

Costly Signaling and China's Strategic Engagement in Arctic Regional Governance

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Abstract

In recent years, China has become an increasingly important actor in Arctic regional governance. While Beijing consistently frames its engagement in the region as a strategy of mutually-beneficial cooperation, some Arctic countries have raised significant concerns about its growing economic presence, warning that China may leverage its geopolitical influence to change the existing norms and rules in the polar region. Facing the mounting “China threat” skepticism, what are Beijing’s coping strategies to belie concerns? Based on a review of the existing research and government documents, particularly Chinese-language scholarly works and official reports, this article specifically identifies two types of costly signaling approaches employed by China to reduce Arctic countries’ distrust. First, China has started to curtail its Arctic investment in oil, gas, and mining while engaging more in sectors that chime well with Western societies’ global environmental values, including clean and renewable energy, ecological research that addresses further climatic change associated with global warming, and other environmentally sustainable industries. Second, Beijing has increasingly involved in regional international organizations, such as the Arctic Council, to signal its willingness to exercise state power under institutional constraints. These approaches aim to send a series of costly signals to conventional Arctic states, reassuring them that China is not a revisionist power that pursues hegemony in the region. Taken together, our findings have both scholarly and policymaking implications to understand China’s participation in Arctic regional governance.

Keywords

Arctic governance; Chinese diplomacy; costly signaling; global environmental values; sustainable development

1. Introduction

Over the past several decades, as China re-introduced itself to the world as a global economic powerhouse, the Chinese government has undertaken an increasingly proactive foreign policy to engage with neighbouring states and regions, pursuing advancement in its international standing, geopolitical influence, and, ultimately, to improve its great power status vis-à-vis traditional Western powers. The Arctic region, which is geographically located to the North of China and is well-endowed with mineral resources, has naturally become an arena for international interactions between both international organizations (IOs) and national states, including China (Buntaine & Parks, 2013; Conca et al., 2017; Dalmer, 2021; Haas, 2016; Kuyper & Bäckstrand, 2016; Lavelle, 2021; Obydenkova et al., 2022; Selin, 2012; Selin & VanDeveer, 2015; Tosun & Mišić, 2021). In the Arctic region, Beijing has ascribed itself as a “near-Arctic state” (近北极国家) and an “important stakeholder in Arctic affairs” (北极事务的重要利益攸关方; Dong, 2017). Since the early 1990s, the Chinese government has placed the Arctic region on its foreign policy agenda and has since then been increasingly involved in Arctic regional governance, primarily in scientific research, clean energy, infrastructure, and natural resource extractions (Wu, 2022). In this article, following Zürn’s (2018, p. 138) definition of global governance, we conceptualize the term “Arctic regional governance” as the international commitment and/or effort to provide common goods to tackle security, environmental, and humanitarian challenges in the Arctic region. In 2003, Beijing launched its first scientific survey base, Yellow River Station (黄河站), in Ny-Ålesund, Norway. In 2013, China signed a free trade agreement with Iceland, which in turn voiced support for Beijing’s ascension as an observer state in the Arctic Council. In November 2013, the China National Petroleum Corporation acquired a 20% stake in the Yamal Arctic LNG project developed by Novatek, the largest independent gas producer in the Russian Federation. In June 2017, Beijing explicitly incorporated the polar region into its Vision for Maritime Cooperation Under the Belt and Road Initiative (一带一路“建设海上合作设想”). The Belt and Road Initiative is an attempt by the Chinese government to facilitate economic collaborations with foreign states and to improve the international economic architecture (Huang, 2016). In January 2018, China officially published its first *Arctic White Paper* (中国的北极政策白皮书), signifying its interest in participating in Arctic economic cooperation. As of October 2022, it is estimated that China has invested approximately 90 billion US dollars in Arctic host countries (House Foreign Affairs Committee, 2022).

