

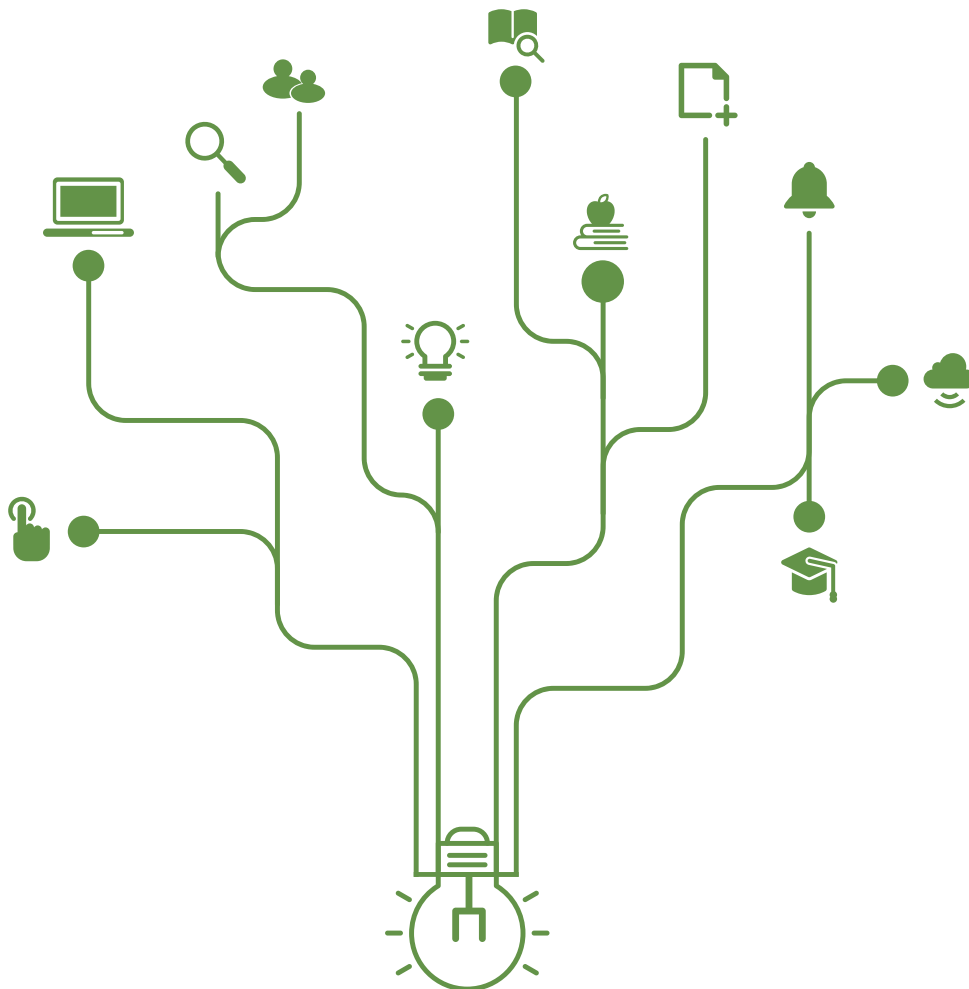
Understanding the Effectiveness of Public Diplomacy Efforts: Survey Data from the Case of Korean Higher Education Programs in German

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¹ Note: Hyeyoung Chang designed and performed the descriptive analysis. Chungshik Moon designed and implemented the principal component and regression analysis. Inbok Rhee designed the survey experiments and analyzed the results. Joonseok Yang conducted the text analysis. All four authors participated in equal shares in all stages of survey design, literature review, and manuscript writing. This project has been generously funded by the KDI School of Public Policy and Management. This project has been reviewed for ethical considerations for human subject research by the institutional review board (IRB) at the KDI School of Public Policy and Management and attained exemption (KDIS 2021-12).

Abstract

Can public diplomacy efforts effectively change target country public's perception of the sender country? Public diplomacy has been regarded as a means of promoting a country's soft power, and many countries have been exerted great about of effort and resources in this pursuit by building culture centers, promoting academic exchanges, or directly engaging the foreign public through various social media platforms. The empirical evidence on the effectiveness of such efforts in promoting more positive national image, however, has been relatively thin. This paper examines the impact of relatively under-explored yet important and widely used public diplomacy instrument, namely educational program, using the case of Korean Studies and Language courses in German higher educational institutions. By collecting original survey data from more than four thousand Germans including a sample of general public, general students, and students formerly exposed to the Korean Studies and Language courses supported by public diplomacy initiatives, we examine the baseline difference in general perceptions and domain-specific perceptions about South Korea and broader views on foreign policies by sample characteristics. We find that while the students formerly exposed to the Korean Studies and Language courses show more positive favorability towards overall Korean image as well as culture and economy compared to others, they have a more negative disposition towards Korean society, politics, and diplomacy, handling of immigration issues, or the trustworthiness of the Korean government. Moreover, through a principal component analysis and regression analysis, we show that students formerly exposed to the Korean Studies and Language courses indeed hold a more positive perception about South Korea, and also document other individual level characteristics which are associated with such positive perceptions. Third, we also find some support that providing information about government-sponsored efforts – but not privately funded activities – can yield a more positive general perception about South Korea. Yet, the same information about government engagement may backfire, when it is perceived to be designed for promoting a greater understanding of Korea's history, culture, language, and arts. Finally, narrowing our focus to the students formerly exposed to the Korean Studies and Language courses only, we provide a descriptive text analysis results confirming some of the conventional expectations about what people expect and desire to learn about Korea, and also some descriptive and indirect evidence regarding what drives negative perceptions about Korea.

Introduction

Public diplomacy has been regarded as a means of promoting a country's soft power – “the ability to affect others to obtain the outcomes one wants through attraction rather than coercion or payment” (Nye 2008: 94). In the fiscal year 2021, the United States spent \$ 2.1 billion in overall public diplomacy budget, supporting more than 55,000 participants in educational and cultural exchange programs, operating nearly 600 American Spaces, and reaching more than 110 million online users through various social media accounts (Walker, Kirkpatrick, and Zarny 2022). China, similarly, has been reported to spend at least \$10 billion annually on its soft power efforts (The Economist, May 24th 2019).

The efforts to gain soft power through public diplomacy engagements have not been limited to the world's leading power's such as the United States and China. For example, the 2009 report by the Committee on Foreign Relations titled “U.S. Public Diplomacy - Time To Get Back In the Game” led by the then Chairman, Senator John F. Kerry, describes the public diplomacy efforts by countries, such as the British, French, Germans, and Iranians (Kerry 2009), and a recent survey of culture centers – a popular form of public diplomacy engagement platform – reports the activities of countries such as India, Japan, South Korea, and Iran (Mariano and Varheim 2021).

In the case of South Korea, the government established the Public Diplomacy Act in August of 2017 in an effort to promote public diplomacy, and by doing so, enhance our diplomatic relations and national image by gaining the trust of the international community and increasing our country's global influence (South Korean Ministry of Foreign Affairs 2022). In the year 2022, the Korean government spent about \$217 million as its public diplomacy budget (Kim 2022). While the overall size of the budget is relatively smaller compared to countries such as the United States or China, the Korean public diplomacy budget has been steadily increasing to support its various cultural exchange programs, Korean studies and language programs, or overseas outreach programs, to name a few (South Korean Ministry of Foreign Affairs 2022).

However, the empirical literature on the effectiveness of public diplomacy is limited at best. For example, there are some studies which document a positive impact of high-level diplomatic or presidential visits on host country's perception of sender country (Goldsmith and Horiuchi 2009; Goldsmith, Horiuchi, and Matush 2021). Yet, the high-level visits are just one specific form of public diplomacy efforts, which makes it difficult to generalize further regarding

the effectiveness of public diplomacy efforts as a whole. Others show that even similar or the same messages have differential impact on the favorability of sender country by recipient countries' citizens depending on how the messenger is (Schatz and Levine 2010; Gravelle 2018). But the focus on the messenger effects does not help us understand the effectiveness of different public policy tools and provide only limited implications regarding how to change policies.

In the context of foreign aid – another important foreign policy tool for soft power promotion - there are relatively more extensive empirical literature on the effectiveness of using aid for winning hearts and minds. Still, the evidence regarding the effectiveness of such policy instrument is mixed at best. For example, Goldsmith, Horiuchi, and Wood (2014) find that US aid targeted to address HIV/AIDS substantially improves perceptions of the United States by the recipient citizens. Similarly, in their experiment study in Bangladesh, Dietrich, Mahmud, and Winters (2017) finds that while explicit information about US aid funding slightly improves general perceptions of the United States, it does not change respondent's opinions on substantive foreign policy issues. Yet, others, such as Blair, Marty, and Roessler (2021) show that whether foreign aid leads to greater support by the recipient countries' citizens towards the donor country depends on the identity of the donor: in the context of sub-Saharan Africa, they find that while the US aid leads to greater public support for the US, the Chinese aid do not increase, and may in fact reduce beneficiaries support for China. Moreover, a number of studies show that not just about the donor country identity, but also more specifically the donor or implementing agency identity – e.g. a single donor country or multilateral agency, either implementing the aid project themselves, or by delegating the implementation to the host country government or local NGOs – matter in determining the perceptions about the donors as well as the quality of aid projects (Baldwin and Winters 2020; Dietrich, Mahmud, Winters 2018; Findley et al. 2017; Findley, Milner, and Nielson 2017; Reinsberg, Michaelowa, and Knack 2015; Winters, Dietrich, and Mahmud 2017)

In this paper, we examine the impact of relatively under-explored yet important and widely used public diplomacy instrument, namely educational program. Educational and cultural exchange programs typically make up a significant share of most countries' public diplomacy effort. For example, the United States spent approximately 35%, or \$740 million out the total budget of \$2,131 million in educational and cultural exchange programs (Walker, Kirkpatrick, and Zamary 2022: 4). Specifically, we consider the impact of installing Korean Studies and

Language courses in German higher educational institutions, which has been a key focus area for the public diplomacy through educational programs by the Korean government. In the case of South Korea, what the government terms “knowledge public diplomacy” which incorporates educational program consisted 28% of the total budget, and 24% of all project counts in the past five years (Kim 2022: 10-11).

Using original survey data from 4,430 Germans including a sample of general public, general students, and specifically students formerly exposed to the Korean Studies and Language courses supported by public diplomacy initiatives, we first compare the baseline difference in general perceptions and domain-specific perceptions about South Korea as well as broader views on foreign policies by sample characteristics. Second, we proceed to consider the individual-level characteristics associated with more positive perceptions about South Korea. Third, building upon the donor identity literature in foreign aid, we also present survey experimental evidence designed to test how the identity of public diplomacy effort funder – the South Korean government or large South Korean corporations – affects German citizens’ perception about various aspects of South Korea’s national image and public diplomacy policy goals. Finally, narrowing our focus to the students formerly exposed to the Korean Studies and Language courses only, we provide a descriptive text analysis results on the types of Korean Studies and Language courses they have been exposed to, what they like and dislike about South Korea, and what they would like to learn more about Korea.

Based on our analysis, we report a number of important findings. First, we show that the general perceptions and domain-specific perceptions about South Korea meaningfully differs across the three samples. Most notably, while the students formerly exposed to the Korean Studies and Language courses show statistically significant and more positive favorability towards overall Korean image as well as culture and economy compared to other students or the general German public, the same does not hold for politics and society as a whole. In the latter two outcome variables, the students formerly exposed to the Korean Studies and Language courses further report that their opinion of Korea's image has actually worsened. Second, while strictly descriptive and indirect evidence, we show that such positive perceptions may be driven by the perceptions about Korea’s economic performance, democratic achievements, and handling the COVID-19 pandemic, while the negative perceptions may stem from how South Korea has been positioning itself for immigration issues and the perceived level of the Korean government’s

trustworthiness. Third, from the regression analysis, we find that students formerly exposed to the Korean Studies and Language courses indeed hold a more positive perception about South Korea, and also document other individual level characteristics which are associated with such positive perceptions. Forth, based on our survey experimental evidence, we also find some support that providing information about government-sponsored efforts – but not privately funded activities – can yield a more positive general perception about South Korea. Yet, the same information about government engagement may backfire, when it is perceived to be designed for promoting a greater understanding of Korea’s history, culture, language, and arts. Finally, from the text analysis results, we find that students are most interested in Korea’s language, culture, and history, and also present some descriptive and indirect evidence that conservative social and political climate, including specifically gender issues, may be driving some of the negative student perceptions about Korea.

Korean Higher Education Programs in Germany

Context, Data, and Research Design

Context

South Korea has been actively increasing its public diplomacy efforts around the world. As one such measure, Korea has been establishing Sejong Institute, a form of culture center focusing on promoting Korean language and Korean culture. While there are a total of 223 Sejong Institutes in 76 countries as of 2019, approximately 70% of them (163 out of 223) opened since 2010 (Rhee et al. 2021: 19). The largest share of the institutes are operating in Asia (139), Europe hosts 57 of the institutes, making it the continent with the second highest number of institutes (King Sejong Institute 2022). In Germany, there are two Sejong Institutes – one in Berlin and the other in Tuebingen – currently in operation. In terms of presidential visits, another commonly used measure in the literature as a proxy for public diplomacy efforts, Germany also ranked in top 15th most visited country by a sitting South Korean president between 2002-2022 (Rhee et al. 2021: 24).

Specifically to our purpose, starting in 2019, the Korean government revamped its higher education public diplomacy efforts by diversifying its recipient country portfolio from the United States only to include other countries, such as Germany. As part of such effort, Korean Studies program at the Free University of Berlin (Freie Universität Berlin) has been designated as a key

partner, and the Korea-Europe Center designed to provide educational opportunities for young scholars, and nurture the next generation of Korean specialists in Europe has been established (Han, February 9, 2021). Since the opening of Korean Studies program at the Free University of Berlin in 2008, the Korean studies major students has increased 14-fold to a total of 350 students as of 2021, and the admissions rate has climbed up to 5:1, reflecting the increased interest in learning about Korea (ibid.).

