Geopolitics and Science: Survey Experiments on U.S.-China Collaborations among Policymakers and Scientists

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Abstract

Over the past two decades, U.S.-China scientific collaborations have become increasingly common, yet they have recently come under increasing scrutiny due to concerns about national security, human rights, and intellectual property protections. As U.S. policy on these collaborations remains in flux, scientists often face uncertainty about its future direction. In this paper, we present findings from two survey experiments conducted among policy communities and scientists regarding government-funded collaborations between U.S. and Chinese scientists. While there exists some variation across fields and ideologies, our results reveal a striking consensus: there is notable reluctance to fund U.S.-China collaborations compared to partnerships with other countries. However, this reluctance does not equate to outright rejection—support emerges when specific conditions are met, suggesting a cautious yet viable path forward. That scientists factor geopolitics into their preferences highlights that science is not immune to geopolitics.

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Introduction

Over the past few decades, scientific collaborations between the U.S. and China have flourished, making China a leading partner in various fields such as astronomy, cancer research, and materials science. These collaborations have led to significant breakthroughs, from discovering that folic acid supplementation reduces birth defects (Lynch and Regan, 2017), to creating highly detailed visualizations of the Milky Way (Crow, 2022). Moreover, research conducted by U.S.-China teams is among the most impactful globally, often reflected in high citation counts (e.g., Xie and Freeman, 2023).

However, the political landscape has shifted in recent years, putting strain on these collaborations. Concerns about military and economic espionage have led to actions like the Department of Justice's China Initiative (2018–2022), which targeted trade theft, hacking, and economic espionage, extending into the academic sphere (Guo, Jess and Karen, 2021). U.S. politicians and government funding bodies such as the NIH and NSF have expressed increasing concern over the lack of transparency from scientists regarding their activities in China, particularly those involved in China's 1000 Talents Program (Portman and Carper, 2019; Mervis, 2023). Additionally, ethical concerns have been raised about collaborations that could potentially support military-related technology or facilitate human rights abuses (Stoff and Tiffert, 2021). This has led to policies that restrict visas for researchers affiliated with institutions linked to China's military-civil fusion strategy (Anderson, 2020).

Critics argue that U.S. government responses to these concerns may be overly cautious, causing a chilling effect on U.S.-China collaborations across the board, even in areas without direct national security or intellectual property concerns (Lee and Li, 2021). They fear that restrictions on basic science collaborations could harm the U.S. scientific community and undermine the country's leadership in cutting-edge research.

These conflicting perspectives have left the future of U.S.-China scientific relations uncertain. The Biden administration is currently deliberating whether to renew the U.S.-China Science and Technology Cooperation Agreement, originally signed in 1979 and renewed every five years since (Lu and Gutman-Argemí, 2023). Although the agreement mainly governs government-to-government scientific cooperation, it also provides a framework that facilitates individual research collaborations between U.S. and Chinese scientists (Seligsohn, 2023). As the agreement's expiration date in August 2023 has passed, negotiations are ongoing with a temporary extension in place.

Amidst this backdrop, understanding the the views of stakeholder communities, both policy-makers and scientists, on these collaborations is crucial. For example, the pluralistic nature of U.S. policymaking—where opinions range from advocating for a complete moratorium on U.S.-China research collaborations to calling for their continuation—complicates efforts to predict the direction of future policies. This uncertainty makes it challenging for scientists to navigate the evolving landscape of international collaboration.

At the same time that policymakers play a pivotal role in directing federal funding towards research in the United States (Furnas et al., 2025; Useem, 1976; Shapira and Wang, 2010), scientists themselves are crucial in determining science funding outcomes. Since the Second World War, the predominant paradigm of scientific funding in the United States has followed Vannevar Bush's vision of scientific research directed largely by scientists. Bush wrote, "Scientific progress on a broad front results from the free play of free intellects, working on subjects of their own choice, in the manner dictated by their curiosity for exploration of the unknown."(Bush, 1945) In line with this vision, major grant-making bodies within the U.S. Government like the National Institutes of Health and the National Science Foundation have typically been staffed and led by career scientists, active researchers at universities often take leaves of absence to serve several year terms as program managers and grant officers, and review panels for grants and awards are comprised of scientists and scholars invited to participate as Special Government Employees(Harris, 2021). While policymakers set topline funding, typically it is scientists themselves who evaluate the merit of specific research proposals and choose what gets funded and what does not.

In this paper, we aim to provide clarity on both the policy community's and scientific community's preferences for funding international collaborations with China through two survey experimental studies. The experimental setup presented respondents with a hypothetical research proposal submitted to the National Science Foundation (NSF), randomizing both the scientific field of the collaboration and whether it involved scientists from the U.S. and Germany or the U.S. and China. The research was explicitly described as unclassified and not subject to export control, and respondents were asked under what conditions they believed the proposal should be funded. In study one we field this survey experiment on a sample of 1,249 U.S. International Relations (IR) scholars, think tank members, and policymakers in 2022-23. In study 2 we repeat this same survey experiment on a sample of 7,154 active scientific researchers in the United States in 2025.

Study 1 yields three key findings. First, there is a significant hesitation to fund research collaborations between the U.S. and China compared to those with Germany, though this hesitation varies somewhat by field and between IR scholars and policymakers. Second, this hesitation does not translate into an outright rejection of U.S.-China collaborations but rather indicates conditional support, contingent on specific factors. Lastly, concerns about national security and surveillance are the most frequently cited reasons for supporting U.S.-China collaborations. In study 2 we find the attitudes of U.S.-based scientists are largely consistent with those of the U.S. policy community, albeit with a lower rate of outright rejection of funding for international collaborations and a higher rate of support for placing conditions on funding. While we observe do large differences in scientists preferences for funding collaborations with China compared to Germany, these differences are not as large as those observed in the policy community.

Broadly, our research contributes to the growing body of literature that uses social science methods to study the intersection* of national and international politics with scientific production (Doria Arrieta, Pammolli and Petersen, 2017; Borjas and Doran, 2012; Moser, Voena and Waldinger, 2014; Moser and San, 2020; Waldinger, 2010, 2012; Cheung, 2009). While much of the emerging scholarship on U.S.-China relations has concentrated on scientific productivity (e.g., Shi, Liu and Wang, 2023; Jia et al., 2024; Aghion et al., 2023), this study shifts the focus to the attitudes of those involved in setting funding priorities, managing grantmaking programs, and reviewing research proposals for funding: policymakers' and scientists themselves. Our primary contribution is providing empirical evidence on the these communities' perspectives regarding U.S.-China scientific collaborations, offering insights for ongoing policy debates.

