEIR CITED ENGLISH ARTICLES BY PUBLICATION YEAR
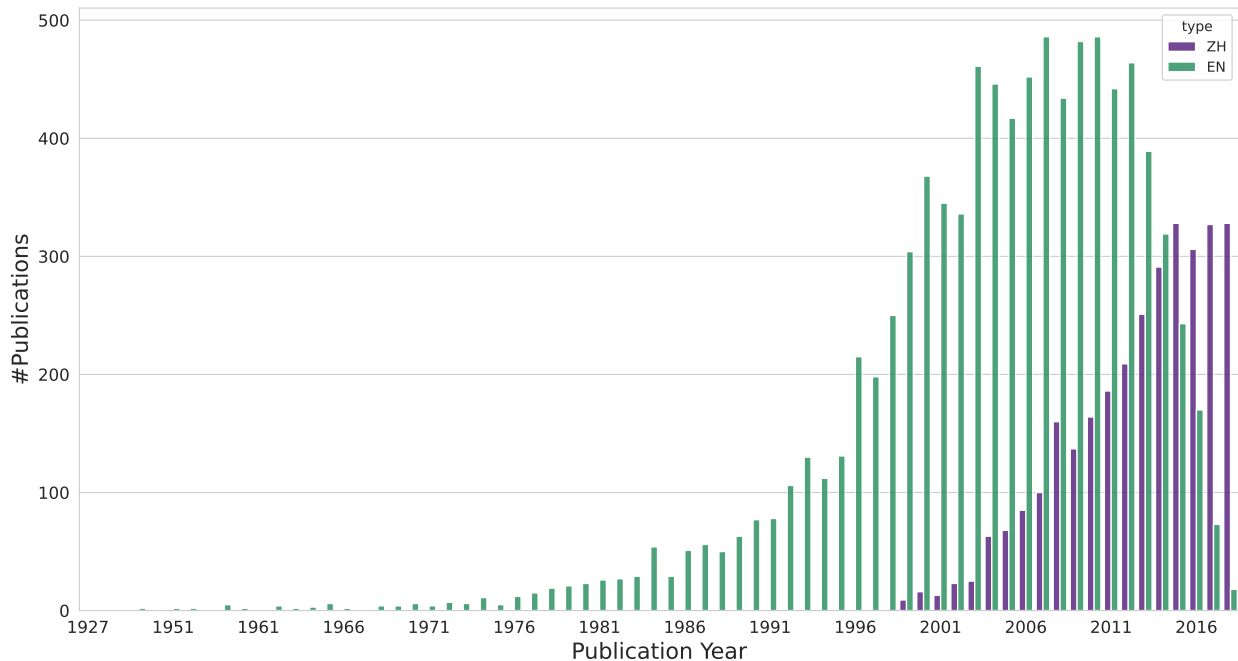


*Notes*: ZH = Chinese articles on nonprofit and philanthropy; EN = English articles cited by the Chinese articles. Source codes for reproducing this figure can be found in `script/descriptive.html`, block `code_QYOAP`.

*Citation trends: Age of cited English references*

The age of cited references is commonly used in scientometrics to measure the gap between research front (i.e., citing articles) and knowledge base (i.e., cited references). The number of

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Chinese articles citing English references has been increasing over time (Figure 3 bar graph), but the average age of the cited English articles stays consistently around 11 years (Figure 3 purple line, see Appendix Table E8 for the exact numbers by year). The age of cited English references might suggest that Chinese NPS scholars lag behind the English research front around 11 years in terms of citation.

Figure 3: NUMBER OF CHINESE ARTICLES WITH ENGLISH REFERENCES BY PUBLICATION YEAR, AND THE AVERAGE AGE OF CITED REFERENCES
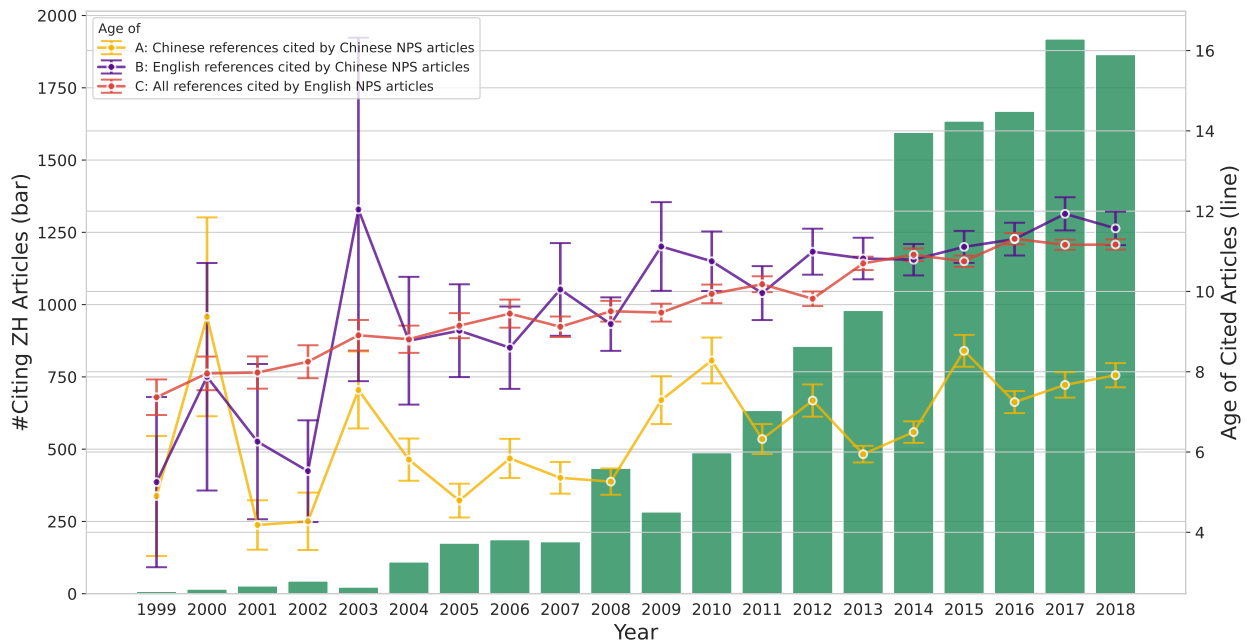


*Notes*: The bar graph shows the number of Chinese articles with English references by publication year, and the line graph shows the average age of different types of cited references for each year (i.e., a citing article's publication year minus its cited references' publication years; showing 95% confidence interval). A (yellow line) = The average age of all the Chinese references cited by Chinese NPS articles; B (purple line) = The average age of all the English references cited by the Chinese NPS articles; C (red line) = The average age of all the references cited by the English NPS articles. Source codes for reproducing this figure can be found in `script/descriptive.html`, block `code_QX40K`.

To meaningfully interpret this lag, Figure 3 presents more statistics for comparison. Roughly speaking, (1) the average age of all the Chinese references cited by the NPS Chinese articles is from 6 to 8 years since 2009 (yellow line); (2) the average age of all the references cited by the NPS English articles is consistently around 11 years since 2013 (red line); (3) the age of the English references cited by the Chinese NPS articles (purple line) consistently overlaps with the

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age of all references cited by the English NPS articles (red line) since 2013; (4) the average age of Chinese citations (yellow lines) is substantially lower than the other two age statistics.

According to these observations, we can conclude that, first, the lags between the use of English knowledge base and research front in both English and Chinese NPS scholarly communities do not substantially differ and are around 11 years. Second, the NPS Chinese articles tend to cite newer Chinese references in comparison to English references. This is probably because the social sciences and academic publication practices in contemporary China have experienced rapid development only since the late 1970s (Zhou et al., 2009, p. 595).

*Citation trends: Major themes of cited English references*

Appendix Tables E9 to E11 provide more notable and specific examples about the cited English references. These tables list the most-cited articles by scholarship rationale and suggest a few conclusions about the patterns of citation by Chinese scholars. First, *corporate philanthropy* is the dominant theme among the instrumental articles they commonly cite. Second, *area studies* that specifically focus on China are dominant in the expressive literature cited. Third, among the most-cited articles that appear in the core journals (Table B1), *instrumental literature* prevails, and the most popular theme of these references is about *inter-sectoral relations*—particularly the government-nonprofit relationship. In general, these findings suggest two patterns of Chinese NPS scholars' citing behavior: (1) the Chinese scholars tend to cite value-*neutral* knowledge, (2) when they do cite knowledge that is expressive, the cited knowledge tends to be more relevant to the *native* context of China.

## Research novelty of cited English articles

Figure 4 presents the distribution of $D$ values (i.e., research novelty) of all the cited English articles (green bars). These values slightly skew toward disrupting (i.e., $D = 1$), with a mean of 0.076 and a median of 0.0018. Additionally, the 5%, 50%, and 95% quantiles of the expressive and instrumental articles are indicated with purple and blue dashed lines respectively. For all the

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English references cited, expressive articles are more skewed toward being disruptive in comparison to instrumental articles ($p = 0.0027$).

Figure 4: RESEARCH NOVELTY OF CITED ENGLISH ARTICLES: DISTRIBUTION OF $D$ VALUES
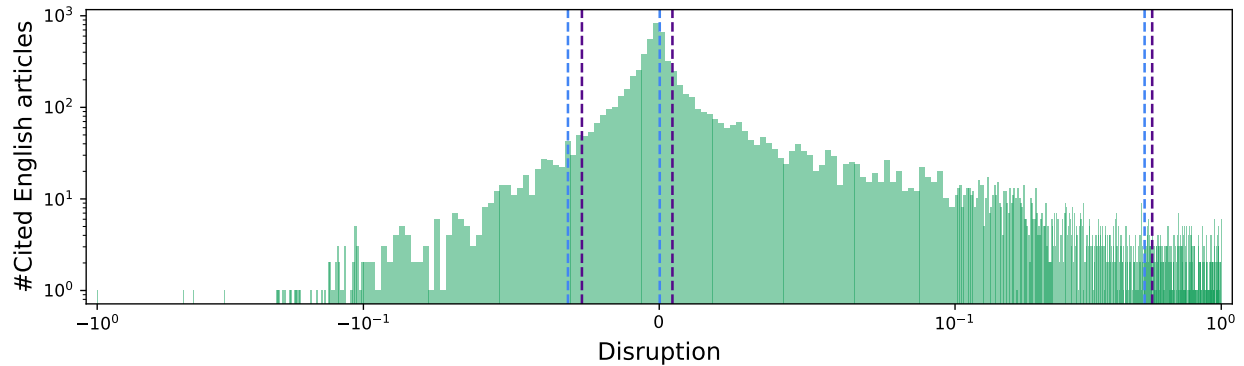


*Notes:* The histogram presents the distribution of $D$ values of all the cited English articles. An article can be extremely developing ($D = -1$), neutral ($D = 0$), or extremely disruptive ($D = 1$). The 5%, 50%, and 95% quantiles of the expressive and instrumental articles are indicated with purple and blue dashed lines respectively. Source codes for reproducing this figure can be found in `script/descriptive.html`, block `code_OV9JA`.

Table 3 lists, by scholarship rationale, the most disruptive and most developing English NPS articles cited by their Chinese counterparts. These articles vividly illustrate the characteristics of disruptive and developing studies. The most disruptive articles propose new theoretical frameworks challenging existing ones. For example, the article "Why does Occupy matter?" identifies eight contentions "which illustrate why Occupy matters to scholars and which challenge us to re-examine existing assumptions" (Pickerill & Krinsky, 2012, p. 279). On the other side, the most developing articles summarize and compare existing studies. For example, the article "When is administrative efficiency associated with charitable donations?" investigates the reasons for divergent results in existing articles and replicates prior studies with additional variables (Tinkelman & Mankaney, 2007, p. 41).

