



## Does panda diplomacy promote Chinese outbound tourism flows?

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### ABSTRACT

This study examines whether panda diplomacy promotes Chinese outbound tourism flows. A gravity model of tourism outflows from China to 137 destination countries over the 1995–2018 period is used for the empirical analysis. The results indicate that destination countries that host pandas from China attract a substantial number of Chinese tourists compared to those that do not. This effect persists over time and is stronger in later years, particularly after three years of hosting pandas. The findings of this study suggest that destination countries that host pandas can enhance their international tourism attractiveness for tourists from China. This improvement can be realized by incorporating panda-themed international marketing campaigns, particularly after the COVID-19 pandemic.

### 1. Introduction

Prior to the 2010s, tourism scholars paid little attention to issues affecting Chinese outbound travel (Cai, Li, & Knutson, 2008). This all changed around 2012 when, for the first time in history, expenditures by Chinese international tourists hit USD 102 billion, which meant that China had superseded Western states, such as Germany and the United States, as the top spending nation in international tourism (World Tourism Organisation, 2014). The Asian economic powerhouse maintained this position for the next several years, and at the end of 2018, total outbound Chinese tourist expenditure increased to a whopping USD 277 billion (World Tourism Organization, 2019).

In recent years, the vastness of the Chinese source market and projected growth of the country's burgeoning middle-class have prompted a growth in research on outbound Chinese tourism (Keating & Kriz, 2008; Tse, 2015). In an extensive literature review of peer-reviewed articles published from 2003 to 2015, Jørgensen, Law, and King (2017) identified that an overwhelming majority of outbound travel articles on the Chinese source market focus on two recurring themes. The first is intrinsic to individual tourists, such as personal motivation (Wong & Rosenbaum, 2012; Zeng, Prentice, & King, 2014), attitude (Agrusa, Kim, & Wang, 2011; Packer, Ballantyne, & Hughes, 2014), and culture (Park & Reisinger, 2010; Ye, Zhang, & Yuen, 2013), while the second focuses on elements that rely on the attractiveness of a particular destination and how satisfied tourists are with the travel venue (Pan,

2014; Yang, Reeh, & Kreisel, 2011; Yu & Ko, 2012). More broadly, however, these attributes are classified as “push-pull” factors (Jørgensen et al., 2017), where push factors refer to personal traits that motivate a person to travel, while pull factors are attributes that attract tourists to a particular travel destination (Keating & Kriz, 2008; Uysal & Jurowski, 1994).

Nonetheless, why scholars eagerly conduct research on push-pull factors is clear. For starters, many studies on tourism typically adopt a business or management approach, a focus that largely stems from scholarly and industrial needs to understand how to boost tourist inflows to ensure commercial success (Hollinshead, 2004; Tse, 2011). However, the emphasis on this genre of research has two major limitations. One, this approach has become highly repetitive. The literature across a range of destinations repeats the same push-pull factors, adding little fresh insight to the Chinese outbound travel literature (Jørgensen et al., 2017; Tse, 2015). Two, perhaps the more unsettling issue stems from how the individual tourist is the primary unit of analysis in push-pull-factor studies, and how such a priority yields little to no insight into how crucial contextual or macro-level variables, such as politics or diplomacy, influence Chinese tourist outflows (Johnson et al., 2020; Jørgensen et al., 2017; Tse, 2011).

At first glance, the link between politics and outbound tourism may appear to be unrelated. However, this association has great relevance in China. For one, while most countries have an inbound tourism policy designed to promote a greater influx of foreign visitors, China is one of

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the few nations to have an explicit outbound travel policy that seeks to regulate the outflow of its own citizens (Tse, 2011). Between 1949 and the early 1980s, suspicion toward foreigners and fear of capital flight were motivators for outbound travel restrictions (Arlt, 2006). However, with the passage of time, Beijing's reasons for maintaining an outbound travel policy quickly transformed from misgivings about outsiders and fears of economic calamities to a component of China's consolidation of soft power (Dai et al., 2017; Xu, Wang, & Song, 2020). As a result, Chinese outbound tourism has become a foreign policy tool, like economic aid or foreign direct investment (FDI), that China wields to great effect in achieving its international goals (An, Zhang, & Wang, 2020; Tse, 2013; Waisová, 2020).

Though the link between Chinese outbound tourism and diplomacy is undoubtedly salient, scholarship that addresses this relationship is strikingly scarce. There are, however, noteworthy representatives of this genre. For example, Arlt (2006) and Tse (2013) provide background on the historical and contemporaneous motivations for Beijing's outbound tourism policy, arguing that all related plans are inextricably tied to China's political agenda and how close-knit China is to the destination (Tse, 2013). Others, such as Lim, Ferguson, and Bishop (2020), detail how China uses Approved Destination Status (ADS) as an apparatus of economic statecraft, whereby China rewards the coveted status to states in good stead with Beijing. On the other hand, Kim and Richardson (2003) describe the darker facets of Chinese outbound tourism, whereby worsening diplomatic ties with the East Asian giant not only leads to diplomatic fall outs, but may also cause a sharp drop in the number of Chinese travelers visiting the "offending country," which may reduce the country's tourism revenue substantially.

Given the prominence of bilateral ties in shaping the international outflow of Chinese tourists, it comes as a surprise that one of China's most recognizable diplomatic icons, the giant panda, is notably absent from the literature. True, destination countries wishing to attract volumes of Chinese visitors would be hard pressed to do so with pandas alone as the much-recognized icons are indigenous to Mainland China. However, the symbolism borne by panda gifts or loans extend far beyond those of display items in national zoos, but are more appropriately considered to be seals of friendship between China and recipient countries (Hartig, 2013). Foreseeably, as China retains much sway in controlling the outflow of Chinese tourists worldwide (Arlt, 2006), the leadership in Beijing may encourage greater Chinese travel to states that are in excellent stead with the Asian economic powerhouse (Hall, 1994; Tse, 2011), while simultaneously discouraging citizens from frequenting destinations that Beijing considers hostile or unfriendly (Cheng & Wong, 2014; Yu, McManus, Yen, & Li, 2020). Hence, it stands to reason that members of the exclusive panda diplomacy club, which typically enjoy strong ties with the Chinese government, are likely to see greater inflows of Chinese tourists.

That said, our study seeks to unravel the link between panda diplomacy and the outflow of Chinese tourist into destination countries during the pre-COVID-19 era. Nonetheless, we expect our findings to hold even after the pandemic ends, in spite of major international travel restrictions implemented by governments in order to mitigate the impact of COVID-19 pandemic (Khalid, Okafor, & Burzynska, 2021; Okafor, Khalid, & Burzynska, 2021). Much of this anticipation hinges on the notion that the economically important Chinese source market will play a significant role in reviving the already-crippled tourism industry worldwide, and that diplomacy (e.g., panda diplomacy) will be a major factor in how China molds its outbound travel pattern post-COVID-19 (The Economists Intelligence Unit, 2021).

