# CHINA IN
# GOOGLE TRENDS

*An analysis of Canadian search data*

The China Institute at the University of Alberta

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# FOREWORD

The China Institute at the University of Alberta (CIUA) is pleased to publish this companion piece to the first installment of our mass data analyses of Canadian news media. This report, titled "China in Google Trends: An Analysis of Canadian Search Data," aims to uncover the China-related topics that interest Canadians.

Like the companion study: "A Mass Data Analysis of China In Canadian Newspapers," this occasional paper represents a new research chapter for the CIUA in which we shift from annual public opinion surveys to content and discourse analysis using distinct data sources. In parallel with the timeframe of its companion piece, search data was retrieved from Google trends for a period between January 2015 to May 2018.

Unlike newspaper coverage, Canadian search interest in China is diverse. By examining topics including culture, investment, entertainment media, and the military, this report shows that there is no single dimension that captures a disproportionate amount of online attention. These findings

contrast those of the media content analysis, which found China's economy to be reported on far more than any other topic.

Together with our newspaper content analysis, this report aims to provide a multi-faceted view of Canada's public interest in the China-Canada relationship and promote a nuanced awareness of the complexity of our linkages. At a time when state-to-state relations between Canada and China are under stress, it is important to better understand the public dimension of this relationship.

**Gordon Houlden**
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# INTRODUCTION

Since its launch in 2006, Google Trends has provided valuable data on the search patterns of internet users. This data has important applications for content and sentiment analysis, measuring public attitudes[1], public interest[2], unemployment[3], issue salience[4] as well as surveilling, describing, and making causal inference in many other research trajectories[5].

Google Trends allows users to compare the search popularity of various search queries and requests over time using a sample of Google's search data. However, it reports search interests in normalized terms, that is, the true number of searches are obscured and topic salience is represented as a percent of maximum popularity. Using this tool, this report downloads Canadian search data for a host of queries related to China. More on our data collection and processing methodology is presented in appendix one (1).

This data is treated as an approximation for the general interest level of Canadians, nationally and regionally, regarding various China related topics. As of 2016, nine out of ten Canadians are able to access the internet[6] in which Google has a search engine market share of over 90%[7]. While some evidence suggests that Google users are more affluent than the average citizen, Google Trends' reach helps mitigate demographic effects on sample population[8]. Accordingly, Google Trends provides researchers with a representative window into the search patterns of Canadians. This report examines the distribution of Canadian public interest in China-related topics and how major political, economic, and social events impact the interest that Canadians have in China-related news. Furthermore, it explores the extent to which Canadian media accurately reflects the interests of Canadians, as observed through Google Trends.

It used to be the case that access to non-local information was limited to fewer sources, of which media, and specifically news media, was the preeminent agent. However, in the modern "information age" of search engines and social media, many people are able to build a broader and deeper relationship with information. As such, content analysis of traditional media no longer captures as complete a view of the messages available to an audience as it once did[9]. For example, the rise of social media platforms such as Twitter have increasingly filtered the spread of news stories through opinion and informal commentary[10], making the relationship that individuals share with news more susceptible to external influence. It is therefore important to supplement these traditional analyses, including the CIUA's analysis of Canadian news media[11], with other sources of data to more fully represent how people are seeking and interacting with information.

To address this issue, some researchers have applied content analysis to new informative mediums, such as social media[12], while others[13] have developed methods to apply new tools and data sources, including Google Trends, to generate new analyses of the changing relationship between people and information. This report builds on the latter, using Google Trends to complement the findings of the media content analysis by addressing the following three questions:

(1) What are people searching for?
(2) When do people search more and why?
(3) To what extent do media publications reflect Canadian public interest?

Further, this report is broken down into subsections, each addressing the following:

(1) how China compares to other countries on an aggregate search data level
(2) the most popular overall China-related searches
(3) the most popular Chinese economy-related searches
(4) China's military, energy and environment
(5) China's social and political development
(6) regional characteristics of search data
(7) the behavior of Canadian search data over time.

This paper aims to provide a comprehensive view of the China-related information that Canadians seek by comparing the aggregate level and variability of search interest related to various search queries in addition to highlighting the most salient searches and topics.

# CHINA IN GOOGLE TRENDS

This section begins with a broad overview of the general China-related topics that Canadians Googled from the January 2015 to May 2018. This data collection range was chosen to reflect the period over which the CIUA's media content analysis was conducted to make the results from both reports readily comparable.

Transactional queries that either indicated a clear intention to purchase goods and services or explored planned purchases have dominated Canadian web-search data regarding China. Chinese air travel and mail services were the most searched topics, which is not surprising given the expansion of trade and tourism between China and Canada over recent decades. Following transactional requests were searches for news articles about China and China-related issues. Informational searches such as "China US" and "China India" were the next most popular query group, along with searches regarding the Great Wall of China. Other popular search topics continued to be dominated informational queries such as "China time" and "China population."

The prevalence of such transactional and informational queries is not unique to China and is seen in Canadian search data for other countries as well. To provide a more nuanced and China-specific overview of Canadian search interest abroad, this report excludes the most popular informational and transactional queries and instead, compares the relative search query volume associated with China's politics, economy, and society. After filtering out most transactional searches, several topics stood out: of note, the South China Sea was requently searched in comparison to its relative frequency of publication. There were also a multitude of informational searches, including "China Russia," "Trump China," "India China," and "China North Korea," that highlighted Canadian interest in China's international role, relations, and position. China's stock market and navy constituted the next most searched query categories. Together, this indicates that China's foreign affairs, economic development, and military prowess constitute some of the most salient China-related topics in Canada.

A list of China-related search terms (Appendix 2) was generated and used to download search data from Google Trends for the period of January 2015 to May of 2018. These search terms were compared in terms of relative frequency, as well as variation between these topics over time.

## CHINA AS A WHOLE

China as an overarching web search topic was about two thirds as popular as India, but two to four times as popular as Russia, Brazil,

Germany, and Australia, among others. China was also nearly as popular as the United Kingdom and France. Unsurprisingly, the US was by far the most popular country by search volume, surpassing search interest in China by roughly five times. The relative popularity of queries for these countries by web search volume may reflect the ethnic and cultural composition of Canada. For example, the relative annual proportion of Indian and Chinese immigrants arriving in Canada in 2016 generally reflects the relative web search popularity of the two countries. Furthermore, the province with the highest proportion of Chinese immigration and the highest concentration of Chinese Canadians in metropolitan areas, British Columbia, also shows the greatest per capita search interest in China. The view that cultural differences influence search behavior is supported by the findings of a 2014 paper, which used Google Trends to measure racial animus in the US[14].

