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When politics shapes technology adoption: a cross-national study of chatbot acceptance

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ABSTRACT

Existing literature on chatbot acceptance has largely relied on the Technology Acceptance Model (TAM) or Unified Theory of Acceptance and Use of Technology (UTAUT), often neglecting the broader political, cultural, and attitudinal factors that shape user perceptions. Drawing on a cross-national online survey examining adults' attitudes toward AI chatbots in China, Germany, South Africa, and the United States, we confirm the explanatory power of TAM/UTAUT constructs while uncovering new determinants rooted in political values and cross-national perceptions. Specifically, participants are more likely to accept chatbots originating from countries toward which they hold positive sentiments – a country-of-origin effect linked to evaluations of the political system and technological advancement of the chatbot's home country. Moreover, sociopolitical ideology and technological openness significantly influence acceptance levels, whereas privacy concerns play a comparatively modest role overall. Only among German and American respondents do privacy concerns significantly reduce acceptance of both chatbots. These findings suggest that chatbot adoption is not merely a matter of technological functionality but is also shaped by the political and symbolic meanings attached to the chatbot's country of origin.

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1. Introduction

Since its release in November 2022 by the American company OpenAI, ChatGPT has transformed how people use AI technologies, enabling applications that range from everyday assistance to complex professional and creative tasks (Liu & Rau, 2025). Within less than four years, a growing number of competitors such as Gemini, Claude, and DeepSeek have entered the market, offering various options to consumers. With the rapid expansion of chatbots in the marketplace, important questions arise: Do people accept and use these technologies? And, given the increasing variety of available options, what drives individuals to choose one chatbot over another?

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A substantial body of research, most prominently grounded in the Technology Acceptance Model (TAM/TAM2) and the Unified Theory of Acceptance and Use of Technology (UTAUT/UTAUT2), has examined technology adoption across diverse technologies, contexts, and countries. The TAM framework primarily highlights perceived usefulness and ease of use, while UTAUT broadens this perspective by incorporating factors such as social influence, facilitating conditions, and moderating variables including age and gender. More recently, with the rise of AI-powered chatbots, scholars have begun to investigate public attitudes toward the adoption of these products (Ma et al., 2025; Sobaih et al., 2024).

However, existing TAM and UTAUT research may be inadequate for a thorough understanding of chatbot adoption for two main reasons. First, modern AI-powered chatbots differ substantially from traditional technologies from which these theories were derived. For example, the anthropomorphic design and affective expression are typical features of modern chatbots. These new characteristics have implications for many outcomes, such as emotional wellbeing (Phang et al., 2025), user engagement (Chandra et al., 2022), and information disclosure (Chen et al., 2024). Hence, it is important to examine the role of new factors such as privacy in the formation of adoption decisions. Second, the TAM/UTAUT framework usually focuses on the functional features of new technologies from a cost-effectiveness perspective. However, today's world is characterized by an intense AI race between major technological powers including China and the United States (Sajadieh et al., 2026). The linear relationship between functional features (e.g., usefulness, ease of use) and adoption decisions may be compounded by political and cultural orientations (Dutot et al., 2019; Gur et al., 2024).

Drawing on a large-scale cross-national online survey conducted in China, Germany, the United States, and South Africa, this paper argues that chatbot acceptance is influenced not only by product features but also by individual beliefs, privacy concerns, and the chatbot's country of origin. Our analysis confirms that most TAM/UTAUT variables remain strongly associated with the acceptance of ChatGPT and DeepSeek, reaffirming the frameworks' explanatory power in the chatbot context. More importantly, however, we find that individual beliefs and chatbots' country of origin significantly correlate with adoption decisions. Respondents who favor democratic institutions are more likely to accept ChatGPT, whereas those who value strong government are less inclined to adopt it. Privacy concerns, by contrast, yield a significant yet rather small effect on chatbot acceptance.

Country of origin further proves to be a crucial determinant of acceptance. Respondents express greater willingness to adopt chatbots originating from countries toward which they hold positive attitudes. We identify two mechanisms underlying this effect: perceptions of the origin country's political environment and its level of technological advancement. Technological advancement is significantly associated with the acceptance of ChatGPT, while perceptions of the political environment are more relevant for DeepSeek. In other words, respondents are more likely to accept ChatGPT when they view the United States as technologically advanced (except among German respondents), but the perceptions of democracy in the United States do not matter for acceptance (except among Chinese respondents). Conversely, the acceptance of DeepSeek is influenced by evaluations of China's political system across all four countries and, to a lesser extent, by perceptions of its technological capacity (except among Chinese respondents).