To substantiate our results, we use a gravity model of tourism outflows from China to 137 destination countries from 1995 to 2018 and measure the presence of panda diplomacy using a binary variable that is set to 1 if a destination country hosts one or more giant pandas from China at time, and 0 if they do not. Results demonstrate that counties that received giant pandas attracted larger tourism flows from China compared to those that did not. Moreover, the effect of panda

acquisition on tourism flows is even greater when considering the lagged effect of acquiring a panda. Our results are robust to the use of random effects (RE) and Poisson pseudo-maximum likelihood (PPML) estimation methods in lieu of fixed effects (FE) estimator.

To the best of our knowledge, our study is novel, and no other published study of a quantitative nature has examined how panda diplomacy influences outbound Chinese tourism. Our work contributes to the literature on the determinants of international tourism flows in three ways. First, it adds to the broader discussion of how sociopolitical factors in China influence outbound tourism, which could have extremely important implications given the anticipated trajectory of the Chinese tourism demand (Zhu, Airey, & Siriphon, 2021). Second, it sheds light on how China leverages the strength of outbound tourism to exert soft power within the international community. Thirdly, our study is one of the few to offer an empirical perspective on the link between diplomacy and tourism. Although considerable theoretical analysis suggests a causal link between diplomatic relations and tourism flows, quantitative evidence of this relationship is relatively scarce.

The remainder of this study is organized as follows. Section 2 reviews the literature. Section 3 sets forth the empirical model used for the estimation. Section 4 discusses the study's data sources and methodology. Section 5 presents and discusses the empirical results. Section 6 concludes the analysis and discusses its policy implications.

## 2. Review of the related literature

### 2.1. Chinese outbound tourism in a nutshell

We begin our overview of the Chinese outbound tourism literature using the framework proposed Keating, Huang, Kriz, and Heung (2015). Examining published works from 1983 to 2012 in three leading tourism journals (*Annals of Tourism Research*, *Tourism Management*, and the *Journal of Travel Research*), Keating et al. (2015) segmented articles into three periods based on publication dates. The first phase, known as the "crawling out" period (1983–1992), occurred as the Chinese economy began liberalizing and when outbound travel from Mainland China was restricted to "family visits" of a small number of foreign locales (Keating et al., 2015). As a result, the literature on Chinese outbound travel during this stage was scarce, and discussions on this topic remained at the periphery of mainstream tourism research. Research focus was on the potentiality of venues, such as Hong Kong and Korea, as plausible outbound destinations for Mainland Chinese (Lim et al., 2020).

The second phase, known as the "scurrying about" period (1993–2002), marked a time when Chinese outbound travel became the central focus of a small but burgeoning number of scholarly articles (Keating et al., 2015). During this time, Beijing began relaxing its policy toward outbound travel, which culminated in the creation of the 1995 ADS, formulated to manage increasing demands for Chinese outbound travel (Arlt, 2006). Like the first phase, the beginning of the second stage initially revolved around the debate about whether certain markets were suited for Chinese outbound travel (Hobson, 1995; Waitt, 1996). But this focus later shifted, as scholars began to produce a small number of articles dealing with contextual-level issues such as politics (Perry Hobson and Ko, 1994) and economics (Au & Law, 2000; Dwyer, Forsyth, & Rao, 2002). However, this work was conducted alongside a somewhat larger body of scholarly work on "push-pull" factors, which zoomed in on the travel motivations of individual Chinese tourists (Hanqin & Lam, 1999; Heung & Cheng, 2000; Seddighi, Nuttall, & Theocharous, 2001; Sönmez & Graefe, 1998).

The third phase, known as the "walking erect" period (2003–2012), chronicles a rapid increase in popularity in Chinese outbound travel research. During this stage, Keating et al. (2015) found persistent and emergent research on the push-pull factors, which echoes the research emphasis of the second stage. Among the 114 articles published in the three leading tourism journals during the third phase, a majority of articles focused on "behavioral and organizational issues" that aimed at

understanding how stakeholders can better exploit the Chinese source market. Research areas include such themes as marketing (Lee & Lockshin, 2012; McKercher & Tse, 2012; Yang, He, & Gu, 2012) and motivation of individual tourists (Li & Stepchenkova, 2012; Yu & Ko, 2012) as well as tourists' experiences and satisfaction stemming from travel destinations (Ong & du Cros, 2012; Xu & McGehee, 2012).

While the amount of research on contextual variables and their effects on Chinese outbound travel was small during the aforementioned periods, the proportion of articles that underscored political attributes was even lower. Indeed, upon examining the number of articles covered in Keating et al.'s (2015) review, only 16 out of 290 articles published from 1983 to 2012 addressed political dimensions. This finding was unforeseen given how the quasi-capitalist nation with "socialist characteristics" that is China today retains much control over the country's outbound travel policy (Kwek, Wang, & Weaver, 2014). As King and Tang (2009) succinctly put it, sociopolitical factors often determine travel choices prior to the "influence of conventional travel decision-making processes," which, if true, raises questions about why Chinese outbound travel research does not feature politics more prominently.

While Keating et al.'s (2015) review does not extend to post-2012 articles, a more recent literature review by Jørgensen et al. (2017) unveils a prevalence of research focusing on push-pull factors going forward. The latter's review echoes findings unveiled in Keating et al.'s (2015) work, underscoring the relative absence of sociopolitical research, even when such inquiry sheds light on further issues that affect Chinese outbound travel (Fu, Cai, & Lehto, 2015; Fugmann & Aceves, 2013; Jin, Qu, & Bao, 2019).

## 2.2. Diplomacy, politics, and Chinese outbound travel

While the average Chinese tourist faces a host of individual and contextual constraints, the limitations that these tourists encounter from diplomatic and political concerns are often also salient (Baranowski et al., 2019). For instance, one of China's most potent travel limitations comes from the ADS scheme, a bilateral agreement formalized by the Chinese National Tourism Administration (CNTA), which grants signatory nations certain privileges pertaining to Chinese outbound travel (Lim et al., 2020). According to Xu et al., (2018), the agreement is crucial for destination countries for two reasons. Firstly, registered Chinese tour groups, which likely generate a sizable portion of Chinese travel expenditure abroad, are only allowed to visit ADS signatory states. Hence, countries without the ADS cannot tap into this potentially lucrative market. Secondly, only ADS countries are allowed to market and promote tourist destinations in China. Thus, without this agreement, destination countries would find it highly challenging to attract greater tourist inflows from the Asian giant.