When narrowing the data window from web-wide searches to Google News searches, China moves from the least searched country among the US, India, France, and the UK to the most searched country. Not only is China the most frequently searched, but it is also a more popular search query than France by a factor of three, the UK by a factor of five, and surpasses the US by a small but comfortable margin. Regardless, the fact that Canadians show significantly heightened interest in China-related news relative to news concerning other countries suggests that Canadians are becoming more and more interested in learning about China.

## THE TEN MOST POPULAR TERMS

Shown in Figure 1, "Chinese Canadian" was the most popular search term examined. The highest ranked search results associated with this term were informational, including sources such as Wikipedia and the Canadian Encyclopedia, as well as local level news about Chinese communities in Canada. Google also suggests that users who search "Chinese Canadian" also frequently query questions such as "What percentage of Canada is Chinese" and "How did Chinese immigrants come to Canada," suggesting that Canadians searching this term are likely more interested in information regarding Chinese immigration than specific news-related events.

The fourth most popular term, "Chinese drama," represents a transactional query used to seek Chinese television programming and related entertainment media. This term, like that of "Chinese immigration," holds a disproportionate per-capita search rate in
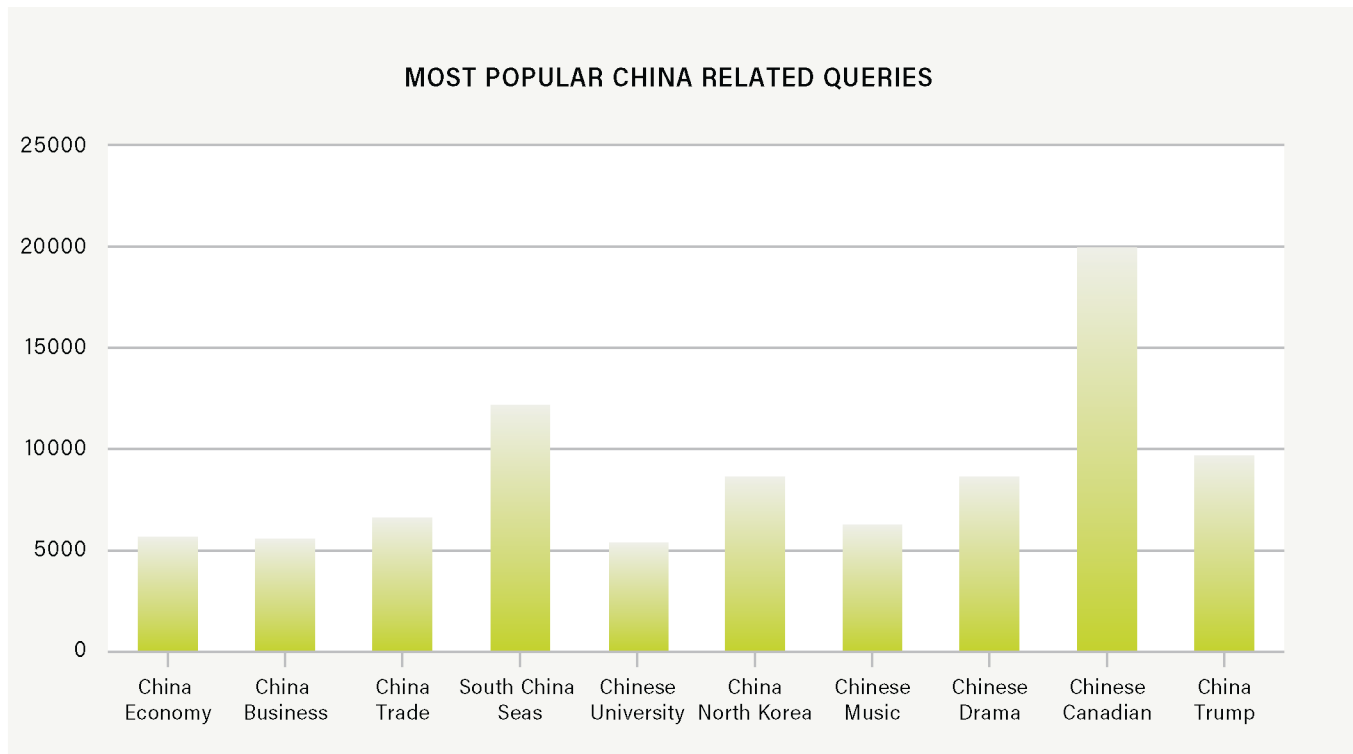
British Columbia, which may in part be explained by the higher than average concentration of Chinese-Canadians in BC, as well as the high concentration of Mandarin speakers in BC. Furthermore, "Chinese Drama" was one of the few terms that exhibited a positive trend over the observation period, indicating that consumption of Chinese entertainment content is rising in Canada.

The second, third, and fifth most searched terms, "South China Sea," "China Trump," and "China North Korea," relate to highly politicized international issues. Within those topics, the subcategories that garnered the most searches were Trump's comments on China, China's island building and military posturing in the South China Sea, and Trump's diplomatic involvement in North Korea's nuclear politics. Searching for these terms presents a variety of news reports and commentary from primarily US-based media outlets that vary in their positioning on issues. Notably, Canadian news articles published between January 2015 and May 2018, regarding the South China Sea, largely frame China as threatening and as embroiled in conflict[15].

Trade appeared as the sixth most popular category and was accompanied by two other economic topics, "China business" and "China economy" in the ten most popular terms. This aligns with the findings of the CIUA's Media Content Analysis which suggests that China's economy is of significant interest in Canada, and is the topic (relating to China) that is most frequently published on by Canadian news media.

## CHINA'S ECONOMY IN GOOGLE TRENDS

In both the media content and Google Trends analyses, China's economy was a prominent category. However, the Google Trends analysis helps to characterize the distribution of this interest more comprehensively because it regards a broader selection of economic subtopics.

As seen in Table 2, "trade," "business," and the most general term "economy," were the most popular economy-related search requests, but were followed closely by "currency" and "stock market." These five queries represented some of the most variable search queries of all, with "China stock market" having multiple interest spikes of 2500% to 5000% over its regular reported level of interest during the observation period.