These findings suggest that foreign users prioritize political preferences over technological advancement when evaluating China's DeepSeek.

This paper contributes to the literature in three key ways. First, it extends existing TAM/UTAUT models to include multiple sets of variables relevant to chatbot acceptance, thereby reducing the risk of omitted variable bias common in narrower studies. Second, it employs multi-dimensional measures of privacy concerns to link the TAM/UTAUT literature with research on privacy. Although privacy concerns are not as strong as TAM/UTAUT constructs in predicting chatbot acceptance, our analysis still reveals statistically significant correlations, particularly in Germany and the United States. Third, the paper introduces the 'country of origin' perspective, which is extensively studied in marketing and political consumerism, into technology acceptance research. TAM/UTAUT studies typically focus on domestic technologies within single-country contexts, overlooking cross-national dynamics. In an era of globalized technology diffusion, however, the origin of a technology or product has significant implications for its acceptance. This paper shows that the country of origin influences technology acceptance and further clarifies the mechanisms through which it does so, namely users' perceptions of the origin country's political system and technological capabilities.

2. Literature and hypotheses

2.1. The TAM and UTAUT literature

User acceptance of new technologies has been extensively studied. Focusing on the adoption of computers, Davis (1985) first proposed the Technology Acceptance Model (TAM), arguing that the perceived usefulness and perceived ease of use are the primary determinants of users' attitudes toward a product, which in turn predict actual usage. He later developed detailed measurement scales for these two key explanatory variables (Davis, 1989). This seminal work paved the way for decades of research on technology acceptance. Building on TAM, Venkatesh and Davis (2000) introduced TAM2, which incorporates social influence and cognitive instrumental processes. TAM and TAM2 have since become widely used frameworks for explaining attitudes toward and adoption of various technologies, including managerial computers (Davis et al., 1989), information systems (Kim & Malhotra, 2005), e-learning platforms (Masrom, 2007), facial recognition systems (Kostka et al., 2021) and COVID-19 contact tracing apps (Kostka & Habich-Sobiegalla, 2024).

Beyond TAM, several competing models have been proposed to explain technology acceptance. After conceptually and empirically comparing eight prominent models, Venkatesh et al. (2003) developed the Unified Theory of Acceptance and Use of Technology (UTAUT), which demonstrated improved explanatory power. UTAUT comprises four key predictors – performance expectancy, effort expectancy, social influence, and facilitating conditions, and four moderators – gender, age, experience and voluntariness of use. Since UTAUT was originally developed to explain technology acceptance in organizational settings, its applicability in the consumer context remains uncertain. To address this limitation, Venkatesh et al. (2012) extended the UTAUT to create UTAUT2, which incorporates three new constructs into UTAUT: hedonic motivation, price value, and

habit, while removing the voluntariness moderator. Drawing on insights from the TAM and UTAUT frameworks, we formulate the following hypothesis:

H1: A stronger TAM/UTAUT preference is correlated with a greater probability of adopting chatbots.

2.2. Privacy concerns

While privacy was not among the key variables of interest in the initial framework of TAM/UTAUT, recent years have witnessed increasing attention to privacy in various technological contexts. For example, Walrave et al. (2021) incorporate privacy into UTAUT to examine COVID-19 contact-tracing app adoption, finding that privacy concerns negatively and significantly affect usage intentions. Similarly, Kostka and Habich-Sobiegalla (2024) highlight privacy's influence on contact-tracing app acceptance in China, Germany, and the United States. Liu and Tao (2022) incorporate loss of privacy into TAM and observe a negative relationship between privacy loss and intentions to use smart healthcare services. Menon and Shilpa (2023) are, to date, the only researchers examining ChatGPT acceptance by integrating privacy concerns into UTAUT, though their exploratory study relies on 32 qualitative interviews without formal hypothesis testing. Acikgoz et al. (2023) integrate the TAM framework with multiple privacy perceptions such as privacy cynicism, and they further confirm the importance of privacy through an empirical analysis of AI-powered voice assistants.