Nonetheless, more recently, concerns have been mounting that the ADS, with its ability to regulate outflows of Chinese visitors, has been "weaponized" into a foreign policy tool (Hanson, Currey, & Beattie, 2020; Huang & Suliman, 2020). Scholars have noted that the ADS is not only a "lucrative carrot" that promises financial rewards to destination countries, but also serves as a punitive device used to chastise destination countries whose actions run afoul of Beijing's political agenda (Arlt, 2006, 2013; Fan, 2010; Lim et al., 2020; Tse, 2013; Xu et al., 2020). A case in point is the Terminal High Altitude Area Defense missile incident, which severely strained Sino-Korean relations in 2018. This diplomatic row was a major blow to South Korea's tourism sector, as Beijing displayed its displeasure toward Seoul by severely limiting the number of outbound tourists from China into South Korea. Consequently, South Korea experienced a 40% reduction in tourist arrivals from China, which translated into a major drop in overall tourist flows into South Korea, as Chinese tourists had accounted for approximately 50% of all tourist arrivals in the peninsular nation for the previous few years (Coca, 2018).

While the ADS assumes a direct role in regulating the outbound flow

of Chinese travelers, political concerns such as nationalism may affect diplomatic ties and influence tourist outflows as well. Although many strands of nationalism exist, the two variants that are relevant in the context of this study are state and popular nationalism (Cheng, Wong, & Prideaux, 2017). The first, state nationalism, is a government-organized initiative that forges national narratives to discourage Chinese tourists from traveling to a particular destination (Cheng & Wong, 2014). For example, a diplomatic incident took place between Mainland China and Taiwan in 2016 after President Tsai Ing-Wen of Taiwan ignored Beijing's calls for a "One-China Policy." The row, which was highly publicized in the government-controlled media, sparked nationalist demands for tourism boycotts against Taiwan, a move exacerbated by Beijing's calls to discourage tour agencies from sending travelers to Taiwan (Yu et al., 2020).

The second, popular nationalism, originates as a grassroots movement (Zhao, 2013), but just like state-sponsored nationalism, has the potential to affect outcomes in Chinese outbound travel in very tangible ways. A case in point is the famous 2012 Diaoyu/Senkaku Island incident, in which Beijing and Tokyo were locked in a territorial dispute over who holds sovereignty over the island, which as a result, brought Sino-Japanese relations to a major low (Cheng et al., 2017). While the Chinese government did not explicitly forbid Chinese tourists from visiting Japan, anti-Japanese sentiment on the ground was sufficiently strong that protests occurred across many Chinese cities, and individual tourists as well as tour agencies were cancelling or suspending travel to Japan (Cheng & Wong, 2014). Consequently, Chinese tourists, who accounted for 20% of all inbound tourists to Japan, fell sharply, and the demand by Chinese tourists for travel to the island nation continued to diminish throughout 2013 (Cheng & Wong, 2014).

To date, the body of scholarly inquiry that addresses the association between diplomatic and political factors remains meagre within the literature on Chinese outbound travel. As observed by Dong and Chick (2012), scholarly endeavors on travel and leisure constraints focus heavily on what Henrich, Heine, and Norenzayan (2010) term "WEIRD"—"Western, Educated, Industrialized, Rich, and Democratic"—countries, which are a small, and thus non-representative, sample of the global population. As China does not fit into the Western, democratic mold, investigating Chinese outbound travel through the same framework is unlikely to afford greater insight into the matter.

Nonetheless, even with the growth of articles addressing the impact of contextual variables toward Chinese outbound travel, the research gap is wide, and the potential of further inquiry remains large. We have identified an avenue of research requiring scholarly attention: the link between panda diplomacy and Chinese outbound travel. In the following segment, we provide historical context into the origins of panda diplomacy and proceed to discuss its significance within the literature of Chinese outbound tourism.

## 2.3. Panda diplomacy and Chinese outbound travel

Some scholars believe that giant pandas were first used by China as a diplomatic tool during the Tang Dynasty (618–907), when the Empress Wu Zetian gifted 70 panda pelts and a pair of live giant pandas to the emperor of Japan (Hartig, 2013). Nonetheless, evidence of this narrative is difficult to substantiate and may therefore be more legend than reality (Songster, 2018). The first recorded instance of China gifting giant pandas to a foreign power was in 1941, when then-president Chiang Kai Shek sent pandas to the United States as a token of appreciation for America's continued support against Japan's occupation of China (Songster, 2018). After the People's Republic of China (PRC) assumed stewardship of Mainland China, giant pandas were continually gifted to foreign powers. Not only were allies the likes of the Soviet Union and North Korea gifted with pandas, but ideological foes such as Western nations were also presented with pandas as diplomatic gestures of goodwill after the PRC managed to replace Taiwan at the United Nations in 1971 (Hartig, 2013).

Panda diplomacy belongs to a millennia-old practice known as animal diplomacy. In the ancient world, animals were sent as gifts to foreign powers as either signals of subordination or as a gesture of goodwill (e.g., ancient Nubia gifted giraffes as a tribute to Tutankhamen's Egypt) or as a precursor to establishing diplomatic ties with a foreign power alongside the intention of awing the recipient with gifts of exotic animals (Leira & Neumann, 2017). But animal diplomacy is still practiced today. Apart from China's panda diplomacy, modern and contemporary animal diplomacy includes "sturgeon diplomacy" by the Soviet Union to Norway in 1964; "Komodo dragon diplomacy," from Indonesia to Germany in 1984 and 1991; and even "puppy diplomacy," from Bulgaria to Russia in 2010 (Leira & Neumann, 2017).

While panda diplomacy is often cited in the literature as a public diplomacy tool used to promote China's image and influence preferences to overseas publics (Nye, 2008; Xing, 2010), its other significant purpose is to improve bilateral relations between states. For example, gifts of pandas came alongside the normalization of Sino–U.S. relations during Nixon's presidency in 1972 and that of Sino–Japanese relations in that very same year (Songster, 2018). Thirty-three years later, China gifted two pandas to Taiwan, in 2006, in an attempt to enhance ties between the two polities across the straits (Homans, 2010).

Several sources have argued that beyond improving bilateral ties with China, membership in the selective panda diplomacy club may confer tangible economic benefits upon members. For example, countries that received panda loans from Beijing are more likely to conclude trade deals with China and stand a better chance of securing FDI from the Asian economic behemoth (Anderlini, 2017; Buckingham, David, & Jepson, 2013; Taylor, 2014). Moreover, the literature suggests that enhanced diplomatic relations may have a hand in boosting tourist flows (Hall, 1994), which indicates that nations that engage in panda diplomacy may attract larger flows of Chinese tourists into their countries.

Two plausible mechanisms may explain why panda diplomacy influences Chinese outbound travel. One, Beijing retains a direct sway in shaping China's outbound travel policy into destination countries (Arlt, 2006) and may thus encourage greater outflows of Chinese visitors into countries that it considers friendly (Hall, 1994; Tse, 2011). Two, perceptions of a destination affect travel decisions by potential Chinese tourists (Martínez & Alvarez, 2010); however, this perception is predisposed by the projected image of the destination, which is in turn dependant on how the media portrays the destination (Hsu & Song, 2012; Mercille, 2005). As Beijing regulates the country's media extensively (Hassid, 2008; Kennedy, 2009),<sup>1</sup> the country's highly collectivistic nature facilitates the occurrence of collective action (Yu et al., 2020). This tendency implies that the kind of news the state-controlled media disseminates may inspire Chinese favor toward or prejudice against a particular destination, which ultimately affects the travel decisions of Chinese tourists.