China’s growing presence in the Arctic region has not gone unnoticed in Western scholarly circles and has led to extensive debates on the motivations behind, and the consequences of, Beijing’s active participation in Arctic regional governance (Agostinis & Urdinez, 2022; Fravel et al., 2022; Hall et al., 2022; Lavelle, 2022). More broadly, the research also links to the literature on the relationship between political regimes and regional governance (Andonova, 2003; Bättig & Bernauer, 2009; Nazarov & Obydenkova, 2022). To date, the scholarly literature has coalesced around two central explanations of China’s polar foreign policy. The first explanation contends that China’s Arctic engagement is first and foremost driven by energy security considerations. China’s dependence on foreign oil was 64% in 2016 up from 60% in 2015 while its natural gas dependence reached 33.5%, it is estimated that Beijing will have to rely on imported oil to meet 80% of its domestic consumption in 2030 (Chen, 2017). As the Arctic region is phenomenally rich in energy, supplying the world with 10% of oil and 25% of natural gas, establishing a “Polar Silk Road” (冰上丝绸之路) may potentially provide China with shorter shipping routes and more secure access to energy resources (Chen, 2017; Li, 2009). W. Zhao (2022) contends that Arctic shipping routes will provide a much more commercially-efficient option for China, as the new route will save 5.3 to 12.7 billion US dollars worth of

transportation costs. Li (2009) argues that a new shipping route linking China to the Arctic is a critical factor that motivates China to engage with the Arctic. Zhang and Yang (2023) provide some additional support for this argument, claiming that China should collaborate with neighboring states to develop a new Arctic shipping route. In a similarly motivated analysis, Jakobson (2010, p. 1) claims that “the prospect of the Arctic being navigable during summer months, leading to both shorter shipping routes and access to untapped energy resources, has impelled the Chinese government to allocate more resources to Arctic research.” As such, a Polar Silk Road can serve as an economically efficient route linking China to Europe, and the belt surrounding the road will become an important opportunity for China to access secure and renewable energy.

The second aspect of the bipartite model of Beijing’s active Arctic engagement is that China has sought great power status in the evolving Arctic governance regime (Agostinis & Urdinez, 2021; Fravel et al., 2022; Hall et al., 2021; Kardon & Leutert, 2022). Humpert and Raspotnik (2012) contend that while economic development and energy security are certainly important in Chinese policymakers’ considerations, the decision to increase China’s participation in the polar region can also be intertwined with an incentive to consolidate China’s role as a rising global power. Specifically, as China has repeatedly signaled its pursuit to be a responsible great power in global governance under humane authority (王道), the country is unwilling to be excluded from Arctic regional governance which would render it “unable to influence regional agenda-setting and development” (Humpert & Raspotnik, 2012). Therefore, an important element of China’s geostrategy is “fundamentally about playing a role in the Arctic’s decision-making process as a further political attempt of acting and exerting its influence globally” (Humpert & Raspotnik, 2012, p. 9).

As such, it is clear that China has strategic interests in the Arctic, be it economic benefits, shipping routes, energy security, or higher global standing. Liu Cigui, the former director general of China’s State Oceanic Administration claimed: “The polar region has a unique role in China’s maritime development strategy, the process of establishing China’s polar great power status is an important component of China’s process of becoming a maritime great power” (Liu, 2014). Here, Beijing does not expect any tensions between its Arctic involvement and conventional Arctic countries’ national interests. Critically, the Chinese government has consistently framed its engagement with Arctic states as a strategy of mutually-beneficial cooperation (互利共赢合作), linking to its “community of shared future for mankind” (人类命运共同体) concept. In doing so, Beijing seeks to better convey its message to the world and foster a favorable international image among foreign audiences, as Chinese President Xi Jinping explicitly declared: “We should increase China’s soft power, give a good Chinese narrative, and better communicate China’s message to the world” (Biswas & Tortajada, 2018). In reality, however, some Arctic states’ reactions are at odds with Beijing’s original expectations.