Despite increasing attention paid to privacy in different technological contexts, it still remains understudied in human-chatbot studies, according to a systematic review by Rafikova and Voronin (2025). Multiple types of privacy risks exist in the use of AI chatbots. For example, the Concern for Information Privacy (CFIP) scale proposed by Smith et al. (1996) identifies four aspects of privacy concerns: (1) excessive data collection, (2) unauthorized secondary use, (3) improper access, and (4) errors. Excessive data collection occurs when chatbots collect personal information from user inputs. Additionally, chat history can be leaked to third parties, and personal data can be used to train AI models without users' consent. Recent research based on in-depth interviews documents significant privacy concerns among chatbot users (Lupton & Bailey-Charteris, 2026). Therefore, we hypothesize that privacy concerns will matter for chatbot acceptance.

H2: Individuals concerned about privacy are less likely to accept chatbots.

2.3. Individual beliefs

Despite the widespread use of TAM/UTAUT, a common criticism is their limited attention to the attributes of individuals who engage with the technology (Dwivedi et al., 2019; Patil et al., 2020). Recently, scholars have attempted to extend the TAM/UTAUT framework by incorporating sociocultural factors such as region, religiosity, income, and home country politics (Mantello et al., 2023). Accordingly, we focus on three aspects of individual characteristics: (1) ethnocentric preference, (2) technological openness, and (3) sociopolitical ideology. First, we posit that ethnocentric preference may influence chatbot acceptance. As an emerging technology, chatbots are developed by companies across the

globe, with leading products originating from technological powers such as the United States and China.

Ethnocentrism provides a valuable perspective for understanding consumers' choices between domestic and foreign products. The concept was originally introduced to describe the universal proclivity to view one's own group as the center of the universe (Sumner, 1906). Marketing scholars later applied this concept to consumer behavior, defining consumer ethnocentricity as 'the beliefs held by consumers about the appropriateness, indeed morality, of purchasing foreign-made products' (Shimp & Sharma, 1987, p. 280). Ethnocentric tendencies are associated not only with affection for one's own country but also with aversion to foreign products (Sharma et al., 1994). Ethnocentrism is related to several adjacent concepts, including patriotism – which refers to positive affect toward one's own country, and nationalism – which emphasizes national superiority (Kosterman & Feshbach, 1989). Despite their relevance, existing consumer research often treats these concepts as antecedents of ethnocentrism (Balabanis et al., 2001; Ishii, 2009; Shankarmahesh, 2006). Consumer ethnocentrism has been extensively studied for nearly four decades across a range of domains, from consumer durables and non-durables to fast-moving consumer goods and services (Baber et al., 2024). Accordingly, we anticipate that ethnocentrism will also influence chatbot acceptance.

H3.1: Consumers with ethnocentric orientations are more likely to choose domestic chatbots over foreign alternatives.

The second individual characteristic is technological openness, also referred to as personal innovativeness, which represents 'the willingness of an individual to try out any new information technology' (Agarwal & Prasad, 1998). We use the term technological openness to highlight its relevance to technology adoption. Prior research has consistently shown the positive influence of openness toward technology in contexts ranging from virtual reality simulations (Fagan et al., 2012) to COVID-19 contact tracing apps (Walrave et al., 2021). Thus, we hypothesize that technological openness is positively associated with chatbot adoption.

H3.2: Individuals open to new technologies are more likely to accept chatbots than those with less open attitudes.

Finally, sociopolitical ideology may shape how consumers perceive chatbots. Unlike many products, AI-powered chatbots are closely tied to politics. First, chatbots can serve as alternative sources of information, thus diversifying the information environment and even challenging conventional wisdom or mainstream narratives. For this reason, authoritarian states such as China blocked ChatGPT shortly after its release (Wodecki, 2023). Second, individuals in democratic countries typically encounter a broader range of perspectives than those in authoritarian states. Free media and political debates expose them to information unavailable in censored environments, facilitating engagement with politically sensitive topics. This suggests that individuals with liberal orientations, who value liberty and democracy, may be more inclined to accept chatbots as alternative information sources than those with authoritarian orientations. To enable cross-country comparisons, we operationalize sociopolitical ideology using two measures: attitudes toward the role of government and preferences for democracy, both of which are central to the study of ideology (Pan & Xu, 2018). We hypothesize that:

H3.3: Respondents who favor limited government are more likely to accept chatbots than those who prefer strong government.

H3.4: Respondents who prefer democracy over authoritarian rule are more likely to accept chatbots.