Overview of Studies

In this paper, we conduct two complementary survey experiments designed to capture attitudes of distinct but influential communities toward U.S.-China scientific collaborations. Study 1 assesses preferences among policymakers and international relations scholars, while Study 2 examines active scientific researchers' views. Both studies share a similar experimental design, allowing direct comparison between communities.

Study 1: Policy Community Preferences

The survey for Study 1 was conducted in collaboration with the Teaching, Research, and International Policy (TRIP) lab, a well-established research lab at William and Mary with a two-decade history of conducting surveys on foreign policy issues (Avey et al., 2023, 2022). The survey sample includes 254 individuals who either currently hold or have previously held positions within U.S. government agencies responsible for trade, development, or national security policy, 227 members of think tanks focused on international affairs, and 768 faculty members from political science departments or professional schools with a focus on international relations.[1]

Experimental Design

Figure 1 presents the first page of our survey experiment. In this experiment, we randomized two key variables: (1) whether the research proposal involved collaboration between scientists in the U.S. and Germany or between scientists in the U.S. and China, and (2) the scientific field of the collaboration. Respondents who selected the option to conditionally support funding were then prompted to specify any conditions they deemed necessary for the funding to be granted. They could choose from the following options: (1) the collaborator should not have any affiliation with the military or national security establishment, (2) the research should have no potential use in surveillance activities, (3) the research should contribute to a global common good, such as curing cancer or advancing climate science, and (4) the research should be unlikely to be immediately commercialized. These options were designed to assess the relative importance of security and commercial considerations in the respondents' decision-making processes.

Validating Our Randomization Design

Figure 2 provides an overview of the demographic characteristics of the survey participants, including gender, race, age, political party affiliation, and their ideologies on economic and social issues. The demographic composition of our sample closely mirrors that of the broader policy community. Crucially, the attributes of the participants are evenly

[1]This study was approved by the Institutional Review Boards at William and Mary and UC San Diego.

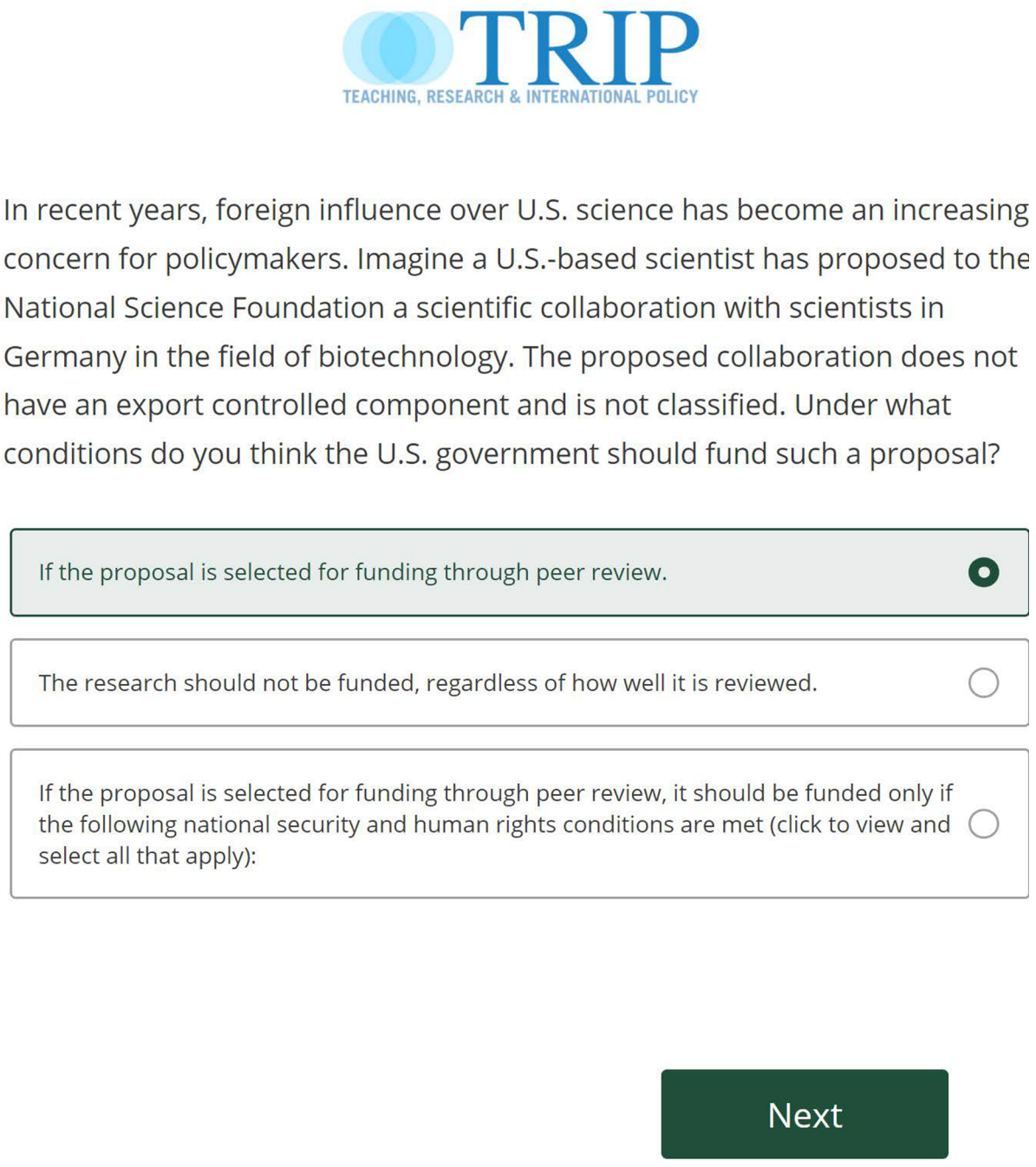


Figure 1: Survey, First Page

distributed across the different experimental conditions, which confirms the effectiveness of our randomization process.

Results

Our survey experiment yields three key findings, which are summarized below.