Notwithstanding China’s effort to affirm that its Arctic engagement does not harbor any aggressive intention, China’s growing economic presence in the polar region has elicited concerns among the Arctic community. As early as in the Harper administration, the Canadian government has started to take a competitive stance towards China’s polar policy by claiming its portions of the Arctic as a domestic political issue, and that Canada will not relinquish its sovereignty in those areas (Galloway, 2011). Russia, which has built a Comprehensive Strategic Partnership of Coordination (全面战略协作伙伴关系) with China, has also been vigilant about Beijing’s Arctic engagement, concerned that the rising great power may actively shift the existing dynamics in the polar region into something more complementary to its own national interest;

therefore, Moscow was persistently (before 2013) opposed to granting China an observer status in the Arctic Council (Wishnick, 2021). After Beijing's 2013 admission into the Arctic Council, in particular, Arctic states' threat perceptions of China have increased dramatically. Lanteigne (2017, p. 118) notes that after 2013 a growing number of Western Arctic politicians have started to concern that "a strategy of revisionism in the region was being tacitly but steadily constructed by Beijing." Pincus (2020, p. 53) warns that Chinese Arctic activities may have "the potential to pose the most direct threat to the United States." Similarly, Byers and Covey (2019, p. 505) note that the Chinese expanding influence and its intensifying relationship with Western countries may give rise to a security dilemma in the Arctic. Kauppila and Kopra (2022, p. 152) allege that China's engagement "will fundamentally transform international and regional orders and their constitutive norms" in the Arctic Circle. In the same vein, Timo Koivurova, a Finnish scholar on Arctic legal studies, alarms that Chinese industrial operations in the High North have resulted in a series of deleterious consequences, particularly on the region's fragile environment (Stephen, 2019). More recently, former Norwegian Prime Minister Jens Stoltenberg (Szumski, 2022) warns that Norway should be cautious of becoming too dependent on business with China.

The unflattering responses of conventional Arctic states to Beijing's engagement prompt an important scholarly and policymaking issue: As negative perceptions jeopardize legitimacy, power, and status, the widespread anti-China rhetoric can antagonize Chinese stakeholders, and therefore leads to intensifying confrontation in the polar region. Being a fragile diplomatic zone, escalating antagonism in the Arctic region between Eastern and Western state actors within the broader context of the ongoing US-China strategic competition may be counterproductive to the international commitment to sustainable development, climate governance, and security governance in the Arctic. Facing such challenges, how does China strive to affirm that its efforts are indeed motivated by mutually beneficial objectives? In other words, being mindful of the realist-driven skepticisms, through what mechanisms does the Chinese government seek to mitigate Arctic countries' self-described "China threat" sentiment and contribute to Beijing's "benevolent hegemon" role? To date, despite the extensive scholarly works on Arctic regional governance, little to no research has been done to examine China's perspectives and coping strategies in the polar region.

To engage with this research gap, this article borrows insights from the costly signaling theory in international politics. Specifically, we identify two main types of coping strategies employed by the Chinese government to justify its engagement in the Arctic region and to alleviate concerns raised by other state actors, namely, signaling with sunk costs and signaling with tied-hands costs. Specifically, sunk costs signaling refers to the strategy of creating irrecoverable, ex-ante costs for the sender to assure the audiences that its message is sincere; tied-hands signaling is the strategy of incurring fixed, ex-post costs for the sender in a reassurance game. Both strategies are considered as frequently employed tactics by nation-state actors to build trust by demonstrating that the sender does not harbor any aggressive intentions. Relying on a critical review of existing scholarly works and Chinese government reports, we corroborate our theoretical claims. In the following sections, the authors elaborate on Beijing's coping strategies and their international relations "theoretical grounds."