Of the lower interest economy-related search terms, China's Belt and Road Initiative (BRI) and Asian Infrastructure Investment Bank (AIIB) were of little direct concern[16]. In contrast, China-US trade conflicts and Canada-China trade negotiations fueled considerably more search interest. While the BRI and the AIIB do constitute major economic projects subject to extensive media discussion, their low levels of search interest suggest that Canadians give them comparably little attention.

In sum, our analysis of economy-related search queries suggests that Canadians are more interested in China as a potential business partner

*Figure 2. Average level of interest in economic topics*
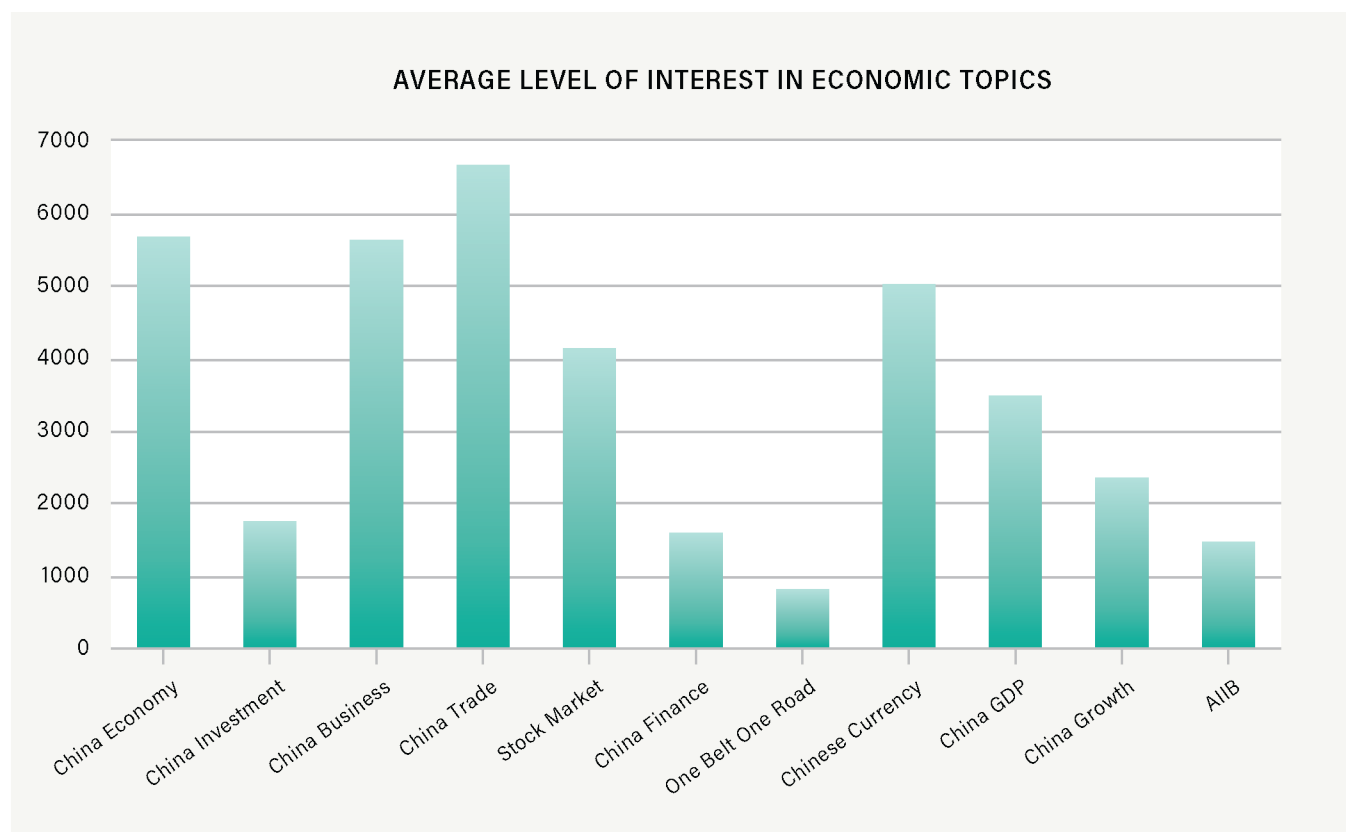


with a relevant investment market than in China's international economic efforts such as the BRI and AIIB. This corroborates the results of previous research, including surveys from the School of Public Policy and Global Affairs (UBC)[17], the Asia Pacific Foundation[18], Abacus Data[19], and even the China Institute at the University of Alberta[20] suggesting that China's trade and investment relationship with Canada is generally more salient to Canadians than other China related issues. These findings also reveal a correlation between Canadian search data behaviour and media coverage of China that is overwhelmingly focused on economic events that immediately affect China's relations with Canada and the US as characterized by the CIUA's media content analysis.

Of particular interest is the fact that "China Economy" was searched for only marginally more than "China Military," and that amongst news related searches "South China Sea," which was overwhelmingly associated with China's development of artificial islands and military deployments therein, was the most popular topic. This, together with the CIUA's media content analysis, raises questions regarding a potential gap between the interests of individual Canadians and the topics on which Canadian media outlets choose to report. Specifically, it does not appear that Canadian news media provide proportional coverage of military or political developments in China, given the high levels of online search interest in these topics.

## OTHER MAJOR TOPICS: MILITARY, ENERGY, ENVIRONMENT

Based on the relative prevalence of economic and political/military search requests, it appears that Canadian media under-reports on contentious political and military issues compared with the relative interest of Canadians. Search queries for "South China Sea" in Google news yield only a few examples of Canadian media articles or opinion pieces that critically engage with China's actions or with the way in which those actions could be, and often are, perceived as threatening. Compared with American news headlines on the same topic, Canadian media appears more restrained in the few reports they do publish. For example the concurrent New York Times and Globe and Mail reports on the China's seizure of a US autonomous underwater vehicle (AUV) in the SCS in mid December, 2016; the New York Times headline read: "U.S. Demands Return of Survey Drone Taken by Chinese in South China Sea [21]"while the Globe and Mail headline puts it more mildly: "China says it seized U.S. drone to ensure safety of ships[22]." While there is much parallel discourse between the US and Canada, discourse analysts have noted that Canadian news is often more "sympathetic [23]" when covering social and political issues in foreign countries and is also more likely reflect the ability of "every politician and citizen [to] have a position[24]," which may support the view that US news sources tend to use more strident and controversial language and phrasing.