Data

Capitalizing on such partnership and change, this project sought assistance from the Korea-Europe Center at the Free University of Berlin to recruit students formerly exposed to the Korean Studies and Language courses, while also recruiting survey respondents from the German general public. First, for the German general public, we collected data using the Qualtrics panel in August 2022. The sample were targeted to be nationally representative German adults in terms of age and gender, and the resulting sample size was 4,198. Second, for the students formerly exposed to the Korean Studies and Language courses supported by public diplomacy initiatives, we gained assistance from the Korea-Europe Center to distribute our online survey link through university mailing lists, and the data was collected between October and November of 2022.² Specifically, our sample included students from Free University of Berlin and the Sejong Institute in Berlin and Tübingen, who are supported through the Korean government's Korean Studies program, and also students from Bonn, Bochum, Hamburg, and Frankfurt, who are enrolled in Korean Studies programs which are mostly equivalent in the fact that they receive similar Korean Studies curriculum, but different in the sense that these later programs are not directly supported by the Korean government. In order to ensure high levels of participation, we embedded a online raffle at the end of the survey with prizes consisting of Amazon.de gift cards sent to the contact information shared by the respondents. In order to alleviate any ethical or data quality concerns that might arise from the use of the raffle, we provided information that the contact information shared by the respondents will only be used for the raffle process and will not be linked to the survey responses. In addition, we also provided

² It is important to note that we cannot rule out the possibility that the difference in the timing between the two surveys (August and October) also contributed at least partially to the differences in the outcomes in the two samples. Specifically, there was a mass stampede incident in late October, which raised some negative perceptions about the Korean government.

information and ensured that the researchers who have access to and analyze the survey responses do not have access to the contact information, and only the administrative assistant who randomly selects the raffle winners will see the information which will be kept separate from the survey responses.³ This information was shown twice to the respondents – once in the first landing page with the informed consent, and again right before the question asking for the contact information.⁴ The sampling was thus done through a combination of convenience and snowball sampling methods, and the resulting sample size was 232. Finally, among the respondents in the general public survey, we created a subsample of German adults who self-reported their current employment status as student. While the size of this subsample is relatively small for an effective statistical analysis (N=92), we keep this sample for making comparison between the students who have been formerly exposed to the Korean Studies and Language courses and the students who have not. All survey questions were translated into German and double-checked for translation quality by native German researchers at the Korea-Europe Center, and all surveys were administered in the German language only using the Qualtrics online survey platform. Moreover, to ensure quality response, Qualtrics removed any respondents who did not pass their own quality checks which include removing inattentive responses or speeders, flat-lining or straight-lining through grid questions. We additionally implemented a pre-treatment attention check question that asked respondents not to choose any numbers between 1 and 9, and removed those respondents who chose any random numbers despite the instruction were removed from the sample. Summary statistics for each of the samples can be found in Appendix Table A1-A6.

Survey Design

³ The exact wording, included in the informed consent page reads as follows: “We will ask you to share your contact information if you would like to participate in the raffle. Your contact information will only be used for the raffle process, and will not be linked with your survey responses. The researchers will not have access to your contact information, and only the administrative assistant who randomly selects the raffle winners will see the information which will be kept separate from the survey responses.”

⁴ The exact wording, included in the question before asking for the contact information reads as follows: “Finally, please share your contact information (email and/or cell phone number) if you would like to participate in the raffle. Your contact information will only be used for the raffle process, and will not be linked with your survey responses. The researchers will not have access to your contact information, and only the administrative assistant who randomly selects the raffle winners will see the information which will be kept separate from the survey responses.”

The survey was composed of a number of different blocks grouping questions on similar topics. First, after the survey landing page with the informed consent, the respondents were directed to questions regarding their basic demographic background, including gender, age, educational attainment, place of birth, citizenship, partisan identification, ideology, income, and employment status. Second, we included questions regarding main sources of news, institutional trust, nationalism, and domestic and foreign policy preference, including favorability towards selected set of foreign countries. Third, we presented the respondents with the survey experimental blocks with randomized information as detailed in the next section, followed by questions related to general and domain-specific perception and favorability regarding South Korea. Fourth, for the sample of the students who have been formerly exposed to the Korean Studies and Language courses only, we asked additional open-ended text entry questions related to their prior exposure to any classes or courses related to Korean society, economy, culture, or politics, things that they like or dislike about Korea, and what more they would like to learn about Korea. Finally, again for the sample of the students who have been formerly exposed to the Korean Studies and Language courses only, we asked to share their contact information for raffle purposes.

Experimental Treatments

In addition to the observational survey questions, we embedded two survey experiments in our survey designed to test how the identity of public diplomacy effort funder affects German citizens' perception about various aspects of South Korea's national image and public diplomacy policy goals. In the first experiment, we provide a hypothetical scenario where the Korean studies and language program at the Freie Universität Berlin, has been awarded a fund worth 50,000 euros. Here, we randomly vary the identity of the donor among four treatment conditions - one of the leading South Korean multinational conglomerates⁵, the South Korean government, the local Korean-German community, and a South Korean non-governmental private foundation – and also include a pure control without any specific donor identity information. The exact

⁵ As the term conglomerates – similar to chaebols – have potentially inherent negative connotations, we cannot rule out the possibility that any treatment effects that we get are not only due to the identity cue itself, but also the negative perception the description can evoke. In turn, this suggests that any positive effects of the Korean conglomerates treatment may be under-reporting, or any negative effects of the Korean conglomerates treatment may be over-reporting the magnitude of the treatment effects

wordings of the hypothetical scenario with the treatment information marked in bold are as follows:

*Imagine that the Korean studies and language program at the Freie Universität Berlin, has been awarded a fund worth 50,000 euros. **[Control / The generous donation was made by one of the leading South Korean multinational conglomerates / the South Korean government / the local Korean-German community / a South Korean non-governmental private foundation.]***

Next, we implement another survey experiment, this time regarding a newspaper article about the K-Pop World Festival. Here, again, we randomly vary the donor identify information, this time, between South Korea's government, South Korea's large corporation, or pure control without the donor information. The exact wordings of the fictitious newspaper article with the treatment information marked in bold are as follows:

Please read the news article below and answer some questions. The following article is based on actual articles published in German newspapers.

Title: [Control / South Korean government / Large South Korean corporations] sponsor(s) a worldwide online K-Pop festival to be held this fall.]

*While Korean pop music — also known as K-Pop — has emerged as a global phenomenon over the last decade, it's still trying to find its greater footing in Germany. Korea is attempting to slowly remedy that, with the K-Pop World Festival. The K-Pop World Festival, held since 2011, is an annual worldwide music and dance competition **[Control / and is sponsored by South Korea's government / and is sponsored by South Korea's large corporation]**. The event was developed as a way to unite K-Pop fans and increase Hallyu, or "Korean Wave," which is the spreading of Korean culture across the globe. For this reason, even though performances must be to songs in Korean, competitors or their parents cannot be Korean citizens, as the goal of the competition is to spread Korean culture. This year, the festival is holding preliminary auditions in*

almost 100 cities in some 80 countries worldwide. Previous years' winners of the competition came from all around the world, including countries such as Canada, Ireland, Germany, Madagascar, Singapore, and the United States, to name a few.

Main Outcome Variables

To capture the impact of donor identity information on perceptions about South Korea, we employ two sets of outcome variables broadly aimed to capture change in perception, attitudes, and behavior. The first set of questions are designed to capture the general perceptions or favorability regarding South Korea using the actual questions by verbatim from the Korean National Image Survey implemented annually since 2018 by the Korea Culture and Information Service under the Ministry of Culture, Sports, and Tourism. The exact wordings of these questions, asking about general favorability of South Korea overall, or in its aspects of culture, economy, politics and diplomacy, and society, are as follows:

Please rate the extent you find each aspect of South Korea favorable or unfavorable (5-point likert scale from very unfavorable to very favorable) :

- *Overall*
- *Culture*
- *Economy*
- *Politics and Diplomacy*
- *Society*

The second set of questions are designed to reflect the stated goals of Korean public diplomacy as stated by the Korean Ministry of Foreign Affairs in its official website (Korean Ministry of Foreign Affairs 2022). The exact wordings of these questions are as follows:

How likely do you think such a donation will help achieving the following (5-point likert scale from very unlikely to very likely) :

- *Promoting a greater understanding of Korea's history, culture, language, and arts.*
- *Promoting a greater understanding of Korea's values, policies, and world vision.*
- *Promoting greater diplomatic relations between Germany and Korea.*

- *Enhancing Korea's national image and nation reputation.*
- *Enhancing Korea's influence in the Germany and international community.*

Estimation and Analysis

For estimation and analysis, we use a number of different approaches depending on the nature of data. First, for descriptive analysis comparing the baseline difference in general and domain-specific perceptions about South Korea, we use a simple difference in means across the three samples, namely, general public, the students who have not been formerly exposed to the Korean Studies and Language courses (*General Students* hereafter) and the students who have (*PD Students* hereafter, notating PD in short for public diplomacy).

Second, for the regression analysis examining the factors associated with holding a more positive perception about South Korea, we first conduct a principal component analysis (PCA) using all the general and domain-specific Korea perception variables in order to construct a single index capturing favorability towards Korea. Using the principal component analysis designed to derive the latent common factors behind survey participants' responses through exploratory factor analysis without relying on pre-determined assumptions regarding the number or structure of influential factors, we find that the first dimension explains close to 50% of the variances (see Appendix Figure A1) with sufficiently meaningful variation in the quality of representation across the individual responses in the two dimensional space (see Appendix Figure A2), and that all variables capturing the general and domain-specific perception about South Korea covary in a similar direction across the first dimension (see Appendix Figure A3). Upon such confirmation, we use treat this first dimension of the PCA results as the latent variable capturing perception about Korea, and run a ordinary least squares regression model using observable individual characteristics. The variables used in the model include sample characteristics (general population, general students, or PD students), gender, age, educational attainment, income, employment status, ideology, policy preference, institutional trust, main news source, nationalism, and previous visits to Korea.

Third, given perfect randomization, we analyze the survey experimental data using simple ordinary least squares regression with the respondent perception as the main outcome

variables and the treatment information as the only independent variable in both experimental designs.

Finally, for the open-ended text entry questions asked to PD students only regarding their prior exposure to any classes or courses related to Korean society, economy, culture, or politics, things that they like or dislike about Korea, and what more they would like to learn about Korea, we rely on the structural topic model (Roberts et al. 2014) to identify the topics with highest topic prevalence and some sample responses for further qualitative investigation.

Results

Descriptive Analysis: General Perceptions About South Korea

In this section, we proceed to present first the descriptive analysis results on the general perceptions about South Korea. In Figure 1, using the responses to questions on general favorability about Korea as reproduced from the Korean National Image Survey, we find that in general, Germans have generally a slightly positive perception about Korea. The outcome variable recorded in a 5-point likert scale ranging from very unfavorable (1), favorable (2), neither favorable nor unfavorable (3), favorable (4), to very favorable (5), we notice that in all cases the mean response is slightly higher or around 3. But there are noticeable difference across the samples. For the overall image, culture, and economy, we find that the PD students group has a statistically significant and show a positive difference in their mean score compared to the other groups. However, the same does not hold for the aspects of politics and diplomacy and society as a whole.

Moving to the results in Figure 2, capturing how the respondents' opinion of Korea's image has changed compared to a year ago, we find that there are no statistically significant different across the samples for the overall image, culture, and economy. Yet, for the aspects of politics and diplomacy and society as a whole, we find that the PD students group has a statistically significant difference in their mean score compared to the other groups. For this change variable, however, the differences are negative: the students who were formerly exposed to the Korean Studies and Language courses show that their opinions of Korea's image is worse than those of the other groups, and may even have actually worsened.

While it is difficult to speculate based just on these descriptive analysis of sample mean difference, one possibility might be that students who were formerly exposed to the Korean

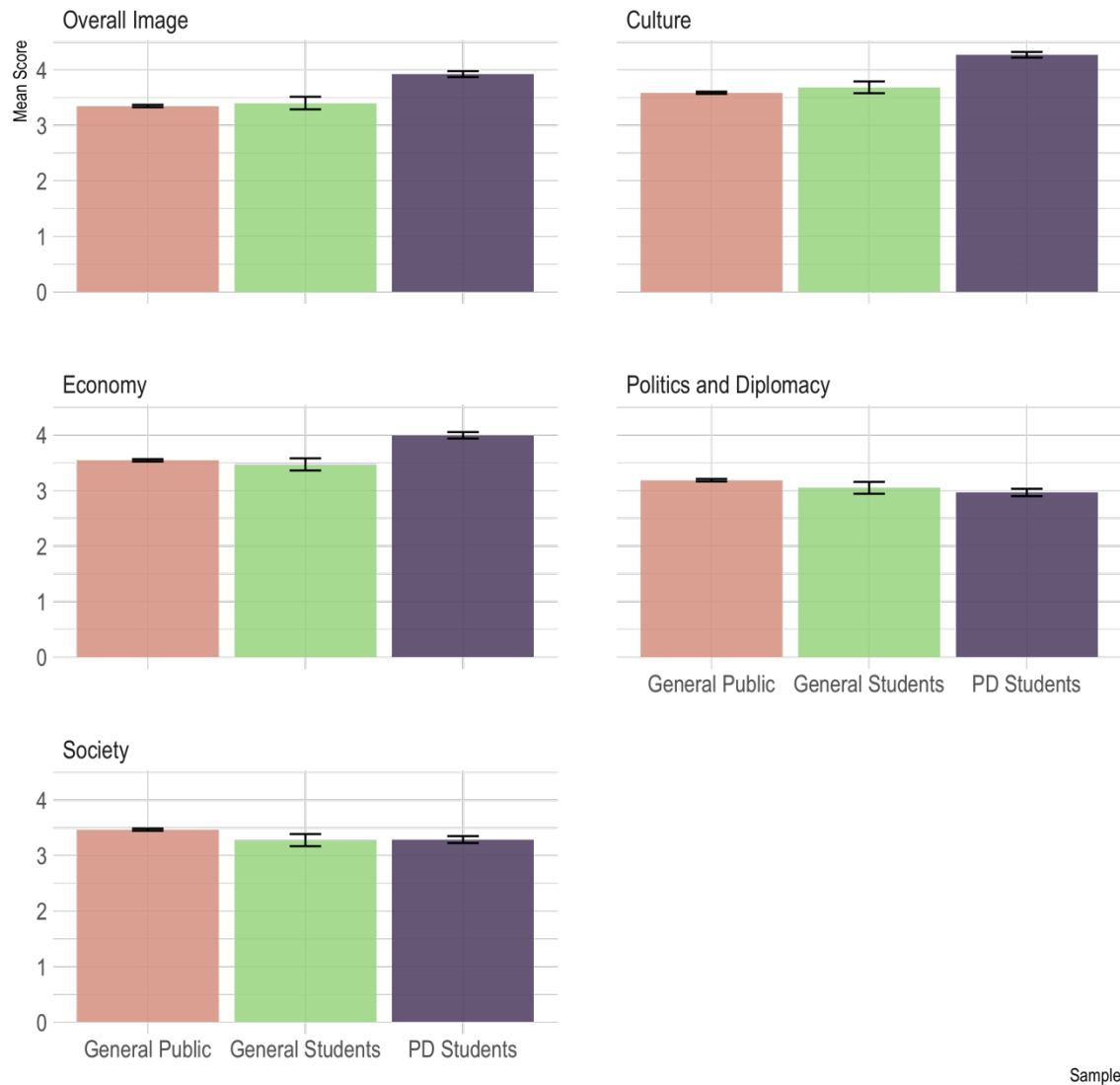
Studies and Language courses might have held a more higher expectation about Korea and the actual exposure to the knowledge of and experience regarding Korea made them adjust such expectation. Such expectation is in line with previous studies showing, for example, how Chinese or African students' positive perception about Korea worsened after actually visiting and living in Korea (Jo 2003; Lee and Kim 2021).

Descriptive Analysis: Domain-specific Perceptions about South Korea

Next, we examine domain-specific perceptions about South Korea. First, in Figures 3 and 4 on Korea's economy, politics, human rights, immigration policy, and trust, we see that PD students have statistically significant and positive different compared to the other groups in terms of their evaluation of South Korea's economy, democracy, handling of the COVID-19 pandemic (Figure 3), and trustworthiness of the Korean people (Figure 4). However, when it comes to Korea's image as an active social contributor on the global stage, there is no statistically significant different across the groups. Moreover, the PD students have a much lower (below 3 indicating indifference) levels of favorability compared to the other sample groups when it to Korea's immigration policy or trustworthiness of the Korean government (Figure 4).