2. Signaling With Sunk Costs: From Natural Resources Extraction to Environmental Protection

2.1. The “Cheap Talk” Dilemma in China’s Arctic Involvement

In the face of the mounting suspicions among political elites in conventional Arctic states about China’s real intentions, China’s major policymaking challenge is how to assure foreign audiences that its promise of a “community of shared future for mankind” in the polar region is truly sincere and that China will never pursue regional or global dominance (中国绝不寻求区域性或全球性霸权). More specifically, in the anarchical international system where nation-states often harbor aggressive incentives to misrepresent their actual motivations in order to exploit other players, through what mechanisms can the Chinese government build trust by resolving the problem of sincerity? Indeed, the question of how to distinguish between credible messages and empty promises has been a long-standing puzzle among international relations scholars. Theoretically, since one cannot get into others’ minds to observe their real thoughts, foreign policymakers can benefit from conveying false information to persuade, assure, and coerce, as the former US Secretary of State Mike Pompeo once openly confessed in his speech in 2020: “I was the CIA director. We lied, we cheated, we stole. It was like we had entire training courses” (Tisdall, 2020). In China’s Arctic governance context, while the leadership in Beijing has repeatedly signaled to other states that China does not aim to impose changes to the status quo or to build regional hegemony, as its *Arctic White Paper* (Ministry of Foreign Affairs of the People’s Republic of China, 2018) announced, “China will participate in Arctic affairs in accordance with the basic principles of ‘respect, cooperation, win-win results and sustainability’”, conventional Arctic countries may nevertheless be dubious about whether the rising power professes cooperative gestures to lull them into a false sense of security under asymmetric information. As Schelling (1966, p. 35) put famously half a century ago, “the hardest part is communicating our own intentions.” Thus, the “talk is cheap” dilemma lies at the heart of China’s involvement in Arctic regional governance.

2.2. The Signaling With Sunk Cost Mechanism

We argue that the first coping strategy undertaken by Chinese policymakers to belie concerns is signaling with sunk costs. In international security research domains, extensive literature identifies the costly signaling mechanism as a key solution to the credibility problem (Fuhrmann & Sechser, 2014; Kertzer et al., 2020; Martin, 2017). Theoretically, despite there being realists who assert that political actors simply cannot credibly signal their private information and that only power matters, many other prominent scholars place significant emphasis on the importance of costly signaling as a means to cull falsified gestures from sincere behaviors (Kydd & Walter, 2006; Lektzian & Sprecher, 2007). Here, the causal logic is that if a player bears some non-trivial costs from the signal she sends in a reassurance game, she may be able to separate herself from insincere players who are unlikely (or at least more hesitant) to send such high-cost signals (Y. Zhao & Tan-Mullins, 2021). In other words, actors who feign sincerity should have incentives to continue feigning so long as the cost is low, but players who are willing to put tremendous money, reputation, and future at stake are likely to be truly trustworthy (Hall & Yarhi-Milo, 2012).

In the costly signaling literature, sunk cost refers to the type of cost that is irrecoverable and ex-ante at the point of signaling. For concreteness, let us deploy an example: A nation-state announces it will reduce greenhouse gases. Suppose that the state increases government expenditure to support clean energy by

replacing some aging coal-fired power plants with new ventures that deliver wind, solar, geothermal, and other renewable powers, the ex-ante public spending of constructing these sustainable projects is categorized as sunk costs. Because the spending incurred before the time of signaling, and these large financial costs cannot be retracted at later stages, such ex-ante costs should create a direct effect which contributes to the state's credibility as viewed by other countries.

2.3. China's Reduction in Resources Extraction and Increasing Engagement in Arctic Environmental Protection

In the context of Arctic regional governance, we argue that China has undertaken this exact strategy, striving to send a credible signal to audiences in polar countries by creating sunk costs for itself; these are (a) reducing its foreign direct investments in large scale natural resources extractions projects (the type of business activities that are often perceived by conventional Arctic state and non-state actors as strategically aggressive and politically ambitious) and (b) increasingly direct its economic resources to fulfill its promise of sustainable development in the polar region, particularly in terms of environmental protection, renewable energy, ecological research, and global warming—projects that chime well with Western societies' global environmental values.