Moreover, when Googling "South China Sea" or "China North Korea" it becomes apparent that news from the US dominates the search results even more so than when searching for economy related topics. The findings of this report suggest that Canadian news media may provide little opinion guidance on China-related political and security issues compared with its US counterparts or with its own address of economic issues.

Other search terms of note include "China Oil" and "China Pollution." The topic of oil was especially popular in Alberta, which is unsurprising given that China has invested billions into Alberta's oil industry over the past decade, and that oil and gas is a particularly salient issue for the province in general[25]. Searches relating to China's involvement in the oil and gas industry were most closely related to the global price of oil, as well as news relating to China's import of and investment in Canadian oil. The popularity of searches for "pollution" had a significant relationship with queries regarding air pollution and public health, which other research suggests is related to tourism interest[26], but may also serve as a proxy for general environmental interest in China's development path. Searches for other energy and environmental topics, including terms addressing natural gas, coal, carbon emissions, climate change, and recycling, however, occurred with low frequency, which fails to provide strong indication that there was substantive search interest for China's broader environmental conditions.

## CHINA'S SOCIETAL AND POLITICAL DEVELOPMENT

Notwithstanding extensive news coverage, international attention and domestic public opinion, search interest in Chinese social issues was weak when compared with China's economy or military endeavors. There were notably few Canadian searches for Uighurs, human rights, censorship, propaganda, oppression, cyber security, social credit, or the Great Firewall with regard to China. On the other hand, the term "Tiananmen" garnered significantly more search interest. These searches predominantly relate to the 1989 violence involving Chinese protesters in Tiananmen Square and may be a proxy for interest in Chinese social issues more generally, since, due to its enduring coverage in Western media, the term can be considered a good starting point for those seeking information regarding social friction in China.

Other terms that stood-out include, "Chinese immigration," and "Chinese university," which show interest in issues directly related to Canadian domestic events and Canadians abroad. Additionally, "China Technology" also fared better than the aforementioned cohort, suggesting that Canadians are relatively keen to observe China's growing technological prowess.

Finally, Canadians engaged considerably with modern Chinese culture online. In large part, the prevalence of such search terms as "culture,"

*Figure 3. Relative interest of notable terms*



**RELATIVE INTEREST OF NOTABLE ITEMS**
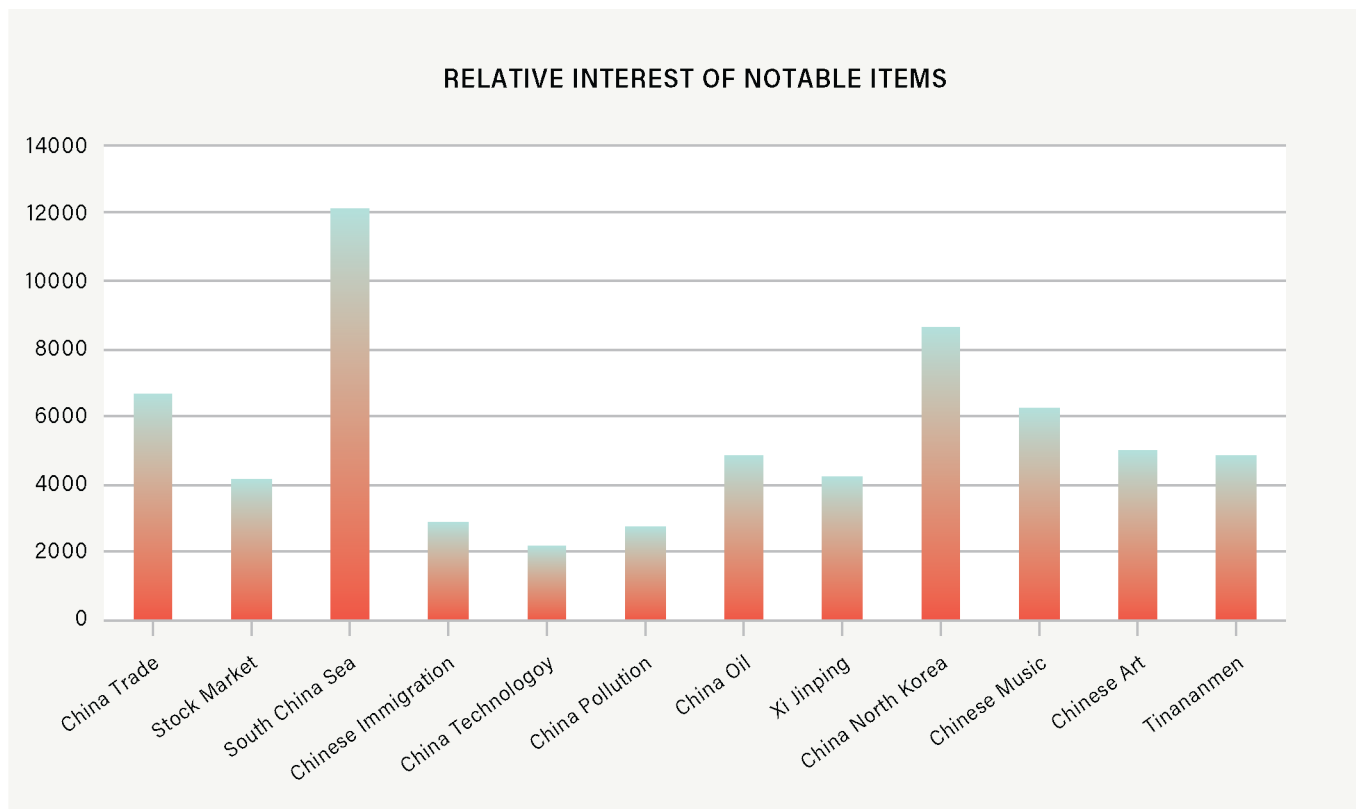
"history," "music," and "art" attests to the strength and momentum of social and cultural linkages between China and Canada. The idea that this search behaviour persists even today is a testament to the durability of China-Canada social linkages, which is worth noting given the diplomatic tumult presently characterizing Canada-China relations.