Distinct Attitudes Towards U.S.-China Collaborations As depicted in Figure 3, when presented with a proposal with U.S.-Germany collaboration, 68.2% of participants favor NSF funding for the proposal contingent only upon successful peer review. Conversely, support for identical proposals but with a U.S.-China collaboration with only successful peer review as a sufficient condition is significantly lower at 27.6%.

There is noticeable variation in these attitudes among different groups, as illustrated in the bottom panel of Figure 3. Specifically, IR scholars show greater support for U.S.-China collaborations compared to policymakers and think tank members, pointing at a higher reticence for funding U.S.-China science collaborations among individuals outside of the academy. The likelihood of an IR scholar supporting funding of a China collaboration based only on peer review stands at 34.28%, which is double the rate for policymakers at 16.03% and think tank members at 17.59%. However, these rates of support are considerably lower across the board when compared to the backing for U.S.-Germany collaborations.

Predominance of Conditional Support A majority of respondents, 59.8%, express a preference for conditional support of U.S.-China collaborations, while only a small fraction, 12.6%, advocate for complete rejection. This pattern does not seem to vary substantially by field of study, as illustrated in Figure 4. Respondents are slightly more open to collaboration in the field of environmental sciences, in which 39.2% of respondents favor funding U.S.-China collaborations without conditions outside of peer review. But still, this is markedly lower than the 75.6% who support U.S.-Germany collaborations in the same field. For all fields, the lower level of support for U.S.-China collaborations is primarily due to a preference for conditional support.

