A PLACE IN THE STARS:
PRESTIGE AND LEGITIMACY IN CHINA'S QUEST FOR SPACE POWER

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A PLACE IN THE STARS

PRESTIGE AND LEGITIMACY IN CHINA'S QUEST FOR SPACE POWER

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This dissertation asks: why does China pursue expensive and attention-grabbing space capabilities with limited material payoffs? Like other spacefaring powers, Chinese leaders have long recognized the many commercial and security advantages to possessing advanced space capabilities. Yet China's most expensive and technologically difficult capabilities, such as its human spaceflight and lunar exploration programs, have limited and questionable material payoffs. To explain these patterns in China's pursuit of space capabilities, this dissertation argues that regimes adopt prestige narratives to legitimate their rule domestically. Prestige narratives appeal to collective self-esteem by promising to increase or 'restore' the nation's prestige. Regimes are incentivized to adopt these policies because they can boost national-level identification and ameliorate citizens perceptions of domestic social problems. However, although these projects may have positive domestic benefits, they can also have steep costs and unintended consequences, such as exacerbating threat perceptions abroad. Nonetheless, when regimes adopt these prestige narratives, they can become socialized or entrapped by their discourse—leading them to invest in costly prestige projects that they may not have pursued otherwise.

This dissertation draws upon data collected from fieldwork carried out in Mainland China, Hong Kong, and the United States. The data includes interviews with American and Chinese individuals focusing on space policy from government, think tanks, industry, journalism, and academia, as well as Chinese writings such as memoirs, collected writings, official histories, and white papers. This dissertation also tests whether these prestige strategies benefit regimes domestically by carrying out a survey experiment; and, in doing so, provides (to the author's knowledge) the first study of Chinese public perceptions of space policy. This dissertation draws also upon data collected from participant observation in aerospace shows, museums, conferences, and the author's participation in a series of Track II dialogues on U.S.-China cooperation in commercial space.

BIOGRAPHICAL SKETCH

R. Lincoln Hines was born in Middlesboro, Kentucky and grew up in Jonesville, Virginia. He received his Bachelor of Arts from the University of Virginia in Foreign Affairs and East Asian Studies, and a Master of Arts in International Relations from the American University School of International Service. Prior to starting at Cornell University, he was a David L Boren National Security Fellow in Beijing, China. Following this experience, he was a Bridge Award Fellow in Political and Security Affairs at the National Bureau of Asian Research. He received his Master of Arts from the Government Department at Cornell University in 2018. During his doctoral studies, he was a Senior Visiting Student at Peking University, a Daniel and Florence Guggenheim Predoctoral Fellow at the Smithsonian National Air and Space Museum, and a WSD-Handa Non-Resident Fellow at the Pacific Forum. Beginning in July 2021, he will be Professor of Space Seminar at the United States Air War College.

This dissertation is dedicated to you, mom. Without you, none of this would be possible. Thank you for always believing in me.

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LIST OF ABBREVIATIONS

A2/AD	Anti-access/area denial
ASAT	Anti-Satellite
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
BMD	Ballistic Missile Defense
CCP	Chinese Communist Party
CMC	Central Military Commission
CMSA	China Manned Space Agency
CNSA	China National Space Agency
GAD	General Armament Department
GEO	Geosynchronous Earth Orbit
GPS	Global Positioning System
ISR	Intelligence, Surveillance, and Reconnaissance
LEO	Low Earth Orbit
NASA	National Aeronautics and Space Administration
PLA	People's Liberation Army
PRC	People's Republic of China

CHAPTER 1

A PLACE IN THE STARS

This dissertation asks: why does China sometimes invest in expensive space capabilities with limited material payoffs? I argue that answering this question illuminates the calculus behind Chinese space policy and provides insights into larger questions regarding how concerns over domestic legitimacy and prestige influence Chinese policymaking and shape external perceptions of its rise.

Today, China has one of the world's most advanced space programs. Like other spacefaring powers, Chinese leaders have long recognized the many commercial and security advantages to possessing advanced space capabilities. Yet China's most expensive and technologically difficult capabilities, such as its human spaceflight and lunar exploration programs, have limited and questionable material payoffs.[1] Nonetheless, China's pursuit of space power has elevated threat perceptions of China in the United States, has sparked debates about the US space program's modernization, and was used, in part, to justify the creation of a new branch of the military, the United States Space Force (USSF).[2]

The argument at the center of this dissertation is that regimes use prestige projects to shape popular perceptions of their legitimacy. Although these prestige projects may have limited material utility, they are valuable to regimes because they

[1] I will discuss this further below.
[2] Helene Cooper, "Trump Signs Order to Begin Creation of Space Force," *The New York Times*, February 19, 2020. Accessed March 29, 2020: https://www.nytimes.com/2019/02/19/us/politics/trump-space-force.html.

demonstrate symbolically that the regime is increasing or 'restoring' the nation's international standing. This dissertation finds evidence (in Chapter 6) that such costly prestige projects do legitimate regime rule by boosting national identification and reducing the salience of domestic social problems. Thus, although these projects may provide limited material utility, regimes are incentivized to pursue these projects to legitimate their rule domestically.

The decision to pursue these prestige projects is informed by the regime's legitimation narrative. I contend that regimes which use prestige narratives will be more likely to pursue costly prestige projects than those that rely more on material-based narratives. Because regimes either internalize or are socially constrained by these prestige narratives, they are willing to exchange economic and security gains to legitimate their rule domestically.

These prestige narratives, moreover, shape how regimes respond to information from the international system. An actor's perception of its prestige, and that which is broadly understood by other actors in the international community, may be at odds with one another. Consequently, an actor may view their prestige to be challenged or in decline, even if this view is not shared by any other country in the international system. As such, when an actor reasserts their prestige, such policies may be incomprehensible to other actors in the international system.

Although prestige projects may serve regime interests, they entail a cost. In a world of finite resources, states must make tradeoffs; every decision to invest in one good is a choice not to invest in another. As such, resources invested in 'flashy' prestige projects may undermine goals of security optimization or divert funding from

improving domestic social welfare. China, for example, has made several sacrifices to develop an internationally competitive space program. Largely developing in isolation, China's space program endured the political and economic instability of the Anti-Rightist Movement, the Great Leap Forward, and the Cultural Revolution.[3] China's human spaceflight program officially began only a few years after the Tiananmen Square Incident, when China was still a developing country with a weak technological base. Even in today's comparatively wealthy China, the Chinese Communist Party (CCP) must make tradeoffs to pursue prestige. In the domestic sphere, resources spent on a space station or exploring a distant celestial body are resources not spent on alleviating poverty or inequality. Regarding Chinese security interests, resources spent on human spaceflight or lunar exploration are not investments in naval modernization or counterspace technologies.

These domestic prestige projects can have unexpected and adverse international consequences. Capabilities that serve as markers of prestige can also catalyze security spirals by raising threat perceptions and driving other states to engage in policies of prestige reassertion. As other scholars have demonstrated, prestige symbols often also have military applications. In the anarchic world of international politics, it is usually safer for states to assume the worst about others' intentions. Consequently, prestige policies can exacerbate threat perceptions.[4]

Such consequences are especially worrisome in the domain of space. Almost

[3] Yanping Chen "China's Space Policy—a Historical Review," *Space Policy* 7, no.2 (1991): 116-128.
[4] Michelle Murray, "Identity, Insecurity, and Great Power Politics: The Tragedy of German Naval Ambition Before the First World War," *Security Studies* 19 no.4, (2010): 656-688.

all space capabilities are dual use and can serve some military purpose.[5] Since the US military is highly dependent on space capabilities, many analysts worry that China's space capabilities may provide it an asymmetric military advantage over the United States in the event of a conflict.[6] Even seemingly innocuous capabilities such as China's human spaceflight program are often viewed as a Trojan Horse, enabling China to carry out surveillance or counterspace operations or providing China cover to develop heavy-lift rockets.[7] Similarly, whereas some observers view China's lunar exploration as motivated by purely civilian scientific purposes, other analysts argue that China has gained an edge in lunar colonization and resource extraction, while some analysts claim that China could be establishing a lunar military base for striking US satellites located in geosynchronous orbit.[8]

Prestige policies can also prompt other states to engage in racing behavior to reassert their prestige. Other states may face domestic pressure if their state's prestige appears to be challenged. For example, following China's landing of the Chang'e 4 on the moon's far side, pundits depicted China as beating the United States in a new 'space race.'[9] Furthermore, some view a competition with China as beneficial, arguing

[5] Roger Handberg, "Dual-Use as Unintended Policy Driver: The American Bubble," in Ed. Dick, Steven J. and Roger Launius," *The Societal Impact of Spaceflight* (2007): 353-368.
[6] Harsh Vasani, "How China is Weaponizing Outer Space: Many of China's Space Capabilities are Designed to Counter U.S. Military Advantages," *The Diplomat*, January 19, 2017: https://thediplomat.com/2017/01/how-china-is-weaponizing-outer-space/; Ashley J. Tellis, "China's Military Space Strategy," *Survival* 49, no.3 (2007): 41-72.
[7] Joan Johnson-Freese, "China's Manned Space Program: Sun Tzu or Apollo Redux?" *Naval War College* 56, no.3 (2003): 2.
[8] Dean Cheng, "China's Military Role in Space. Strategic Studies Quarterly 6, no.1 (2012): 55-77.
[9] Greg Autry and Steve Kwast, "America is Losing the Second Space Race to China," *Foreign Policy*, August 22, 2019: https://foreignpolicy.com/2019/08/22/america-is-losing-the-second-space-race-to-china/; Namrata Goswami, "China's Future Space Ambitions: What's Ahead?" *The Diplomat*. November 4, 2020: https://thediplomat.com/2019/11/chinas-future-space-ambitions-whats-ahead/.

that it could revive what they perceive as a stagnant US space program.[10] Moreover, the Trump administration has since announced that the United States plans to return astronauts to the moon and eventually Mars, unveiling the ambitious Artemis Program.[11] Similarly, the Trump administration created an entirely new branch of the military, the US Space Force (USSF).[12] Perceptions of prestige competition, however, are not merely limited to the US-China relationship. China's regional neighbors such as Japan, South Korea, and India similarly face pressures to compete with China, leading some observers to declare the existence of an 'Asian space race.'[13] As these examples underscore, Chinese domestic prestige ambitions may have profound consequences for US policy and geopolitics more broadly.

This dissertation draws upon data collected from fieldwork in Mainland China, Hong Kong, and the United States. It includes interviews with American and Chinese individuals focusing on space policy from government, think tanks, industry, journalism, and academia. This dissertation also draws upon Chinese writings such as memoirs, official histories, white papers, journal articles, and military textbooks. It also assesses whether costly prestige projects benefit regimes by carrying out a survey experiment. In doing so, this dissertation provides (to the author's knowledge) the first-ever polling data regarding Chinese public perceptions of space policy. Last, this

[10] Dorothy Wikenden, "The New Space Race: NASA, China, and Jeff Bezos," *The New Yorker*, July 11, 2019: https://www.newyorker.com/podcast/political-scene/the-new-space-race-nasa-china-and-jeff-bezos.
[11] Mike Wall, "Trump Lauds Apollo 11 Moon Landing, Promises American Flag on Mars," *Space.com*, July 5, 2019: https://www.space.com/president-trump-lauds-moon-landing.html.
[12] It is important to note that, as of this writing, both the Artemis program and the USSF program set to continue under the Biden administration.
[13] James Clay Moltz, "Asia's Space Race: National Motivations, Regional Rivalries, and International Risks," (New York, NY: Columbia University Press, 2018).

dissertation draws upon data collected from participant observation in aerospace shows, museums, conferences, and the author's participation in a series of Track II dialogues on US-China cooperation in commercial space.

Patterns in China's Pursuit of Space Power

In 2016, China issued a white paper on space activities declaring its intentions to "become a space power in all respects."[14] In 2019, China achieved the technologically complex task of becoming the first country in history to land a probe on the moon's 'far side.'[15] In 2020, China sent a probe to Mars—which, if successful, would make China just the third country in history to land a probe on Mars.[16] Moreover, China plans to finish construction of a space station in LEO by 2022—potentially making China the only country with a space station if the US proceeds with plans to defund the International Space Station (ISS).[17] Furthermore, China plans to globally extend its BeiDou Navigation system, offering customers services as part of the One Belt One Road (BRI) initiative.[18] China is also expanding its international footprint by offering launch services to countries across the globe.[19] Even China's private space sector has

[14] The State Council Information Office of the People's Republic of China. 2016. Full Text: China's Space Activities in 2016: http://www.scio.gov.cn/zfbps/32832/Document/1537024/1537024.html.
[15] Shannon Hall, "The Far Side of the Moon: What China and the World Hope to Find," *The New York Times*, January 2, 2020: https://www.nytimes.com/2019/01/02/science/far-side-moon.html
[16] On February 23, 2021, the Mars Rover entered a "parking orbit" (between 280 kilometers and 59,000 km) to gather imaging for a landing (scheduled for some time between May and June 2021). Andrew Jones, "China's Tianwen-1 Lowers its Orbit Around Mars to Prepare for Rover Landing," *Space.com*, February 25, 2021, https://www.space.com/china-mars-tianwen-1-spacecraft-lowers-orbit-for-landing.
[17] Lee Billings, "NASA Budget Proposal Defunds Space Station, Space Telescopes and More," *Scientific American,* February 12, 2018: https://www.scientificamerican.com/article/nasa-budget-proposal-defunds-space-station-space-telescopes-and-more/.
[18] Pratick Jakhar, "How China's GPS 'Rival' Beidou is Plotting to Go Global," *BBC News*, September 20, 2018: https://www.bbc.com/news/technology-45471959.
[19] The State Council Information Office of the People's Republic of China, "Full Text: China's Space

made strides, becoming the world's fastest-growing space startup sector.[20]

Today, it may seem only natural that China, the world's second-largest economy, would pursue such high-profile achievements in the domain of outer space. However, China's pursuit of space power precedes its rise as an economic power. As early as 1957, China pursued a powerful space program on par with the two superpowers of the time, the United States and the Soviet Union. Having won a civil war only seven years earlier, China was extremely poor, mostly agricultural, and had a poor technological base. Yet, Mao Zedong wanted to "throw a big one up there," a larger satellite than that of the Americans.[21] A high priority of the Party's top leadership, China's space program continued making progress during several periods of severe domestic unrest, including the Anti-Rightist Campaign, the Great Leap Forward, and the Cultural Revolution. By 1970, in the middle of the Cultural Revolution, China successfully launched its first satellite into space, triumphantly playing the 'East is Red' for the world to hear. During this time, China even briefly initiated a costly human spaceflight program.[22] However, China would soon downsize its space program under Deng Xiaoping and focus on more practical capabilities such as developing communications and remote sensing satellites.[23]

By the early 1990s, China pursued ambitious space capabilities, beginning with the pursuit of a human spaceflight program, Project 921. A multi-decade

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Activities in 2016": http://www.scio.gov.cn/zfbps/32832/Document/1537024/1537024.html.
[20] Blaine Curcio and Tianyi Lan, "Analysis: The Rise of China's Private Space Industry," *Spacenews*, Accessed May 25, 2018: https://spacenews.com/analysis-the-rise-of-chinas-private-space-industry/.
[21] Gregory Kulacki and Jeffrey G. Lewis, "A Place for One's Mat: China's Program, 1956-2003," American Academy of Arts and Sciences (2009): 5.
[22] Ibid.
[23] Ibid.

program, Project 921 is to be carried out in multiple phases—with the final stage to be a space station constructed by 2022.[24] Toward this goal, China has achieved several milestones, becoming the third country to send a human into space in 2003 and completing the construction of the core module for its space station in 2019. Furthermore, high ranking Chinese officials have publicly suggested that China ultimately plans to place taikonauts (Chinese astronauts) on the lunar surface and potentially construct a lunar base.[25]

Material-Based Explanations

Why did China pursue ambitious space capabilities during periods of heightened instability and low levels of economic development? And why has China invested in ambitious capabilities such as human spaceflight and lunar exploration despite the limited material payoffs of such pursuits? The argument advanced here focuses on the role of prestige narrative in domestic legitimation. However, it could be argued that China's space ambitions are driven by concerns over economic or security maximization.

It is undeniable that China's space program is influenced by security and commercial concerns. China is developing a wide array of counterspace technologies and is increasingly employing space-based assets in its military doctrine, seeking to 'win informationized local wars.'[26] Similarly, China is providing launch service to

[24] Ibid.
[25] "China Focus: Relay Satellite Queqiao Plays Key Role in Exploring Moons Far Side," *Xinhua*, January 6, 2019: http://www.xinhuanet.com/english/2019-01/06/c_137723875.htm.
[26] Taylor M. Fravel, "China's New Military Strategy: "Winning Informationized Local Wars," *China*

countries across the globe and is encouraging its commercial space sector as means of promoting the economic competitiveness of China's space industry.[27]

Yet these strategic-material arguments (economic or security-based arguments) are too clever by half. Whereas security-oriented arguments may view all Chinese space capabilities from human spaceflight to deep space exploration as cleverly disguising nefarious military motives, "sometimes a cigar is just a cigar."[28] Indeed, China's most ambitious and expensive projects, human spaceflight (and the construction of a space station in LEO) and its lunar program, are not well explained by material motives. Today, most tasks humans can perform in space can be performed much more effectively and inexpensively with robots.[29] In contrast, it is much more difficult and expensive to keep humans alive. China's human spaceflight program serves little to no purpose from the vantage point of security maximization. Since the 1970s, the Soviets and Americans realized the futility and costs of utilizing humans in space for reconnaissance and combat purposes.[30]

The commercial arguments for maintaining a space station in LEO are similarly problematic. As a result of atmospheric drag in LEO, a space station requires constant maintenance and fuel supply, or else it will lose its orbital velocity and burn

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Brief 15, no.13 (2015): https://jamestown.org/program/chinas-new-military-strategy-winning-informationized-local-wars/.

[27] Blaine Curcio and Tianyi Lan, "Analysis: The Rise of China's Private Space Industry," 2018.

[28] Though the origins of this quote are unknown, it is often attributed Sigmund Freud—cautioning against giving too much weight to subconscious motivations.

[29] National Aeronautics Space Administration, Jet Propulsion Laboratory California Institute of Technology. Mobility & Robotics: https://scienceandtechnology.jpl.nasa.gov/research/research-topics-list/spacecraft-technologies/mobility-robotics.

[30] Leonard David, "Is Moon Mining Economically Feasible?" *Space.com*. Accessed on March 30, 2020: https://www.space.com/28189-moon-mining-economic-feasibility.html, January 7, 2015.

up in Earth's atmosphere.[31] These maintenance costs are high. It is estimated that the United States has spent over $100 billion on the ISS, making it one of the most expensive projects in history.[32] Yet, the ISS has provided few tangible economic payoffs and has consumed such a significant portion of NASA's budget that it has diverted funds from other scientific goals such as deep space exploration. Owing to these steep costs, the United States is planning to defund the ISS and turn it over to private investors.[33]

China's lunar exploration program is similarly puzzling. China's ambitious Chang'e lunar program (named after China's mythical moon goddess) has achieved several feats, including landing on the moon's far side (the side facing away from Earth). China's government has implemented this over several decades. It has required the use of heavy-lift rockets and the construction of a relay satellite to orbit the moon (to communicate signals from Earth to the moon's far side).[34] Furthermore, although China does not yet have official plans to place taikonauts on the moon, high-level officials in China's space program have indicated that these are China's ultimate plans.[35]

While it is true that there is considerable media hype about the potential

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[31] Robert Dempsey, "The International Space Station: Operating an Outpost in the New Frontier. National Aeronautics and Space Administration,": https://www.nasa.gov/sites/default/files/atoms/files/iss-operating_an_outpost-tagged.pdf.
[32] JR Minkel, "Is the International Space Station Worth $100 Billion?" *Space.com*, November 1, 2010: https://www.space.com/9435-international-space-station-worth-100-billion.html.
[33] Lee Billings, "NASA Budget Proposal Defunds Space Station, Space Telescopes and More," (2018):
[34] "China Focus: Relay Satellite Queqiao Plays Key Role in Exploring Moons Far Side," Xinhua, January 6, 2019: http://www.xinhuanet.com/english/2019-01/06/c_137723875.htm.
[35] 《付毅飞》[Feiyi Fu]. 《中国计划今年发射嫦娥四号：让月球背面露真颜》[This Year China Plans to Launch the Chang'e 4: Exploring the Moon's Back Side], Xinhua, March 13, 2018: http://www.xinhuanet.com/politics/2018-03/13/c_1122528356.htm.

commercial use of outer space, such arguments have little basis in science or market demands. For example, one common claim for China's lunar ambitions is a desire to mine Helium-3 from the moon.[36] The distribution of Helium-3 on the moon is still unknown and is likely mixed in with the soil and would require a massive strip-mining project across the moon.[37] The costs and logistics of transporting the Helium-3 to the Earth would undoubtedly be expensive and complex. Moreover, although the hypothetical payoffs of utilizing Helium-3 as a source of renewable energy are considerable, the technology to use Helium-3 for renewable energy—cold fusion technology—does not exist.[38]

Besides the potential for 'colonizing' the moon for extracting lunar resources, some analysts claim that China could be developing a secretive military base on the moon. Some analysts contend that a military base on the moon would allow China to secretively attack US satellites located in geosynchronous orbit.[39] However, there are reasons to be skeptical of the military utility of a lunar base. Besides the costs of constructing such a base or keeping humans alive for extended stays on the moon, the moon offers hardly any military advantages. A missile fired from the moon would take three days before it could reach Earth.[40] A missile would also have to traverse a

[36] Jack H Burke, "China's New Wealth-Creation Scheme: Mining the Moon," *National Review*, June 13, 2019: https://www.nationalreview.com/2019/06/china-moon-mining-ambitious-space-plans/.
[37] David 2015.
[38] Dwayne Day, "The Helium-3 Incantation," *Space Review*, September 28, 2015: https://www.thespacereview.com/article/2834/1.
[39] Patrick Tucker, "China's Moon Missions Could Threaten US Satellites: Pentagon. Defense One," October 16, 2020: https://www.defenseone.com/technology/2018/10/chinas-moon-missions-could-threaten-us-satellites-pentagon/152084/.
[40] Sandra Erwin, "Congressional Panel Looks at National Security Implications of China's Space Ambitions," *Space News*, April 25, 2019: https://spacenews.com/congressional-panel-looks-at-national-security-implications-of-chinas-space-ambitions/.

greater distance from the moon to geosynchronous than if launched from Earth. In terms of reconnaissance, much more detailed imaging of the Earth's surface can be taken from LEO than can be captured from the moon. Moreover, as the moon is orbiting Earth, spinning on its axis—targeting and imaging would be incredibly complex.[41]

Overall, despite the many commercial and military advantages of advanced space capabilities, China's most technologically difficult and complex initiatives in outer space cannot be explained by the motives of security and profit maximization.

Security Dilemmas and the Space Domain

It is important to understand Chinese prestige projects in the space domain because they can have destabilizing international consequences. Similar to premature aggrandizement in other domains (e.g., China's 'naval nationalism')—China's pursuit of high-profile space capabilities can exacerbate threat perceptions and give rise to spiral dynamics.[42] This dynamic is particularly concerning in outer space, which is highly susceptible to security dilemma dynamics. Moreover, this is especially concerning in the context of US-China relations in outer space, in which there is a high degree of mistrust between the two powers. A weaponized space race between the United States and China in outer space could be disastrous, leading to miscalculation, increasing the risk of inadvertent escalation on Earth, or making LEO

[41] Ibid.
[42] For an example of China's pursuit of prestige symbols in the naval domain, see Robert S Ross, "China's Naval Nationalism: Sources, Prospects, and the US Response," *International Security* 34, no. 2: 46-81.

inaccessible to humans.

As illustrated during the height of the Cold War, outer space is particularly susceptible to arms races. There are a few reasons for this. Outer space has been militarized since the outset of the space age: with militaries investing in counterspace capabilities, reconnaissance, and intelligence gathering capabilities, as well as means to strike targets on Earth. Today, most space technologies are dual use and can be used for security purposes. For example, states can use weather and remote sensing satellites for reconnaissance.[43] Satellites can be commandeered and forcefully smashed into another state's satellites or sensors.[44] Robotic arms used for repair and maintenance of spacecraft or for removing space debris can be used to disable an adversary's satellites. Co-orbital satellites can be used to temporarily or permanently disable another state's early warning sensors or satellites.[45] For example, after observing the peculiar orbital behavior of a piece of space debris, many analysts believe that Russia may have disguised a co-orbital satellite as a piece of space debris.[46] Launch vehicles can similarly exacerbate threat perceptions. For example, when the Soviet Union first launched Sputnik, it validated American fears of a Soviet ICBM.[47] Similarly, states can use heavy-lift rockets required to send humans into orbit

[43] Ricky J. Lee and Sarah L. Steele, "Military Use of Satellite Communications, Remote Sensing, and Global Positioning Systems in the War on Terror," *Journal of Air Law and Commerce* 79, no. 1 (2014): 69-112.
[44] Charles Arthur, "Chinese Hackers Suspected of Interfering with US Satellites," *The Guardian*, October 27, 2011: https://www.theguardian.com/technology/2011/oct/27/chinese-hacking-us-satellites-suspected.
[45] Theresa Hitchens, "Debris, Traffic Management, and Weaponization: Opportunities or and Challenges to Cooperation in Space," World Affairs 14, no.1 (2007): 173-186.
[46] Mike Wall, "Is Russian Mystery Object a Space Weapon?" *Space.com*, November 19, 2014: https://www.space.com/27806-russia-mystery-object-space-weapon.html.
[47] Robert Lemos, "Sputnik Stunned the World, and Its Rocket Scared the Pentagon," *Wired*, October 3, 2007: https://www.wired.com/2007/10/sputnik-anniversary/.

to launch large spy satellites or target assets located in distant orbital trajectories. Nonetheless, as will be argued in this dissertation, although Chinese prestige projects can hypothetically perform military operations, they can only do so marginally and hardly constitute an optimal use of resources for security maximization.

Following the collapse of the Soviet Union, the United States has served as the preeminent space power. The United States has mostly pursued cooperative ventures with other states in outer space through interaction in the ISS. However, China's growing space capabilities are beginning to challenge the United States' once uncontested position in outer space. There are a few different metrics by which to measure China's rise as a space power. For example, the World Economic Forum estimates that China has the world's second-largest space budget.[48]
Another often-cited statistic in measuring the advancement of China's space program is the number of payloads launched—with China launching 38 rockets in 2018—more than any other country on the planet.[49] Yet, launch numbers are a highly imperfect indicator, as they vary from year-to-year and can be influenced by spurious factors

[48] Estimates on China's total space spending should be interpreted with a degree of caution. China remains opaque about how it spends on these capabilities, with spending estimates derived from outside observers. Similarly, determining how China's space budget compares to its overall defense budget is a difficult task, as official numbers on Chinese defense spending are conservative estimates and do not include all defense-related expenditures. China does not report all aspects of its defense spending and remains comparatively opaque about how it distributes these funds across sectors. For example, China's budget does not include spending on paramilitary forces, nuclear weapons, or space capabilities. This practice is not unique to China, as the United States also does not categorize nuclear weapons as defense spending (with these capabilities falling under Department of Energy spending). For World Economic Forum data on China's space budget, see: https://www.weforum.org/agenda/2016/10/china-space-programme-tiangong-numbers/; World Economic Forum. 2016. The Rise and Rise of China's Space Programme—in Numbers. Accessed March 30, 2020: https://www.weforum.org/agenda/2016/10/china-space-programme-tiangong-numbers/.

[49] Joan Johnson-Freese, "China Launched More Rockets into Orbit in 2018 than Any Other Country," *MIT Technology Review*, December 19, 2018: https://www.technologyreview.com/2018/12/19/66274/china-launched-more-rockets-into-orbit-in-2018-than-any-other-country/.

such as weather. Considering the difficulties discerning China's space power vis-a-vis the United States, observers often must rely on proxy variables, such as Chinese successes in human spaceflight or deep space exploration.

In the context of the US-China bilateral space relationship, China's growing space capabilities are of concern. Despite a few brief periods of cooperation in the 1980s and early 1990s, the US-China space relationship has been strained for several years. After revelations of Chinese espionage uncovered by the 1996 Cox Report, the United States placed strict limitations on the United States exporting sensitive technologies to China.[50] Most importantly, the body of legislation referred to as the 2011 Wolf Amendment acts as a de facto ban on cooperation between China and the United States in outer space.[51] These restrictions are most clearly evident in the exclusion of Chinese taikonauts from participating in the ISS. However, there have been a few minor instances of cooperation, such as NASA sharing data on lunar conditions before China landed the Chang'e 4 on the moon's far side.[52]

One of the most commonly cited challenges for promoting cooperation between the United States and China in space concerns the opaque nature of Chinese space policy and its close ties to the People's Liberation Army (PLA). Space policy is typically opaque as it is directly related to sensitive, strategic technologies. As such, most countries do not separate their civilian and military space programs in the

[50] Shirley Kan, "China's Technology Acquisitions: Cox Committee's Report—Findings, Issues and Recommendations," Congressional Research Service Report for Congress (1999).
[51] William Pentland, "Congress Bans Scientific Collaboration with China, Cites High Espionage Risks," *Forbes*, May 7, 2011: https://www.forbes.com/sites/williampentland/2011/05/07/congress-bans-scientific-collaboration-with-china-cites-high-espionage-risks/#d4f156845629.
[52] Yanan Wang, "China Says it Exchanged Data with NASA on far side landing," *Associated Press*, January 14, 2019, https://apnews.com/article/f04bf12313f344d7a5ca06d86195bef1.

manner that the United States distinguishes between operations conducted by NASA and the US Air Force (USAF).[53] In the Chinese context, China's civilian space agency, the Chinese National Space Agency (CNSA), is low in the state hierarchy and is considered a 'figurehead' organization for promoting China's public image.[54] Much of China's space program, including its human spaceflight program, fall under the General Armaments Department (GAD) of the PLA.[55]

Considering the opaque nature of Chinese space policy and its close ties to the military, US policymakers have good reasons to be skeptical about Chinese intentions. This is especially true considering the US military's heavy dependence on space-based assets. Space capabilities are often referred to as the 'Achilles Heel' of the US military—a critical vulnerability for the US military, which would render the United States 'deaf, dumb, and blind' in the event of a conflict.[56] Many US policymakers are worried that China's space program is intended to serve as an 'Assassin's Mace,' a silver bullet by which China could defeat the United States in the event of a conflict with Taiwan or the East South China Seas.[57] Although the United States can attempt to maneuver its satellites out of harm's way or increase resilience through placing several satellites into orbit, space-based assets are mostly defenseless.[58] Flying in predictable

[53] It is important to note that even the United States strongly considered running all space operations through the military. However, President Eisenhower forcefully pushed to develop a civilian agency to act as the face for American space efforts.
[54] Alexander Bowe, "China's Pursuit of Space Power Status and Implications for the United States," US-China Economic and Security Review Commission Staff Research Report (2019): 10.
[55] Ibid.
[56] Jim Cooper, "Deaf, Dumb, Blind, and Impotent in Space," *Center for Strategic and International Studies*, April 4, 2019: https://aerospace.csis.org/deaf-dumb-blind-and-impotent-in-space/.
[57] Tellis, "China's Military Space Strategy."
[58] Phillip Swarts, "US Needs More Resiliency in Space, General Says," *Air Force Times*, September 25, 2016: https://www.airforcetimes.com/news/your-air-force/2016/09/25/u-s-needs-more-resiliency-in-space-general-says/.

orbital paths, space satellites are 'sitting ducks,' easy for other states to identify and target, with even amateur space enthusiasts monitoring and tracking US spy satellites.[59]

The relative absence of international law also heightens the potential for security spirals in outer space. The main legal text governing international use of outer space is the 1967 Outer Space Treaty. The Outer Space Treaty does have a few notable limitations, including prohibitions on the use of weapons of mass destruction (WMDs) in outer space or banning any country from making sovereign claims on any celestial bodies such as the moon.[60] Yet critics highlight that the treaty is highly porous—only barring WMDs from outer space—not other forms of space weaponization.[61] As such, states can legally develop space and counterspace weapons. In this context, China's growing space capabilities are highly concerning to US policymakers. US policymakers call for the United States to achieve 'dominance' in outer space and have proclaimed that space is a domain for warfighting.[62] Even Chinese projects such as human spaceflight and lunar exploration have been read as potentially threatening by US policymakers—who argue that these capabilities increase Chinese military power.[63]

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[59] Geoff Manaugh, "Tracking Earth's Secret Spy Satellites," *The Atlantic*, https://www.theatlantic.com/technology/archive/2016/06/mapping-clandestine-moons/485915/.
[60] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies 1967.
[61] Laura Grego, "50 Years After the Outer Space Treaty: How Secure is Space?" September 19, 2017: https://www.ucsusa.org/resources/how-secure-space.
[62] Todd C Lopez, "DOD Official: Maintaining Space Dominance 'Pivotal' for U.S. Warfighters," US Department of Defense," March 29, 2019: https://www.defense.gov/Explore/News/Article/Article/1800891/dod-official-maintaining-space-dominance-pivotal-for-us-warfighters/.
[63] Lara Seligman, "Military Warns of Threat from Chinese-Run Space Station Argentina," *Foreign Policy*, February 8, 2019: https://foreignpolicy.com/2019/02/08/us-military-warns-of-threat-from-chinese-run-space-station-in-argentina/; Patrick Tucker, "China's Moon Missions Could Threaten US

Altogether, China's growing space program and the exaggeration of its capabilities through high profile projects give rise to racing dynamics and threat perceptions. Should a weaponized space race occur between the two powers, it could be highly destabilizing. Considering the centrality of space-based assets to modern warfare, any conflict between the United States and China would likely begin in space. Moreover, as space-based assets are mostly defenseless, they give a clear advantage to offensive capabilities. As such, there is a 'first-mover advantage' for states engaged in space conflict. Therefore, a conflict that starts in space could quickly escalate. Beyond escalating conflicts on Earth, a weaponized space race or accidental conflict in outer space could increase the amount of space debris floating in LEO.[64] As demonstrated by China's 2007 ASAT test and India's 2019 ASAT test, any destruction of space-based assets would significantly contribute to space debris.[65] Some scientists worry that the accumulation of space debris will have an avalanche of collisions, accumulating into ever increasing quantities. This effect, known as the Kessler syndrome, could make LEO inaccessible to human activities in space for decades.[66] Overall, considering the reliance of the information-age global economy and everyday life on space-based assets, any conflict in the space domain would likely be disastrous.

Methods, Cases, and Sources

Satellites: Pentagon," 2018.

[64] Hitchens, "Debris, Traffic Management, and Weaponization."

[65] Kelsey Davenport, "Indian ASAT Test Raises Space Risks. Arms Control Today," May 2019: https://www.armscontrol.org/act/2019-05/news/indian-asat-test-raises-space-risks

[66] "Sending American Astronauts to Moon in 2024: NASA Accepts Challenge," *National Aeronautics and Space Administration* April 9, 2019: https://www.nasa.gov/feature/sending-american-astronauts-to-moon-in-2024-nasa-accepts-challenge.

Beyond the substantive importance of studying patterns in China's pursuit of space power, there are advantages to a focused study of a single industry in a single country. First, since space capabilities have long served and continue to act as a marker of great power prestige, these capabilities can broadly serve as a constant, allowing for observing variation in the intensity by which China pursued these goals. Political elites can pursue prestige in various ways, yet not all prestige strategies have the same costs. As will be discussed further in the following chapters, investing in space capabilities such as human spaceflight constitutes one of the most expensive endeavors a state can engage in—and, therefore, it represents one of the costliest prestige symbols. By focusing on space capabilities, this dissertation has the advantage of focusing on when political elites must make stark material tradeoffs, providing a window into how political elites manage prestige and material tradeoffs. Second, by focusing on a single sector—the space sector—this study can discern policy processes by which prestige seeking policies diverge from those designed to address other strategic interests. Third, for the purposes of theory building, this dissertation prioritizes depth over breadth.

The cases at the center of this dissertation vary on the dependent variable at the center of this dissertation, China's pursuit of space capabilities. In the following chapter, I discuss the logic behind the case selection process. In short, the cases compare instances where China pursues technologies that can best be explained as prestige-enhancing policies and compare them to policies that are more clearly driven by other strategic interests. As will be described in further detail, these policies often enhance prestige and other material interests. However, many prestige seeking policies

are inefficient or even at odds with maximizing other strategic interests. Moreover, prestige projects have features distinguishable from other projects; specifically, these projects tend to be exclusive and conspicuous.

This case selection allows for insights into how the politics behind these prestige projects differ from those oriented toward achieving other strategic ends. Furthermore, these cases leverage in-case variation to reveal the changing political and strategic calculus behind how Chinese political elites weighed tradeoffs between prestige and other strategic considerations.

In developing these cases, I draw from a wide variety of sources. As China's space program is a source of nationalist pride, there are extensive Chinese language sources on its space program's history. My study draws primarily upon these primary sources as well as *People's Daily* articles to understand the justifications and explanations for China's pursuit of these costly prestige projects. I also interviewed 25 individuals involved in China's space policymaking process. I interviewed a wide variety of individuals involved in or familiar with Chinese space policy, including those from China's state-owned sector, government agencies, academia, journalism, and individuals from China's commercial space sector. To contact individuals in each of these sectors, I relied upon the 'snowball' method. Considering the sensitivity of the topics, when referring to interviews, I keep the identities of the respondents anonymous, only providing limited information such as whether the individual is a 'government official' or a representative from 'industry.'

In understanding Chinese domestic prestige projects, I carry out participant observation through several areas where China promotes its space program to

domestic and international audiences, including China's National Museum, the Beihang Air and Space Museum, the 2018 Zhuhai Aerospace Show, events surrounding China's 2019 National Space Day holiday, China's hosting of the 2019 United Nations Forum on Sustainability in Outer Space, the 2019 International Astronautical Congress (IAC), as well as direct participation in a series of Track II dialogues on promoting US-China cooperation in commercial space.

Besides case studies, I directly test the domestic effects of costly prestige symbols by carrying out an online survey experiment (N=1,539) in China using stratified sampling to match key demographic targets. Survey experiments allow for overcoming many challenges inherent in observational data. Through random assignment, survey experiments provide insights into causal mechanisms. I expose respondents to vignettes regarding China's human space program, emphasizing the role of prestige. I also provide respondents with open-text respondents, allowing them to describe whether they support China's human space program, and why, in their own words. This survey's primary purpose is to assess the effects of domestic prestige symbols on individual perceptions of domestic social problems. However, this survey also provides a window into Chinese public support for and attitudes and perceptions regarding Chinese space policy.

Plan of Dissertation

This dissertation is organized into seven chapters, which are ordered chronologically. The longitudinal nature of this study allows for assessing Chinese space goals under

various domestic and international contexts. The following chapter presents the framework at the center of this study. The third chapter examines the origins of China's space program during the "Two Bombs, One Satellite" era. This chapter argues that despite initial realpolitik motives for China's early nuclear and ballistic missile programs, Chinese domestic prestige narratives drove the regime to engage in costly prestige competition with the United States, with China focusing on developing a satellite and even briefly initiating a human spaceflight program.

The fourth chapter examines China's space program after Mao's death. The chapter argues that when regime legitimation narratives focused more on material growth rather than prestige, the CCP (under the leadership of Deng Xiaoping) focused on more pragmatic and commercially viable projects, and less on costly prestige projects. The fifth chapter, however, argues that as material improvement proved insufficient for legitimating regime rule at home, the CCP once again relied more heavily on prestige narratives to legitimate his rule domestically. In this context, Deng Xiaoping, who had once personally opposed lavish prestige projects, became concerned that China's prestige was at risk of declining. Therefore, Deng sought to reassert China's prestige through investing in a costly human spaceflight program.

The sixth chapter examines the contemporary effects of costly prestige projects on domestic audiences. This chapter hypothesizes that costly prestige symbols, specifically China's human spaceflight program, are likely to benefit the regime by reducing individual perceptions of domestic social problems. This chapter, moreover, provides broader descriptive data on Chinese public attitudes regarding human spaceflight and deep space exploration. The seventh chapter concludes by discussing

the implications of these findings for comprehending the role of prestige and domestic legitimation in China's space ambitions, and this study's broader theoretical and policy implications.

CHAPTER 2

PRESTIGE NARRATIVES AND DOMESTIC LEGITIMACY

Why does China's government spend money on costly space capabilities with limited material payoffs? To answer this question, this chapter develops a framework that focuses on the role of domestic narratives in driving states to pursue costly prestige projects. I argue that beyond brute coercion and the provision public goods, regimes legitimate their rule through the promotion of domestic narratives. These narratives tell a story about the relationship between the ruling regime and the nation-state, providing a lens or a system of meaning for interpreting the world and information from the international system—meanings which may be incomprehensible to those outside the state (those who do not share these domestic narratives). Moreover, I argue that although elites may strategically deploy these narratives, they can also become entrapped or even socialized by these narratives—shaping their beliefs or limiting their strategic choices.

These legitimation narratives can take a variety of forms and are shaped, in part, by a state's historical experience as well as the elite and the public's collective memory. One form that these legitimation narratives may take is what I describe as *prestige narratives*. These prestige narratives justify the regime's rule by claiming that the regime is increasing the nation's international standing. I argue that regimes are correct in viewing prestige as a useful domestic political resource: when individuals believe that their state's prestige is increasing, it boosts collective self-esteem and benefits the regime by decreasing the salience of domestic social problems.

However, though regimes may benefit domestically from promoting prestige narratives, these narratives can have unintended consequences. Although prestige is a domestic political resource for all regimes, it is not costless—and can require steep investments in blood or treasure. Pursuing prestige can require that regimes undermine their economic or security interests. Exclusive markers of prestige can require diverting resources from a state's social welfare or security needs. Furthermore, these prestige projects can exaggerate a state's capabilities abroad, providing material for threat construction. Nonetheless, despite these steep costs, regimes can become socialized or entrapped by their prestige narratives—making them view costly projects as worthwhile investments or projects that they cannot oppose.

I organize this chapter as follows. The first section presents the framework at the core of this dissertation. The second section examines the scope conditions and generalizability for this framework and suggests how differences in regime type may influence how regimes pursue costly prestige projects. The third section presents alternative arguments, and the fourth section develops a set of observable implications for evaluating my argument against alternatives.