## REGIONAL CHARACTERISTICS OF SEARCH DATA

Per-capita search interest was consistently higher in British Columbia and Ontario, which may be due in part due to their proportionally larger ethnic Chinese populations. However, a few search terms did subvert this trend including "China Oil," which was disproportionately searched for in Alberta, "South China Sea," which was also searched proportionally more in Alberta than in Ontario, and "China North Korea," for which Manitoba, Saskatchewan, and Alberta all showed higher search interest when compared to Ontario and BC. From our list of search terms, it appears that those most likely to accrue greater interest in the Prairie Provinces relative to BC and Ontario related to oil and gas, and "adversarial" politics, such as military issues. The maritime provinces generally showed less interest in China-related news compared with central and western provinces and the small population of the territories rendered Google Trends' sampling method inadequate, preventing the tool from reporting search data for those areas.

On a municipal level, West Coast Canadian cities, with the notable exceptions of Markham which ranked 3rd, and Toronto, which ranked 12th, dominated per-capita search interest for China. Richmond and Burnaby exhibited the most significant level of interest, with Vancouver close behind Markham. Of the ten cities that searched for China most, nine were located along the BC coast. The exception, Markham, which is located near Toronto, likely exhibits uncharacteristically high search interest in China due to its relatively high number of residents of Chinese heritage and the Huawei Technologies Canada center located in the municipality.
The high interest level seen in western cities was not universal, for example, Abbotsford ranked 18th, behind Edmonton which was the 16th most interested city. Comparatively, eastern Canada showed very little interest in China, were Halifax ranked 35th, Montreal ranked 38th, St. John's ranked 39th, and Quebec 43rd. For reference, per-capita search interest in Vancouver was approximately double what it was in Halifax.

As noted previously, certain topics diverged from these aggregate trends more than others, and again, the query that stands out the most is the South China Sea. For example, Edmonton residents searched for China 90% as frequently as Toronto residents; however, the opposite is true for the search term "South China Sea." Calgary, Saskatoon, Regina, and Winnipeg also shared this increased interest in the "South China Sea," and the same was true for "China North Korea". This may indicate that the prairie provinces indeed have a heightened interest in learning about more controversial or adversarial China-related topics compared with the rest of Canada.

# MAJOR EVENTS & SEARCH BEHAVIOUR

While the distribution of aggregate search interest assists with understanding the topics of interest to Canadians, much information can also be gleaned from the time-trend behavior of that interest. This section examines variation between search terms over time (interest spikes) in Google Trends data.

For the most part, aggregate search interest for China was relatively stable, rarely varying more than 5-10% month-to-month. However, from August 9-15, 2015, the volume of searches concerning China spiked tremendously as videos of the warehouse explosions in Tianjin, which claimed the lives of 95 people, surfaced. This event swept the internet, and went viral on most major Western social media platforms. It is noteworthy that the single most captivating news event regarding China was neither political scandal nor economic crisis; instead, it was a cellphone video recording with intense visual novelty of an immense human catastrophe. This highlights how, on the internet, alarming and visual information often disseminates more quickly and pervasively than does well written commentary. Accordingly, other research suggests that "the element of surprise" indeed contributes to content "going viral[27]" and its overall maximum popularity potential on the internet.

This issue has become widely discussed in the context of social media's dispersion of political controversy and conflict during the 2016 US election, suggesting that an analysis based on internet search data, such as this one, may unduly emphasize the sensational interests of individuals over the unremarkable ones due to its specific basis in analysis of online behavior. For example, the fact that the volume of queries relating to China doubled directly following the Tianjin explosion does not mean that actual interest in China's culture, society, economy or politics doubled as well. It is therefore important to view this data within such a context: search data may reflect popular interest,

*Figure 4. "China Economy" & "China Military" over time*



"CHINA ECONOMY" & "CHINA MILITARY" OVER TIME
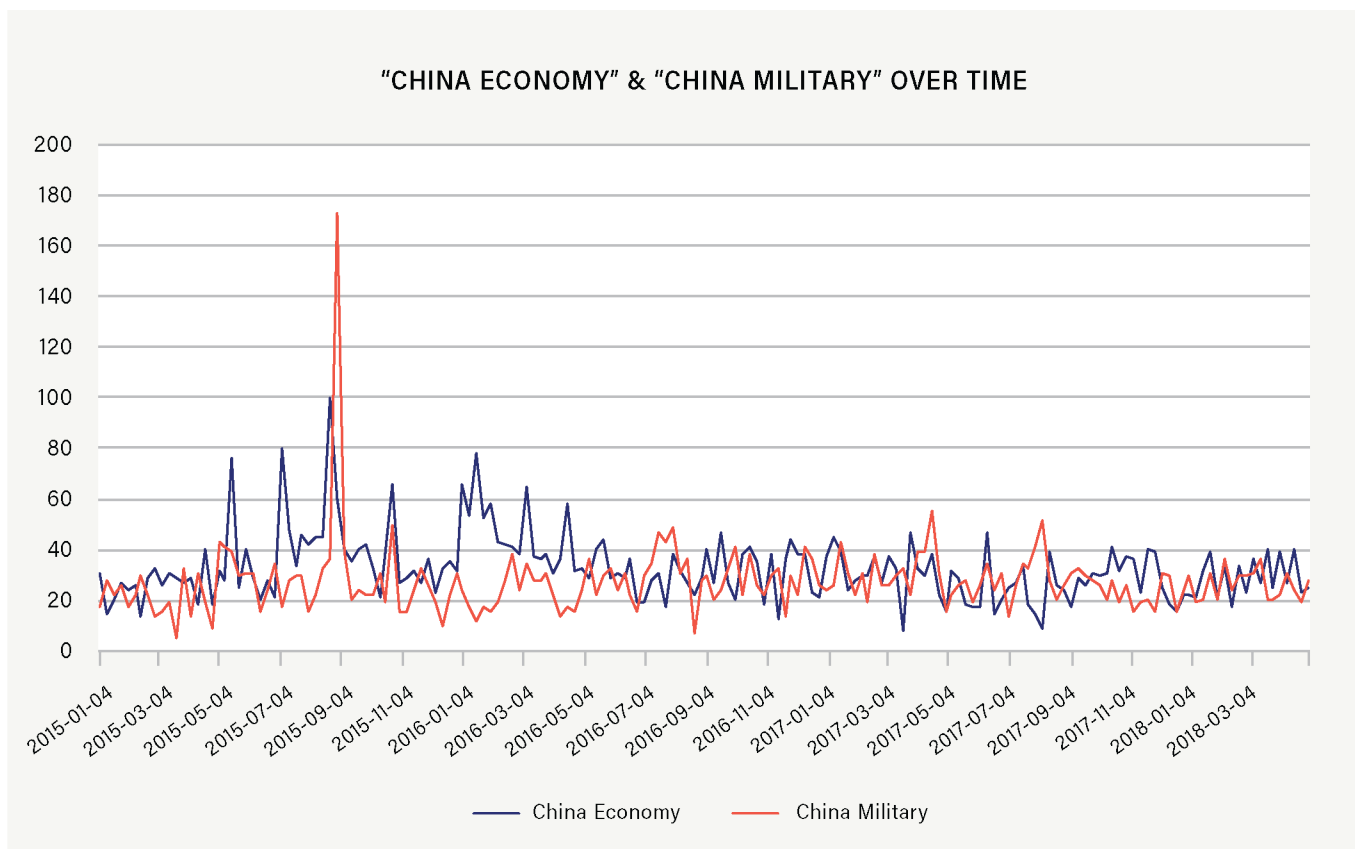
but the frequency with which Canadians google for these topics over time can only illuminate how Canadians relate to issues and events through media if considered in both time and context.