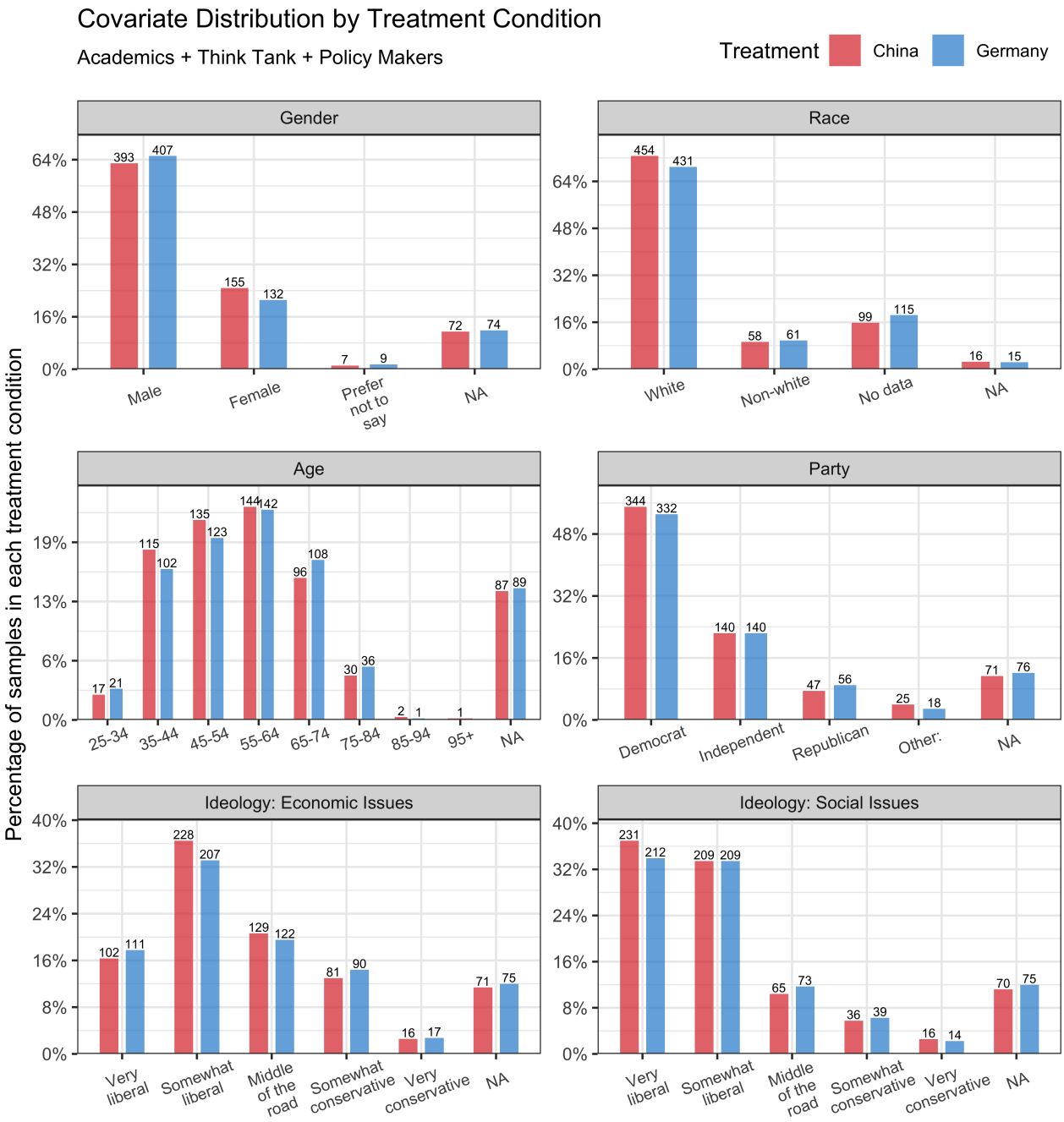


Figure 2: Personal Characteristics across Questions

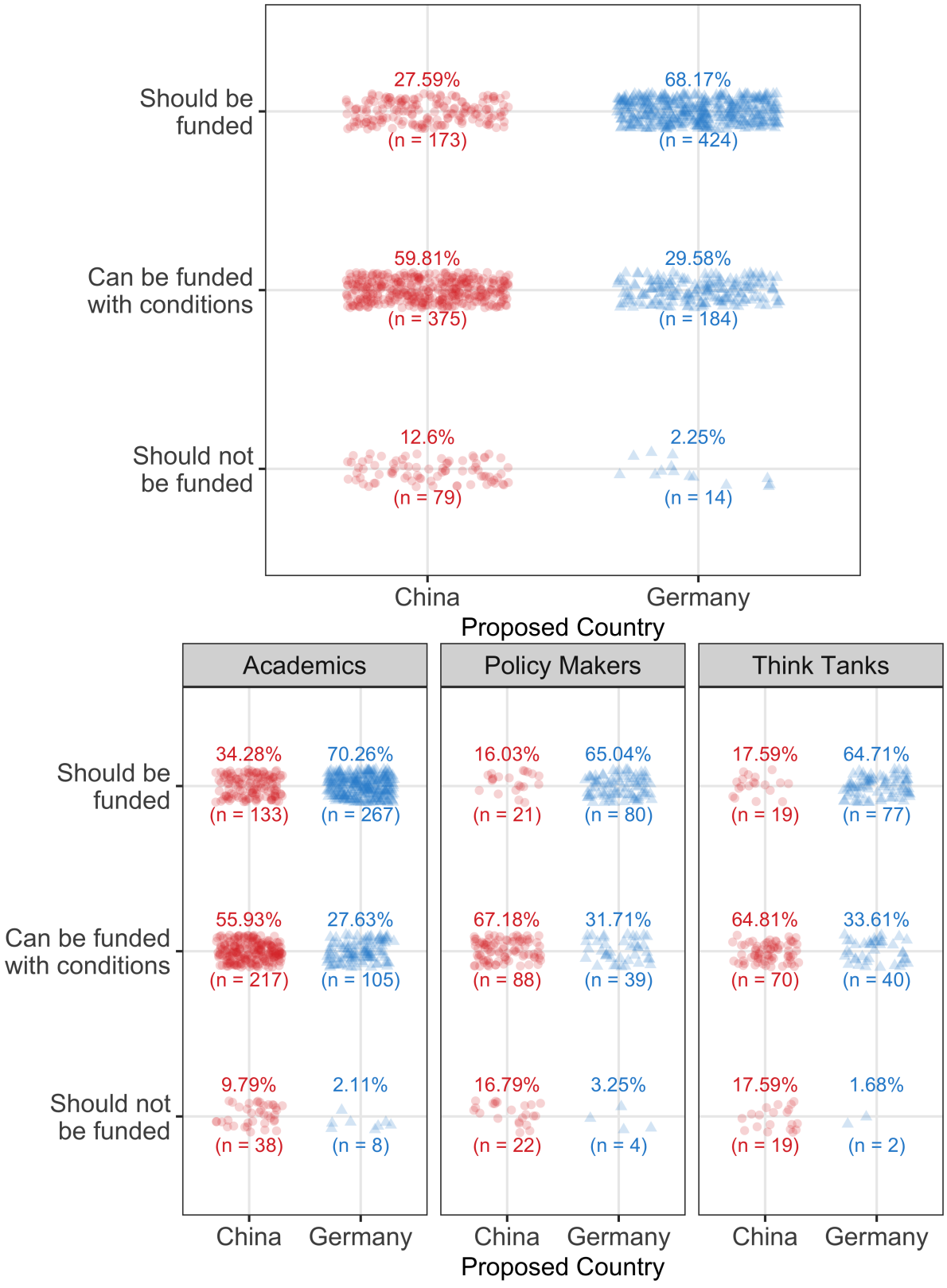


Figure 3: Top: Support U.S.-China Collaborations vs. U.S.-Germany Collaborations, Bottom: Support by type of respondent.

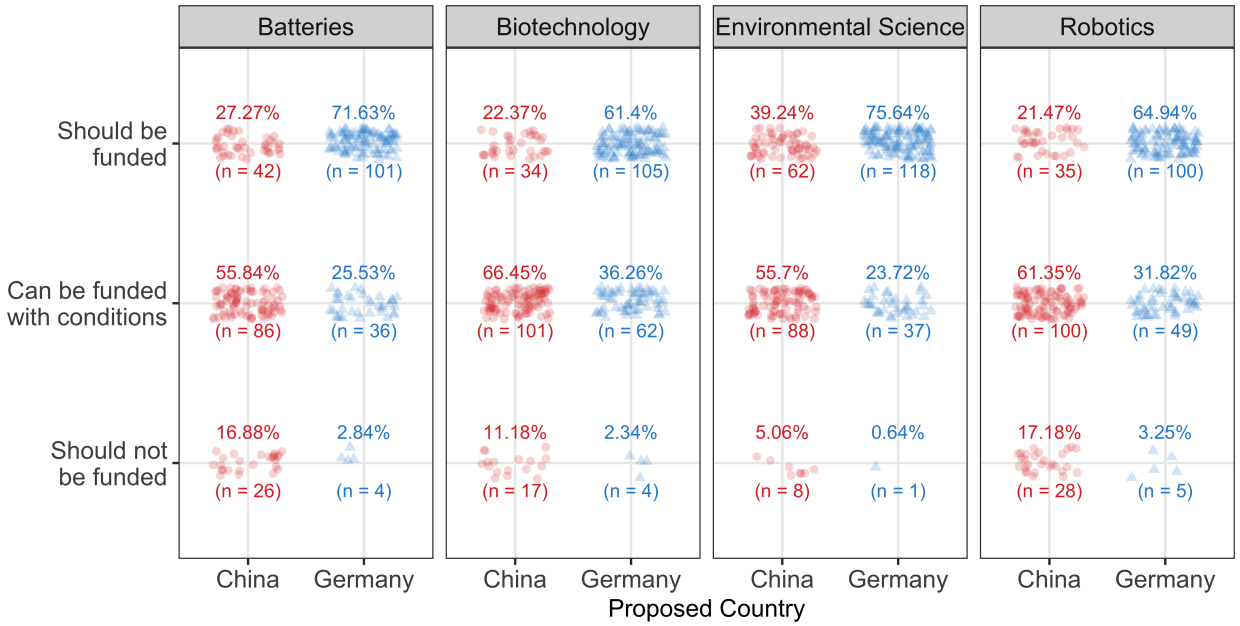


Figure 4: U.S.-China Collaborations vs. U.S.-Germany Collaborations: By Fields

National Security and Surveillance Concerns When respondents indicated conditional support for a proposal, they were asked to select any/all conditions they deemed necessary for funding. As shown in Figure 5, a substantial majority of those favoring conditional support prioritized conditions related to national security and surveillance. Specifically, 84.8% of these respondents emphasized the importance of ensuring that the collaborator has no affiliation with military or national security agencies, and 82.6% stressed the need to prevent the use of technology for surveillance purposes. Additionally, 71.5% supported funding only if the research would contribute to a global public good, such as curing cancer or advancing climate science. In contrast, fewer respondents (38.1%) considered it important to prohibit investment in research likely to be immediately commercialized. These findings indicate that national security and surveillance concerns are paramount when respondents consider conditional support for U.S.-China collaborations.