Prestige Narratives and Domestic Legitimacy

This section develops the framework at the core of this dissertation. In short, I propose a domestic-level argument for prestige pursuits. I develop my argument in four steps: 1) I discuss the role of narratives in domestic legitimation, define the concept of 'prestige narratives,' and show why regimes may be incentivized to promote prestige narratives; 2) I argue that although regimes may always *prefer* to increase their

prestige, prestige enhancement can be costly, requiring regimes to sacrifice their material interests; 3) Nonetheless, despite these costs, prestige-narratives can constrain regimes through socialization or entrapment—leading them to pursue costly prestige projects; 4) I discuss how these prestige narratives shape how regimes respond to information from the international environment and conceptualize "peer competitors," as well as challenges to their domestic legitimacy.

1. Prestige Narratives and Domestic Legitimacy

All regimes seek to legitimate their rule domestically.[67] Although regimes may use coercion and the provision of security and public goods to maintain control, they also seek to shape citizens' subjective perceptions. For regimes, this ability to shape citizens perceptions is central to maintaining political power.[68] Governments, even autocratic regimes with high coercive capacity, go to great lengths to shape the perceptions of their domestic public. Scholars find that even in the nondemocratic context of China, the CCP uses online tools to give citizens the impression that they are accountable.[69] Beyond accountability, China's government uses other tools to inculcate domestic legitimacy, including heavy investments in sports propaganda.[70] Even in a completely totalitarian country such as North Korea, the government does

[67] My framework draws on the concept of 'regime,' rather than 'leader,' as my framework focuses on the logic of domestic legitimation rather than individual features of a leader (e.g., their personality or leadership style). Moreover, the concept of 'regime' is inclusive of a variety of different governing arrangements, including personalist leaderships (and therefore includes the legitimation of an individual leader in a personalist regime).

[68] According to Forst (2015) this "power of justifications" or "noumenal power" is ultimately the "real and general phenomenon of power," as he defines power as the "capacity of A to motivate B to think or do something that B would otherwise not have thought or done. Rainer Forst, "Noumenal Power," *The Journal of Political Philosophy* 23, no.2 (2015): 112, 115.

[69] Rory Truex, "Consultative Authoritarianism and Its Limits," *Comparative Political Studies* 50, no.3 (2014): 329-361.

[70] Dan Chen and Andrew W. MacDonald, "Bread and Circuses: Sports and Public Opinion in China," *Journal of Experimental Political Science* 7, no. 1 (2020): 41-55.

not rule through coercion alone, but seeks to shape domestic perceptions of legitimacy, "through every possible medium, including education, arts and entertainment, monuments and memorialization, and the epic Mass Games stadium shows."[71]

To shape citizens' perceptions, regimes promote *narratives* to justify their hold on power. Patterson and Monroe define narratives as:

> the ways in which we construct disparate facts in our own worlds and weave them together cognitively in order to make sense of our reality. Since these narratives help us understand ourselves as political beings, narrative becomes an invaluable tool in navigating the myriad of sensations that bombard us daily. Insofar as narratives affect our perceptions of political reality, which in turn affect our actions in response to or in anticipation of political events, narrative plays a critical role in the construction of political behavior. In this sense, we create and use narratives to interpret and understand the political realities around us. We do this as individuals and we do it as collective units, as nations or groups.[72]

Narratives provide a system of meaning that allows actors (individuals, groups, or nations) to make sense of the world and interpret information. Group or national narratives are created and gradually evolve over time, though some narratives can become dominant or fixed. According to Subotić:

> State narratives are constructed through an active and elaborate process that involves multiple political and cultural agents. Over time and with infinite iteration by narrative 'entrepreneurs'—political leaders, elite intellectuals, education establishment, popular culture, the media -and everyday social practice, a particular state narrative template (of past events, or the general place of the state in the international system) fixes the meaning of the past and limits the opportunity for further political contestation. A constructed narrative reaches a tipping point threshold when a critical mass of social actors accepts

[71] Daniel Byman and Jennifer Lind, "Pyongyang's Survival Strategy: Tools of Authoritarian Control in North Korea," *International Security* 35, no.1 (2010): 51-52.
[72] Molly Patterson and Kristen Renwick Monroe, "Narrative in Political Science," *Annual Reviews of Political Science* 1998: 315.

and buys into it as a social fact.[73]

Although these narratives may evolve through multiple channels and agents, I illustrate in this dissertation that for autocracies such as China, the empirical focus of this study, regimes may possess considerable control over these narratives by leveraging the resources of the state (state media, censorship, investing in large prestige projects). Regimes seek to shape these narratives, because when one becomes "fixed" or "dominant," it can "circumscribe public debate," and "narrow the space for contestation."[74] Thus, regimes can shape the criteria by which their legitimacy and performance is evaluated, and they can limit the rhetorical field for potential opponents.

These narratives can take the form of what I describe as *prestige narratives*. These narratives tie the regime's legitimacy to its ability to increase or restore the nation's 'standing' in the international system. In making this argument I build upon the growing body of scholarship on prestige or status in international relations.[75] Typically, scholars offer two reasons for why state's pursue prestige. First, drawing

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[73] Jelena Subotić, "Narrative, Ontological Security, and Foreign Policy Change," *Foreign Policy Analysis* 12 (2016): 615.

[74] Ronald R. Krebs and Jennifer K. Lobasz, "Fixing the Meaning of 9/11: Hegemony, Coercion, and the Road to War in Iraq," *Security Studies* 16, no.3 (2007): 409-451.

[75] Joslyn Barnhart, "Status Competition and Territorial Aggression: Evidence from the Scramble for Africa," *Security Studies* 25, no.3 (2016): 385-419; Joslyn Barnhart, "Humiliation and Third-Party Aggression," *World Politics* 69, no.3 (2017): 532-568; Deborah Welch Larson and Alexei Shevchenko, "Status Seekers: Chinese and Russian Responses to US Primacy," *International Security* 34, no.4 (2010): 63-95; Deborah Welch Larson and Alexei Shevchenko, *Quest for Status: Chinese and Russian Foreign Policy*, (New Haven, CT: Yale University Press, 2019); Xiaoyu Pu, *Rebranding China: Contested Status Signaling in the Changing Global Order*, (Stanford, CA: Stanford University Press 2019); Courtney Fung, *China and Intervention at the UN Security Council: Reconciling Status*, (Oxford, UK: Oxford University Press 2019); Jonathan Renshon, "Status Deficits and War," *International Organization* 70, no.3 (2016): 513-550. Jonathan Renshon, *Fighting for Status: Hierarchy and Conflict in World Politics*, (Princeton, NJ: Princeton University Press 2017). Steven Michael Ward, *Status and the Challenge of Rising Powers*, (Cambridge, UK: Cambridge University Press 2017).

from scholarship on social identity theory (SIT), scholars assume that like individuals, states pursue increased prestige to pursue a positive self-esteem.[76] Second, status is typically conceived as a form of social power in the international system, eliciting deference from lower-ranked powers.[77] In contrast, my framework joins a small, but growing body of findings emphasizing the role of domestic motives in driving prestige seeking behavior.[78]

It is important to highlight that I intentionally adopt the term 'prestige' rather 'status.' The differences between these terms are typically considered minor, as the terms are often used interchangeably both in scholarship and common vernacular. However, for the purposes of my framework, it is important to keep the two concepts analytically distinct. Specifically, a state's status depends on externally conferred recognition by others states in an international status hierarchy. In contrast, prestige refers to an actor's beliefs about its position in that hierarchy. Whereas an actor's status depends on the collective beliefs of an external community, prestige constitutes a second-order belief: a belief about what everyone else thinks.[79] Thus, it is possible for a state to have drastically different beliefs about its prestige, than the status it is conferred by other actors in the international system.

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[76] Larson and Shevchenko, "Status Seekers" (2010).
[77] Renshon, "Status Deficits and War."
[78] Alex Yu-Ting Lin and Saori N. Katada, "Striving for Greatness: Status Aspirations and Domestic Reforms," *Review of International Political Economy* (2020). Steven Ward. 2013. Race, Status, and Japanese Revisionism in the Early 1930s. *Security Studies* 22, no.4: 607-639. Steven Michael Ward, *Status and the Challenge of Rising Powers* (2017); Nicholas Sambanis, Stergio Skaperdas, and William C. Wohlforth, "Nation-Building through War," *American Political Science Review* 109, no.2 (2015):279-296. Anne L. Clunan, *The Social Construction of Russia's Resurgence: Aspirations, Identity, and Security Interests*, (Baltimore, MD: Johns Hopkins University Press, 2009).
[79] Allan Dafoe, Jonathan Renshon, and Paul Huth, "Reputation and Status as Motives for War," *Annual Review of Political Science*, Vol. 17: 372-375.

While regimes may be unable to change how other states perceive them, they have considerably more ability to shape their citizen's beliefs about the nation's international standing. Regimes have a greater ability to shape domestic narratives than they do outside their territorial boundaries. In autocracies, regimes can promote their favored narrative domestically through state-run media or through censoring counter narratives. Democracies can also shape domestic narratives through their agenda setting power. For example, in the American context, presidents are often said to enjoy the power of the 'bully pulpit.' By their very position of power over the body politic, regimes enjoy an exceptionally greater ability to shape and frame projects, as their decisions inherently attract public and media attention.

Through prestige narratives, regimes seek to prove that the nation's prestige is upwardly mobile—that it is increasing or being 'restored' or 'rejuvenated.' Regimes are incentivized to increase prestige because it is inherently tied to their domestic legitimacy. Morgenthau, for example, argues that "One-man governments, that is, absolute monarchies or dictatorships, tend to identify the personal glory with the political interests of the nation."[80] Weber similarly views prestige as a key component of nationalism and legitimacy, arguing that "the significance of the 'nation' is usually anchored in the superiority, or at least the irreplaceability, of the cultural values are to be preserved and developed only through the cultivation of the peculiarity of the group."[81] Moreover, Weber claims that the "prestige of power means in practice the

[80] Hans Morgenthau, *Politics Among Nations: The Struggle for Power and Peace*, (Nova York: Alfred Knopf, 1949): 82.
[81] Max Weber, *Economy and Society* (New York: Bedminster 1968): 925.

glory of power over other communities."[82] Nexon and Musgrave similarly argue that states acquire symbolic capital to secure their dominance in a particular social field. According to Nexon and Musgrave, legitimation at the international and domestic levels are not entirely distinct, arguing, "Once we shift from assuming anarchy to focusing on patterns of super- and subordination, we need to attenuate—if not abandon—the assumption that relations among states are fundamentally distinctive from relations within them."[83]

The idea that perceptions of increasing prestige benefits regime legitimacy also rest on firm microfoundations. Scholarship on SIT provides evidence that legitimacy and group cohesion are tied to group status. According to SIT, individuals derive self-esteem from the social group with which they identify. Individuals belong to several different social groups—e.g., sports teams, gender, ethnic groups, or nations.[84] Yet the level of individual attachments to these different identities varies. Individuals are likely to identify with groups that are cognitively close, and which are of high status, as it is likely to increase their self-esteem.[85] Taken together, this research suggests that through these prestige narratives, regimes can increase individual identification with the nation and, therefore, increase national cohesiveness and in-group loyalty.

Drawing from these microfoundations, Shayo argues that when individuals identify closely with the nation, they are unlikely to support policies associated with

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[82] Ibid: 911.
[83] Paul Musgrave and Daniel H. Nexon, "Defending Hierarchy from the Moon to the Indian Ocean: Symbolic Capital and Political Dominance in Early Modern China and the Cold War," International Organization 72, no.3 (2018): 594.
[84] John C. Turner, Rupert J. Brown, and Henri Tajfel, "Social Comparison and Group Interest in Ingroup Favouritism," *European Journal of Social Psychology* 9, no.2 (1979): 187-204.
[85] Moses Shayo, "A Model of Social Identity with an Application to Political Economy: Nation, Class, and Redistribution," *American Political Science Review* 103, no.2 (2009): 147-174.

other subordinate social identities, such as their class identity. Sambanis et. al similarly argues that when nation's raise their prestige through victory in warfare, it can increase national cohesion. These benefits of national identification are also likely to benefit regimes because it reduces the salience of domestic social problems. As scholarship on 'rally effects' and diversionary war suggests, boosting nationalism through conflict can pacify domestic unrest and the salience of domestic social problems.[86] A corollary to this is that other actions which increase individual identification with the nation can reduce perceptions of domestic social problems (a hypothesis which I will test in Chapter 6).

Thus, overall regimes have several incentives for convincing domestic audiences that they are increasing the nation's prestige. This provides some suggestive clues about when regimes may deploy prestige narratives. Considering the domestic political resource of prestige, regimes may use prestige narratives when they are in desperate need of political capital. Regimes, for example, may use the symbolic capital of prestige to unify the public when they face a legitimacy crisis. Alternatively, prestige may provide political capital for regimes seeking to mobilize the public for some other large-scale objective.

2. The Costs of Prestige

Considering these domestic benefits of prestige, it can be assumed that—all else equal—regimes will always prefer to increase their prestige in the eyes of domestic

[86] George Simmel, *Conflict and the Web of Group Affiliations*, (New York: Free Press, 1955); Lewis A Coser, *The Function of Social Conflict*, (New York, NY: Free Press, 1955); Tobias Theiler, "The Microfoundations of Diversionary Conflict," *Security Studies* 27, no.2, (2018): 318-343.

audiences. Yet, regimes do not always leverage the tools of the state in pursuit of greater prestige. If this were true, most states in the world would constantly fight for prestige or would be bankrupt from diverting all their resources toward lavish prestige projects. The reason regimes do not always seek to increase their prestige is because such efforts can be *costly*.

Regimes can pursue prestige through a variety of means, which vary in their degree of material costs. For example, while rhetorical appeals may have relatively no costs on a regime, fighting a war may cost a regime in terms of the war's financial burden or in loss of life. This dissertation is concerned with these more costly prestige projects—where regimes must make tradeoffs in whether to pursue material or prestige goals. Specifically, for the purposes of investigating China's space program, this study examines what I refer to as costly prestige projects, sometimes described to as acts of "conspicuous consumption."[87] These projects allow regimes to publicly demonstrate that they are increasing the nation's prestige, because they are expensive or technologically complex—allowing regimes to claim that the nation belongs to an exclusive club or is positively distinct. Nexon and Musgrave similarly focus on the role of space capabilities as a form of symbolic capital. In explaining the origins of the Apollo program, they argue that "American decision makers perceived a distinctive field of science and technology competition; second, space constituted a critical subfield of that competition; and third, that important audiences and rivals agreed with

[87] Thorstein Veblen, *The Theory of the Leisure Class*, (Boston: Houghton Mifflin, 1973 [1899]); Lilach Gilady, *The Price of Prestige: Conspicuous Consumption in International Relations*, (Chicago, IL: The University of Chicago Press, 2017).

those assessments."[88]

Although such projects may benefit regime legitimacy, they can also have adverse consequences for a state's domestic welfare and security interests. What is good for raising collective self-esteem is not necessarily the best use of resources for maximizing a state's security vis-à-vis other states internationally, nor does it necessarily improve citizens' living standards.

All states face resource constraints and must determine how to best allocate resources. Resources spent to accrue domestic prestige require diverting resources from other strategic ends, whether this means enhancing a state's domestic social welfare or its defense modernization. Costly prestige projects, whether they include the initiation of interstate warfare or acts of conspicuous consumption, place steep burdens on a state's ability to meet other objectives; for example, an investment in a prestige good such as an aircraft carrier is not an investment in social security or health care. As it pertains to a state's security interests, investments in prestige can result in "suboptimal arming."[89] For example, some scholars find that in pursuit of prestige, Wilhelmine Germany's naval buildup diverted resources from addressing its primarily land-based threats, France and Russia.[90] Likewise, Ross argues that domestic prestige considerations drove China to invest in an ambitious naval build-up centered around an aircraft carrier, diverting resources from its efforts to develop Anti-Access/Area Denial (A2/AD) capabilities.[91]

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[88] Nexon and Musgrave, "Defending Hierarchy from the Moon to the Indian Ocean" (2018): 599.
[89] Charles L Glaser, "When Are Arms Races Dangerous? Rational versus Suboptimal Arming," *International Security* 28, no.4 (2004): 44-84.
[90] Murray, "Identity, Insecurity, and Great Power Politics" (2010).
[91] Robert S. Ross, "China's Naval Nationalism," (2009): 46-81.

As these examples underscore, costly prestige projects can have important and undesirable consequences for a state's domestic well-being, as well as its overall security interests. This is important because although China, the empirical focus of this dissertation, is the world's second largest economy, it has several salient domestic cleavages, and its military is limited in its power projection capabilities. As I will discuss in the following chapters, Chinese decisions to invest in lavish prestige projects have steep costs, requiring diverting resources away from addressing pressing domestic social needs and facilitating China's broader strategic modernization.

Beyond diverting scarce resources, prestige projects can also have the unintended effect of exaggerating a state's capabilities (which can increase threat perceptions abroad). Morgenthau noted the dangers of a state exaggerating its prestige:

> "For a nation to pursue a policy of prestige is, however, not enough. It can do too much or too little in this respect, and in either case it will run the risk of failure. It generally does too much when it paints an exaggerated picture of its power and thus attempt to gain a reputation for power which exceeds the power it actually possesses. In other words, it builds its prestige upon the appearances of power rather than upon its substance."[92]

Unlike secretive capabilities that a state may keep from the public view, prestige symbols are, by design, ostentatious. Therefore, for outsiders seeking insights into a state's capabilities, lavish prestige projects can provide a distorted window into a state's technological or military capabilities. This exaggeration of capabilities may benefit a regime by providing a potential deterrent, suggesting to others that it is more powerful than it actually is. Yet it may also have adverse consequences. If other states view the state as an adversary or a threat, these attention-grabbing capabilities may

[92] Morgenthau, *Politics Among Nations*: 82.

exaggerate threat perceptions abroad and exacerbate security dilemma dynamics. For rising powers pursuing grand strategies of reassurance, premature aggrandizement may lead to encirclement and undermine their security interests. Murray, for example, highlights how Germany's puzzling pursuit of naval buildup had the effect of increasing British threat perceptions.[93]

As security threats are socially constructed, this exaggeration of a state's capabilities does not necessarily mean that a state's capabilities will inevitably result in security dilemma dynamics. Nonetheless, this exaggeration of a state's capabilities provides important rhetorical material for threat inflation. This is especially important in understanding the effects of China's rise. As Johnston finds, a socially constructed "meme" of an assertive China has emerged. And this meme appears to have worsened in recent years with emerging discussions of a 'Cold War 2.0' and a costly trade war between the United States and China.[94] This potential for threat inflation is particularly concerning in regard to China's rise as a space power. As almost every space capability is dual use, there is a high potential for domestically targeted prestige projects to increase threat perceptions abroad. As I discuss in the conclusion chapter (Chapter 7), owing to these factors and the close relationship between China's military and its space program, American policymakers already view China's domestic prestige projects (e.g., its human spaceflight program) as threatening.

3. Narrative Constraints

[93] Murray, "Identity, Insecurity, and Great Power Politics" (2010).
[94] Alastair Iain Johnston, "How New and Assertive is China's New Assertiveness?" *International Security* 37, no.4 (2014): 7-48; Politico, "Pompeo: Chinese Threat May be Worse than a 'Cold War 2.0,' *Politico*, August 12, 2020: https://www.politico.com/news/2020/08/12/pompeo-chinese-threat-may-be-worse-than-cold-war-communism-394350.

Due to the steep costs (and unintended consequences) associated with pursuing costly prestige projects, there are good reasons why regimes may choose to instead prioritize their economic or security interests. Nonetheless, regimes sometimes choose to sacrifice their material interests in favor of prestige. To explain why, I argue that regimes can be constrained by their domestic prestige narratives. The reason for this is that while regimes may use prestige narratives instrumentally, they may be socialized or socially constrained by these narratives. Johnston makes a similar point in critiquing the "second-wave" of scholarship on strategic culture:

> Instrumentality implies that dominant elites can escape from, or rise above, strategic-cultural constraints that they themselves manipulate. Yet recent scholarship on leadership would suggest there is a dialectical relationship between strategic cultural and operational behavior. Elites, too, are socialized in they produce, and thus over time are constrained by the symbolic or "textual" myths that they or their predecessors created. This raises the possibility that elites can be captured by the symbolic discourses that they manipulate.[95]

Likewise, in describing the role of propaganda in the CCP, Sorace argues:

> The Communist Party's discursive path dependence predisposes it to make and implement policies to narrowly accord with specific norms and precedents, regardless of the drawbacks of such dependency. In effect, this imperative to maintain legitimating narratives constrains the Party's ability to flexibly adapt and respond to the needs of society. As long as the Party is trapped in its own logic of legitimation, institutional reform will also be stuck in the same quagmire of contradictions.[96]

However, even if regimes do not believe or internalize the prestige narratives they promote, they can still be constrained by their rhetoric. Schimmelfennig argues

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[95] Alastair Iain Johnston, *Cultural Realism: Strategic Culture and Grand Strategy in Chinese History* (Princeton, NJ: Princeton University Press, 1995): 18.
[96] Christian P. Sorace, *Shaken Authority: China's Communist the 2008 Sichuan Earthquake*, (Ithaca, NY: Cornell University Press, 2017): 18.

that actors can become "entrapped by their arguments."[97] If they appear to be using rhetoric cynically, they may lose credibility and reputational standing. As such, actors face pressure to make their actions consistent with their words.[98] Alternatively, Krebs and Jackson argue that political actors can be "rhetorically coerced" into adopting policies that they oppose but which are consistent with their rhetoric.[99]

Thus, due to these discursive constraints—whether through socialization or entrapment—prestige narratives can shape regime behavior by driving regimes to pursue costly prestige projects—even when such pursuits are at odds with their other material (economic or security) interests. Domestic prestige narratives, therefore, can exert considerable influence on regime behavior.

Nonetheless, these narratives are not fixed permanently. Narratives can change when they experience some sort of pronounced shock or rupture, during "traumatic events such as wars or other political disasters."[100] For example, events such as regime change, a leader's death, or some other legitimacy crisis can provide regimes an opportunity to alter their legitimation narrative—allowing regimes to either pursue a prestige narrative or some alternative legitimation narrative.

4. Prestige Narratives and the International System

Although domestic in origins these prestige narratives shape how regimes interpret and respond to information from the international system. When a state's prestige

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[97] Frank Schimmelfennig, "The Community Trap: Liberal Norms, Rhetorical Action, and the Eastern Enlargement of the European Union," *International* Organization 55, no.1 (2001): 65.
[98] Ibid.
[99] Ronald R. Krebs and Patrick Thaddeus Jackson, "Twisting Tongues and Twisting Arms: The Power of Political Rhetoric," *European Journal of International Relations* 13, no.1 (2007): 44-45.
[100] Subotić, "Narrative, Ontological Security, and Foreign Policy Change," (2016): 610-627.

appears to be slipping or is challenged, regimes may worry that it threatens their domestic narrative. As such, this alters the political elites' priorities, making them view costly acts of prestige (re-)assertion as a natural and efficacious strategy. Whether regimes genuinely believe that they must undertake costly prestige policies, or whether they instead feel normatively constrained, is a challenging question, as it is difficult to get in the minds of individual leaders. Nonetheless, the outcome is the same: regimes will be impelled to respond, whether they are doing so instrumentally or if they truly believe it is the most appropriate strategy for advancing their state's interests.

It is important to note how this approach is distinct from traditional accounts of prestige. Whereas traditional scholarship on status inconsistency often ties a state's status expectations to its relative material capabilities, I argue that beliefs about a state's place in the world and its reference points are generated through its domestic prestige narratives.[101] As I will argue in following chapters, according to Chinese prestige narratives, China's reference points have, at times, been defined along ideological lines and in accordance with the myth of China's 'Century of Humiliation,' Overall, according to my framework, the international system and the state's "status" as defined by the international community, does not, in itself, impel regimes to engage in costly prestige policies or reassertion. Instead, I argue that information from the international system only influences regime policy if it has a bearing on the regime's prestige narrative.

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[101] Michael D. Wallace, "Power, Status, and International War," *Journal of Peace Research* 8, no.1 (1971): 23-35; Thomas J. Volgy and Stacey Mayhall, "Status Inconsistency and International War: Exploring the Effects of Systemic Change," *International Studies Quarterly* 39, no.1 (1995): 67-84.

Scope Conditions

It is important to note that I assess this framework in the empirical context of an autocracy. Although regimes of all stripes may use prestige narratives to legitimate their rule domestically, these narratives as well as how prestige is pursued likely manifests differently across regime type and social context.

Democracies and autocracies face different pressures and constraints when investing in costly prestige projects. Democracies with open and competitive media environments may have a greater diversity of domestic narratives, and a more robust public debate about the regime's domestic narrative, and the costs required to pursue prestige. For example, in democracies, media or political opponents may contradict how incumbents characterize a nation's prestige. Although a political actor may claim that its prestige is high or increasing, political opponents may promote dueling narratives about the nation's prestige. Likewise, in democracies, greater attention may be paid to how the government spends its resources than in autocracies. As such, costly prestige projects may come under closer scrutiny in democracies—as opponents or media organizations highlight the costs involved (a debate that would not be tolerated in an autocracy).

Similarly, in democracies, when regimes invest in costly prestige projects, they may be checked by opposing parties or other branches of government. This, however, is not to suggest that the process of policy implementation is straightforward in autocratic regimes, which may have to overcome a variety of hurdles such as capacity issues, factional divides, or lower-level bureaucratic haggling. Still, unlike autocracies,

democracies can derive domestic legitimacy through elections, and therefore may not have to rely as heavily on prestige projects to legitimize their rule at home. Altogether, this suggests that costly prestige projects may be more commonplace in autocracies than in democracies.

Last, it is important to note that concepts at the center of this study, such as what constitutes a 'prestige project,' a 'nation,' or the 'international system' are social constructs and are contingent upon place and time. For example, although Barnhart finds that the European colonial 'scramble for Africa' was motivated by prestige concerns, as a consequence of normative changes favoring self-determination and decolonization, today it is no longer socially acceptable to possess colonial territories.[102] Similarly, space capabilities that once had pronounced symbolic value (such as sending a satellite into outer space) are more commonplace today and, therefore, may not have the same symbolic value as they once had.[103]

Alternative Arguments

This dissertation examines instances in which China pursued *costly* prestige projects—capabilities that were at odds with its security or economic objectives. Thus, the cases at the center of this study are puzzling precisely because they make limited sense from the perspective of maximizing a state's material interests (economic or security interests). However, there are other possible reasons—beyond the argument at the core of this dissertation—for explaining why China pursued these costly prestige projects. I

[102] Joslyn Barnhart, "Status Competition and Territorial Aggression" (2016): 385-419.
[103] Paikowsky describes the exclusivity of different space capabilities across time. See Deganit Paikowsky, *The Power of the Space Club*, (Cambridge, UK: Cambridge University Press 2017).

categorize these arguments as: 1) leader personality; and 2) external status competition arguments. I now briefly outline the logic of these arguments (which will be evaluated against my framework in the following chapters).

First, leader personality arguments would assume that variation in China's pursuit of costly prestige projects can be explained by idiosyncratic features of individual leaders' personalities. A body of scholarship has emerged over the past decade arguing that leaders can have a substantively consequential impact on state behavior in world politics. This scholarship argues that individual-level variables such as leaders' psychology and background experience can affect leadership styles.[104] Leaders may matter especially during moments of crisis or for pursuing policies that require a high degree of risk. Hyman's, for example, argues that leader's "national identity conceptions" can explain whether or not countries develop nuclear weapons.[105]

Similarly, leaders play a significant role in shaping a state's pursuit of advanced space capabilities. Space capabilities, such as human spaceflight, require leader-level support as they are inherently complex, expensive, and risky endeavors. As evidenced in the American context, leader-level support was crucial for the success

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[104] Daniel L. Byman and Kenneth M. Pollack, "Let Us Now Praise Great Men: Bringing the Statesman Back in," *International Security* 25, no.4 (2001); William G. Howell and Jon C. Pevehouse, "Presidents, Congress, and the Use of Force," *International Organization* 59, no.1 (2005); Michael C. Horowitz and Allan C. Stam, "How Prior Military Experience Influences Militarized Behavior of Leaders," *International Organization* 68, no.3: 527-559; Elizabeth N. Saunders, "Transformative Choices: Leaders and the Origins of Intervention Strategy," *International Security,* 34, no.2 (2009): 119-161; Benjamin F. Jones, "Hit or Miss? The Effect of Assassinations on Institutions and War," *American Economic Journal: Macroeconomics* 1, no.2 (2014). Elizabeth Saunders, *Leaders at War: How Presidents Shape Military Interventions*, (Ithaca, NY: Cornell University Press, 2011).

[105] Jacques E.C. Hymans, *The Psychology of Nuclear Proliferation: Identity, Emotions, and Foreign Policy* (Cambridge, UK: Cambridge University Press 2009).

of the Apollo program.[106] Furthermore, in the Chinese context—during the Mao and Deng era—individual leaders had a pronounced role on policymaking. Following Mao's leadership, the CCP has attempted to move the Party away from the leadership of a single individual and focus more on the Party's collective leadership—though this has changed in the Xi era. From the perspective of a leader level explanation, it could be argued that China pursued costly prestige projects in the space domain because individual leaders such as Mao Zedong placed considerable weight—personally—on prestige. In comparison, leaders such as Deng could be viewed as more restrained and pragmatic—less enticed by the lure of prestige.

Second, one could argue that instead of leaders or the regime's domestic narrative, China's pursuit of costly prestige projects can be explained by external status competition.[107] Whether for psychological reasons or for power maximization, states are thought to respond to external rather than internal developments. From the perspective of these traditional status arguments, when a state's status appears to be declining in an international hierarchy or if a state is dissatisfied *because* it believes it deserves more status than it is allotted, it will seek to increase its status. Thus, for this scholarship, the international system, rather than internal factors serves as the main causal force.

From these traditional status arguments, states engage in this status competition when they perceive their status to be declining relative to their peers.

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[106] John Logsdon, *John F. Kennedy and the Race to the Moon*, (New York, NY: Palgrave Macmillan 2010).
[107] For example, see Larson and Shevchenko "Status Seekers" (2010) and Renshon "Status Deficits and War" (2016).

Although this scholarship acknowledges that status is perceptual, there is an assumption that it is tied to something measurable—whether that is the state's social recognition in an international status hierarchy or expectations stemming from the state's rising material capabilities. If states can hold radically different conceptions about their international standing than that which is understood by the international community, then it would be a state's domestic politics rather than the external status environment that plays the greater causal role in explaining why states pursue costly prestige projects.

From the perspective of these arguments, China's pursuit of costly space technologies can be explained by changes in the international status hierarchy. For example, if countries with comparable international rank are seen as increasing their international standing or denying recognition of China's status as a space power, then this would drive China to pursue costly space technologies. Alternatively, from these perspectives, China should not pursue these costly and strategically dubious space technologies if status competition at the international level is nonexistent or if China's status is being externally recognized.

Observable Implications

I now offer a few criteria for evaluating evidence for and against my argument and alternatives. First, if the argument advanced in this dissertation is correct—that domestic prestige narratives drive regimes to pursue costly prestige projects, then it can be expected that regimes will justify these projects in the language of their prestige narrative. Although regimes may justify these projects in a variety of a

different manners, if a regime seeks to use these projects for domestic legitimation—it should be expected that the regime will explain its decision in the language of its prestige narrative. Likewise, even if regimes are not *intentionally* using these projects for domestic propaganda purposes but are instead acting in accordance with a prestige narrative, justifications of these policies in the language of a prestige narrative indicate the narrative's existence by appealing to existing norms.

Similarly, it should be expected that regimes will pursue costly prestige projects when they are especially in need of the domestic political capital. Thus, it can be expected that the timing of these prestige projects will follow periods in which the regime is seeking to leverage the symbolic capital of a prestige accomplishment—for example, when the regime is seeking to mobilize the public or when it faces a legitimacy crisis. Although the timing of these decisions may also follow changes in the international environment (e.g., external status competition) this may be observationally equivalent to the alternative argument that these prestige projects will be responsive to external status competition. However, it should be expected that these changes will only be responsive to external status competition if the other countries are defined as "peers" according to the regime's legitimation narrative (a fact that may be inconsistent with how other states perceive the state). An additional observable implication is that regimes should be incentivized to pursue prestige, because it provides them domestic benefits. Thus, it should be expected that when regimes pursue costly prestige projects, they should reap some domestic benefits, whether this is a boost in national identification or improving citizens' perceptions of domestic social problems. This claim can be assessed experimentally (which I do in Chapter 6).

Second, the argument that individual leaders, rather than their domestic legitimation narratives, drive states to pursue costly prestige project suggests alternative observable implications. If leaders provide the most useful explanatory variable, then it should be expected that new policies should follow changes in leadership. Third, the argument that prestige projects stem from external status competition suggests a couple of observable implications about when states should pursue costly prestige projects. Rather than reflecting domestic changes (e.g., leadership changes, legitimacy crises, change in domestic narrative) states should pursue costly prestige projects only when there is external competition at the international level. Of course, this does not rule out the possibility of regimes interpreting status competition through their internal prestige narrative. However, for an external status competition argument to hold, one that does not draw upon domestic variables, competition should follow policies of *peer* competitors—whether they have comparable material capabilities or are socially understood or recognized as being equals at the international level. A corollary of this argument is that costly prestige policies will not occur in the absence of external status competition. Lacking evidence that its status is slipping relative to its peer competitors, a state should not sacrifice economic or security objectives in the pursuit of a costly prestige project. A summary of these observable implications is provided in Table 1.1 below.

Table 2.1 Observable Implications

Argument	**Observable Implications**

Prestige Narratives	Policies will be justified in the language of a regime's prestige narrative. Prestige projects will be pursued when regimes seek to mobilize the public or face a legitimacy crisis. Prestige projects will decrease the salience of domestic social problems (tested in Chapter 6)
Leaders	Policies will be consistent with leader's past positions or beliefs. Policies will change when leaders assume office.
External Status Competition	When a peer competitor appears to be increasing its status, a state will respond by pursuing prestige. States will not pursue new prestige policies in the absence of external status competition.

Conclusion

To explain why China's government spends money on space capabilities with limited material utility, this chapter developed a theory of domestic prestige narratives. I argued that regimes use narratives to justify their rule domestically. These narratives shape how elites respond to information from the international system and how they understand their domestic interests. Moreover, although regimes may deploy these narratives strategically, they can internalize or be constrained by these narratives—thus shaping and constraining their behavior.

I also argued that these narratives can take the form of prestige narratives,

when regimes justify their rule by claiming to restore the nation's prestige. Regimes are incentivized to pursue prestige because it can legitimate their rule by boosting collective self-esteem and reducing the salience of domestic social problems. However, although these costly prestige projects can serve regime interests domestically, they can have steep costs and lead to unintended and undesirable consequences for a state's domestic welfare and security interests. The following chapters will evaluate the framework developed here through case studies, and I will assess the microfoundations of this theory through a survey experiment.

CHAPTER 3

THE EAST IS RED

Conventional wisdom holds that the Cold War 'space race' was an intense competition between the world's two largest military powers: The United States and the Soviet Union. According to traditional accounts, the Soviet Union's successful launch of Sputnik drove the United States to engage in an intense and costly competition with the Soviet Union in outer space, culminating with the Americans 'beating' the Soviets to the moon.

Today, with China achieving high profile accomplishments from sending spacecraft to Mars and the 'far side' of the moon, pundits increasingly characterize the United States and China, similar to the Americans and Soviets, as locked in a Cold War-style 'space race.'[108] However, among the many problems with this analogy (e.g., differences in geopolitical context, ideology, and the gap in technological capabilities), this framing misses a key fact: China's space ambitions precede current geopolitical tensions between the United States and China by decades. When the Soviet Union successfully launched Sputnik, it not only sparked an intense space competition with

[108] Bruce Einhorn, "The Race for Mars Takes China-US Tensions into Outer Space," *Bloomberg Businessweek*, January 20, 2021: https://www.bloomberg.com/news/articles/2021-01-20/will-u-s-or-china-reach-mars-first-space-race-heats-up; Greg Autry and Steve Kwast, "America is Losing the Second Space Race to China," *Foreign Policy Magazine*, August 22, 2019: https://foreignpolicy.com/2019/08/22/america-is-losing-the-second-space-race-to-china; Bryan Bender, "A New Moon Race is On. Is China Already Ahead?" *Politico*, June 13, 2019, https://www.politico.com/agenda/story/2019/06/13/china-nasa-moon-race-000897; Arjun Kharpal, "China Brings Moon Rocks Back to Earth in a First for the Country as Space Race with U.S. Heats up," *CNBC*, December 17, 2020: https://www.cnbc.com/2020/12/17/china-brings-moon-rocks-back-to-earth-in-a-first-for-the-country.html; Ben Westcott, Matt Rivers, and Lily Lee, "50 Years After US Moon Landing, China is Catching up in the Space Race," *CNN*, July 19, 2019: https://www.cnn.com/2019/07/19/asia/china-apollo-us-space-race-intl-hnk/index.html.

the United States. Shortly after witnessing the successful launch of Sputnik, Mao Zedong announced, "We too shall make satellites" (我们也要搞人造卫星).[109] By 1970, China succeeded in launching its first satellite and even started a (short-lived) human space program. Although American and Soviet policymakers may have believed that they were the only competitors in the race, Chairman Mao Zedong and his domestic allies did not share this view.

That China sought to match American and Soviet space accomplishments is puzzling considering China's domestic and economic circumstances at the time. Although (as I will discuss below) China benefitted early on from Soviet technical assistance and the return of Western-educated Chinese scientists (most notably, Qian Xuesen), China's technological base was far inferior to that of the Americans and Soviets. By the time of Sputnik's launch, the United States and the Soviet Union had researched rocketry for over a decade. They had also inherited Nazi scientists and engineers (with the Americans acquiring Wernher von Braun), prototypes, and designs at the end of World War II. In contrast, China needed to train engineers and scientists in elementary physics and rocketry. And perhaps most importantly, China was impoverished and predominately agricultural economy. China had also been unified for less than a decade and had recently fought a war with the United States on the Korean Peninsula. China also pursued its space program amid the severe instability and anti-intellectualism of the Anti-Rightist Movement (1957-1959), the Great Leap Forward (1958-1962), and the Cultural Revolution (1966-1976). Thus, based on its

[109] 《张劲夫》[Zhang Jinfu], 《我国第一颗人造卫星是怎样上天的？》[How Did My Country's First Artificial Satellite Go into Space?" Chinese Academy of Sciences, October 18, 2006, http://www.cas.cn/xw/zyxw/yw/200906/t20090608_623049.shtml.

material conditions, China was in no position to compete in a costly space competition with the Americans and the Soviets.

Why would China divert funds toward an ambitious space program despite facing such extreme resource constraints? Using the theory developed in Chapter 2, I argue that Chinese space ambitions during this period cannot be explained by structural imperatives of an anarchic international system but rather by Mao and the CCP's prestige narrative.

Although Mao's control of the Party fluctuated, the CCP's legitimacy and Mao's were closely intertwined. The CCP and Mao's legitimation narrative largely drew upon the nationalist ideas of restoring China's prestige lost during the 'Century of Humiliation.' Under Mao, the Party's narrative emphasized Maoist principles developed in Yan'an as part of the Long March myth. These principles emphasized the utility of 'self-reliance' in overcoming seemingly insurmountable odds and leaping beyond one's material circumstances. According to this narrative, through Mao's interpretation of Marxism-Leninism, China could leap past its material circumstances, catch up and surpass 'imperialist' powers such as Great Britain and the United States. Through Mao, China had 'stood up' to the world—and under his stewardship, China would regain its lost international prestige.

This chapter argues that Mao's prestige narrative shaped his approach to world affairs and response to the emergence of the US-Soviet 'space race.' According to Maoist ideology, principles of continuous revolution and self-reliance would allow China to overcome its material conditions and compete with its peers—the United States and the Soviet Union. By keeping up with and surpassing the United States and

the Soviet Union, Mao could provide powerful symbolic evidence to legitimate his rule domestically. Consequently, if China were perceived to be falling behind internationally, it would undermine Mao's claims to legitimacy. Overall, this chapter argues that Mao's prestige narrative shaped his approach to space policy during the onset of the Great Leap Forward and during Mao's reassertion of control over the CCP during the Cultural Revolution. Consequently, in seeking to compete in a great power 'space race,' Mao diverted scarce resources toward lavish and ultimately suboptimal space capabilities—seeking a satellite and even a (short-lived) human space program. These concerns over domestic legitimacy left an indelible mark upon Chinese space policy and the design of its first project—leading China to prioritize a satellite that served no practical function over capabilities that would perform a strategic function.

This chapter analyzes the origins of China's space program, a period commonly referred to as China's "Two Bombs, One Satellite" era. I organize this chapter as follows. The first section examines Mao and the CCP's prestige narrative. The second section provides background on the origins of China's space program, and China's domestic and strategic constraints. The third section discusses the role of Mao's prestige narrative in driving China's early satellite program. The fourth section assesses the role of domestic prestige in China's first satellite program. The fifth section examines how domestic prestige motives drove China to pursue its ultimately failed human spaceflight program, Project Shuguang. The sixth section assesses alternative explanations.

Mr. Science, the Long March, and Mao's Prestige Narrative

The framework developed in Chapter 2 expects that regimes will pursue costly prestige projects when they perceive their nation's prestige (as constructed by their prestige narrative) to be challenged or slipping. When regimes rely on prestige narratives, they will be sensitive to perceived fluctuations in their nation's standing. Furthermore, these narratives, I argued, provide reference points by which political elites measure their nation's prestige; reference points that may be at odds with their state's material capabilities, and which may be entirely incomprehensible to outside actors. Beyond reference points, these narratives also shape what constitutes a salient domain of prestige competition. Altogether, I argued that these domestic narratives can have a powerful effect on a state's behavior, as political elites will either seek prestige symbols instrumentally to legitimate their rule domestically, or political elites will do so because they have internalized these narratives or are socially constrained by them.