## MAJOR EVENTS AND MAJOR TOPICS

The first major interest spikes in our dataset came during the summer of 2015 and pertained mainly to volatility in the Chinese stock market. During this time, the term "China Stock Market" experienced the most major interest spikes relative to its baseline level of interest of any term in this dataset. Notably, interest spikes in the Chinese stock market reoccurred over the six to eight months following the initial spike. It appears that a few specific events relating to a persistent tumult in the Chinese stock market, led to the publication of several sensational and massively popular stories. The three biggest of these stories relate to:

(1) a drop in the price of Chinese stocks by roughly 30% in July and August of 2015[28],
(2) a spillover of the Chinese market crash into global markets thereafter[29], and
(3) the exercise of a regulatory measure that saw China halt trading after a sudden 7% plunge in one day[30]

Given that these stories all pertain to a continuous period of economic tumult in Chinese financial markets, as well as the fact that search

interest only spiked after media coverage of these major events, and did not persist after this period of instability, suggests that Canadians were specifically seeking these stories or their variants from other sources in particular. As such, it is possible that these news stories did not follow public interest but instead either predicted or drove it.

The next earliest interest spike occurred for the term "China Military" in 2015, shortly after the 70th anniversary Second World War commemorative military parade in Beijing highlighting China's growing military capacity. This also came during the beginning of public notice of China's foray into maritime territorial expansion. The spike itself constituted a roughly 600% increase in interest for the term in the week directly following the parade and its coverage in western media. Articles published by the British Broadcasting Corporation (BBC), Cable News Network (CNN), The Guardian, and Aljazeera quickly surfaced, while Canadian news sources were notably absent from coverage of the parade. Here, as was noted previously, Canadian coverage of Chinese military events seems relatively lacking in comparison to Canadian interest on the subject. The only Canadian story to be found on Google news for the event was from CTV News, and even that was buried under the aforementioned sources. Notably, at this point in time, "China Military" became approximately 70% more popular than the term "China Economy" was at any point. As noted prior, this suggests that Canadians are more interested in China as a military power than the CIUA's media content analysis suggests[31]. This view is also supported by the magnitude of the spike seen for "South China Sea" in the summer of 2016, when a tribunal in the Hague ruled against China's

*Figure 5.*
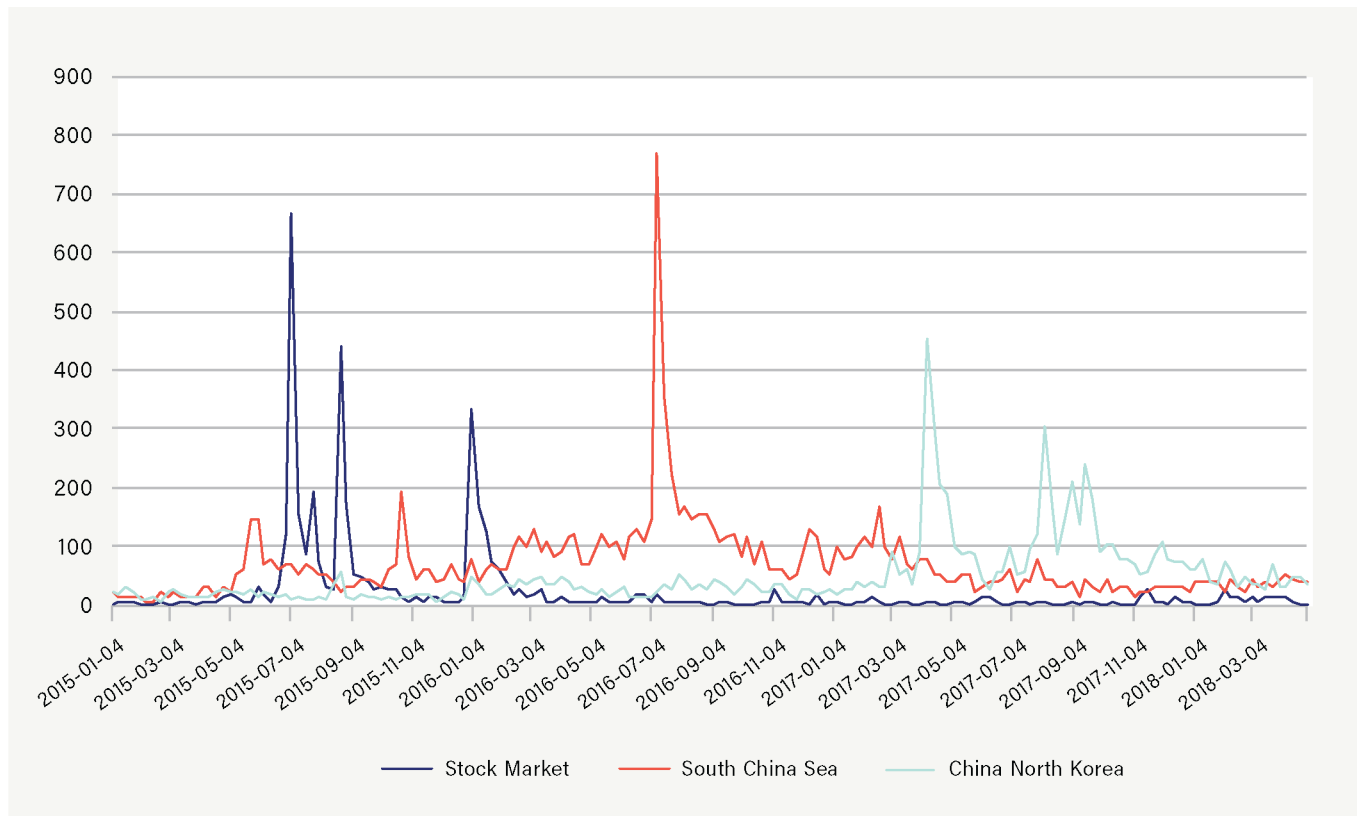
territorial claims in the South China Sea[34] after considerable military posturing therein. In Canadian search data, this event was actually the most attention grabbing of all those seen in our collection of search terms. Interestingly, the interest spike in "South China Sea" did not spur a sustained interest in the topic, despite the magnitude of the spike. However, China's military remains an issue that Canadians appear to be interested in, relative to other China related topics.