Beijing's retrenchment in natural resource extractions (particularly mineral, gas, and oil) aims to address the widespread criticism of the perceived "Chinese economic expansion threat" in the High North—a popular point of view which posits that Beijing is using large state-owned enterprises as a proxy to advance geopolitical expansion and project its influence in the Arctic. In a 2022 report published by the Center for Naval Analyses, for example, it is noted that Chinese firms "are uniquely positioned to take on large, risky Arctic projects" because "FDI [foreign direct investment] appears to be an important targeted tool that China-based entities use to secure rights to the Arctic's natural resources," such that "the party-state exerts control over both state-owned and private China-based companies to ensure that their investments in Arctic countries further Beijing's interests" (Holz et al., 2022, pp. 29, 38). In a similarly-motivated analysis, European Union Vice President Antonio Tajani bashed China's Arctic outreach as a "raw mineral diplomacy" and pledged hundreds of millions of dollars of development aid to Greenland, lobbying the island country not to grant Beijing permission to extract rare earth metals (Struzik, 2013). Facing such pushbacks from Arctic states, China's retrenchment in natural resources extractions creates non-trivial sunk costs for itself and therefore sends a costly signal to demonstrate that it harbors no revisionist ambitions in the High North. Specifically, Table 1 illustrates the dynamic of China-based entities' investments (excluding those that are bankrupted, defaulted, ended up in arbitration, blocked, cancelled, or stalled) in natural resource extractions in the Arctic region.

Data used to generate Table 1 is mostly sourced from the Center for Naval Analyses' 2022 report *Exploring the Relationship Between China's Investment in the Arctic and Its National Strategy* (Holz et al., 2022). Based on this table, it is clear that 2013 to 2016 is the peak period for China-based entities to invest money or acquire stakes in Arctic mining projects: In 2013, China National Offshore Oil Corporation acquired Canadian oil and gas company Nexen for 15.1 billion US dollars for new offshore production in the North Sea while China National Petroleum Corporation purchased 20% stake of Novatek's 20 billion US dollar Yamal LNG Project (Bierman & Arkhipov, 2013). In 2015 and 2016, General Nice Group, China Development Bank, and other China-based entities invested heavily in Greenland minerals, and Russia's Yamal projects. However, as

some Arctic countries started to raise security concerns and push back against Chinese presence after China published its first *Arctic White Paper* in 2018, China has reduced its resources extractions. In 2019, the major involvements were in Sino Steel's Monchetundra Project and China National Chemical Engineering's Payakha Oilfield, projects valued a total of 5,149.6 million US dollars. After the outbreak of the Covid-19 pandemic, China's investments in Arctic minerals, gas, and oil have continued to decline. Here, the logic is that if Beijing really places its "strategic ambition" above the well-being of conventional Arctic countries, it would not scale back from massive extractions of Arctic natural resources for economic purposes. Thus, Arctic states should now believe that Beijing's intentions are indeed benevolent.

Table 1. Chinese firms' major investments in Arctic natural resources extraction (ongoing and successful projects).

Year	Project	FDI (millions, US dollars)
2008	—	—
2009	Canadian Royalties, Canada	800
2010	—	—
2011	—	—
2012	—	—
2013	Yamal LNG, Russia; Nexen (North Sea), UK	19,100
2014	—	—
2015	Isua Iron Ore Field, Greenland	2,000
2016	Yamal LNG, Russia	13,200
2017	—	—
2018	—	—
2019	Monchetundra Project and Payakha Oilfield, Russia	5,149.6
2020	—	—
2021	—	—
2022	—	—
2023	Pizhenskoye Mining Project, Russia	Unknown

Source: Holz et al. (2022), Humpert (2023), and Bierman and Arkhipov (2013).

Here we expect the criticism that apart from Beijing's active signaling there may exist other reasons why Chinese FDI in Arctic countries is diminishing over the past years; for example, Arctic countries' amended FDI controls, growing environmental awareness and opposition to natural resource extractions in the High North, and macroeconomic reasons in China and the world. In particular, the Covid-19 pandemic harmed the global economy and dragged down FDIs worldwide. Indeed, given the complexity of market operations, it is empirically impractical to control for the effects of all these factors in this qualitative research. However, we shall carefully note the goal of this article is not to infer causal effects which arguably can only be achieved by using statistical models. Instead, this research strives to present a plausible costly signaling explanation based on narrative evidence and visualized data (such as Table 1). We refer to the task of quantitatively examining causal relationships in future econometric studies.