In this section, I discuss the CCP's or, more specifically, Mao's prestige narrative. As discussed in Chapter 2, the framework focuses on regimes as the unit of analysis. This framework suggests that for the PRC, the CCP is the unit of analysis. However, although Mao Zedong and the CCP were distinct political actors, in practice, for much of the Mao-era, these two were indistinguishable. Mao's power over the CCP would fluctuate, as he would gain near-complete control after purging Peng Dehuai during the 1959 Lushan Conference. Yet Mao would be temporarily sidelined from the Party following the Great Leap Forward's failure, only to reassert greater power over the Party once again during the Cultural Revolution (1966-1976).

Thus, for most of the 1949-1976 era, Mao and the Party were indistinguishable

in practice. Furthermore, even though Deng-era China would move toward collective Party rule and away from that of an individual leader, Mao's presence still loomed large over the CCP. Although the CCP would, in many ways, radically deviate from Maoist policies, the CCP's legitimacy and origin are inherently tied with the rise of Mao Zedong; a wholesale abandonment of Mao would, therefore, threaten to further erode the CCP's hold on power. As I will argue Chapter 5, Deng and the CCP still drew upon the nationalist mythologizing of the Long March, although they abandoned Marxism-Leninism as an economic strategy.

To understand the CCP and Mao's legitimation narrative, it is first important to recognize that the CCP's narrative was not created in a vacuum. As discussed in Chapter 2, narratives are not invented out of thin air, and often are based on different components of collective memory. Regarding Mao and the CCP, their legitimating narrative cannot be divorced from broader symbolism of China's 'Century of Humiliation.'[110] The Century of Humiliation is marked as starting during the First Opium War (1839) and ending with the PRC's founding under the rule of the CCP (1949). Under the Qing Dynasty, Chinese territory and sovereignty were divided as Western powers carved China up and unilaterally imposed "unequal treaties" upon it. As a result of repeated foreign incursions and domestic institutional decay, China's Qing Dynasty (the last of its millennia-old dynastic system) collapsed. From 1911, China would continue to be weak and divided, ruled by warlords, violently occupied by Japan, and then it would descend into Civil War.

[110] On the role of humiliation in Chinese nationalist discourse, see William A. Callahan, "National Insecurities, Humiliation, Salvation, and Chinese Nationalism," *Alternatives: Global, Local, Political* 29, no.2 (2004): 199-218.

Underscoring the importance of the 'Century of Humiliation' to the CCP's legitimacy, during his October 1, 1949 speech proclaiming the founding of the PRC, Mao announced, "Ours will no longer be a nation subject to insult and humiliation. We have stood up."[111] As this pronouncement signified, it was only through the rule of the CCP that China could finally unify and 'stand up' to foreign bullies and regain its lost international position. The CCP, therefore, tied its legitimacy to nationalist ideas about reasserting China's lost international standing.

The 'Century of Humiliation' narrative provides a reference point for measuring Chinese prestige.[112] According to this narrative, Mao and the CCP would restore China's prestige, which was lost during China's encounters with outside foreign powers.[113] As such, China's ability to keep up with leading foreign powers symbolized that Chinese leaders were holding their end of the bargain—restoring China's lost prestige. Specifically, through the prism of Marxism-Leninism—or Mao's interpretation of this, these external reference points were not merely former colonial powers but were leading capitalist or 'imperialist' powers—such as the United States.

The CCP's origins also shaped what constituted a salient domain of prestige

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[111] Mao Zedong, "The Chinese People Have Stood Up!" Opening Address at the First Plenary Session of the Chinese People's Consultative Conference, Selected Works of Mao Zedong: https://www.marxists.org/reference/archive/mao/selected-works/volume-5/mswv5_01.htm.

[112] It is important to acknowledge that when discussing the role of China's 'Century of Humiliation' in Chinese narratives, identity, or memory, I draw from the wealth of secondary literature on this topic. Most notably, see William A. Callahan, *China: The Pessoptimist Nation*, (Oxford, UK: Oxford University Press, 2010); Zheng Wang, *Never Forget National Humiliation: Historical Memory in Chinese Politics and Foreign Relations*, (New York, NY: Columbia University Press, 2012).

[113] Callahan, for example says that China has a combined "inferiority" and "superiority" complex making it a "pessoptimist nation." Chinese leaders thus seek to "rejuvenate" China and "cleanse national humiliation," (洗雪国耻); Similarly, Orville Schell and John Delury, argue that what unites key figures and leaders in Chinese national history is to restore China's national greatness lost during the Century of Humiliation through the pursuit of "wealth and power" (富强). See Orville Schell and John Delury, *Wealth and Power: China's Long March to the Twenty-First Century*, (New York, NY: Random House, 2013).

competition: science and technology. One of the leading activists of China's 1919 May 4th Movement and a cofounder of the CCP, Chen Duxiu, emphasized the need for democracy and science for China to achieve national rejuvenation, which he referred to as "Mr. Science" (赛先生) and "Mr. Democracy" (德先生). According to this narrative, the Qing Dynasty's reliance on outdated cultural belief systems such as Confucianism were to blame for China's weakness at the hands of Western powers.[114] Only by discarding these traditions and drawing upon Western practices of science and democracy could China regain its former glory. Yet of these two pillars, only one, "Mr. Science," was, in actuality, consistent with the single-party rule by the CCP.[115]

Moreover, the CCP and Mao's claim to legitimacy would be tied to their rise in power—specifically during the Long March. [116] The Long March myth is based on a series of strategic retreats by the CCP from 1934 to 1935, as the Red Army of the CCP (the precursor to today's PLA) fled the Kuomintang's military. The Long March is tied closely to the legitimizing narratives of the CCP because it was during this time that Mao and his supporters assumed control of CCP. During this series of strategic retreats, the Red Army was estimated to have traversed approximately 5,600 miles over 370 days, with the majority of the Red Army dying during this strategic retreat.

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[114] Chen, Duxiu, "In Defense of the New Youth Against Accusations," *New Youth* (1919).
[115] It is important to note that the CCP includes democracy as one of its core socialist principles, though it does not tolerate it in practice. On the role of science and technology in Chinese nationalist discourse and during the Cultural Revolution, see Chunjuan Nancy Wei and Darryl E. Brock, eds. *Mr. Science and Chairman Mao's Cultural Revolution*: Science and Technology in Modern China (Lanham, Maryland: Lexington Books 2013); See also: Lyman H. Miller, *Science and Dissent in Post-Mao China: The Politics of Knowledge*, (Seattle, WA: University of Washington Press 1996); Edward X. Gu, "Who was Mr. Democracy? The May Fourth Discourse of Populist Democracy and the Radicalization of Chinese Intellectuals (1915-1922)," *Modern Asian Studies* 35, no.3 (2001): 589-621.
[116] On the myth versus the reality of the Long March, see Sun Shuyun, *The Long March: The True History of China's Founding Myth*, (New York, NY: Double Day, 2007).

According to this myth, it was this hard-fought struggle that gave birth to the modern CCP. Despite being weakened and outmatched, the CCP overcame seemingly insurmountable odds and eventually emerged more powerful than ever through Mao Zedong's leadership. Mao himself explicitly recognized the propaganda value of the Long March, writing:

> The Long March is a manifesto, a propaganda force, a seeding-machine… The Long March is a manifesto. It has proclaimed to the world that the Red Army is an army of heroes, while the imperialists and their running dogs, Chiang Kai-shek and his like, are impotent. It has proclaimed their utter failure to encircle, pursue, obstruct, and intercept us.
>
> The Long March is also a propaganda force. It has announced to some 200 million people in eleven provinces that the road of the Red Army is their only road to liberation. Without the Long March, how could the broad masses have learned so quickly about the existence of the great trust which the Red Army embodies?[117]

There are a few central themes that emerge from the Long March myth. First, through people's revolution and sheer willpower, China could overcome seemingly impossible odds and keep up with more powerful adversaries.[118] Second, rather than strictly following the advice of Soviet advisors, China's interests were best served by following Mao's interpretation of Marxism-Leninism. To understand China's early space ambitions, this narrative viewed it as entirely possible for China to overcome or 'leap' past seemingly insurmountable material circumstances. According to this narrative, it did not matter that China faced severe resource constraints. Through Mao and the CCP's leadership, China could be transformed and capable of keeping up with

[117] Mao Zedong, "On Tactics Against Japanese Imperialism," December 27, 1935.
[118] On the role of Maoist mobilization and the role of "willpower" see Yu Liu, "Maoist Discourse and the Mobilization of Emotions in Revolutionary China," *Modern China* (2010) 36, no.3: 352-354.

and even 'surpassing' (超越) advanced capitalist powers.[119]

Mao perhaps most clearly highlighted the role of prestige and catching up to the United States in his speech at the preparatory meeting for the Eighth National Congress of the CCP, entitled "Strengthen Party Unity and Carry Forward Party Traditions." In this speech, Mao compared China's esteem from foreigners under the leadership of the CCP to that during China's 'Century of Humiliation':

> China used to be stigmatized as a 'decrepit empire', 'the sick man of East Asia' […] But after six years' work of transformation we have changed the face of China. No one can deny our achievements […] It is quite different now. We are held in fairly high esteem by our foreign comrades […][120]

More specifically, Mao argued that the United States served as the marker for measuring the success of his domestic project of building China into a great socialist country:

> Therefore, once built up, China will be a great socialist country and will radically transform the situation in which for over a century it was backward, despised and wretched. Moreover, it will be able to catch up with the most powerful capitalist country in the world, the United States […] If we don't, the Chinese nation will be letting the nations of the world down and we will not be making much of a contribution to mankind [emphasis added].[121]

Thus, the United States (the "most powerful capitalist country in the world") would serve as a marker for measuring Mao's success. Therefore, his ability to lead China to symbolically 'catch up' with the United States, thus, would support his claim to

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[119] On the concept of 'surpassing' advanced powers, see William A. Callahan, "Surpass," in Ed. Christian Sorace, Ivan Franceschini, and Nicholas Loubere, *Afterlives of Chinese Communism: Political Concepts from Mao to Xi,* (Canberra, Australia: Australia National University Press, 2019).
[120] Mao Zedong, "Strengthen Party Unity and Carry Forward Party Traditions," Speech at the first session of the preparatory meeting for the Eighth National Congress of the Chinese Communist Party, August, 30, 1956, *Selected Works of Mao Tse-Tung*, https://www.marxists.org/reference/archive/mao/selected-works/volume-5/mswv5_53.htm.
[121] Ibid.

power.[122]

Overall, this section described Mao and the CCP's domestic prestige narrative. It argued that the narrative drew upon the myth of China's 'Century of Humiliation' and emphasizes China's ability to 'stand up' to outside, Western colonial powers. Through the lens of Marxism, this meant the ability to stand up to leading 'imperialist' powers, such as the United States. As such, from the perspective of this narrative, it would be entirely understandable for Mao and his associates to look at the United States as a reference group or a 'peer' despite their drastically different material capabilities. Moreover, it argued that according to Mao's prestige narrative, through sheer willpower and 'self-reliance' (自力更生) China could leap past its material circumstances.[123] This point is important to emphasize because from the perspective of external status competition, in terms of material capabilities, the United States and the Soviet Union were not peer competitors with China—as they were far more advanced economically, militarily, and technologically than China. However, from the perspective of Mao's prestige narrative, China's material circumstances were not an obstacle to competing with the Americans and Soviets. As I will discuss later in this chapter, this narrative informed how China responded to the onset of the US-Soviet space race. Although it would make no sense for a resource-scarce country like China to compete in a 'space race' with the United States and the Soviet Union, according to his narrative, it was essential that China did not 'fall behind' these two leading

[122] See Callahan "Surpass" (2019).
[123] Yanglong, "Self-Reliance," in Ed. Christian Sorace, Ivan Franceschini, and Nicholas Loubere, *Afterlives of Chinese Communism: Political Concepts from Mao to Xi,* (Canberra, Australia: Australia National University Press, 2019).

powers.

China's Early Space Program: Background and Security Motivations

This section provides important context for understanding the origins of China's space program, and it details the difficulties and tradeoffs required for China to pursue its first satellite. As discussed in Chapter 2, prestige projects can have steep costs and divert resources from other strategic objectives. As this section details, before the launch of Sputnik, China was already embarking on a radically ambitious program—beginning the development of nuclear weapons and ballistic missile programs. Although these programs were enormously difficult and entailed steep costs, these goals served a clear security function—if successful, they would provide a deterrent against the United States (and later the Soviet Union following the Sino-Soviet split). However, as I will discuss in the following section, despite these already ambitious goals, China soon diverted resources toward another incredibly challenging goal of sending a satellite into outer space. And as this section details, China's decision to pursue a satellite was made against the backdrop of extreme resource constraints.

Before Sputnik's launch in 1957, outer space did not constitute a domain of great power prestige competition. Since no country had demonstrated the ability to launch objects into outer space, space capabilities could not yet serve as prestige marker. Instead, Mao viewed rockets through a security lens. On October 8, 1956, China established the Fifth Institute of the Ministry of National Defense. Rather than sending a satellite or a human into outer space, this institute focused on the security goal of using rockets as a delivery vehicle for future nuclear warheads. Although Mao

had derided the strategic utility of nuclear weapons, he also sought to prevent nuclear blackmail by the United States. After the United States threatened to use nuclear weapons during the Korean War, Mao sought to develop a nuclear deterrent against the United States.[124]

Although a nuclear deterrent served Chinese security interests, building a nuclear weapon and a ballistic missile was by no means an easy task. This point is important to discuss because it underscores the challenges facing China and the extreme resource constraints it already faced before it further divided its budget toward sending a satellite into outer space. To provide context for the technological complexity required to develop a nuclear weapons program, in the American context, the US nuclear program, the Manhattan Project, represented one of the most massive technological undertakings in American history. Similarly, during World War II, although Americans and Soviets had experimented with rocketry, it was only the Germans that had successfully developed ballistic missiles. Moreover, as the world's two largest military powers, the United States and the Soviet Union had far less to lose than China in diverting resources toward developing advanced space technologies. The United States and the Soviet Union also benefitted by seizing German scientists, development plans, and prototypes in Peenemünde following World War II.[125] This development was crucial because, at the time, Nazi Germany was the most advanced

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[124] John Wilson Lewis and Xue Litai, *China Builds the Bomb* (Stanford, California: Stanford University Press, 1988): 35-39; Evan Feigenbaum, *China's Techno-Warriors: National Security and Strategic Competition from the Nuclear to the Information Age* (Stanford, CA: Stanford University Press, 2003): 21-25.

[125] Michael J. Neufeld, *The Rocket and the Reich: Peenemünde and the Coming of the Ballistic Missile Era,* (New York, NY: The Free Press, 1995).

country in rocket technology. Ballistic missiles, used by Germany to rain terror and destruction upon Great Britain, also provided the forerunner to modern-day multi-stage rockets used to send spacecraft into orbit.

Whereas the United States and the Soviet Union had these advantages, China was deeply impoverished and had been unified for less than a decade. Although Mao could claim bragging rights in fighting the Americans to a standstill on the 38th Parallel, it came at a steep cost; resulting in 920,000 Chinese casualties.[126] Nonetheless, despite these highly unfavorable circumstances, China received technical assistance from the Soviet Union (at least until 1960). In regard to China's early space program, the Soviet Union provided China assistance on nuclear weapons and ballistic missile technology. However, the Soviets were reluctant to share too much information with their Chinese counterparts. Although the Soviets provided a R-2 ballistic missile for China to reverse engineer, the Soviets had already developed far more advanced rocket technology.[127]

Moreover, following the Soviet Union's de-Stalinization efforts under Khrushchev, China and the Soviet Union became increasingly estranged from one another, and by 1960 the Soviet Union withdrew its technical and scientific advisors from China.[128] Thus, although China's early missile program was not entirely indigenous, it is important not to overstate the importance of Soviet technology for China's early missile program. This point is important to highlight, because

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[126] Xu Yan & Li Xizo-Bing (Translator), "The Chinese Forces and Their Casualties in the Korean War: Facts and Statistics," *Chinese Historians* 6, no.2 (1993): 45-58.
[127] Brian Harvey, *China's Space Program: From Conception to Manned Spaceflight* (Chichester, UK: Praxis Publishing 2004): 24.
[128] Ibid: 34.

considering China's dire domestic circumstances, China would have to make costly tradeoffs in seeking to compete with the United States and the Soviet Union in outer space.

Beyond Russian assistance, China also did not entirely lack scientific expertise on developing rockets, as it benefitted from the return of Western-trained Chinese scientists. Most importantly for the development of China's early rocket program was the return of the American-trained rocket scientist Qian Xuesen, regarded as the "father" of China's space program. Qian, a Hangzhou native, had emigrated to the United States and studied his doctorate under the supervision of Theodore von Kármán, one of the world's most renowned aerodynamics theorists. Qian contributed to the early American space program, working with some the American space program's leading members.[129] Yet despite his promising career in the United States, Qian fell under suspicion during the paranoia of the McCarthy Era. After brief imprisonment and being placed under house arrest, Qian fled to China as part of a prisoner swap agreement between the United States and China following the Korean War. Qian's misfortune presented China with an invaluable strategic opportunity—allowing it to acquire one of the world's most highly trained rocket scientists.

However, similar to the example of Soviet assistance, it is important not to overstate the importance of Qian's return for China's early space program. Although Qian's return to China represented a strategic coup for China, he could not implement his ideas without a sufficient number of highly trained scientists and engineers. Yet, at this time, such highly trained Chinese scientists were in short supply. China needed to

[129] Iris Chang, *Thread of the Silkworm*, (New York, NY: BasicBooks, 1995): 40-67, 140-148.

train a large group of engineers and physicists to begin developing a space program. To start this massive training program, Qian used teaching materials that he brought from the United States. These materials were coupled with translated Russian physics, engineering, and rocketry textbooks. Using these materials, Qian trained a group of engineers, who then trained more students. Beyond training scientists and engineers, China also required massive infrastructure for carrying out the tests and experiments necessary for developing rockets, such as wind tunnels and launch sites.

As these examples underscore, China was poorly suited to begin a nuclear weapons and ballistic missile program, let alone further divert resources toward satellite program. As Feigenbaum details, China's early missile and nuclear weapons programs had real consequences for China's militarization modernization—reducing funding and inhibiting the development for China's strategic bomber program.[130]

Thus, overall attempting to compete with the United States and the Soviet Union in outer space would constitute a highly ambitious, yet entirely foolhardy endeavor for China. However, as the following section details, while a costly space competition may have been unwise from an economic or strategic perspective, such a project provided a prestige powerful symbol for Mao.

Launching Satellites: Sputnik, Prestige, and China's Public

Although ambitious, the initial motivations for creating China's Fifth Academy of the National Defense Ministry (国防部第五研究院)—the institute overseeing China's ballistic missile program—can be accounted for by security-based explanations.

[130] Feigenbaum, *China's Techno-Warriors*: 31-33.

Nuclear weapons may have represented a prestige symbol, but for China they also provided a means by which to possibly deter a more militarily powerful adversary. Yet despite the original security motivations driving China's ballistic missile program, soon China initiated a highly ambitious yet militarily dubious strategy of pursuing a satellite program.

In explaining China's decision to invest in a satellite program, it is important to understand how technological developments at the international level were perceived through the interpretive lenses of Mao's ideology. When the Soviet Union successfully launched Sputnik on October 4, 1957, it had a profound impression upon Mao. The launch of Sputnik occurred only a few months prior to the overly ambitious and ultimately disastrous policies of the Great Leap Forward. Through the Great Leap Forward, Mao sought to engage in rapid industrialization and propel China beyond its material circumstances. Notably, China's progress would be measured by international standards, particularly those of the Western 'imperialist' powers. A guiding slogan during the Great Leap Forward, was for China to "surpass Great Britain and catch up with the United States" (超英赶美). From a strictly material perspective, it makes little sense why China would measure its progress against Great Britain and the United States. Yet from the perspective of Chinese nationalist history, Great Britain played a key role in China's 'Century of Humiliation' (as it had gone to war with China during the Opium Wars). Similarly, the perspective of ideology, the United States was a modern incarnation of leading capitalist power.

It was within this context that Sputnik made a marked impression upon Mao and China's public. By launching Sputnik, the Soviets had publicly challenged the

United States' to being the world's leading technological power. Thus, Sputnik publicly challenged American prestige and signified the emergence of a new domain of prestige competition.[131] Symbolically, as a new domain of prestige competition, the ability to launch a satellite into orbit signified that a country was technologically advanced. Thus, for Mao, Sputnik constituted a new marker by which to legitimate his rule domestically. From the perspective of Mao's ideology, Sputnik symbolized the ability of socialism to radically transform society. In its coverage of Sputnik, the *People's Daily* (the official mouthpiece of the CCP) wrote: "Our generation will be able to see with our own eyes that the liberated and conscious labor of the people of the new socialist society turns man's boldest ideals into reality."[132]

Similarly, following Sputnik, the symbolism of "launching a satellite" became closely associated with mobilizing for Mao's Great Leap Forward. On August 18, 1958, the *People's Daily* ran a front-page article announcing that a People's Commune in Suiping County of Henan Province had launched an agricultural "satellite."[133] Although not literally a satellite, "launching a satellite" (发射星) meant to, metaphorically, produce large-scale and grandiose agricultural yields that exceed normal expectations. By wildly exaggerating claims about the commune's grain yield, this article was used to falsely triumph the success of Mao's development model.

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[131] Yanek Mieczkowski, *Eisenhower's Sputnik: The Race for Space and World Prestige*, (Ithaca, NY: Cornell University Press 2013).
[132] People's Daily 《苏联跨出了星际旅行的第一步, 第一个人造卫星发射成功,卫星正在九百公里高空围绕地球运行，昨天经过广州上空》[The Soviet Union took the first step of interstellar travel. The First Artificial Satellite was Successfully Launched. The Satellite is Orbiting Earth at an Altitude of 900 Kilometers and Passed over Guangzhou Yesterday [苏联跨出了星际旅行的第一步, 第一个人造卫星发射成功,卫星正在九百公里高空围绕地球运行，昨天经过广州上空]", October 6, 1957.
[133] People's Daily, 《人民公社带来的新变化--介绍遂平县卫星人民公社》[New Changes Brought About by the People's Commune], August 18, 1958.

Whereas at the local level, 'launching satellites' Maoist Great Leap Forward policies in revolutionizing Chinese agriculture, launching an actual satellite symbolized that Mao propelled China from the position of relative technological backwater to its rightful place as a technological great power. At the time, the ability to launch a satellite into outer space signified an exclusive marker of great power prestige.[134] If China successfully launched a satellite, it would signify that it had achieved a technological feat on par with the United States and the Soviet Union.

In 1958, Mao Zedong announced "we shall make satellites too."[135] Notably, in justifying why China should have its own satellite, Mao did not explain the goal in terms of its potential security benefits or economic contributions. It would have made little strategic military or economic sense for China to pursue such a goal. With a poor, agricultural economy China, it was unclear what economic contributions a satellite could make to its development—though, today it is clear that satellites can provide several economic benefits—from remote sensing and earth observation missions necessary for modern-day meteorology to communications—China was too undeveloped to benefit from such then-theoretical applications. Moreover, the PLA had no power projection capabilities whatsoever beyond its immediate periphery. Similarly, at this time, the idea of an intercontinental ballistic missile remained theoretical, and China had yet to master basic ballistic missile technologies or develop

[134] It is important to note that prestige symbols are socially constructed and historically contingent. Satellites do not provide as powerful a symbol of great power prestige today as they did at this time as more actors (state and private actors), have attained the ability to launch satellites. Even universities and Chinese commercial space companies launch satellites into outer space. However, at this time, only the Soviet Union and the United States possessed these capabilities (with the Americans launching their first satellite on January 31st, 1958).

[135] 《巩小华》[Gong, Xiaohua]: 《中国航天决策内幕]》[The Inside Story of Chinese Space Policy] (Beijing: Zhongguo wenshi chubanshe, 2005): 261-262.

a nuclear weapon—let alone miniaturize such a weapon to be placed on an ICBM.

Rather than invoking economic or security-based justifications, Mao instead justified such a pursuit in terms of prestige—specifically in how the size of China's satellite would measure up to the Americans' satellite. For Mao, it was important that China's first satellite be larger than the Americans' first satellite, Explorer 1. Mao said that China's first satellite must be "bigger than that chicken egg" of the Americans.[136] On this point, from traditional perspectives on prestige or status, it is entirely puzzling why Mao would choose the United States as China's reference group. The United States was not 'local'—it was located on the opposite side of the globe with an entirely different culture and political system. Moreover, China was a poor, agrarian economy and the United States was the wealthiest and most militarily powerful country on the planet. Furthermore, China faced extreme resource constraints and, therefore, would have to make starker tradeoffs than the United States and the Soviet Union. It, therefore, made little sense why Mao would view the United States as a point of comparison. This point is important to emphasize. Although traditional accounts of status competition recognize that status is perceptual, the huge disparity between China's material circumstances and its points of comparison (the two most dominant powers) sits uneasily with traditional accounts—as China's prestige perceptions were dramatically out of line with what China's international status would have been at the time.

Domestic considerations also influenced Mao's chosen date for launching

[136] Jung Chang and Jon Halliday, *The Unknown Story of Mao* (New York, NY: Random House 2005): 402.

China's first satellite. Despite having a practically nonexistent space program, Mao decided that China would launch its first satellite in one year's time. Underscoring the role of domestic legitimacy concerns, Mao wanted China's first satellite to be launched in October of 1959 to celebrate the 10-year anniversary of the PRC (and thus, his and the CCP's rule over China).[137] Although this timeline was entirely unrealistic, it supported Mao's domestic interests and ideology. From the perspective of Mao's ideology, if China could radically industrialize its economy in a few years' time through the Great Leap Forward, it could also plausibly develop a satellite in a year's time.

Nonetheless, Mao's goal to launch a satellite in a year's time would soon be reversed by Deng Xiaoping. Deng, the notable pragmatist, decided that China's space program should first focus on the more modest, albeit highly ambitious goal of launching sounding rockets—rockets that reach high altitudes, but which do not travel into outer space.[138] Following the failure of the Great Leap Forward, Mao became increasingly marginalized by the Party, and China's plans for a satellite would only be pursued at low-levels—that is, until the Cultural Revolution.

The East is Red

Although China failed to meet Mao's wildly ambitious goal of sending a satellite into space in one year's time, by the mid-1960s (at the beginning of the Cultural Revolution), China once again focused on attaining this prestige symbol. As expected

[137] 《巩小华》[Gong, Xiaohua]: 《中国航天决策内幕]》[The Inside Story of Chinese Space Policy]: 40.
[138] Ibid.

by the framework articulated in Chapter 2, regimes may draw on costly prestige projects during crises of domestic legitimacy. As this section details, Mao sought to reassert his control and legitimacy over the CCP. Having been sidelined from the Party following the Great Leap Forward, Mao sought to regain power over the Party by launching the Great Proletarian Cultural Revolution in 1966. In launching the Cultural Revolution, Mao and his close supporters drew heavily on Mao's legitimating ideology, promoting principles of 'self-reliance' and 'independence' to surpass the 'imperialist' and 'revisionist' powers. These domestic considerations colored every aspect of China's first satellite program, as the entire accomplishment would be framed in reference to Mao's leadership and ideology.

Unlike China's initial attempt at human spaceflight in 1959, by 1970, China succeeded in becoming the fifth country in history (following the Soviet Union, United States, France, and Japan) to send a satellite into outer space. While China's space program had a decade of experience—and, thus, was not entirely starting from scratch, China's domestic economic circumstances did not favor a technologically complex program of launching a satellite into outer space. In this regard, it is difficult to overstate just how destabilizing the Cultural Revolution was for the development of China's space program. Beyond the profound psychological shock of the Cultural Revolution, Red Guards threatened the engineers and scientists overseeing China's space program, leading Zhou Enlai and Nie Rongzhen to place it under PLA control.[139]

[139] Gregory Kulacki and Jeffrey G. Lewis, "A Place for One's Mat: China's Space Program, 1956-2003," *American Academy of Arts & Science* (2009): 12-13.

At the same time, China's relationship with the Soviet Union grew increasingly tense. Mao had grown resentful of Khrushchev, as he believed that he was not being treated as an equal.[140] Meanwhile, the Soviet Union grew increasingly nervous about their nuclear-armed neighbor to South, viewing Mao as unstable and a growing liability. By 1960, the relationship between the two powers became so strained that the Soviets withdrew technical assistance from China. By 1969, China and the Soviet Union nearly went to war over the disputed territory of Zhenbao Island. The relationship was so tense that Khrushchev allegedly considered carrying out a nuclear strike on China, and by 1970, the two powers officially split from one another.[141] The broader implication of the Sino-Soviet split for China's space program was that beyond worrying about the security threat posed by the Soviets, China had to develop its space capabilities in complete isolation.

As discussed in Chapter 2, domestic prestige narratives can outweigh strategic and economic considerations, leading regimes to engage in costly behavior that is detached from their state's material circumstances. Thus, despite the instability of the Cultural Revolution and the lack of Soviet support, China pursued a costly satellite program because it promoted Mao's legitimacy. Underscoring the importance of domestic propaganda and ideological legitimation during this period, Mao's then-designated successor and Defense Minister Lin Biao compiled and distributed a book of Mao Zedong's quotations, commonly known as the "Little Red Book"—to

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[140] Jian Chen, *Mao's China and the Cold War* (Chapel Hill, NC: University of North Carolina Press, 2010).
[141] Mark O'Neill, "Nixon Intervention Saved China from Soviet Nuclear Attack," *South China Morning Post*, May 12, 2010, https://www.scmp.com/article/714064/nixon-intervention-saved-china-soviet-nuclear-attack.

popularize Maoist thought and promote Mao's personality cult. Moreover, beyond his role as Mao's chief propagandist and successor, Lin was also Mao's defense minister and thus had a direct role in shaping Chinese space policy.

Whether or not Mao and his supporters intentionally pursued the satellite for domestic propaganda purposes (to mobilize his domestic supporters) or whether they genuinely believed Maoist propaganda is difficult to answer empirically, as it is impossible to get inside the heads of Mao and his supporters. However, regardless of intentionality, Mao's pursuit of a satellite advanced his domestic legitimacy. As one of the most prominent symbols of technological might, the ability to develop a satellite would demonstrate that under Mao's rule, China had overcome seemingly insurmountable odds and had achieved great power prestige.

In deciding to launch the satellite, Mao's prestige narrative, rather than security or scientific considerations, dominated. China's first satellite was intentionally designed to be ostentatious, rather than to serve military or economic objectives. Although ten years behind Mao's original goal, the Dongfanghong satellite succeeded in being larger than what Mao had described as the "chicken-egg" of the Americans. In fact, China's first satellite was heavier than all of its predecessor's first satellites combined. The primary slogan guiding the construction of China's first satellite was "to be seen" and "to be heard."[142] These priorities shaped the design and function of China's first satellite, outweighing all scientific considerations. Although scientists had initially sought for China's first satellite to serve multiple functions, from

[142] Liu Lin and Zeng Guang, "The Influence of Political Propaganda on Space Activities: A Case Study of Dongfanghong-1," *Joint International Social Science, Education, Language, Management, and Business Conference* (2015): 282-284.

providing communications to weather imaging functions, China's first satellite instead served a strict domestic propaganda function.

To make the satellite "seen," China's first satellite was, quite literally, flashy. For the satellite to be seen with the naked eye, the satellite was constructed with a reflective 72-sided polyhedron with an observation skirt. However, the materials required for making the satellite visible also increased its weight—exceeding the rocket's payload capacity. Solving this weight problem required replacing the satellite's stainless steel with a lighter-weight aluminum alloy. Likewise, Chinese scientists selected an orbital trajectory that enabled the satellite to be seen by individuals on the ground.[143]

The rocket was also designed so that it could be "heard." To do this, the satellite performed the singular function of broadcasting the revolutionary song the "East is Red." This created additional challenges, however, as the transmission device added weight to the rocket. To solve this problem, engineers ultimately settled on an electronic music generator to broadcast the music. However, scientists soon encountered a new challenge. Electromagnetic interference threatened to warp the sound of the satellite's music; as such, what was meant to be a triumphant display of political propaganda, could also be a source of embarrassment for China's leadership. To fix this problem, engineers added sealing to stabilize the temperature. Engineers also installed an "overload switch," which allowed the operators to shut off the music if needed.[144] Overall, with all the added weight required for making the satellite "seen

[143] Ibid.
[144] Liu Lin and Zeng Guang, "The Influence of Political Propaganda on Space Activities," (2015), 284-285.

and heard," China's first satellite could not be weighed down further by scientific instruments.

The symbolism behind China's first satellite clearly tied the mission to the CCP and Mao's foundational myth. For example, the rocket used to launch China's first satellite was named the 'Long March' (长征) rocket—(the same name of rockets used to launch Chinese spacecraft today). Moreover, instead of performing any scientific or military function, China's first satellite played China's revolutionary song "The East is Red"—often referred to as the de facto national anthem during the Cultural Revolution. The lyrics of "The East is Red" are:

> The east is red, the sun is rising. From China, appears Mao Zedong. He strives for the People's happiness, Hurrah, he is the people's great savior! Chairman Mao loves the people, he is our guide to building a new China Hurrah, lead us forward! The Communist Party is like the sun, wherever it shines, it is bright. Wherever the Communist Party is Hurrah, the people are liberated![145]

This song was closely tied to Mao Zedong's personality cult, referring to him as the "people's savior." The song adapted lyrics from a Shaanxi folk song and was allegedly written by farmer Li Youyuan.[146] Underscoring the importance of the Long March mythology, Li's song was inspired by Mao's revolutionary reforms during the Yan'an era. Symbolically, there were also close parallels between China's first satellite and that of the Americans. For example, on December 19th, 1958, U.S. President Eisenhower telegraphed the world's first message from space, wishing "to all mankind

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[145] Smithsonian, "The East is Red (东方红) [English subtitles], Smithsonian, December 2019, https://music.si.edu/video/east-red-东方红-english-subtitles.
[146] Ibid.

America's wish for peace on earth and goodwill toward men everywhere."[147] Importantly, however, in contrast to Eisenhower's message that emphasized "goodwill toward men everywhere," China's song hailed the greatness of Mao Zedong and the CCP.

Beyond this symbolism, how the CCP explained the successful launch of the Dongfanghong also provides evidence into the symbolic function of China's first satellite for Mao's domestic prestige narrative. Following the successful launch of the Dongfanghong, the *People's Daily* ran extensive coverage of the accomplishment. For the April 26th *People's Daily*, the front two pages were devoted to China's satellite, as well as 21 percent of the articles and 66 percent of the images. Similarly, for the April 27th *People's Daily*, the front three pages, as well as 56 percent of the articles, focused on China's first satellite (there were no images for April 27th paper). These articles did not justify China's first satellite in terms of its benefits for Chinese security or economic development. Instead, China's accomplishment was framed in terms of Mao's leadership and ideology. One article explicitly credited the satellite to China following the leadership of Mao and Lin, "Our people, under the leadership of the great Chairman Mao and Party Central committee headed by Chairman Mao and Vice Chairman Lin as the deputy, holding high the banner of unity and victory of the "Ninth Congress," adhering to the policy of independence and self-reliance, implementing a policy of enthusiasm, and striving for the top."[148] China's success in

[147] Tony Long, "Dec.19, 1958: Ike's Greeting the First Recorded Message from Space," *Wired*, December 18, 2007, https://www.wired.com/2007/12/dec-19-1958-ikes-greeting-the-first-recorded-message-from-space.
[148] People's Daily,《毛主席提出"我们也要搞人造卫星"的伟大号召实现了！我国第一颗人造地球卫星发射成功, 卫星重一百七十三公斤，用二○·○○九兆周的频率，播送《东方红》乐曲》

launching a satellite was also directly tied to the Long March and Mao's emphasis on self-reliance:

> At this joyous moment, 1.2 million Yan'an children listened to "The East Is Red" with their hearts in Beijing. They studied Chairman Mao's great teachings on 'self-reliance' and 'hard struggle' over and over again. They said: Chairman Mao issued a great call for 'self-reliance' in Yan'an, guiding the entire Chinese people to defeat the Kuomintang reactionaries and obtain a great victory in the War of Liberation. After the liberation of the whole country, the revolutionary people of our country followed Chairman Mao's teachings, relied on themselves, worked hard, and built socialism, and made great achievements. When the red satellite goes to the sky, it is the result of doing things according to Chairman Mao's instructions of "self-reliance" and "hard struggle."[149]

Beyond emphasizing Mao's concept of 'self-reliance,' these articles also emphasized how other countries perceived China's accomplishment. One article stated, "This great news has shocked the world, the proletariat and revolutionary people of all countries have rejoiced, and made imperialism, social imperialism and all reactionaries fearful! My country's first man-made earth satellite is attracting the eyes of all mankind."[150] Moreover, coverage of China's prestige success vis-à-vis other countries was framed in ideological language. For example, one article claimed, "The successful launch of our country's first man-made earth satellite has […] extinguished the prestige of imperialism, modern revisionism, and the reactionaries of various countries." Other articles framed China's increasing prestige to China's historical ascent from the Century of Humiliation:

[Chairman Mao's Great Call, 'We Also Want to Build Satellites' has Been Fulfilled! My Country's First Artificial Earth Satellite was Successfully Launched. The Satellite Weighs 173 Kilograms and uses a Frequency of 20.009 Megacycles to Broadcast the Song 'the East is Red'], April 26, 1970.

[149] People's Daily, 《光荣归于伟大领袖毛主席首都军民热烈欢呼我国第一颗人造地球卫星发射成功》[Glory to the Great Chairman Mao, the Military and Civilians in the Capital Warmly Cheered the Successful Launch of my Country's First Artificial Earth Satellite], April 27, 1970.

[150] Ibid.

> As we hail the victory and review the course our motherland has traversed in these short twenty years, we can see what a tremendous change has taken place in the transformation of semi-colonial and semi-feudal old China into a socialist country which has mastered atom and space technology and stands like a giant in the East of the world![151]

Chinese propaganda also explicitly compared the weight of China's first satellite to that of other leading powers, emphasizing that China's first satellite was heavier than the "combined weights of the first man-made satellites launched by the Soviet Union, the United States, France, and Japan."[152] Similarly, another article compared China's success to that of Sputnik, claiming that upon receiving news of the Dongfanghong's success, Chinese soldiers sang, "Sputnik rides on the East wind, the revolutionary people sing praises, Mao Zedong's thought shines on the universe, and the Dongfanghong resounds throughout the world."[153]

Chinese coverage also highlighted external recognition of its prestige accomplishment, reporting praise for China's accomplishment by the People's Republic of Congo, the Algerian Council of Revolution, Mali, Tanzania, the Somali Supreme Revolutionary Council, and Nepal.[154] As these examples illustrate, acts of recognition from the international community are interpreted through a regime's domestic structure. Chinese coverage downplayed potential challenges to China's prestige (i.e., Neil Armstrong landing on the moon), and amplified information suggesting that China was increasing its prestige. As these examples suggest, it is not

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[151] Hung Yu, "Long Live the Great Revolutionary Aspirations of the Chinese people: Celebrating the Successful Launching of China's First Man-Made Earth Satellite," *Peking Review* 23, June 5, 1970: 30.
[152] Ibid.
[153] People's Daily, 《欢呼伟大领袖毛主席的伟大号召实现了欢呼我国第一颗人造地球卫星发射成功》[Cheers to the Great Leader Chairman Mao's Great Call has Come True. Cheers to the Successful Launch of my Country's First Artificial Earth Satellite], April 27, 1970.
[154] Peking Review, "Successful Launching of China's First Man-Made Earth Satellite Warmly Greeted," June 5, 1970, 33-34.

just that other countries recognized China's accomplishment; the regime actively promoted this external recognition to China's public. This control over domestic messaging is absent from traditional accounts of status competition, which view states as simply responsive to information (signals of recognition or competition) from the international system. Instead, as China's coverage of its first satellite suggests, regimes (particularly those with control over the media) can amplify external information that is beneficial to them and downplay information that is not.

Project Shuguang

Although this chapter has focused on the role of prestige narratives in China's first satellite program, it is also necessary to highlight another wildly ambitious, though ultimately failed initiative: China's first attempt at human spaceflight. If pursuing a satellite was overly ambitious during this time, this paled in comparison to the task of sending humans into outer space. Yet from the perspective of Mao's prestige narrative, the ability to send humans into outer space would send an undeniable message that he had 'restored' China's great power prestige. Although satellites were a prestige symbol, China was the fifth country to achieve this feat. Meanwhile, only the United States and the Soviet Union had sent humans into outer space. Thus, human spaceflight constituted an even more exclusive symbol of great power prestige than China's satellite program. The Americans and Soviets had both successfully sent humans into outer space and the Americans had even landed a human on the moon on

July 20, 1969. [155]

Amid the chaos of the Cultural Revolution, Mao sought to also match the United States and the Soviet Union by sending a human into space. Chinese scientists have been interested in human spaceflight since the very outset of China's space program. As early as 1958, the Chinese Academy of Sciences held a series of conferences on human spaceflight.[156] Similarly, inspired by Yuri Gagarin's flight, Qian Xuesen, wrote a book in 1962 advocating for human spaceflight, entitled Introduction to Interplanetary Flight.[157] In 1963, Chinese scientists experimented with sending biological specimens into space, including dogs and albino rats.[158]

Despite this low-level scientific support for human spaceflight, these proposals did not receive leader level support until the mid-1960s. On March 4th, 1966, at a secret meeting of the Committee on Science and Technology for National Defense, a ministry within the State-Council responsible for defense procurement, Chinese Premier Zhou Enlai raised the idea of developing a human spaceflight program.[159] This resulted in a proposal for a human spaceflight program, entitled Project 714, also referred to as Project Shuguang (曙光) or "Dawn's Light" to be sent to the 7th Machine Bureau's Eighth Design Institute.[160]

In 1970, China's leading aerospace experts held a large, private meeting to

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[155] Notably, as discussed in Chapter 2, information from the international environment is mediated through a state's domestic structure. As an authoritarian country, Chinese leaders censored the United States' moon landing—the *People's Daily* did not provide cover Neil Armstrong's landing on the moon.
[156]《张均》[Zhang Jun], 《当代中国的航天事业》[*China Today: Space Industry*] (Beijing: Zhongguo shehui kexue chubanshe, 1986): 19-23.
[157] Qian Xuesen Introduction to Interplanetary Travel. Beijing, Astronautic Publishing 2008.
[158] Zhang Jun, *China Today: Space Industry*: 81.
[159] Gong, *The Inside Story of Chinese Space Policy*: 261-262.
[160] Ibid.

discuss Project Shuguang. This meeting was held in the afterglow of China's successful launch of its first satellite into orbit, and by 1970, Mao, Zhou, and Lin Biao officially approved Project 714.[161] Consequently, the internal debate shifted from whether China should pursue human spaceflight to more concrete concerns about the type of vessel used and the need to establish global tracking, telemetry, remote control, and communication networks.[162] Thus, China's plans for developing a human spaceflight program were no longer merely theoretical—as internal debates focused on the practical requirements needed for establishing a human space program

Nonetheless, the domestic pressure that drove China to invest in Project 714 also proved to be the undoing of China's first attempt at human spaceflight. Mao's efforts to consolidate power over rivals—real and imagined—eventually brought him into conflict with his chosen successor, Lin Biao, during the 'Lin Biao Incident.' Allegedly, Lin, along with several of his family members, died in a plane crash in Mongolia following a failed coup attempt against Mao.[163] Although no one may fully understand the events surrounding Lin's death, the effects of his death on China's space program are apparent. As the Defense Minister, China's human space program fell under Lin's portfolio. Lin's death and the Party's allegation that he had attempted a coup cast doubt and suspicion over officials with close ties to Lin, resulting in purges of many officials who were directly involved in Project 714.[164]

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[161] Ibid.
[162] June 30, 1970 letter from Qian Xuesen to Wangbinghang, Deputy Director of the National Defense Science and Technology Commission. In 《钱学森书信选》[Selected Writings of Qian Xuesen February 1956-December 1991]. (Beijing: guofang chubanshe, 2008).
[163] Jin Qiu, *The Culture of Power: The Lin Biao Incident in the Cultural Revolution*. (Stanford, CA: Stanford University Press, 1999).
[164] Roger Handberg and Zhen Li, *Chinese Space Policy: A Study in Domestic and International Politics*. (New York: Routledge, 2007): 139.