From the Chinese scholars' perspective, what are the most novel contributions of the English NPS scholarship? Table 3 shows that, from the expressive perspective, novel English studies should better frame the nonprofit sector and its activities within Chinese *native social and political contexts*. From the instrumental perspective, novel English studies should better define the *nonprofit sector and its relationship with government*. These two observations echo the

citation trends discussed earlier in section "Citation trends: Major themes of cited English references": area studies introducing native perspectives and the government-nonprofit relationship are two major themes of the English scholarship cited.

## English articles as a knowledge base for Chinese scholarship

*Mapping English and Chinese scholarship in the same semantic space*

Figure 5 maps all the cited English articles (small green dots in the background) and English and Chinese research topics (larger dots in the foreground) in the same space. The distance between dots indicates the strength or weakness of thematic relevance between the topics and the articles. The locations of these dots are based on the vectors of topic or article documents (refer to Appendix B.2.2 for technical details). The figure positions topics and articles in different languages but with similar meanings close to each other, which also supports the validity of our computational instruments.

Figure 5 vividly illustrates a few patterns of the relationship between the research front of Chinese NPS and its English knowledge base. (1) Only 4 out of the 14 English research topics are expressive, and these topics are marginalized in the thematic space. This observation indicates that the Chinese NPS scholars prefer to cite English articles that treat nonprofits and philanthropy as means to accomplish important ends instead of expressing political and moral values. Even when an English article with an expressive rationale is cited, the English article tends to support topics that are marginalized in the Chinese research landscape. This finding again suggests the value-*neutral* pattern of Chinese NPS scholars' citing behavior. (2) Many of the large Chinese research topics, such as "social movement 社会运动" and "marx 马克思", prefer not to cite English articles as their knowledge base (i.e., fewer green dots [English articles] around corresponding red dots [Chinese research topics]), suggesting the *native* pattern of Chinese NPS scholars' citing behavior.

Figure 5: MAPPING ENGLISH ARTICLES CITED BY CHINESE NPS SCHOLARSHIP



*Notes:* NPS = Nonprofit and philanthropic studies. Small background green dots represent English journal articles cited by Chinese scholars studying nonprofits and philanthropy. Larger dots in red, purple, and blue show the primary research topics extracted from the English and Chinese scholarship; a dot's size indicates the number of articles that belong to that topic. The labels *entrepreneurship_edu.* 创业_教育, *microfinance_poverty* 信贷_小额_扶贫, and *private edu.* 民办高校 are omitted for visual clarity because they overlap with *library* 图书馆 and *foundation_university* 基金会_大学 which are larger in size. Access the high-resolution figure at https://osf.io/rvwn8. Source codes for reproducing this figure can be found in `script/topic_analysis.html`, block `code_CS7OS`.

*English knowledge base for Chinese scholarship: Topic-by-topic relations*

What are the exact English knowledge bases for different Chinese NPS topics? Figure 6 shows the topic-by-topic relations between the cited English articles and the citing Chinese articles. This

figure sheds light on many promising directions for future studies. For brevity's sake, I discuss just a few notable examples. Readers can explore more information by using the interactive version of this figure (https://osf.io/hxsu6), and its underlying data can be reused in future studies (data/df_sankey.xlsx).

The largest Chinese research topic, *charitable donation* 慈善捐赠 (Online Appendix Figure F10), draws literature primarily from *crm_intention_advertisement* (285 articles), *board_executive_director* (234), *entrepreneurs_enterprise_venture* (198), and *volunteer_motivation_satisfaction* (173). It suggests that the study of charitable donations in China is primarily oriented toward governance and corporate philanthropy.

Another topic, *political_civilization* 政治文明, is a term unique to the Chinese context. The phrase was first coined by Jiang Zemin during his presidency. He envisioned a socialist political civilization as a *socialist democracy with Chinese characteristics* 中国特色社会主义民主政治, where the party's leadership, public participation, and the rule of law are inherently integrated. The term was officially endorsed by the 16th Party Congress in November 2002, and subsequently Presidents Hu Jintao and Xi Jinping further advanced this notion.

Online Appendix Figure F11 shows that works on this research topic tend to adopt English articles on *democracy_authoritarian_election* (85), *protest_mobilization_movement* (64), and *volunteering_religious_associational* (54) to develop the unique concept. We can expect that these English articles must be discussed and framed in contexts far afield from their original ones. Future studies can track how specific English articles are used and reframed in Chinese discourse.

## Predicting cross-language citations

Table 4 shows the regression results predicting an English article's citation count in Chinese scholarship (Appendix Table E7 shows the descriptive statistics of these variables). Models 1–3 regress the independent variables singly to consider the influences between variables. These models suggest a mixed confounding relationship[3] causing the estimation of *instrumental* to be

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[3]For example, *A* varies with *C* because *B* causes both *A* and *C* to change. Therefore, *B* is a *confounder* between *A* and C. After considering the effect of *B*, the correlation between *A* and C may disappear.

inconsistent across different models. Appendix "C Directions of confounders" discusses this in detail.

Model 4 is the full model, and its results are consistent with our expectations. Articles that are popular in the Chinese community tend to (1) focus on instrumentality, (2) develop rather than disrupt existing paradigms, (3) be relevant to Chinese research topics, and be authored by scholars (4) who have more connections with the Chinese community and (5) who are well-connected in scholarly networks. These regression results confirm the three patterns of Chinese NPS scholars' citing behavior framed earlier: they tend to cite English articles that are *neutral*, *non-disruptive*, and *native*.

## Robustness analysis

Given the methodological complexity of this study and how the dependent variable can be alternatively measured, I checked the results' robustness to reproducibility and different levels of measurement. Appendix D has details.

Table 3: ENGLISH NPS ARTICLES CITED BY CHINESE COUNTERPARTS: BY RESEARCH NOVELTY AND SCHOLARSHIP RATIONALE

| Title | Year | Journal | *D* value |
|---|---|---|---|
| *Expressive, most disruptive* | | | |
| Why does occupy matter? | 2012 | Social Movement Studies | .64 |
| Economic and sociological theories of individual charitable giving: Complementary or contradictory? | 1999 | Voluntas | .56 |
| Religious nongovernmental organizations: An exploratory analysis | 2003 | Voluntas | .49 |
| Social origins of civil society: Explaining the nonprofit sector cross-nationally | 1998 | Voluntas | .29 |
| Nonprofit development in Hong Kong: The case of a statist-corporatist regime | 2005 | Voluntas | .28 |
| *Expressive, most developing* | | | |
| Civil society on global governance: Facing up to divergent analysis, strategy, and tactics | 2006 | Voluntas | −.025 |
| Research on giving and volunteering: Methodological considerations | 2001 | Nonprofit and Voluntary Sector Quarterly | −.018 |
| Social capital, volunteering, and charitable giving | 2008 | Voluntas | −.018 |
| Development of citizen-organized environmental NGOs in China | 2009 | Voluntas | −.0066 |
| Media coverage and organizational support in the Dutch environmental movement | 2005 | Mobilization | −.0053 |
| *Instrumental, most disruptive* | | | |
| Of market failure, voluntary failure, and third-party government: Toward a theory of government-nonprofit relations in the modern welfare state | 1987 | Nonprofit and Voluntary Sector Quarterly | .95 |
| In search of the non-profit sector. I: The question of definitions | 1992 | Voluntas | .93 |
| Alternative models of government-nonprofit sector relations: Theoretical and international perspectives | 2000 | Nonprofit and Voluntary Sector Quarterly | .92 |
| Accountability of nonprofit organizations and those who control them: The legal framework | 1995 | Nonprofit Management and Leadership | .79 |
| Promoting community leadership among community foundations: The role of the social capital benchmark survey | 2011 | Foundation Review | .77 |
| *Instrumental, most developing* | | | |
| When is administrative efficiency associated with charitable donations? | 2007 | Nonprofit and Voluntary Sector Quarterly | −.16 |
| Measuring the effectiveness of nonprofit boards | 1998 | Nonprofit and Voluntary Sector Quarterly | −.099 |
| Building nonprofit financial capacity: The impact of revenue concentration and overhead costs | 2014 | Nonprofit and Voluntary Sector Quarterly | −.093 |
| Nonprofit organizations becoming business-like: A Systematic Review | 2016 | Nonprofit and Voluntary Sector Quarterly | −.047 |
| Should donors care about overhead costs? Do they care? | 2006 | Nonprofit and Voluntary Sector Quarterly | −.044 |

*Note*: NPS = Nonprofit and philanthropic studies.

Figure 6: ENGLISH KNOWLEDGE BASE FOR CHINESE SCHOLARSHIP ON NONPROFITS AND PHILANTHROPY
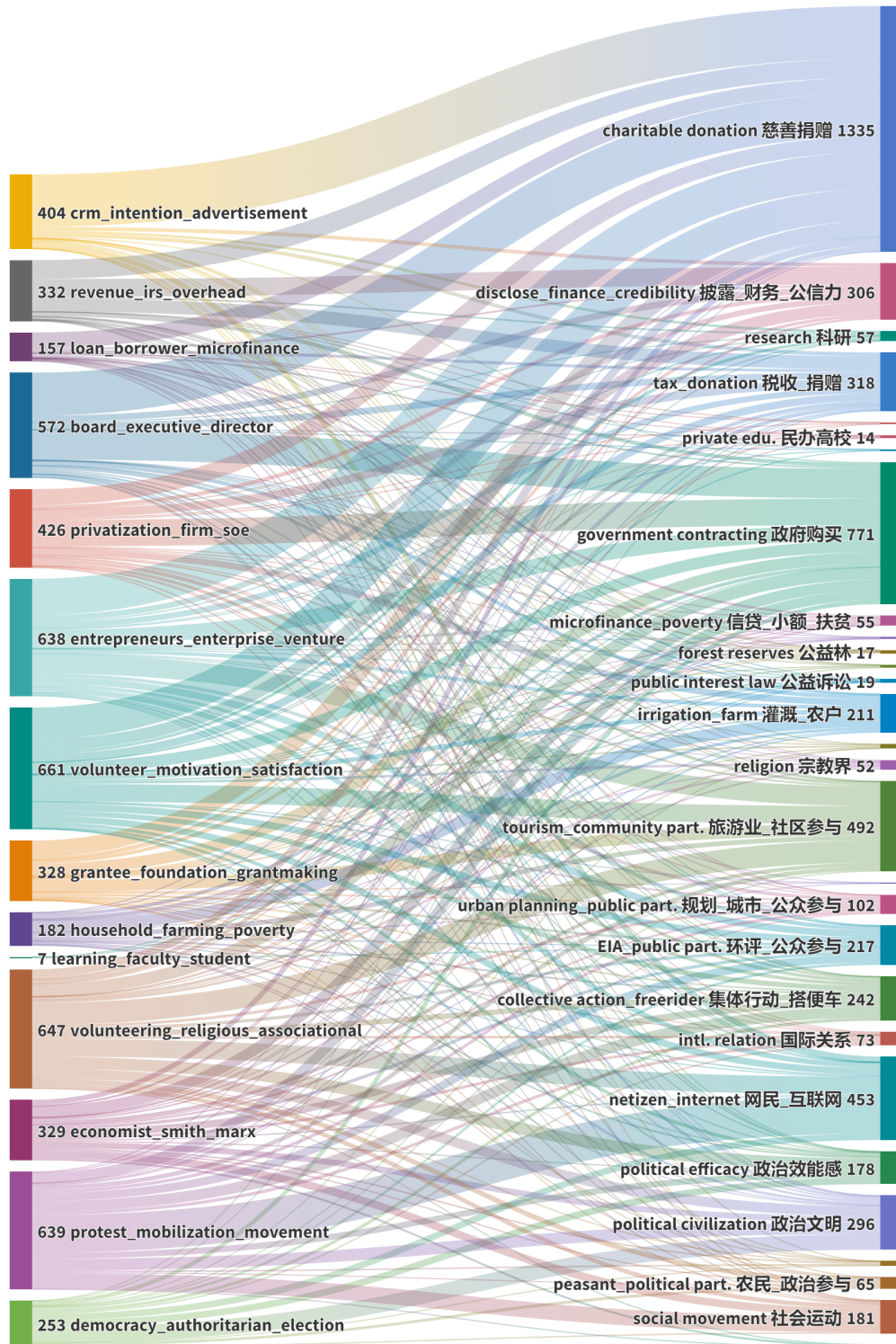


*Notes*: English topics on left, Chinese on right. An interactive version is available at https://osf.io/hxsu6. Source codes for reproducing this figure can be found in `script/article_netwk_measures.html`, block `code_V8MZV`.