We further corroborate the sunk cost signaling mechanism by utilizing some specific Chinese decisions to join Arctic environmental protection schemes and not to join natural resource extraction projects. Specifically, we contend that China has re-distributed a non-trivial portion of its financial revenue to research and economic activities related to Arctic environmental protection, with an emphasis on climatic change, ecological protection, and sustainability. While China's *Arctic White Paper* does not explicitly address

“ecological civilization,” “ecological civilization” is a popular notion in the Chinese government’s overall policy plans, hence, in practice, it may be linked to China’s outward-looking Arctic strategy. Here, the global environmental value is a salient notion among conventional Western actors in Arctic regional governance, referring to the importance of sustainable development, addressing environmental issues in the polar region, and preventing further climatic change associated with global warming. For China, while Arctic environmental protection is certainly not an unimportant issue, it is a less priority compared to access to energy resources and shipping routes, particularly considering that China itself does not have any territory in the Arctic. Nevertheless, Beijing has dramatically increased its involvement in global-environmental-values-related projects, through which it signals to Arctic actors that China is willing to accommodate itself to the prevailing Western-based international norm that restrains nation-states from prioritizing economic development over the environment. Specifically, by the end of 2021, China has conducted 12 projects of scientific fieldwork in the Arctic Ocean, focusing on salient environmental issues including the marine ecological environment, sea ice concentration, ocean de-acidification, synthetic radionuclide, and marine plastic litter (Xinhua, 2021). Notably, China invited scientific researchers from conventional Arctic states to participate in its fieldwork. In 2017, for example, three Canadian scientists were invited to collaborate in China’s Arctic marine geography research (China’s State Oceanic Administration, 2017). In addition, Beijing co-sponsored the International Code of Safety for Ships Operating in Polar Waters (Polar Code) which regulates and controls vessel-induced pollution in the Arctic marine environment (Yang, 2018). More recently, China, Russia, and the US conducted joint research on Arctic fisheries in order to ban unregulated fishing which jeopardizes Arctic bioecology (Danilov, 2021). As such, despite redistributing resources away from natural resources retractions to Arctic environmental protection is not of China’s economic benefit, the rising power is willing to bear this sunk cost to signal that China is a norm-taker rather than a norm-breaker on Arctic environmental.

3. Signaling With Tied-Hands Costs: China’s Participation in Arctic Regional Organizations

3.1. The Signaling With Tied-Hands Costs Mechanism

The second coping strategy employed by Chinese foreign policymakers is to create a significant tied-hands cost for themselves through actively participating in Arctic regional organizations. According to the costly signaling literature, tied-hands costs are defined as fixed, ex-post costs that will be incurred in the future if the sender reneges on her promise (Kertzer et al., 2020; Quek, 2016). In this case, when the sender issues a signal to other states, there is no cost entailed at the point of signaling, and whether the sender may suffer any ramifications in the future is contingent on whether she fulfils or defrauds the promise (Snyder & Borghard, 2011). A famous example is audience cost which was clarified and integrated into international relations by Fearon (1994): If a political leader initially makes a public statement of resolve but backs down in later stages, disappointed voters would punish the leader through domestic political losses.

3.2. China’s Arctic Engagement Through International Organizations

Such signaling mechanism applies to China’s coping strategy in the polar region. Beijing has been actively seeking to integrate itself into Arctic regional governance mainly through participating in various international and regional organizations, particularly the Arctic Council, instead of bilaterally collaborating

with individual Arctic states. We argue that China's IO memberships serve as a signal with tied-hand costs for itself. Specifically, in 2006, 2009, and 2011, the Chinese government applied three times for observer status in the Arctic Council, yet all encountered strong opposition from Canada and Russia (Wu, 2022). In May 2013, Beijing was eventually granted entry into the Arctic Council—This acceptance is considered by Chinese observers as a triumph. In its 2018 *Arctic White Paper*, the Chinese government claimed that:

China, as an accredited observer to the Arctic Council, highly values the Council's positive role in Arctic affairs, and recognizes it as the main inter-governmental forum on issues regarding the environment and sustainable development of the Arctic. China stands by the commitments it made when applying to become an observer to the Council. It fully supports the work of the Council, and dispatches experts to participate in the work of the Council including its working groups and task forces. (Ministry of Foreign Affairs of the People's Republic of China, 2018)