Official Chinese accounts detailing the failure of Project 714 place blame directly on Lin and the 'Gang of Four' for prioritizing politics over the theory of "putting productive forces above everything else."[165] Lin and the other "counterrevolutionaries" are criticized for being guided by the political slogan of "catching up in three years, overtaking in five."[166] These accounts blame Lin for pursuing politically motivated policies, claiming that he "kicked off big projects and over-high targets for the most advanced branches of defense and technology and issued orders in the violation of scientific research."[167] Ironically, despite pinning the blame on Lin and the Gang of Four, Mao was directly involved in approving Project 714. Moreover, Lin and the Gang of Four had worked to promote Mao's power consolidation goals and were a central part of propaganda efforts to promote Mao's personality cult. Therefore, although official Chinese accounts do not explicitly blame Mao, they tacitly recognize the role of domestic political considerations in driving China's pursuit of Project 714.

Financial problems stemming from the Cultural Revolution also proved too challenging to continue funding the human space program. In explaining the end of Project 714, the 7th Machinery Bureau's assistant director, Yang Guoning, exclaimed, "The country was broke! Human spaceflight requires frighteningly large sums of money. Everyone was asking for funds, and both my hands were empty."[168] Mao agreed, dissolving the astronaut corps and declaring that China should "take care of

[165] Zhang Jun, *China Today: Space Industry*: 44.
[166] Ibid.
[167] Ibid.
[168] Gong, *The Inside Story of Chinese Space Policy*: 261.

affairs here on Earth first and deal with extraterrestrial matters a little later."[169] As Mao underscored, investments in costly prestige projects have steep domestic costs and can divert scarce resources from "affairs here on Earth." Ultimately, although the prestige gains of sending a human into outer space may have served Mao's domestic political goals, the instability of the Cultural Revolution proved too destabilizing to support a human space program.

Alternative Arguments

This chapter argued Mao's prestige narrative drove China to divert scarce resources toward pursuing a satellite for domestic gain. However, traditional status arguments would claim that one need not open the "black box" of the state to understand China's behavior. Instead, China's behavior can be explained by the onset of international status competition—the US-Soviet space race. Mao's response to Sputnik and the timing of China's behavior provides suggestive evidence in support of this claim. It is unlikely that China would have pursued a satellite if it was not for the emergence of the US-Soviet space race.

However, beyond demonstrating that status competition provided a catalyst for China's first satellite program, this explanation is only partially useful. It is impossible to understand why China would have competed with the United States and the Soviet Union in the first place without examining Mao's prestige narrative. China's beliefs about its standing and peers are difficult to comprehend without understanding Mao's prestige narrative. Moreover, if the external status competition of the United States

[169] Ibid: 262.

and the Soviet Union was sufficient for catalyzing a space race, then there are several other countries with far more comparable capabilities (to the United States and the Soviet Union) that should have engaged in this competition, than China. Thus, without understanding Mao's domestic legitimation narrative it is puzzling why China rather than more developed economic and military powers sought to compete with the United States and the Soviet Union in outer space.

In addition to traditional status arguments, one could argue that China's space ambitions can be explained by Mao's leadership style or his unique psychological disposition, rather than his domestic prestige narrative. It is important to note that this dissertation's framework does not discount the role of agency or individual leaders. As this chapter illustrated, Mao Zedong and Deng Xiaoping disagreed considerably about the direction of China's space goals, with Mao seeking a satellite by 1959 and Deng favoring the more pragmatic route of first focusing on a sounding rocket. As I will discuss in the following chapter, Deng dramatically reoriented China's space program to focus on space capabilities with more practical applications, rather than a lavish prestige project.

However, as I will demonstrate in Chapter 5, even though Deng may have personally held different beliefs than Mao about the utility of prestige symbols, faced with a new legitimacy crisis, he felt compelled to prove that China was increasing its international prestige. Thus, as I will show later, despite his earlier opposition, Deng ultimately approved China's most ambitious program, its human spaceflight program. Despite having different personal beliefs than Mao, both leaders were impelled by the logic of their domestic prestige narratives.

Conclusion

This chapter examined the origins of China's space program. Although conventional accounts of the Cold War 'space race' depict the competition as a two-member race between the Americans and Soviets, China also sought to compete with these two powers. Considering China's low technological base and economic development, it made little strategic sense for China to divert scarce resources toward a costly space competition with the world's leading military powers.

I argue that this puzzling decision can be explained by Mao's domestic prestige narrative. According to Mao's ideology, through sheer willpower and collective strength, China could overcome seemingly insurmountable odds and catch up with or surpass leading capitalist powers. Following the launch of Sputnik, Mao viewed a satellite project as a powerful symbol that through his ideology and leadership, China was able to 'catch up' to and surpass leading international powers.

Overall, this chapter illustrates the powerful influence of domestic legitimation on shaping state policy. In basing their legitimacy on restoring China's international prestige, Mao and his allies engaged in a costly prestige competition with the United States and the Soviet Union—investing in capabilities that were completely divorced from China's strategic goals and domestic circumstances. The following chapter focuses on the CCP's material-based legitimation project following Mao Zedong's death. Chapter 4 argues that suffering from the legitimacy crisis of the Cultural Revolution, Deng sought to root the CCP's legitimacy through material-based

legitimacy by providing stability and improving Chinese living standards through delivering economic development. As this shift occurred, China focused less on ostentatious prestige symbols, and instead prioritized space technologies with practical applications.

CHAPTER 4

AVOIDING THE LIMELIGHT

As discussed in Chapter 3, under Mao Zedong's leadership, China was determined to compete with the United States and the Soviet Union in outer space. Despite extreme resource constraints and highly unfavorable domestic conditions, China tirelessly pursued international prestige—becoming the fifth country to send a satellite into outer space and even briefly initiated a human spaceflight program. However, China soon abandoned this zealous quest for prestige, and tempered its ambitions. As this chapter details, following Mao's death, China's space ambitions were far more pragmatic. Rather than engage in a "space race," with the most powerful countries, China focused on capabilities with practical economic and security applications.

To explain this change in Chinese space ambitions, this chapter focuses on the changing sources of legitimacy for the CCP after Mao's death. Reeling from the fallout and domestic turmoil of the Cultural Revolution, the CCP sought to pursue a less ideological legitimation narrative—one that focused more on material legitimacy and less on prestige and ideology. Specifically, the Party would legitimate its rule through relying on economic performance and by raising standards of living. Although Deng did not pursue a wholesale abandonment of prestige as a form of domestic legitimacy, the CCP's new narrative would emphasize economic performance, or 'truth by facts,' as the main metric by which evaluate the regime's performance. Thus, as expected in Chapter 2, in its approach to space policy, the CCP was not opposed to prestige enhancement policies; however, it would not pursue projects that were at odds

with other material goals (e.g., economic or security maximizing goals).

As this chapter shows, under Deng Xiaoping's leadership, China drastically altered its priorities in outer space—focusing on capabilities with practical applications than simply focusing on costly prestige projects. Under Deng, China abandoned its human space program, and would instead focus more on capabilities that facilitated development goals, such as earth observation and remote sensing satellites, as well as China's then most ambitious project —a geosynchronous communications satellite. China also launched its largest R&D program—Project 863—to promote development of technologies for military and economic use.

This chapter argues that this pragmatic and material-based legitimation colored every aspect of China's approach to advanced space technologies during this period. Ultimately, however, as Chapter 5 argues, this material-based legitimation narrative proved insufficient, by itself, as a pillar for the CCP's legitimacy. Rapid domestic change accompanying China's economic reforms and a hollowed-out ideological project undermined the CCP's claims to one party rule. Thus, the pragmatism described here proved to be short-lived, as the CCP would once again promote a prestige-based legitimation narrative.

This chapter analyzes changes in China's space ambitions from the beginning of the post-Mao era until 1989 (the Tiananmen Square Massacre). The chapter proceeds as follows. The first section discusses the changing sources of legitimacy under Deng Xiaoping—focusing on the move away from ideological to material-based legitimacy. The second section describes how these alternative sources of legitimacy shaped China's space ambitions during this period. It argues that during this time,

China abandoned strictly prestige-based projects such as its human spaceflight program, in favor of capabilities that increased its economic well-being (communications and remote sensing satellites) and its security interests (developing intercontinental ballistic missiles). The third section assesses the symbolism behind China's geostationary communications satellite and compares it to the coverage of China's Dongfanghong-1 (China's first satellite). The fourth section evaluates alternative explanations, and the last section concludes with a discussion on the role of legitimation in China's space ambitions during this period and sets the stage for Chapter 5.

Legitimacy and Pragmatism in the Post-Mao Era

As discussed in Chapter 2, international prestige is a source of domestic legitimacy. By pursuing costly prestige markers, regimes can provide a powerful symbol to domestic audiences that they are increasing the nation's prestige. However, the steep costs of these prestige projects require diverting resources from other strategic ends—a problem that was especially pernicious for a country with extreme resource constraints such as China at the end of the Cultural Revolution. However, as I argued, when regimes have alternative means by which to legitimate their rule domestically, they will be unlikely to prioritize prestige over other strategic ends.

This section argues that in the post-Mao era, the CCP pursued an alternative strategy to legitimate its rule domestically. Rather than seek to prove that China's ideology had allowed it to 'surpass' foreign imperial powers, Chinese leaders sought to depart from the ideological straitjacket of the Mao era, and legitimate its rule

through material means—by reducing poverty and improving standards of living. Thus, as the following section will demonstrate, although Chinese leaders would not be opposed to enhancing China's international prestige—they would not prioritize the acquisition of prestige markers over advancing its other material interests.

For China, the Cultural Revolution provided a shock to its political system—leading to severe instability and internecine conflict, and economic depression. Once Mao died, the CCP was faced with the strategic choice of continuing Mao's doctrinaire ideological approach to pursue economic reform. The Party ultimately decided to abandon Mao's ideology in favor of Deng Xiaoping's more pragmatic approach to governance.[170]

Although this shift would occur under Deng's leadership, it is important to note that these changes were not simply a product of Deng's unique leadership style or psychological disposition. Although Deng was China's paramount leader at this time (and thus had considerable influence on Chinese policymaking), his leadership and policies would be impossible without broader shifts in Chinese domestic politics. This can be illustrated by the means of a counterfactual: would it have been possible for another leader to have been in power at this time? To empirically disentangle the relationship between individual leaders and their domestic setting, scholarship on individuals typically looks at sudden or unexpected changes in power (i.e., a

[170] Similar to the previous chapters, the analysis of China's legitimation narrative under Deng is based on secondary sources. Most notably, these include Alan R. Kruver, *Legitimating the Chinese Economic Reforms: A Rhetoric of Myth and Orthodoxy*, (Albany, NY: State University of New York Press, 1996); Timothy Heath, *China's New Governing Party Paradigm: Political Renewal and the Pursuit of National Rejuvenation*, (New York, NY, 2014).

leadership turnover following an assassination), or close elections.[171] In comparison, Deng's leadership was not the result of random events, but was dependent upon broader Party support.

Indicative of the Party's support, Deng was promoted by the Party over Mao's designated successor, Hua Guofeng. Following Mao's death, Hua had every intention of continuing Maoist ideology. In his famous, "Two Whatever's" speech, Hua declared that "We will resolutely uphold whatever policy decisions Chairman Mao made, and unswervingly follow whatever instructions Chairman Mao gave."[172] Likewise, seeking to channel Mao's cult of personality, Hua even dressed and combed his hair in the same manner as Mao.[173] Yet despite his official position as Party Chairman, the Party stripped Hua of all his authority.[174] In contrast, Deng Xiaoping was restored to power after having been banished to the countryside by Mao, which would have been impossible without Party support. Moreover, although Deng never formally served as Party Chairman, he acted as the Party's de facto leader until 1992 (when Jiang Zemin assumed power).

Thus, Deng and the policies he enacted were not merely a reflection of his leadership style, but rather reflect a broader change in the Party's outlook and approach to legitimating its rule. Rather than seeking to legitimate its rule through ideology, the Party sought to do so by providing stability and lifting Chinese citizens

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[171] Elizabeth N. Saunders, "Transformative Choices: Leaders and the Origins of Intervention Strategy," *International Security,* 34, no.2 (2009): 119-161; Benjamin F. Jones, "Hit or Miss? The Effect of Assassinations on Institutions and War," *American Economic Journal: Macroeconomics* 1, no.2 (2014).
[172] "凡是毛主席作出的决策，我们都坚决维护；凡事毛主席的表示，我们都始终不渝地遵循."
[173] Martin Helmut, *Cult and Canon: The Origins and Development of State Maoism* (Armonk, New York: M.E. Sharpe, 1982): 52-54.
[174] Dorothy Grouse Fontana, "Background to the Fall of Hua Guofeng," *Asian Survey* 22, no.3 (1982): 250.

out of poverty. To do this, the CCP (under Deng's leadership) would seek to enact the Four Modernizations.[175] The Four Modernizations represented goals for China to strengthen and modernize Chinese agriculture, industry, science and technology, and national defense. For Deng and his allies in the CCP, the Four Modernizations would constitute China's top priority. Implementing the reforms necessary to pursue these goals, however, threatened to undermine the Party's control of power. The Party's legitimacy was closely intertwined with Mao, and the market-oriented reforms Deng and his supporters sought to enact were antithetical to Maoist ideology. Thus, a wholesale abandonment of Maoist ideology threatened the Party's legitimacy; yet reform would not be possible without departing from his doctrinaire ideology.

To solve this problem, Deng and his allies creatively reinterpreted Maoist ideology to justify pragmatic policies.[176] Deng articulated this shift in ideology during a speech at the Third Plenary Session of the Eleventh Central Committee of the Chinese Communist Party in 1978. According to Deng, China would continue to be guided by Marxism-Leninism and Mao Zedong thought. However, he argued for Chinese leaders to "emancipate our minds, use our heads [and] seek truths from facts."[177] First, to 'emancipate' one's mind meant to abandon the doctrinaire interpretation of Maoist ideology promoted during the Cultural Revolution. Second, by calling for "seeking truth from facts," Deng invoked Mao's own words to justify

[175] The Four Modernizations, although most closely associated with Deng, were first proposed by Premier Zhou Enlai in 1963.
[176] Kruver, *Legitimating the Chinese Economic Reforms* (1996); Timothy Heath, *China's New Governing Party Paradigm* (2014).
[177] Deng Xiaoping, "Emancipate the Mind, Seek Truth from Facts, and Unite as One in Looking to the Future," Speech at the Closing Session of the Central Working Conference December 13, 1978: http://en.people.cn/dengxp/vol2/text/b1260.html.

abandoning ideology. Thus, if policies of economic reform improved the livelihood of Chinese citizens, then these 'facts' would provide 'truth' about the utility of the policy. Unlike Mao, who had viewed China's low-level of economic development as something China could radically 'leap' beyond, China would adopt policies that allow it to advance the four modernizations under China's "actual conditions [emphasis added]."[178] This was important, because as Deng argued, unless Party members 'emancipated their minds,' China would be unable to eliminate "poverty and backwardness or to catch up with—still less surpass—the advanced countries."[179] From the perspective of prestige, this statement is important, because unlike Mao's goal of 'surpassing' advanced countries, Deng acknowledges that China's poverty could make China unable to even 'catch up' with the advanced powers. Moreover, Deng used this prestige framing to delegitimize Maoist ideology, indicating that if China did not pursue a more pragmatic approach, it would be unable to match the 'advanced countries.'

To allow the Party to adopt this new pragmatic approach without a wholesale abandoning Mao, Deng blamed the excesses of the Cultural Revolution on the "phony Marxism" of Lin Biao and the Gang of Four. In evaluating Mao, Deng would argue that the "great contributions of Comrade Mao in the course of the long revolutionary struggles will never fade," and that it is "no exaggeration to say that were it not for Chairman Mao there would be no New China."[180] Yet while hailing Mao's achievements, Deng noted that even Mao—the individual—was not beyond criticism.

[178] Ibid.
[179] Ibid.
[180] Ibid.

According to Deng, "Of course Comrade Mao was not infallible or free from shortcomings. To demand that of any revolutionary leader would be inconsistent with Marxism," that Mao's legacy should be viewed "scientifically and in historical perspective."[181] By separating Mao the individual from Maoist thought and Marxism, Deng paved the way for pragmatism and policies of reform to be pursued without completely abandoning Mao.[182]

Thus, while the Party did not entirely abandon Maoist thought or Marxism-Leninism, ideology would no longer serve as the dominant basis of the Party's legitimacy. Instead, the Party would stake its legitimacy in its ability to lift Chinese citizens out of poverty. For Deng, the goal would be for China to build a "moderately prosperous society" (小康社会), which would lift Chinese citizens out of poverty and into the middle-class.[183] Unlike Mao, who needed a powerful symbol that China was achieving the impossible—radically transforming its material circumstances and surpassing leading capitalist powers—China's goals would be much more modest. Instead, the Party would legitimate its rule through improving the material circumstances of the domestic population and allowing it to become a 'moderately prosperous society.'[184]

Toward building this 'moderately prosperous society,' under Deng's

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[181] Ibid.
[182] See Kruver, *Legitimating the Chinese Economic Reforms,* 1996
[183] On the concept of 小康 in Chinese political discourse, see Craig A. Smith, "Datong and Xiaokang" in Ed. Christian Sorace, Ivan Franceshini, and Nicholas Loubere, *Afterlives of Chinese Communism: Political Concepts from Mao to Xi*, (Canberra, Australia: Australia National University Press, 2019).
[184] 张爱茹》[Zhang, Airu], 《从"小康"到"全面小康"——邓小平小康社会理论形成和发展述论》[From a 'Well-off Society' to a 'Well off Society in an All-around Way'—On the Formation and Development of Deng Xiaoping's Theory of a Well-off Society] *People's Daily*, July 14, 2014: http://cpc.people.com.cn/n/2014/0714/c69113-25279758.html.

leadership, China pursued several economic reforms. Some of the most notable reforms included dismantling communes, and establishing the household responsibility system, which allowed Chinese citizens to contract land from the state and sell produce for profit. As part of these reforms, China began eliminating the so-called "iron rice bowl"—guaranteed job security and income. Moreover, China began reforming its State-Owned Enterprises, allowing some private and joint ownership. In addition, China would begin what has been dubbed the 'Open Door' policy, to open China to foreign trade and investment, establishing special economic zones where it would relax government control to encourage foreign trade and investment.[185]

This slew of economic reforms was designed to increase Chinese economic growth and standards of living. Therefore, although the CCP continued to use the language of Marxism-Leninism, the Party's new basis for legitimation was no longer ideology but based on increasing individuals' living standards. However, although these reforms provided a powerful engine for economic growth, they would also create a new host of domestic challenges (which will be discussed in Chapter 5) ranging from corruption to pollution. Furthermore, although China's Open-Door policy would attract foreign investment and trade, it would open China to foreign ideas and values—briefly leading to the Anti-Spiritual Pollution Campaign, led by conservative factions in the CCP seeking to stymie foreign influence.[186] Moreover, as Chinese leaders discovered during the protests at Tiananmen Square in 1989, this influx of

[185] Leonard Silk, "Economic Scene; The Open Door Policy in China," *The New York Times*, September 27, 1985.
[186] Shu-Shin Wang, "The Rise and Fall of the Campaign against Spiritual Pollution in the People's Republic of China," *Asian Affairs: An American Review* 13, no.1 (1986): 47-62.

foreign ideas and broader social changes in Chinese society led to increasing calls for democratization. And although the party was ready to abandon ideological legitimation for economic reform, it was not prepared to legitimate its rule through democratic elections.

Overall, as discussed in Chapter 2, during periods of crisis, regimes may alter their legitimation strategies. Similarly, as this section has detailed, following Mao's death and the fallout from the Cultural Revolution, Deng Xiaoping sought to chart a new course for the Party—one that drew upon economic reform, but eschewed Mao's doctrinaire commitment to ideology. As this section discussed, this change was not simply reflective of Deng's unique personality traits but enjoyed broader support within the CCP. This task of abandoning Mao's cult of personality in favor of a pragmatic, reformist agenda was no easy task. It required distancing the Party from Mao's cult of personality, without a wholesale abandonment of Maoist thought. Instead, Deng reinterpreted Maoist thought to justify a pragmatic philosophy of "seeking truth from facts."

This shift away from ideological legitimacy, centered around Mao's cult of personality, would allow the Party to seek material-performance based legitimacy. Rather than radically leaping beyond China's material circumstances to surpass the imperialist powers, China would make policies based on its "actual conditions." This change in the Party's legitimation strategy is important, because as the CCP sought to legitimate its rule through material means, it would no longer prioritize prestige enhancement over other goals (such as facilitating economic reform). As the following section details, under this material-based legitimation strategy, the CCP would no

longer pursue lavish prestige projects in outer space but would rather seek capabilities with clear practical applications for promoting China's economic development.

The Pragmatic Turn in Chinese Space Policy

As described in Chapter 3, under Mao, China pursued some of the most ambitious and technologically difficult space projects a state could pursue. Despite extreme resource constraints, Mao pursued capabilities on par with those of the United States and the Soviet Union—successfully launching a satellite program in 1970, and even initiating a human space program. Although these lavish projects made little sense from an economic or security perspective, they served to legitimate Mao's domestic rule—demonstrating that by following Mao's leadership, China could radically transform its material circumstances and match the technological capabilities of the world's leading capitalist power—the United States. In contrast, under Deng's leadership, the CCP moved away from ideology to legitimate its rule. Instead, the CCP sought to legitimate its rule by increasing the population's material well-being through instituting economic reforms.

As discussed in Chapter 2, when regimes rely on alternative sources of legitimacy (non-prestige narratives), they are less likely to prioritize prestige projects over other strategic capabilities. Similarly, departing from Mao's legitimation strategy, the Party could no longer justify diverting scarce resources away from economic development and security maximization in the pursuit of great power prestige. That Chinese leaders prioritized these strategic goals (economic and security maximization) is not to suggest that China was entirely opposed to increasing its prestige. However,

if goals of economic development or security maximization were in tension with prestige enhancement, China would choose the former. This approach is perhaps best encapsulated by Deng's dictum that China "avoid the limelight" (韬光养晦). This low-profile approach stood in stark contrast to Mao's attempts to keep pace with the technological modernization of the United States and the Soviet Union. Similarly, in the realm of space policy, Deng no longer sought to compete with the United States and the Soviet Union. Instead, such outlandish goals were criticized, with blame placed squarely on Lin Biao and the Gang of Four. This criticism of grandiose prestige projects is provided in the first official history of China's space program (which was written during the Deng era):

> In the days when 'Office of the Military Commission' was in the hands of the Lin Biao counter-revolutionary clique, they kicked off big projects and over-high targets for the most advanced branches of defense top technology and issued confused orders in violation of the laws of scientific research […] In 1970, they put forward a slogan of "Catching up in three years and overtaking in two." That is China would catch up with the advanced international levels in the first three years of the Fourth Five-Year Plan (1971-1975) and pass them in the remaining two years. Consequently, a space development program that was completely divorced from reality […] such a gigantic plan was far beyond China's capabilities [Emphasis added].[187]

As this quote underscores, the CCP no longer viewed such "big projects" with goals of quickly surpassing advanced international powers as feasible, claiming that such ambitions "violated the laws of scientific research." Furthermore, similar to the CCP's broader efforts to distance the Party away from Mao's doctrinaire ideology, Party officials blamed these "big projects" on Lin and the Gang of Four—rather than Mao.

In perhaps the clearest articulation of this prioritization of practical capabilities

[187] Zhang Jun, *China Today: Space Industry*: 58.

over prestige projects, in 1978 Deng declared, "As far as space technology is concerned, we are not taking part in the space race. There is no need for us to go to the Moon, and we should concentrate our resources on urgently needed and functional practical satellites."[188]

Consistent with this statement, Deng drastically reoriented China's space activities in a more pragmatic direction. One of the first causalities of Deng's new approach was China's human spaceflight program. Although Project Shuguang had never fully recovered since Lin Biao's purge—from lack funding and attention—Deng officially cancelled Project 714.[189] Although low-level research into human spaceflight would continue throughout the 1980s, it was not until 1992 that Chinese leaders would officially support a human spaceflight program. More broadly, beyond canceling China's human space program, Deng also drastically reduced financial support for China's broader space efforts. Underscoring these changes to China's space industry, a common joke during this time was that scientists in China's space program earned less money than an egg vendor.[190] These changes in Chinese spending were not just limited to China's space industry. Under Deng, China also substantially reduced military spending, as it was downgraded to the last of the Four Modernizations.[191]

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[188] China Aerospace Science and Technology Corporation, 《邓小平理论引领我国航天运载事业、空间事业前进发展》[Deng Xiaoping Theory Leads the Development of my Country's Space Industry], August 25, 2004: http://www.spacechina.com/n25../n2014789/n2014804/c54075/content.html.
[189] Gong, Inside Story of China's Space Program: 262.
[190] Yanping Chen, "China's Space Policy" (1991): 125.
[191] Tai Ming Cheung, "Disarmament and Development in China: The Relationship between National Defense and Economic Development, *Asian Survey*, 28, no.7 (1988): 757-774.

Beyond downsizing China's space ambitions and canceling its human space program, China also pursued capabilities with more practical functions. The top priorities of the CCP leadership were to use missile and space capabilities to increase Chinese security and promote economic development, regional connectivity, and education. China could benefit immensely from satellite technologies, such as remote sensing satellites. Remote sensing satellites measure emitted radiation to monitor an area's physical characteristics.[192] With these capabilities, remote sensing satellites provide several potential socioeconomic benefits, such as identifying potential water sources, oil prospecting, or environmental monitoring.

Perhaps most importantly for China at this time, remote sensing satellites could provide useful meteorological data for China's predominately agricultural economy. Although many of China's most disastrous famines of the past decade were man-made in origin (i.e., the policies of the Great Leap Forward), China's food supply had long been threatened by weather-related disasters—from severe flooding to droughts. Considering the dependence of China's predominately rural population and economy on agriculture, satellite technologies, such as remote sensing satellites could benefit China considerably more than grandiose projects such as human spaceflight. As such, in 1978 China would launch retrievable experimental remote sensing satellites in 1978. Building on these successful experiments, China launched three additional remote sensing satellites between 1982-1984.[193]

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[192] "What is Remote Sensing and What is it Used For," United States Geological Survey, https://www.usgs.gov/faqs/what-remote-sensing-and-what-it-used?qt-news_science_products=0#qt-news_science_products.
[193] Zhang Jun, *China Today: Space Industry*: 75.

Beyond launching these remote sensing satellites into outer space, in the post-Mao era, the three most important projects for China's missile and space program would be to: 1) launch an intercontinental ballistic missile (ICBM) into the Pacific Ocean; 2) launch an ICBM from a submarine. The first two of these goals served a clear security function. The ability to launch missiles from a submarine or into the Pacific Ocean, meant that China could credibly threaten nuclear retaliation against regional adversaries, or attack the US military bases in Japan or Guam. Thus, unlike China's first satellite, which purely served domestic propaganda purposes, these capabilities—although not as flashy as sending a human into outer space—would enhance Chinese security by providing it a credible deterrent.

In pursuing these ICBM capabilities, it is important to highlight how China's earlier prestige pursuits had undermined these efforts. Although any improvement in rocket technology would theoretically benefit China's efforts to build an ICBM, China's first satellite significantly delayed China's efforts to build an ICBM. As may be recalled in Chapter 3, when establishing the Fifth Academy, China's primary goal was to develop a nuclear deterrent by building a nuclear weapon and a delivery vehicle for it. However, China would soon divert resources toward pursuing a satellite and (briefly) a human space program. These pursuits had significant ramifications into the requisite research for developing an ICBM. For launching an ICBM would need to develop the requisite telemetry and ocean-going vessels to track the launch.

Another important area where China was lagging behind was in research and development into solid-fueled propellant. Liquid fueled propellants, which China had used to launch its first satellites, were not ideal for developing a mobile ICBM. A

solid-fuel propellant would allow for mobile launch capabilities and thus provide a more difficult target for a preemptive strike. Although China had approved research into a two-stage solid fueled rocket in 1967, it would not receive sufficient RND until after the launch of the Dongfanghong. By 1977, when China would again prioritize this capability, little scientific progress had been made in the preceding decade.[194] China would ultimately succeed in this goal, launching an ICBM in the South Pacific Ocean on May 18, 1980. China would also accomplish its second goal of launching a solid-fuel missile from a submarine on October 12, 1982.

China's third and most ambitious project in the post-Mao era was the development of its first geostationary communications satellite—Project 331. Of these three goals, China's most ambitious and technologically complex goal was its first geostationary communications satellite. Communications satellites allow for relaying information (e.g., radio, phone calls, television) between two different spots on Earth. A geostationary communications satellite allows for covering broader swaths of territory and constitutes a particularly challenging goal because these satellites must be placed in into geosynchronous orbit (GEO). GEO is the orbital trajectory that matches the rotation of earth on its axis. As objects in this trajectory are synchronized with the Earth's rotation, they appear 'fixed' to a particular location. This is important for enabling communications so that information can be reliably transmitted to and from a given location. However, because GEO is thirteen times further away than Low Earth Orbit (LEO), it requires added lift and heavy thrust rockets for objects to reach this

[194] Ibid: 48.

more distant orbital trajectory.[195] Although China had sent a rocket into LEO, it had yet to send a rocket into this orbital trajectory.

Although the ability to send a geosynchronous communications satellite into outer space was technologically difficult and thus provided a marker of prestige, unlike human spaceflight or the Dongfanghong satellite, this prestige marker served practical, developmental functions. A communications satellite would enable rapid communication among Beijing and distant provinces within China's expansive territory and complex topography. Thus, the ability to communicate with more distant provinces served regime interests by promoting integration between China's center and periphery—and, thus, facilitating state-building. A communications satellite would also further Deng's other developmental goals of improving education for those in more rural provinces. This was a particularly important goal for Deng following the Cultural Revolution, as the Cultural Revolution represented one of the largest disruptions of higher education in world history.[196] Specifically, the Cultural Revolution devastated the talent pool for China's space program. According to one Chinese source, "Education was seriously disrupted during the ten riotous years. All the vocational schools under the space industry were closed down. In addition, there was no source of college graduates. This resulted in a serious shortage of successors to the ranks of technical personnel."[197] Thus, for Deng, restoring China's educational system was a top priority. With a communications satellite, China could pursue mass

[195] "Popular Orbits 101," *Aerospace Security: A Project of the Center for Strategic and International Studies*, October 26, 2020: https://aerospace.csis.org/aerospace101/popular-orbits-101.
[196] Julia Kwong, *Cultural Revolution in China's Schools, May 1966-April 1969* (Stanford, California: Hoover Institution Press, 1988).
[197] Zhang Jun, *China Today: Space Industry*: 50.

education through broadcasting educational lessons.

China's plan for a geostationary communications satellite was first approved by Mao just before his death. Although the project was approved first by Mao rather than Deng, like Mao's other decisions, Deng could have pushed China to disband this project as he had with Project 714. However, Deng understood that unlike human spaceflight, a communications satellite had practical functions for advancing China's developmental goals. Therefore, unlike China's human spaceflight program, Deng saw a practical use for a geostationary communications satellite, and thus continued to support the project.

This new pragmatic approach to space policy also shaped Chinese decisions about how to best acquire a communications satellite. In contrast to Mao's emphasis on 'self-reliance,' rather than develop the satellite domestically, Deng initially sought to purchase a communications satellite from the United States. Although purchasing a satellite would not yield the same propaganda value as indigenously developing a communications satellite, domestic prestige was not Deng's top priority. By purchasing a communications satellite from the United States, China could reap the tangible benefits of a satellite even if it would not quite enjoy the same symbolic benefits of Mao's emphasis on self-reliance.

It is important to recognize that Deng's plans to purchase a communications satellite from the United States would not have been possible in the absence of a broader improvement in the US-China bilateral relationship. After Nixon's 1972 visit, the United States and China had pursued rapprochement and moved to normalize relations. In the context of US-China rapprochement, China was able to consider

cooperation in a manner that had not been possible under Mao. More broadly, the 1980s would represent the high mark of US-China cooperation in outer space. The United States and China would both allow delegations to visit each other's space programs—providing American and Chinese visitors a rare glimpse into each other's space sectors.[198] Nonetheless, after approaching the Americans, the Chinese side grew impatient at the slow pace of negotiations and ultimately decided to develop the project indigenously.[199]

Ultimately, China successfully launched its first geostationary communications satellite on April 8, 1984, and the satellite would reach geosynchronous orbit by April 16th. Demonstrating the practical applications of this satellite, China broadcast CCTV to citizens in Xinjiang and China's State Councilor and Defense Minister Zhang Aiping called Party Secretary for the Xinjiang Autonomous region, Wang Enmao. Thus, similar to Chinese ICBMs, China's geostationary satellite served a clear strategic purpose—in allowing communications and promoting integration of Chinese territories.

To summarize, as this section has argued, after departing from Mao's heavy reliance on ideolog, the CCP focused on a material-based legitimacy, seeking to legitimate its rule by improving standards of living for Chinese citizens. Drawing on this new source of legitimacy, the CCP did not need a lavish prestige project to demonstrate that it was surpassing, the most technologically advanced foreign powers (as Mao had sought to do). Instead, the CCP sought to use space capabilities to

[198] Zhihui Zhang and Bruce Seely, "A Historical Review of China-U.S.-Cooperation in Space: Launching Commercial Satellites and Technology Transfer, 1978-2000," *Space Policy* 50, no.1 (2019).
[199] Kulacki and Lewis, "A Place for One's Mat": 16.

promote its domestic agenda—implementing the Four Modernizations—and lifting Chinese citizens out of poverty. Although CCP leadership was not opposed to prestige enhancement, they would not support projects that diverted resources from its economic or defense modernization.

With this new legitimation strategy, Deng canceled China's most ambitious prestige project—its human spaceflight program (Project 714) and decreased the funding for China's space program—arguing that China would not take part in a 'space race.' No longer seeking purely symbolic prestige goods, the Party pursued space capabilities that enhanced its security and economic interests. After diverting funds toward the Dongfanghong, China developed a two-stage solid-fuel rocket that allowed it to launch an ICBM into the South Pacific Ocean and from a submarine. Thus, no longer diverting funds toward domestic prestige projects, China was able to enhance the credibility of its nuclear deterrent.

Furthermore, China invested in satellites with practical applications, such as remote sensing satellites. China's most ambitious satellite capability of this time—its geostationary communications satellite—would be used to connect distant Chinese provinces and to promote education. Although China would ultimately develop this satellite indigenously, emblematic of this new pragmatism, China briefly considered purchasing a satellite from the Americans. Last, although it would not reap benefits until much later, it was in this environment that China launched its massive R&D program—Project 863—to focus on developing advanced strategic technologies. Thus, although China may have downsized its space program in the post-Mao era, it pursued capabilities that were much more in line with its material circumstances, and

which provided tangible material benefits in the form of economic and security enhancement. Therefore, owing to the CCP's new material-based legitimation strategy, China pursued an optimal modernization of its space sector.

In explaining why China suddenly moderated its space ambitions under Deng, one could possibly argue that it was changes in China's international environment rather than its domestic politics that drove Chinese space policy. After the Americans 'beat' the Soviets to the moon in 1969 and following US-Soviet cooperation during the Apollo-Soyuz Test Project in 1975, the 'space race' between the Americans and Soviets was beginning to wind down. Thus, from the perspective of traditional status arguments, China no longer pursued these lavish prestige projects because external status competition had ended. However, although changes in China's external environment—the dwindling of the US-Soviet 'space race'—cannot be discounted, it is then difficult to explain why China would, once again, pursue costly prestige projects such as human spaceflight. As will be discussed in the following chapter, China would revive its human space program outside the competitive environment of the Cold War and nearly 17 years after the Apollo-Soyuz program (which supposedly ended the US-Soviet space race). Arguments that China's pursuit of prestige was influenced by perceptions of external status competition cannot account for why China would restart its most ambitious prestige project in 1992.

Symbolism and Domestic Messaging

As this chapter has argued, following Mao's death, the CCP shifted its legitimation strategy away from Mao's doctrinaire ideology. Instead, the CCP would seek a

material-based legitimacy—reinterpreting Maoist ideology to justify economic reforms. Thus, as this chapter has argued, although the CCP was not opposed to enhancing its prestige, when prestige enhancement and material enhancement were at odds, the CCP would favor policies that enhanced its material welfare. As such, the CCP abandoned purely prestige-based projects such as human spaceflight, and instead pursued projects that advanced its developmental and security goals.

To illustrate the differences in how the CCP understood these projects in comparison to more purely prestige-based project, this section examines the CCP's domestic coverage of its largest project during this time—China's geostationary satellite—and compares it to Chinese domestic coverage of its first satellite. As discussed in Chapter 3, almost every aspect of China's first satellite project was tied to Mao's personal legitimacy and ideology. The entire design and function of China's first satellite served to enable the satellite to be "seen" and "heard." Rather than serving any scientific function, China's first satellite served no function other than to play a propaganda song hailing Mao—the 'East is Red.' Moreover, as discussed in Chapter 3, it was similarly important for Party propaganda to emphasize the weight of its first satellite, emphasizing that it was heavier than the first satellites of the Americans, Soviets, French, and Japanese combined.

In contrast, China's first communications satellite did not have any of these unnecessarily flashy or symbolic characteristics. Unlike the Dongfanghong-1, China's first geostationary communications satellite—the Dongfanhong-2, had practical functionality—it allowed China to directly communicate with and broadcast television shows to individuals throughout China. It is also worth comparing the domestic

coverage (in the *People's Daily*) of China's geosynchronous communications satellite to its first satellite. For example, although China's first satellite had made up nearly 21 percent of articles in one day's coverage and 55 percent of the coverage the following day (including the front two pages of the April 26th paper and the front 3 pages of the April 27th paper), China's communications satellite, while appearing on the front page, only made up approximately 7 percent of the articles. The bulk of these articles were featured in the middle of the paper, rather than front, suggesting that the regime viewed it as having less propaganda value than its first satellite.[200] In its coverage of China's geostationary communications satellite, the *People's Daily* highlighted the satellite's practical applications. One article stated that a communications satellite would "develop its own science, culture, and education, and strengthen the construction of remote areas."[201] Another article described the practical functions of a communication satellite "which can carry several channels of TV and thousands of channels of telephone." The article similarly emphasized the "low costs" for communications satellites, noting that "The cost of satellite communication systems does not increase with the increase in communication distance," and noting that "the cost is still decreasing."[202] In comparison, coverage of China's Dongfanghong-1,

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[200] It is important to note that later versions of the *People's Daily* contained a greater number of articles total, thus decreasing the total volume of articles devoted to a particular topic. Nonetheless, even with the increased number of articles, the differences were stark. The April 27, 1970 paper (covering China's first satellite) presented 15/27 articles on the project (with the bulk of these at the beginning of the paper). In comparison, on the April 19, 1984 *People's Daily*, only 7/89 articles were devoted to China's geosynchronous communications satellite.

[201] 陈祖甲 [Chen Zujia]:《新的飞跃　新的起点——我国发射试验通信卫星述评》 [New Leap: New Starting Point: Review of my Country's Launch of Test Communication Satellite], *People's Daily*, April 25, 1984.

[202]《匡永成》[Kuang Yongcheng], 《卫星通信好处多》 [Satellite Communications Have Many Benefits], *People's Daily*, April 26, 1984.

while discussing the many symbolic attributes of China's first satellite, did not discuss its practical applications, nor did it discuss financial costs. That domestic coverage of China's geostationary satellite focused on its costs and practical applications suggests that rather than seeking to indicate that China was 'surpassing' Western imperialist powers, the CCP wanted to communicate how the program would improve China's material conditions.

Deng's primary campaign was implementing the Four Modernizations. This was reflected in the domestic coverage of the event, with the majority of *People's Daily* articles covering China's first geostationary communications satellite linking the accomplishment to the Four Modernizations. For example, one article argued that China's successful communications satellite would "greatly inspire and encourage hundreds of millions of people to work together to accelerate the realization of four modern steps."[203] Another article claimed, "The success of this test is of great significance. It will play an important role in promoting the construction of my country's four modernizations [.]"[204] As this coverage indicates, similar to the Dongfanghong-1, coverage of China's geostationary communications satellite tied the project to the Party's domestic agenda—in this case, improving the material circumstances of China's population.

Similarly, domestic coverage of the accomplishment used the project as

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[203] 《柯子；何黄彪》[Ke Zi; He Huangbiao], 《我国同步卫星功能良好：北京与乌鲁木齐童话清晰:乌鲁木齐人民看到了中央电视台节目》[My Country's Synchronous Satellites Functions: The Fairy Tales Between Beijing and Urumqi Are Clear the People of Urumqi Have Seen CCTV Programs], *People's Daily*, April 19, 1984.