Moving to the issue domains of Korean economic growth, trade, and culture in Figures 5 and 6, we first see that PD students see Korea as a partner rather than a competitor; see that Korean economic growth as being positive for the German economy (Figure 5); think that Germany should cooperate more with Korea on Trade; and that Korea's trade practices with Germany is fair (Figure 6) compared to the other two groups. Yet, the PD students, just as the other two samples of general public and students, seem indifferent to the implications of Korean economic growth on German national security (Figure 5). Notably, however, when it comes to culture, compared to the general public, PD students, and slightly to a lesser extent but also general students, consider that it is good that Korean ideas and customs are spreading in Germany and such difference is statistically significant (Figure 6). These results suggest that students formerly exposed to the Korean Studies and Language courses supported by public diplomacy initiatives are overall more likely hold positive views about economic cooperation and cultural exchanges with Korea.

Favorability for Aspects of South Korea

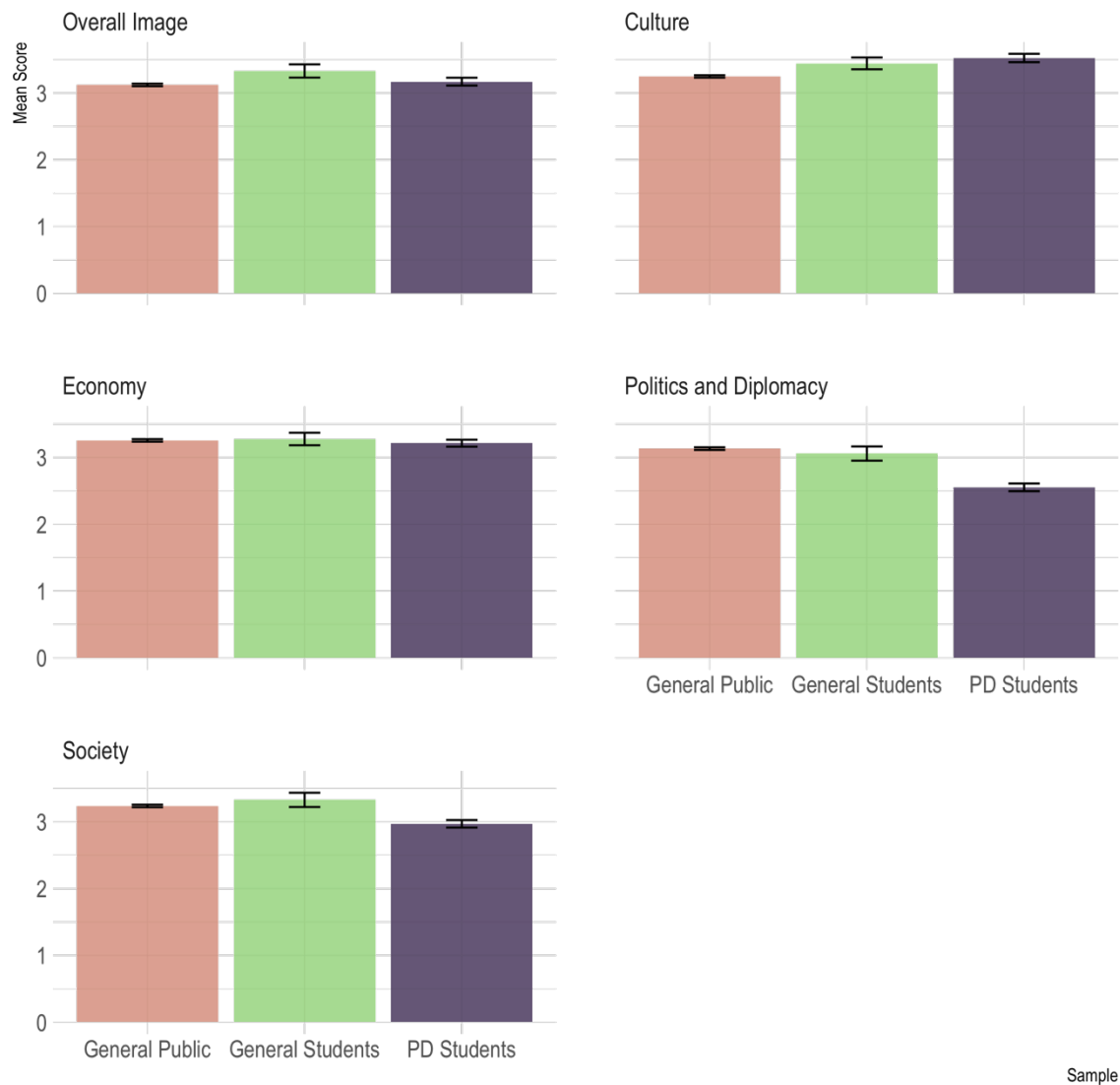


Sample

Note: For ease of presentation, a simple numerical mean of a 5-point likert scale (Strongly Disagree - Strongly Agree) is presented.

Figure 1: General Perceptions about South Korea

Change in Opinion Regarding South Korea's Image

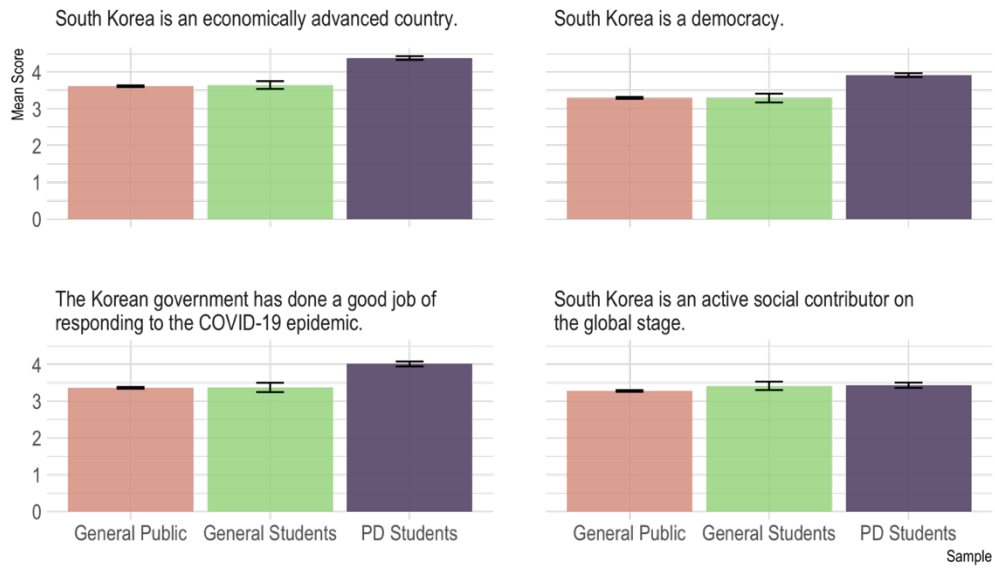


Sample

Note: For ease of presentation, a simple numerical mean of a 5-point likert scale (Strongly Disagree - Strongly Agree) is presented.

Figure 2: Change in Perceptions about South Korea

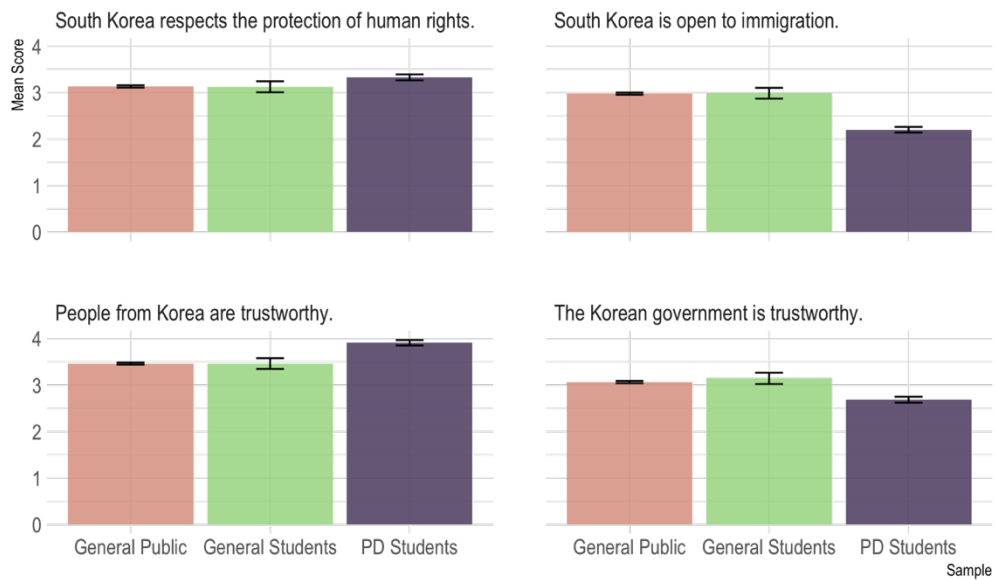
Economy / Politics



Note: For ease of presentation, a simple numerical mean of a 5-point likert scale (Strongly Disagree - Strongly Agree) is presented.

Figure 3: Domain-specific perceptions about South Korea – Economy / Politics

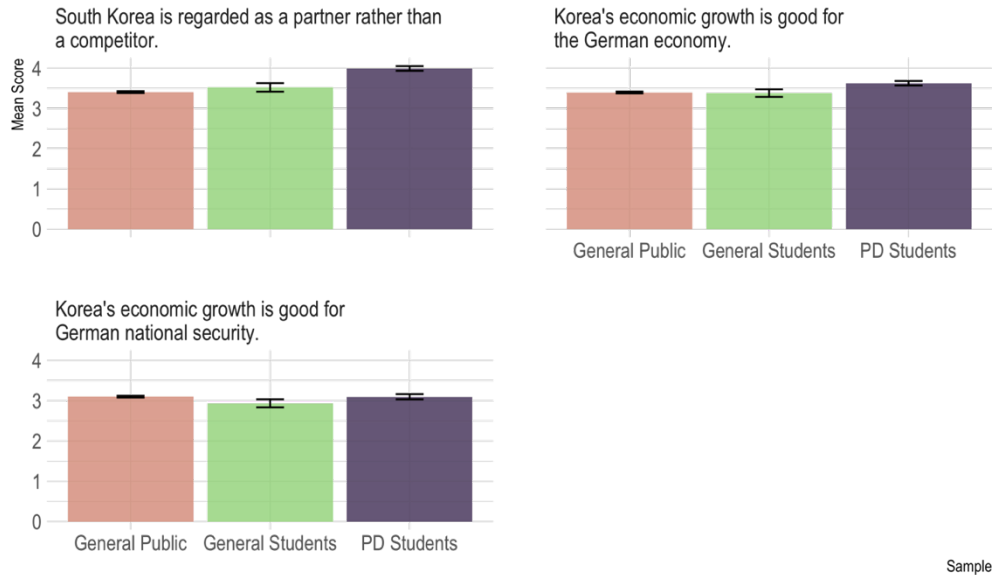
Human Rights / Immigration / Trust



Note: For ease of presentation, a simple numerical mean of a 5-point likert scale (Strongly Disagree - Strongly Agree) is presented.

Figure 4: Domain-specific perceptions about South Korea – Human Rights / Immigration / Trust

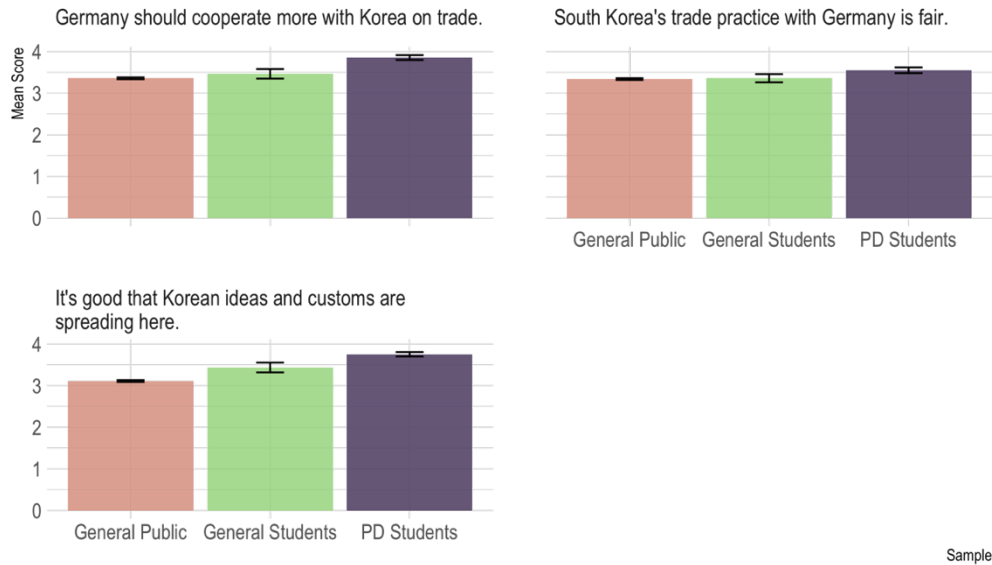
Korean Economic Growth



Note: For ease of presentation, a simple numerical mean of a 5-point likert scale (Strongly Disagree - Strongly Agree) is presented.

Figure 5: Domain-specific perceptions about South Korea – Korean Economic Growth

Trade / Culture



Note: For ease of presentation, a simple numerical mean of a 5-point likert scale (Strongly Disagree - Strongly Agree) is presented.

Figure 6: Domain-specific perceptions about South Korea – Trade / Culture

Descriptive Analysis: Foreign Policy and World View

As a final part of the descriptive analysis, we now consider general foreign policy and world view of the German survey respondents. First, Figure 7 shows the proportion of respondents who reported positive perceptions about select number of countries and the European Union (EU). In the upper-left panel for the general public, we see that Germans generally have a more positive perceptions about, in rank order, Germany, France, the EU, Japan, and the US. Such ordering is not much different for the results shown in the upper-right panel for the general students with the confidence intervals for all top eight countries overlapping with one another. However, when it comes to the PD students, we see some marked differences. Most notably to our purpose, South Korea, which was ranked in the 8th place by the German general public is now in the 3rd place with only Germany and the EU ahead of it within the margin of error. Also noticeable is the fact that the overall ratings for the United Kingdom and the US are significantly lower compared to the general public or the general students sample. Finally, the relatively lower favorabilities towards North Korea, Russia, China, and Turkey are even more pronounced for the PD students group.

Next, in Figure 8 showing the concerns for international issues or treats, we can also observe some interesting difference between the general public (and to a lesser extent but in a similar pattern) general students, and the PD students groups. In particular, the PD students sample seem to be more concerned about relatively more cosmopolitan issues, such as climate change, instability of the EU, or the conditions of the global economy, compared to more localized issues such as nuclear and missile development by Iran or North Korea, or the threat of ISIS. Finally, in Figure 9, showing the percentage of answers choosing select countries as the world's leading political, economic, or cultural power, we see that PD students are much more likely to see the United States as the leading political and economic power, and China as the leading economic power.