In May 2019, China hosted the Arctic Circle Forum in Shanghai. Logically, China's involvement in the Arctic through membership in regional organizations should impose tied-hands costs on itself, because for a nation-state to join an international regime it must accept that the rules and norms in the regime (Libman & Obydenkova, 2018b; Obydenkova & Libman, 2019). As such, being a member of multiple Arctic-related regional organizations, China signals to other states that Beijing is willing to adhere to international treaties and norms established in these organizations, such as the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic, and the Agreement on Enhancing International Arctic Scientific Cooperation (Agostinis & Urdinez, 2021; Fravel et al., 2022; Hall et al., 2022; Lavelle, 2021). Concurrently, this strategy creates ex-post tied-hand costs because if China's future diplomacy deviates from Arctic IOs' regulations, it would incur significant reputation and credibility costs for the Chinese government, rendering it less trustworthy as perceived by other actors.

Utilizing the tied-hand cost mechanism to explain China's involvement in Arctic regional IOs, we expect the following realist-driven criticisms: One might argue that international regimes may be incapable of restraining state behaviors, particularly considering that the Arctic Council is currently not well functioning. In addition, violating the practices, norms, and international treaties of these organizations is "costly" even without IO membership, hence joining Arctic regional organizations might not really tie great powers' hands. Doubtlessly these are fair statements. However, we shall point out that even though nation-states do sometimes violate or even ignore the constraints imposed by IOs, it does not necessarily mean that these deviations do not incur any cost for great powers. Critically, in cases where a great power joins an IO but does not adhere to corresponding regulations, the violations of norms and rules would be publicly visible to international audiences and therefore harm its credibility and leadership power (Hall et al., 2022; Nygård, 2017; Simmons & Danner, 2010). Logically, such ramifications should be more damaging than not joining IOs in the first place. For example, the Trump Administration's withdrawal from the Paris Agreement in 2017 entailed huge negative consequences on the US government's reputation, one can argue that such withdrawal is even more embarrassing than not joining the Paris Agreement at all. As such, whether Arctic IOs are sufficient to restrain the rising power's foreign policy practices is a matter of debate, but it is clear that China's involvement in regional organizations that cover the Arctic region serves as a coping strategy that signals its intentions through the costs of tied hands.

4. The Future of China's Involvement in Arctic Regional Governance: Is Conflict Inevitable?

In this research, we identify two major costly signaling approaches employed by China to belie skepticisms raised by conventional Arctic countries. By participating in various regional IOs and investing heavily in environmentally-friendly sectors, Beijing strives to assure conventional Arctic states that it does not seek to impose changes on the existing norms and rules in the region. Such signaling is unambiguous, and China's effort to frame its Arctic engagement with positive gestures is clear to other actors in the region. This raises the question: What follows from China's proposed tendency of costly signaling in the Arctic region? Given that there are realist-driven pushbacks against Beijing's expanding regional influence, are China's costly signals sufficient enough to outweigh the effect of opposing forces in order to build trust?