Table 4: PREDICTING CROSS-LANGUAGE CITATIONS: ENGLISH CITED BY CHINESE (LOG-TRANSFORMED)

|  | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| *Rationale* | | | | |
| (1) Instrumental | −.0073 | .00040 | .061*** | .055*** |
|  | (−.74) | (.040) | (5.1) | (4.6) |
| *Paradigm* | | | | |
| (2) Disruptive | | −.15*** | −.16*** | −.12** |
|  | | (−3.8) | (−4.3) | (−3.1) |
| *Relevance* | | | | |
| (3) Thematic | | | 1.8*** | 1.7*** |
|  | | | (15) | (14) |
| (4) Topic size | | | −.0013 | −.014 |
|  | | | (−.060) | (−.65) |
| *Scholarly networks* | | | | |
| (5) ZH closeness | | | | .038** |
|  | | | | (2.9) |
| (6) Embeddedness | | | | .047*** |
|  | | | | (6.2) |
| (7) Team size | | | | −.063*** |
|  | | | | (−3.5) |
| *Reputation* | | | | |
| (8) Overall impact | .053*** | .056*** | .066*** | .063*** |
|  | (15) | (15) | (17) | (16) |
| (9) Reference age | .019*** | .033*** | .040*** | .040*** |
|  | (3.5) | (5.5) | (6.6) | (6.6) |
| Observations | 6,296 | 5,465 | 5,465 | 5,465 |
| Adjusted $R^2$ | .056 | .062 | .11 | .12 |

*Note*: Dependent variable: (0) Chinese citation. Variables of interest are underlined. All continuous variables are log-transformed. *t* statistics in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$

# Discussion

Chinese scholars constantly incorporate foreign language literature in their publications, with English accounting for 96% (Gong et al., 2019, p. 1457). In nonprofit and philanthropic studies, each Chinese-language article cites on average 0.8 English references. What are these cited English articles? Why are some more popular with Chinese scholars than others? This study responds to these questions and joins in the effort to globalize nonprofit studies by exploring knowledge sharing between scholarly communities using different languages. This discussion section briefly summarizes the major findings and their implications. The article ends with an introduction to a methodological guideline for extending similar inquiries to other language communities of scholars.

## The *3-N* principle: *Neutral*, *Non-disruptive*, and *Native*

This study has found that the English articles cited in Chinese NPS literature: (1) focus primarily on the instrumental functions of nonprofits and philanthropy instead of treating them as important vehicles expressing values, commitments, and social norms; (2) tend to develop rather than disrupt existing research paradigms; and (3) are relevant to Chinese research topics and have authors with Chinese scholarly connections. In general, these findings suggest three patterns of citing behavior: the Chinese NPS scholars tend to cite English articles that are (1) value-*neutral* and (2) *non-disruptive* to existing research paradigms, and (3) use *native* perspectives that are relevant to the Chinese research community.

Among the three principles, adopting native perspectives and being value-neutral are the most important. An article gets cited largely because it is relevant to Chinese research topics. This finding itself is nothing surprising. What is useful to know is the magnitude of this influence—among all the explanatory variables, the magnitude of thematic relevance is the largest. Researchers have raised some concerns about citing for social rather than academic purposes. This finding suggests that such concern may be less relevant in the case of Chinese

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nonprofit scholars; the magnitude of thematic relevance is about 3–4 times larger than the influence of social closeness and embeddedness (Table E12).

However, "thematic relevance" can be variously defined, and one of this paper's limitations is that it cannot distinguish between different types of relevance. For example, a theoretical paper discussing social capital (i.e., theoretical relevance) and an empirical paper studying Chinese politics (i.e., contextual relevance) can both be very relevant to studying political participation in rural China, but we cannot tell which one is more important to Chinese scholars. Future studies can devise a finer instrument to make that distinction.

Value-neutrality is another reason underpinning citation choices. In the semantic-space mapping of English articles and Chinese research topics (Figure 5), instrumental articles are widespread and central, while expressive articles are a very minor and marginalized group. Instrumental scholarship also dominates the most-cited articles from the core journals (i.e., Appendix Table E11). A reasonable explanation is that studies focusing on, for example, management and financial efficiency can have a broader applicability than those examining norms and values. The former are value-neutral, while the latter are context dependent and may contain politically sensitive notions, inhibiting their appearance in Chinese journals.

The cross-language citation practices raise a crucial question: if Chinese scholars only prefer to cite instrumental and non-disruptive English articles, what serves as their primary source for expressive and disruptive scholarship? A reasonable expectation would be that such scholarship must be generated by Chinese scholars themselves. However, due to the political environment and academic system that impose restrictions on expressive and novel social science research (Ma, 2022; Perry, 2020), meeting this expectation poses significant challenges.


## Contextualizing comparative studies and building inclusive scholarship

Scholars studying non-US or non-Western countries are often frustrated by being asked to justify their country selection—a situation that is less commonly experienced among authors writing about the US (Cheon et al., 2020; Henrich et al., 2010) and an implicit notion of cultural

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exceptionalism (Lees, 2006, p. 1098). This study suggests a few implications for building comparative and inclusive scholarship in our field.

Instead of asking scholars to *justify* their comparative studies (e.g., "why country *A* not country *B*?"), it is more beneficial to ask how their studies can be *relevant* to other societies because relevance is the primary contributor to an article's circulation outside its place of origin. Landman (2017) summarized four purposes of comparative scholarship: contextual description, classification, hypothesis-testing, and prediction.[4] In the pursuit of these purposes, contextualizing, not justifying, is most crucial for avoiding the cultural exceptionalism implicitly assumed in many single-country studies (Lees, 2006, p. 1098). As the social sciences begin to emphasize diversity and indigenous perspectives in nearly all disciplines, all scholars should be urged to reflect on how their studies can contribute to our understanding of human society from a comparative perspective (Lees, 2006).

Building this research field as an inclusive community requires collective effort. For example, the editorial teams of nonprofit studies journals need to balance between instrumental and expressive scholarship. As our analysis suggests, instrumental English articles dominate in number and are also more likely to be cited than expressive articles. Publishing more instrumental literature may effectively increase a journal's reputation in terms of citation measures (e.g., Impact Factor). However, expressive scholarship that contextualizes nonprofits is vital if the field is to build an inclusive knowledge base and community. For academic associations, organizing conferences that can minimize language barriers with modern technologies will be very helpful in engaging scholars from non-English speaking countries. For scholars and reviewers, patience, respect, and appreciation of indigenous perspectives and contexts, which may even contradict mainstream theories and ideologies, are vital to building dialogues and advancing multiculturalism (Kymlicka, 1995).

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[4]Although this seminal book primarily speaks to political scientists, it is also useful to other social science disciplines and has been widely cited.

## Toward "Nonprofit Studies in Many Languages"

Being one of the pioneering studies exploring the interactions among different NPS knowledge communities, this study only serves as a stimulus for future directions. The scope of this study merely scratches the surface, leaving numerous captivating research opportunities that surpass the length of a single research paper. One of the very promising and viable prospects is to compare the cross-language citation practices employed by scholars from distinct language communities, advancing this project toward "Nonprofit Studies in Many Languages." Table 5 presents guidelines for extending the research scope. For studying the scholarship in another language, we can think primarily in terms of four dimensions.

- *Structured data components*. The first step is to obtain the bibliographic data of the scholarship on nonprofits and philanthropy. There are four primary components of the data: article abstract, citation relation, authorship, and affiliation. Depending on the availability of these components, we can conduct analysis at different levels.

- *Analytical methods*. Besides conventional statistical analysis, multilingual topic modeling and network analysis are key to this project. The current study also employs unsupervised machine-learning in coding articles into different topics. Supervised machine-learning can also be helpful if we have categories and/or theoretical frameworks beforehand.

- *Units of analysis*. The units of analysis can vary depending on the data we have. For example, if we have only article abstracts, our analysis may be limited to articles. If we have relational data, like citation relations, we can add the analysis of relations into our inquiries.

- *Theoretical contribution*. The last but most important dimension is to ask ourselves why it matters. How can the empirical analysis inform our understanding from a theoretical perspective? For example, why are some research interests shared (or not shared) by different communities? Are the reasons related to cultural or political contexts? Can social interactions facilitate or impede knowledge sharing, and if so, how? What are the

implications for the practice of philanthropy across different contexts? These questions are fundamental for building our research field into an inclusive and global community.

In advancing this project toward Many Languages, contextualizing is key because no knowledge is produced in a vacuum. For example, "nonprofit" and "philanthropy" can be defined differently in different societies. The bibliographic dataset of Chinese scholarship on nonprofits and philanthropy should be interpreted within the country's authoritarian context. Different academic systems and institutional arrangements can affect knowledge production in various ways; therefore, "representativeness" needs to be carefully defined and used. We also need to be cautious about the influence of US-centric scholarship given its dominant position in nonprofit studies. Employing frameworks and perspectives from critical nonprofit scholarship can be a promising solution (Coule et al., 2022).

As a concluding note to this article, this study wants to underline a social constructionist approach to theorizing the sector and defining the research field. Current comparative scholarship on nonprofits and philanthropy tries to identify the common cores in defining the nonprofit sector. Such an essentialist and positivist approach pays too little attention to the fact that the notions of "the sector" and "the research field" have been evolving through time and arise from social processes such as scholarly communication and publication. If "the sector" and "the research field" are social constructions rather than brute facts, as is quite possibly the case, we can expect their connotations to vary across societies and times. It is not a bad idea to bet on another theoretical lens: a social constructionist and interpretivist approach to theorizing the nonprofit sector and our research field. Defining the field should be a collective and inclusive effort by a diverse body of scholars.

Table 5: METHODOLOGICAL GUIDELINES FOR NONPROFIT STUDIES IN MANY LANGUAGES

| | Structured data components | Analytical methods | Units of analysis | Theoretical contribution |
|---|---|---|---|---|
| *Level 1* | Abstract | Multilingual topic modeling | Article | Shared research interests |
| *Level 2* | Citation relation | Citation network analysis | Citation relationship | Shared understanding and knowledge interaction |
| *Level 3* | Authorship | Coauthorship and social network analysis | Individual, coauthorship | Relation between social interaction and knowledge production |
| *Level 4* | Affiliation | Coauthorship and social network analysis | Institutional relationship | Relation between institutional environment and knowledge production |

*Note*: Higher levels (i.e., 4 is highest) include all lower-level components. For example, the analysis methods at Level 3 also include citation network analysis at Level 2 and multilingual topic modeling at Level 1.