Ultimately, nations that are fully engaged in panda diplomacy with China are not only considered to be on friendly footing with Beijing but also more likely perceived by Chinese denizens as a political force that is partial toward China. As a result, we predict that such countries are, on average, likely to enjoy greater inflows of visitors from the Chinese source market.

### 3. Data sources and description of variables

The data set used for the analysis was collected from multiple sources, such as panda data compiled from several sources, World Development Indicators (WDI) database (World Bank, 2019), the *Centre*

<sup>1</sup> According to Hassid (2008), some of the measures taken by the Chinese Communist Party include appointing state-sanctioned editors to news outlets, tying the remuneration of journalists to the length and number of articles that they publish, and implementing a deliberately vague policy on what can and cannot be published.

*d'Etudes Prospectives et d'Informations Internationales* (CEPII) gravity database (Head, Mayer, & Ries, 2010; Head & Mayer, 2014), the World Tourism Organization (2017), and Bruegel, a European think tank (Darvas, 2012). The different data sets were merged to obtain the final data set, consisting of a balanced panel of China as origin country, 137 destination countries, and 137 country-pairs for the 1995–2018 period.

#### 3.1. Dependent variable

Following several studies in the literature related to the drivers of tourism demand, we use bilateral tourism flows as the dependent variable. Bilateral tourism flows are derived from the tourism flows between a country-pair (Khalid, Okafor, & Aziz, 2020; Okafor & Khalid, 2020; Okafor et al., 2021a, 2021b). Data were gathered from the World Tourism Organization database (2017), which provides information on the universe of tourist flows between countries across the globe distinguished by origin and destination countries. The World Tourism Organization database is hosted by a United Nations specialized agency tasked with encouraging sustainable, responsible, and attainable tourism globally.<sup>2</sup>

#### 3.2. Explanatory variable

The explanatory variable is a binary indicator set to 1 if a country hosts giant pandas in time  $t$  and 0 otherwise. The data were compiled using multiple sources such as information from newspapers and several online sources such as sites of various national zoos. The collected data yielded detailed information about when countries received gifts or loans of giant pandas from China.<sup>3</sup> The compiled data spanned from 1972, when the first pair of pandas was officially sent from China to the United States following Richard Nixon's visit to Beijing, to 2019. The data for giant pandas were compiled for 22 countries and two special territories, Hong Kong and Macau. In general, China sends giant pandas to countries with whom it aims to cultivate good relations. Therefore, countries that host giant pandas are more likely to have good bilateral relationships with China, which in turn could enhance tourist flows from China.

#### 3.3. Control variables

The main determinants of international tourism demand include population, real gross domestic product (GDP) per capita at purchasing power parity (PPP), and relative price. The population of the destination country is controlled for to account for the influence of country size in the underlying relationship between panda diplomacy and international tourism flows. Destination countries that are more populous are likely to offer a greater selection of tourism services than less populous countries.

Real GDP per capita (GDPPC) of the destination country accounts for the influence of the development or income level on the link between panda diplomacy and international tourism flows. This aspect is in line with the notion that higher-income destination countries tend to supply greater tourism services than lower-income destination countries. Population (POP) and GDPPC data were obtained from the World Development Indicators (WDI) database (World Bank, 2019). The WDI database is made available by the World Bank and is a repository of development indicators gathered from officially recognized international sources.<sup>4</sup> Additionally, relative price serves as a proxy for the price competitiveness of the destination country compared to the origin country (Chung, Herzberger, Frank, & Jianguo, 2020; Khalid, Okafor, & Sanusi, 2021; Khalid, Okafor, & Shafiullah, 2020; Okafor, Bhattacharya,

<sup>2</sup> See: <https://www.unwto.org/>.

<sup>3</sup> Additional information about panda data sources is available from the authors upon request.

<sup>4</sup> See: <https://databank.worldbank.org/home.aspx>.

& Apergis, 2020; Okafor, Khalid, & Adeola, 2021).

Similar to Saayman, Figini, and Cassella (2016) and Khalid, Okafor, and Sanusi (2021), the relative price,  $REP_{odt}$ , is measured in the following manner:

$$REP_{cdt} = \frac{GDPDE_{dt}/RER_{dt}}{GDPDE_{ct}/RER_{ct}} \quad (1)$$

where the subscripts  $c$ ,  $d$ , and  $t$  denote the origin country (i.e., China), destination country, and year, respectively.  $REP$  refers to relative price,  $RER$  is real effective exchange rate, and  $GDPDE$  is the GDP deflator.  $RER$  data were obtained from Bruegel, a European think tank (Darvas, 2012). Bruegel is a European think tank and an independent organization with a specialty in economics.<sup>5</sup> The GDP deflator data were collected from the WDI (World Bank, 2019).

We also controlled for extraordinary financial crises, namely, the 1997–1999 Asian financial crisis and the 2008–2009 global financial crisis, by using dummy variables. Each dummy variable is set to 1 during a financial crisis period and 0 otherwise. In general, a financial crisis dampens the demand for international tourism services.

We also controlled for standard gravity variables in cases wherein the fixed effects estimator is not used for estimation. These variables include contiguity, landlock, distance, colonial relationships, common language, and island. The gravity data were sourced from the CEPII database (Head et al., 2010; Head & Mayer, 2014). The CEPII database is hosted by the French center for research. The French Center conducts research that relates to the world economy and international economics. In addition to producing databases, this French organization creates an enabling environment for dialogue among experts, academics, and other relevant stakeholders.<sup>6</sup>

Contiguity takes the value of 1 if a country-pair shares a border and 0 otherwise. Landlock takes a value of 1 if the origin and the destination countries are both landlocked and 0 otherwise. Distance is the number of kilometers between the capitals of the origin and destination countries. Colonial relationships take the value 1 if a country-pair shares a colonial history and 0 otherwise. Common language takes the value 1 if a country-pair shares a common official language and 0 otherwise. Island takes the value 1 if the origin and destination countries are both islands and 0 otherwise. Some of these variables tend to lower the transaction costs of tourism services, such as sharing a common language, or increase the costs, such as distance (Chung et al., 2020; Okafor, Adeola & Folarin, 2021; Okafor, Khalid, & Then, 2018).

#### 4. Methodology

We used a gravity approach to investigate the link between panda

$$LnBTA_{cdt} = \alpha_0 + \alpha_1 Panda_{cdt-\Gamma} + \alpha_2 GDPPC_{dt} + \alpha_3 LnPOP_{dt} + \alpha_4 LnREP_{cdt} + \lambda_k \sum_{k=1}^5 D_k + \varphi_{cd} + \varepsilon_{cdt} \quad (3)$$

diplomacy and international tourism flows. A gravity approach is commonly used for analyzing the determinants of bilateral trade flows. International trade shares some features with international tourism because international tourism is essentially international trade in services (Khalid, Okafor, & Burzynska, 2021; Okafor, Khalid, & Adeola, 2021; Okafor, Khalid, & Burzynska, 2021; Okafor & Teo, 2019). Morley et al., (2014) established theoretical grounds for the application of the gravity approach in modeling international tourism demand and supply.