2.4. Country of origin

Country of origin may influence consumer perceptions and behaviors, because a country's image is associated with workmanship, technological advancement, and other desirable attributes (Verlegh & Steenkamp, 1999). For example, research on technology acceptance in Southeast Asia indicates that public support for social credit systems declines when citizens learn that the technology originates from China (Rabe & Kostka, 2024). Although the COO effect is well documented, its specific dimensions remain debated. Verlegh and Steenkamp (1999) propose three dimensions: cognitive, affective, and normative. Cognitively, COO serves as a quality indicator; affectively, it conveys symbolic or emotional value, such as prestige or patriotism; and normatively, it reflects consumers' social or ethical norms, such as a preference for domestic products or avoidance of products from resented countries.

Similarly, Pappu et al. (2007) conceptualize country image – a term typically used in marketing research – as comprising two interrelated dimensions: macro and micro. The macro dimension refers to perceptions of a country's technological, economic, and political standing, whereas the micro dimension concerns product-level qualities such as workmanship, innovativeness, design, and prestige. We adopt this framework and focus on three aspects of country image: (1) overall perception, (2) political evaluation, and (3) technological advancement. Our first hypothesis integrates the country-of-origin effect and animosity to generate an overall country perception hypothesis.

H4.1: Respondents' overall perception of a chatbot's country of origin is positively associated with their likelihood of adopting it.

Why does country of origin matter for technology adoption? Political consumerism research suggests that consumers may intentionally purchase (buycott) or resist (boycott) products to express political preferences (Friedman, 1996). This implies that political considerations may influence technology adoption. For example, experimental studies show that American citizens and policy elites prefer trade partners that are democratic rather than authoritarian, as democracy can provide institutional benefits such as credible commitments (Chen et al., 2023). Similar findings of the democratic advantage in international trade are reported among respondents in emerging market economies such as Turkey and Greece (Kiratli, 2021).

By extension, regime type may shape user acceptance of chatbots. The 'democratic advantage' in chatbot acceptance may even exist in authoritarian contexts. In a study of preferential trade agreements (PTAs), Spilker et al. (2016) report experimental evidence that respondents in Costa Rica, Nicaragua, and Vietnam prefer democracies. This finding suggests that respondents from both democratic (Costa Rica) and authoritarian (Nicaragua and Vietnam) backgrounds tend to favor democracy when new opportunities arise. Thus, we hypothesize that the democratic advantage may exist universally in the case of chatbot adoption.

H4.2: Users are more likely to accept chatbots developed by democratic countries than those from authoritarian states.

Finally, technological advancement is another key factor in the country-of-origin effects (Han, 1990). Chatbots are at the frontier of AI technology, and their perceived usefulness is critical to user adoption. According to TAM/UTAUT research, perceived usefulness strongly predicts technology acceptance. How do ordinary people evaluate the usefulness of a chatbot before trying it? Compared with experts, less experienced users may rely on country of origin as a heuristic for assessing product quality (Maheswaran, 1994). They will likely take the overall technological level of a country as a proxy for the usefulness of its chatbots. Hence, it follows that users may be more likely to accept chatbots originating from technologically advanced countries.

H4.3: Consumers are more likely to accept chatbots developed by technologically advanced countries.

3. Methods

3.1. Country selection

This study draws on cross-national online survey data to test the proposed hypotheses. We selected Germany, China, the United States, and South Africa as research sites based on two primary considerations. First, we aimed to improve the cross-country generalizability of our findings. Thus, we selected one influential country from each of the four major continents – Africa, Europe, Asia, and the Americas. South Africa was chosen as the largest economy in Africa and as the continent's sole representative in major international organizations such as BRICS and the G20. Germany represents Europe due to its economic strength and population size. The United States and China were included as major technological powers and leading developers of chatbot technologies. Second, given that chatbots are a relatively recent technological innovation, it was essential to conduct the study in contexts with sufficient levels of technological development to ensure a meaningful share of respondents with chatbot experience. All four countries rank as regional leaders in artificial intelligence capacity according to the Global AI Index (Tortoise Media, 2025).

3.2. Data collection and survey design

The survey was conducted from July to August in 2025 and was administered by TGM Research, a professional market research agency with access to panel respondents in over 130 countries, including all four selected cases. Prior to data collection, we obtained ethical approval from the German Association for Experimental Economic Research (Gesellschaft für experimentelle Wirtschaftsforschung, GfEW) and preregistered the study on the Open Science Framework (OSF).