There were also a few notable interest spikes for "Xi Jinping," the first of which occurred shortly after the commemorative Second World War military parade during his first visit to the US. During the trip, both Xi and Obama called for cooperation in cyber security and discussed further integration of US and Chinese business interests. Other interest spikes arose in response to the constitutional amendments made by the Chinese Communist Party in 2017 and again 2018. These amendments enshrined Xi Jinping Thought into the party constitution and removed term limits for president Xi, potentially enabling him to rule indefinitely. Of the two constitutional amendments, the latter (concerning term limits) received significantly more attention. This search behavior may indicate that Canadians are more interested in the domestic politics of China than Canadian (lack of) coverage of Chinese domestic politics suggests. It may also be the case that the elevated interest around the removal of term limits for Xi Jinping serves as a proxy for a Canadian interest in the authoritarian character of Chinese governance, as well as in other domestic social issues, such as the limiting of liberal freedoms. Search interest in "Tiananmen," as noted previously, may also underpin this interest of Canadians in the politics of social life in China.

The final terms discussed in this section are "China North Korea" and "China Trade" which relate primarily to the endeavors of US President Donald Trump in North Korean nuclear politics and his launching of a tariff war with China. Interest in these terms highlight how an adversarial picture of China was brought to public attention by events beyond its control. Queries regarding "China North Korea" corresponded mainly with the multiple meetings between Trump and Kim Jong-Un, and the subsequent news media frenzies that ensued. "China Trade" search queries during this time were also mainly related to President Trump's engagement with China, and the largest interest spike corresponds with China's official response to the initiation of the trade war. In the news stories associated with both of these terms, China is largely positioned as an adversary to the US; that said, the coverage of many of these publications emphasized the possibility and importance of cooperation between the two great powers[33]. The effect this has on Canadians searching for and reading these stories is unclear, however, we may surmise that, despite generally being framed as an adversary to the US, it is possible that some Canadians who dislike Trump may feel sympathetic towards or even solidarity with China given their struggle with the US president. Others who support Trump's presidency, may feel the opposite and have their perceptions of China negatively impacted by the Coverage of these issues, particularly the trade war. News media coverage of the trade war tended to more so reflect views on the Trump presidency, rather than China. While at this point it is mere speculation, it seems likely that these effects would be even more pronounced following the data period of this report.