<sup>5</sup> See: <https://www.bruegel.org/>.

<sup>6</sup> See: <http://www.cepii.fr/CEPII/en/cepii/cepii.asp>.

**Table 1**  
Summary statistics.

Variable	(1)	(2)	(3)
	Countries that do not Host Pandas	Countries that Host Pandas	Complete Sample
Ln TFL <sub>cd</sub>	9.171 (2.415)	13.590 (1.668)	9.551 (2.665)
Ln GDPPC <sub>d</sub>	9.166 (1.158)	10.420 (0.441)	9.251 (1.167)
Ln POP <sub>d</sub>	15.640 (1.871)	17.721 (1.179)	15.780 (1.905)
Ln REP <sub>cd</sub>	0.069 (0.451)	-0.106 (0.209)	0.056 (0.440)
CONTIG <sub>cd</sub>	0.080 (0.271)	0.090 (0.288)	0.080 (0.272)
COMOFF <sub>cd</sub>	0.013 (0.115)	0.140 (0.348)	0.022 (0.146)
Colony <sub>cd</sub>	0.008 (0.088)	-	0.007 (0.085)
Ln DIST <sub>cd</sub>	8.979 (0.507)	8.651 (0.717)	8.957 (0.530)
Land <sub>cd</sub>	0.230 (0.421)	0.072 (0.260)	0.219 (0.414)
Island <sub>cd</sub>	0.198 (0.399)	0.181 (0.386)	0.197 (0.398)
Observations	3067	221	3288

Notes: Ln denotes natural logarithm; “-” means that none of the countries that received Pandas was ever in a colonial relationship with China.

Similar to Fuchs and Klann (2013), the gravity model for investigating the link between panda diplomacy and international tourism flows is specified in the following manner:

$$LnBTA_{cdt} = \beta_0 + \beta_1 Panda_{cdt} + \beta_2 GDPPC_{dt} + \beta_3 LnPOP_{dt} + \beta_4 LnREP_{cdt} + \delta_k \sum_{k=1}^5 D_k + \varphi_{cd} + \varepsilon_{cdt} \quad (2)$$

where  $cdt$  indexes the origin country, China, the destination country, and the year, and  $Ln$  is the natural logarithm. In the above setting,  $BTA$  is bilateral tourism arrivals from China to the destination country,  $d$ ;  $GDPPC$  is real GDP per capita at PPP;  $POP$  is population;  $REP$  is relative price;  $D_k$  refers to set of dummies for financial crises;  $\varphi$  is country-pair fixed effects; and  $\varepsilon$  is an IID error term.

To investigate the dynamic link between panda diplomacy and international tourism flows, we introduce lags in the model. The dynamic version of the model wherein we introduce the first to third lags of the panda indicator can be specified in the following manner:  $a$

where  $\Gamma$  is the lag length from 1 to 3.

In addition, we performed three robustness checks. First, we check the sensitivity of the parameter estimates when higher-order lags of the panda indicator are used in lieu of the contemporaneous value of the indicator or lower order lags (i.e., lag length 1 to 3).

Second, we performed a robustness check to ascertain if the parameter estimate of the variable of interest is susceptible to the introduction of standard gravity variables, such as distance and common language, as specified below:

**Table 2**  
Correlation matrix.

	Ln TFL <sub>cd</sub>	Panda <sub>cd</sub>	Ln GDPPC <sub>d</sub>	Ln POP <sub>d</sub>	Ln REP <sub>cd</sub>	CONTIG <sub>cd</sub>	COMOFF <sub>cd</sub>	Colony <sub>cd</sub>	Ln DIST <sub>cd</sub>	Land <sub>cd</sub>	Island <sub>cd</sub>
Ln TFL <sub>cd</sub>	1.00										
Panda <sub>cd</sub>	0.47	1.00									
Ln GDPPC <sub>d</sub>	0.44	0.32	1								
Ln POP <sub>d</sub>	0.54	0.27	-0.09	1.00							
Ln REP <sub>cd</sub>	-0.22	-0.11	-0.24	0.01	1.00						
CONTIG <sub>cd</sub>	0.23	0.00	-0.19	0.12	0.06	1.00					
COMOFF <sub>cd</sub>	0.32	0.26	0.21	-0.02	-0.02	0.18	1.00				
Colony <sub>cd</sub>	0.09	-0.03	-0.05	-0.07	0.06	0.31	-0.02	1.00			
Ln DIST <sub>cd</sub>	-0.46	-0.17	-0.02	-0.18	-0.05	-0.56	-0.24	-0.34	1.00		
Land <sub>cd</sub>	-0.14	-0.09	-0.29	-0.10	-0.02	0.32	-0.08	0.22	-0.15	1.00	
Island <sub>cd</sub>	-0.14	0.00	0.14	-0.47	0.02	-0.17	0.10	-0.05	0.04	-0.24	1

$$\begin{aligned}
 LnBTA_{cdt} = & \Psi_0 + \Psi_1 Panda_{cdt} + \Psi_2 GDPPC_{dt} + \Psi_3 LnPOP_{dt} + \Psi_4 LnREP_{cdt} + \\
 & \Psi_5 CONTIG_{cd} + \Psi_6 COMOFF_{cd} + \Psi_7 Colony_{cd} + \Psi_8 LnDistance_{cd} + \Psi_9 Land_{cd} + \\
 & \Psi_{10} Island_{cd} + \sum_{k=1}^5 D_k + \phi_d + \varepsilon_{cdt}
 \end{aligned}
 \tag{4}$$

where CONTIG denotes contiguity dummy, COMOFF is common official language dummy, Colony is colonial dummy, Land is landlocked dummy, Island is an island dummy, and  $\phi$  is country of destination fixed effects.

Third, we re-estimated Equation (3) using the PPML method as a further robustness check because the PPML estimator yields robust estimates in the presence of sample selection bias and heteroscedasticity issues. In particular, it helps to address the problem of heteroscedasticity in the error terms. It also helps to address the issue of the presence of zero values in the bilateral tourism data, which could lead to sample selection bias. While the tourism flow data from the United Nations World Tourism Organization are very rich, the issue of missing data cannot be ruled out because there are instances wherein the data for some country-pairs were missing for some years. For example, there are instances wherein tourism flows below a certain threshold are not recorded or small tourism flows below a specified threshold are recorded as other countries (Saayman et al., 2016). To address this issue, we adopt a similar strategy as Saayman et al. (2016) and Khalid, Okafor, and Sanusi (2021) by considering missing data to be zero or close to zero values.