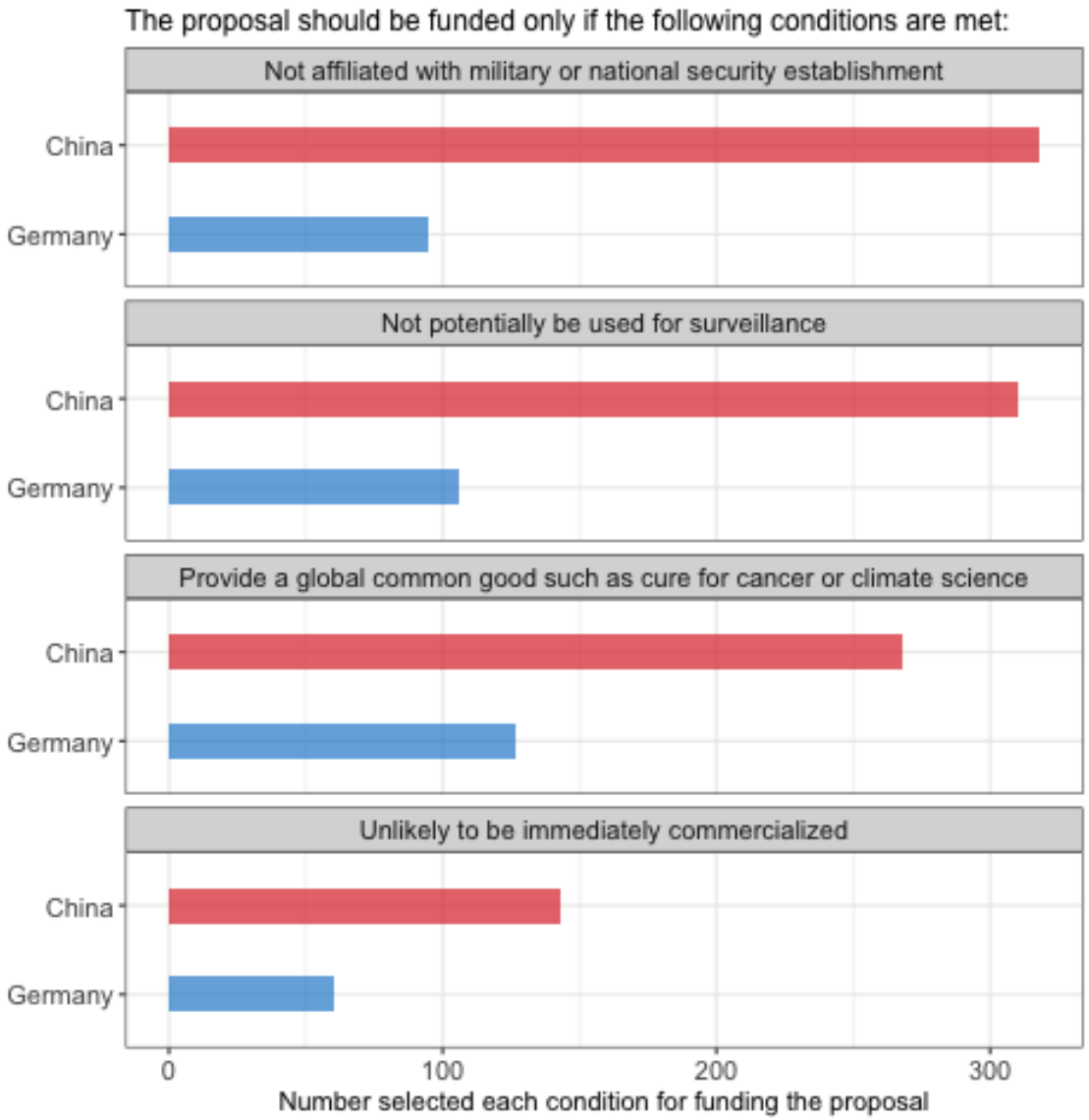


Figure 5: Number of respondents who selected that the proposal should only be funded if the particular condition was met. For both treatment (China) and control (Germany) conditions.

Study 2: Scientific Community Preferences

Experimental Design

In study two we repeat the experimental setup detailed in study 1 on a sample of U.S.-based scientists with active research portfolios in order to assess the preferences of mem-

bers of this community towards U.S.-China scientific collaboration.[2]

Scientist Sample

We began by curating a list of corresponding author email addresses from all papers published in Web of Science indexed journals (Mongeon and Paul-Hus, 2016) between 2022 and October 2024 (specific date tbd), in doing so we follow the procedure established by (Gao et al., 2021). From this list we randomly sampled 245,000 email addresses of scholars with U.S. affiliations. After accounting for inactive email addresses, bouncebacks, and duplicates, we sent out 218,195 survey solicitations, and received 9,830 complete responses for a response rate of 4.5 percent. Among respondents, we screened out those who did not answer the consent question in the affirmative, those who said they were not located in the United States, and those who answered a question indicating that they are not employed in research active roles (see supplementary materials for details on screening). This left us with an analysis sample of 7,154 for the survey experiment. See Fig TK for balance statistics.

Results

Distinct Attitudes Towards U.S.-China Collaborations We find broadly similar results among scientists as those we observed in the policy community, with greater support for international collaboration with Germany (control) than China (treatment). As Figure 6 demonstrates, 49.8% of scientists supported funding proposal involving a collaboration with German scientists if it was selected for through peer review, while only 30.6% of scientists were similarly supportive of funding a collaboration with Chinese scientists. Instead, we observe much higher rates of support for conditional funding of collaborations with Chinese scientists; 65.0% of scientists supported funding a collaboration with Chinese scientists if the collaboration were selected through peer-review and certain human rights and national security conditions were met, while 48.6% of scientists supported similar conditions on funding a collaboration with German scientists. Finally, while only 1.6% of scientists said a collaboration with German scientists "not be funded, regardless of how well it is reviewed," 4.4% of scientists thus opposed to funding a collaboration with Chi-

[2]This study was approved by the Institutional Review Board of Northwestern University

nese scientists.