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# Online Appendix

# A    Comparative scholarship on nonprofits and philanthropy

*Comparative nonprofit sector.* From a comparative perspective, what defines a nonprofit sector? Why do the size and scope of nonprofit sectors vary cross-nationally? What are the implications for global civil society? These are some of the core research questions for comparative nonprofit studies.

The first comparative studies emerged in the late 1980s (Anheier et al., 2020, p. 649). Their approaches differed considerably from the then-dominant economic theories. They emphasized normative dispositions to explain the existence of nonprofit organizations in developing countries (e.g., political, cultural, and religious values). These noneconomic factors became the primary focus of comparative nonprofit sector scholarship.

A few cross-national projects were launched in the 1990s, among which the Johns Hopkins Comparative Nonprofit Sector Project (CNP) was one of the most influential (Salamon & Anheier, 1996). The CNP project defined, classified, and surveyed nonprofit organizations and their activities in 13 countries according to five structural-operational features: organized, private, non-profit-distribution, self-governing, and voluntary (Salamon & Anheier, 1992a; Salamon & Anheier, 1992b, p. 268). The CNP database has supported or aided many influential comparative nonprofit studies since its creation. Its main outcome is the social origin theory, which takes a comparative-historical perspective to explain the development of the nonprofit sector in different countries (Salamon & Anheier, 1998; Salamon et al., 2017). Scholars using this perspective maintain that the nonprofit sector in any society is a result of that society's social, political, and historical contexts. However, there is a critical methodological gap between the social origin theory and CNP: the theory builds on the analysis of nonprofits' institutional environment, while the CNP measures the structural-operational features of nonprofits without reference to environment (Anheier et al., 2020, p. 664). The CNP is limited as well because its focus solely on nonprofits can overlook other important types of voluntary activities, which are also central to civil society (Heinrich, 2005, p. 217).

Another notable effort is the Civicus Civil Society Index (CSI), which originated in the late 1990s. Unlike CNP, which focuses on formal organizations, CSI emphasizes the functions of activities. Its operational definition includes "individual citizen participation, demonstrations, social movements and other unorganized forms of civic engagement" (Heinrich, 2005, p. 217). CSI applies universal applicability, contextual flexibility, comparability, comprehensiveness, realism, and multiple aims as its guiding principles. It measures a country along four dimensions (Heinrich & Fioramonti, 2007, pp. 5–7): the *structure* dimension, considering civil society's size, makeup, and composition; the institutional and social *environment* for developing civil society; the *values* practiced and promoted by civil society actors; and the *impact* dimension, assessing civil society's contribution to governance and development processes.

***Comparative philanthropic and prosocial behavior.*** What is philanthropy, and what are the motivations for and outcomes of prosocial behaviors? The answers to these questions, while universal to some extent, vary in some particulars across different societies. For Africa, for example, "philanthropy" and its close companion "civil society" are analyzed using primarily Western concepts tightly connected to democratizing forces, foreign aid, and state-building (Fowler & Mati, 2019; Obadare & Krawczyk, 2021). However, indigenous knowledge is badly underrepresented in the scholarship about African philanthropy. Scholars approaching from local perspectives believe that philanthropy and civil society are "unlikely to bring significant change to Africa's politics: more likely is a governance future resembling the past" (Fowler, 2021, p. 1).

The lack of diversity in geographic orientation, connotations, and definitions are three primary problems standing in the way of studying philanthropy globally (Wiepking, 2021). In terms of geographic orientation, scholars with affiliations in English-speaking countries are overrepresented in this research field. Language overrepresentation gives rise to this further uneven distribution—a lack of geographic diversity in editorial boards, journal article reviewers, research paradigms, data sources, and publication process, all contributing to biased knowledge production in our field (Wiepking, 2021, p. 197).

In terms of connotation, philanthropy is dominated by images of the rich, rather than altruistic behaviors practiced by average citizens in their daily lives. The definition of philanthropy is also limited to formal philanthropic behaviors, such as registered volunteer hours and donations to charities. The formal definition may be easier to operationalize in surveys, but it ignores cultural differences and other informal prosocial behaviors in different societies. As Wiepking et al. (2021, p. 199) state in their critique: "Research shows that people ... [are generous] in ways that are not captured by these rather unidimensional measures developed for ... Western, higher Educated, Industrialized, Rich and Democratic [populations]."

# B Methods

## B.1 Datasets

### B.1.1 Set A: Nonprofit scholarship in the Chinese language

We built this dataset based on records compiled by Ma (2022). The author used a large list of keywords according to the three core conceptual features of the nonprofit sector (i.e., *privateness*, *public purpose*, and *free choice*; Ma & Konrath, 2018; Salamon & Sokolowski, 2016; Shier & Handy, 2014; Smith, 2013; Zhang & Guo, 2021). The author then generated a large dataset by searching these keywords in the Chinese Social Science Citation Index (CSSCI) database, the most prominent citation index in the Chinese social sciences and a counterpart of the Social Sciences Citation Index commonly used by English-language communities. The quality of the dataset was checked by lexical analysis and manual validation. Online Appendix A in Ma (2022) has technical details.

After acquiring that dataset, we took two additional steps to improve the data quality for this current project:

1. Obtaining the abstracts of the Chinese articles from Baidu Xueshu (https://xueshu.baidu.com/), the Chinese counterpart of Google Scholar.

2. Further disambiguating the records with both automated (i.e., natural language processing techniques) and manual approaches (i.e., OpenRefine; https://openrefine.org/). The code script `script/citation_disamb.html` (block `code_4G7AR`) has technical details.

The final dataset of *Set A* consists of the bibliographic information for 12,869 Chinese articles on nonprofits and philanthropy. On average, each article has 211.97 ($Std. = 142.92$) Chinese characters in its abstract and cites 8.48 ($Std. = 9.78$) references.

### B.1.2 Set B: English-language references cited by Chinese NPS articles

We extracted the English-language references cited by the articles in *Set A* and disambiguated these records with methods similar to those applied in disambiguating the Chinese records (see code script `script/citation_disamb.html`, block `code_AHDQO`). We then obtained more bibliographic information (i.e., abstract, author's affiliation, cited references, and citation counts) of these English articles from Scopus (primary) and Google Scholar (secondary).

The final dataset of *Set B* consists of the bibliographic information of 8,493 English-language peer-reviewed journal articles. Each article has on average 149.84 ($Std. = 55.94$) words in its abstract and is written by 2.05 ($Std. = 1.27$) authors.

### B.1.3 Set C: Extended dataset of English articles

The bibliography data of this set is a union of the following three sources:

*C.1*: 1,360,350 articles that cite the items in *Set B*.

*C.2*: 16,128 articles published by the peer-reviewed journals that are core to studying nonprofits and philanthropy (Table B1).

*C.3*: 80,527 peer-reviewed journal articles that cite items in *C.2*.

## B.2 Instruments for operationalizing variables

To operationalize the network measures, the rationale of scholarship, and research relevance, we needed to create two instruments in the first place: the *coauthor network* and the *Document-Topic Similarity Matrix (DTSM)*.

### B.2.1 Coauthor network

In a coauthor network, nodes represent authors and two nodes are connected if they collaborate on at least one paper. We used the disambiguated authorship information of journal articles in English to construct the unweighted coauthor network for this study. We also obtained the data on

Table B1: Core literature on nonprofits and philanthropy by journal

| # | Journal title | #Articles | #Years covered |
|---|---|---|---|
| 1 | annals of public and cooperative economics | 2,698 | 91 |
| 2 | intl. j. of social economics | 2,619 | 47 |
| 3 | nonprofit and voluntary sector quarterly | 1,788 | 49 |
| 4 | voluntas | 1,329 | 31 |
| 5 | democratization | 1,270 | 27 |
| 6 | j. of democracy | 1,165 | 25 |
| 7 | nonprofit management and leadership | 848 | 31 |
| 8 | le mouvement social | 690 | 31 |
| 9 | j. of nonprofit and public sector marketing | 622 | 28 |
| 10 | social movement studies | 469 | 11 |
| 11 | mobilization | 356 | 16 |
| 12 | harvard civil rights-civil liberties law review | 334 | 31 |
| 13 | j. of civil society | 256 | 11 |
| 14 | intl. review on public and nonprofit marketing | 237 | 13 |
| 15 | j. of social entrepreneurship | 213 | 11 |
| 16 | foundation review | 213 | 9 |
| 17 | research in social movements, conflicts and change | 205 | 16 |
| 18 | intl. j. of nonprofit and voluntary sector marketing | 187 | 7 |
| 19 | j. of higher education outreach and engagement | 173 | 6 |
| 20 | china nonprofit review | 158 | 12 |
| 21 | voluntary sector review | 107 | 6 |
| 22 | social enterprise j. | 78 | 4 |
| 23 | j. of public and nonprofit affairs | 78 | 6 |
| 24 | nonprofit policy forum | 35 | 2 |

*Note*: Journals are selected according to Ma and Bekkers (2023), Ma and Konrath (2018), Smith (2013), and Walk and Andersson (2020).

authors' affiliations and set the information as node attributes so that we could determine whether an author had Chinese affiliations. This instrument was further used to construct *(5) ZH closeness* and *(6) Embeddedness*.

### B.2.2 Document-Topic Similarity Matrix

We followed the idea of the DTSM applied in Heiberger et al. (2021) but used a newer language model (i.e., multilingual language model) in natural language processing to vectorize texts and calculate similarities. We computed two types of DTSM: single- and cross-language versions.

***Single-language DTSM (s-DTSM).*** Figure B1 illustrates how this version of DTSM is constructed. At Step 1, the English research articles (*article document*) are represented as word vectors using the *Doc2Vec* method devised by Le and Mikolov (2014). These high-dimensional vectors are reduced to lower-dimensional to speed up the analysis at Step 2, at which the vectors of article documents are clustered into different groups (i.e., topics). Step 3 generates the keywords that are semantically central to a topic using the method devised by Angelov (2020), and the keywords of an English research topic are then treated as a new document (*topic document*). At Step 4, topic documents and article documents are encoded (i.e., vectorized) by a state-of-the-art multilingual language model devised by Yang et al. (2019). Step 5 calculates the cosine similarity between the vectors of topic and article documents, producing the s-DTSM for operationalizing the rationale of English scholarship (i.e., *(1) Instrumental*).

The five steps are technically intense and nontrivial. Therefore, we provide the source codes for reproducing these steps. Steps 1–3 can be reproduced by code block `code_CT4ZO` in `script/topic_analysis.html`, and Steps 3–5 can be reproduced by code block `code_32DGI` in `script/regr_vars.html`.

There is another crucial technical caveat at Step 2—how to determine the number of topics for a given body of scholarship? Appendix B.3 details our strategies.

***Cross-language DTSM (c-DTSM).*** As Figure B2 illustrates, the c-DTSM shares the rationale and methods of the s-DTSM. The primary difference is that the topic document of c-DTSM is generated from Chinese articles. Therefore, by calculating the similarities between the vectors of Chinese topic documents and English research articles, we can measure the *(3) Thematic relevance* to Chinese research topics.