German Favorability by Country

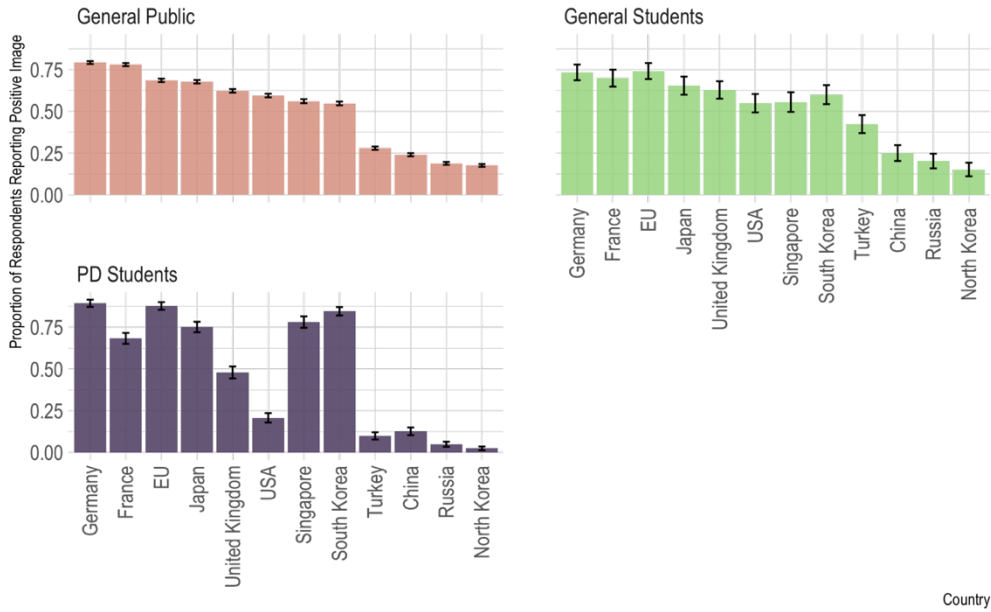


Figure 7: German Favorability by Country

German Concerns for International Issues/Threat

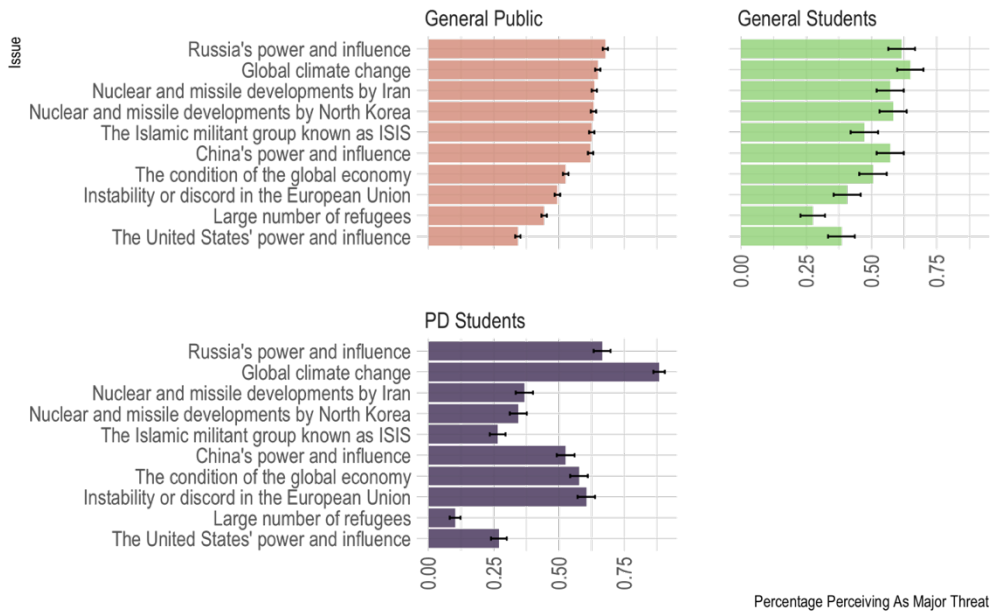


Figure 8: German Concerns for International Issues or Treats

Today, which ONE of the following do you think is the world's leading:

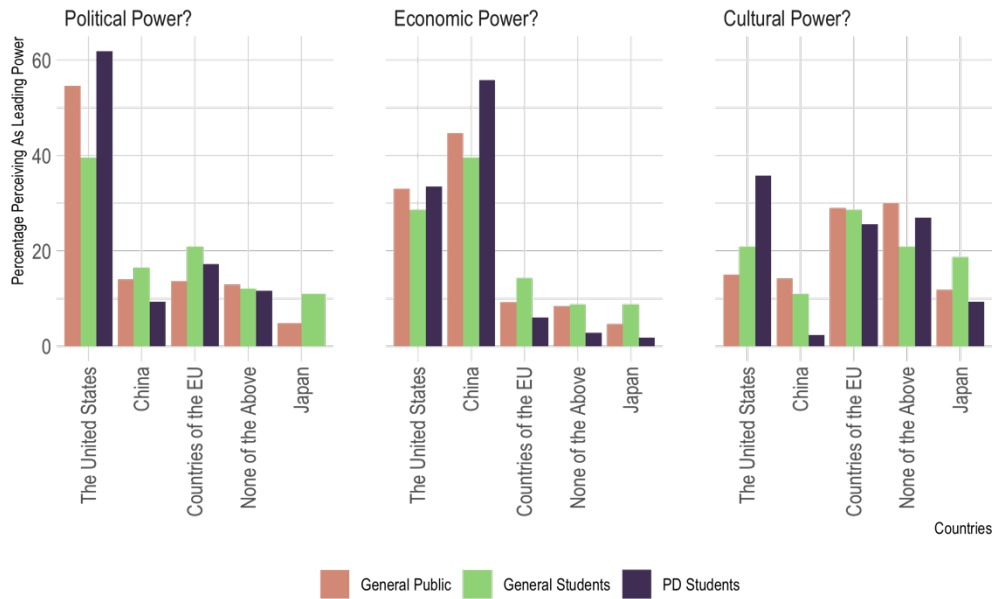


Figure 9: German Perception of World’s Leading Powers

Principal Component and Regression Analysis

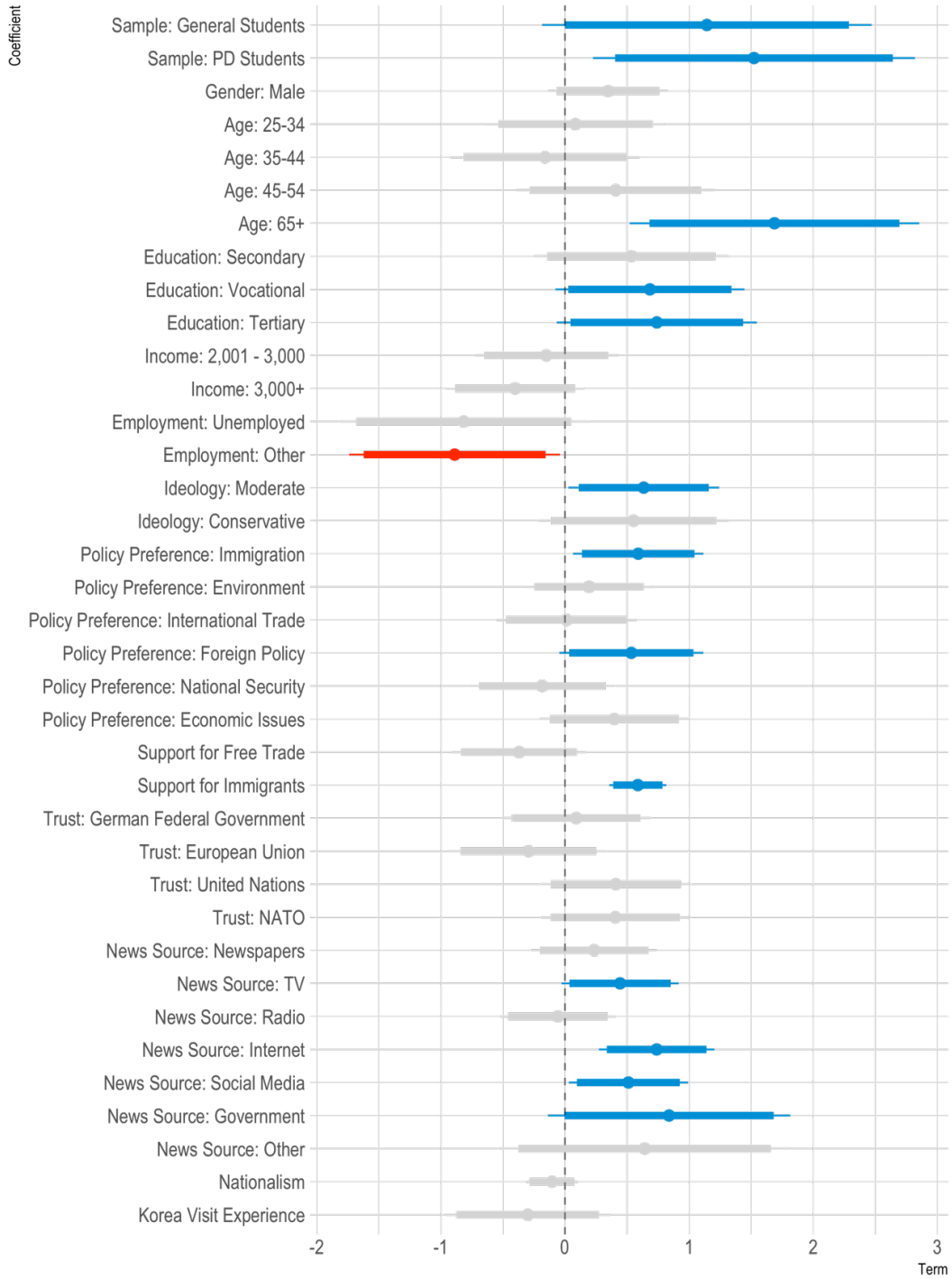
Before turning to the survey experimental results, we now examine the individual-level characteristics associated with having a more positive perception towards South Korea, using the latent variable derived from the PCA analysis as the dependent variable and ordinary least squares estimation. In Figure 10, ticker bars indicate the 95% percent confidence intervals and the narrower bars indicate the 90% confidence intervals. For the ease of presentation and interpretation, the coefficients which are not statistically significant are marked in gray, the statistically significant and positive coefficients in blue, and the statistically significant and negative coefficients in red.

The first thing to notice is the statistically significant and positive coefficients for the sample group coefficients: compared to the baseline group of general public, being in the general students or the PD students sample shows a statistically significant and positive association with positive perception towards Korea. Other statistically significant coefficients are for education (higher levels associated with more positive perceptions), employment (unstable employment associated with more negative perceptions), ideology (being a moderate associated with more

positive perceptions), policy preference (those who consider issues such as immigration or foreign policy as important when voting associated with more positive perceptions), immigrant perceptions (those who show greater support for immigrants associated with more positive perceptions), and news source (those who use TV, the internet, social media, or government sources as their main media source associated with more positive perceptions).

To be clear, these results only show positive correlations and cannot speak to any causal relations. For one thing, it is completely reasonable to expect that people with a more positive disposition towards Korea to be more likely to self-select into being a Korean Studies major student. That said, there are some indirect hints which may suggest that there may be more than just self-selection. For example, the coefficients for the age groups show that younger respondents are no more likely to hold positive perceptions towards Korea. If anything, the age group which shows the most positive perception towards Korea is the 65 and above category. Moreover, the statistically significant and positive association is of a higher statistical significance and a larger magnitude for the PD students group even compared to the general students sample. These results, then, combined together provide at least some suggestive evidence that being exposed to the Korean Studies and Language courses supported by public diplomacy initiatives may have something to do with a more positive perception towards Korea. Still, to make any causal inference about positive perceptions of Korea, we need to move beyond the correlational analysis based on purely observable data, which is why we turn to the survey experimental analysis in the next section.

Determinants of Positive Preference Towards Korea



Note: Baseline categories are female, age 24 or less, less than secondary education, income 2,000 or less, employed, and ideologically progressives. Nationalism is a composite index combining national prouddness in culture, citizenship, and nation.

Figure 10: Determinants of Positive Preference Towards Korea

Survey Experiment Results

Recall that in survey experiment 1, we presented the respondents with a hypothetical scenario where the Korean studies and language program at the Freie Universität Berlin, has been awarded a fund worth 50,000 euros. There were four treatment conditions - one of the leading South Korean multinational conglomerates, the South Korean government, the local Korean-German community, and a South Korean non-governmental private foundation – and also include a pure control regarding donor identity. The main outcome variable of interests are the general perceptions or favorability regarding South Korea using the actual questions by verbatim from the Korean National Image Survey, and the questions reflecting the stated goals of Korean public diplomacy as stated by the Korean Ministry of Foreign Affairs.⁶

Figure 11 shows the results in the form of regression coefficients with the pure control group as the baseline. First, the pooled-sample results (“All” in the upper-left panel) indicate that, compared to the control group, the treatment information that the funding originated from the government is statistically significant and positively associated with all the outcome variables (overall image, culture, society, and politics and diplomacy) except for the economy. Such tendencies broadly seem to travel to the general public subgroup, but not to the general students and PD students subgroups. However, given that the coefficients for the government treatments are still all in the same direction in all subgroups and the sample size for the student groups are relatively smaller and broken down into even smaller treatment cells, the lack of statistical significance in these subgroup models may have much more to do with power issues rather than the existence of an actual effect. Also worth mentioning is the statistically significant and positive coefficient on the NGO treatment for the perceptions about the Korean society in all samples except for the general students subsample. Given the conventional image of NGOs as civil society organizations, these results also bring some further face validity to our findings.

⁶ Before we asked the questions regarding the main outcome variables, we, immediately following the experimental treatment information, first asked the respondents the question, “[i]n which area do you think this funds should be used with a priority?” The response options included the following: “Faculty salary and research support in order to recruit and maintain high caliber faculty”, “Expanding staff positions and responsibilities for better administrative support”, “Student scholarship and fellowships to support enrolled students”, “Organizing seminars and workshop with leading academics and practitioners”, and “Buying books and access to research database”. The response to this question was not intended to be considered as an outcome measure, but to simply prime the respondents to think carefully about the scenario. The mean response to this priming question show, among others, that PD students generally show greater support for seminars, while general students show greater support for scholarship compared to the other groups. The full results are reported in Appendix Figure A8.