[204] 陈祖甲 [Chen Zujia]:《新的飞跃　新的起点——我国发射试验通信卫星述评》 [New Leap: New Starting Point: Review of my Country's Launch of Test Communication Satellite], *People's Daily*, April 25, 1984.

evidence to vindicate China's new approach to economic development. One article stated, "as long as we give full play to the superiority of the socialist system, we will surely be able to overcome economic and technological forces. Weak and temporary difficulties have found a path suitable for my country's national conditions to develop cutting-edge science and technology [emphasis added]."[205] It is important to note that this article emphasizes that China's approach to modernization is "suitable [… for China's] national conditions." Thus, in contrast to Mao's approach on radically leaping past China's material circumstances and surpassing imperialist powers, China's development would be best served by adopting a more gradual approach consistent with its "actual conditions."

Furthermore, domestic coverage of China's first geostationary communications satellite, also tied the accomplishment to other elements of Deng's domestic agenda, such as restoring the role of scientists and intellectuals—after their persecution during the Cultural Revolution. For example, following the launch of China's first communications satellite, one article stated, "The Party's policy for intellectuals creates favorable conditions for scientific and technical personnel in work, life, and study, allowing them to give full play to their ingenuity."[206] After the shock of the Cultural Revolution on China's education system, these "favorable conditions" suggest that the Party used the success of its geostationary communications satellite as evidence that this new approach toward intellectuals better served Chinese interests.

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[205] People's Daily, 《航天事业的新飞跃（社论）--热烈祝贺我国同步卫星发射成功》[A New Leap in the Aerospace Industry (Editorial)—Congratulations on the Successful Launch of my Country's Synchronous Satellite], April 19, 1984.
[206] Ibid.

Similarly, another article stated, "This team [Chinese scientists] on the front of the defense technology industry is our party and our army. A very valuable force. We should better implement the intellectual policy and give full play to their intelligence."[207] Beyond restoring the role of scientists and intellectuals, China's successful launch was used as evidence to justify following Deng's reforms and continuing the policy of 'Reform and Opening.' For example, one Chinese source argued that China still lagged behind the rest of the world in many areas, and in order for China to keep up, it was "essential for China to persist in reform and opening up.'[208]

Although domestic coverage of China's geostationary satellite focused more on the practical applications of the satellite and connected it with Deng's domestic priorities of implementing the Four Modernizations and restoring the role of scientists and intellectuals. However, there were also elements of continuity between coverage of China's geostationary communications satellite and its first satellite. As argued in Chapter 2, although regimes may no longer prioritize prestige enhancement over advancing other material interests, they will not oppose policies that increase their nation's prestige. Similarly, although domestic coverage of China's geostationary satellite emphasized its material uses, this coverage also described the accomplishment in terms of prestige. For example, one article argues that because of its successful geostationary satellite, China had gained membership in an exclusive club, including

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[207] 《段文华》[Duan Wenhua], 《鼓舞全党全军全国人民实现四化总目标庆祝试验通信卫星发射成功大会隆重举行》[Encourage the Whole Party, the Whole Army and the People of the Whole Country to Achieve the General Goal of the Four Modernizations], *People's Daily*, May 1, 1984.
[208] Zhang Jun, *China Today: Space Industry*: 80.

the United States, the Soviet Union, and the European Union.[209] Similarly, another article notes that "there are only a few in the world that rely on their own technical strength to design and launch communication satellites" and that while there is still a gap between China and advanced countries, China's communication technologies are close the world's advanced levels.[210] Unlike coverage of the Dongfanghong, these articles acknowledged that there was still a gap between China and the "world's advanced levels." However, it is important to note that although these articles acknowledge the existence of a "gap," the "world's advanced levels" still serve as the comparison point for measuring China's prestige. This is important to emphasize because it suggests that even in the Deng era, China's reference point remains the world's most powerful countries—a fact that is at odds with China's material position at the time. The dissonance between Chinese perceptions of its reference group and that expected by conventional status scholarship is stark.

Beyond highlighting the role of domestic prestige, there were additional parallels between coverage of the Dongfanghong-1 satellite and China's first geostationary telecommunications satellite. An important goal for leaders throughout modern Chinese history stems from the sheer size of Chinese territory, with Chinese leaders constantly worried about the fragmentation of Chinese territory. Thus, a similar theme in China's coverage of geostationary communications satellite and its first satellite is the emphasis on domestic unity. However, although coverage of

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[209]《炳辰 》[Bing Chen], 《太空中多少颗同步通信卫》[How Many Synchronous Communication Satellites in Space]，*People's Daily*, April 20, 1984.

[210] 陈祖甲 [Chen Zujia]:《新的飞跃　新的起点——我国发射试验通信卫星述评》 [New Leap: New Starting Point: Review of my Country's Launch of Test Communication Satellite], *People's Daily*, April 25, 1984.

China's first satellite and its communications satellite both emphasized the theme of unity, they both suggested different pathways to promoting it. Coverage of China's communications satellite emphasized the practical ways in which the satellite promoted connectivity between China's center and periphery. For example, considering the importance of China's first satellite for transmitting phone calls and television shows to distant Chinese provinces, articles described how after launching the satellite, State Councilor and Defense Minister, Zhang Aiping, called the CCP Party Secretary for Xinjiang, Wang Enmao, and how people in Urumqi were able to watch CCTV news programs.[211]

Overall, when comparing the symbolism and domestic messaging behind China's first geostationary communications satellite to its first satellite project, a few themes emerge. Unlike China's Dongfanghong-1, coverage of China's geostationary communications satellite was not framed in the language of ideology, nor was it tied to the charisma of individual leaders such as Mao and Lin. Furthermore, although this coverage emphasized familiar themes of domestic unity and prestige, the majority of this coverage focused on the practical applications of these satellites. However, although domestic coverage of China's geostationary communications satellite did not focus on ideology, this project was used as evidence to justify implementing the Four Modernizations and Deng's broader policies of economic reform. More broadly,

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[211] 《柯子；何黄彪》[Ke Zi; He Huangbiao], 《我国同步卫星功能良好：北京与乌鲁木齐童话清晰:乌鲁木齐人民看到了中央电视台节目》[My Country's Synchronous Satellites Functions: The Fairy Tales Between Beijing and Urumqi Are Clear the People of Urumqi Have Seen CCTV Programs], *People's Daily*, April 19, 1984;
People's Daily,《广播电视部等单位电贺我国同步通信卫星发射成功》[The Ministry of Radio and Television and Other Units Congratulate my Country on the Successful Launch of China's Synchronous Communication Satellite, April 27, 1984.

unlike China's first satellite, China's first geostationary satellite served practical functions, rather than simply serving propaganda purposes. As illustrated by the symbolism and domestic messaging surrounding this project, although the CCP was not opposed to prestige enhancement—and even sought to gain some marginal prestige benefits—the CCP primarily viewed this project as aimed at facilitating China's broader domestic goals of promoting the Four Modernizations—and thus contributing to the CCP's material legitimacy.

Alternative Arguments

This chapter argued that following Mao's death, the CCP under Deng departed from Mao's prestige narrative. As Deng was not bound by Mao's prestige narrative, he could focus on capabilities with more practical applications. However, traditional status arguments could argue that China's change in policy derived less from its change in sources of domestic legitimacy and, instead, reflected the decreasing salience of status competition at the international level. From this perspective, when the space race 'ended'—when the United States and Soviet cooperated during the Apollo Soyuz test project—outer space no longer represented a salient domain for states to compete for prestige.

By looking at the evidence from this chapter alone, it is difficult to rule out this alternative argument. Mao's death (1976) and the political fallout from the Cultural Revolution as well as Deng's rise to power (1978-1979) corresponded closely with the timing of the 'end' of the space race—the Apollo-Soyuz Test Project (1975). Based on

the evidence from this chapter alone, it is difficult to adjudicate between domestic or external based explanations.

Yet there are reasons to be skeptical that China's behavior reflected changes in external status competition. Although the United States and Soviet Union had signaled that they were reducing competition or informally recognizing the equality of one another, neither party had recognized China's status. Thus, the Apollo-Soyuz project should not have satiated China's prestige ambitions, and thus it is unclear why US-Soviet cooperation would signify the 'end' of the space race. Alternatively, it could be argued that the US-Soviet cooperation signified that to Chinese leaders the space race was over, and that China had 'lost.' However, as I will discuss later, this stands in stark contrast to the evidence in Chapter 5. If China viewed the space race as 'over' in 1975, it is puzzling why almost 17 years later (and following the end of the Cold War) China would, once again, pursue large-scale prestige projects.

In addition to status arguments, one could counter that China's newfound pragmatism was motivated by changes in China's leadership rather than changes in China's domestic legitimation narrative. There is some truth to this claim. Mao's distinctive personality and consolidation of power had an undeniable effect upon Chinese policymaking. Likewise, in contrast to Mao, Deng was far more pragmatic, as underscored by his famous aphorism, "It doesn't matter whether a cat is black or white, as long as it catches mice." However, as the next chapter discusses, although Deng might have personally opposed grand and lavish prestige policies, ultimately concerns over domestic legitimation drove him and the Party to adopt a prestige narrative and approve China's most ambitious prestige project to date—its human

spaceflight program.

As I will argue in the following chapter, the CCP soon realized, they could not rely on economic development alone to legitimate their rule domestically. Although the economic reforms promoted by Deng increased economic development, they also created a host of new social problems that would plague China throughout the Reform Era. Coupled with a hollowed-out ideology, the CCP would face a severe legitimacy crisis, leading it to once again seek alternative sources of legitimacy. As Chapter 5 details, the CCP once again sought to legitimate its rule through a prestige narrative, engaging in state-led nationalism and drawing upon mythical elements of China's civilizational past. In this altered domestic environment, the CCP once again prioritized prestige, and diverted scarce resources toward joining the most exclusive grouping in world politics—the human spaceflight 'club.'

Conclusion

In accounting for why states pursue costly prestige projects, this dissertation has argued that international prestige is a source of domestic legitimacy. Lavish prestige projects provide a powerful symbol to domestic audiences that the regime is enhancing the nation's international prestige. Nonetheless, such projects can have steep material costs, diverting scarce resources away from other domestic or security concerns. In contrast, when regimes seek to legitimate their rule with material goods, they will be less likely to sacrifice their material interests for costly prestige projects.

Whereas Chapter 3 focused on when regimes pursue costly prestige projects, this chapter discussed when regimes do not sacrifice their material interests for

prestige—when they "avoid the limelight." This chapter argued that following the chaos of the Mao era, the CCP sought to legitimate its rule through material-means (by improving standards of living) rather than through ideology. Seeking to legitimate its rule through material means, Chinese leaders would no longer prioritize prestige goals over its material interests. Consequently, following Mao's death, China drastically changed the scope of its space ambitions. As Deng declared, China no longer sought to compete in a costly 'space race.' Instead, China would pursue capabilities more consistent with its 'actual' material circumstances and abandon lavish prestige projects such as a human spaceflight. Rather than pursuing costly prestige projects, China would focus on projects that made tangible contributions to its developmental goals and security interests. This included the development of remote sensing satellites, a geostationary communications satellite, and ICBMs. Moreover, China would initiate the massive program, Project 863, to invest in technologies to contribute to Chinese development and national defense.

CHAPTER 5

HEAVENLY VESSEL

As Chapter 4 detailed, following Mao's death, China drastically downsized its space program, focusing on capabilities that served clear developmental and security functions. However, as this chapter shows, despite nearly a decade of pragmatic restraint, China would once again be 'tempted by the limelight' and divert scarce resources away from its security and developmental goals toward the most ambitious prestige project in world politics: a human space program.

Due to the high costs and risks involved, the human spaceflight 'club' remains one of the most exclusive groupings in world politics; to this day, only three countries—Russia, the United States, and China—have independently sent humans into outer space.[212] However, despite the steep costs required for sending humans to space, the scientific, economic, and security benefits of human spaceflight are deeply questionable, if not negligible—especially relative to the costs of robotic or uncrewed alternatives.

Yet despite the risks and costs required to send humans to space, in 1992, China initiated the highly secretive human spaceflight program, Project 921—known today as the Shenzhou (Heavenly Vessel) program. Within 11 years, China became the third country to independently send a human into outer space. Since this time,

[212] It is important to note that India currently has plans to become the fourth country to join the human spaceflight club. The Indian Space Research Organization plans for its human spaceflight program Gaganyaan to send India's first taikonaut to space by 2022, yet the program faces budget cuts. See Elizabeth Howell, "India Faces Big Budget Cut for New Human Spaceflight Program," *Space.com*, March 10, 2020: https://www.space.com/india-human-spaceflight-program-budget.html.

China's human space program has achieved several milestones, including sending China's first female taikonaut[213] into space and carrying out spacewalks, multi-day missions, and orbital docking missions.[214] By 2022, China plans to finish the third and final phase of Project 921 by completing the construction of a space station in Low Earth Orbit (LEO), [215] which would be the only space station in orbit should the United States proceed with plans to defund the International Space Station (ISS).[216] Furthermore, some Chinese policymakers claim that China is planning to build a lunar base, which would be operated by taikonauts (Chinese astronauts).[217]

Why would China abandon its pragmatism of the 1980's to pursue one of the most expensive and technologically complex feats in world politics? Outside the competitive context of the Cold War, what could China hope to prove by matching the technological feats of the United States and the Soviet Union? China's decision is all the more puzzling considering that China was still a comparatively poor and developing country, and the potential economic and security payoffs of human spaceflight had already been demonstrated (for decades) to provide very limited, material payoffs.

To explain why China would undertake the strategically puzzling task of developing a human spaceflight program, this chapter focuses on the CCP's post-1989 legitimation strategy. I argue that rather than being driven by economic or security

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[213] A Chinese taikonaut or *yuhangyuan* is equivalent to a US astronaut or a Russian cosmonaut.
[214] Mike Wall, "China Launches 1st Female Astronaut and 2 Men to Space Lab," *Space.com*, June 16, 2012: https://www.space.com/1670-china-launches-1st-female-astronaut-shenzhou-9.html.
[215] Xinhua. 2019. China Plans to Complete Space Station Construction Around 2022: Expert: http://www.xinhuanet.com/english/2019-11/17/c_138562388.htm
[216] Lee Billings, "NASA Budget Proposal Defunds Space Station, Space Telescopes and More" (2018).
[217] Xinhua, "China to Build Scientific Research Station on Moon's South Pole," April 24, 2019: http://www.chinadaily.com.cn/a/201904/24/WS5cbff20fa3104842260b80bf.html.

motives, China's human spaceflight program can best be explained regime concerns over domestic legitimacy. This chapter argues that the Party's focus on material-based legitimacy in the Mao era proved insufficient for maintaining the Party's hold on power. As revealed during the pro-democracy protests at Tiananmen Square in 1989, the CCP faced a severe legitimacy crisis.

This chapter argues that to maintain its hold on power, the CCP began promoting a legitimation project that emphasized the CCP's role in restoring China to its rightful position—lost during the 'Century of Humiliation.' The regime would engage in a massive state-led nationalist project, the Patriotic Education Campaign to remind Chinese citizens of China's suffering at the hands of foreign powers, and it would tie its legitimacy to the restoring China's lost glory. Rather than pursuing Maoist goals of successfully implementing Marxism-Leninism, the Party would carry out the task of restoring or rejuvenating China's lost prestige. And only through the Party's continued rule could China achieve this goal.

This changing legitimation strategy is important because, as discussed in Chapter 2, legitimation strategies socialize and entrap leaders—shaping how they understand and pursue their interests. Similarly, I argue that unlike the decade following Mao's death, after the legitimacy crisis (most visible during the Tiananmen Square protests), China's legitimation strategy no longer favored an exclusive focus on promoting economic development. Instead, the CCP sought to demonstrate that it was carrying out its historic duty to restore Chinese prestige. Thus, driven by the logic of domestic legitimation, Deng—who had once opposed flashy prestige projects, including human spaceflight—approved China's human spaceflight program. And

Chinese leaders since this time have continued providing the program high-level support necessary for its continued development. Therefore, this chapter argues that China's most ambitious technological project to date was driven not by the immutable logic of an anarchic international system, but rather by domestic concerns over domestic legitimacy.

I organize this chapter as follows. The first section describes the CCP's search for legitimacy following the 1989 Tiananmen Square protests. The second section discusses the role of domestic legitimacy concerns in driving the CCP's pursuit of human spaceflight. It argues that China's pursuit of human space capabilities during this time cannot be explained by economic or security motivations. Instead, the chapter argues that in the post-Tiananmen era, the CCP was concerned about being perceived as falling behind other great powers and viewed human spaceflight as a powerful symbol that it was restoring China to its rightful position. The third section examines the symbolism involved in the how the CCP promoted its human spaceflight accomplishments to domestic audiences. The fourth section considers alternative arguments, as well as alternative explanations rooted in security-based explanations. The last section concludes with a discussion of lessons from this case for understanding the role of domestic legitimacy in prestige pursuits.

Crisis, Legitimacy, and National Rejuvenation

As discussed in Chapter 4, after Mao's death, China abandoned Mao's doctrinaire ideology in favor of material-based (economic performance) legitimacy. Rather than promising to miraculously leap past leading imperialist powers through following

Maoist principles, the CCP would improve the population's domestic welfare by strategically adopting foreign technology, implementing domestic economic reforms, and avoiding costly burdens by maintaining a 'low profile' on the world stage. As discussed in Chapter 4, this legitimation strategy proved a fertile environment for developing China's space program, because China would no longer divert resources toward wildly ambitious prestige projects but would instead focus on steady scientific development. Although Deng downsized China's space program, China would no longer divert scarce resources toward lavish projects with little scientific, economic, or strategic value. Instead, consistent with the CCP's pragmatic legitimation strategy, China pursued capabilities that served clear developmental and security goals, such as remote sensing satellites, a geostationary communications satellite, and ICBMs.

However, although economic reforms increased Chinese living standards, they did not provide a solid foundation (by themselves) for legitimating the CCP's continued one-party rule over the country. As discussed in Chapter 2, although regimes may use material means to legitimate their rule domestically, public evaluations of regime performance are ultimately subjective. Therefore, regimes often find that brute coercion and the provision of public goods alone are insufficient for maintaining their hold on power. Similarly, for the CCP, stability and economic growth, in the absence of a coherent ideological project, were insufficient for maintaining its hold on power.[218]

Although market-oriented reforms spurred economic growth—they also led to

[218] See Suisheng Zhao, "A State-Led Nationalism: The Patriotic Education Campaign in Post-Tiananmen China," *Communist and Post-Communist Studies* 31, no.3 (1998): 287-302.

a host of new social problems—e.g., crime and corruption, inequality, environmental degradation (problems that continue to challenge the CCP's hold on power today).[219] China's increasing openness also led to an influx of potentially dangerous (at least from the Party's perspective) foreign ideas about democracy. Moreover, in the comparatively open environment, Chinese citizens were more exposed to information about the 'outside' world. Not least of which, Chinese citizens discovered the extent to which China lagged behind outside foreign powers. Haifeng Huang (2021), for example, discusses the effect of this influx of new information, leading citizens to think that the "the moon as rounder abroad" (月亮是外国的圆)—holding an overly romantic view of foreign countries while underestimating China's strength, resulting in an "inferiority complex."[220] In terms of prestige, Chinese citizens could see that the CCP was indeed not holding its end of the bargain –it had failed to restore China to its 'rightful' position on the international stage.

With rising social problems, an influx of foreign ideas, and a barren ideological project, the CCP faced a severe legitimacy crisis, which came to a head during the pro-democracy protests at Tiananmen Square in 1989. The protests, which would nearly topple the regime, were crushed by a violent military crackdown. To leaders in the CCP, China had narrowly 'dodged a bullet.' Especially as communist countries, including the Soviet Union collapsed, CCP leaders realized that China

[219] Kalpit A. Mankikar, "Xi's China, China's Xi: Current Political and Social Challenges," *ORF Occasional Paper* No. 288 (2020).
[220] Haifeng Huang, "From 'the Moon is Rounder Abroad' to 'Bravo, My Country': How China Misperceives the World," *Studies in Comparative International Development* (2021).

needed a strategy to legitimate its rule domestically.[221]

As Chapter 2 discussed, during times of domestic crisis, regimes may alter their legitimation strategy. In a search for legitimacy, the CCP could not revive an ideology that was at odds with its development strategy. Instead, the Party decided to promote nationalism and remind its population of the Party's historic role of unifying and protecting China and restoring China to its lost position during the 'Century of Humiliation.' In describing the CCP's use of nationalism to fill this ideological void, Christensen (1996) argues:

> The party has, by way of market reforms, all but obliterated the second of the two adjectives in its name. Almost no influential figure in Chinese government or society believes in communism anymore, and that has created a vacuum that nationalism, always a strong element in the party's legitimacy, is filling. As many analysts have noted, nationalism is the sole ideological glue that holds the People's Republic together and keeps the CCP government in power. Since the Chinese Communist Party is no longer communist, it must be even more Chinese.[222]

In so doing, the CCP sought to more closely tie itself to the myth of the nation and its restoration—portraying itself as the savior of the Chinese nation, protecting its sovereignty, and restoring the nation to its proper place in the world.[223] One way in which China sought to revive nationalism was through the 'Patriotic Education Campaign,' in which China sought to remind its public of China's suffering during the 'Century of Humiliation' and its suffering at the hands of outside powers.[224] China launched a massive campaign to educate the public about China's humiliation at the

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[221] On China's search for legitimacy after Tiananmen and the resurgence of nationalism, see Allen S. Whiting, "Chinese Nationalism and Foreign Policy after Deng," *China Quarterly*, no. 141 (1995).
[222] Thomas J. Christensen, "Chinese Realpolitik," *Foreign Affairs* 75, no.5 (1996).
[223] Zheng Wang, *Never Forget National Humiliation: Historical Memory in Chinese Politics and Foreign Relations,* (New York, NY: Columbia University Press 2012): 95-117.
[224] Ibid.

hands of Western powers through China's education system, mass media, and pop culture, and by requiring local government to establish patriotic education bases.[225] Official documents from describing the goals of the Patriotic Education Campaign lay bare the Party's attempt to tie its legitimacy to 'restoring' China. For example, the document entitled "General Outline on Strengthening Education on Chinese Modern and Contemporary History and National Conditions" outlines key points for Chinese citizens to learn through the campaign. A few of these points highlight the importance of the CCP to China standing up to outside powers.

> Because of the corruption of feudal rulers, in more than 100 years after the Opium War, Chinese people were subject to bullying and humiliation under foreign powers […] After the "May Fourth Movement," the CCP was created. Under its leadership, Chinese people of different ethnic groups went through the Agrarian Revolution, the War of Resistance against the Japanese, the Liberation War, and finally, the new China. Chinese people have stood up for themselves since the implementation of this movement. After the liberation, China also experienced several anti-aggression wars. These demonstrated that the Chinese people cannot be bullied.[226]

As the above points indicate, the CCP sought to prove to domestic audiences that after being 'humiliated' and 'bullied' by aggressive foreign powers, it was only through the CCP's leadership that China was able to 'stand up' and resist this bullying.

This discourse of the CCP restoring China international standing is also clearly illustrated in Jiang Zemin's speech to the CCP during the 2001 meeting to commemorate the eightieth anniversary of the CCP's founding: "We have thoroughly ended the history of humiliating diplomacy in modern China an effectively safeguarded State sovereignty, security and national dignity… The international

[225] Ibid: 104-117.
[226] Ibid: 98.

standing and influence of socialist China is growing with each passing day."[227] Thus, as this quote underscores, the CCP explicitly tied its legitimacy to demonstrating China's 'international standing' was upwardly mobile— 'growing with each passing day.'

The CCP closely tied itself to the identity of the nation—reselling itself as the guarantor of Chinese prestige—returning China's rightful place in world affairs. The CCP would remind Chinese citizens of China's suffering and humiliation at the hands of outside powers. The Party moreover would once again begin reviving ancient elements of Chinese thought to remind domestic audiences of its historic role as the protector of Chinese interests.[228] As discussed in Chapter 2, these legitimation narratives can constrain and socialize leaders—shaping their perception of self-interest. Consequently, where economic performance-based legitimation favored a more pragmatic approach to space policy, China's new legitimation strategy required that it deliver a powerful symbol that it was indeed restoring China's great power prestige. As the following section details, although it made little sense from a commercial or security perspective, the CCP viewed human spaceflight as a powerful prestige symbol.

It is important to note, however, that while human spaceflight is the empirical focus of this dissertation, it does not represent the sole component of China's regime legitimation efforts. Beyond spaceflight, the CCP pursued a wide variety of measures

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[227] Jiang Zemin's Speech at the Meeting Celebrating the 80th Anniversary of the Founding of the Communist Party of China: http://www.china-un.ch/eng/zgbd/smwx/t85789.htm.
[228] John Dotson, "The Confucian Revival in the Propaganda Narratives of the Chinese Government," US-China Economic and Security Review Commission Staff Research Report, July 20, 2011.

to legitimate its rule domestically, from continued economic development to the inculcation of nationalism through its education system, via the Patriotic Education Campaign. Thus, China's human spaceflight should be thought of as part of this broader legitimation strategy, rather than the sole of focus of its legitimation efforts.

The Costs and Benefits of Human Spaceflight

As discussed in Chapter 2, driven by concerns over domestic legitimation, regimes may pursue lavish prestige symbols that are counter to their material interests. Similarly, this chapter argues that concerns over domestic legitimacy drove the CCP to divert scarce resources toward one of the costliest prestige projects in world politics. Indeed, this chapter argues that China's human spaceflight program cannot be explained by structural imperatives of an anarchic international system.

Traditional security-oriented arguments would view concerns over prestige or domestic legitimacy as, at most, epiphenomenal. Instead, China's human space program can be seen as a 'Trojan Horse'—a ruse for concealing Chinese military ambitions. Many analysts indeed ascribe such nefarious motives to China's human space program.[229] Considering the close relationship between the PLA and China's space program, it is perhaps unsurprising that some analysts view China's space program as a tool of the military. China's Manned Space Agency (CMSA) falls under the General Armaments Department (GAD) of the People's Liberation Army (PLA). Moreover, the leadership of the CMSA consists of senior-level PLA officers, and all launch decisions require PLA approval. However, it is important to note that with the

[229] Joan Johnson-Freese, "China's Manned Space Program" (2003): 2.

notable exception of the United States, most national space programs do not have the capacity to maintain distinctive military and civilian space programs. Thus, China is not unique in combining its military and civilian space programs.

Yet even if China's human space program could serve some military purpose, there is little evidence that security motivations were anything more than epiphenomenal. This can be illustrated by weighing the material costs and benefits for developing a human space program. In comparison to other ventures in space, such as the use of robotics or autonomous vehicles, human spaceflight is particularly risky, complex, and expensive. Reasons for this are clear when considering some of the dangers involved in sending humans to outer space (and keeping them alive). At the most basic level, the vacuum of outer space lacks some of the most elementary components required to sustain human life: oxygen, food, and water. Similarly, humans are threatened by radiation, micrometeoroids, microgravity, drastic fluctuations in temperature (ranging between hundreds of degrees below and above freezing), and space debris traveling at speeds up to 17,500 mph—to name just a few of the dangers.[230] As these examples underscore, outer space poses several dangers to human life. Therefore, for humans to survive in outer space, they require several technologies and supplies. This extra equipment translates to added weight for any vessel sending a human into outer space. All of this additional weight requires larger rockets with heavy lift capacity.

Beyond the challenges of this weight for sending humans to space, added

[230] "5 Hazards of Human Spaceflight" National Aeronautics Space Agency: https://www.nasa.gov/hrp/5-hazards-of-human-spaceflight; Space Debris and Human Spacecraft: https://www.nasa.gov/mission_pages/station/news/orbital_debris.html.

weight also poses obstacles for sustaining a human presence in space. Space stations, such as the ISS and China's planned space station (the third and final stage for Project 921) operate in LEO.[231] Unlike more distant orbital trajectories, objects in LEO (where most space assets are located) encounter atmospheric drag.[232] Although all objects in LEO are affected by atmospheric drag, these pressures increase with weight—a particularly pernicious problem considering the added weight of sustaining a human presence. Consequently, as opposed to a robotic or autonomous asset, any vessel maintaining a human presence must be constantly refueled—which is both logistically difficult and expensive.

In addition to the challenges associated with sending humans into outer space and keeping them alive, it is also no simple feat to return humans safely to Earth. Unlike a satellite or a robot, humans must be safely returned to Earth. Heat shields are required (which equates to additional weight and costs), to prevent the humans from burning to death upon return. Moreover, when traveling at such high velocities in outer space, ensuring a safe landing is a delicate task, requiring precise calculations and the ability to monitor, track, locate, and recover the vessel. This requires building tracking and monitoring stations in several locations across the globe, as well as developing recovery capabilities. By contrast, a robot or autonomous vehicle can more easily endure the harsh environment of outer space and need not be safely returned to

[231] Wu Ping, "China Manned Space Programme: Its Achievements and Future Developments," China Manned Space Agency Presentation for the 59th Session of COPUOUS, Vienna, June 2016: http://www.unoosa.org/documents/pdf/copuos/2016/copuos2016tech20E.pdf.
[232] For a brief discussion on the effects of atmospheric drag, see: "Satellite Drag," Space Weather Prediction Center, National Oceanic and Atmospheric Administration: https://www.swpc.noaa.gov/impacts/satellite-drag.

Earth.[233]

Considering these steep costs, it remains deeply questionable what tangible benefits states gain through possessing human spaceflight capabilities. In the military realm, there are few benefits provided by possessing human spaceflight capabilities—and these benefits are highly inefficient in comparison to autonomous or robotic alternatives. For example, at the outset of the Space Age, some scientists viewed human-based platforms as a potential orbital bombardment platform for dropping nuclear weapons on adversaries from upon high.[234] However, despite early speculation about such uses, this idea was quickly discarded as highly impractical and inefficient.[235] In addition to the costs of sustaining a human presence in space, a weaponized space station could only target sites once during its orbital path and would fly in a predictable orbital trajectory, making it a 'sitting duck' to be targeted by potential adversaries.

By comparison, intercontinental ballistic missiles (ICBMs) are far less expensive, can be more easily deployed and concealed, and are more difficult to

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[233] One could perhaps argue that, at this time, robots were less developed. Yet China had other alternatives for carrying out military or economic objectives (i.e., providing remote sensing data for military or developmental goals, or even developing a crude anti-satellite weapon), with its preexisting satellites. Moreover, even if China did not have the alternatives, it is unclear what China could have hoped to achieve militarily or economically to justify the steep costs required to send humans to space.

[234] Werner Von Braun, for example, argued in *Colliers* that a human space station could potentially be used as a weaponized platform by which a state could drop nuclear weapons on adversaries. See Michael J. Neufeld, "Space Superiority': Wernher von Braun's Campaign for a Nuclear Armed Space Station 1946-1956," *Space Policy* 22, no.1 (2006): 52-62.

[235] It is important to note that similar ideas about orbital platforms have resurfaced periodically in defense planning. For example, the U.S. Department of Defense has discussed the potential use of a 'Rods from God' orbital platform, by which to drop rods made from Tungsten. This idea, however, has also been abandoned over concerns over costs and feasibility. Space Daily 2018: https://www.spacedaily.com/reports/US_Project_Thor_would_fire_tungsten_poles_at_targets_from_outer_space_999.html.

intercept, as evidenced by the low accuracy of missile defense shields.[236] Other potential military applications of a space station include the use of humans for carrying out reconnaissance operations. At the outset of the Space Age, the United States and the Soviet Union both used crewed platforms (Project Dorian and Mir, respectively) for carrying reconnaissance. Yet, by 1970, the Soviets and Americans abandoned these plans, as satellites provided higher resolution images than humans, and at a much lower cost.[237]

Other arguments for human spaceflight include the potential economic benefits and spinoff technologies involved with developing human spaceflight capabilities. Human spaceflight has, indeed, resulted in some economic payoffs, creating employment opportunities for scientists and engineers, and others involved in the development of these technologies, as well as spin-off technologies such as the computer chip.[238] However, although human spaceflight may create a massive employment scheme, there are several other industries in which state-led investment could also increase employment. It is, therefore, unclear why a state would choose a risky project such as human spaceflight as its job creation scheme. In terms of spin-off technologies, some analysts argue that the payoffs from spin-off technologies have been vastly overstated and that today spin-off technologies are more likely to originate from Silicon Valley and be applied in space, rather than the other way around.[239]

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[236] "Shielded from Oversight: The Disastrous US Approach to Strategic Missile Defense," *Union of Concerned Scientists*, June 23, 2016: https://www.ucsusa.org/sites/default/files/attach/2016/07/Shielded-from-Oversight-full-report.pdf
[237] Ed. James D. Outzen "The Dorian Files Revealed: A Compendium of the NRO's Manned Orbiting Laboratory Documents." *The Center for the Study of National Reconnaissance*, August 2015: 155-172.
[238] "Assessing the Spin-offs of Spaceflight," *Smithsonian National Air and Space Museum*, November 25, 2011: https://airandspace.si.edu/stories/editorial/assessing-spin-offs-spaceflight.
[239] Interview, Washington, DC, September 20, 2018.

Furthermore, spin-off technologies, by their very nature, are unpredictable. As such, investing in human spaceflight to achieve spin-off technologies is ultimately an optimistic gamble for states, with no guaranteed economic payoff. Furthermore, for newcomers to spaceflight, there are fewer possibilities for unexpected spinoffs, as these states are latecomers and have a model by which to follow. Today, many American policymakers view the costs of a permanent human presence in space as exceeding its potential economic benefits. In the United States, policymakers are debating the possibility of defunding the ISS.[240]

That human spaceflight offers few tangible material benefits has been known for quite some time. Kennedy's advisors informed him that any decision to pursue human spaceflight would ultimately be political, as the costs of such a policy would far outweigh its material contributions.[241] The utility of humans in space has only continued to decrease due to increasing advancements in robotics. Overall, in summarizing the overall benefits of human spaceflight capabilities, a report by the National Academy of Science states: "Any defensible calculation of tangible, quantifiable benefits—spinoff technologies, attraction of talent to scientific careers, scientific knowledge, and so on—is unlikely to ever demonstrate a positive economic return on the massive investments required by human spaceflight."[242]

For these reasons, the vast majority of states—all but the United States, Russia, and China—have chosen not to develop human space capabilities. Thus, human

[240] Billings 2018.
[241] John M Logsdon, *John F. Kennedy and the Race to the Moon* (New York, NY: Palgrave Macmillan, 2010).
[242] Pathways to Exploration and Approaches for US Human Space Exploration. National Academy of Sciences Press: 3.

spaceflight is high-risk, extraordinarily expensive, and have little tangible material payoffs (commensurate with their steep costs). As such, the decision to invest in human spaceflight cannot be explained by the logic of security or profit maximization alone.

Project 921

Since human spaceflight is extremely costly and provides only very limited material payoffs commensurate with its steep costs, China's pragmatic approach of the post-Mao era (described in Chapter 4) was more in line with its resource constraints. Rather than diverting resources toward a lavish prestige project, China focused on capabilities with more tangible payoffs, such as ICBMs, remote-sensing satellites, and a telecommunications satellite. However, as this section details, China would soon abandon its pragmatic approach. Faced with a severe legitimacy crisis, the CCP once again needed to prove to China's population that it was increasing China's international standing and rejuvenating the Chinese nation. Although the Party would not abandon economic performance and material-based legitimacy (as it had discarded with Mao's doctrinaire ideology), it would no longer rest its legitimacy solely on economic performance. Instead, the CCP would also draw on nationalism, seeking to demonstrate that only under its rule would China no longer be 'bullied,' and that only through its rule would China's prestige be restored. Although it would not make sense to pursue human spaceflight from the perspective of China's economic or security interests, human spaceflight would provide a powerful symbol to domestic audiences that the CCP was restoring China's prestige and increasing its standing on the world

stage.

As I have argued throughout this dissertation, in pursuit of domestic legitimacy, regimes are willing to make costly tradeoffs in pursuit of markers of international prestige. However, it is possible that one could argue that in 1992, when China would again initiate its human spaceflight program, China did not have to make as stark of a tradeoff in its pursuit of human space capabilities. It is true that in 1992, China material circumstances were better than they were in the preceding decades, China's space program was not entirely starting from scratch. China's space program had been steadily developing since 1957, and China benefitted from the collapse of the Soviet Union. Whereas China largely developed in isolation in the preceding decades, in 1992, China could purchase equipment and materials from a cash-strapped Russian Federation (recovering economically from the sudden collapse of the Soviet Union). Indicative of the role of Russian technology, observers have noted, the Shenzhou capsule bears a striking resemblance to the Soviet's Soyuz capsule, and that Chinese spacesuits share many similarities with Russian spacesuits.[243]

Yet despite these advantages, outside the United States and the Soviet Union, most countries have decided not to pursue human spaceflight—viewing its well documented shortcomings to be incommensurate with its steep economic costs. Thus, in the post-Cold War era, it was puzzling why any country would pursue as complex, expensive, and risky as human spaceflight. Far wealthier countries had determined that human spaceflight was not an optimal use of resources. And although China's

[243] Richard Ingham, "China's Spaceship is Mainly Russian," *Agence France Press*, November 23, 1999: https://www.spacedaily.com/news/china-99r.html.

economy was larger (compared to the preceding decades), it was by no means a wealthy country—and faced severe resource constraints. In 1992, when China would formally initiate its human space program, its economy was less than a third of the size of Italy's, and China's economic pie had to be divided among China's enormous population of 1.165 billion people.[244] Thus, although China's economy had improved considerably in the post-Mao era, investments in human spaceflight required stark material tradeoffs.

Considering these stark economic tradeoffs, the decision to develop a human spaceflight program was deeply political—and thus, required high-level leader support. Traditional accounts of China's strategic technology and space programs during this time emphasize the role of individual Chinese scientists and engineers or its "military elite."[245] It is true that individuals in China's scientific community played an important role in lobbying for China's human spaceflight program. Although Project Shuguang was cancelled, throughout the 1980s, scientific interest and support for human spaceflight continued, as did research at facilities such as the Beijing Institute of Space Medical Engineering (the 507th Research Institute). As early as 1985, the director of Science and Technology Committee of the Ministry of Space Affairs, Ren Xinmin held a seminar on China building a space station.[246] For example,

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[244] According to the World Bank Development Indicators, in 1992, China had a GDP of 426.9 billion USD, whereas Italy had a GDP of 1.32 trillion USD.

[245] Feigenbaum technically allows for leaders in his explanation, arguing that ideas developed by PLA leaders became "embedded in the ideologies of the country's political leadership." Nonetheless, his analysis focuses almost entirely on PLA leaders, and it also does not account for the variation in Mao and Deng's approach (as well as the within-case variation for Deng) as it focuses primarily on Chinese military elites. See Feigenbaum, *China's Techno-Warriors*: 2.

[246]"From Shuguang to Shenzhou," China Aerospace Science and Technology Corporation, October 8, 2016: http://zhuanti.spacechina.com/n1449297/n1449403/c1458925/content.html.

as discussed in Chapter 4, China's massive R&D program would, Project 863 would plant the seeds for China's human spaceflight program by providing Chinese scientists and engineers a platform to lobby for human spaceflight. After the decision to initiate Program 863, Chinese scientists held several meetings to discuss human spaceflight. They debated intensely about whether China should invest in a human spaceflight program, and if so, whether it should pursue a space capsule—akin to the Soviets, or a space shuttle program like the Americans.[247]

Yet despite this 'bottom-up' support for human spaceflight, such support was insufficient for explaining China's decision to pursue human spaceflight. The existence of low-level support for human spaceflight is unsurprising. Chinese scientists and engineers had been interested in human spaceflight since the outset of China's space program. Scientists and engineers, free from managing diverse national interests, did not have to consider the same constraints as political leaders. Moreover, lower-level bureaucratic actors may have been interested in human spaceflight for a variety of reasons—a genuine interests in science, nationalism, or the likely budgetary windfall that would accompany such an ambitious endeavor. Nonetheless, low-level support for human spaceflight had been relatively constant for decades. And although low-level support had been constant, leader-level support for human spaceflight had varied. While Mao approved overly ambitious and lavish prestigious projects, under Deng's leadership, the CCP viewed projects such as human spaceflight as too lavish, preferring capabilities that had more tangible material payoffs.

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[247] 《李鸣生》[Li Mingsheng]《千古一梦：中国人第一次离开地球的故事》[Everlasting Dream—the Story of Chinese Leaving Earth for the First] (Nanchang City, Jiangxi Province: Baihuazhou Literature and Publishing House): 143-145.

Pursuing such an ambitious endeavor as human spaceflight required leader-level support. Ironically, it was Deng who would ultimately approve China's human space program—Project 921. As discussed in Chapter 3, it was Deng who had intervened and pushed for China to pursue sounding rockets instead of the outlandish goals of launching satellite by 1959. Similarly, it was Deng who cancelled China's first space program—Project Shuguang. Nonetheless, despite Deng's pragmatism and personal opposition to flashy prestige projects that placed China in the 'limelight,' the logic of the CCP's legitimation had changed.

The materialist strategy of the preceding decade had proved insufficient for securing the regime's hold on power. As had been demonstrated during the pro-democracy protests at Tiananmen Square in 1989, the regime faced a serious legitimacy crisis. Lacking a coherent ideological project and unwilling to democratize, the regime began to increasingly rely on nationalism to legitimize its rule domestically. The CCP sought to renegotiate its bargain with the public. Rather than simply improve material well-being, the Party sought to remind Chinese citizens of China's 'Century of Humiliation,' and prove that only through its leadership would China restore or 'rejuvenate' its lost international standing. As the sole party in charge and guarantor of China's international standing, it became important that the CCP demonstrate to Chinese audiences that it was maintain and increasing China's international standing. From this new legitimation strategy, perceptions of increasing prestige would increase China's domestic legitimacy; however, on the hand, perceptions that China was 'falling behind' threatened to undermine the CCP's claim to power.