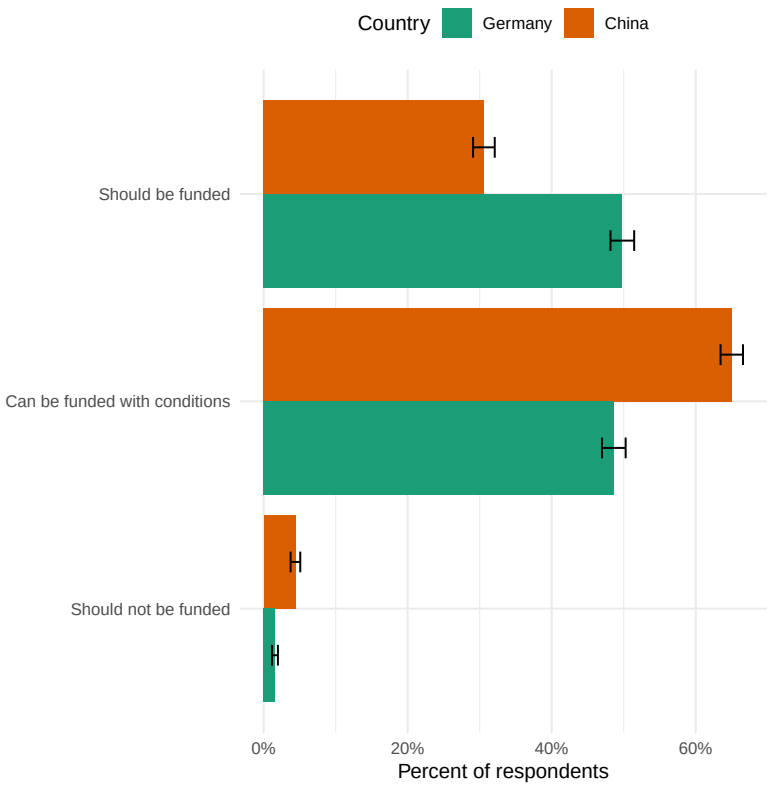


Figure 6: Support U.S.-China Collaborations vs. U.S.-Germany Collaborations among scientists. Error bars indicate 95% CIs.

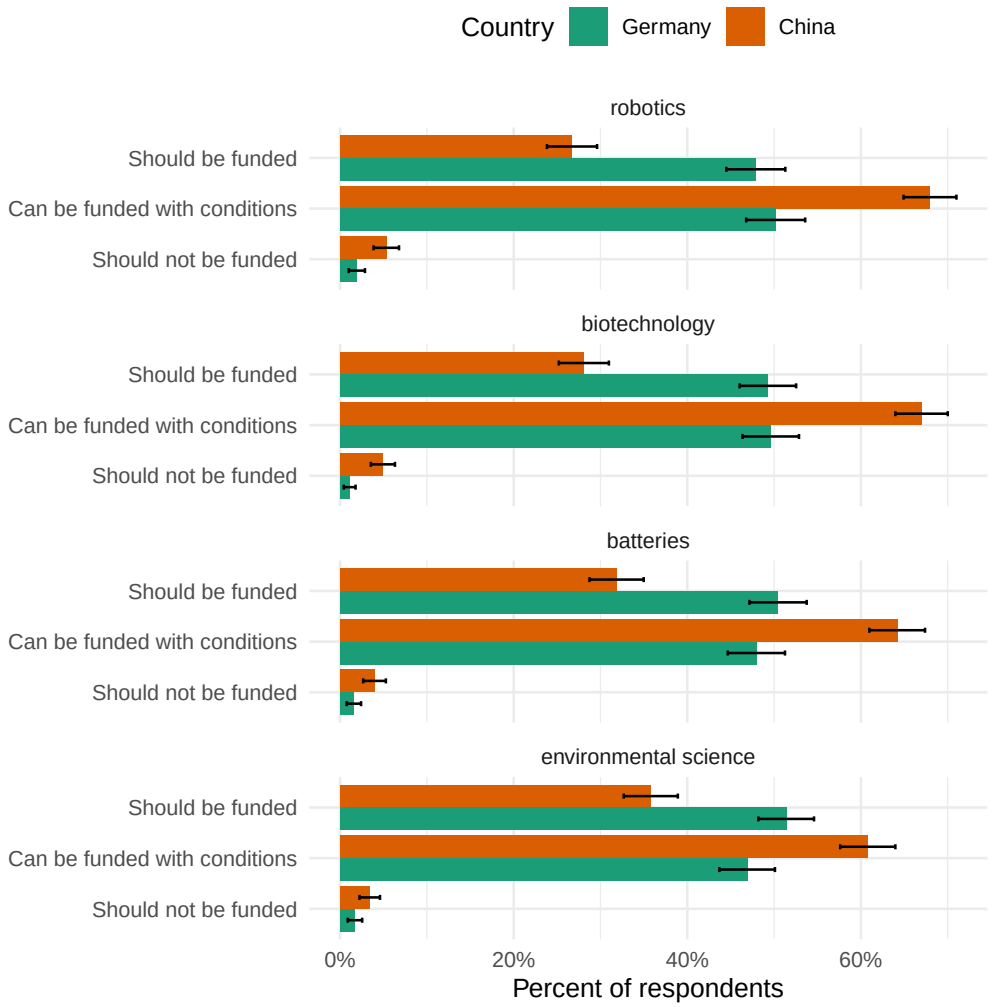


Figure 7: : U.S.-China Collaborations vs. U.S.-Germany Collaborations: By Fields Error bars indicate bootstrap 95% CIs.

As Figure 7 shows, we observe largely consistent patterns across the four fields of research (robotics, biotechnology, batteries, and environmental science), with more support for unconditional funding for U.S.-Germany collaborations than U.S.-China collaborations and conditional funding more often supported for U.S.-China collaborations. In general, scientists are more supportive of unconditional funding for international collaborations in environmental science, and less suportive of unconditional international collaborations in robotics and biotechnology. However, this difference between fields is consistent for both U.S.-China collaboration and U.S.-Germany collaborations. Table 1 indicates, there is no significant interaction between the country of the collaboration and the field of research.