4.1. Summary statistics

Table 1 reports the summary statistics of the data used in the empirical analysis. Preliminary evidence suggests that countries that host pandas from China tend to receive a higher number of inbound tourists from China compared to those that do not. This finding indicates that tourists from China may prefer to visit countries that have strong diplomatic ties with China. In this context, hosting a panda from China could serve as a signal of strong diplomatic ties between the destination country and China for Chinese tourists, which, in turn, could influence their choice of tourist destinations.

On average, countries that have received pandas from China tend to be richer and more populous than countries that have not. This finding is consistent with the empirical evidence that the demand and supply of tourism services is generally higher in richer and more populous countries compared to poorer and more sparsely populated countries (Okafor, Adeola & Folarin, 2021; Okafor et al., 2018). Additionally, countries that host pandas tend to be more competitive in terms of prices than those that do not host pandas. Price competitiveness could help destination countries that host pandas attract more Chinese tourists.

Countries that host pandas and those that do not tend to differ along other dimensions. On average, countries that host pandas are more likely to share a border with China as well as share a common official language. Similarly, panda-receiving countries tend to be

**Table 3**  
Link between panda diplomacy and international tourism flows.

Dependent Variable: Ln TFL <sub>cd</sub>				
Variable	(1)	(2)	(3)	(4)
	FE	FE	FE	FE
Panda <sub>cd</sub>	0.30** (0.13)			
Ln GDPPC <sub>d</sub>	3.57*** (0.31)	3.40*** (0.30)	3.35*** (0.31)	3.34*** (0.32)
Ln POP <sub>d</sub>	2.36*** (0.48)	2.54*** (0.47)	2.65*** (0.50)	2.62*** (0.53)
Ln REP <sub>cd</sub>	-0.10 (0.13)	-0.14 (0.14)	-0.17 (0.15)	-0.23 (0.16)
FC97	-0.01 (0.09)	-0.01 (0.10)	0.003 (0.12)	-
FC98	-0.02 (0.08)	-0.04 (0.09)	-0.04 (0.11)	-0.02 (0.10)
FC99	-0.15* (0.09)	-0.17* (0.09)	-0.16* (0.09)	-0.15 (0.09)
FC08	-0.35*** (0.06)	-0.34*** (0.06)	-0.34*** (0.06)	-0.33*** (0.06)
FC09	-0.26*** (0.05)	-0.26*** (0.05)	-0.26*** (0.05)	-0.26*** (0.05)
Panda <sub>cdt-1</sub>		0.27* (0.15)		
Panda <sub>cdt-2</sub>			0.30** (0.15)	
Panda <sub>cdt-3</sub>				0.34** (0.14)
Constant	-61.61*** (7.71)	-62.80*** (7.69)	-64.09*** (8.09)	-63.52*** (8.45)
Country-pair fixed effects	Yes	Yes	Yes	Yes
Observations	2211	2157	2102	2043
R-Squared (within)	0.63	0.62	0.61	0.60

Notes: Ln denotes natural logarithm; “-” means that the variable was dropped due to the collinearity issue. Robust standard errors are reported in parentheses. Significance at the 1%, 5%, and 10% levels is shown by \*\*\*, \*\*, and \*, respectively.

geographically closer to China and are less likely to be landlocked or island nations. Interestingly, none of the countries receiving pandas has had any colonial linkage with China.

Table 2 reports the correlations between the variables used in the empirical analysis. As depicted in Table 2, tourism flows from China to the destination country are positively correlated with pandas, the destination country’s GDP per capita, and population, while they are negatively correlated with relative prices. Moreover, sharing a border or a common language or having colonial ties is positively correlated with tourism flows from China to the destination country. In contrast, distance, landlocked dummy, and island dummy are negatively correlated with tourism flows.

5. Discussion of results

Table 3 reports the parameter estimates of the link between panda diplomacy and international tourism flows.<sup>7</sup> As expected, the panda dummy is positive and statistically significant at the 5% level. This estimate suggests that a country that hosts pandas from China attracts 35% higher tourism flows from China than a country that does not. This finding can be explained from two different perspectives. First, an increased tourism flow due to panda diplomacy is potentially a direct consequence of improved bilateral relations between China and the destination country. Given that the Chinese state largely controls outbound tourism policy (Arlt, 2006) and encourages greater outflows of tourism to countries with which it is in good stead (Hall, 1994; Tse, 2011), hosting a panda is an indication that the country has good diplomatic ties. An alternative explanation could be that receiving pandas improves the destination’s image among Chinese tourists and is likely to reduce the cultural gap between China and the destination country (Huang & Wang, 2018). Both the destination’s image and the cultural difference are found to affect the travel decisions of potential Chinese tourists (Bi & Lehto, 2018; Martínez & Alvarez, 2010). Thus, countries hosting pandas are likely to attract proportionally more Chinese tourists than countries that do not host pandas.

Overall, the sign and significance of the control variables reported in Table 3 are also in line with the extant literature and economic theory. For instance, a 1% increase in the population of a destination country increases bilateral tourism flows by 2.36% (see Table 3, Column 1). This finding is consistent with the notion that the supply of tourism-related services is greater in destination countries with a larger population, which, in turn, enhances their international tourism attractiveness (Okafor et al., 2018). International tourism attractiveness, in turn, can promote economic growth and development (Okafor et al., 2020a, 2020b).

Similarly, a 1% increase in real GDP per capita based on PPP in the destination country leads to a 3.57% increase in bilateral tourism flows. This estimate implies that wealthier destination countries attract a larger pool of tourists than poorer destination countries. The capacity of wealthier countries to supply a larger pool of tourism services can explain the difference between the two groups in terms of international tourism attractiveness (Okafor et al., 2018). This finding also indicates that Chinese tourists are attracted to developed and wealthier countries, as outbound international tourism, especially in the context of China, is considered a status symbol and means of maintaining one’s social status (Kim & Richardson, 2003; Mok & DeFranco, 2000; Park, Reisinger, & Noh, 2010). This finding also aligns with the findings in the extant literature (see, e.g., Wang, Fang, & Law, 2018).

Additionally, the coefficient on relative price is negative but statistically insignificant, which suggests that relative price difference is not a significant determinant of tourism flows from China to other destinations. This finding resembles those reported by Xie and Tveterås (2020) that, in the short run, Chinese tourists are not sensitive to price changes. Finally, the dummies for financial crises indicate that the global and Asian financial crises dampened tourism flows from China. In general, compared to the Asian financial crisis, the global financial crisis had a larger negative influence on outbound tourism flows from China, which appeared to depress tourism flows significantly toward the end of the crisis. This result is in line with the extant literature, such as Khalid, Okafor, and Shafiullah (2019), that underscores the negative impact of economic and financial crises on tourism flows.