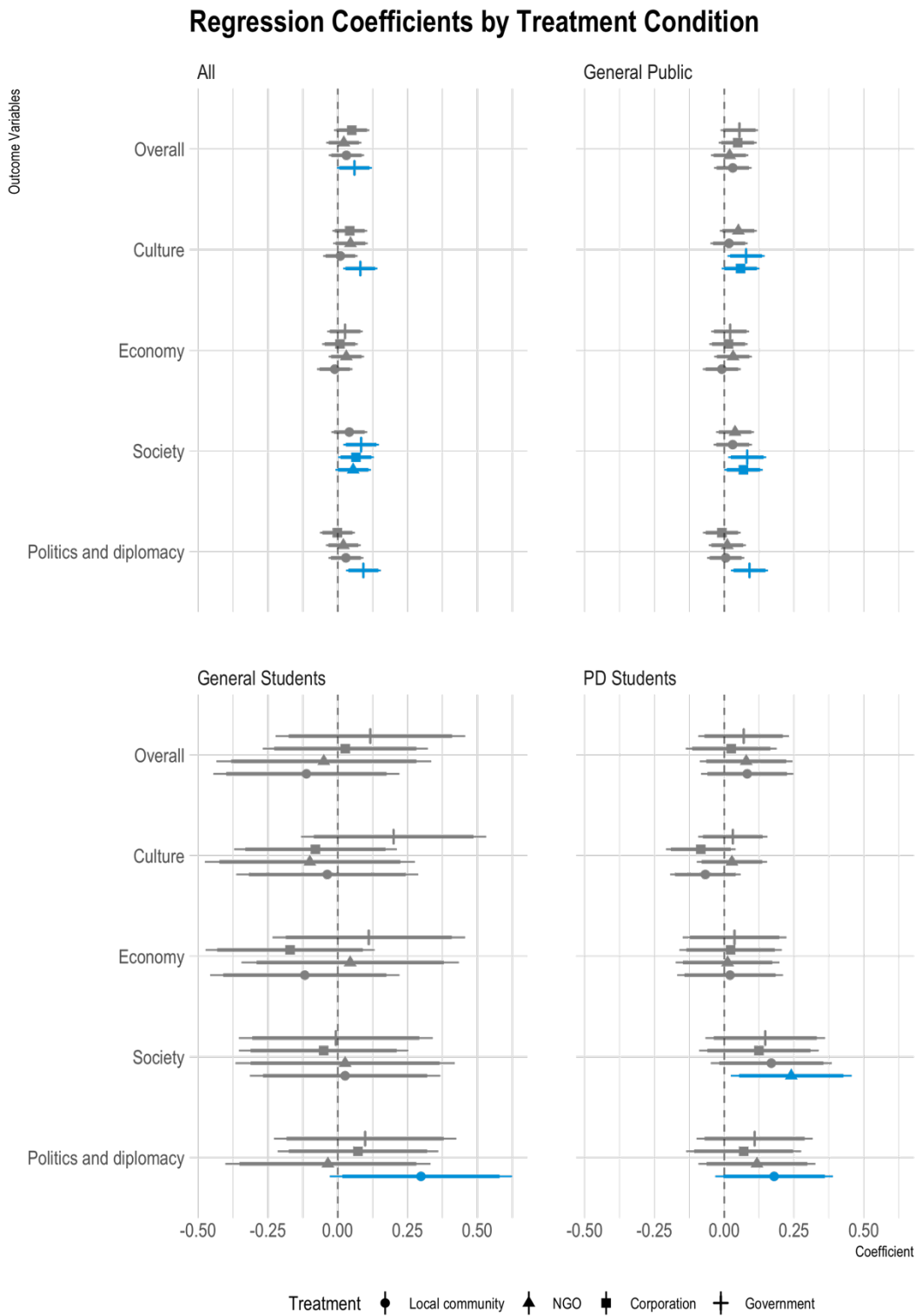


Figure 11: Coefficients By Treatment Conditions for Experiment 1 – General Perceptions

Regression Coefficients by Treatment Condition

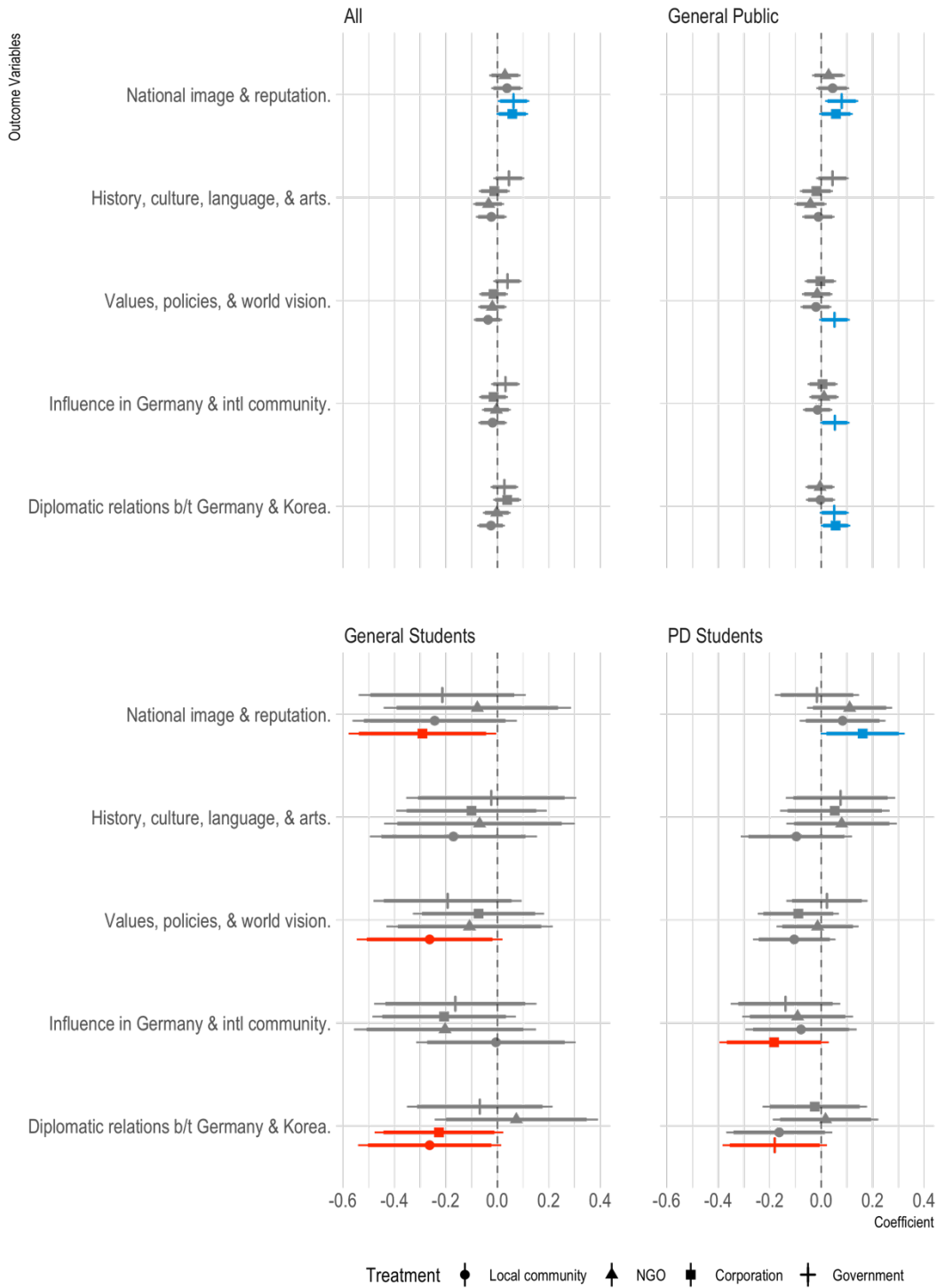


Figure 12: Coefficients By Treatment Conditions for Experiment 1

Next, in Figure 12, we consider the impact of same treatment information on new sets of outcome variables capturing whether such a fund may be helpful in promoting a greater understanding of Korea's history, culture, language, and arts, promoting a greater understanding of Korea's values, policies, and world vision, promoting greater diplomatic relations between Germany and Korea, enhancing Korea's national image and nation reputation, or enhancing Korea's influence in the Germany and international community.

The pooled sample result in the upper-left panel of Figure 12 show overall null effects of the treatment information, other than for the information that the funds originated from either the Korean government or corporation and only for enhancing the national image and reputation outcome. These results seem to be broadly in line with the study by Dietrich, Mahmud, and Winters (2017) on the US foreign aid in Bangladesh, which shows that providing information that the aid originated from the US government slightly improves general perceptions of the United States, but does not change respondent's opinions on US foreign policies.

Subgroup analysis comparing general public and the student groups provide some further insights masked in the pooled sample analysis. Namely, the coefficients for promoting greater diplomatic relations between Germany and Korea, which showed null results in the pooled sample show a statistically significant and *positive* impact for some of the treatment information in the general public subsample, but a statistically significant and *negative* impact for some of the treatment information in the student subsamples. Focusing specifically on the government funding treatment information, for example, we see that the coefficients with opposite directions between the general public and student subsamples have likely cancelled each other out in the pooled sample. Given the relatively negative perceptions about either the politics and diplomacy or the trustworthiness of the Korean government we have seen in the descriptive results section earlier, this is likely driven by either people with a more negative disposition towards the Korean government self-selecting into the student groups – especially in the case of the PD students – and/or being exposed to the Korean Studies and Language courses supported by public diplomacy initiatives leading to a more negative perception.

Next, we move to the analysis of the second survey experimental results, focusing only on the South Korea's government, South Korea's large corporation for the donor information treatments in the context of a newspaper article about the K-Pop World Festival.

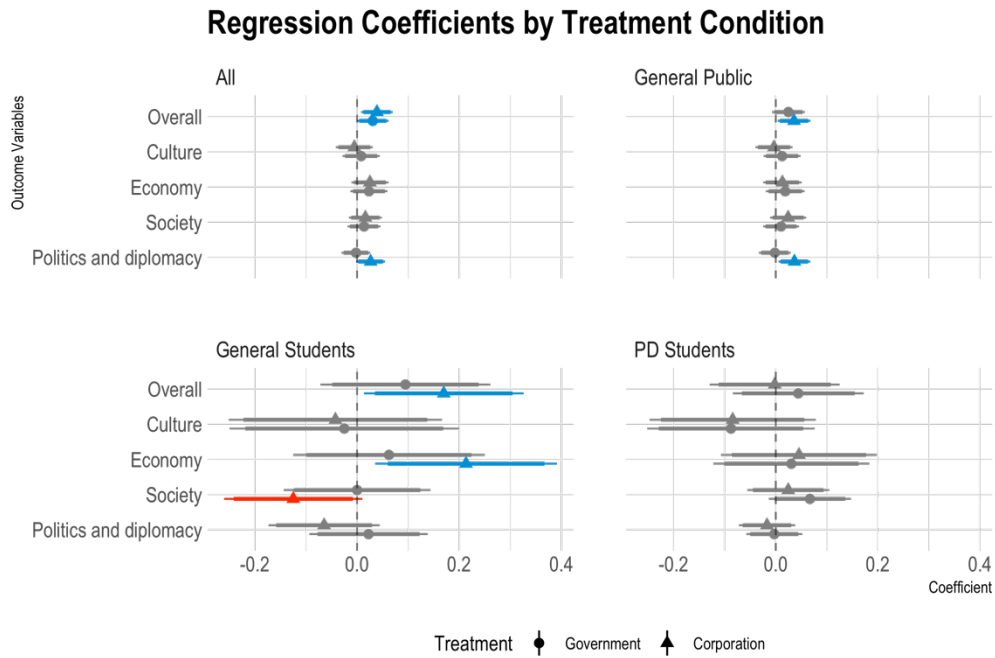


Figure 13: Regression Coefficients By Treatment Conditions for Experiment 1

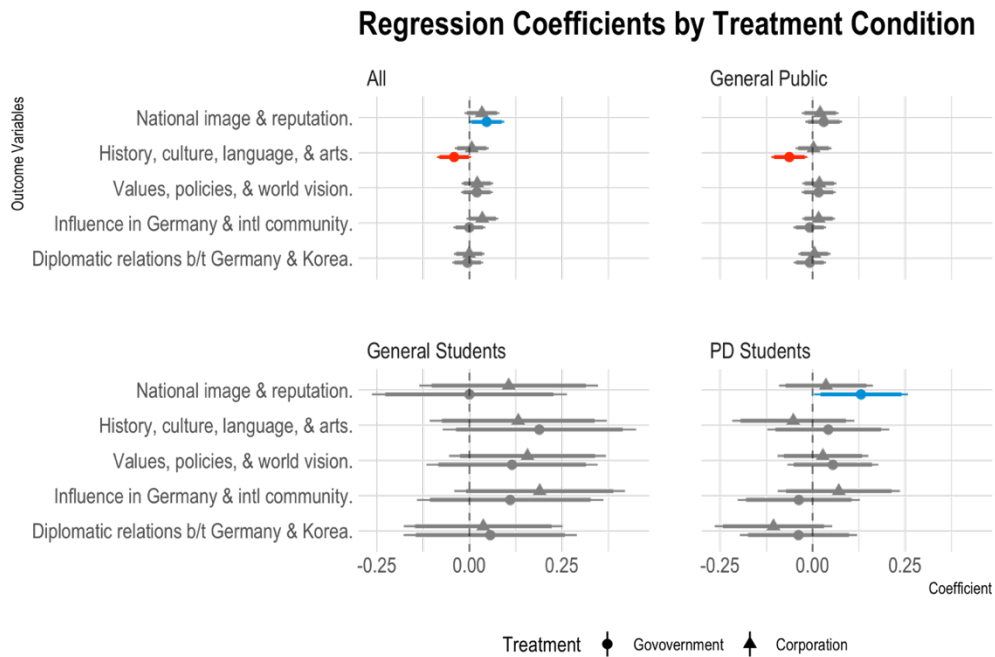


Figure 14: Regression Coefficients By Treatment Conditions for Experiment 2

First, Table 13 captures the impact of treatment information on the general perceptions or favorability towards Korea. In the upper two panels, we see that the corporation as sponsor treatment information is positively correlated with the perception towards both overall image and politics and diplomacy. While in the general student sample, the corporation as sponsor information is also positively associated with the perception towards the Korean economy, the same information is found to be also negatively associated with the perception towards the Korean society. Finally, while the government as sponsor treatment information is positively correlated with the overall perception towards Korea, such association does not seem to travel to any of the subsamples.

Next, Table 13 captures the impact of treatment information on the promotion of Korean government's public diplomacy policy objectives. Consistent with the findings from the first survey experiment, we find that the government as sponsor treatment information is positively associated with enhancing Korea's national image and nation reputation in both the pooled sample and the PD students subsample. The same treatment information, however, is not found to be statistically significant and positive for any of the other outcome variables. If anything, revealing that the Korean government is sponsoring the K-Pop Festival leads to a negative perception about promoting a greater understanding of Korea's history, culture, language, and arts. These results consistently show that while government involvement may improve general perceptions, it cannot positively affect the host country citizens' opinion about the governments policy goals, and can even in some cases backfire by exerting negative influences for some policy objectives.

Text Analysis

Finally, we provide a descriptive text analysis results on the types of Korean Studies and Language courses they have been exposed to, what they like and dislike about South Korea, and what they would like to learn more about Korea using structural topic models. For the analysis, we use the qualitative data from the open-entry response from the PD students regarding their prior exposure to any classes or courses related to Korean society, economy, culture, or politics, things that they like or dislike about Korea, and what more they would like to learn about Korea. To systematically analyze the text, we first translate the original German text into English using the Google Translate API. Prior research suggests that using machine translation does not

negatively affect the bag-of-words approach analysis of topical prevalence and topical content across different languages, especially in the context of European languages (Lucas et al. 2015; de Vries, Schoonvelde, and Schimacher 2018). Next, being cognizant of the sensitivity of results from unsupervised learning approaches including topic models that can arise from text preprocessing, we process the raw text by removing numbers, punctuations, special characters, and common stop words which are unlikely to convey much meaningful information, and finally convert all text into lower case and stem the words by reducing words to its most basic form (Denny and Spirling 2018). The resulting document term matrix contains a total of 151 documents (or valid responses) and 1,063 words for the open-entry response regarding prior coursework, 202 documents and 1,085 words for the likes and dislikes about Korea, and 202 documents and 1,085 words for the likes and dislikes about 157 documents and 451 words for future learning about Korea.