The c-DTSM has a unique technical caveat—with the multilingual language model available, why not directly use this model in topic modeling (i.e., Steps 1–3)? Although multilingual language models are powerful tools, they cannot yet handle the systematic differences across languages (Chan et al., 2020, pp. 289–291). We train our own model from scratch at Step 1 using *Doc2Vec*, so that the trained model can better capture the unique semantic features in the Chinese

Figure B1: BUILDING THE DOCUMENT-TOPIC SIMILARITY MATRIX: SINGLE-LANGUAGE
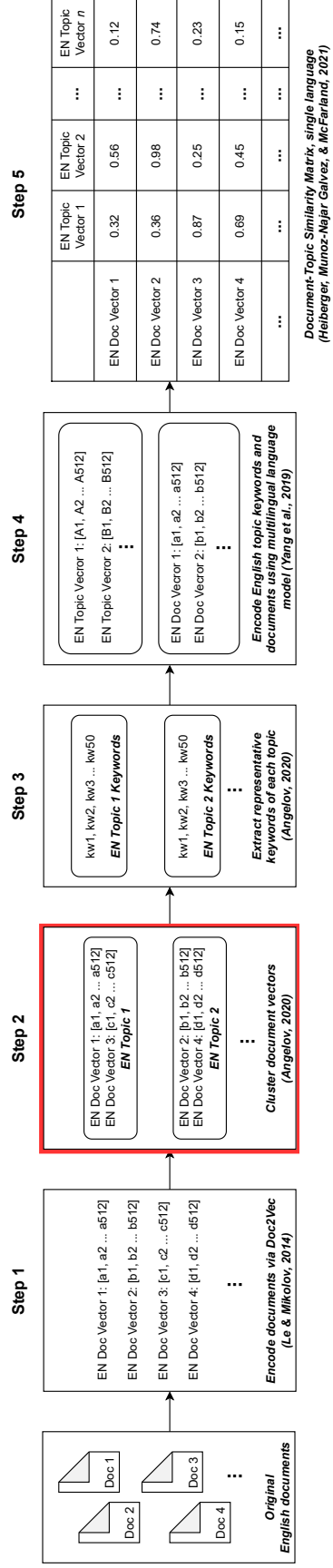


*Notes*: EN = English. Step marked in red is stochastic (i.e., Step 2; refer to Appendix D.1.2 for details). Source codes for reproducing: Steps 1–3, code block code_CT4ZO in script/topic_analysis.html; Steps 3–5, code block code_32DGI in script/regr_vars.html.

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Figure B2: BUILDING THE DOCUMENT-TOPIC SIMILARITY MATRIX: CROSS-LANGUAGE

**Step 1**

ZH Doc Vector 1: [a1, a2 ... a512]

ZH Doc Vector 2: [b1, b2 ... b512]

ZH Doc Vector 3: [c1, c2 ... c512]

ZH Doc Vector 4: [d1, d2 ... d512]

...

*Encode documents via Doc2Vec (Le & Mikolov, 2014)*

*Original Chinese documents*
Doc 1
Doc 2
Doc 3
Doc 4
...

**Step 2**

ZH Doc Vector 1: [a1, a2 ... a512]
ZH Doc Vector 3: [c1, c2 ... c512]
*ZH Topic 1*

ZH Doc Vector 2: [b1, b2 ... b512]
ZH Doc Vector 4: [d1, d2 ... d512]
*ZH Topic 2*

...

*Cluster document vectors (Angelov, 2020)*

**Step 3**

kw1, kw2, kw3 ... kw50
*ZH Topic 1 Keywords*

kw1, kw2, kw3 ... kw50
*ZH Topic 2 Keywords*

...

*Extract representative keywords of each topic (Angelov, 2020)*

**Step 4**

ZH Topic Vector 1: [A1, A2 ... A512]
ZH Topic Vector 2: [B1, B2 ... B512]

...

EN Doc Vector 1: [a1, a2 ... a512]
EN Doc Vector 2: [b1, b2 ... b512]

...

*Encode Chinese topic keywords and English documents using multilingual language model (Yang et al., 2019)*

**Step 5**

| | ZH Topic Vector 1 | ZH Topic Vector 2 | ... | ZH Topic Vector n |
|---|---|---|---|---|
| EN Doc Vector 1 | 0.32 | 0.56 | ... | 0.12 |
| EN Doc Vector 2 | 0.36 | 0.98 | ... | 0.74 |
| EN Doc Vector 3 | 0.87 | 0.25 | ... | 0.23 |
| EN Doc Vector 4 | 0.69 | 0.45 | ... | 0.15 |
| ... | ... | ... | ... | ... |

*Document-Topic Similarity Matrix, cross language (Heiberger, Munoz-Najar Galvez, & McFarland, 2021)*

*Notes*: ZH = Chinese Simplified; EN = English. Step marked in red is stochastic (i.e., Step 2; refer to Appendix D.1.2 for details). Source codes for reproducing: Steps 1–3, code block code_BDRBE in script/topic_analysis.html; Steps 3–5, code block code_0JZYH in script/regr_vars.html.

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scholarship and produce more representative topics. The difference between English and Chinese vector spaces may produce systematic errors (i.e., the distances between English documents and Chinese topics are systematically larger or smaller than "true" values). However, since the multilingual language model is applied at Step 4, such errors generate limited biases, if any, in our regression because only the relative distance, not the absolute distance, matters in our analysis.

## B.3  Determining the number of research topics

Human and computer-assisted automated coding are two commonly employed approaches to determining the topics for a given body of literature. Human-coding of an article's topic largely relies on researchers' expert knowledge (e.g., Brudney & Durden, 1993; Shier & Handy, 2014). Automated coding using algorithms (e.g., machine learning) relies on fine-tuning the algorithms using different hyperparameters, examining validity, and checking robustness (e.g., Heiberger et al., 2021; Kang et al., 2021; Mueller & Rauh, 2018). This study incorporates all these measures.

### B.3.1  Grid search of hyperparameters

The number of topics can vary depending on the hyperparameters of algorithms used (Dodge et al., 2020). We could exhaust literally all possible parametric combinations, examine how the results converge, and find the combination with the best performance. This process is referred to as "grid search," which is often employed in both industry and academia. However, natural language processing can be extremely expensive both economically and environmentally, and scholars have been calling for "Green AI" in research (Schwartz et al., 2020; Strubell et al., 2019). We estimate that exhausting all possible parametric combinations for training both English and Chinese texts in our study would require a 96-CPU computing server to run continuously for over 80 days.

Instead, we randomly selected 10% of the 3,000 total parametric combinations to reduce our carbon footprint and energy consumption. The code scripts for reproducing this step are

`topic_tuning-en.py` and `topic_tuning-en.py` in folder `script/analysis`. As Figure B3
shows, the number of topics modeled using different parametric combinations cuts off near 18 for
the English scholarship and 26 for the Chinese.

### B.3.2 Content and discriminant validity

According to Frumkin's (2002) typology, we can reduce the modeled topics to four major
categories (i.e., achieving *content validity*). Meanwhile, representative keywords in each category
should have the maximum distance from each other in the trained semantic space (i.e., achieving
*discriminant validity*). For example, if we reduce the modeled topics to four, the word "political"
should be very close to one of the four topic vectors, but distant from the other three vectors. An
ideal classification of research topics should produce values, for example, [0.98, 0.99, 0.92, 0.99].
There are three criteria for evaluating the values: 1) the four numbers should be equally
distributed, which can be measured using a version of the Herfindahl–Hirschman index; 2) the
average of the four numbers should be large; and 3) we should keep as many topics as possible so
that more information can be retained and articles can be better differentiated. We calculated the
harmonic mean of the three criteria to find the optimal number of topics. The algorithms devised
for this step can be found in `script/common/shared_functions.py`, functions
`func_t2vTheoreticalValidity_en` and `func_t2vTheoreticalValidity_zh`.

   According to these strategies, we extracted 18 topics for the English scholarship and 30 topics
for the Chinese scholarship.

### B.3.3 Manual validation and amendment

At the last stage, we manually validated the algorithm-based topics and estimated their accuracy.
We randomly selected 373 articles (confidence interval $95 \pm 5\%$) and manually coded them using
the algorithm-based topics as a reference (19 non-relevant Chinese articles are excluded, i.e.,
5.10%; 24 non-relevant English articles are excluded, i.e., 6.43%). Because the articles were
analyzed at the levels of topic (primarily the descriptive analysis) and rationale (i.e., instrumental

and expressive; primarily the regression analysis), the inter-coder reliability between human coder and algorithm should be examined at the two levels. At the topic level, human coder and algorithm coded 46.89% of the Chinese articles (i.e., 166) and 47.28% of the English articles (i.e., 165) as the same topic. For the articles that are coded differently, we rated the difference on a four-point Likert scare (i.e., "unacceptable," "somewhat unacceptable," "acceptable," and "interchangeable"), and Table B2 shows the distribution of ambiguity. Following the same approach, human coder and algorithm coded 81.07% of the Chinese articles (i.e., 287) and 83.95% of the English articles (i.e., 293) as the same rationale, and the distribution of ambiguity is also listed in Table B2. According to these statistics, we expect the instrumental errors should be better than acceptable.

Table B2: AMBIGUITY OF INTER-CODER DIFFERENCE

| Ambiguity | Chinese | | English | |
|---|---|---|---|---|
| | Topic | Rationale | Topic | Rationale |
| Interchangeable | 48.94% | 44.78% | 53.26% | 53.57% |
| Acceptable | 34.57% | 34.33% | 31.52% | 30.36% |
| Somewhat unacceptable | 13.30% | 17.91% | 11.96% | 14.29% |
| Unacceptable | 3.19% | 2.99% | 3.26% | 1.79% |

Figure B3: DISTRIBUTION OF NUMBER OF RESEARCH TOPICS GENERATED BY FINE-TUNING



(a) English topics

(b) Chinese topics
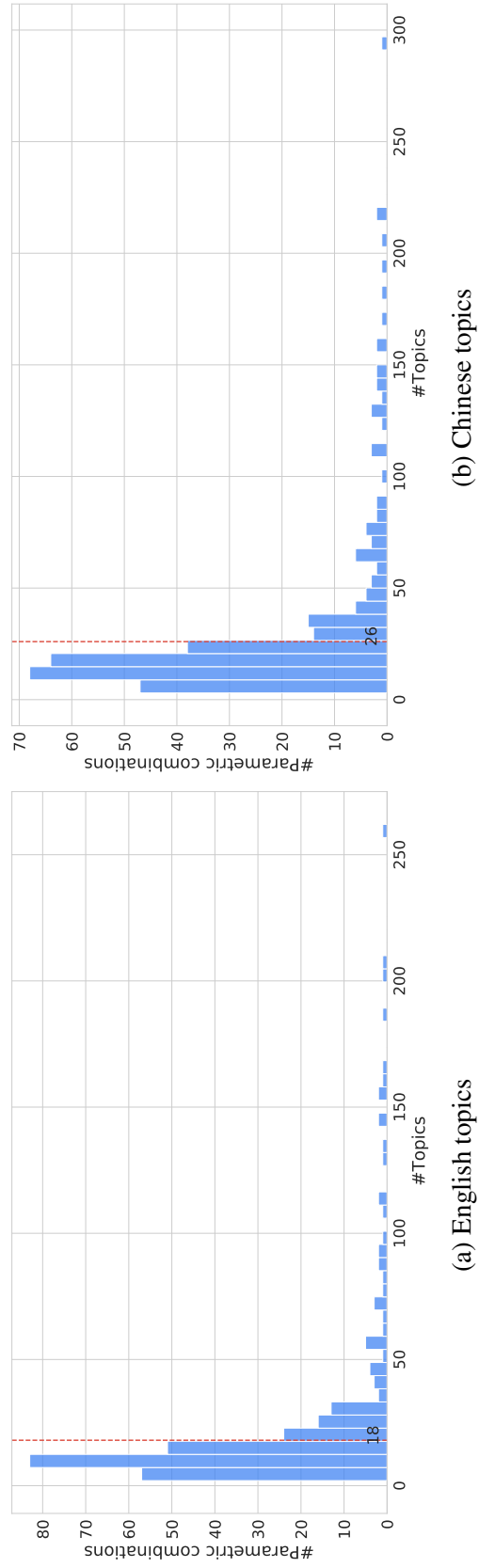
*Note:* Source codes for reproducing the two figures can be found in script/`topic_analysis.html`, code_6T5VY for subfigure (a) and code_G862F for subfigure (b).