Because this study uses a cross-sectional design, panel attrition is not applicable. Respondents were recruited through TGM Research's online survey panels, a common approach in cross-national survey research. The target population was adult internet users in China, Germany, South Africa, and the United States. The survey used a

quota-based online sampling design rather than probability sampling. Specifically, we applied hard quotas for age and gender and soft quotas for region within each country, using national census statistics as benchmarks. The purpose of these quotas was to improve demographic balance within each country sample, and they do not imply a probability-based representative sample of the national population. Rather, the sample should be understood as a quota-based online survey sample designed to approximate key demographic distributions in the target populations. We did not apply post-stratification weights in the main analysis. Instead, demographic balance was pursued through quota sampling during data collection.

The questionnaire was designed to be completed within approximately 10 min. Due to the cross-national design, the authors' multilingual team translated the survey questionnaire into the languages used in the target markets. The full English questionnaire, including exact question wording, response scales, and question order, is provided in the Appendix. The company delivered 8,154 responses. After data cleaning, 7,027 valid observations remained (1,751 from China, 1,836 from Germany, 1,757 from South Africa, and 1,683 from the United States).

3.3. Variables

The dependent variable in this study measures acceptance of ChatGPT and DeepSeek. Respondents were asked to indicate, on a five-point Likert scale (1 = strongly oppose; 5 = strongly accept), their views toward the use of each chatbot. The exact question wording was: 'In general, do you accept or oppose the use of the U.S. chatbot ChatGPT?' and 'In general, do you accept or oppose the use of the Chinese chatbot DeepSeek?' These questions were presented to all participants, regardless of prior usage experience.

The first set of explanatory variables corresponds to key predictors from the TAM/UTAUT framework: (1) perceived usefulness, (2) ease of use, (3) social influence, and (4) facilitating conditions. Because of restrictions on interview length, each construct was measured using a single survey item. Therefore, internal consistency reliability cannot be assessed for these constructs separately, although they demonstrate reliability when treated as indicators of a broader technology acceptance orientation, with a Cronbach's α of 0.80. The second set of variables captures privacy concerns, operationalized through four indicators: (1) excessive data collection, (2) unauthorized data use, (3) third-party data access, and (4) errors or bias related to personal information. The Cronbach's α is 0.75, also suggesting relatively high internal consistency across the privacy-related indicators. The third set of variables examines individual beliefs, including (1) ethnocentrism, (2) sociocultural beliefs, (3) democratic disposition, and (4) technological openness. Finally, the fourth set of variables addresses country-of-origin effects. Respondents were asked to (1) evaluate their overall perception of China and the United States – the respective origins of DeepSeek and ChatGPT, (2) assess the degree of democracy in each country, and (3) rate each country's perceived level of technological advancement.

In addition, we include several control variables to account for potential confounding factors and to improve model fit. First, we control for key socioeconomic and demographic characteristics, including age, gender, education, and income. Second, we differentiate respondents by their country of origin, treating Chinese respondents as the

reference group. Third, we control for respondents' perceptions of censorship associated with each chatbot, as perceived censorship may frustrate users and reduce their acceptance levels. Fourth, we include a dummy variable indicating prior chatbot experience, as familiarity with the technology may shape evaluation and acceptance (Mantello et al., 2023). Finally, we distinguish between premium and non-premium users to account for the potential influence of usage patterns.

3.4. Diagnostic checks

Several variables in our survey questionnaire were measured using 5-point Likert scales, which may raise concerns about common method bias because the independent and dependent variables were collected from the same respondents using the same survey instrument. To reduce this risk, the questionnaire separated conceptually related measures, used neutral item wording, and assured respondents of anonymity. In addition, we conducted Harman's single-factor test by entering the Likert-scale items into an unrotated exploratory factor analysis. The first factor explained 20.56% of the total variance, well below the commonly used 50% threshold (Podsakoff et al., 2003). This suggests that common method bias is unlikely to be a serious concern in our analysis.

We also evaluated multicollinearity based on variance inflation factors. For categorical variables with multiple degrees of freedom, we used the adjusted GVIF, namely $GVIF^{1/(2 \times Df)}$. All adjusted GVIF values were below 1.54. Based on a commonly used threshold of 5 (Kock, 2015), multicollinearity is unlikely to be a serious concern. A summary of all variable measurements is presented in Table 1, and descriptive statistics are provided in Table A-1 in the Appendix.