It was in this context of this growing legitimacy crisis that the CCP was deeply concerned about maintaining its image as the guarantor of China's international standing. It was within this context that domestic lobbying for China's human spaceflight program succeeded. Although the costs of human spaceflight far outweighed its material benefits, the ability to send humans to space would provide a powerful symbol of China's increasing prestige—demonstrating that it had acquired entry into one of the most exclusive clubs in world politics. While sending humans into outer space would provide a powerful symbol of China's growing prestige, if other countries were to 'beat' China by sending a human into space, it would appear that under the CCP's leadership, China's prestige was slipping. As states such as Japan were considering constructing their own crewed space labs in the 1980s, the possibility of another country 'beating' China to human spaceflight appeared to be real.

It was in this changing context and increasingly prestige conscious leadership and fear of China appearing to 'lose' in outer space, that Chinese leaders were receptive to lobbying for human spaceflight. In arguing for a human spaceflight program, Chinese scientists explicitly appealed to regime concerns over prestige. In May of 1989, Chinese scientist Qian Zhenye presented Premier Li Peng and State Council a research report focusing on Chinese prestige—entitled "Striving for Place."[248] Perhaps, most importantly, Chinese scientists appealed directly to Deng, framing their appeals in the language of prestige. In 1992, lead engineers involved in China's Project 863, wrote a letter appealing for Deng to invest in human spaceflight.

[248] Ibid: 138.

The letter stated:

> Whether or not to establish a human spaceflight program is a political decision, not a simple question of science and technology, nor is it a question of whether the workers in science and technology can. It is impossible to rely on a unified understanding. The development of the country's space industry is confronted with the danger of losing the great power status not easily obtained by the generation of proletarian revolutionaries. We earnestly request that the central authorities make a decision as soon as possible [emphasis added].[249]

Notably, this appeal to Deng recognizes that the decision to invest in human spaceflight is a "political" choice. Thus, the decision to pursue human spaceflight did not rest on a purely material-based reasoning (i.e., the ability of human spaceflight to contribute to scientific, economic, or security goals), but instead rested on a political logic. Moreover, this appeal made an explicit appeal regarding China's international standing—that which had been won by China's "proletarian revolutionaries." Such a 'loss' of prestige could undermine the CCP's claims that it was restoring or rejuvenating China. Ultimately, after reading this letter, Deng would support plans for a human space program. A few months later, Chinese scientists would meet with Premier Li to discuss their proposal for a human spaceflight program and within a year's time, the Central Committee would approve China's human spaceflight program, Project 921.[250] The date set for China's human space program had a domestic audience in mind—China would send humans into outer space by 1999. Similar to the goals for China's Dongfanghong-1, China would seek a launch date to match the fiftieth anniversary of the PRC's founding—even if such a date was out of sync with China's actual technological capabilities.

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[249] Ibid: 144.
[250] From Shuguang to Shenzhou," China Aerospace Science and Technology Corporation, October 8, 2016: http://zhuanti.spacechina.com/n1449297/n1449403/c1458925/content.html.

Prestige and Domestic Audiences

For the CCP, China's human spaceflight program served as a powerful symbol that through its leadership, China was restoring its lost international prestige. Thus, for the Party a successful human space mission would serve as a powerful symbol for legitimating its domestic rule. However, if the mission should publicly fail, it could send the very opposite message—that the despite diverting public resources on human spaceflight, it had brought shame upon the nation. Considering these stakes, in the runup to China's first human space mission, the CCP was obsessed with successfully managing the optics around its first space mission. On this point, it is worth recalling a parallel between China's human spaceflight program and its first satellite project—the East is Red. The overriding priority for China's first satellite was that it be "seen and heard." To avoid the embarrassment of a distorted song, China's first satellite was stripped of any scientific equipment, yet equipped with a heat shield and kill-switch should the music be distorted and bring about embarrassment for China.

Similarly, in China's first human space mission, the CCP was nervous about whether to live broadcast its first human space mission. Although a successful launch would be a propaganda coup, the Party was afraid of the potential humiliation of its first taikonaut were to die on live television. Deciding the risks were too great, the CCP delayed the broadcast until Shenzhou-5 was safely in orbit.[251]

Beyond the decision of whether or not to live broadcast the mission, the CCP's obsession with optics also resulted in a highly sanitized portrayal of Yang Liwei's

[251] "China Scraps Live TV Plan." *CNN*, October 14, 2003: https://edition.cnn.com/2003/TECH/space/10/14/china.space/index.html.

flight (China's first taikonaut). According to the official depiction of the event, China's first space mission was flawless. When the state-run China Central Television (CCTV) broadcast the flight, Yang declared— "I feel good" and unfurled Chinese and UN flags. Upon landing in Inner Mongolia, Yang was greeted as a hero and the mission hailed a flawless success. Yet, there is evidence that flight was not nearly as smooth as portrayed by Chinese state media. In a leaked lecture held at Tianjin Foreign Studies University, one Xinhua official claimed that Yang's flight was more turbulent than had been presented by the media. According to the official, during the Shenzhou 5's descent, the G-force busted Yan's lip and drenched his face in blood. The official claimed that Yang was removed from the capsule, the blood mopped up, and he was strapped back in before cameras began rolling. Yang would later admit in his autobiography that his cut lip was caused by a microphone, adding that during takeoff, he felt as if all of his organs were breaking into pieces.[252] This difference between Yang's experience and official portrayals of his flight underscore the CCP's careful presentation of China's first human space mission to its public.

Beyond these examples, media outlets received instructions from the Central Committee's Propaganda Department to emphasize international praise and congratulations for the mission (external recognition of China's enhanced international standing) and its importance for Chinese political, economic, and military development—while emphasizing that those who opposed the mission were either not

[252] Jacobs, Andrew, "Leaked Lecture Offers View of China's Efforts to Manage the News," *The New York Times*, June 3, 2010: https://www.nytimes.com/2010/06/04/world/asia/04china.html.

knowledgeable of space exploration or were opposing the CCP.[253] Censors, moreover, blocked foreign criticism of the Shenzhou-5 from the internet.[254] This careful management of media coverage of China's human space program continues today. Media outlets, both foreign and domestic, often learn news of China's human space program from Xinhua—which follows direct talking points issued by the government.[255] Similarly, journalists for foreign media often learn of these accomplishments second-hand from Chinese state media.

Following Yang's successful flight, China reportedly printed an extra 100,000 copies of the *People's Daily*, where the bulk of the paper was devoted to Yang's flight.[256] The October 16, 2003 *People's Daily* devoted the entire front page, second page, fifth page, and 18th page to the flight, whereas the mission constituted almost 20 percent of the articles printed (18/91) as well as 43 percent of the images (10/23). The October 17, 2003 *People's Daily* included full page coverage of the flight on the first page, second page, the majority of the third page, and the entirety of pages 6-11, with approximately 37 percent of the articles (24/65) and nearly 78 percent of the images (21/27) devoted to the mission. How the *People's Daily* covered Yang's flight also shows how the Party sought to tie this prestige accomplishment to the CCP's domestic legitimacy. For example, one article stated that "Shenzhou 5 marks the opening of a new chapter in my country's aerospace industry, and it also marks the development of

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[253] Qinglian He, *The Fog of Censorship: Media Control in China* (New York: Human Rights in China: 2008): 34-35.
[254] Ibid.
[255] Interview, Beijing May 12, 2019.
[256] Hansen, James R, "The Taikonaut as Icon: The Cultural and Political Significance of Yang Liwei, China's First Space Traveler" in Ed. Steven J. Dick, Roger D. Launius, *Societal Impact of Spaceflight* (Washington, DC: National Aeronautics and Space Administration, 2007).

my country's science and technology to a new historical stage under the leadership of the Party. This is the glory of the whole Party and the entire country [… and] is a major achievement of my country's Reform and Opening up [emphasis added]."[257] Importantly, this statement tied the glory of the Party to that of the country and stated that the China was able to achieve this technological achievement under the Party's leadership. Similarly, this statement tied the success of China's human space program to the CCP's economic reform policies. Therefore, the Party's policies, rather than being antithetical to Maoist principles, was enabling China to attain glory and achieve national rejuvenation. Similarly, the same article claimed that after hearing the news of the launch, one citizen, Zhang Huaping exclaimed, "The Party's policy is good, the country is prosperous, and the people are strong!"[258]

Other articles drew an even closer connection between the Party's leadership and China's success in in human spaceflight. For example, one article noted that the CCP's top leadership had attended Shenzhou's launch, Hu Jintao, Wu Bangguo, Wen Jiabao, Jia Qinglin, Zeng Qinghong, Li Changchun, and Luo Gan.[259] The same article described a speech by Hu, which explicitly tied the success of Shenzhou to the Party's leadership—emphasizing the Party's ability to rejuvenate the Chinese nation. It is worth quoting the article's report of Hu's speech at length:

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[257] 《刘裕国;顾兆农;陈杰;赵京安;宋学春;袁亚平;余清楚;蔡小伟;赵鹏》[Liu, Yuguo, Gu Zhaonong, Chen Jie, Zhao Jingan, Song Xuechun, Yuan Yaping, Yu Qingchu, Cai Xiaowei, Zhao Peng]《一箭飞天冲九霄千年梦圆在今朝全国各地群众喜庆载人飞船成功发射》 [One Arrow Soars into the Sky and the Millennium Dream Comes True Today: People Across the Country Celebrate the Successful Launch of Manned Spaceflight]," *People's Daily*, October 16, 2003.

[258] Ibid.

[259] 《贾西平;廖文根;樊如钧》[Jia, Xiping, Liao Wengen, Fan Rujun] 《我国进行首次载人航天飞行'神舟'五号飞船发射成功》 [My Country's First Manned Spaceflight 'Shenzhou 5' Spacecraft Successfully Launched]," *People's Daily*, October 16, 2003.

> He pointed out that the implementation of the manned spaceflight project is a major strategic decision made by the Party's third-generation central leadership group with comrade Jiang Zemin at the core. For more than ten years, under the leadership of the Party Central Committee […] my country's manned spaceflight industry has achieved world-renowned achievements and composed a magnificent poem of the Chinese nation's continuous self-improvement. He hopes that all comrades on the aerospace front will earnestly study and implement the important thinking of the "Three Represents" and the spirit of the 16th National Congress of the Communist Party of China, further enhance the sense of mission and responsibility, vigorously promote the spirit of 'Two Bombs and One Satellite' and the spirit of manned spaceflight, be scientific, realistic and pioneering [… and] make new contributions to the comprehensive construction of a well-off society and the great rejuvenation of the Chinese nation.[260]

There are a few important themes underscored by this quote. First, the quote makes an explicit connection between China's success in human spaceflight and the leadership of the Party Central Committee. Noticeably, unlike the Dongfanghong-1, credit is given to the Party leadership, rather than a single charismatic leader (e.g., Mao Zedong or his then-successor Lin Biao). Similarly, rather than claiming all the credit for the accomplishment, Hu acknowledged the important role of his predecessor Jiang Zemin—as well as Jiang's 'Three Represents' policy. Second, this statement articulates what this accomplishment is supposed to symbolize. China's accomplishment is a prestige marker—a "world-renowned achievement" signifying China's "continuous self-improvement." Similarly, the speech draws a comparison between China's human spaceflight success and the earlier prestige accomplishment of its first satellite, nuclear, and hydrogen bombs—the "Two Bombs, One Satellite spirit." Third, the speech portrays China's human spaceflight mission as signifying China's 'national rejuvenation.'

[260] Ibid.

Similarly, official coverage of China's first human spaceflight program tied its success to the restoration of Chinese glory and the fulfillment of a long-held dream. For example, in describing Yang's flight, one article stated:

> The Chinese nation is the first great nation to have the dream of flying to heaven. The myth of Chang'e flying to the moon is well-known. The artistic image of Feitian on the Dunhuang murals is wonderful. In the Ming Dynasty, China's Wanhu was the first in human history to use a rocket to carry out a flight test and was the first to give precious lives for mankind to explore spaceflight. Yang Liwei's successful "first flight" made the Chinese nation's dream of flying to the sky a reality. From Chang'e, Wanhu to Yang Liwei, from glory to decline, from decline to glory again, what a long struggle the Chinese nation has gone through.[261]

As this quote illustrates, Yang's flight is connected to an ancient Chinese past. In comparison, coverage of the Dongfanghong, did not depict the accomplishment as dream tied to ancient Chinese culture. From the perspective of Mao's ideological project, such an attachment to ancient ideas were what held China back—and Chinese accomplishments were due to 'scientific' adherence to Marxism-Leninism. In contrast, this quote draws a connection between the Chinese nation of today and ancient past—portraying it as a long unbroken-chain. The article explicitly draws upon elements of Chinese culture, from the mythological Chang'e lunar goddess, to Feitian of Buddhist mythology, to the mythological Wanhu who failed in his attempt to launch himself into space by attaching rockets to his chair. Most importantly, in drawing this connection to Chinese history, the quote similarly articulates what Yang's symbolizes regarding the prestige mobility of China's nation. China had gone from "glory to decline" during the Century of Humiliation and was returning from "decline to glory

[261] Ibid.

again" under the CCP's leadership.

The *People's Daily* similarly emphasized that China's accomplishment was celebrated by ethnic Chinese citizens in Hong Kong, Macau, and Taiwan.[262] On this point, it is important to recall that the original timing of China's first human space mission was set for 1997 to coincide with the handover of Hong Kong to the PRC. Hong Kong, Macau, and Taiwan were symbolically important as they were Chinese territories lost during the 'Century of Humiliation.' Thus, the ability to unify these territories with the Chinese mainland served as an important component of restoring or rejuvenating China—and thus the Party's claims to legitimacy. By claiming that the accomplishment was celebrated by ethnic Chinese citizens living in Hong Kong, Macau, and Taiwan, the CCP could claim that through its leadership it was unifying China. It is also important to highlight the parallels between this coverage and that of China's Dongfanghong-1 (discussed in Chapter 3)—both of which claimed to increase pride among ethnic Chinese living outside the Mainland.

Moreover, similar to coverage of the Dongfanghong-1, official coverage of Shenzhou-5 emphasized how others viewed the accomplishment. The *People's Daily* reported the praise and coverage of China's accomplishment by Russia, Pakistan, the European Space Agency, Japan, South Africa, United States, South Korea, Thailand, Philippines, Malaysia, Australia, Ukraine, France, and Italy.[263] As discussed in

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[262] Ibid.

[263] 《陈一鸣;徐宝康;孙东民;曹鹏程;孙伟;张永兴;杨新鹏;李景卫;黄晓东;王芳;史克栋 李新烽;王如君》[Chen Yiming, Xu Baokang, Sun Dongmin, Cao Pengcheng, Sun Wei, Zhang Yongxing, Yang Xinpeng, Li Jingwei, Huan Xiaodong, Wang Fang, Shi Kedong, Li Xinfeng, Wang Rujun],《五号发射成功 国际社会反响热烈》 [The International Community's Enthusiastic Response to the Successful Launch of 'Shenzhou 5']，*People's Daily*, October 16, 2003.

Chapter 2, prestige is a second-order belief—a belief about how others perceive oneself. Moreover, as Chapter 2 argued, in closed or non-competitive political systems, regimes can manipulate domestic perceptions about their state's prestige. For Chinese leaders, it was important to convey that the rest of the international community recognized China's prestige accomplishment. Regardless of whether China's international status had actually increased, the regime sought to shape its public's understanding about how the rest of the international community viewed it.

As a prestige symbol designed for the purposes of domestic legitimation, China's human space program was actively promoted to domestic audiences. Similar to it was important for the Dongfanghong satellite to "be seen and to be heard," it was a high priority for the CCP to celebrate its human spaceflight program before domestic audiences. After his successful flight, parades were held for Yang in cities throughout Mainland China, as well as in Hong Kong and Macau.[264] Yang and fellow taikonauts are also featured prominently as part of CCTV's annual spring festival gala—the most widely watched television event in China.[265] China's human space program was similarly featured prominently during the Opening Ceremonies for the 2008 Olympic Games in Beijing, portraying a Chinese taikonaut flying and meeting the lunar goddess, Chang'e. By connecting Chang'e to its modern-day human space program, this ceremony drew a narrative connection between Chinese culture and mythology and its modern space ambitions. This illustrates the role of the regime's legitimation

[264] Space Daily, "Hong Kong People Share Joy of China's Manned Space Program," August 13, 2012; China Daily, "Astronauts Wow Macao Crowd," August 15, 2012: https://www.chinadaily.com.cn/china/2012-08/15/content_15676401.htm.
[265] Ben Blanchard, "Astronauts and a Performing Donkey Welcome China's New Year," *Reuters*: https://www.reuters.com/article/us-lunar-newyear-china-idUSKBN15B074.

narrative in connecting contemporary China to a mythical bygone era (that which was lost during the Century of Humiliation)—and one that the Party was restoring.

China's human space program is still promoted heavily to domestic audiences today. In 2016, China's government took further steps to promote its space program, creating a national holiday to be celebrated on April 24th (the anniversary of China's 1970 launch of the Dongfanghong satellite)—China Space Day.[266] By making a national space day, China's government provides a constant reminder to its public of the many accomplishments of its space program, most notably its human space program. Moreover, China promotes its space program to domestic audiences through the biannual Zhuhai Aerospace show. During the 2018 Zhuhai aerospace show, China unveiled the core module—the final part of its planned space station. The core module was the centerpiece of the airshow, attracting thousands of tourists and surrounded by journalists for state-run media. Near the module, a video played on a loop, linking China's success in human spaceflight to the early successes of the "Two Bombs, One Satellite" era, and emphasizing global recognition of China's prestige—claiming that the "world sees China."[267]

Alternative Arguments

This chapter argued that following the legitimacy crisis of Tiananmen Square, the CCP revived its prestige narrative and its human spaceflight program. Although Deng

[266] "Full Text: China's Space Activities in 2016." The State Council Information Office of the People's Republic of China, December 27, 2016: http://www.scio.gov.cn/zfbps/32832/Document/1537024/1537024.htm.
[267] Participant Observation, Zhuhai Aerospace Show November 11, 2018.

had initially opposed China's human space program, in face of a legitimacy crisis and in search of a powerful symbol of China's restoration, Deng would be compelled to prove that the CCP was restoring China's international standing. However, as discussed in Chapters 3 and 4, an alternative argument could be made that China's pursuit of prestige or status symbols reflected external status competition at the international level.

As discussed in Chapter 4, in isolation, it is difficult to refute the claim that the 'end' of the space race ended China's space ambitions as the timing of the Apollo-Soyuz Test Project corresponded with the transition from the Mao to the Deng era. Yet the thesis that China's space ambitions can be explained by international status competition is wholly ineffective for explaining why China would revive its space program in 1992. If one accepts the argument that China's space pragmatism in the post-Mao era stemmed from the symbolic end of international space race in 1975, then one cannot explain why China would suddenly restart its space program after the Cold War and nearly 17 years after the end of the space race.

Alternatively, one could possibly argue that the 'space race' never truly ended internationally, or at least it did not 'end' for China. Yet, this is inconsistent with the broader cooperation between the Soviet Union and the United States in 1980s, as well as the end of US-Soviet competition following the end of the Cold War. Similarly, even if China incorrectly perceived the continuance of a Cold War space race, it then becomes difficult for traditional status arguments to explain why China suddenly became pragmatic during the Deng era. Overall, China's pursuit of human spaceflight capabilities following the Cold War and over 17 years after the end of the space race,

casts serious doubt on the role of international prestige competition in shaping China's behavior.

In addition to traditional status arguments, the preceding chapters also suggested that a leaders-based explanation could account for these drastic changes in China's space policy. However, this chapter provides perhaps the strongest evidence against an argument for the role of leaders' personalities. It was Deng that cancelled China's human spaceflight program and moderated its space ambitions, and it was also Deng who approved China's space program in 1992. From a leaders' perspective, it is difficult to explain why Deng would overcome his longstanding reservations against costly prestige projects in the space domain and then suddenly becoming the most important supporter for these projects.

Another potential alternative argument is rooted in security motives. From this perspective, China's human spaceflight program serves as a modern-day Trojan Horse, allowing China to covertly develop its military space capabilities under the ruse of a human spaceflight program. Thus, the human spaceflight program can be thought of as providing a soft face to a more clearly realpolitik motive. As it is impossible to peer inside the mind of Chinese leaders at this time, this argument cannot be completely refuted. In fact, the timing of China's human spaceflight ambitions (with Project 921 being implemented in 1992) is consistent with a security-based explanation—as it occurred during the Gulf War. After viewing the United States' technological superiority during the Gulf War, members of China's PLA drew important lessons about the role of strategic technologies such as satellites in

promoting 'informationized warfare.'[268]

Yet besides the timing of China's human space program, other aspects of the program are inconsistent with the Trojan Horse explanation. One can first ask—what types of military capabilities would China's human space program conceal? As discussed above, China already had advanced remote sensing and communications satellites, which could gather intelligence and imaging more effectively (and inexpensively) than humans. Humans similarly serve limited utility for warfighting purposes in outer space, as they are so costly and vulnerable. The only plausible explanations for the type of capabilities China could be concealing with its human space program are either an ICBM or a direct-ascent ASAT weapon. Launching humans into space requires heavy lift and reentry capabilities, which could be used for an ICBM. However, there is one gaping hole in this explanation—China had developed and tested ICBMS for nearly two decades by this time. Thus, China already had ICBMS and had been testing them publicly—it strains credulity to think that China would invest in such lavish capabilities as human spaceflight to make incremental improvements to its existing ICBMs.

The other possibility is that China used its human spaceflight program as an effort to covertly develop counterspace capabilities, while reassuring outsiders. It is important to note, however, that counterspace capabilities vary and include ground-based interference, lasers, coorbital satellites, cyber capabilities, and direct ascent ASATs. Of these capabilities, technologies required for human spaceflight could only

[268] Fravel, "China's New Military Strategy" 2015.

potentially contribute to direct ascent ASATs—as launching humans into outer space requires heavy lift rockets. However, China would not need all of the costs and technological capabilities required to keep humans alive to successfully carry out an ASAT test. Indeed, the Soviet Union's first ASAT test flew in the proximity of a satellite, blowing up and destroying the satellite with shrapnel.[269] In contrast, human spaceflight requires far more sophisticated technology—and thus is far more expensive than a simple and comparatively crude ASAT weapon. Thus, if China was concealing a potential ASAT weapon, it was pursuing a very costly and roundabout means to do so. In comparison, China had other means by which to covertly develop counterspace capabilities. For example, similar to other countries, China could claim peaceful, defensive intentions by developing ballistic missile defense—a technology which is far more relevant than human spaceflight for counterspace operations (as both technologies require precisely targeting objects traveling at high speeds). Indeed, following the international backlash following China's 2007 ASAT test, developing BMD is precisely how China (similar to the United States and Russia) justifies developing counterspace technologies.[270] Ironically, if China was hoping for its human spaceflight program to conceal its capabilities, it had the very opposite effect—advertising Chinese capabilities and effectively raising threat perceptions (as I will discuss further in the conclusion).

Perhaps most importantly, the initiation of China's human spaceflight program in 1992 is inconsistent with broader facts about the development of China's

[269] Laura Grego, "A History of Anti-Satellite Programs," Union of Concerned Scientists, January 2012.
[270] Vasani, "How China is Weaponizing Outer Space" 2017.

informationized warfare doctrine (and its implementation) as well as the origins of its direct ascent ASAT weapons program. Although China initiated its human spaceflight program in 1992, it was not until a year later that Jiang Zemin issued guidelines for China's military to prepare to fight wars under "high technology conditions."[271] Moreover, as illustrated in the biographies of leading military figures, it was the United States' 1999 bombing of China's embassy in Kosovo that led China to begin developing ASAT capabilities.[272]

Conclusion

This chapter sought to explain why China abandoned its pragmatic approach to space policy (discussed in Chapter 4) to pursue one of the most conspicuous 'white elephants' in world politics. I argued that Deng's decision cannot be explained by the logic of economic or security maximization. In 1992, China was, by no means, a wealthy country. With a weak military and severe economic challenges, China could ill afford to gamble away scarce resources on a project as technologically complex and risky as human spaceflight. Moreover, human spaceflight had been proven to provide limited tangible military and economic payoffs, especially commensurate with its steep costs, and relative to less expensive uncrewed or robotic alternatives.

This chapter argued that China's decision to invest in human spaceflight cannot be explained without understanding the CCP's efforts to legitimize its rule domestically. As argued in Chapter 4, in the post-Mao era, China increasingly moved away from ideological legitimacy and toward a more material-based legitimacy.

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[271] Fravel, "China's New Military Strategy" 2015.
[272] 《郭相杰》[Guo Xiangjie], 《张万年传》 [The Biography of Zhang Wannian] (Beijing: Jiefang Chubanshe): 163.

Reinterpreting and hollowing out Mao's ideational project, the CCP adopted a pragmatic approach that focused on economic reform and development. However, as this chapter argued, material-based legitimacy proved insufficient—by itself—to address the CCP's legitimacy concerns. Growing domestic challenges unleashed by China's economic reforms and a hollowed out ideological project, threatened the CCP's continued rule. In place of ideology, the CCP has increasingly relied on nationalism, emphasizing that only under the Party's guidance can China restore its standing lost during China's 'Century of Humiliation.' China's human space program has served as powerful symbol of China's national rejuvenation.

As this chapter has shown, rather than being guided by structural imperatives of an anarchic international system, China's most ambitious capabilities are best explained by regime concerns over domestic legitimacy. In the following chapters, I discuss the domestic effects of these prestige projects. Drawing on original survey data, Chapter 6 examines domestic public perceptions of Chinese prestige projects as well as their ability to ameliorate individual perceptions of domestic social problems. Finally, the concluding chapter (Chapter 7) discusses the international effects of these prestige projects, shedding light on how American policymakers perceive these projects. As I will suggest, the CCP may be correct in viewing these prestige projects as serving its domestic interests. However, as the Chapter 7 suggests, although these projects may be motivated by domestic concerns, they may unintended international consequences, exaggerating threat perceptions abroad.

CHAPTER 6

HEAVENLY MANDATE

PUBLIC SUPPORT AND CHINA'S SPACE PROGRAM

Does China's public support investments in costly projects such as human spaceflight and deep space exploration? Do political elites gain domestically by investing in costly prestige symbols? The previous chapters demonstrated how regimes use prestige narratives and costly prestige projects to legitimate their rule domestically. However, although regimes may pursue prestige symbols for domestic legitimacy, little is known about how these projects are received by domestic audiences.

Resources spent on space capabilities are those that are not spent on other strategic priorities such as domestic social welfare and defense modernization. For individuals, particularly those at the bottom of the social ladder, lavish expenditures on outer space capabilities may be viewed as out of touch. For example, even at the height of US-Soviet space competition, the American public was highly divided over whether resources should be devoted to human spaceflight or to improving domestic social welfare.[273] Similarly, there are reasons why China's public might also be skeptical of these investments. China is rife with domestic social problems such as corruption, pollution, and severe income inequality. As such, Chinese citizens may be divided on whether projects such as human spaceflight and deep space exploration represent the best use of Chinese resources.

At the same, even if China's public supports these projects, it is unclear

[273] Roger D. Launius, "Public Opinion Polls and Perceptions of U.S. Human Spaceflight," *Space Policy* 19, no.3 (2003): 163-175.

whether this support translates into a political resource for legitimating the regime's rule. If such projects do positively affect citizens' perceptions of the regime, it suggests that although prestige projects may be suboptimal from a security perspective, they may facilitate regime legitimation. However, if these policies do not have domestic benefits, then it suggests that these prestige projects are only for, as Morgenthau described, "foolhardy egocentrics."[274]

This chapter hypotheses that prestige projects positively affect citizens' perceptions of the regime and thus help legitimate its rule domestically. It argues that prestige projects communicate information about the nation's prestige. By increasing the nation's prestige, these projects increase the salience of the nation and reduce individual perceptions of domestic social problems. Consequently, this provides a powerful political resource for regimes. By diminishing individual perceptions of domestic social problems, regimes can decrease challenges to their domestic rule.

To examine Chinese public perceptions of these costly prestige projects, I carried out, to my knowledge, the first survey (N= 1,529) of Chinese public attitudes regarding China's space activities.[275] The survey asked about Chinese attitudes regarding investments in human spaceflight, landing a taikonaut on the moon, as well as China's lunar and Martian exploration programs. Furthermore, to test the effects of prestige performances on domestic audiences, I embedded an experiment in the survey. The experiment exposed respondents to an implicit prime (describing China's success in human spaceflight) and an explicit prime (which framed the

[274] Morgenthau, *Politics among Nations* (1955): 75.
[275] Two articles (under review as of this writing) are based on data from this chapter.

accomplishment explicitly as increasing China's international status). The survey also provided open-text responses to allow respondents an opportunity to describe, in their own words, whether and why they support (or do not support) investments in human spaceflight.

This chapter finds evidence that Chinese citizens are highly supportive of investments in human spaceflight, China's lunar and Martian programs, and future projects such as sending a taikonaut to the moon. This chapter also finds evidence that China's human spaceflight program benefits the regime domestically by shoring up legitimacy despite domestic social problems. These effects are strongest when China's human spaceflight program is explicitly framed as increasing China's international prestige.

This chapter proceeds as follows. The first section presents the key questions and hypotheses to be investigated in this chapter. The second section describes the survey design for investigating these questions. The third section presents the results from the survey, including descriptive, experimental, and open-text results. The last section concludes with a discussion of these findings regarding the effects of costly prestige projects on citizens' attitudes.

Questions and Hypotheses

Little is known about how China's public views its space activities, and it cannot be simply presumed that its public supports investments in these technologies. Costly space capabilities divert resources from other strategic ends, whether these are maximizing security or economic growth. As such, China's public could view costly

prestige projects as a waste of resources.

I, therefore, ask whether China's domestic public supports costly investments in human spaceflight and deep space exploration (specifically its lunar and Martian programs). These costly prestige projects, while markers of international prestige, do not have any clear or immediate material benefits China's domestic population.

I also explore Chinese public support for more future-oriented prestige projects, such as sending a taikonaut to the moon. Although China does not yet officially have a plan to send humans to the moon, Chinese Lieutenant General Zhang Yulin claims that China plans to build a lunar base by 2036.[276] If history is any indicator, such a project would be extremely costly. For example, after "beating" the Soviets to the moon, the Americans disbanded the Apollo program shortly after (in 1972), as they viewed its costs to far outweigh its utility. If China were to build a lunar base, it would likely be highly expensive. As such, it remains an open question whether China's public would support such a goal.

Beyond investigating these questions, this chapter also tests the effects of these prestige projects on domestic audiences. As this dissertation has discussed, regimes spend lavishly on costly prestige projects in an attempt to legitimate their rule at home. Yet it is unclear what effect, if any, these projects have on domestic audiences. I contend that these costly prestige pursuits do carry domestic benefits in that they can reduce individual-level perceptions of domestic social problems.

When regimes pursue costly prestige projects—it symbolizes that a nation's

[276] Zhao Lei, "Senior Officer Expects Moon Visit by 2036" *China Daily.com.cn*, April 29, 2016, https://www.chinadaily.com.cn/china/2016-04/29/content_24957196.htm.

prestige is upwardly mobile. By communicating that the nation's prestige is increasing, prestige symbols prime individuals to identify with the superordinate identity group—the nation. That increasing prestige increases individual attachment to the nation is supported by scholarship on Social Identity Theory (SIT). SIT posits that individuals simultaneously belong to several identity groups (e.g., gender, religion, ethnic groups) and that they tie their self-esteem to the status of their in-group. As individuals seek a higher self-esteem, they are more likely to identify with high status groups.[277] How individuals identify with a group influences their behavior, leading individuals to show favoritism toward their in-group over out-groups.[278]

As it applies to the nation, the nation serves as a superordinate identity group which can encompass other identity groups. When a state acquires a costly prestige projects, it symbolizes that the nation's status is increasing. Since individuals identify more closely with high prestige groups (since it provides them positive self-esteem), when individuals perceive their nation's prestige to be increasing, they will be more likely to identify closely with it. For example, drawing from SIT, Shayo argues that when individuals identify with the nation, they are less likely to support class-based policies such as economic redistribution.[279] Sambanis et. al similarly model how when

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[277] Robert Cialdini, Richard Borden, Avril Thorne, Marcus Walker, Stephen Freeman, and Lloyd Reynolds Sloan, "Basking in Reflected Glory: Three (Football) Field Studies," *Journal of Personality and Social Psychology* 34 (1976): 366-75; Filip Boen, Norbert Vanbeselaere, and Jos Feys, "Behavioral Consequences of Fluctuating Group Success: An Internet Study of Soccer-Team Fans," *Journal of Social Psychology* 142 (2002):769-81; Sonia Roccas, "The Effects of Status on Identification with Multiple Groups," *European Journal of Social Psychology* 33 (2003):351-66.

[278] Henri Tajfel and John C. Turner, "An Integrative Theory of Intergroup Conflict. In *The Social Psychology of Intergroup relations*," Ed. William Austin and Stephen Worchel, (Monterey: Brooks/Cole, 1979).

[279] Moses Shayo, "A Model of Social Identity with an Application to Political Economy" (2009): 147-174.

states increase their status through victory in warfare it can lead individuals to identify more closely with the nation.[280]

Drawing from SIT, I expect that when regimes acquire costly prestige symbols, it can reduce the salience of domestic social problems—and thus support legitimating their rule domestically. For example, when states go to war, it can increase in-group loyalty (to the nation) by raising the salience of nation versus external outgroups.[281] Similarly, when individuals identify closely with the nation because of its increasing prestige, it can—similar to interstate conflict—raise the salience of intergroup differences and lead to in-group loyalty (to the nation). Therefore, although through different means, symbols of prestige enhancement can, similar to war, can improve individual perceptions of domestic social problems. This leads to the following hypothesis.

H1 (Stability through Prestige): *When states acquire prestige symbols, it will reduce individual perceptions of domestic social problems.*

However, regardless of the government's intent, domestic audiences may interpret these prestige symbols as carrying a different meaning. For example, although regimes may view a space capability as a symbol of prestige, individuals may view it as signifying enhanced military power or security, or as symbolizing the country's economic development. Although individuals share the same political

[280] Nicholas Sambanis, Stergio Skaperdas, and William C. Wohlforth, "Nation-Building through War," *American Political Science Review* 109, no.2 (2015): 279-296.
[281] Simmel, *Conflict and the Web of Group Affiliations*, (1955); Coser, *The Function of Social Conflict*, (1956); Tajfel, Henri and John C. Turner, "An Integrative Theory of Intergroup Conflict," (1979); Tobias Theiler, "The Microfoundations of Diversionary Conflict," (2018): 318-343.

culture as the regime—and thus are unlikely to have drastically different understandings than the regime—it is possible that individuals will draw different meanings about what the prestige symbol signifies. This is important because if individuals do not grasp the symbolic importance of a costly prestige project, then these projects may be of little use for regime legitimation.

Although these other interpretations of the symbol may lead individuals to evaluate the regime more favorably, I expect that it is specifically when individuals interpret the project as connoting prestige that these effects are likely to occur. Thus, although I expect many individuals to intuit from implicit messaging that a specific capability is a prestige symbol, these effects should be strongest when these capabilities are explicitly framed in the discourse of prestige. This can be hypothesized as follows.

H1a (Stability and Prestige Frames): *Prestige projects that are explicitly framed in prestige discourse will be more effective at reducing the salience of domestic social problems than those that lack this framing.*

Research Design

To assess these questions, I fielded an online survey (N=1,529) to Chinese respondents 18 years or older in provinces throughout China in June-July 2020.[282] The survey asked respondents a battery of questions related to their perceptions regarding China's space activities. In this survey, I also embedded an experiment to assess the

[282] This survey was preregistered through EGAP. The survey was contracted through the survey company Qualtrics. All instructions were written in Mandarin and the survey was stripped of all identifying information to avoid surveyor effects. Further information on the sampling and recruitment procedures, demographics, balance and covariates, pre-testing, and translation protocol can be found in the Appendix.

causal effects of costly prestige projects, specifically China's human spaceflight program, on Chinese attitudes regarding domestic social problems. Survey experiments are increasingly commonplace in political science owing to their ability to allow researchers to randomly assign treatment conditions—an attribute which is not possible with observational research. However, the strengths of survey experiments are often exaggerated it is worth discussing some of their limitations. Deaton and Cartwright provide a powerful critique of the often-exaggerated claims about experimental research or 'randomized controlled trials' (RCTs). Importantly, they argue that without prior knowledge, scholars cannot generalize or extrapolate beyond the experimental setting—as they do not understand the social structures that enabled the causal relationship they observe.[283] Surveys are not independent of their social context, and thus researchers should be careful about overinterpreting their findings. It is, thus, necessary to emphasize that the survey's findings cannot be divorced from the broader substantive context in which the survey was carried out. Thus, any findings are suggestive, context-specific, and localized in a specific time frame. However, although surveys experiments may not be superior to observational research, they provide greater insights into public opinion than which can be gleaned by examining state-run media. Cognizant of the limitations of experimental research, this survey provides a suggestive glance at how prestige projects and framing affect public perceptions of the regime's performance.

The survey is non-random, but it uses stratified sampling to match the sample

[283] Angus Deaton and Nancy Cartwright, "Understanding and Misunderstanding Randomized Controlled Trials," *Social Science & Medicine* 210 (2018): 11.

population on key demographic data that corresponds with China's online population. It is important to note that this sample population skews higher than the median income and education of China's general population.[284] Therefore, the survey is limited in its ability to make inferences about China's broader population. However, there are theoretical and pragmatic reasons for studying the opinions of China's online population. First, China's government pays keen attention to the attitudes of China's online population, attempting to monitor and shape online public opinion, and even hiring public opinion analysts to study China's online public opinion.[285] Considering that the CCP cares about online public opinion, the opinions of China's online population are of substantive interest. Second, scholars have found that by providing respondents a degree of anonymity, online surveys are effective at reducing problems such as social desirability bias.[286]

To assess the hypotheses on the effects of prestige symbols on individuals' perceptions, the survey also used a real-world example of a costly prestige project—China's human spaceflight program. It is important to note some of the tradeoffs involved in using a real-world versus a hypothetical survey design. Real-world survey

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[284] See the Appendix for information on sampling.
[285] Jonathan Hassid, "China's Responsiveness to Internet Opinion: A Double-Edged Sword," *Journal of Current Chinese Affairs* 44, no.2 (2015): 39-68l; Lianrui Jia, "What Public and Whose Opinion? A Study of Chinese Online Public Opinion Analysis', *Communication and the Public* 4, no.1 (2019): 39-68; Su Zheng and Tianguang Meng, "Selective Responsiveness: Online Demands and Government Responsiveness in Authoritarian China*, Social Science Research* 59 (2016): 52-67; Gary King, and Margaret E. Roberts, "How Censorship in China Allows Government Criticism but Silences Collective Expression," *American Political Science Review* 107, no.2 (2013): 1-18; Gary King, Jennifer Pan, and Margaret E. Roberts, "How the Chinese Government Fabricates Social Media Posts for Strategic Distraction, not Engaged Argument,' *American Political Science Review* 111, no.3 (2017): 484-501; Linchiat Chang and J.A. Krosnick, "Comparing Oral Interviewing with Self-Administered Computerized Questionnaires: An Experiment," *Public Opinion Quarterly* 74, no.1 (2010): 154-167.
[286] L. Chang and J.A. Krosnick, "Comparing Oral Interviewing with Self-Administered Computerized Questionnaires: An Experiment," *Public Opinion Quarterly* 74 (1) (2010): 154-167.

designs have the benefit of enhancing external validity by drawing upon real life events. However, as opposed to hypothetical scenarios, the surveyor has less liberties in experimentally altering the events. Moreover, as all groups have been exposed to the real-world event, the results are likely to be more conservative in estimating effect sizes. Nonetheless, for the purposes of this study, I am interested in the real-world effects of Chinese prestige projects on Chinese domestic audiences.[287]

All respondents in the control and treatment groups read and identical control text (provided in Table 1 below). To assess H1a—on the effects of prestige projects explicitly framed in prestige rhetoric, I used two different treatment texts—an implicit and an explicit prime. The implicit prime discussed China's success in human spaceflight, providing context clues about China being in an exclusive club—stating that China was "one of only three countries in history" to successfully send a human into space. Respondents in the "explicit" treatment group read the exact same text but also read an additional sentence that explicitly framed the accomplishment in prestige discourse, stating "This accomplishment greatly enhanced China's international status." The full text of the control and treatment texts is provided in Table 1 below.

Table 6.1: Experimental Text

Control Text	"We are interested in hearing your opinions about some contemporary social issues as well as your views related to space exploration."
Treatment 1: Implicit Text	"We are interested in hearing your

[287] For a more in-depth discussion of the tradeoffs in real-world versus hypothetical survey designs, see Jessica Chen Weiss and Allan Dafoe, "Authoritarian Audiences, Rhetoric, and Propaganda in International Crises: Evidence from China. *International Studies Quarterly* 63, no.4 (2019): 963-973.

	opinions about some contemporary social issues as well as your views related to space exploration. As you may know, we are one of only three countries in history to have sent a human into space."
Treatment 2: Explicit Text	"We are interested in hearing your opinions about some contemporary social issues as well as your views related to space exploration. As you may know, we are one of only three countries in history to have sent a human into space. This accomplishment greatly enhanced China's international status."

The survey asked respondents a series of questions regarding their opinions regarding investments in human spaceflight, sending taikonauts to the moon, as well as lunar and Martian exploration.[288] Where possible, the survey adapted questions from Pew Research Center surveys of American attitudes regarding US space activities.[289] A summary of these questions is provided in Table 2 below.

Table 6.2: Chinese Attitudes on Human Spaceflight and Exploration

1. Do you think China's human spaceflight program has been…?
   - A good investment for this country
   - Not a good investment for this country
   - No Answer

2. It has now been over 16 years since China first placed a human in space. Do you think the space program has brought enough benefits to this country to justify its costs, or don't you think so?

   - Yes, brought enough benefits
   - No, doesn't justify costs
   - No opinion

[288] I randomized the question order to guard against ordering effects.
[289] Cary Funk and Mark Strauss, "Majority of Americans Believe It is Essential That the US Remain a Global Leader in Space," *Pew Research Center,* June 6, 2018, https://www.pewresearch.org/science/2018/06/06/majority-of-americans-believe-it-is-essential-that-the-u-s-remain-a-global-leader-in-space.

3. The cost of sending humans to space is considerably greater than the costs of using robotics for space exploration.

As you think about the future of the country's human space program, do you think it has:

- Yes, brought enough benefits
- No, doesn't justify costs
- No opinion.