# C  Directions of confounders

If confounders with different directions are not considered, the relationship between *instrumental* and the dependent variable can be mixed (Figure C4). As Table C3 presents, *disruptive paradigm* and *thematic relevance* are negatively associated with *instrumental*, while network *ZH closeness* and *embeddedness* have positive associations. These results suggest possible causal directions, as Figures C5—C7 illustrate (Mehio-Sibai et al., 2005). According to Table C4, which lists the results testing these relations, *thematic relevance* is a substantial negative confounder between *instrumental* and the dependent variable.

Table C3: T-TESTS OF EXPLANATORY VARIABLES BY SCHOLARSHIP RATIONALE

| | N | Mean | | Diff. | Std. Err. | t |
| --- | --- | --- | --- | --- | --- | --- |
| | | Expressive | Instrumental | | | |
| *Paradigm* | | | | | | |
| Disruptive | 5,464 | .072 | .055 | .016 | .0051 | 3.2** |
| *Relevance* | | | | | | |
| Thematic | 6,294 | .39 | .34 | .049 | .0017 | 28*** |
| Topic size | 6,294 | 480 | 390 | 98 | 2.6 | 37*** |
| *Scholarly networks* | | | | | | |
| ZH closeness | 6,294 | .33 | .44 | −.10 | .042 | −2.5* |
| Embeddedness | 6,294 | 3.7 | 4.0 | −.37 | .16 | −2.4* |
| Team size | 6,294 | 1.7 | 2.1 | −.41 | .027 | −15*** |
| *Reputation* | | | | | | |
| Overall impact | 6,294 | 430 | 790 | −360 | 81 | −4.4*** |
| Reference age | 6,294 | 10 | 10 | .0042 | .22 | .019 |

*Note*: Variables of interest are underlined. $N = 6,294$. $^{*}\ p < .05$, $^{**}\ p < .01$, $^{***}\ p < .001$

Figure C4: MIXED RELATIONSHIP WITHOUT CONSIDERING CONFOUNDERS

Instrumental ⟶ ZH circulation
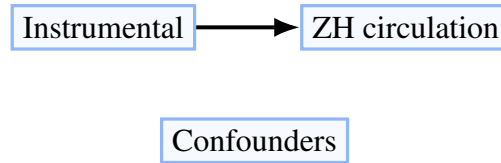
Confounders

*Note*: Expected relations. Black line represents mixed non-significant relationship.

⋆   ⋆   ⋆

Figure C5: INCLUDING NEGATIVE CONFOUNDERS IN REGRESSION: DISRUPTIVE
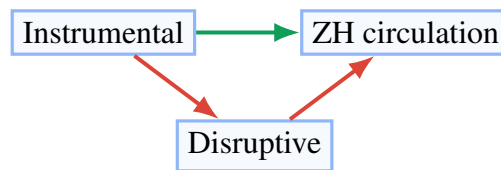
Instrumental ⟶ ZH circulation

Disruptive

*Note*: Expected relations. Red indicates negative relationship; green indicates positive.

⋆   ⋆   ⋆

Figure C6: INCLUDING NEGATIVE CONFOUNDERS IN REGRESSION: THEMATIC
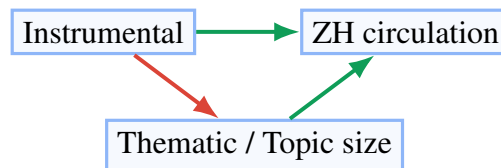
Instrumental ⟶ ZH circulation

Thematic / Topic size

*Note*: Expected relations. Red indicates negative relationship; green indicates positive.

⋆   ⋆   ⋆

Figure C7: INCLUDING POSITIVE CONFOUNDERS IN REGRESSION

Instrumental ⟶ ZH circulation

ZH closeness / Embeddedness / Team size
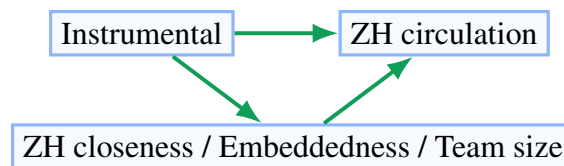
*Note*: Expected relations. Red indicates negative relationship; green indicates positive.

Table C4: TESTING DIRECTIONS OF CONFOUNDING RELATIONSHIPS

| | Fig. C4 | Fig. C5 | Fig. C6.1 | Fig. C6.2 | Fig. C7.1 | Fig. C7.2 | Fig. C7.3 |
|---|---|---|---|---|---|---|---|
| *Rationale* | | | | | | | |
| Instrumental | −.0073 | .00040 | .049*** | .051*** | −.0095 | −.015 | −.0051 |
| | (−.74) | (.040) | (4.7) | (4.6) | (−.97) | (−1.5) | (−.51) |
| *Paradigm* | | | | | | | |
| Disruptive | | −.15*** | | | | | |
| | | (−3.8) | | | | | |
| *Relevance* | | | | | | | |
| Thematic | | | 1.7*** | 1.7*** | | | |
| | | | (15) | (15) | | | |
| Topic size | | | | .010 | | | |
| | | | | (.51) | | | |
| *Scholarly networks* | | | | | | | |
| ZH closeness | | | | | .078*** | .054*** | .050*** |
| | | | | | (6.5) | (4.3) | (3.9) |
| Embeddedness | | | | | | .038*** | .053*** |
| | | | | | | (6.3) | (7.5) |
| Team size | | | | | | | −.092*** |
| | | | | | | | (−5.4) |
| *Reputation* | | | | | | | |
| Overall impact | .053*** | .056*** | .062*** | .061*** | .052*** | .048*** | .049*** |
| | (15) | (15) | (17) | (17) | (15) | (14) | (14) |
| Reference age | .019*** | .033*** | .027*** | .027*** | .026*** | .030*** | .025*** |
| | (3.5) | (5.5) | (4.9) | (4.9) | (4.7) | (5.6) | (4.6) |
| Observations | 6,296 | 5,465 | 6,296 | 6,296 | 6,296 | 6,296 | 6,296 |
| Adjusted $R^2$ | .056 | .062 | .097 | .097 | .065 | .071 | .075 |

*Note*: Dependent variable: (0) Chinese citation. Variables of interest are underlined. All continuous variables are log-transformed. $t$ statistics in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$

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# D  Robustness analysis

## D.1  Reproducibility

The social sciences across all disciplines have been discussing the "reproducibility crisis" for many years (Baker, 2016; Hardwicke et al., 2020). Reproducibility is a significant concern for this project, as a study acquiring large datasets from different sources and adopting computational methods (Hofman et al., 2021, p. 185). There are mainly three sources of non-replicability: (1) changes from data sources, (2) stochastic behaviors of algorithms and computers, and (3) data management and analysis workflow.

### D.1.1  *Changes from data sources*

The data providers may frequently update their databases to correct erroneous records, such as typos in article titles and incorrect issue numbers. These changes tend to be dispersed, random, and relatively small. Unless there are systematic errors—possible but unlikely, according to numerous data validation studies—the influence of these changes on our analysis is minimal (e.g., Baas et al., 2020; Martín-Martín et al., 2020; van Eck & Waltman, 2019; Visser et al., 2021).

### D.1.2  *Stochastic behaviors of algorithms and computers*

In statistics and computer science, non-deterministic approaches are often employed to speed up calculation but unavoidably introduce randomness (e.g., bootstrapping in statistics and deciding learning rate in machine learning). Such stochastic process relies on a "pseudorandom number generator" to generate a sequence of numbers, which are not truly random because they are determined by an initial number usually called "random seed." Therefore, different runs of a stochastic algorithm can be exactly replicated by using the same random seed.

Another type of randomness is algorithm-irrelevant and related to computer hardware. It cannot be avoided. In this study, we deal with the randomness introduced by multithreading

calculation specifically (i.e., split a large problem into many small jobs, then utilize multiple cores of a computer to solve the small tasks in parallel). The difference between runs should be minor, according to the experiments in the official technical document.[2]

In this study, the only stochastic step is the dimension reduction of high-dimensional semantic vectors (i.e., Step 2 in Figure B1 and Figure B2). To cope with that challenge for reproducibility, we used the same random seed in all calculations. The randomness introduced by multithreading is unavoidable but should be minimal. Figure D8 is a replication of Figure 5 using a different computing server. The replication shows only minor differences in the locations of topics in the two figures.

### D.1.3   *Data management and analysis workflow*

Behind the neat results presented by empirical studies, there are always technical details and caveats that prevent the results from being replicated. For projects employing computational methods, the technical details are especially crucial because these projects deal with large datasets and algorithms full of parameters. Throughout the entire research process, we followed best practices to improve this study's reproducibility, such as using workflow diagrams, annotated code scripts, and version control (Gentzkow & Shapiro, 2014; Wilson et al., 2014; Wilson et al., 2017).

The (1) manuscript of this project is published as a regular journal article and targets readers from a variety of methodological backgrounds. We also provide (2) an appendix with more technical details and replication guidance (i.e., this document) and (3) source codes for reproducing major results. To assist code review and verification, the manuscript, appendix, and code scripts are all cross-referenced using unique IDs (i.e., `code_*` labels).

## D.2   Robustness to a different level of measurement

Given the possible transitional relationship between instrumental and expressive rationales, the binary variable *scholarship rationale* can in theory be operationalized as a ratio measure instead

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[2]https://web.archive.org/web/20221201222823/https://umap-learn.readthedocs.io/en/latest/reproducibility.html

Figure D8: REPLICATION: MAPPING ENGLISH SCHOLARSHIP CITED BY CHINESE SCHOLARS STUDYING NONPROFITS AND PHILANTHROPY



*Notes:* A replication of Figure 5 using a different computing server.

of a dichotomy. If we (1) adopt the similarity values between articles and topics and (2) assign instrumental values as positive and expressive values as negative, we can improve the level of measurement from binary to ratio, of which -1 indicates being totally expressive, 0 neutral, and 1 totally instrumental. According to the ratio variable's bimodal distribution (Figure D9), the distinction between being instrumental and being expressive is obvious. Therefore,

operationalizing scholarship rationale as binary should not statistically undermine our analysis. Table D5 shows the results of regression models using the ratio measure, revealing only marginal differences with the main results in Table 4.