<sup>7</sup> We use the fixed effects (FE) estimator to estimate our model based on the results from a Hausman test. The Hausman specification test is used to decide between FE and random effects (RE), and the result is in favor of FE. Therefore, based on the test, the FE estimator has been chosen as the preferred estimator. The result of the test is reported in the Appendix in Table A1. We also perform a robustness check where we use RE to estimate our model.

Table 4

Link between panda diplomacy and international tourism flows (robustness check controlling for time-invariant variables using a random-effects estimator).

Dependent Variable: Ln TFL <sub>cd</sub>				
Variable	(1)	(2)	(3)	(4)
	RE	RE	RE	RE
Panda <sub>cd</sub>	0.41*** (0.14)			
Ln GDPPC <sub>d</sub>	2.43*** (0.22)	2.33*** (0.20)	2.28*** (0.20)	2.25*** (0.20)
Ln POP <sub>d</sub>	1.10*** (0.12)	1.10*** (0.11)	1.10*** (0.11)	1.09*** (0.11)
Ln REP <sub>cd</sub>	-0.53*** (0.13)	-0.59*** (0.14)	-0.63*** (0.15)	-0.75*** (0.16)
CONTIG <sub>cd</sub>	1.76** (0.83)	1.68** (0.80)	1.59** (0.79)	1.52* (0.78)
COMOFF <sub>cd</sub>	1.00 (0.76)	1.14 (0.75)	1.22 (0.75)	1.26* (0.76)
Colony <sub>cd</sub>	1.95** (0.86)	1.86** (0.83)	1.83** (0.82)	1.77** (0.80)
Ln Distance	-0.36 (0.45)	-0.43 (0.43)	-0.48 (0.42)	-0.55 (0.42)
Land <sub>cd</sub>	1.22** (0.49)	1.19** (0.47)	1.16** (0.46)	1.15** (0.45)
Island <sub>cd</sub>	1.49*** (0.55)	1.51*** (0.53)	1.51*** (0.52)	1.53*** (0.52)
FC97	-0.24*** (0.09)	-0.26** (0.10)	-0.26** (0.12)	0.00 (.)
FC98	-0.31*** (0.09)	-0.34*** (0.09)	-0.35*** (0.10)	-0.31*** (0.11)
FC99	-0.44*** (0.08)	-0.46*** (0.08)	-0.48*** (0.08)	-0.45*** (0.09)
FC08	-0.30*** (0.06)	-0.31*** (0.06)	-0.31*** (0.06)	-0.30*** (0.05)
FC09	-0.26*** (0.05)	-0.27*** (0.05)	-0.28*** (0.05)	-0.28*** (0.05)
Panda <sub>cdt-1</sub>		0.37** (0.16)		
Panda <sub>cdt-2</sub>			0.38** (0.17)	
Panda <sub>cdt-3</sub>				0.40** (0.17)
Constant	-28.12*** (5.81)	-26.52*** (5.55)	-25.48*** (5.49)	-24.48*** (5.42)
Observations	2211	2157	2102	2043
R-Squared (Overall)	0.62	0.63	0.63	0.64

Notes: Ln denotes natural logarithm. Robust standard errors are reported in parentheses. Significance at the 1%, 5%, and 10% levels is shown by \*\*\*, \*\*, and \*, respectively. “.” means that the variable was dropped due to the collinearity issue.

As previously highlighted, the effect of hosting pandas on international tourism flows from China can be explained from two perspectives. First, the effect may derive from improvements in the bilateral ties between a destination country and China. Second, the effect can result from improvements in the destination image of countries that host pandas among Chinese tourists. However, both channels require some time to take effect, which implies that hosting a panda is likely to have a lagged effect on outbound tourism from China to the destination countries. To account for the potential lagged effect of hosting pandas, we estimate a dynamic model as specified in Equation (3) with various lag lengths. The results of this exercise are reported in Table 3, Columns 2–4.

As shown in Table 3, the effect of hosting pandas is positive and statistically significant for the first, second, and third lags. The panda effect, however, is largest for the third lag, even surpassing the contemporaneous effect of hosting pandas. On average, countries receiving pandas in period  $t - 3$  would attract approximately 40% higher tourism flows from China than countries that did not. The larger lag effect indicates the presence of asymmetries in the availability of information among tourists from China.

**Table 5**

Link between panda diplomacy and international tourism flows (robustness check controlling for time-invariant effects and including higher lags of panda using a PPML estimator).

Dependent Variable: <i>TFL<sub>cd</sub></i>					
Variable	(1)	(2)	(3)	(4)	(5)
	PPML	PPML	PPML	PPML	PPML
Panda <sub>cd</sub>	0.17** (0.09)				
Ln GDPPC <sub>d</sub>	2.99*** (0.28)	2.91*** (0.28)	2.86*** (0.27)	2.84*** (0.29)	2.87*** (0.32)
Ln POP <sub>d</sub>	4.73*** (0.89)	4.52*** (0.87)	4.40*** (0.84)	4.41*** (0.83)	4.50*** (0.86)
Ln REP <sub>cd</sub>	-0.68*** (0.23)	-0.75*** (0.22)	-0.85*** (0.20)	-0.93*** (0.20)	-0.94*** (0.20)
CONTIG <sub>cd</sub>	-14.96*** (3.35)	-14.31*** (3.30)	-13.91*** (3.20)	-13.98*** (3.18)	-14.29*** (3.27)
COMOFF <sub>cd</sub>	23.97*** (5.09)	23.04*** (5.01)	22.39*** (4.85)	10.94*** (2.81)	22.97*** (4.98)
Ln Distance	1.54*** (0.21)	1.42*** (0.20)	1.36*** (0.19)	1.35*** (0.19)	1.39*** (0.20)
Land <sub>cd</sub>	10.08** (4.00)	-1.25 (1.49)	27.02*** (5.39)	27.09*** (5.32)	9.51** (3.98)
Island <sub>cd</sub>	-18.70*** (3.14)	15.34*** (4.22)	-5.92*** (0.98)	-5.90*** (0.96)	20.22*** (5.15)
FC97	-0.66*** (0.18)	-0.72*** (0.19)			
FC98	-0.51** (0.20)	-0.58*** (0.21)	-0.57*** (0.22)		
FC99	-0.44*** (0.16)	-0.44** (0.18)	-0.42** (0.19)	-0.42** (0.19)	
FC08	-0.36*** (0.11)	-0.38*** (0.11)	-0.39*** (0.11)	-0.39*** (0.11)	-0.36*** (0.09)
FC09	-0.29** (0.14)	-0.31** (0.14)	-0.32** (0.14)	-0.32** (0.14)	-0.32** (0.14)
Colony <sub>cd</sub>		29.09*** (7.01)			18.14*** (1.71)
Panda <sub>cdt-2</sub>		0.16* (0.08)			
Panda <sub>odt-3</sub>			0.24*** (0.08)		
Panda <sub>cdt-4</sub>				0.25*** (0.08)	
Panda <sub>cdt-5</sub>					0.24** (0.10)
Constant	-48.78*** (8.30)	-46.16*** (8.10)	-44.58*** (7.81)	-44.66*** (7.64)	-45.75*** (7.76)
Country of destination fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	3037	2784	2650	2536	2420
R-squared	0.97	0.97	0.98	0.98	0.98

Notes: PPML denotes Poisson pseudo maximum likelihood; international tourism flows, GDP per capita, and population variables were scaled (i.e., divided by 10,000) to achieve convergence. Robust standard errors are reported in parentheses. Significance at the 1%, 5%, and 10% levels is shown by \*\*\*, \*\*, and \*, respectively.