We argue that the collision between trust-building efforts and realist-driven skepticisms will characterize the future of China's Arctic engagement. So far, it can be argued that China's costly signaling strategy has successfully fulfilled some objectives, most importantly the acceptance of China into the Arctic Council as an observer state and the massive mutually-beneficial bilateral and multilateral business activities between China and all Arctic states. However, following China's acquisition of Arctic Council observer state status in 2013, the "China threat" framing has been increasingly voiced by Arctic politicians (Lanteigne, 2017). In recent years, there appears to be a growing consensus among many Arctic states that the decades of optimism about China's rise have failed and that a more competitive policy towards China is urgently in need. Broadly speaking, this unprecedentedly combative stance is linked with the ongoing escalation of US-China strategic competition, as Washington has begun to pressure its allies to jointly contain China's development instead of undertaking hedging strategies, economically benefiting from Chinese FDI while relying on the US in terms of national security (Ciorciari & Haacke, 2019; Lavelle, 2022; Raube & Vega Rubio, 2022). Among the eight conventional Arctic countries, six are NATO member states. Sweden, though not a NATO member at present, has largely integrated itself into NATO's political frameworks. Thus, while the Chinese government has taken a neutral position in the Russia-Ukraine war, many Arctic states are becoming more inclined to perceive Beijing as a revisionist Eastern power which has incompatible visions for the future of the polar region. Indeed, the ongoing Russia-Ukraine conflict starting from February 2022 has dramatically intensified confrontations in this highly fragile part of the world (Hartwell, 2022; Kochtcheeva, 2021; Obydenkova, 2022c). Despite China's costly signaling contributing to efforts to salvage its regional image, the future of Chinese Arctic involvement is likely to be a mixture of both cooperation and confrontation. Ultimately, one general international relations lesson to learn from the study is that while costly signaling alone may not be sufficient enough to completely overturn long-standing negative perceptions, it may be able to prevent the further deterioration of the sender states' credibility and image.

This research has important policymaking implications for both conventional Arctic states and China. First, the Arctic eight states, despite there being widespread concerns towards China's presence, should be aware that it is practically impossible to completely exclude the rising power from Arctic regional governance. Critically, given the importance of the Arctic to Beijing's energy security and the vast resources the Chinese government has already devoted to the polar region, it would be naïve to expect that China will simply throw all these investments into the wind. Therefore, a policy that aims to decouple China will contribute to nothing but an escalation of tensions. As such, we suggest that conventional Arctic countries should engage with China in a wide array of dimensions, including environmental protection, scientific research, education,

and sustainable economic development. By welcoming Beijing into the current form of Arctic regional governance that is largely Western constructed and centered, Arctic states can encourage the rising power to devote more resources to the joint effort to cope with environmental and other challenges of the Arctic. Given that China has already signaled its willingness to actively respond to protect the eco-environment of the Arctic and address climate change issues, a process to include rather than exclude China can have important contributions to Arctic regional governance. Second, referring to China, this research suggests that the rising power can involve itself in Arctic governance through memberships in more regional organizations, such as the Shanghai Cooperation Organization and the Asian Infrastructure Investment Bank. Existing studies show that IOs play an important role in global environmental governance (Obydenkova, 2022a, 2022b). Thus, despite neither the Shanghai Cooperation Organization nor the Asian Infrastructure Investment Bank being an Arctic-focused organization, both organizations cover a significant portion of the region through Russia's membership (Hall et al., 2022; Libman & Obydenkova, 2018a). Given the unique cooperative relationship between Beijing and Moscow, these China-led IOs may contribute by de-escalating the ongoing confrontation between Arctic actors. In addition, as both China and Russia are the world's top CO₂ emitters, China-led IOs can play an important role in fostering green energy transitions in the Arctic. At present, China is a world major emitter of carbon dioxide, and states that have been aligned with Beijing also tend to have larger greenhouse gases emissions (Bernauer et al., 2016; Obydenkova et al., 2022). However, studies have also shown that China is now leading environmental regionalism in the Shanghai Cooperation Organization by creating positive intentions for the construction of regional environmental institutions (Agostinis & Urdinez, 2022). Indeed, the role of China-led IOs in Arctic conflict management and environmental protection can be a critical theme for future research on Arctic regional governance.

Finally, we must also recognize the limitation of this article as well. Specifically, the unit of analysis in our research is nation-state, that is, we treat China as a unitary actor in our theoretical analysis. This fundamental assumption chimes well with extensive international relations works, particularly those in international conflict research domains (Chiozza & Goemans, 2004; Fearon, 1994, 1995; Gallop, 2017; Kirshner, 2000). Empirically, however, China may not always act as a monolithic entity as micro-level Chinese actors such as private businesses and state-owned enterprises may employ different strategies when engaging in the Arctic. While the goal of this research is not to systematically unpack these micro-level dynamics, we suggest future studies to explore the role of individual political actors in the shifting politics of China's involvement in the Arctic.

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Conflict of Interests

The authors declare no conflict of interests.

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