Table 1: Logistic regression results of binarized DV corresponding to whether respondent selected that a proposal should be funded '"If the proposal is selected for funding through peer review.'

	Unconditional Funding Support
(Intercept)	−0.760
	(0.073)
Germany	0.779
	(0.100)
biotechnology	−0.180
	(0.103)
environmental science	0.176
	(0.101)
robotics	−0.249
	(0.105)
Germany × biotechnology	0.133
	(0.140)
Germany × environmental science	−0.139
	(0.138)
Germany × robotics	0.146
	(0.143)
Num.Obs.	7154
AIC	9352.4
BIC	9407.4
Log.Lik.	−4668.215
F	41.434
RMSE	0.48

Predominance of Conditional Support Overall, these results we report are largely similar to those that we observe within the policy community, however, there are several differences worth highlighting. First, the scientists in general appear to be more supportive of conditional funding than policymakers, with 65% supporting conditions for China (compared to 59.8% among policymakers) and 48.6% supporting conditions for Germany (compared to 29.6% among policymakers). Second, scientists are much less likely than the policy community to oppose funding under any conditions, for both Chinese (4.4% vs. 12.6%) and German (1.4% vs 2.3%). Together these results demonstrate that, while we observe lower levels of support among scientists for funding collaborations between the U.S. and China than collaborations between the U.S. and Germany, these differences are not quite as pronounced as they are in the policy community.

National Security and Surveillance Concerns Turning to conditional support for funding international collaboration, as Figure 8 shows, more scientists support imposing conditions beyond positive peer-review on U.S.-China collaborations than on U.S.-Germany collaborations. However, a greater share of scientists support additional conditions for collaborations with both Germany and China than we observed in the policy community, suggesting that in general scientists are quite comfortable with normative and geopolitical considerations beyond peer-review factoring into the approval process. As with the policy community, scientists are most supportive of conditions addressing national security

or surveillance concerns, with 52.5% and 48.4% respectively supporting imposing these conditions on U.S.-China collaboration. Only 22.5% (China) and 15.4% (Germany) of scientists would restrict funding to only collaborations unlikely to be immediately commercialized.

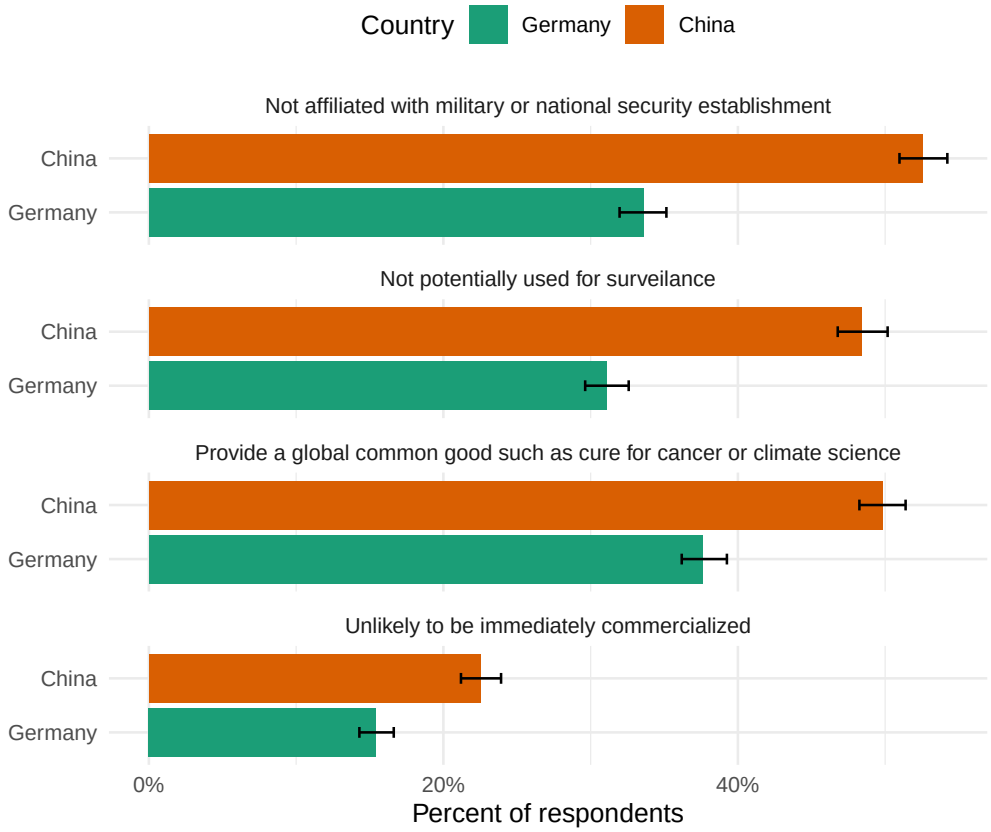


Figure 8: Percent of respondents who selected that the proposal should only be funded if the particular condition was met. For both treatment (China) and control (Germany) conditions. Error bars indicate bootstrap 95% CIs.

Comparing Studies 1 and 2

Overall, Study 2 results align closely with Study 1, revealing shared caution toward U.S.-China collaborations. However, scientists demonstrate higher conditional support and lower outright rejection compared to policymakers, emphasizing nuanced yet consistent attitudes among these key communities.

Conclusion

While tensions between the U.S. and China have garnered significant attention from the media and academic researchers, the ambiguity surrounding which types of research should be supported in U.S.-China scientific collaborations creates challenges for scientists and universities trying to navigate this complex landscape. Crucially, there has been a lack of empirical evidence regarding the specific concerns of the the communities involved in the allocation, review, and distribution of scientific funding, and the potential directions of future policy.

Through our complementary survey experiments, we provide new insights into the perspectives of the U.S. policy and U.S. scientific communities on U.S.-China scientific collaborations. Our findings reveal a predominant sentiment of caution rather than outright rejection. This caution manifests as a preference for imposing more stringent conditions on collaborations, particularly in areas related to national security and human rights protection. This indicates a clear desire for engagements that are more carefully managed and mindful of the potential risks involved. Interestingly, the policy community's approach to these risks is not based on broad disciplinary categories but is instead evaluated on a case-by-case basis, taking into account the individuals involved and the specific implications of each project. Importantly, we find that these concerns are mirrored by U.S.-based scientists who, while marginally more open to funding collaboration with China, also tend to prefer placing similar conditions on this funding. Notably, national security emerges as the most significant concern, with considerations of commercialization being secondary.