4. There has been much discussion about attempting to land a taikonaut on the moon. How would you feel about such an attempt—would you favor or oppose our country setting aside money for such a project?

    - Favor
    - Oppose

Do you think China's lunar program has been …?

- A good investment for this country
- Not a good investment for this country
- No answer

On a scale of 1-10, with 1 representing "completely disagree" and 10 representing "completely agree," how much do you agree with the following statement?

- Our Mars program is a good investment for the country.

In addition to these general questions on attitudes regarding China's space activities, I also sought to assess the causal effect of the survey experiment on Chinese perceptions of domestic social problems. Other scholars find that in the Chinese context, respondents are often much more candid in voicing criticisms regarding local problems.[290] I, therefore, ask respondents to evaluate several problems in their locality, including economic development, environmental pollution, unemployment insurance, social inequality, national security and defense, public order, commodity prices,

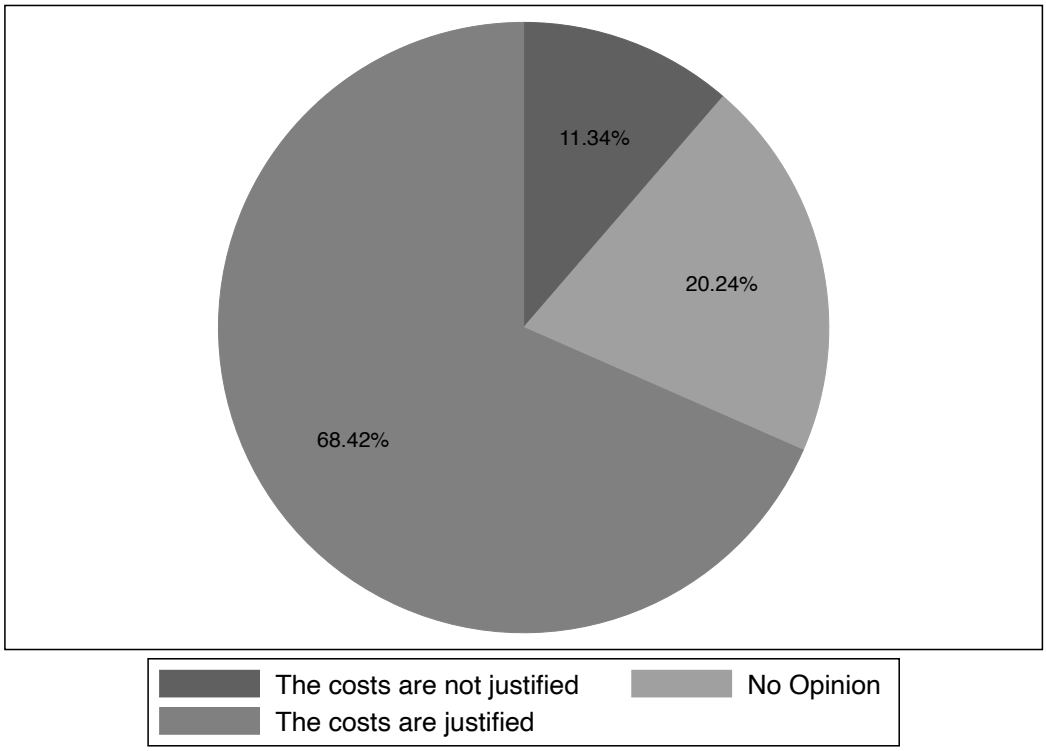
[290] Tony Saich, "Citizens' Perceptions of Governance in Rural and Urban China, *Journal of Chinese Political Science* 12, no.1: 1-28.

corruption, health care, and public health. Furthermore, to provide qualitative data into how Chinese respondents understand and the symbolic value of China's space program, I provided respondents the opportunity to explain whether or why they support human spaceflight—in their own words. Last, I also asked respondents a standard set of demographics questions to allow for conducting subgroup analysis.

Descriptive Results

Does China's public support investments in costly endeavors such as human spaceflight and deep space exploration? I find evidence that these projects are highly popular among China's public. Results indicate that 68.4 percent of respondents view the costs of human spaceflight as justified, while 11.3 percent of respondents do not view these costs as justified. This is depicted in Figure 1 below.

Figure 6.1: Are the Costs of Our Human Spaceflight Program Justified?

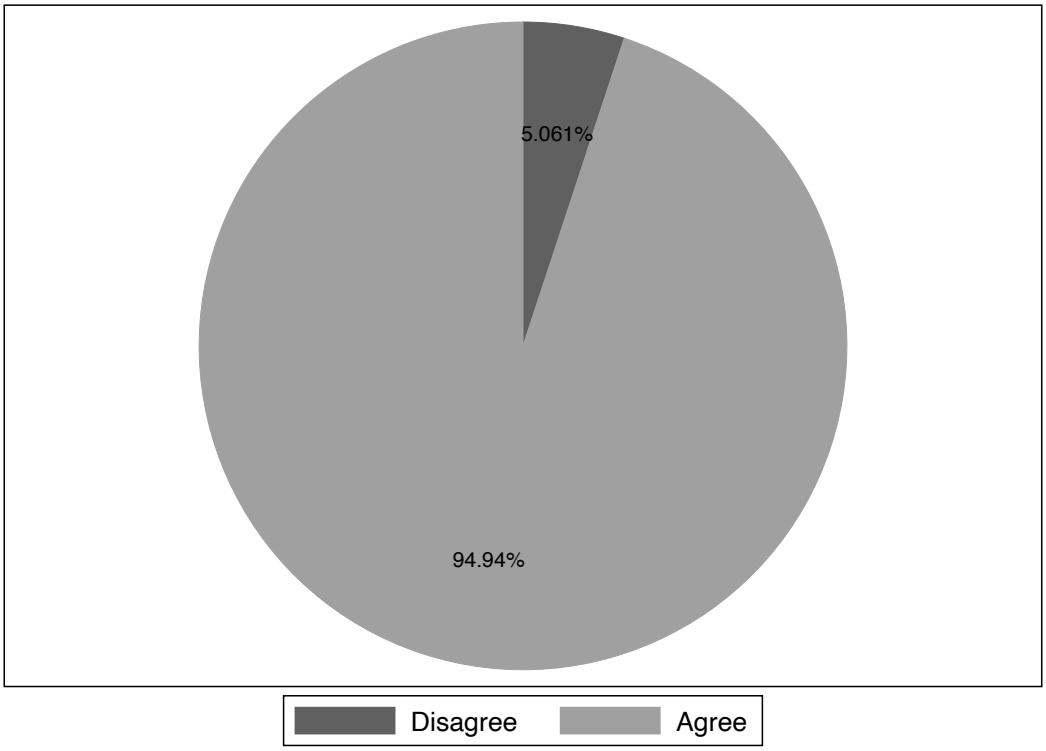


Although these results should be interpreted cautiously, they suggest that Chinese respondents are either less aware of or care less about the costs associated with human spaceflight (relative to its perceived benefits) than American respondents.[291] This, therefore, suggests not only that China's public supports human spaceflight, but that by pursuing human space capabilities, the CCP is unlikely to face public backlash—as it is acting consistently with public preferences.

Similarly, I sought to understand whether Chinese individuals support prospective missions such as sending a taikonaut to the moon. Results indicate that such a goal would be extremely popular with China's public, and this support is much higher than American support for sending astronauts back to the moon. Approximately 95 percent of respondents support setting aside money to send a taikonaut to the moon, whereas only 5 percent of respondents opposed doing this. These results are depicted in Figure 2 below.

Figure 6.2: Do You Support Sending a Taikonaut to the Moon?

[291] Due to differences in question wording and sampling procedures, comparisons between my survey and the 2018 Pew Research Center survey should be interpreted cautiously.



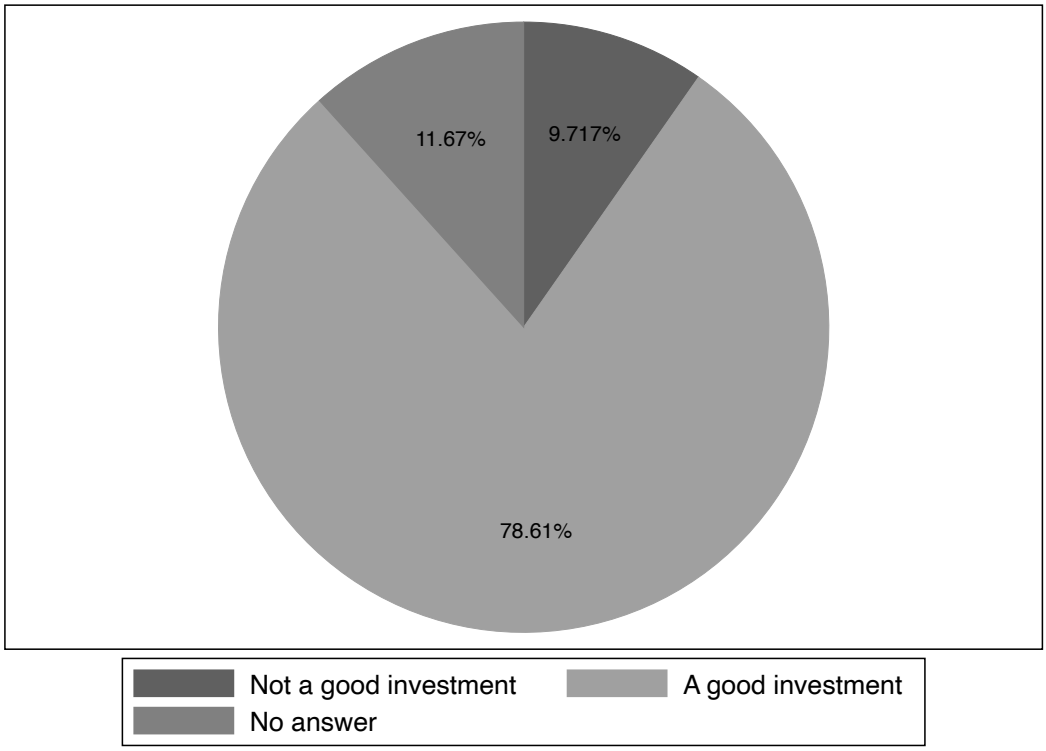
In comparison, when asked about sending astronauts to the moon, 44 percent of American respondents said that it was "not too important/should not be done," 42 percent said it was an "important but lower priority," and only 13 percent of respondents argued that it should be a "top priority."[292] Again, these results must be interpreted cautiously due to differences in question wording and sampling procedures. However, these initial results suggest that Chinese public support is much higher than American public support. In explaining these cross-national differences, it is possible that Chinese respondents are unaware of the steep costs required to send a human into space, or it is possible that China's public may favor such a program regardless of the price tag. Similarly, these differences may be accounted for by the fact that China has never sent humans to the moon. Therefore, while this

[292] Ibid.

accomplishment may signify that the United States has replicated a feat it already accomplished in 1969, for China's public, going to the moon may signify that China has achieved great power prestige (accomplishing a feat that only one other country—the United States—has). Altogether, these findings provide suggestive evidence that despite the steep costs associated, program to send humans to the moon would be consistent with Chinese public preferences.

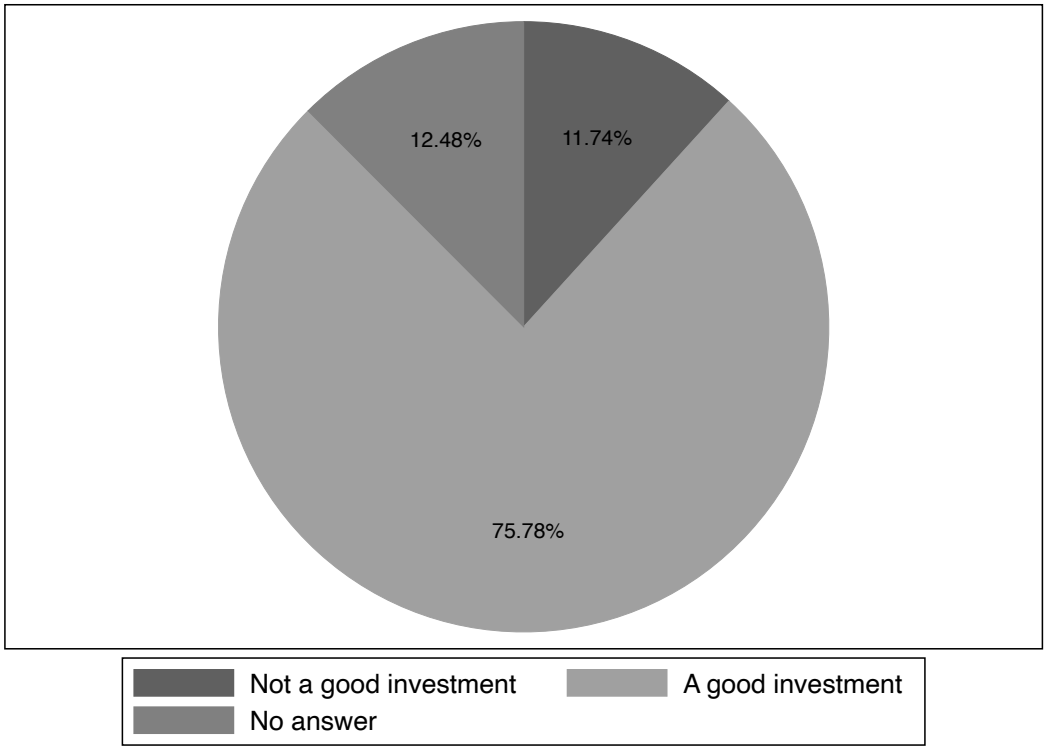
I also sought to understand whether individuals support investments in prestige projects that do not require sending humans into outer space—such as lunar and Martian exploration. Although robotic deep space exploration is a costly and technologically complex, it may not resonate with the public in the same manner as sending humans into outer space. However, if respondents support investments in robotic exploration at comparable rates to human spaceflight, it suggests that Chinese investments in human spaceflight are, indeed, inefficient for meeting the regime's domestic objectives. Indeed, I find evidence that respondents support prestige projects that do not involve sending humans into space at comparable and slightly higher rates than human space flight. The results indicate that a slightly higher percentage of respondents support lunar exploration than those who support investments in human spaceflight. 79 percent of respondents viewed lunar exploration as a good investment, whereas only 12 percent did not view it as a good investment. This is illustrated in Figure 3 below.

Figure 6.3: Is Our Lunar Program a Good Investment?



Similarly, I wanted to investigate whether Chinese respondents view China's Martian program as a good investment. In July 2020, China launched the Tianwen-1 headed toward Mars, which began orbiting Mars in February 2021. The results suggest that China's public largely supports investing in its Martian program, and at similar levels to its lunar program. Approximately 76 percent of respondents view China's Martian program as a good investment, whereas roughly 12 percent do not view the program as a good investment. These results are depicted in Figure 4 below. Thus, these results suggest that in addition to human spaceflight, China's public is consistent in its high levels of support for other high-profile space projects with limited immediate or tangible, material payoffs for the public.

Figure 6.4: Is Our Mars Program a Good Investment?



Taken together, these results suggest that China's public is highly supportive of costly prestige projects. Yet these results also indicate that China's public may be slightly more supportive of its robotic, deep space operations. Although these programs are expensive and technologically complex, they do not nearly require the same resources as sending humans into outer space. Thus, these results suggest that the CCP would not necessarily need to pursue the costly goal of sending humans to reap domestic benefits. Nonetheless, these results are descriptive and do not provide evidence into the effects of costly prestige projects on public perceptions—the subject of the following section.

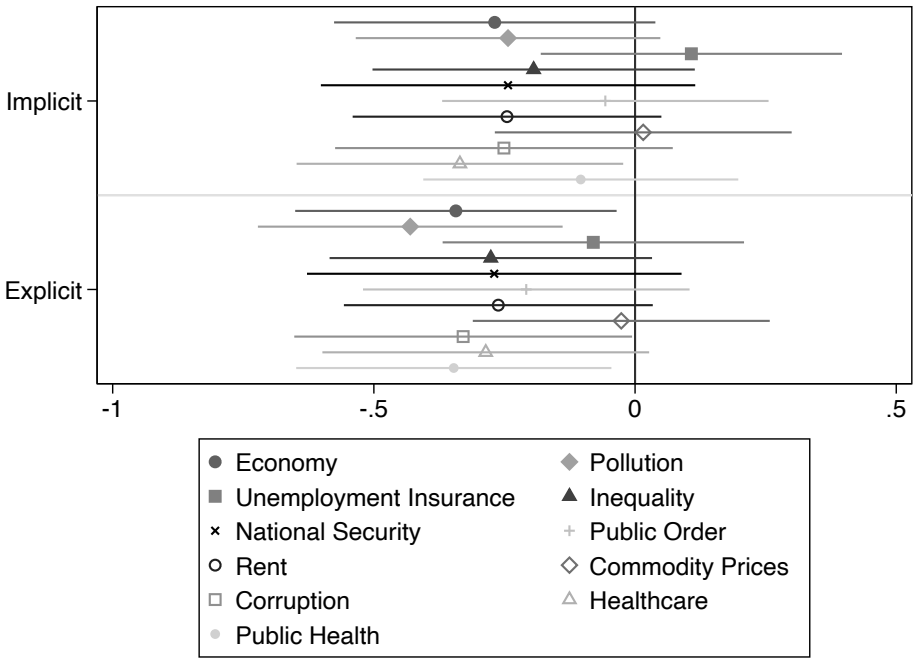
Experimental Results

Beyond assessing whether China's public supports investments in human spaceflight, I also assessed the effects of costly prestige projects on individual level perceptions. To assess the results, I conduct an ANOVA test. As hypothesized above, H1 expects that prestige projects are likely to improve individual perceptions of domestic social problems. The results from this analysis are depicted in Figure 5 below. The results support H1, providing evidence that costly prestige projects do have a ameliorate public concerns with domestic social problems. Results with a negative coefficient indicate that individuals rate a social problem as less severe after being exposed to the prestige prime, while positive coefficients indicate that after being exposed to the prestige prime, respondents evaluate a social problem as being more severe. For the first treatment group (the implicit prestige prime) only two variables have a positive coefficient (perceptions of unemployment and commodity prices); however, these variables are not statistically significant. All the remaining indicators for both the implicit and explicit treatment groups have a negative coefficient, indicating that respondents viewed these domestic social problems as less severe.

The results also provide supportive evidence for H1a. Consistent with H1a, results for the explicit prestige group (where China's human spaceflight accomplishment was explicitly framed in the language of prestige) were stronger than the implicit prestige group (where respondents simply read about China's success in human spaceflight). For those in the implicit treatment group, only perceptions of healthcare are statistically significant. In contrast, for those in the explicit treatment

group, the coefficient size is larger (indicating a stronger effect of the prime) and perceptions of corruption, economic problems, and public health are statistically significant. Similarly, variables of individual perceptions of inequality and corruption approach conventional thresholds of statistical significance.

Figure 6.5: Prestige and Perceptions of Social Problems



Taken together, these results suggest that when regimes may be correct in viewing costly prestige projects as a useful political resource. The results from both the implicit and explicit primes suggest that costly prestige projects can reduce individual perceptions of domestic social problems. However, the fact that the effects of the explicit prestige prime are stronger than the implicit prestige prime suggests that individuals may not necessarily intuit prestige projects as signifying prestige—but they may view these projects as having a variety of symbolic meanings (e.g., signifying increasing economic growth or military power). This suggests that despite

regime propaganda, individuals may not necessarily infer prestige value from these lavish projects. However, when these projects are explicitly framed in the rhetoric of prestige, these effects are much stronger. As illustrated in Chapters 3 and 5, the CCP frames these projects in the language of prestige. Furthermore, since the effects of the explicit prime are stronger than the first prime, it suggests that it is prestige which is exhibiting the greatest causal effect—as the only difference between these two primes is the explicit prestige framing.

More broadly, it is worth noting that the effect size of prime on these groups is relatively small. In explaining this small effect size, these results may be conservative estimates of the real-world effects of prestige projects—as individuals may have higher baseline levels of nationalism (and thus are less likely to be affected by the prime), and they may already have widespread exposure to information regarding China's successful human spaceflight program. However, the fact that there is any effect from these primes (considering that China sent a human into space 13 years ago) suggests that the effects of these prestige projects may be quite durable.

Open-Text Results

To explore how individuals understand China's human spaceflight program, I provided respondents an opportunity to describe, in their own words, how they perceive China's human spaceflight program. I asked respondents whether it is important for China to invest in human spaceflight, and to explain their views. Respondents provided a variety of reasons for supporting human spaceflight, including its contributions to economic and technological development, national security, and a

genuine interest in space exploration. However, the vast majority of respondents referenced image and reputational considerations, particularly an emphasis on great power status. One respondent wrote: “We must have our space program so that the foreigners don’t look down upon us, investing in human spaceflight is very important” (投资载人航天很重要，我们才会更强大，不被其他国家看不起). Similarly, another respondent said it is important to invest in human spaceflight, because “[It] strengthens my country’s prestige and displays my country’s increasing national power” (重要，强我国威，增强国力的重要表现).

Several respondents in the implicit treatment group referenced prestige concerns. One respondent wrote that investing in human spaceflight is “Very important. Because carrying out this project [human spaceflight] can enhance my country’s international status and give my country a voice in the aerospace industry” (非常重要。因为开展该工程可以提升我国国际地位，让我国在航天事业上有话语权). Another respondent answered, this is a manifestation of my country’s overall scientific and technological strength and is of great significance for providing my country great power status” (这是国家整体科技实力的体现，对提供我国大国地位具有重大意义). As these responses indicate, the vast majority of respondents viewed China’s human space program as tied to its international prestige or status.

Individuals in the second treatment group, the explicit group, also frequently cited prestige considerations in explaining their support for investing in human spaceflight. One respondent, for example, stated that investing in human spaceflight is “Important, [because] it can comprehensively enhance China’s international status” (

重要，可以全面提升中国的国际地位). Overall, as these responses highlight, respondents in the explicit treatment group were highly likely to reference prestige concerns in justifying investments in human spaceflight.

Conclusion

This dissertation has argued that from the very outset of China's space program, Chinese leaders have diverted scarce resources toward lavish prestige projects. Investments in these costly prestige programs divert resources from other strategic ends from military modernization to enhancing China's domestic social welfare. Although these prestige projects may be suboptimal from a military or economic perspective, this dissertation has argued that Chinese leaders pursue these projects to increase their domestic legitimacy. However, although Chinese leaders may invest in space capabilities for domestic legitimacy, it is unclear what effect, if any, these costly prestige projects have on Chinese domestic audiences. More broadly, very little is known about Chinese public attitudes regarding its space activities.

To investigate these questions, I carried out, to my knowledge, the first survey of Chinese public attitudes regarding China's space activities. Based on data from this survey, this chapter finds evidence that Chinese individuals are highly supportive of China's human spaceflight program, its Martian and Lunar programs, and that they would support future missions such as sending a taikonaut to the moon. This chapter also finds evidence that China's prestige projects benefit the CCP by reducing individual-level perceptions of domestic social problems. The small effect size

suggests that the CCP may receive diminishing marginal benefits from investing in costly prestige projects. On the other hand, the fact that the CCP receives any benefits from an accomplishment that occurred nearly 17 years prior, suggests that the effects of these prestige projects might, in fact, be quite durable.

CHAPTER 7

CONCLUSION

To explain why China has invested in lavish space capabilities with limited material payoffs, this dissertation developed a framework focused on domestic prestige narratives. To summarize, Chapter 3 argued that despite the realpolitik origins of China's early nuclear and ballistic missile programs, Mao and CCP's domestic prestige narrative led China to divert scarce resources toward developing a satellite—to compete in a 'space race' that American and Soviet leaders viewed as only a two-party contest. I showed that almost every component of China's first satellite project served domestic propaganda purposes—signifying that through Maoist ideology, China could match and eventually 'surpass' the world's leading 'imperialist' power (the United States). China even briefly initiated a human space program—though it would prove short-lived due to a lack of funds and the political chaos of the Cultural Revolution. Altogether, this costly pursuit of prestige led China to divert resources from its other strategic objectives—namely a communications satellite and its ICBM program.

Chapter 4 examined when China prioritized material objectives over prestige enhancement. It argued that in the aftermath of the Maoist era, the CCP—under Deng's leadership began to pursue alternative sources of legitimacy, shifting away from Mao's prestige narrative to focus on material-based legitimacy—increasing standards of living through instituting policies of economic reform. Seeking to promote China's development and security interests, Deng abandoned costly projects that simply served as prestige symbols, such as Project Shuguang, and instead invested

in capabilities such as remote sensing satellites, China's first telecommunications satellite, and ICBMs.

Despite this more pragmatic turn in Chinese policy, Chapter 5 argued that following the legitimacy crisis (most visible during the Tiananmen Square protests), the Party once again promoted a prestige narrative domestically, basing its legitimacy, in part, on the 'restoration' of Chinese prestige from China's 'Century of Humiliation.' I argued that although Deng had been personally opposed to costly prestige projects, consistent with the CCP's post-Tiananmen legitimation narrative, the CCP sought a powerful symbol of China's increasing prestige—its human space program.

Chapter 6 tested the microfoundations of the framework advanced in this dissertation and explored Chinese attitudes regarding China's human spaceflight, lunar, and Martian exploration programs. Using a survey experiment, it assessed the effects of China's human spaceflight program (a costly prestige project), on individual perceptions of domestic social problems. Results suggest that Chinese citizens are highly supportive of China's most ambitious space initiatives and that prestige projects can ameliorate individual perceptions of domestic social problems. I found that these effects are strongest when they are explicitly framed in the language of prestige and are most effective with affluent individuals—the individuals that could potentially pose the greatest challenge to regime stability. Overall, Chapter 6 provides suggestive evidence that regimes accrue domestic benefits from pursuing costly prestige projects, and thus are incentivized to pursue them.

This chapter concludes the dissertation by discussing the implications of this

study for understanding the role of prestige in world politics and comprehending contemporary Chinese space policy. The chapter is organized as follows. The first section assesses potential counterarguments to the framework at the center of this study. The second section discusses lessons from this study for understanding the role of prestige narratives and domestic legitimacy in international relations and suggests directions for future research. The third section assesses the role of prestige and domestic legitimacy in shaping China's space ambitions in the near future. The fourth section presents implications of this study for China's broader space ambitions and the regime's domestic legitimacy. The fourth section discusses some of the mixed and unintended consequences of Chinese space expansion. The fifth section discusses the policy implications of this study for the management of the US-China space relationship.

Alternative Explanations

I now evaluate my argument against alternatives across the three case studies (Chapters 3-5). A short summary of how these frameworks compare is depicted in Table 7.1 below.

Table 7.1: Scoring Frameworks Across Chapters

	Chapter 3	**Chapter 4**	**Chapter 5**
Prestige Narratives	+	+	+
Leaders	+	+	-
External Status Competition	+	+	-
Security Maximization	-	+	+
Economic Maximization	-	+	-

Plus signs indicate that an argument has some explanatory utility, while minus signs indicate that it has little to no explanatory utility.

1. Prestige Narratives

The framework at the core of this dissertation argues that domestic prestige narratives explain patterns in Chinese space policy. Overall, this framework explains the variation in China's pursuits across Chapters 3-5. For Chapter 3, the prestige narrative framework provides an explanation for why China pursued its first satellite (to legitimate the CCP's rule domestically), how it pursued this project (reflected in the domestic propaganda surrounding the project), yet it only partially explains the timing of China's decision to pursue a satellite—as the project is consistent with Mao and the CCP's legitimation goals but cannot be explained without understanding the external stimuli influencing Mao's decision (the launch of Sputnik, and the onset of the US-Soviet space).

My framework is also useful for explaining China's space policy in Chapter 4. I argued that China's change away from a prestige narrative explains Deng's decision to downsize its space program—as the CCP was focused on more material-based legitimacy. By focusing on material-based legitimacy, China pursued space capabilities that were more useful from an economic or security standpoint. My prestige narrative explanation also explains the timing of this change in Chinese space policy, as it corresponds with the death of Mao and the change in the CCP's legitimation narrative.

The prestige narrative framework is especially effective for explaining China's pursuit of a human spaceflight program in the post-Tiananmen era. Following the events of 1989, the CCP began to increasingly rely on prestige-based narratives to

legitimate its rule domestically. This explains why China pursued such lavish capabilities with limited material utility, as well as the nationalist propaganda surrounding the domestic coverage of Yang's flight.

2. Leaders

Arguments based on leader-level psychology may have some explanatory utility, though, overall, these arguments are less effective than the prestige narrative framework for explaining variation in Chinese prestige pursuits across cases. For Chapter 3, leader psychology can partially explain why Mao personally viewed China as in a status competition with the Americans and the Soviets. However, in accounting for the timing of the event, this explanation is incomplete as it does not explain the importance external status competition (the onset of the US Soviet space race) in driving Mao's decision. Leader psychology also explains why Mao competed in a space competition with the Americans and the Soviets (because he personally valued status). However, leader psychology does not explain how the project was implemented (e.g., why the project was tied to domestic propaganda or to Mao's then-domestic ally, Lin Biao).

Leader psychology is also useful for explaining China's space policy in the post-Mao era. The timing of China's space policy can be explained by the change in China's leadership. The status-obsessed Mao had been replaced by Deng, who did not value status as much as Mao. Thus, Deng—who cared less about status than Mao—focused on projects that served economic and military goals. Moreover, domestic coverage of China's most noteworthy projects during this time emphasized the

material contributions of space technologies.

However, although explanations rooted in leader psychology may have explanatory power in explaining Chapters 3 and 4, they are unable to explain Chinese space policy in 1992. It is unclear why Deng—who had once opposed lavish prestige projects, and had cancelled China's first human space program—would then provide the approval necessary for China to pursue one of the most expensive prestige projects in its history.

3. External Status Competition

Traditional arguments rooted in external status competition provide some value for explaining Chinese space policy in Chapter 3, but this explanation becomes decreasingly effective at explaining Chinese space policy in Chapter 4, and more so in Chapter 5. In Chapter 3, the occurrence of external status competition (the onset of the US-Soviet space race) partially explains the timing of China's decisions—as China pursued its first satellite after the onset of the US-Soviet space race; however, it only partially sheds light on the timing of China's decisions, because it does not explain why China would have viewed itself as a peer competitor with the Americans and Soviets in the first place (an explanation that requires drawing upon domestic-level variables). The external status competition argument also explains why China pursued space capabilities at this time—as they would allow China to reassert its standing vis-à-vis external competitors.

External status competition could explain China's space policy in Chapter 4, but this requires making the generous assumption that following the Apollo-Soyuz program and the end of the US-Soviet space race, China had accepted defeat in

external status competition with the Soviets and Americans as signified by the Apollo-Soyuz test project. However, there is no reason to think China would simply accept that the space race had ended and that it had lost—accepting that its status was solidified and less than the Americans and Soviets. Nonetheless, assuming that the timing of this change in Chinese space policy can be explained by declining external status competition, this framework does provide some utility in explaining why China changed its policy in the post-Mao era—if space capabilities were not a salient component of external status competition, China could invest in capabilities that were more aligned with its security and economic interests.

However, the external status competition argument cannot explain China's behavior in Chapter 5. If the space race ended in 1975, then it is unclear why China would suddenly restart its space program in 1992. In the absence of geopolitical status competition, traditional external status based arguments are unable to account for China's behavior in Chapter 5.

4. Security and Economic Maximization

Material-based explanations (those rooted in security and economic motivations) provide the least useful framework for explaining these patterns in China's pursuit of advanced space technologies across time. As discussed in Chapter 3, China's early space ambitions cannot be explained by the logic of economic maximization, as China was deeply impoverished and a satellite program could not contribute to China's economic development. Economic motives, however, can explain why China altered its space policy in the post-Mao era to focus on more commercially viable technologies to promote its development goals. However, in

Chapter 5, China's pursuit of a human space capabilities cannot be explained by economic motives—as China still had a low level of development (albeit higher than in previous decades) for pursuing such a risky and uncertain prestige project, as human spaceflight.

Security-based explanations are also unable to explain variation in China's pursuit of space capabilities across Chapters 3-5, though they provide greater utility than economic-based explanations. As discussed in Chapter 3, the pursuit of a satellite provided no security benefits to China and, in fact, diverted resources from its other security objectives. Chapter 4, is much more consistent with a security-based argument than the other chapters, as China moved away from lavish space projects and began devoting resources toward developing ICBMs. However, it is unclear why China would suddenly begin to prioritize space capabilities for security maximization during this time period. Security-based explanations, however, could have some value in explaining Chinese behavior in Chapter 5. As discussed in Chapter 5, the timing of China's pursuit of its human spaceflight program coincides with the Gulf War, which had a profound influence on Chinese strategic thinking about fighting "informationized warfare." From this perspective, China's human space program can be viewed as a modern day Trojan Horse—a strategic ruse for reassuring outside powers while developing its military capabilities. Yet this argument strains credulity, as the capabilities required to pursue human spaceflight (i.e., keeping humans alive and reentering them into orbit) far exceed the capabilities that a state would need for simply engaging in counterspace operations. China also had other viable alternatives for covertly pursuing kinetic direct-ascent ASAT capabilities, such as developing

ballistic missile defense (BMD). Nonetheless, as it is impossible to peer inside the minds of Chinese leaders, one cannot completely rule out the possibility of security motives in driving China's human spaceflight program.

Prestige Narratives, Domestic Legitimacy, and International Relations Theory

Although this study focused empirically on Chinese space capabilities, it provides insights into how the prestige motive drives states to engage in costly behavior. Specifically, this dissertation sheds lights on how prestige narratives drive states to pursue costly prestige projects. This study indicates that beyond examining the international factors that influence whether regimes pursue prestige, scholars should pay closer attention how regimes legitimate their rule domestically. This is important because as Ward argues, an important and remaining question for scholarship on prestige or status is *where* these ambitions come from and *why* states value them.[293] My dissertation sheds light on these questions by arguing that states, or better yet, *regimes* value prestige as a tool for domestic legitimation, and that their ambitions stem from their domestically constructed prestige narratives. These narratives, I argued, shape how regimes understand their place in the world, their points of comparison, and how they respond to and interpret information from the international system.

By only observing China's space policy after 1989, one might infer that China's pursuit of prestige simply reflects its rising power capabilities. However, by examining variation of Chinese prestige ambitions across the three periods presents a more complicated story. When Mao attempted to compete with the United States and

[293] Ward, *Status and Rising Powers* (2017): 208-211.

the Soviet Union in outer space, China was by no means a rising power—but was, instead, deeply impoverished and in the throes of domestic turmoil. Similarly, although China moderated its space ambitions in the post-Mao era, in a manner consistent with its capabilities, it once again pursued costly prestige projects, in the context of the post-Cold War international system and almost 17 years after the end of the 'space race'—during the Apollo-Soyuz Test Project. Although China was a 'rising power' in comparison to previous decades, it was still a relatively poor and developing country. Thus, China's fluctuating prestige ambitions sits uneasily with accounts of prestige ambitions corresponding with rising power capabilities.[294] This study instead found that China's pursuit of costly prestige capabilities reflected the regime's legitimation strategy. For Mao, China's pursuit of prestige reflected its ideological legitimation project domestically. In the post-1989 era, China's pursuit of costly prestige capabilities has to some extent reflected the regime's broader turn to a prestige narrative emphasizing China's restoration from the Century of Humiliation.

Nonetheless, although Mao's reliance on costly prestige projects was entirely divorced from China's material capabilities, the CCP's post-1989 prestige narrative is connected to China's rise, albeit indirectly. The conditions that have enabled China's rise economically and militarily (China's rapid economic development) have also generated pressures that have challenged the CCP's hold on power—leading to social problems such as wealth inequality, corruption, and pollution. This legitimacy crisis

[294] Wolforth, for example, states, "If the status of states depends in some measure on relative capabilities and if states derive utility from status, then different distributions of capabilities may affect levels of satisfaction, just as different income distributions may affect levels of status competition in domestic settings," William C. Wohlforth, "Unipolarity, Status Competition, and Great Power War," *World Politics* 61, no.1 (2009): 30.

stemming from China's rapid economic ascent has thus incentivized the CCP to legitimate its rule through prestige narratives.

Other scholars have similar argued that the conditions which enable countries to rise on the international stage can drive them to pursue expansionist policies. Snyder, for example, argued that rising powers that have concentrated interests can engage in coalitional logrolling and adopt expansionist myths—leading them to adopt aggressive policies that undermine their interests. Thus, the process of rising can generate domestic pressures that drive states to pursue aggressive and expansionist policies.[295] Similarly, in explaining Germany's Weltpolitik and assertive foreign policy, Gordon discusses the domestic pressures created by Imperial Germany's rapid industrialization and its inflexible political system. Germany's rapid industrialization gave way to pronounced social dislocations as well as the emergence of a rising middle class, placing pressure on rigid political institutions that were unable to accommodate these rising interests—leaving the German government no other option but to engage in assertive policy abroad to unify and pacify an increasingly dissatisfied population.[296] Consistent with these findings, my dissertation suggests that the process of rapid development (which enables a country's rise globally) can also lead regimes to adopt prestige narratives to legitimate their rule domestically—narratives which drive them to aggressively pursue prestige.[297]

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[295] Jack Snyder, *Myths of Empire: Domestic Politics and International Ambition*, (Ithaca, NY: Cornell University Press, 1991).
[296] Michael R. Gordon, "Domestic Conflict and the Origins of the First World War: The British and the German Cases," *Journal of Modern History* 46, no.2 (1974): 191-226.
[297] The counterfactual to this argument is not a China that remains impoverished, which would also imply a legitimation crisis for the regime and perhaps drive the CCP to adopt a prestige narrative. Instead, the counterfactual would be if China's rise produced less social dislocations or had domestic

This study also raises important questions about how states choose reference groups or points of comparison. Although used as a proxy for status, much of quantitative status scholarship assumes that these reference points are international and connected (to some extent) to a state's material capabilities (economic or military capabilities), with states comparing their status to that of other powers with similar material capabilities.[298] Other work measures how these reference points may be "local," and thus factors such as distance and culture may influence whether or states compare themselves.[299] Alternatively, Freedman argues that in addition to relational comparisons, states also use temporal comparisons to measure their status—measuring how their status has increased or decreased over time.[300]

As this dissertation suggests, in explaining how states choose their reference points, it is necessary to examine the narratives regimes use to legitimate their rule. For example, under Mao's legitimation narrative—ideology played an important role in shaping how China compared itself. Similarly, in the post-1989 era, China has increasingly tied its prestige to that of its former glory, lost at the hands of Western colonial powers. This domestically constructed nature of reference groups suggests

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institutions that better accommodated rising political interests. For example, Gordon (1974) suggests that it was these factors that made Great Britain's rise less aggressive than Germany's.

[298] For example, see Renshon 2016; Maurice A East, "Status Discrepancy and Violence in the International System: An Empirical Analysis," In *The Analysis of International Politics: Essays in Honor of Harold and Margaret Sprout*, ed. by James N. Rosenau, Vincent Davis, and Maurice A. East, 299-319 (New York: Free Press); Michael D, Wallace, "Power, Status, and International War," *Journal of Peace Research* 8 (1) (1971): 23-35; Michael D, Wallace, *War and Rank Among Nations*, (Lexington, MA: Lexington Books, 1973); Manus I. Midlarsky, *On War: Political Violence in the International System* (New York: Free Press, 1975); Thomas J. Volgy, and Stacey Mayhall, "Status Inconsistency and International War: Exploring the Effects of Systemic Change," *International Studies Quarterly* 39(1): 67-84; James Lee Ray, "Status Inconsistency and War-Involvement in Europe, 1816-1970, *Peace Science Society Papers* 23: 69-80.

[299] Renshon, for example, uses "community detection" algorithms to detect networks of status communities.

[300] Freedman, "Status Insecurity and Temporality in World Politics," (2015).

that how state's compare themselves may not necessarily be tied to factors such as power capabilities, or geographic or cultural proximity.

This has implications for how China responds to other potential competitors in the space domain. During the summer of 2020, China, the United States, and the United Arab Emirates (UAE) all launched spacecraft headed to Mars.[301] Although it is perhaps unsurprising that the United States could achieve this feat (as the United States is the most technologically advanced space power), the UAE's success could potentially be seen as damaging to Chinese prestige claims. While China has over 60 years of experience in outer space, the UAE began its Mars program in 2014.[302] Thus, the UAE's rapid success in sending a spacecraft to Mars could suggest that the CCP's is not effective at marshalling state resources to increase Chinese prestige. However, my framework suggests that as the UAE is not an important member of China's legitimation narrative or as a reference group (as it is not relevant for China's prestige narrative regarding the Century of Humiliation). Thus, China's leaders and public would not care about the UAE's success.

This dissertation also raises normative questions about the role of leading powers in 'managing' China's rise or accommodating China's growing prestige ambitions. A central question in international relations scholarship is how to peacefully manage power transitions. As China continues its ascent as an economic and military power, international relations scholars are increasingly examining of

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[301] Marcia Dunn, "U.S., China, UAE to Send Fleet of Spacecrafts to Mars," *Public Broadcasting Station*, July 13, 2020: https://www.pbs.org/newshour/science/u-s-china-u-a-e-to-send-fleet-of-spacecrafts-to-mars.

[302] Elizabeth Gibney, "How a Small Arab Nation Built a Mars Mission from Scratch in Six Years," *Nature*, July 8, 2020: https://www.nature.com/immersive/d41586-020-01862-z/index.html.

whether or how accommodation of rising powers such as China might occur.[303] Some status scholarship suggests that how rising powers respond to the international system will depend on how flexible or 'permeable' existing status hierarchies are. Larson and Shevchenko, for example, argue that when status hierarchies are inflexible rising powers may adopt policies may adopt policies of social mobility, competition, or creativity.[304] Similarly, Ward finds that when rising powers have their status ambitions denied, it can lead them to engage in violent revisionism. These works all share the assumption that, in terms of status aspirations, the behavior of rising powers –whether they pursue creativity, competition, mobility, or revisionism—depends largely on external factors—recognition or the permeability of existing status hierarchies.

This dissertation, however, suggests that status ambitions may not necessarily be influenced by the behavior of external states. As this dissertation has illustrates, although Chinese leaders responded to events in the international system (e.g., the onset of the space race), China's response to these developments largely followed the logic of the regime's legitimation narrative. Unbeknown to American and Soviet policymakers, China also sought to compete in the space race, and 17 years after the 'end' of the space race, China began one of the most ambitious prestige projects in world politics in world politics. As these patterns suggest, China's prestige ambitions may 'march to the beat' of China's 'own drum.'