Figure 15 plots the top 20 most prevalent topics based on the structural topic model analysis for the courses question, along with the top six words that contributed the most to each topic. As there are no easy and clearly systematic way of selecting the appropriate number of topics ex post (Grimmer and Stewart 2013), we used the *selectModel* feature in the *stm* package to find a model with desirable properties (Roberts, Stewart, and Tingley 2019).⁷ From the results, we see that the most prevalent topic is related to history, economy, politics, and culture (Topic 17), and followed by a similar topic that seem to emphasize the society more (Topic 18). Upon closer investigation of the actual full text responses, other interesting topics include the one more specifically about North and South Korea (Topic 19), feminism and diminishing economic opportunities for the youth (Topic 3), or xenophobia and opposition to immigration (Topic 10). To provide a short glimpse into the actual texts, Figure 16 provides some example of the first 250 characters in randomly selected responses classified into the top two most prevalent topics.

⁷ While there are a number of ways to calculate the desired number of topics based on metrics using a data-driven approach, such as density (Cao et al. 2009), within-topic divergence (Arun et al. 2010), across-topic divergence (Deveaud et al. 2014), log-likelihood (Griffiths and Steyvers 2004; Wallach et al. 2009), we find that the purely data driven approach converges around 70 to 90 topics, which the researchers qualitatively evaluated to be too large for a document size between 150-200 with only short-form text entries. As a result, we force the number of topics search below a reasonable threshold (K=30) and both quantitatively and qualitatively examined the ideal number of topics using the *selectModel* function.

Have you taken any courses related to Korea?

With the top words that contribute to each topic

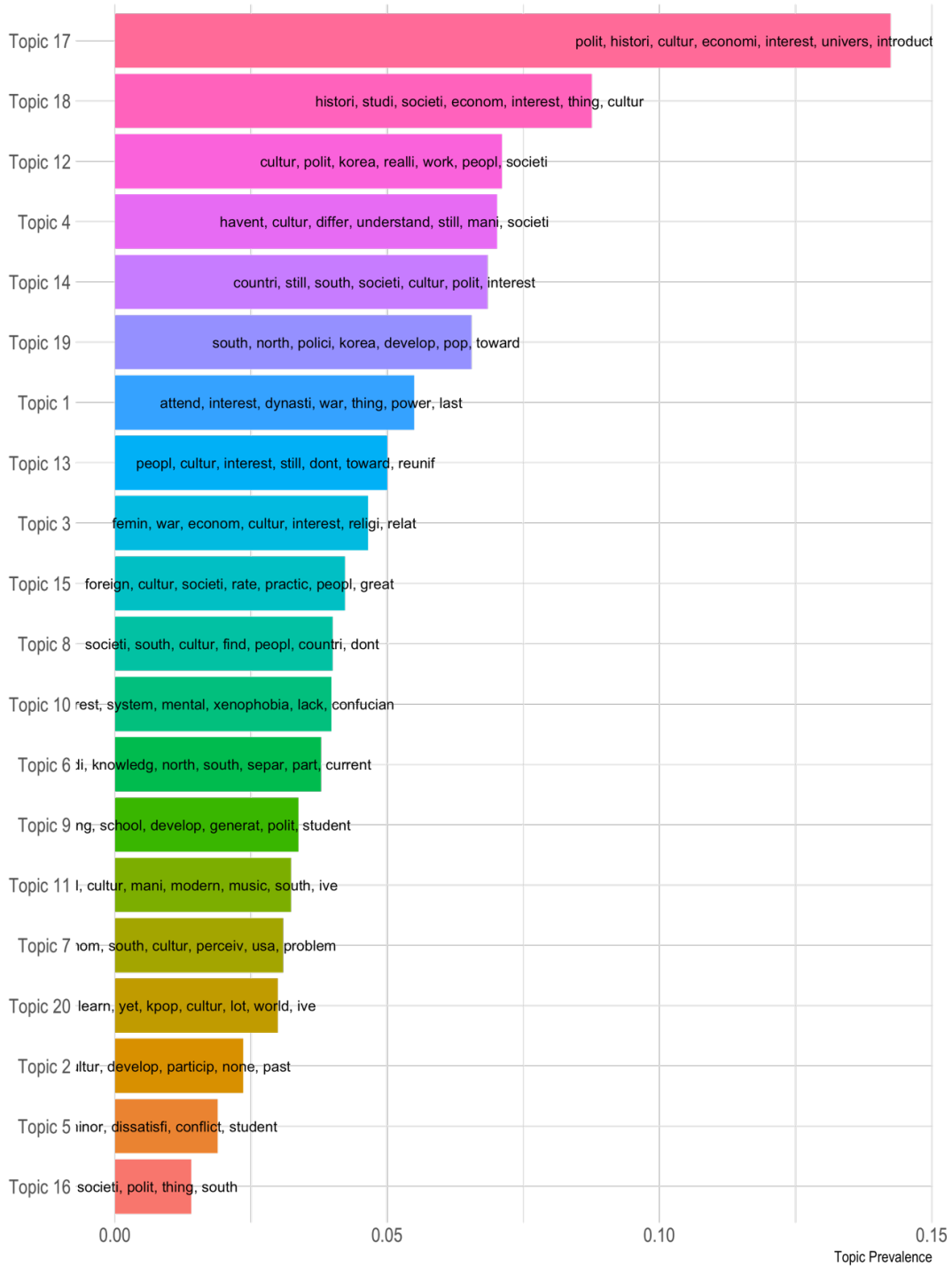


Figure 15: Topic Prevalence for the Courses Question

Topic 17	Topic 18
<p>An introductory course in the history, economy and politics of Korea. Interesting was the large gap between rich and poor and that especially the jebols/big companies have a lot of influence on politics and economy.</p>	<p>As part of my studies, I attended lectures and seminars on Korean history, culture and politics/economics/society. The three most interesting things were the ethnic homogeneity of the Korean population, the ongoing tensi</p>
<p>They were study courses that talk about the history and culture of Korea. 1. Korea has more to offer than meets the eye 2. They are very community oriented 3. Korea has had its ups and downs historically, but overcame it</p>	<p>Since I'm studying Korean Studies, I took courses on history, culture and society. There I learned the background of Korea's development. The most interesting things for me were the rapid economic growth, the social orde</p>
<p>Introductory courses on Korean history, politics, society and culture: I found the cultural, historical and social differences in comparison to Germany particularly interesting.</p>	<p>Yes, I have studied two courses on the economic development of Korea. Economic development has increased prosperity and democracy. In the Korean Politics course, I noticed that the reunification with North Korea in parti</p>

Figure 16: Example Texts for the Top 2 High Prevalence Topics for the Courses

Next, in Figure 17, we present the results from an identical analysis using responses to the question regarding what the students would like to learn more about Korea. From the results, we see that the most prevalent topic is related to language and history (Topic 17), followed by a topic on culture (Topic 2) and on history (Topic 14). Again, to provide a closer look into the actual texts, Figure 18 provides a short text excerpt from randomly selected responses classified into the top two most prevalent topics. As can be seen from the right panel of Figure 18, interestingly the students seem to desire learning about how Western culture influenced the Korean culture and vice versa. This shows that, more than just learning about traditional culture or history, students have diverse interests to include learning more about the Korea today and not just Korea from the past.

What more would you like to learn about Korea?

With the top words that contribute to each topic

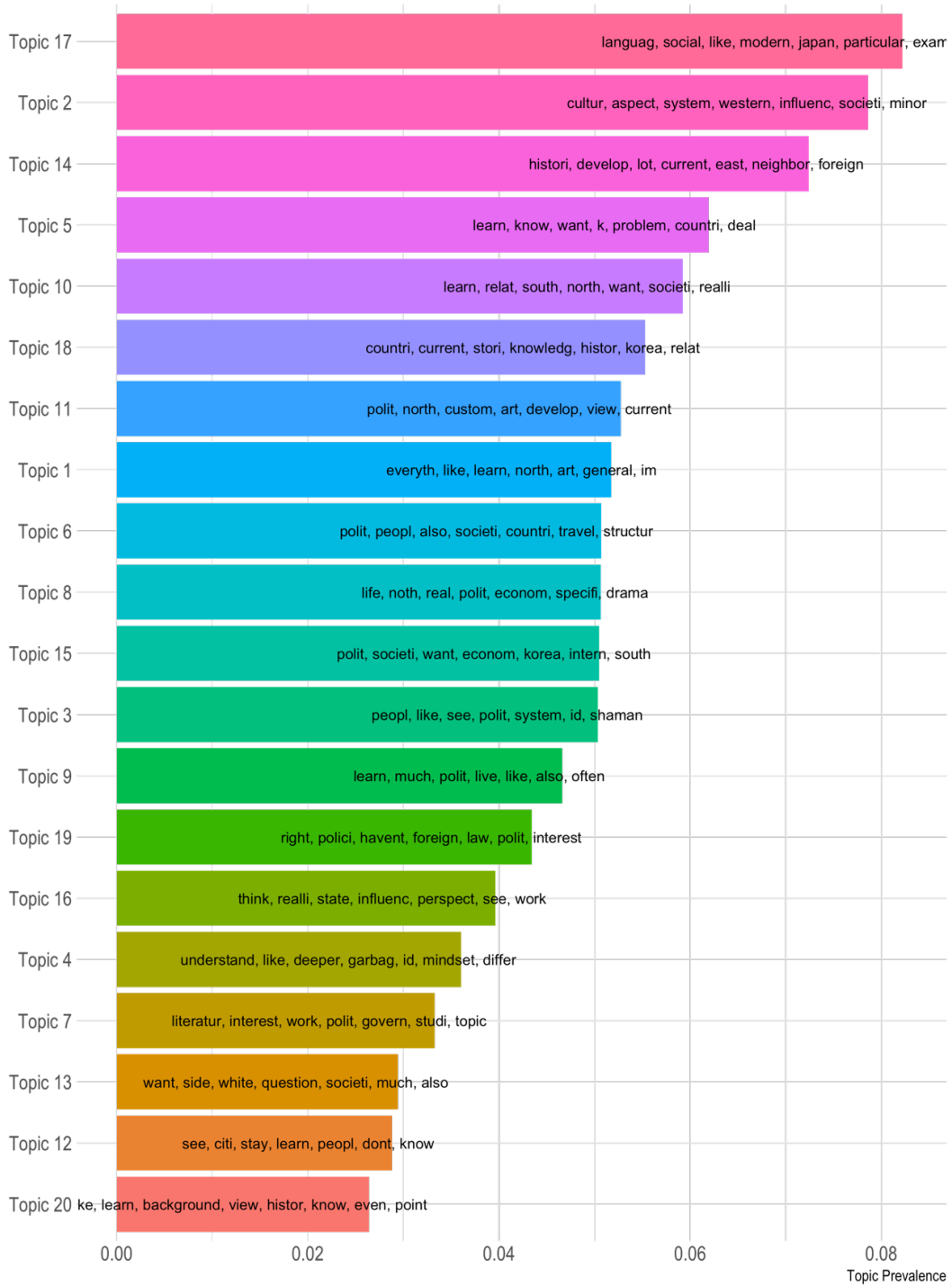


Figure 17: Topic Prevalence for the Future Learning Question

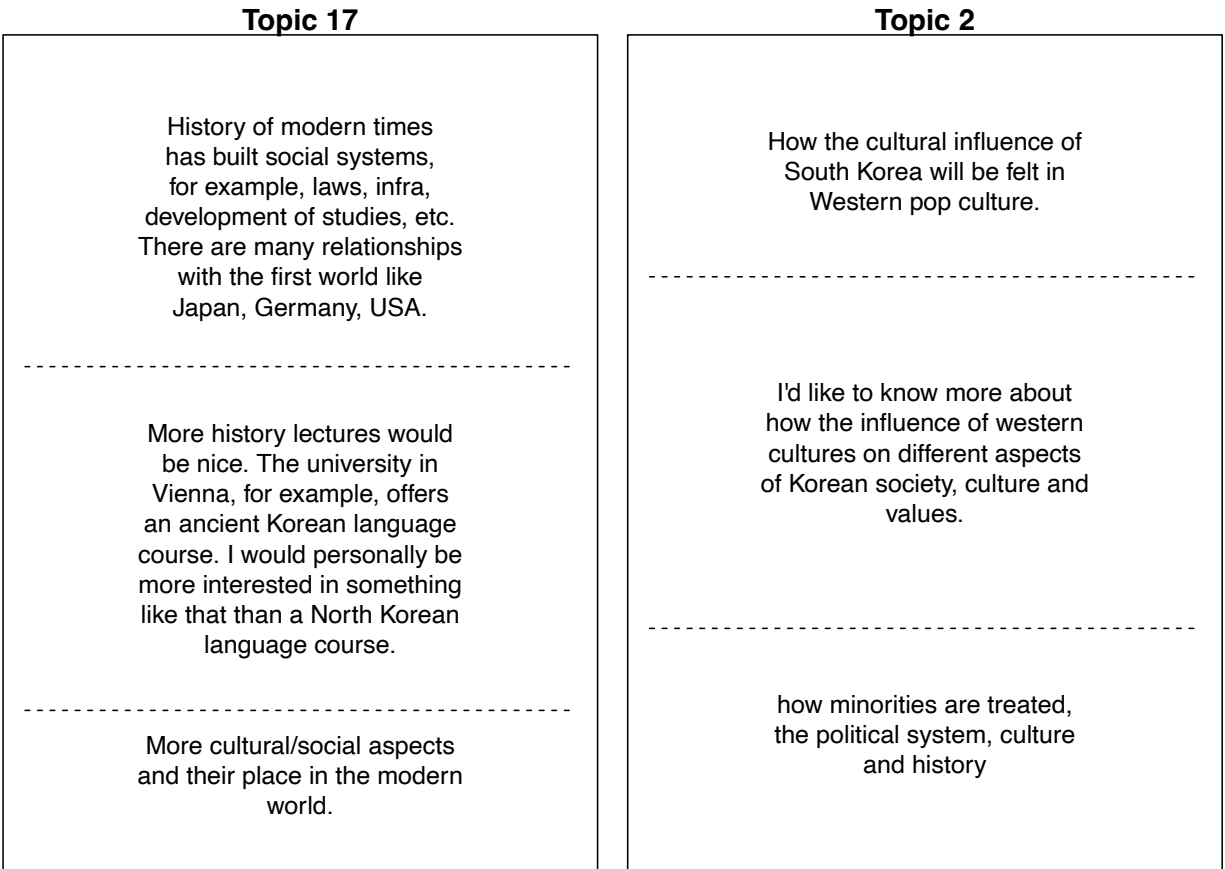


Figure 18: Example Texts for the Top 2 High Prevalence Topics for the Future Learning

Finally, in Figure 19, we present the results from an identical analysis using responses to the question regarding what the survey participants like or dislike about Korea. From the results, we see that the most prevalent topic is related to culture, food, and language (Topic 17), and followed by a topic on music and film (Topic 18). Figure 20 provides a short text excerpt from randomly selected responses classified into the top two most prevalent topics. Yet, as topic prevalence only captures the most commonly appearing topics, we may be able to observe a more interesting and nuanced though the relatively less prevalent topics. Indeed, we can see terms that can potentially be associated with negative images, such as LGBTQ (Topic 17), women (Topic 11), xenophobia (Topic 9), and discrimination (Topic 7) appear throughout the list of most common words for the top 20 most prevalent topics. For example, focusing on the issue of gender equality, a keyword-based search using terms women and gender revealed the following texts as examples:

I dislike the conservative political stance, the disadvantages for women, the social hierarchy, the poor working conditions for students and adults alike. / As far as I can see, the position of women is still within a conservative framework. / Among the characteristics I dislike the most are the importance of hierarchies (age, gender, status, etc.), the position of women and how feminism and LGBTQ are treated and discriminated against, the uniformity, dealing with foreigners. / Society has a few aspects, such as hierarchy, the role of women, which I see as very critical. / Dealing with women and feminism, lack of LGBTQIA+ rights, general handling of discrimination / Aspects that I don't like are the discrimination against women in society and the often still patriarchal society. / Existing patriarchal/conservative structures (situation of women & LGBTQ+ individuals) / I don't like the hierarchy that prevails in the family and also in the working world. Likewise the legal situation for LGBTQIA+ and women. / I also much to dislike from a western point of view like view on traditional things like family, not very open to new things (eg lgbtq+ community, women in power etc.) / I don't like is the still strong discrimination against women and foreigners in Korea. / Tendency towards conservative politics, greater gender inequality compared to other OECD nations / It is still very patriarchal society. Progress in achieving gender equality is unfortunately lagging behind / I dislike how conservative the country still is especially regarding gender, sex and sexuality. / It would be desirable, even if women are on an equal footing with men on a legal level, for this to be practiced.