To our knowledge, this study is the first to provide clear empirical data on these policy preferences, and the first to compare the policy preferences of these two communities, making it a valuable contribution to ongoing policy discussions. By shedding light on the specific concerns and priorities of the U.S. policy and scientific communities, we hope our research can inform more nuanced decision-making and policy formulation.

Data Availability Statement Anonymized data required to reproduce the results will be made available upon publication.

References

Aghion, Philippe, Céline Antonin, Luc Paluskiewicz, David Strömberg, Xueping Sun, Raphaël Wargon, and Karolina Westin. 2023. "Does Chinese Research Hinge on US Coauthors? Evidence from the China Initiative."

Anderson, Stuart. 2020. "Biden keeps costly Trump visa policy denying Chinese grad students." Forbes. Retrieved from https://www. forbes. com/sites/stuartanderson/2021/08/10/biden-keeps-costly-trump-visa-policy-denying-chinese-grad-st

Avey, Paul C, Irene Entringer Garcia Balnes, Shauna N. Gillooly, Susan Peterson, Ryan Powers, Andrew Shaver, and Michael J. Tierney. 2023. "TRIP Policymaker Survey Report." Teaching, Research and International Policy (TRIP) Project Global Research INstitute. Available at https://trip.wm.edu.

Avey, Paul C, Michael C Desch, Eric Parajon, Susan Peterson, Ryan Powers, and Michael J Tierney. 2022. "Does social science inform foreign policy? Evidence from a survey of US national security, trade, and development officials." International Studies Quarterly, 66(1).

Borjas, George J, and Kirk B Doran. 2012. "The collapse of the Soviet Union and the productivity of American mathematicians." The Quarterly Journal of Economics, 127(3): 1143–1203.

Bush, Vannevar. 1945. Science, The Endless Frontier. Washington, D.C.: U.S. Government Printing Office. Report to the President.

Cheung, Tai Ming. 2009. Fortifying China: The struggle to build a modern defense economy. Ithaca and London: Cornell University Press.

Crow, James Mitchell. 2022. "US–China partnerships bring strength in numbers to big science projects." Nature, 603(7900): 6–8.

Doria Arrieta, Omar A, Fabio Pammolli, and Alexander M Petersen. 2017. "Quantifying the negative impact of brain drain on the integration of European science." Science advances, 3(4): e1602232.

Furnas, Alexander C., Nic Fishman, Leah Rosenstiel, and Dashun Wang. 2025. "Partisan Disparities in the Funding of Science in the United States." Working paper.

Gao, Jian, Yian Yin, Kyle R Myers, Karim R Lakhani, and Dashun Wang. 2021. "Potentially long-lasting effects of the pandemic on scientists." Nature communications, 12(1): 6188.

Guo, Eileen, Aloe Jess, and Hao Karen. 2021. "The US crackdown on Chinese economic espionage is a mess. We have the data to show it." MIT Technology Review.

Harris, Laurie A. 2021. "The National Science Foundation: An Overview." Congressional Research Service CRS Report R46753. Accessed: 2025-03-18.

Jia, Ruixue, Margaret E Roberts, Ye Wang, and Eddie Yang. 2024. "The impact of US–China tensions on US science: Evidence from the NIH investigations." Proceedings of the National Academy of Sciences, 121(19): e2301436121.

Lee, JJ, and X Li. 2021. "Racial profiling among scientists of Chinese descent and consequences for the US scientific community." Committee of 100.

Lu, Christina, and Clara Gutman-Argemí. 2023. "Biden Puts U.S.-China Science Partnership on Life Support." Foreign Policy. Retrieved from https://foreignpolicy.com/2023/08/24/us-china-science-technology-agreement-research-collaboratio

Lynch, Lauren Haskett, and Dorothy Regan. 2017. "The China-US Study on the Prevention of Neural Tube Defects using Folic Acid (1999)." Embryo Project Encyclopedia.

Mervis, Jeffry. 2023. "Pall of Suspicion." Science, 379(6638): 1180–1184.

Mongeon, Philippe, and Adèle Paul-Hus. 2016. "The journal coverage of Web of Science and Scopus: a comparative analysis." Scientometrics, 106: 213–228.

Moser, Petra, Alessandra Voena, and Fabian Waldinger. 2014. "German Jewish émigrés and US invention." American Economic Review, 104(10): 3222–55.

Moser, Petra, and Shmuel San. 2020. "Immigration, science, and invention: Lessons from the Quota Acts." Lessons from the Quota Acts (March 21, 2020).

Portman, Rob, and Tom Carper. 2019. "Threats to the US research enterprise: China's talent recruitment plans." Online: https://www. hsgac. senate. gov/imo/media/doc/2019-11-18% 20PSI% 20Staff% 20Report.

Seligsohn, Deborah. 2023. "The Case for Renewing the U.S.-China ST Cooperation Agreement." CSIS. Retrieved from https://www.csis.org/analysis/case-renewing-us-china-st-cooperation-agreement.

Shapira, Philip, and Jue Wang. 2010. "Follow the money." Nature, 468(7324): 627–628.

Shi, Dongbo, Weichen Liu, and Yanbo Wang. 2023. "Has China's Young Thousand Talents program been successful in recruiting and nurturing top-caliber scientists?" Science, 379(6627): 62–65.

Stoff, Jeffrey, and Glenn Tiffert. 2021. "Eyes wide open: Ethical risks in research collaboration with China." Hoover Institution.

Useem, Michael. 1976. "Government influence on the social science paradigm." Sociological Quarterly, 17(2): 146–161.

Waldinger, Fabian. 2010. "Quality matters: The expulsion of professors and the consequences for PhD student outcomes in Nazi Germany." Journal of Political Economy, 118(4): 787–831.

Waldinger, Fabian. 2012. "Peer effects in science: Evidence from the dismissal of scientists in Nazi Germany." The Review of Economic Studies, 79(2): 838–861.

Xie, Qingnan, and Richard B Freeman. 2023. "Creating and Connecting US and China Science: Chinese Diaspora and Returnee Researchers." National Bureau of Economic Research.