Moreover, as this dissertation has suggested, in China's closed political system and controlled media environment, actions from the international system that reflects

[303] Ed. TV Paul, *Accommodating Rising Powers*: *Past, Present, and Future* (Cambridge, UK: Cambridge University Press, 2016).
[304] Larson and Shevchenko, "Status Seekers" (2010).

positively on China's prestige are likely to be amplified, whereas information that undermines it may be downplayed or censored. As this dissertation illustrated, China's prestige accomplishments were carefully choreographed by the state. Chinese state media similarly advertised external acts recognizing Chinese prestige gains and maintained tight control over any information that may undermine the regime's legitimation narrative—i.e., avoiding live broadcasting China's human space mission until it was a guaranteed success.

In this controlled environment, it is questionable whether prestige gains by other countries will allow undermine the CCP's prestige claims. Although comparison may typically be the "thief of joy," regimes can forbid comparison or at least creatively interpret information from the international system in a manner that is consistent with the regime's prestige narrative. For example, the UAE's ability to send a spacecraft to Mars on a shorter timeline than China could potentially be a source of embarrassment for China—or at least dilute Chinese prestige gains. However, Chinese state media can emphasize other information (i.e., emphasizing how the UAE relied on a Japanese rocket rather than indigenous technologies). For example, in describing the UAE's Mars mission, one *People's Daily* article emphasized how the UAE's space industry relies on international cooperation, launching its satellite from a Japanese rocket, and sending its first astronaut into space on a Russian Soyuz spacecraft.[305]

Generalizability

This dissertation focused on cases where China's prestige projects were at odds with

[305] 《人民日报》[People's Daily], 《阿联酋大力发展航天业》 [UAE Vigorously Develops Aerospace Industry], July 28, 2020: www.xinhuanet.com/world/2020-07/28/c_1210723242.htm.

its security or economic objectives, its first satellite program and its human spaceflight program. However, the findings from this study also generalize to other elements of contemporary Chinese space policy, other domains of China's strategic modernization, and they apply outside the Chinese context.

Concerns over prestige can explain China's pursuit of other (though not all)—space capabilities. It is necessary to first to discuss the space capabilities that *cannot* be explained by prestige concerns: China's counterspace capabilities. As other analysts have found, China's pursuit of counterspace capabilities can be traced to the Gulf War—what is often dubbed the first "space war"—in which American military forces demonstrated the utility of space capabilities for power projection and warfighting.[306] Since this time, Chinese military leaders have increasingly called for "winning informationized local wars" (打赢信息化局部战争).[307]

Beyond their security origins, another aspect of China's counterspace capabilities that are inconsistent with domestic prestige considerations is that they are *secretive*. Although publicity is not a sufficient factor for an object to connote prestige (as states may go public with a capability to provide a generalize deterrent), it is a necessary factor: regimes cannot derive prestige from capabilities that are private. With the exception of China's 2007 Anti-Satellite (ASAT) test, China's counterspace capabilities—from its ground-based lasers to its coorbital satellites—are largely hidden from the public eye. Although China's 2007 ASAT test was public, other details of the test are inconsistent with a prestige-based explanation. For example,

[306] Dean Cheng, "China's Military Role in Space" (2012): 58.
[307] M. Taylor Fravel, "China's New Military Strategy" (2015).

observers note that when China launched its ASAT test, China's Ministry of Foreign Affairs (MOFA) was unaware that the test was taking place—learning of the test secondhand through other sources.[308] This suggests that the publicity of China's first ASAT test was likely driven by problems of bureaucratic coordination rather than a concerted effort to garner domestic prestige.

However, the CCP's domestic prestige concerns likely help explain other puzzling aspects of Chinese space policy. Although not requiring the same technologies needed for a crewed mission, China's lunar and deep space exploration programs require a high degree of technological sophistication and heavy launch capabilities. Yet despite these difficulties, these projects do not provide any clear material benefits for China's military or economic development. For example, although some analysts have discussed the possibility of mining lunar resources, the economic viability of these programs remains dubious—with any potential economic benefits being decades away. Beyond the time and resources that would be required for surveying the moon's resources and mining them, China would also need to find a reliable and cost-effective way to transport them back to Earth. Considering the current difficulty of landing on the moon, it is hard to imagine a sustainable economic model for lunar mining—as the costs and technological capabilities required for surveying, mining, and then transporting these materials would be enormous—particularly the costs required for heavy lift rockets. Thus, it is difficult to imagine how China could actually profit from these endeavors. Moreover, as discussed in

[308] See James C. Mulvenon, "Rogue Warriors? A Puzzled Look at the Chinese ASAT Test," *Chinese Leadership Monitor* no. 20 (2007).

Chapter 1, other potential material explanations for lunar exploration, such as mining Helium-3 for renewable energy require a profound suspension of disbelief as well as the invention of technology (such as cold fusion) which (as of this writing) only exists in science fiction.

Yet despite the costs and dubious material rationale for exploring the moon and Mars, this dissertation suggests that these missions allow the CCP to legitimate its rule domestically. When China becomes the 'first' country to land on the 'far side' of the moon or the 'third' country to land on Mars, Chinese leaders can claim to domestic audiences that China is one step closer to achieving national rejuvenation. Moreover, as the evidence in Chapter 6 suggests, China's public is highly supportive of these missions—however impractical they may be for advancing China's material interests.

Second, although this dissertation focused on China's pursuit of prestige symbols in the space domain, the CCP's prestige narratives color other aspects of its approach to foreign policy and strategic modernization. For example, domestic prestige considerations may provide a powerful explanatory framework for understanding China's puzzling pursuit of an aircraft carrier.[309] Domestic prestige considerations may similarly drive other elements of China's strategic modernization—even if these capabilities are more consistent with China's broader strategic objectives. For example, as discussed in Chapter 3, during China's "two bombs, one satellite" program, China pursued not only a satellite, but also nuclear weapons. Although nuclear weapons served a valuable security function—providing China deterrent—these capabilities also had considerable prestige value, signifying

[309] Ross, "China's Naval Nationalism"; Pu, *Rebranding China.*

that China joined an exclusive international club. After China exploded its first nuclear weapon in 1964, China heavily publicized the project to domestic audiences. Though, unlike its first satellite, China did not have to sacrifice its security interests, as nuclear weapons also provided China a powerful deterrent (in addition to serving as a prestige symbol).

Beyond China's strategic and technological modernization, domestic prestige considerations may also help explain other elements of Chinese foreign policy. For example, seeking to demonstrate that they are restoring China's international standing, Chinese leaders may be more likely to approve materially costly endeavors such as the provision of public goods. As other scholars have highlighted, Chinese leaders increasingly emphasize "striving for achievement" (奋发有为) rather than following Deng's dictum of avoiding the limelight (韬光养晦).[310] Consistent with this new discourse, China is increasingly providing public goods to regional neighbors. In 2016, China announced the creation of a regional investment bank, the Asian Infrastructure and Investment Bank, to provide lending and investments in regional architecture.[311] China has also pursued an ambitious initiative to promote connectivity with Central Asia through its Belt and Road Initiative by providing development, infrastructure, and financial assistance to its regional neighbors.[312] Beyond these initiatives, China is also one of the top providers of troops and funds to UN

[310] Yan Xuetong, "From Keeping a Low Profile to Striving for Achievement," *Chinese Journal of International Politics* 7, no. 2 (2014).
[311] Gabriel Wildau and Charles Clover, "AIIB Launch Signals China's New Ambition," *Financial Times*, June 29, 2015: https://www.ft.com/content/5ea61666-1e24-11e5-aa5a-398b2169cf79.
[312] Andrew Chatzky and James McBride, "China's Massive Belt and Road Initiative," *Council on Foreign Relations*, January 28, 2020: https://www.cfr.org/backgrounder/chinas-massive-belt-and-road-initiative.

Peacekeeping Operations.[313] Nonetheless, although these pursuits may be costly, they promote not only China's domestic prestige, but they also advance its other interests, such as its economic or diplomatic interests.

Third, although this study focused on China, my framework is generalizable beyond the Chinese context. By raising the salience of the nation and the self-esteem of the nation, prestige can provide regimes of all types, a powerful resource for legitimating their rule domestically. Nonetheless, how these prestige strategies manifest varies across space, time, and regime type.

By possessing highly visible prestige projects, Chinese leaders can claim to domestic audiences that they are restoring China to its mythical greatness, lost during the 'Century of Humiliation.' Although the mythology of the 'Century of Humiliation' is unique to China's historical experience, China is not the only country that has endured 'humiliation' at the hands of more technologically powerful colonial powers.[314] Thus, for other postcolonial states, high-profile prestige projects may allow them to claim that they are restoring the nation's standing. For example, similar to China, India also has one of the world's most ambitious space programs, despite a comparatively low GDP per capita. India's space program sent a spacecraft to orbit Mars in 2014 and crash-landed on the moon's south pole in 2019.[315] Similarly, in

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[313] Lucy Best, "What Motivates Chinese Peacekeeping," *Council on Foreign Relations*, January 7, 2020: https://www.cfr.org/blog/what-motivates-chinese-peacekeeping.
[314] For a cross-national study on the effects of humiliation in world politics, see Joslyn Barnhart, *The Consequences of Humiliation: Anger and Status in World Politics* (Ithaca, NY: Cornell University Press, 2020).
[315] Jason Burke, "India's Mars Satellite Successfully Enters Orbit, Bringing Country into Space Elite," *The Guardian*, September 24, 2014: https://www.theguardian.com/science/2014/sep/24/india-mars-satellite-successfully-enters-orbit; Chelsea Gohd, "India Admits Its Moon Lander Crashed, Cites Problem with Braking Thrusters," *Space.com*, November 25, 2019.

2018, Indian Prime Minister Narendra Modi celebrated India's successful kinetic, direct ascent Anti-satellite (ASAT) test (Mission Shakti)—hailing the test as a symbol of national pride—despite the test's highly destructive nature.[316] Moreover, as of today, India plans its own crewed spaceflight by August 2022.[317]

The case of India also underscores how this framework can apply across regime type. In democracies, political parties or individual leaders may view international prestige as a source of legitimacy. Opponents, in contrast, may use discourses of declining prestige to discredit political incumbents.[318] Nonetheless, although prestige projects may provide a political resource in democracies and autocracies, democracies may face greater constraints in their ability to spend on costly prestige projects. With political competition and open media, democracies are likely to have a more robust debate about the material tradeoffs required for pursuing costly prestige projects. Whereas autocracies may censor public discussions criticizing the costs and use of prestige projects in state-owned media, democracies may have public debates regarding the costs of particular capability. It would be hard to imagine a Chinese equivalent of Gil Scott-Heron's poem 'Whitey on Moon' going viral in China's controlled media environment today.

Beyond public debates, democratic governments may also provide greater transparency about the costs required for pursuing these programs. China, by contrast,

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[316] Sanjeev Miglani and Krishna N. Das, "Modi hails India as Military Space Power After Anti-Satellite Missile Test," *Reuters*, March 27, 2019: https://www.reuters.com/article/us-india-satellite/modi-hails-india-as-military-space-power-after-anti-satellite-missile-test-idUSKCN1R80I.
[317] Nell Greenfieldboyce, "India Announces Plans for Its First Human Space Mission," *National Public Radio*, January 1, 2020: https://www.npr.org/2020/01/01/792927666/india-announces-plans-for-its-first-human-space-mission.
[318] See Ward, *Status and the Challenge of Rising Powers*, 2017.

does not provide data on its total spending on space capabilities; instead, outside observers make estimates about Chinese spending on space capabilities. China's public may, therefore, be unaware of budgetary tradeoffs involved in its space program. Thus, without the checks provided by public accountability, autocracies may have an easier time than democracies in allocating resources toward costly prestige projects. Similarly, in democracies, depending on an incumbent party's political strength, oppositional parties may obstruct prestige projects to avoid providing incumbent's domestic political benefits. The discussion above is not intended to argue that democracies cannot mobilize resources for costly prestige projects; instead, it suggests that pursuing costly prestige projects may be more complicated and difficult than in autocracies.

Furthermore, although democratic regimes may benefit from prestige, unlike autocracies, democracies can draw upon electoral legitimacy. Unlike autocracies, every election in a democracy allows one political party to claim a popular mandate; thus, democracies may have fewer incentives than autocracies to rely on domestic prestige narratives to legitimate their rule domestically.

The Consequences of Chinese Space Expansion

This study provides insights into the pressures that will shape the trajectory of China's space ambitions. This study suggests that China will likely continue pursuing high profile prestige accomplishment regardless of whether it faces heightened resource constraints. Although China is wealthier today than in previous decades, its economic

growth is already beginning to cool.[319] Should China's economic growth continue to slow or should China experience a sharp economic downturn, China's space program could face increased budgetary pressures. However, this dissertation suggests that the CCP may face more substantial countervailing pressures to demonstrate that China's prestige is increasing.

As this dissertation has found, Chinese leaders have pursued some of China's most ambitious space projects during periods of severe poverty and instability. Thus, this dissertation suggests that in search of domestic legitimacy, the CCP may become even more ambitious in its pursuit of prestige during periods when it cannot deliver legitimacy through material development. As suggested by this chapter's opening quote, like a supernova glowing its brightest when the star is decaying, Chinese leaders may be more likely to pursue costly prestige projects when their legitimacy is most strained.[320]

Moreover, considering the vast expanse of outer space, the potential for continued prestige accomplishments is almost endless, allowing China's space program to continue accomplishing new milestones and accomplishing new 'firsts' in the field of space exploration. For example, after reaping the domestic prestige benefits of sending China's first human to outer space, China has been able to achieve other attention-grabbing feats—sending China's first female taikonaut (Liu Yang) into

[319] Sasha Ingber, "China's Economy Falters; Slowest Growth in Nearly 3 Decades," *National Public Radio*, July 15, 2019: https://www.npr.org/2019/07/15/741735791/chinas-economy-falters-slowest-growth-in-nearly-3-decades.
[320] For a similar argument about China's decline leading to increased assertiveness, see Michael Beckley, "The United States Should Fear a Faltering China," *Foreign Affairs*, October 28, 2019.

space and carrying out multi-day and orbital rendezvous missions.[321] China is also planning to finish constructing its space station by 2022, and some Chinese officials claim that China intends to develop a human-operated lunar base. However, there are still no official plans for such an endeavor.[322] Each of these new accomplishments will provide the regime another powerful symbol that under Xi Jinping and the CCP's leadership, China is increasing its prestige and moving closer to achieving 'national rejuvenation.'

For advocates of space exploration, the continued accomplishments of China's space program promise a positive future of increasing scientific breakthroughs and discoveries, paving the way for future human settlement in outer space. Although such projects may be materially costly to undertake, this dissertation suggests that China may be willing to make investments in these capabilities if it supports the CCP's domestic legitimacy. For techno-optimists, China's continued expansion into outer space is a welcome development. Yet, there are reasons to be wary about the continued expansion of Chinese activities in outer space. Deudney cautions against pinning humanity's future to further "space expansionism"—as it may threaten or jeopardize human survival, by "making nuclear war more likely."[323]

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[321] Xinhua, "China Completes First Spacecraft Rendezvous, Docking in Lunar Orbit," December 6, 2020: ; Reuters, "China Launches Longest Manned Space Mission," October 16, 2016: https://www.reuters.com/article/us-china-space/china-launches-longest-manned-space-mission-idUSKBN12G10V; Korva Coleman, "She's a Taikonaut—China is Sending its First Woman into Space," *National Public Radio*, June 15, 2012: https://www.npr.org/sections/thetwo-way/2012/06/15/155107287/shes-a-taikonaut-china-is-sending-its-first-woman-into-space.

[322] Mike Wall, "China Plans to Launch Core Module of Space Station this Year," *Space.com,* January 7, 2021: https://www.space.com/china-space-station-core-module-launch-spring-2021Joe McDonald and Victoria Milko, "China's Space Ambitions: Robot on Mars, a Human on the Moon," *Associated Press*, December 2, 2020: https://apnews.com/article/china-robot-mars-human-on-moon-265e6b1227e9ce0ea9c8bb1f6c1dbda3

[323] Daniel Deudney, *Dark Skies: Space Expansionism, Planetary Geopolitics, and the Ends of Humanity*, (Oxford, UK: Oxford University Press, 2020): 7.

Similar to Deudney, this dissertation is pessimistic about the security consequences of China's continued expansion into outer space. As discussed in Chapter 2, prestige competition can have unintended consequences, escalating to security competition and arms races. Just as Wilhelmine Germany's quest for prestige sparked a naval arms race, China's prestige pursuits in the space domain elevates American threat perceptions today.[324] In the case of China's space program, this is especially true due to the dual use nature of space capabilities and the close involvement of the PLA in Chinese space policymaking. Consequently, almost every gain by China in the realm of space can be interpreted as contributing to its military power. American analysts, for example, highlight that the leadership for China's Shenzhou missions involved senior PLA officers.[325] Moreover, the close involvement of the PLA in China's human space program is often invoked as a justification for the United States not to cooperate with China in outer space.[326]

US defense officials liken China's human space program and planned space station to the now 40 plus years defunct American orbital reconnaissance platform, Project Dorian.[327] Other analysts emphasize the weight-lifting capacity for rockets used to deliver humans into space. For example, some analysts argue that these rockets could also be utilized to launch an Intercontinental Ballistic Missile, spy satellite, or to

[324] Murray, "Identity, Insecurity, and Great Power Politics," (2010); Murray "The Struggle for Recognition," (2019)
[325] Dean Cheng. 2011. Five Myths About China's Space Program. The Heritage Foundation: https://www.heritage.org/space-policy/report/five-myths-about-chinas-space-program
[326] "The Implications of China's Military and Civil Space Program." Hearing Before the U.S.-China Economic and Security Review Commission, May 11, 2011; Wolf, Frank. 2011. US Should Not Cooperate with People's Liberation Army to Help Develop China's Space Program. Press Release, Space Reference. November 2, 2011: http://www.spaceref.com/news/viewpr.html?pid=35130.
[327] Interview, Washington, DC, August 2, 2018.

target American satellites and early warning sensors located in distant orbital paths.[328] Similarly, in 2013, when China tested a robotic arm, ostensibly for use on a future space station, analysts argued that China could also use such capabilities for counter space co-orbital operations to disrupt or damage US satellites.[329] Some analysts also argue that China's human space program requires tracking stations—which the PLA runs. As such, these tracking stations allow China to expand its global military footprint and have quasi, de-facto military bases abroad.[330]

Outside China's human space program, other high-profile prestige projects contribute to threat perceptions. For example, when China landed on the 'far side' of the moon in 2019, several headlines announced that China and the United States were in a 21st century "space race," while other articles argued that China planned to establish a military base on the moon. Some defense analysts claimed China could use a weaponized lunar base for targeting American satellites in geosynchronous orbit. Some commentators argued that China was getting a head start on beginning mining operations on the moon and extracting valuable resources.[331] As these examples illustrate, although threat construction (or inflation) may be socially constructed, high-profile space accomplishments attract attention to a state's space capabilities and be

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[328] Ibid.
[329] Kevin Pollpeter, "China's Space Robotic Arm Programs," SITC Bulletin Analysis, October 2013.
[330] Interview, Washington, DC, October 3, 2018.
[331] Namrata Goswami, "The New Space Race Pits the US Against China. The US is Losing Badly," *The Washington Post,* January 10, 2019: https://www.washingtonpost.com/opinions/the-new-space-race-pits-the-us-against-china-the-us-is-losing-badly/2019/01/10/bcdcad10-14f9-11e9-b6ad-9cfd62dbb0a8_story.html; Namrata Goswami, "Why is China Going to the Moon?" *The Diplomat*, December 18, 2020: https://thediplomat.com/2020/12/why-is-china-going-to-the-moon/; Mandy Mayfield, "China's Cislunar Space Ambitions Draw Scrutiny," National Defense Business and Technology Magazine, May 29, 2020: https://www.nationaldefensemagazine.org/articles/2020/5/29/china-cislunar-space-ambitions.

used as bellwether for inferring information about a state's broader capabilities. For the United States, American policymakers have justified the creation of the USSF, in part on China's challenge to American space dominance.[332]

Policy Implications

What lessons does this study have for the US-China space relationship? This dissertation suggests in pursuit of domestic prestige, China diverts scarce resources away from capabilities that would better serve its security objectives. Every yuan spent on sending a taikonaut to the moon or building and maintaining a space station is funding that is not being spent on developing effective counterspace weapons. Although China has fewer resource constraints today than in previous decades, it is not free from resource constraints.

Although China could hypothetically repurpose its prestige projects for military purposes, these capabilities hardly constitute an effective route for countering American space power. During the Cold War, the Americans and Soviets planned to use humans in space for reconnaissance purposes. Both countries had plans to weaponize crewed platforms, with the Soviet Union even allegedly test-firing a cannon into outer space.[333] Yet although China could use its space station and lunar programs for military purposes, it would be difficult to find an American policymaker

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[332] Jim Garamone, "Esper: Air Force, Space Force, Leading Charge to New Technologies," US Department of Defense, September 16, 2020: https://www.defense.gov/Explore/News/Article/Article/2349408/esper-air-force-space-force-leading-charge-to-new-technologies/.

[333] Anatoly Zak, "Here is the Soviet Union's Secret Space Cannon," *Popular Mechanics*, November 16, 2015: https://www.popularmechanics.com/military/weapons/a18187/here-is-the-soviet-unions-secret-space-cannon/.

that would trade American military space capabilities for the marginal gains created by Chinese prestige projects. A weaponized Chinese space station would be far less effective than other counterspace capabilities (e.g., kinetic ASAT capabilities, coorbital satellites, ground-based lasers) and would act as a 'sitting duck' following a predictable orbital trajectory. Likewise, although China could hypothetically target satellites geosynchronous satellites from a lunar military station, it would be doing so from over three times the distance than from Earth.

Nonetheless, although these prestige projects only contribute marginally to its security interests, they also provide China tools for wielding diplomatic influence. China can now offer launch services for developing countries that lack indigenous launch capabilities. Likewise, China can provide remote sensing and imaging services through its satellites, as well as Position Navigation and Timing services (PNT) through the BeiDou Navigation system. China already offers access to its BeiDou navigation system to countries as part of the BRI.[334] Likewise, China can win diplomatic victories by cooperating with other countries in deep space exploration or achieving scientific breakthroughs and expanding humankind's frontiers. China and Russia have already signed a memorandum of understanding for developing a lunar research station.[335]

Similarly, although maintaining a space station in LEO will be extraordinarily costly, it will provide China a tool for projecting soft power—allowing China to

[334] Dean Cheng, "How China Has Integrated its Space Program into Its Broader Foreign Policy," *China Aerospace Studies Institute*, 2020 CASI Conference.
[335] Miriam Kramer, "Russia and China Want to Build a Moon Station Together," *Axios*, March 9, 2021, https://www.axios.com/russia-china-moon-research-station-plans-f3504927-e9ed-4921-b7f9-7f430cb93aa7.html.

provide public goods to the international community. Currently, the United States serves as the primary funder and operator of the International Space Station (ISS). By fronting the exorbitant costs of maintaining the ISS, other countries can place experiments on or hitch rides to the ISS. Thus, the United States reaps soft power benefits by providing a public good to other countries that lack the ability or who cannot afford to maintain a space station. However, owing to these steep costs, the United States is currently considering defunding the ISS.[336] Should the United States proceed with these plans, China would have the world's only space station. By possessing a space station, China will reap soft power benefits by supplying a public good to the international community—allowing other countries a platform for conducting scientific experiments (without paying for the exorbitant costs of constructing and maintaining a space station). Indeed, China is already soliciting bids from UN member countries to host experiments on its planned space station.[337] Unlike the United States, which does not allow participation on the ISS by countries such as China and Iran, China intends to be more inclusive in its approach—allowing countries of any regime type to participate in its space station. Thus, although incredibly costly, China's construction of a space station will increase its soft power by allowing it to provide public goods and present itself as a more inclusive alternative to the United States.

Yet for all the potential soft power benefits that these prestige projects will

[336] Lee Billings, "NASA Budget Proposal Defunds Space Station, Space Telescopes and More," *Scientific American*, February 12, 2018.
[337] Andrew Jones, "International Experiments Selected to Fly on Chinese Space Station," *SpaceNews*, Jun 13, 2019.

provide China, China's soft power cannot be divorced from other aspects of its domestic politics and diplomacy. The same insecurity that drives the CCP to pursue lavish prestige projects, also drives the regime to engage in brute coercion at home. While China may use its space program to project that it is a responsible great power, these soft power benefits may be undermined by other elements of Chinese policymaking—from its violent and widespread repression in Xinjiang to its crackdown in Hong Kong. This will be doubly true if China continues to adopt a more muscular foreign policy. Providing the public good of a space station, will do little to improve China's image globally if the rest of the world views China's domestic or foreign policy as unpalatable. This, thus suggests, that while China may gain some marginal soft power benefits from providing public goods in the space domain—these will hardly be commensurate with the costs of maintaining these operations (i.e., a human operated space station).[338]

Another implication of this dissertation is that China will likely continue pursuing costly prestige projects even when it is not in its economic or security interests to do so—a future which, as discussed above, could prove destabilizing. If US policymakers view China's continued development of advanced space technologies as contributing to Chinese military power, then China's continued expansion into outer space could exacerbate security dilemma dynamics between the two powers. Should the United States and China compete in an arms race in outer

[338] As indicated in a Pew Research Center poll, China's favorability ratings are at historic lows globally. See Laura Silver, Kat Devlin, and Christine Huang, "Unfavorable Views of China Reach Historic Highs in Many Views," *Pew Research Center*, October 6, 2020: https://www.pewresearch.org/global/2020/10/06/unfavorable-views-of-china-reach-historic-highs-in-many-countries/.

space it could be far more dangerous than previous prestige-motivated arms races (such as in the naval domain). A conflict between the United States and China—intentional or accidental—in outer space could at minimum contribute to the proliferation of space debris orbiting around Earth—potentially making outer space inaccessible to human activity. At maximum, a conflict between the United States and China in outer space could escalate beyond the nuclear threshold—leading to a massive loss of life and environmental destruction.[339] Even China's continued expansion does not translate into an arms race, if the United States and China engage in a prestige competition in outer space, it could be highly expensive and divert resources from more scientifically useful endeavors (as evidenced from the American experience during the Apollo missions).

Avoiding an arms race or an unnecessarily costly competition between the United States and China in outer space will likely require some degree of cooperation between the two countries to avoid misperception and accidental escalation. However, as of today, the US-China space relationship is arguably worse than that between the United States and the Soviet Union at the height of the Cold War. Owing to concerns over Chinese espionage, the close relationship between its military and space sector, and China's human rights record, the United States currently has a *de facto* ban on cooperation between the two powers in outer space—through a body of legislation commonly referred to as the Wolf Amendment.[340] Although there has been some limited cooperation (i.e., NASA and CNSA exchanging data on the far side of the

[339] See Deudney, *Dark Skies* (2020).
[340] William Pentland, "Congress Bans Scientific Collaboration with China, Cites High Espionage Risks," 2011.

moon and Mars)—the two countries are far away from a potential Apollo-Soyuz moment—especially considering that China is still excluded from participating in the ISS.[341]

With these challenges in mind, what lessons does this dissertation hold for managing the US-China space relationship? As has been illustrated throughout this dissertation, driven by domestic prestige concerns, China's space ambitions have often been insensitive to changes in China's external environment or its economic circumstances. Thus, regardless of the costs, this suggests that the CCP will continue supporting ambitious prestige projects to demonstrate to domestic audiences that it is restoring China's international standing.

On one hand, China's continued pursuit of prestige could be a welcome development for American policymakers. If China continues diverting resources toward costly prestige projects, it will have less resources to contribute to its military modernization or its pursuit of counter space capabilities that could negate American military advantages. Thus, China's continued pursuit of prestige in the space domain could be in American interests. Moreover, as China continues to develop its space capabilities, and become more reliant on space-based assets, it loses the advantages of asymmetry, and becomes increasingly vulnerable in the event of a space-based conflict. However, it is hard to imagine how American audiences would respond if China were to 'beat' the Americans in outer space. American leaders could face domestic political pressure to show that the United States was not falling behind China.

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[341] Ibid.

However, this dissertation suggests that a middle option exists between these two extremes—one that allows the United States to avoid costly competition while inducing cooperation. As the CCP highly values prestige for its domestic utility, the United States has useful source of leverage for inducing costly overtures from China. Although Chinese leaders may downplay information that reflects poorly on Chinese prestige, informal recognition by the United States of China's status as a space power (such as through cooperating between the two countries' space programs) would provide the CCP a powerful symbol that it is rejuvenating China and restoring its standing in the world. While the United States should not give such informal recognition of Chinese space power freely, this dissertation suggests that it possesses an important source of leverage for inducing costly concessions from China. For over 60 years, the CCP has often foregone its security and economic interests for the powerful domestic resource of prestige. If the United States wants to attain costly policy concessions from China—such as winning Chinese support for banning coorbital weapons—it should recognize this powerful domestic driver of Chinese space ambitions. Moreover, by bargaining with prestige, the United States may be able to induce cooperation rather than risk a costly prestige-competition or potential arms race with China in outer space. China's domestic prestige concerns need not be destabilizing, but instead can be used to advance American interests by reducing the odds of accidental escalation or misperception, inducing costly concessions, and decreasing the costs for future space exploration.

Appendix

A.1 Note on Survey and Translation Procedure

The survey was approved by the Institutional Review Board of Cornell University. It was fielded via the international surveying company Qualtrics. Qualtrics has fielded surveys for over five years and partners with over 20 online panel providers globally. Most of its samples are from actively managed market research panels, yet it also recruits respondents through other means (e.g., social media) as well as specialized recruitment campaigns.

Respondents received a generic email invitation with a link to the survey platform. The invitation informed respondents that the survey was for research purposes and that they would be compensated. Qualtrics compensates respondents through various agreed upon means (e.g., cash, airline miles, gift cards). The consent form informed respondents that their identity would remain anonymous. The survey was scrubbed of any identifiable information about its institutional origin (Cornell University) and all instructions were provided in Mandarin. The purposes of these procedures were to remove any identifying information about the surveyor as to avoid surveyor effects. In addition, respondents could only click forward in the survey and could not change their answers after proceeding past a block of questions. This ensured that respondents did not change their responses after potentially sensitive questions (e.g., membership in the Chinese Communist Party) although respondents still maintained the ability to drop out of the survey if they so desired.

It is also important to note the procedures involved in translating the survey

instruments and questionnaire. Several of the questions were drawn directly from pre-existing surveys such as the Beijing Area Studies survey. The rest of the questionnaire and the survey instruments were first written in English and then translated by the professional translation company, Tomedes. The survey was then proofread by the author and pretested with several bilingual native Chinese speakers from various regional backgrounds. Pre-testing and proofreading were conducted to ensure clarity, precision, and naturalness in the language. In addition to these measures, the author also tested the survey in a smaller pilot study fielded in August 2019 (N=95).

It is also important to briefly address potential concerns over the impact of the outbreak of COVID-19 on the results. Although the virus originated in China in 2019, China had largely contained the virus before the survey was implemented in June-July 2020. Any influence of COVID-19 on individual perceptions would be present among all groups (control and treatment groups). Respondents were randomly assigned to groups, with variation only in treatment texts. As such, variation in effects reflects variation in treatment texts, rather than respondent knowledge of or exposure to COVID-19. Moreover, the absence of ceiling effects and heterogeneity in responses regarding perceptions of domestic social problems indicates that the outbreak of COVID-19 did not systematically skew individual-level perceptions of government performance.

A.2 Summary Statistics and Data Quality

I placed timers on the opening text, not allowing respondents to click past the prompt until at least ten seconds had passed. I also dropped "speeders" from the respondent

pool, those who spent less than half the median time on the survey (approximately 11 minutes).

The sample population (N=1,529) skews younger than average for the Chinese population, with the bulk of respondents under the age of 40 (average age of 37). 55 percent of the respondents are male, which is comparable to the 55 percent of male internet users reported by the China Internet Network Information enter (CNNIC). 98 percent of the respondents are of Han descent, which closely resembles the demographics of other online surveys carried out in China.

Table A.1: Sample Demographics

Gender	Male	55.26%
Ethnicity	Han	97.97%
Age	≤19	24.2%
	20-29	17.26%
	30-39	16.29%
	40-49	17.34%
	≥50	24.93%
Hukou	Non-Rural	76.65%
Education	≥ College Education	56.25%
Income (in RMB)	<10,000	3.47%
	10,000-50,000	7.78%
	50,000-100,000	8.89%
	100,000-150,000	19.88%
	150,000-200,000	17.99%
	200,000-300,000	19.95%
	300,000-500,000	12.88%
	500,000-1,000,000	4.91%
	>1,000,000	1.37%

As can be seen in Table 2 below, the treatment was effective, leading individuals to respond with greater levels of national identification. However, although the coefficients are positive, they do not reach statistical significance. This is

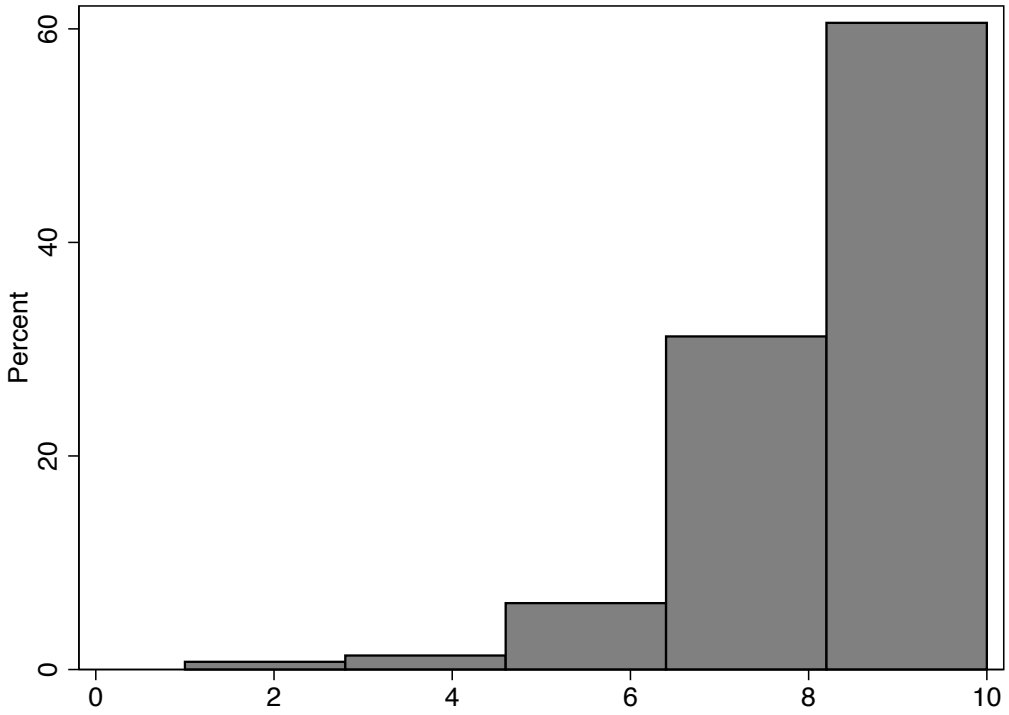
most likely due to ceiling effects from already high baseline levels of nationalism among the sample population. The total levels of nationalism are depicted graphically in Figure 1 below.

Table A.2: Manipulation Check 1

	Nationalism
Treatment 1	.166
	(.169)
Treatment 2	.052
	(.665)

Note: Standard errors in parentheses

Figure A.1: Levels of Nationalism



(1= Completely disagree; 10= Completely agree)

To further interrogate the effectiveness of the experimental manipulation, I also use an alternative measurement, support for government spending on a financial safety net.

As argued by Shayo, increased national identification should lead individuals to identify less closely with their class identity. As such, nationalism should lead individuals to be less supportive of class-based policies of economic redistribution. As indicated by the negative coefficients in Table 3 below, the treatments reduced support for government spending on a financial safety net (however, these also did not reach traditional thresholds of statistical significance). Nonetheless, the positive coefficient on the nationalism question in combination with the negative coefficient on the financial safety net question is both consistent with theoretical expectations, thus increasing confidence in the effectiveness of the manipulation. Considering the high baseline levels of nationalism, these results indicate that although the experimental manipulation was effective, its effect was likely modest. As such, this suggests the effects reported here may be conservative estimates of those operating in the real-world.

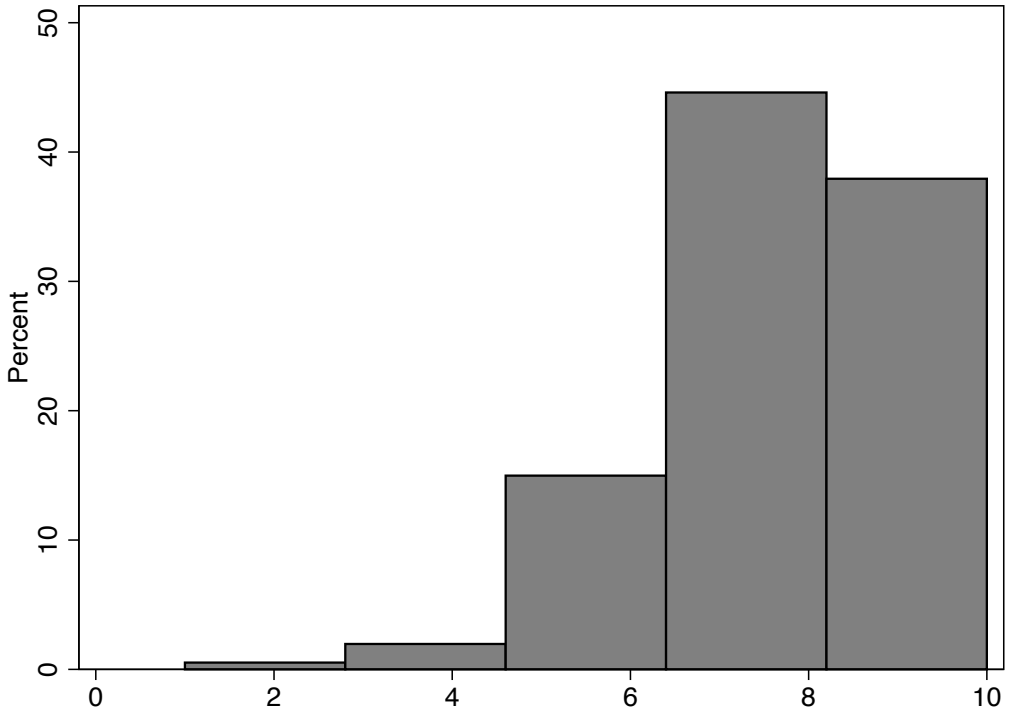
Table A.3: Manipulation Check 2

	Financial Safety Net
Treatment 1	-.1
	(.320)
Treatment 2	-.127
	(.204)

Note: Standard errors in parentheses

As can be seen in Figure 2 below, support for investing in a financial safety net was more equally distributed.

Figure A.2: Support for Financial Safety Net



(1= Completely disagree; 10= Completely agree)

A.3 Balance Tests

As demonstrated in Table 4 below, randomization was successful and balanced for the treatment across a variety of relevant characteristics (gender, age, ethnicity, education, income, Communist Party membership, and hukou type).

Table A.4: Balance Tests

	Control	Treatment 1	Treatment 2	Total
Gender	0.582	0.545	0.572	0.566
	(0.509)	(0.525)	(0.522)	(0.519)
Age	37.04	35.98	36.85	36.62
	(16.18)	(15.93)	(16.19)	(16.09)
Ethnicity	1.212	1.022	1.208	1.147
	(4.341)	(0.145)	(4.345)	(3.545)
Education	6.047	5.986	6.071	6.035
	(1.542)	(1.699)	(1.577)	(1.607)
Income	6.535	7.847	8.466	7.615
	(12.53)	(16.52)	(17.94)	(15.84)

Communist	9.129	8.573	8.532	8.745
Party	(24.43)	(23.43)	(23.47)	(23.77)
Hukou	2.749	2.739	2.310	2.600
	(9.595)	(9.596)	(7.465)	(8.940)

A.4 Experimental Module and Key Variables

Control Text

我们想听听您对一些当代社会问题的观点，以及您对太空探索的看法。

We are interested in hearing your opinions about some contemporary social issues as well as your views related to space exploration.

我们想听听您对一些当代社会问题的观点，以及您对太空探索的看法。我们需要您仔细思考以下信息。众所周知，我国是历史上三个将人类送入太空的国家之一。

Treatment 1: Implicit Prime

我们想听听您对一些当代社会问题的观点，以及您对太空探索的看法。我们需要您仔细思考以下信息。众所周知，我国是历史上三个将人类送入太空的国家之一。

We are interested in hearing your opinions about some contemporary social issues as well as your views related to space exploration. We would like you to take a moment to consider the following information. As you may know, we are one of only three countries in history to have sent a human into space.

Treatment 2: Explicit Prime

我们想听听您对一些当代社会问题的观点，以及您对太空探索的看法。我们需要您仔细思考以下信息。众所周知，我国是历史上三个将人类送入太空的国家之一。这一成就极大地提升了中国的国际地位。

We would like you to take a moment to consider the following information. As you may know, we are one of only three countries in history to have sent a human into

space. This accomplishment greatly enhanced China's international status.

Perceptions of Domestic Social Problems

请您思考下列一些城市治理面临的问题。您觉得这些问题在您现在居住的城市严重程度如何？请在 1-10 的量表上打分以表示您的态度，1 表示这根本不是一个问题，10 表示这是一个非常严重的问题。（出示答题卡，逐项提问）

- 经济发展
- 环境污染
- 失业和工作保障
- 社会不平等
- 国家安全与国防
- 公共秩序
- 住房
- 物价上涨
- 腐败
- 医疗

Please consider the following issues facing urban governance. How serious do you think these problems are in the city where you live now? Please rate on the 1-10 scale to indicate your attitude, 1 means that this is not a problem at all, and 10 means that this is a very serious problem.

- Economic development
- Environmental pollution
- Unemployment insurance
- Social Inequality
- National security and defense
- Public order
- Commodity prices
- Corruption
- Healthcare
- Public Health

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