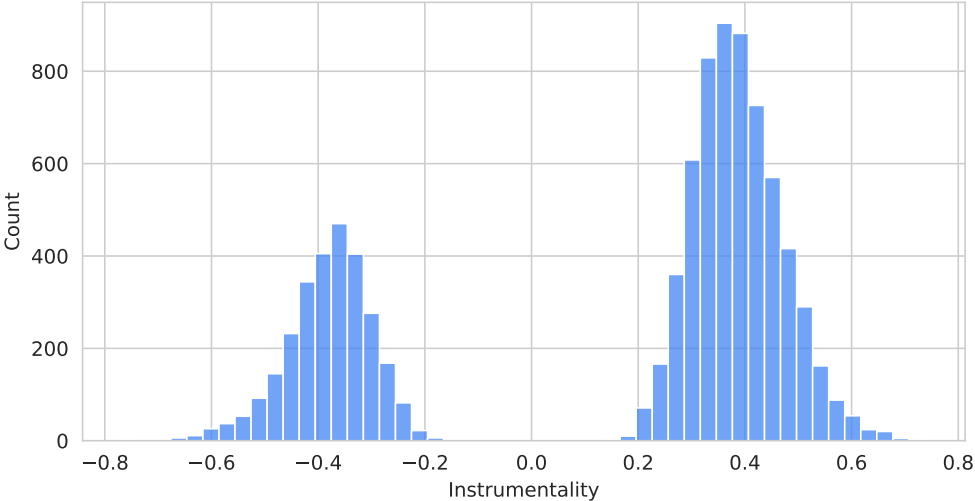Figure D9: DISTRIBUTION OF SCHOLARSHIP RATIONALE AS A RATIO VARIABLE

Table D5: PREDICTING CROSS-LANGUAGE CITATIONS: ENGLISH CITED BY CHINESE (RATIO RATIONALE)

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| *Rationale* | | | | |
| (1) Instrumental | −.00077 | .0081 | .077*** | .071*** |
| | (−.070) | (.67) | (5.5) | (5.1) |
| *Paradigm* | | | | |
| (2) Disruptive | | −.15*** | −.16*** | −.12** |
| | | (−3.8) | (−4.2) | (−3.0) |
| *Relevance* | | | | |
| (3) Thematic | | | 1.8*** | 1.7*** |
| | | | (15) | (14) |
| (4) Topic size | | | .0021 | −.0099 |
| | | | (.10) | (−.47) |
| *Scholarly networks* | | | | |
| (5) ZH closeness | | | | .038** |
| | | | | (3.0) |
| (6) Embeddedness | | | | .047*** |
| | | | | (6.1) |
| (7) Team size | | | | −.064*** |
| | | | | (−3.5) |
| *Reputation* | | | | |
| (8) Overall impact | .052*** | .055*** | .066*** | .063*** |
| | (15) | (14) | (17) | (16) |
| (9) Reference age | .020*** | .033*** | .040*** | .041*** |
| | (3.6) | (5.5) | (6.6) | (6.7) |
| Observations | 6,296 | 5,465 | 5,465 | 5,465 |
| Adjusted $R^2$ | .056 | .063 | .11 | .12 |

*Note*: Dependent variable: (0) Chinese citation. Variables of interest are underlined. All continuous variables except (1) Instrumental are log-transformed. $t$ statistics in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$

# E    Additional tables

Table E6: COMPARISON OF DIFFERENT TYPES OF KNOWLEDGE PRODUCTION STUDIES

| Perspective | Focus | Data | Analysis methods | Substantive knowledge | | Example studies |
| --- | --- | --- | --- | --- | --- | --- |
| | | | | Topic | Field | |
| Sociology of knowledge | Social process and mechanisms | Surveys, archival data, curated bibliographic data | Qualitative, statistical, and computational methods | No | No | Evans (2007), Rawlings et al. (2015), and Shwed and Bearman (2010) |
| Meta-science | Bibliometric patterns | Curated bibliographic data | Statistical and computational methods | No | No | King et al. (2017), Park et al. (2023), and Wu et al. (2019) |
| Literature review | Consensus about existing findings | Curated literature pool | Qualitative, statistical, and computational methods | Yes | No | Bekkers and Wiepking (2011), Gazley and Guo (2020), Jung et al. (2022), Laurett and Ferreira (2018), Maier et al. (2016), and Ward et al. (2022) |
| Meta-analysis | Consensus about existing findings | Curated literature pool | Statistical methods | Yes | No | de Wit and Bekkers (2017), Hung and Hager (2019), and Lu (2018) |
| Disciplinary development | Intellectual maturation at field level | Surveys, archival data, curated bibliographic data | Qualitative, statistical, and computational methods | No | Yes | Ma and Konrath (2018), Schubert et al. (2022), Shier and Handy (2014), and Walk and Andersson (2020) |

*Note:* There are no clear boundaries between different methods of analysis. However, (1) "qualitative methods" typically include manual coding and framing, such as the classification of articles into different theoretical categories; (2) "statistical methods" typically include presenting descriptive statistics and running regression models; and (3) "computational methods," also often referred to as "computational social science," use a series of non-conventional quantitative methods such as network analysis, natural language processing, and machine learning (Ma et al., 2021).

Table E7: DESCRIPTION OF DEPENDENT AND EXPLANATORY VARIABLES

| Variable | Obs. (%) | Mean (Std) | Min. | 50% | Max. |
|---|---|---|---|---|---|
| *(0) Chinese citation* | 6,732 (100%) | 1.6 (2.4) | 1.0 | 1.0 | 80 |
| *(1) Instrumental* | | | | | |
| Yes | 4,675 (69%) | | | | |
| No | 2,057 (31%) | | | | |
| *(2) Disruptive* | 5,784 (86%) | .062 (.17) | $-1.0$ | .00056 | 1.0 |
| *(3) Thematic relevance* | 6,732 (100%) | .36 (.066) | .13 | .36 | .57 |
| *(4) Topic size* | 6,732 (100%) | 420 (110) | 214.6 | 405.1 | 715 |
| *(5) ZH closeness* | 6,732 (100%) | .41 (1.6) | 0 | 0 | 18 |
| *(6) Embeddedness* | 6,732 (100%) | 4.0 (5.6) | 0 | 2.5 | 137 |
| *(7) Team size* | 6,732 (100%) | 2.1 (1.3) | 1 | 2 | 41 |
| *(8) Overall impact* | 6,732 (100%) | 690 (2900) | 0 | 175 | 104,126 |
| *(9) Reference age* | 6,382 (95%) | 10 (7.9) | 0 | 8 | 73.5 |

*Note*: $N = 6,732$. Showing descriptive statistics of raw values.

Table E8: MEAN AND MEDIAN AGES OF ENGLISH REFERENCES CITED BY CHINESE NPS ARTICLES

| Publication year of ZH citing articles | Age of EN references (mean) | Age of EN references (median) |
|---|---|---|
| 1999 | 5.25 | 5.5 |
| 2000 | 7.88 | 6.0 |
| 2001 | 6.26 | 5.0 |
| 2002 | 5.52 | 3.5 |
| 2003 | 12.04 | 8.0 |
| 2004 | 8.77 | 5.0 |
| 2005 | 9.02 | 7.0 |
| 2006 | 8.60 | 7.0 |
| 2007 | 10.05 | 8.0 |
| 2008 | 9.19 | 8.0 |
| 2009 | 11.12 | 9.0 |
| 2010 | 10.75 | 9.0 |
| 2011 | 9.96 | 8.0 |
| 2012 | 10.99 | 9.0 |
| 2013 | 10.82 | 9.0 |
| 2014 | 10.79 | 9.0 |
| 2015 | 11.11 | 10.0 |
| 2016 | 11.30 | 10.0 |
| 2017 | 11.93 | 10.0 |
| 2018 | 11.57 | 9.0 |

*Note*: NPS = Nonprofit and philanthropic studies; ZH = Chinese; EN = English. Age numbers are in years.

Table E9: TOP 10 MOST-CITED ENGLISH JOURNAL ARTICLES: INSTRUMENTAL

| Title | Year | Journal | Chinese citations | Total citations |
|---|---|---|---|---|
| The relationship between corporate philanthropy and shareholder wealth: A risk management perspective | 2005 | Academy of Management Review | 70 | 2538 |
| Corporate philanthropy and corporate financial performance: The roles of stakeholder response and political access | 2011 | Academy of Management Journal | 39 | 809 |
| Corporate philanthropic practices | 2006 | Journal of Corporate Finance | 31 | 684 |
| Corporate reputation and philanthropy: An empirical analysis | 2005 | Journal of Business Ethics | 30 | 1149 |
| Negotiating the state: The development of social organizations in China | 2000 | China Quarterly | 29 | 838 |
| Theory of the firm: Managerial behavior, agency costs and ownership structure | 1976 | Journal of Financial Economics | 25 | 104126 |
| An urban grants economy revisited: Corporate charitable contributions in the twin cities, 1979-81, 1987-89 | 1997 | Administrative Science Quarterly | 22 | 611 |
| Limits to community participation in the tourism development process in developing countries | 2000 | Tourism Management | 22 | 1831 |
| Too little or too much? Untangling the relationship between corporate philanthropy and firm financial performance | 2008 | Organization Science | 22 | 590 |
| Tocquevillian moments: Charitable contributions by Chinese private entrepreneurs | 2006 | Social Forces | 21 | 111 |

*Note*: Ranked by number of Chinese citations.

Table E10: Top 10 most-cited English journal articles: Expressive

| Title | Year | Journal | Chinese citations | Total citations |
|---|---|---|---|---|
| A Ladder of Citizen Participation | 1969 | Journal of the American Planning Association | 80 | 26,154 |
| Prospects for civil society in China: a case study of Xiaoshan city | 1993 | Australian Journal of Chinese Affairs | 47 | 344 |
| Revolution or corporatism? Workers and trade unions in post-Mao China | 1993 | Australian Journal of Chinese Affairs | 23 | 457 |
| The Janus face of business associations in China: socialist corporatism in foreign enterprises | 1994 | Australian Journal of Chinese Affairs | 22 | 243 |
| Democratizing the neighbourhood? New private housing and home-owner self-organization in urban China | 2003 | China Journal | 20 | 345 |
| A structuronomic conception of behavior: Individual and collective: I. Structural theory and the master problem of social psychology | 1962 | Journal of Abnormal and Social Psychology | 16 | 596 |
| Greening without conflict? Environmentalism, NGOs and civil society in China | 2001 | Development and Change | 16 | 503 |
| Political participation in the Chinese countryside | 1997 | American Political Science Review | 13 | 182 |
| Voting and nonvoting in China: Voting behavior in plebiscitary and limited-choice elections | 1999 | Journal of Politics | 12 | 207 |
| "Connecting" and "disconnecting" with civic life: Patterns of internet use and the production of social capital | 2001 | Political Communication | 12 | 1,552 |

*Note*: Ranked by number of Chinese citations.

## Table E11: Top 20 most-cited English articles from the core journals

| Title | Year | Journal | Chinese cite | Total cite | Ra-tion. |
|---|---|---|---|---|---|
| Alternative Models of Government-Nonprofit Sector Relations: Theoretical and International Perspectives | 2000 | Nonprofit and Voluntary Sector Quarterly | 18 | 312 | Ins. |
| Beyond civil society: An organizational perspective on state-NGO relations in the People's Republic of China | 2010 | Journal of Civil Society | 12 | 191 | Ins. |
| Strategic collaboration between nonprofits and businesses | 2000 | Nonprofit and Voluntary Sector Quarterly | 11 | 1,302 | Ins. |
| Of Market Failure, Voluntary Failure, and Third-Party Government: Toward a Theory of Government-Nonprofit Relations in the Modern Welfare State | 1987 | Nonprofit and Voluntary Sector Quarterly | 11 | 1,174 | Ins. |
| A model and typology of government-NGO relationships | 1998 | Nonprofit and Voluntary Sector Quarterly | 11 | 534 | Ins. |
| The governance of NGOs in China since 1978: How much autonomy? | 2002 | Nonprofit and Voluntary Sector Quarterly | 11 | 232 | Ins. |
| Agency theory in the not-for-profit sector: Its role at independent colleges | 2000 | Nonprofit and Voluntary Sector Quarterly | 9 | 264 | Ins. |
| Accountability online: Understanding the web-based accountability practices of nonprofit organizations | 2011 | Nonprofit and Voluntary Sector Quarterly | 9 | 151 | Ins. |
| A conceptual model exploring the dynamics of government-nonprofit service delivery | 2006 | Nonprofit and Voluntary Sector Quarterly | 9 | 144 | Ins. |
| Board Composition, Committees, and Organizational Efficiency: The Case of Nonprofits | 2003 | Nonprofit and Voluntary Sector Quarterly | 8 | 169 | Ins. |
| Defining Chinese nongovernmental organizations | 2002 | Voluntas | 8 | 61 | Exp. |
| Social capital and philanthropy: An analysis of the impact of social capital on individual giving and volunteering | 2007 | Nonprofit and Voluntary Sector Quarterly | 7 | 510 | Ins. |
| Dimensions of business and nonprofit collaborative relationships | 2003 | Journal of Nonprofit and Public Sector Marketing | 7 | 319 | Ins. |
| Nonprofit organization financial performance measurement: An evaluation of new and existing financial performance measures | 2003 | Nonprofit Management and Leadership | 7 | 94 | Ins. |
| Institutional innovation in philanthropy: Community foundations in the UK | 2008 | Voluntas | 7 | 55 | Ins. |
| Social enterprise in the United States and Europe: Understanding and learning from the differences | 2006 | Voluntas | 5 | 1,289 | Exp. |
| Exploring the association between board and organizational performance in nonprofit organizations | 2005 | Nonprofit Management and Leadership | 5 | 628 | Ins. |
| Accountability, strategy, and international nongovernmental organizations | 2001 | Nonprofit and Voluntary Sector Quarterly | 5 | 492 | Ins. |
| Diversification of revenue strategies: Evolving resource dependence in nonprofit organizations | 1999 | Nonprofit and Voluntary Sector Quarterly | 5 | 465 | Ins. |
| In search of the non-profit sector. I: The question of definitions | 1992 | Voluntas | 5 | 249 | Ins. |