*Figure 6.*
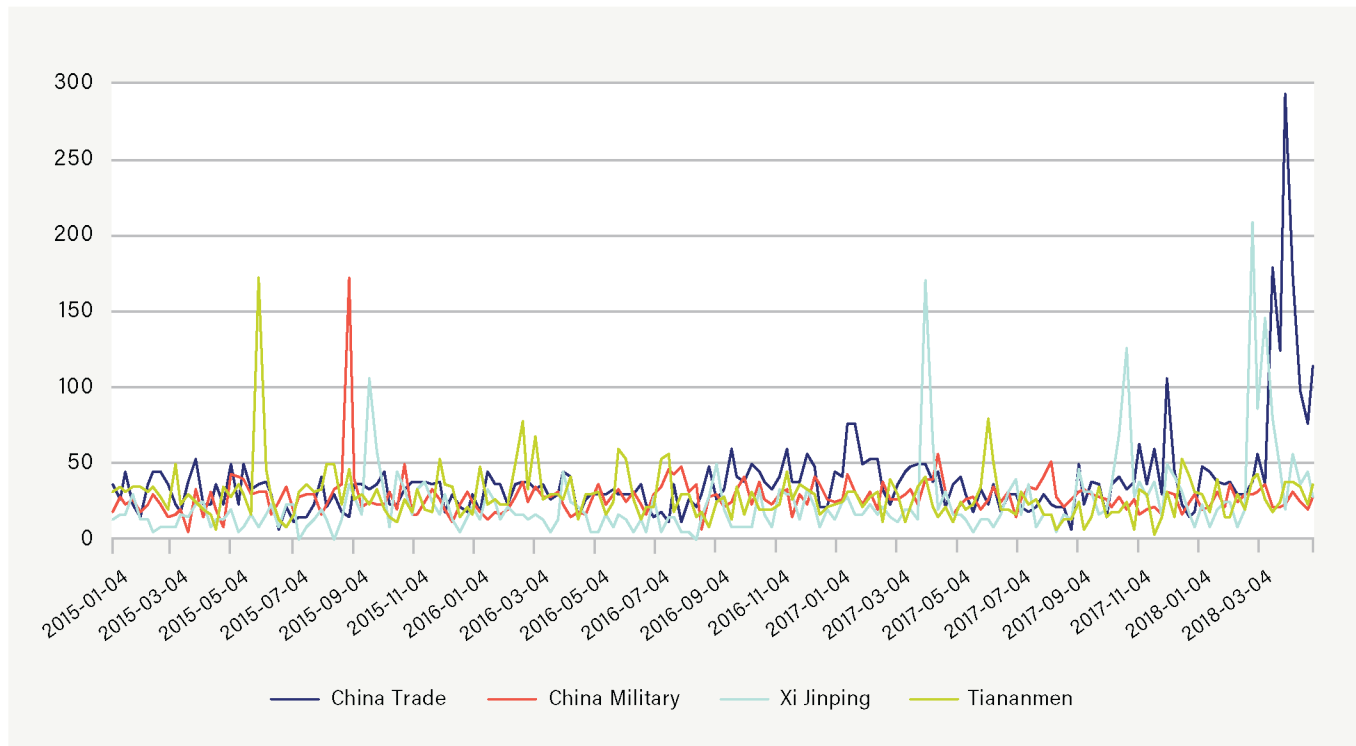
# CONCLUSION

This report examines Canadian search interest in China from an aggregate level down to a topic specific level, and analyzes both the relative popularity of certain topics and the variation of these search terms over time. Of note, China-related news yields heightened attention relative to news coverage of other countries. Additionally, the field of China related topics for which Canadians search is diverse: while transactional queries regarding air travel and mail services were the most searched, this report also found significant interest in China's economy, politics, military and culture. Since this report focuses largely on controversial and attention-grabbing search topics, it is important to reiterate that some of the most popular search terms uncovered relate to Chinese history, culture, and the bilateral flow of individuals between China and Canada. Canadians appear to be as interested in China from a social and cultural perspective as they are from a political perspective. While bilateral relations between Canada and China have cooled following the detention of Meng Wanzhou and the subsequent diplomatic crisis in December 2018, it is important to note that Canadians remain broadly interested and engaged on issues relating to China.

Regarding controversial political issues, our analysis suggests that tension does indeed attract search interest. This was highlighted most acutely by the overall and variable popularity of the terms "South China Sea" and "China North Korea." While these topics were not as popular as immigration or aggregates of Chinese cultural queries, they came close. Further, we found that querying these issues, along with many other contentious issues, yielded few Canadian media addresses but an overwhelming number of American ones, often effectively burying equivalent Canadian reports. Moreover, when these results are compared with those of the CIUA Media Content Analysis, it appears that Canadian news media organizations under report on military and political topics. This suggests that Canadians are likely reading American news on these topics, and that Canadian news outlets may not be articulating Canadian perspectives on many controversial issues. This in turn may lead Canadians to internalize the perspectives represented in American coverage of these topics. Moreover, this suggests that search engines may facilitate the consumption of more foreign news in Canada, and thus de-nationalize the relationship Canadians have with news media.

This report calls for further study in this area to enhance our understanding of the perspectives and opinions Canadians are consuming through news media. Discourse analysis comparing US and Canadian coverage of various topics could illuminate opinion and framing differences between information sources, while content analysis of Canadian social media posts may be able to show which opinions are resonating with and being reproduced by Canadians.

From our search data analysis, it is evident that Canadians are engaged in producing social linkages between China and Canada through the pursuit of information regarding Chinese history and culture. However, what Canadians see when they Google China has been affected by territorial disputes within the South China Sea as well as the trade disputes between the US and China. This prism can be distorting though undoubtedly part of the present reality. Altogether, our Google Trends data provides a multi-faceted view of the Canada-China relationship through which we hope to shed light on the positive elements of our social and material linkages and promote further understanding between our two countries.

# APPENDIX 1: METHODOLOGY – GOOGLE TRENDS

Google Trends is a tool that provides internet users access to a sample of Google's search data across time and region. When searching a keyword in Google Trends, the tool sums the number of searches that include said keyword from a sample of their search data for a given region. The Google Trends tool then represents the interest in the specified keyword across time graphically, normalizing the data so that the point of greatest interest is represented by a value of 100. For example, if the term was searched most frequently in period 1, and searched only half as frequently in period two, period one would be assigned an interest value (y-axis) of 100, whereas period two would be given a value of 50. If two keywords are searched simultaneously the interest levels of both queries would be represented relative to the greatest interest peak reached between either of them; ergo, the less popular query will be scaled down and its maximum interest value will be less than 100, so that it can be represented concurrently with the more popular query.

To obtain a dataset representative of the relative popularity of all search terms, while maintaining an adequate level of variance and accuracy, we imported the data for all search terms that had maximum interest levels lower than that of "China Economy" in a bundle separate from all more popular terms. Using "China Economy" as our main reference term, less popular terms were imported together with "China Economy". However, each term with popularity peaks higher than those of "China Economy" was imported individually and scaled up by a factor representing the ratio between its highest popularity peak and that of "China Economy." For example, when compared with "South China Sea" the maximum interest peak of "China Economy" falls from 100 to 29 when the maximum peak of "South China Sea" is 100. Since our data set represents "China Economy" as having a peak equal to 100, we multiply the "South China Sea" data by the factor 100/29 to scale its data up from its imported values to represent its relative popularity with "China Economy." This allows us to compare the relative search popularity of vastly disparate terms without sacrificing variability resolution.

A description of the methodology used to conduct content and discourse analysis for the companion piece, "China in Canadian Newspapers - January 2015-May 2018: A Mass Data Analysis" can be found in that report.

# APPENDIX 2: GOOGLE TRENDS SEARCH QUERIES

All search terms are preceded by "China"
Search terms with an asterisk (*) are not preceded by "China"
Search terms with two asterisks (**) are preceded by "Chinese" instead of "China"
Red text denotes terms that did not meet a minimum interest requirement for inclusion
Blue text denotes terms that required manual data scaling for graphical representation

Economy
Investment
Business
Trade
Stock Market
Finance
Tariff
State Owned
Belt and Road*
One Belt One Road*
BRI*
B and R*
B&R*
Canadian**
Currency (devaluation spike)
GDP
Growth
AIIB
Relations
Diplomacy
US war
Immigration**

Technology
Cyber
Hacking
Great Firewall*
(Innovation)
University

Environment
Climate Change
Recycling
Pollution
Oil
Gas
Carbon
Energy
Military
South China Sea*
Island
Aircraft (Carrier)
Army

Human Rights
Uighurs*
Xinjiang
Censorship
Oppression
Propaganda
Surveillance
Social Credit
Suppression

Envoy

Term Limits
Xi Jinping*
President
Communism
Communist Party
Marxism
Government

North Korea
Nuclear

Art**
Music**
Culture**
Social Media**
History**
Life in
Drama

Tiananmen*
Falun Gong*

# ENDNOTES

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