From these text analysis results overall, we find that students are most interested in Korea's language, culture, and history as one might conventionally expect, but we also saw that they are not just interested in learning about Korea from the past, but more so about the Korea today. From the qualitative examination of the actual texts, we also presented some descriptive and indirect evidence that conservative social and political climate, including specifically gender and immigration issues, may be driving some of the negative student perceptions about Korea, which coincides with the descriptive analysis showing the overall lower mean positive rating for the Korean society, politics, and diplomacy, handling of immigration issues, or the trustworthiness of the Korean government from the students formerly exposed to the Korean Studies and

What are things that you like or dislike about Korea?

With the top words that contribute to each topic

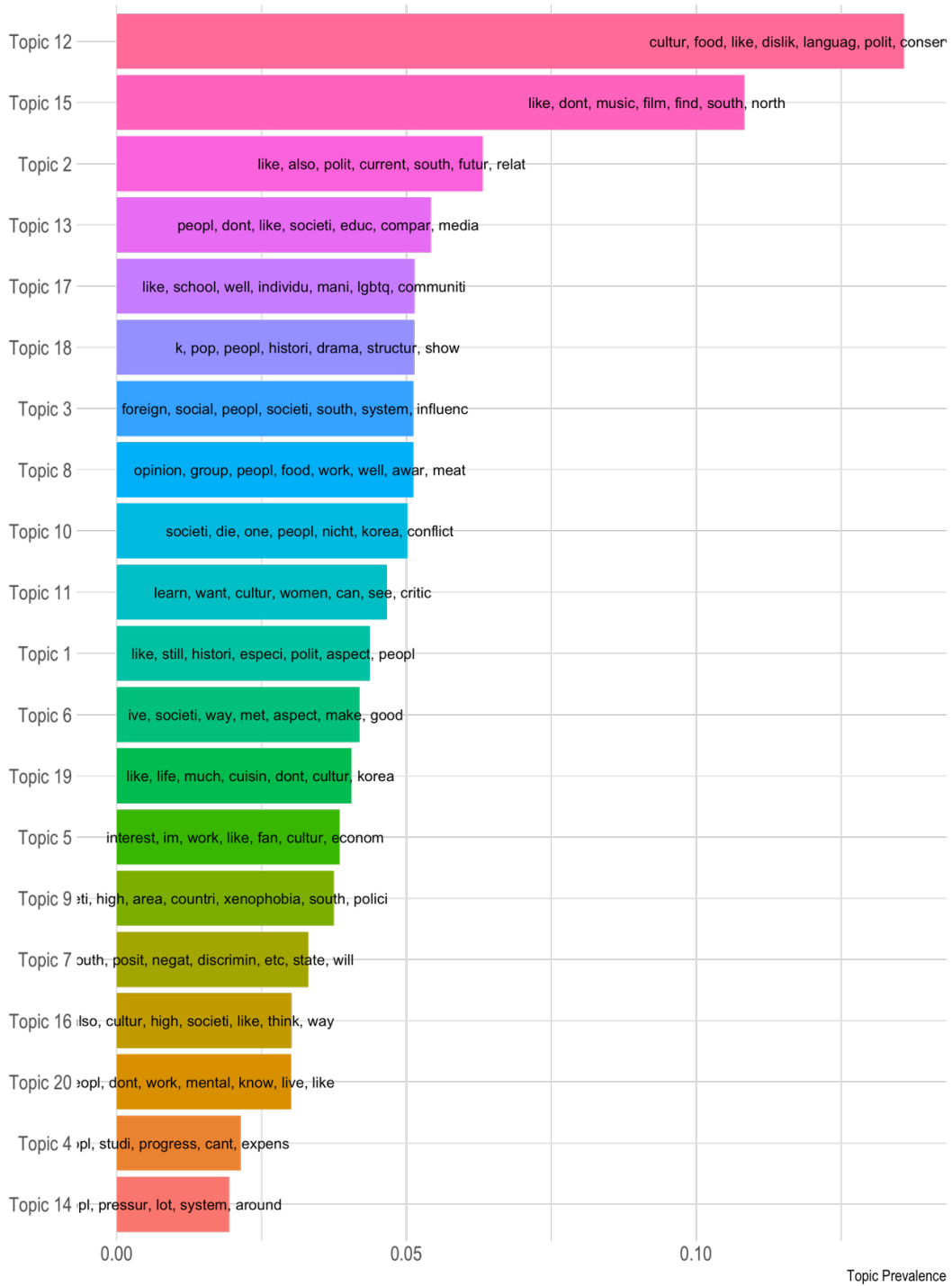


Figure 17: Topic Prevalence for the Likes/Dislikes Question

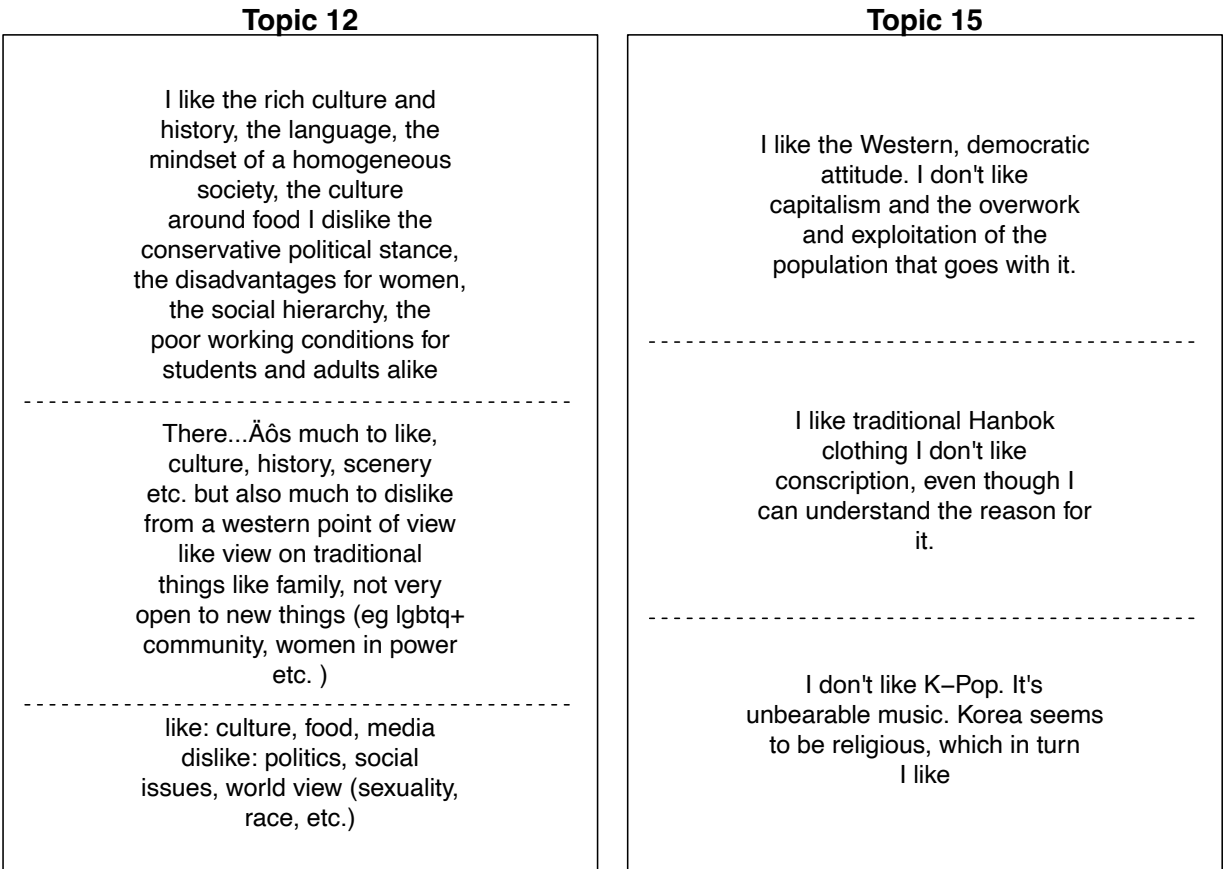


Figure 18: Example Texts for the Top 2 High Prevalence Topics for the Courses

Language courses supported by public diplomacy initiatives compared to the general public or other students.

Discussion and Concluding Remarks

This paper examined the impact of relatively under-explored yet important and widely used public diplomacy instrument, namely educational program, using the case of Korean Studies and Language courses in German higher educational institutions. By collecting original survey data from more than four thousand Germans including a sample of general public, general students, and specifically students formerly exposed to the Korean Studies and Language courses supported by public diplomacy initiatives, we examined the baseline difference in general perceptions and domain-specific perceptions about South Korea as well as broader views on foreign policies by sample characteristics, and found that while the students formerly exposed to

the Korean Studies and Language courses show statistically significant and more positive favorability towards overall Korean image as well as culture and economy compared to others, they have a more negative disposition towards Korean society, politics, and diplomacy, handling of immigration issues, or the trustworthiness of the Korean government. Moreover, through a principal component analysis deriving a latent variable which captures the general positive perception towards Korea and the subsequent regression analysis examining the association between various individual-level characteristics and more positive perceptions about South Korea, we showed that students formerly exposed to the Korean Studies and Language courses indeed hold a more positive perception about South Korea, and also documented other individual level characteristics which are associated with such positive perceptions. Third, based on our survey experimental evidence, we also find some support that providing information about government-sponsored efforts – but not privately funded activities – can yield a more positive general perception about South Korea. Yet, the same information about government engagement may backfire, when it is perceived to be designed for promoting a greater understanding of Korea's history, culture, language, and arts – consistent with some of the experiential evidence found in the the foreign aid donor identity literature. Finally, narrowing our focus to the students formerly exposed to the Korean Studies and Language courses only, we provide a descriptive text analysis results confirming some of the conventional expectations about what people expect and desire to learn about Korea, but also some descriptive and indirect evidence regarding what drives negative perceptions about Korea, namely conservative social and political climate, including specifically gender and immigration issues.

As with any studies, this study is not without any limitations or shortcomings. First and for most, much of the results presented – except for the survey experimental ones – are only of correlational and associational nature, and cannot speak to any causal relations. For example, even the regression analysis results showing that PD students tend to have a more positive disposition towards Korea to be more likely to self-select into being a Korean Studies major student. While controlling for other observable individual characteristics and comparing with other student subsample adds some more confidence to the results, such results are still strictly correlational. Relatedly, while the survey experimental results are able to establish causal inference regarding the impact of the treatment information on the survey participants' responses, the interpretation of such results should require caution. First, the dependent variables

are captured only within the survey context in a self-reported response format, and do not entail any real world costs to provide sufficient grounds that they indeed reflect the respondents' actual preferences. In future lines of studies, the possibility of employing research designs requiring some real world costs, either in the form of greater cognitive efforts or some monetary donations, could be considered.

Second, while the analyses relied heavily on the difference across the pooled sample as well as the general public, general students, and PD students subsamples, the membership into these different samples were not experimentally randomized and thus we need to exercise caution in interpreting the results from the heterogeneous treatment analysis. For example, while we do know that Korean government as sponsor information treatment evokes positive perception towards the national image and reputation of Korea among the PD students, we cannot derive any conclusions about whether being formerly exposed to the Korean Studies and Language courses supported by public diplomacy initiatives has such an impact. Rather, all we could conclude here is that such information treatment works for this particular student group. Future studies should seek to identify any random rollout of enrollment for the Korean Studies and Language courses, or potentially randomizing the delivery order of certain course contents to establish a more robust research design for better causal inference.

Third, while we do see some causal impact of randomized information treatment for some of the key outcome variables, we fell short of examining, not just the impact, but also the causal mechanism for such impact. For example, why are PD students negatively affected by the information regarding government or corporation involvement in the K-Pop Festival in relation to Korea's influence in Germany and the international community, or the diplomatic relations between Germany and Korea? While we did capture the statistical significance, direction, and the magnitude of such information treatment, the research design or statistical analysis fail to reveal the mechanism through which such impact manifested. Although some of the results from the descriptive text analysis provide some indirect evidence that may be related to such mechanism, future studies should consider carefully employing a mixed methods approach combining both quantitative and qualitative analysis to include perhaps focus group discussions or in-depth interviews in order to better understand the causal process and the mechanism behind such impact.

Fourth, while this study focused on German public, the findings of our study may not necessarily travel to other country contexts, such as the United States, Japan, or China, given the complicated issues of greater salience in the bilateral relationships. In the future lines of research, replicating and extending our research to these countries may help derive a more systematic and generalizable understanding about the effectiveness of public diplomacy efforts.

Finally, one critical element in this line of research is regarding spillover in either the perception or effectiveness of the efforts. For instance, does the evaluation of a country in one aspect spillover to the evaluation of another aspect of the country? Or does the evaluation of one's own country in one aspect spillover to the evaluation regarding the same aspect for another country? Potentially, a survey experiment with a two-by-two factorial design where one of the treatment is the country dimension and the other the policy dimension may get us closer to testing such expectation. Further efforts in understanding the relationship between prior knowledge of a given country or domain, on the one hand, and country favorability, on the other hand, should seriously take up these lines of research going forward.