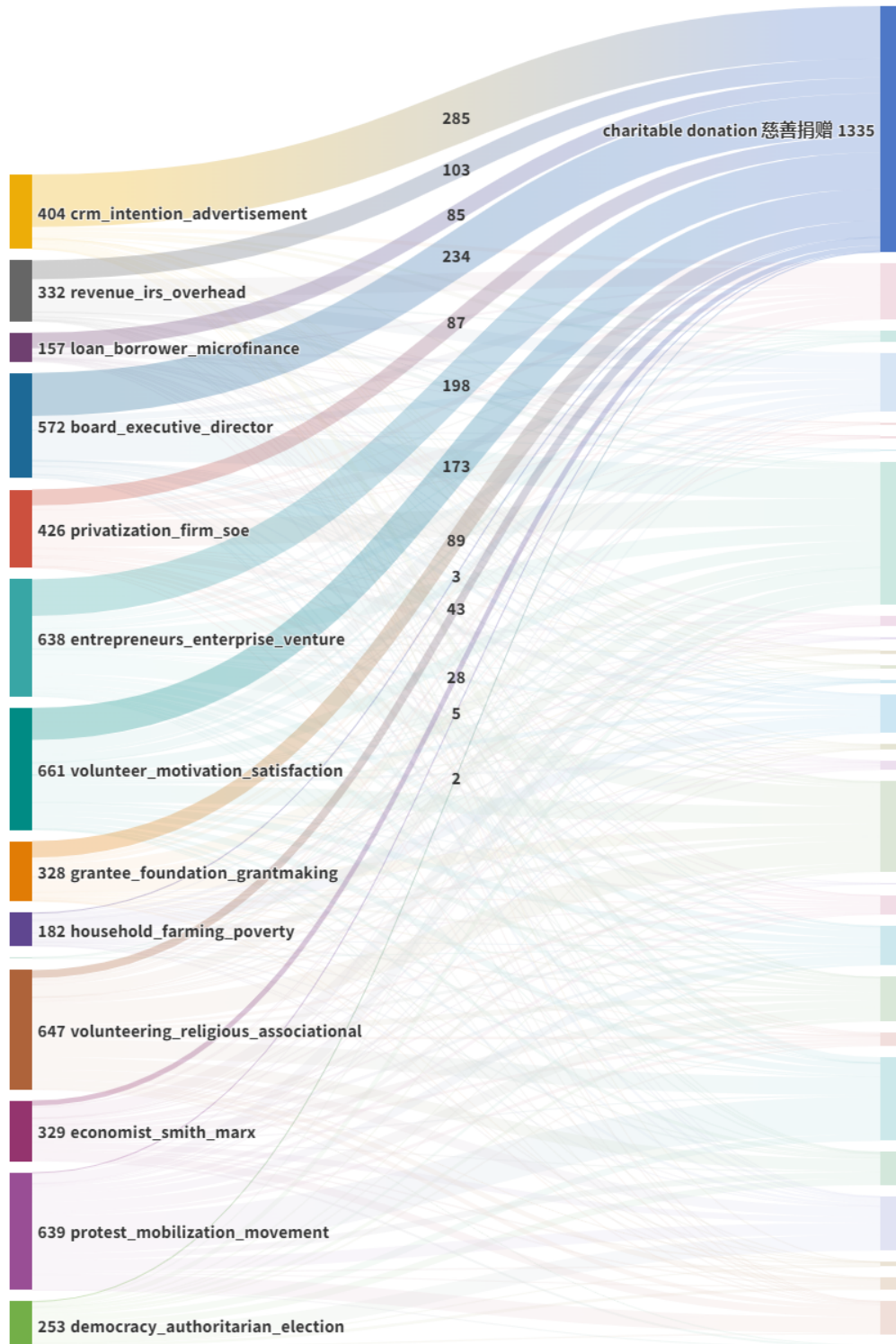*Note*: Ranked by number of Chinese citations.

Table E12: PREDICTING CROSS-LANGUAGE CITATIONS: ENGLISH CITED BY CHINESE (Z-SCORE TRANSFORMED)

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| *Rationale* | | | | |
| (1) Instrumental | −.0064 | .039 | .14*** | .14*** |
| | (−.20) | (1.8) | (5.1) | (4.9) |
| *Paradigm* | | | | |
| (2) Disruptive | | −.030* | −.033** | −.028* |
| | | (−2.3) | (−2.6) | (−2.1) |
| *Relevance* | | | | |
| (3) Thematic | | | .15*** | .14*** |
| | | | (9.5) | (9.1) |
| (4) Topic size | | | −.0086 | −.012 |
| | | | (−.66) | (−.87) |
| *Scholarly networks* | | | | |
| (5) ZH closeness | | | | .024 |
| | | | | (1.6) |
| (6) Embeddedness | | | | .055*** |
| | | | | (3.6) |
| (7) Team size | | | | −.020 |
| | | | | (−1.3) |
| *Reputation* | | | | |
| (8) Overall impact | .18** | .18*** | .20*** | .20*** |
| | (3.1) | (5.2) | (6.2) | (6.1) |
| (9) Reference age | .037* | .054*** | .074*** | .073*** |
| | (2.2) | (4.7) | (6.4) | (6.3) |
| Observations | 6,296 | 5,466 | 5,466 | 5,466 |
| Adjusted $R^2$ | .037 | .037 | .061 | .066 |

*Note*: Dependent variable: (0) Chinese citation. Variables of interest are underlined. All continuous variables are z-score transformed. $t$ statistics in parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$
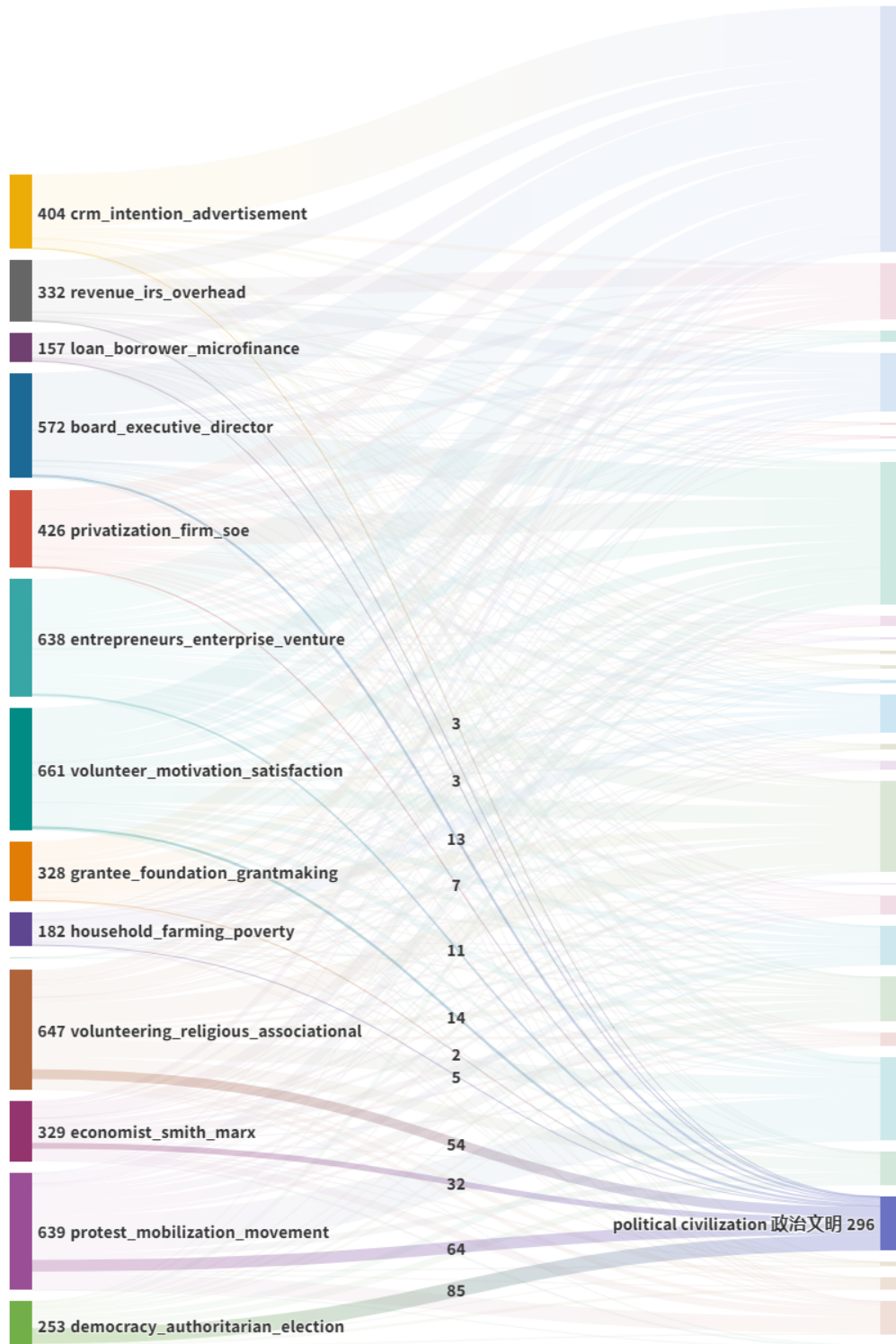
# F    Additional figures

ENGLISH KNOWLEDGE BASE FOR CHINESE SCHOLARSHIP ON NONPROFITS AND PHILANTHROPY: CHARITABLE DONATION 慈善捐赠



*Notes*: English topics on left, Chinese on right. An interactive version is available at https://osf.io/hxsu6.

404 crm_intention_advertisement

332 revenue_irs_overhead

157 loan_borrower_microfinance

572 board_executive_director

426 privatization_firm_soe

638 entrepreneurs_enterprise_venture

661 volunteer_motivation_satisfaction

328 grantee_foundation_grantmaking

182 household_farming_poverty

647 volunteering_religious_associational

329 economist_smith_marx

639 protest_mobilization_movement

253 democracy_authoritarian_election

3
3
13
7
11
14
2
5
54
32
64
85

political civilization 政治文明 296

*Notes*: English topics on left, Chinese on right. An interactive version is available at https://osf.io/hxsu6.

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