Although the results reported in Table 3 include country-pair fixed effects that account for any time-invariant factors that may affect tourism flows from China to different destinations, it could be argued that the variable of interest may be susceptible to the introduction of standard gravity variables such as distance, common language, and others. Moreover, as noted earlier, it is important to check if the parameter estimates are robust in the presence of sample selection bias and heteroscedasticity. Therefore, to test the robustness of our results, we conducted additional sensitivity analysis by introducing standard gravity variables as specified in Equation (4). We then re-estimated the equation using RE and PPML estimators.<sup>8</sup> The results of this exercise are presented in Tables 4 and 5. In general, the results are similar to those reported in Table 3. Hosting a panda from China has a positive and significant influence on international tourism flows from China to the destination country based on the estimates obtained for both the RE and PPML estimators.

Notably, the magnitude of the effect is smaller for the PPML than the RE or FE estimates. According to the PPML estimates, on average, tourism flows from China are 18.5% higher for a country that hosts a panda compared to a country that does not (see Column 1, Table 5). Conversely, for the RE estimator, hosting a panda increases tourism flows from China by around 50.6% (see Column 1, Table 4). Similarly, the lagged coefficients of the panda dummy are all positive and statistically significant, particularly for the higher lags, as reported in Table 5. Specifically, the effect of third, fourth, and fifth lags of the panda dummy on tourism flows from China for the PPML estimates are larger in magnitude than the contemporaneous effect.

### 6. Conclusion and policy implications

This study contributes to the literature on the political determinants of international tourism flows by investigating the link between panda diplomacy and international tourism flows using the gravity approach. Considered a national treasure, the giant panda occupies a prominent role in Chinese society. Indeed, the giant panda is both a potent national

<sup>8</sup> The dependent variable for the PPML estimates is expressed in levels.



symbol and is increasingly used as a diplomatic tool by Chinese authorities. We employ a gravity model of tourism outflows from China to 137 destination countries over the 1995–2018 period to explore whether panda diplomacy affected Chinese tourists’ decision to travel. All models are estimated using fixed effects with robust standard errors, and the sensitivity of the results was checked by estimating an alternative specification that considered standard gravity variables with RE and PPML estimators.

Our results indicate that destination countries that host pandas from China attract a substantial number of Chinese tourists compared to those that do not. Additionally, the effect is found to persist over time and is stronger in later years, especially after three years of hosting pandas. According to the contemporaneous model, on average, international tourism flows from China are 35% higher for countries hosting pandas. And, after three years of receiving pandas, the host sees a 40% higher international tourism flow from China. The effects of other covariates on tourism flows from China are also in line with the extant literature. For instance, we find that affluent countries attract more Chinese tourists, and that tourists cut back on traveling in the wake of an economic or financial crisis. These results are robust to the inclusion of standard gravity variables and to the use of other estimators such as RE and PPML.

Our results underscore the importance of panda diplomacy in determining tourism flows from China. The results provide evidence that the decision by Chinese tourists to travel to various destination countries is influenced by panda diplomacy as captured by the destination countries that host pandas from China. This finding suggests that panda diplomacy can in fact confer international tourism attractiveness upon destination countries that host pandas from China, analogous to the notion that the exclusive panda diplomacy club could confer its members with tangible economic benefits such as trade deals.

This study’s findings have both direct and indirect policy implications. One direct policy implication is that destination countries hosting pandas can enhance their international tourism attractiveness—especially for attracting more Chinese tourists—by incorporating panda-themed international marketing campaigns. The use of panda-themed marketing will be especially important after the COVID-19 pandemic. Adopting panda-themed international marketing campaigns not only would boost Chinese tourist inflows, but might also attract tourists from other parts of the world, because hosting a panda improves the global profile of zoos and host countries. Similarly, policymakers can promote panda-themed marketing campaigns in the domestic market, helping increase domestic tourism and boosting the tourism sector’s revenues.

Furthermore, policymakers should factor in a potential time lag in the implementation of panda-themed policies, a response consistent

with findings that the impact of hosting pandas on the inflows of tourists from China is strongest after three years. This finding indicates that policies aimed at improving destination image among travelers should focus on medium-to long-term goals, especially with respect to the evaluation of the success or failure of such policies. This delay primarily occurs because it takes time for tourists to change their perceptions about destination countries. Persistent marketing over a long period of time, therefore, has the potential to lead to a more permanent change in terms of improving, managing, and maintaining the positive image of the destination country. Coupled with this factor, countries hosting pandas can amplify the positive impact of panda diplomacy on inbound tourist flows from China by reducing the cultural and linguistic distance between themselves and China (Khalid, Okafor, & Sanusi, 2021). This effort will strengthen the positive image of the destination among Chinese tourists and foster a sense of cultural familiarity. Panda-hosting nations can take various approaches to this end. For instance, destinations can provide travel information in Chinese and increase the employment of individuals well versed in various Chinese dialects in the tourism industry, especially at major tourist destinations.

An indirect policy implication of the study is that panda diplomacy can promote domestic tourism in China. For instance, policymakers in China can leverage the positive impact of panda diplomacy on outbound tourism flows to enhance and strengthen the tourism sector. As highlighted by Seetaram (2012), outbound tourism significantly contributes to the domestic economy because those traveling abroad tend to consume substantial tourism services domestically that benefit domestic firms and businesses such as airline companies, airports, domestic transport, travel agencies, and tour operators. As such, China can leverage panda diplomacy to accelerate the recovery of the tourism sector post-COVID-19 pandemic by encouraging outbound tourism. Additionally, China can use panda diplomacy to not only enhance outbound tourism, but also deepen bilateral relationships in other contexts, such as foreign direct investment (FDI) and international trade. Lastly, our results provide a more general strategy for uplifting the tourism sector post-COVID-19, underscoring that good diplomatic relationships achieved through different channels—panda diplomacy, bilateral agreements—can promote the international tourism attractiveness of a destination country. Thus, any strategy to revive the tourism sector post-COVID-19 could incorporate improving diplomatic ties with countries worldwide.

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**Appendix**

**Table A1**  
Hausman Test of Model Selection.

Null Hypothesis ( $H_0$ )	Statistics	Result
$H_0$ : Differences in the coefficients of the fixed-effects (FE) and random-effects (RE) models are not systematic	Chi-square ( $X^2$ ) = 501.44 Prob > $X^2$ = 0.00	Reject $H_0$ : Result in favor of FE

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