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Appendix

Variable	N	Percent
Gender	3754	
... Female	2009	53.5%
... Male	1733	46.2%
... Gender Diverse (Gender non-conforming and/or transgender)	8	0.2%
... Prefer not to say	4	0.1%
Age	3754	
... Under 18	17	0.5%
... 18 - 24	477	12.7%
... 25 - 34	739	19.7%
... 35 - 44	688	18.3%
... 45 - 54	429	11.4%
... 55 - 64	775	20.6%
... 65 - 74	526	14%
... 75 - 84	100	2.7%
... 85 or older	3	0.1%
Education	2269	
... None	15	0.7%
... Hauptschule	161	7.1%
... Realschule (Mittlere Reife)	383	16.9%
... Gymnasium (Abitur)	228	10%
... Abgeschlossene Ausbildung	829	36.5%
... Fachhochschulabschluss	161	7.1%
... Hochschule (Bachelor)	154	6.8%
... Hochschule (Master/Diplom)	282	12.4%
... Hochschule (Promotion)	50	2.2%
... Other	6	0.3%

Table A1: Summary Statistics for General Public - 1

Variable	N	Percent
Income	2266	
... Less than 1,000 euros	220	9.7%
... 3,001 to 4,000 euros	439	19.4%
... 4,001 to 5,000 euros	252	11.1%
... 5,001 euros and more	233	10.3%
... 1,001 to 2,000 euros	528	23.3%
... 2,001 to 3,000 euros	594	26.2%
Employment Status	2263	
... Full-time employee	1154	51%
... Part-time employee	326	14.4%
... Self-employed	102	4.5%
... Pensioner	131	5.8%
... Student	0	0%
... Homemaker	73	3.2%
... Retired	323	14.3%
... Temporarily out of work or unemployed	129	5.7%
... Other (e.g., not in the labor market)	25	1.1%
Ideology	2266	
... Extremely conservative	85	3.8%
... Conservative	226	10%
... Slightly conservative	406	17.9%
... Moderate	1024	45.2%
... Slightly progressive	222	9.8%
... Progressive	234	10.3%
... Extremely progressive	69	3%

Table A2: Summary Statistics for General Public - 2

Variable	N	Percent
Gender	92	
... Female	51	55.4%
... Male	40	43.5%
... Gender Diverse (gender non-conforming and/or transgender)	1	1.1%
... Prefer not to say	0	0%
Age	92	
... Under 18	0	0%
... 18 - 24	59	64.1%
... 25 - 34	23	25%
... 35 - 44	7	7.6%
... 45 - 54	2	2.2%
... 55 - 64	1	1.1%
... 65 - 74	0	0%
... 75 - 84	0	0%
... 85 or older	0	0%
Educ	92	
... None	0	0%
... Hauptschule	5	5.4%
... Realschule (Mittlere Reife)	11	12%
... Gymnasium (Abitur)	45	48.9%
... Abgeschlossene Ausbildung	4	4.3%
... Fachhochschulabschluss	5	5.4%
... Hochschule (Bachelor)	15	16.3%
... Hochschule (Master/Diplom)	4	4.3%
... Hochschule (Promotion)	2	2.2%
... Other	1	1.1%

Table A3: Summary Statistics for General Students - 1

Variable	N	Percent
Income	92	
... Less than 1,000 euros	23	25%
... 3,001 to 4,000 euros	9	9.8%
... 4,001 to 5,000 euros	6	6.5%
... 5,001 euros and more	7	7.6%
... 1,001 to 2,000 euros	21	22.8%
... 2,001 to 3,000 euros	26	28.3%
Employment Status	92	
... Full-time employee	0	0%
... Part-time employee	0	0%
... Self-employed	0	0%
... Pensioner	0	0%
... Student	92	100%
... Homemaker	0	0%
... Retired	0	0%
... Temporarily out of work or unemployed	0	0%
... Other (e.g., not in the labor market)	0	0%
Ideology	92	
... Extremely conservative	6	6.5%
... Conservative	9	9.8%
... Slightly conservative	11	12%
... Moderate	40	43.5%
... Slightly progressive	12	13%
... Progressive	14	15.2%
... Extremely progressive	0	0%

Table A4: Summary Statistics for General Students - 2

Variable	N	Percent
Gender	215	
... Female	150	69.8%
... Male	52	24.2%
... Gender Diverse (Gender non-conforming and/or transgender)	7	3.3%
... Prefer not to say	6	2.8%
Age	215	
... Under 18	1	0.5%
... 18 - 24	138	64.2%
... 25 - 34	58	27%
... 35 - 44	17	7.9%
... 45 - 54	1	0.5%
... 55 - 64	0	0%
... 65 - 74	0	0%
... 75 - 84	0	0%
... 85 or older	0	0%
Education	214	
... None	2	0.9%
... Hauptschule	123	57.5%
... Realschule (Mittlere Reife)	10	4.7%
... Gymnasium (Abitur)	1	0.5%
... Abgeschlossene Ausbildung	50	23.4%
... Fachhochschulabschluss	25	11.7%
... Hochschule (Bachelor)	2	0.9%
... Hochschule (Master/Diplom)	1	0.5%
... Hochschule (Promotion)	0	0%
... Other	0	0%

Table A5: Summary Statistics for PD Students - 1

Variable	N	Percent
Income	214	
... Less than 1,000 euros	102	47.7%
... 3,001 to 4,000 euros	8	3.7%
... 4,001 to 5,000 euros	8	3.7%
... 5,001 euros and more	4	1.9%
... 1,001 to 2,000 euros	70	32.7%
... 2,001 to 3,000 euros	22	10.3%
Employment Status	215	
... Full-time employee	5	2.3%
... Part-time employee	20	9.3%
... Self-employed	2	0.9%
... Pensioner	1	0.5%
... Student	178	82.8%
... Homemaker	2	0.9%
... Retired	7	3.3%
... Temporarily out of work or unemployed	0	0%
... Other (e.g., not in the labor market)	0	0%
Ideology	214	
... Extremely conservative	1	0.5%
... Conservative	3	1.4%
... Slightly conservative	11	5.1%
... Moderate	30	14%
... Slightly progressive	45	21%
... Progressive	93	43.5%
... Extremely progressive	31	14.5%

Table A6: Summary Statistics for PD Students - 2

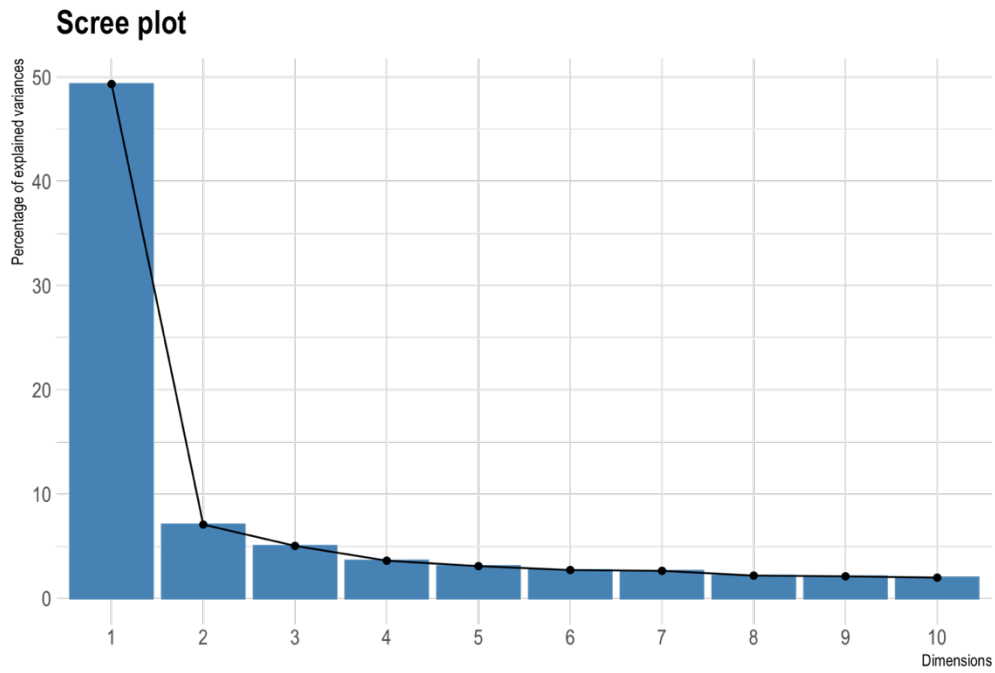


Figure A1: Scree Plot

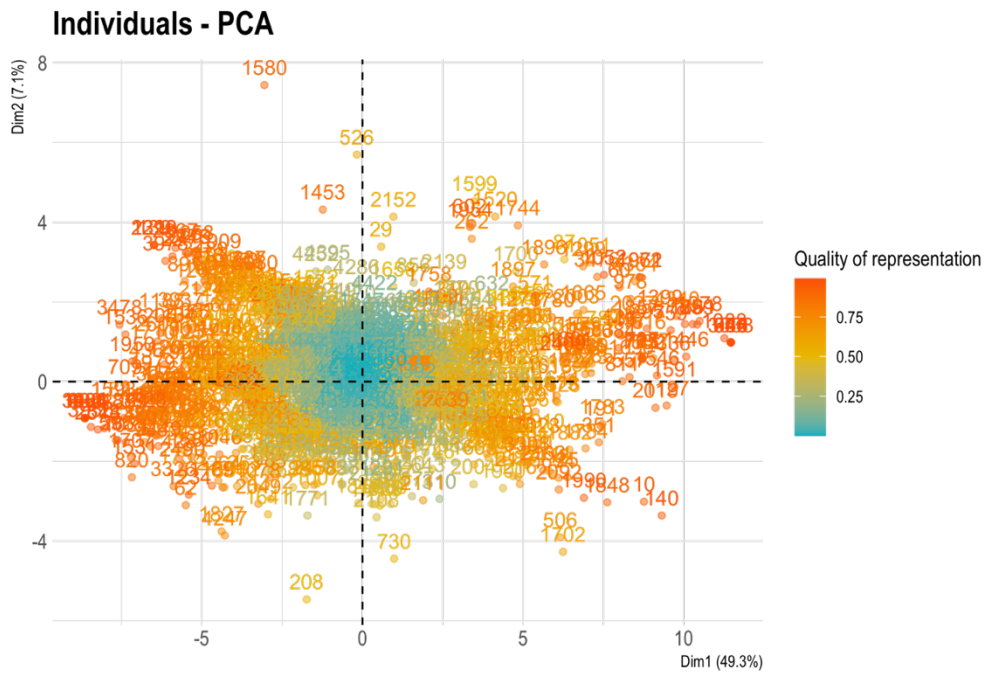


Figure A2: Individual Responses Across Dimensions

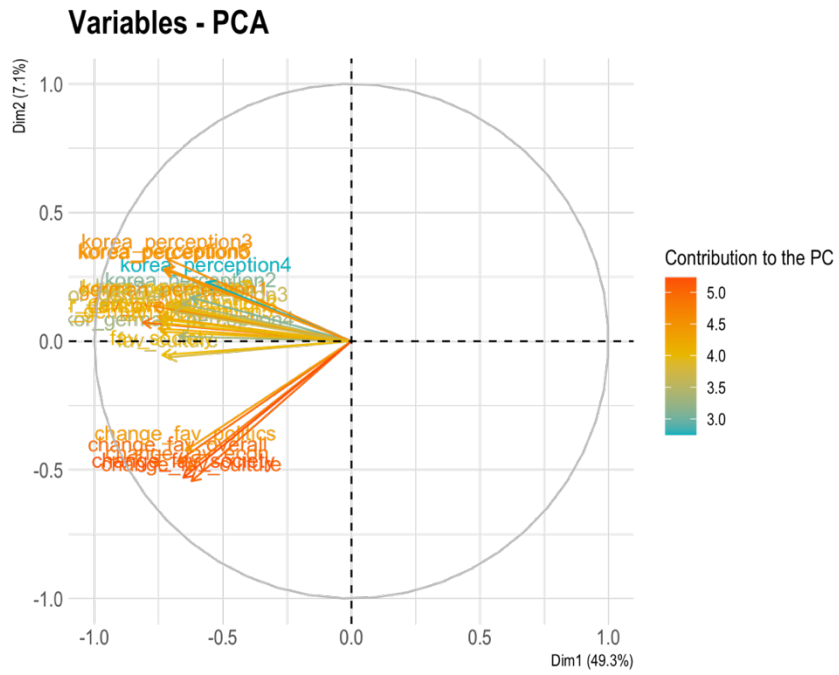


Figure A3: Variables in the Two Dimensional Space

Percentage Support by Treatment Conditions

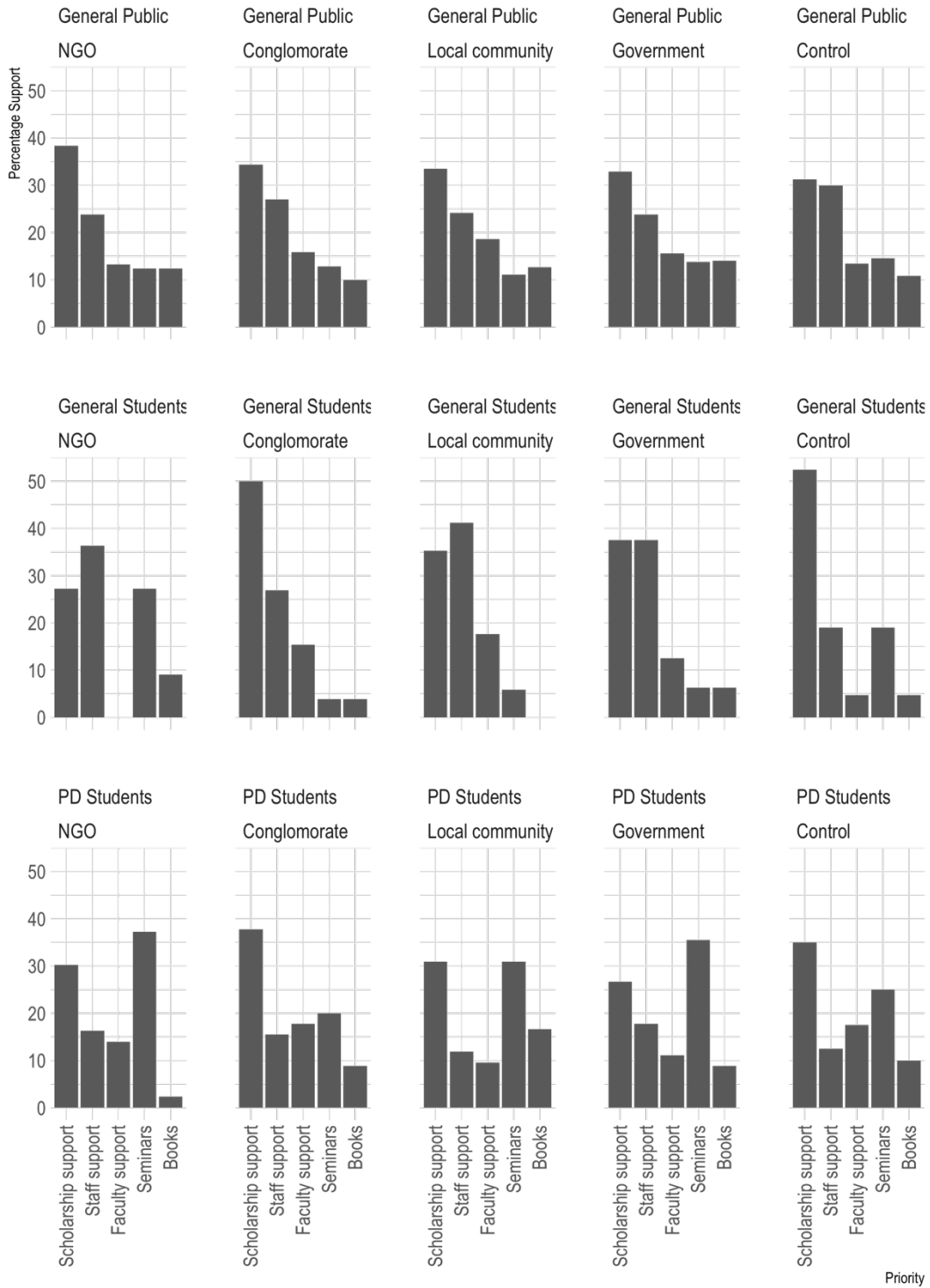


Figure A8: Percentage of Support By Treatment Conditions for Survey Experiment 1