4. Empirical findings

4.1. Cross-country variation in chatbot acceptance

Given the popularity of ChatGPT all over the world and DeepSeek in China (see Figure A-2 in the online Appendix), our analysis focuses on the acceptance of these two chatbots. On average, 49.68% of the 7,027 respondents either somewhat or strongly accept ChatGPT, indicating that roughly half of all participants hold a favorable view of it. In contrast, DeepSeek is accepted by 39.86% of respondents, with the highest levels of support observed among Chinese respondents. Figure 1 presents the acceptance rates of both chatbots across the four surveyed countries.

Substantial cross-national variation emerges in chatbot acceptance. Respondents in China and South Africa express far more favorable attitudes toward chatbots than their counterparts in Germany and the United States. This gap is particularly pronounced for DeepSeek: 83.1% of Chinese and 44.45% of South African respondents accept it, compared to only 16.45% of German and 15.63% of American respondents. This acceptance gap is likely due to the varying prevalence of chatbots across different contexts. Chinese and South African respondents were more enthusiastic, reporting that they had used an average of 2.7 and 1.9 chatbots, respectively. In contrast, German and American respondents reported an average of just 1.2 chatbots (see Figure A-3 in

Table 1. Survey questions and measurements.

Categories and Survey Questions	Measurements
Chatbot acceptance	
In general, do you accept or oppose the use of the U.S. chatbot ChatGPT?	5-point Likert scale
In general, do you accept or oppose the use of the Chinese chatbot DeepSeek?	
TAM indicators	
Chatbots can deliver satisfactory performance in many aspects such as providing information, making suggestions, improving productivity, and offering emotional support.	5-point scale
For an average adult like me, it is not difficult to learn how to use chatbots.	5-point scale
Chatbots are gaining increasing popularity based on my observation of the media discussions as well as the people nearby.	5-point scale
I am ready to get started with a new chatbot because I have the digital necessities such as a smart phone and internet connection.	5-point scale
Privacy concerns	
Chatbots are collecting too much personal information about their users.	5-point scale
It is highly likely that the data I provide to chatbots will be used or shared for other purposes without my authorization.	5-point scale
When using chatbots, my personal information will very likely be accessed by third parties such as the government, hackers or unauthorized employees of the chatbot company.	5-point scale
Chatbot results usually depend on personal identity (e.g., age and gender). Chatbots will probably get my personal information wrong, thus returning incorrect or biased results.	5-point scale
Individual beliefs	
Using foreign-made products is against the interests of our own country because it weakens the domestic economy and benefits foreign countries.	5-point scale
I have tried new technologies and products such as 3D printing, virtual reality headsets, cryptocurrency, smart home devices (e.g., smart toilets), contact tracing apps, electric vehicles, and so on.	5-point scale
The government should play an active role in social and economic affairs.	5-point scale
I have a positive view of a society if it is run based on multiparty systems and competitive elections of politicians.	5-point scale
Country of origin	
On a scale from 0 (very unfavorable) to 100 (very favorable), how would you describe your feeling toward China?	Value between 0 and 100
On a scale from 0 (very unfavorable) to 100 (very favorable), how would you describe your feeling toward the United States of America?	Value between 0 and 100
China is a democratic country.	5-point scale
The United States is a democratic country.	5-point scale
China is a technologically advanced country.	5-point scale
The United States is a technologically advanced country.	5-point scale
Socio-demographics and user experience	
How old are you?	From 18–75
What is your highest level of educational attainment? (1 = Middle school and below; 2 = High school; 3 = Bachelor's; 4 = Master's; 5 = Doctorate)	From 1–5
What was your before-tax monthly income in 2024? (1 = Low; 2 = Middle; 3 = High)	From 1–3
What gender identity do you most identify with? (1 = Female; 0 = Male)	0 or 1
Experience with the chatbot under scrutiny (1 = Yes; 0 = No)	0 or 1
Paid for premium service of the studied chatbot (1 = Yes; 0 = No)	0 or 1

the online Appendix). A one-way analysis of variance (ANOVA) shows that the difference is statistically significant, with an F-statistic of 326.9 and a *p*-value of approximately 0.

A closer examination suggests that user experience largely accounts for this acceptance gap (see Figure A-4 in the online Appendix). Among respondents who have not used DeepSeek, only 14.31% of Germans and 12.67% of Americans express acceptance. However, after gaining hands-on experience with the chatbot, acceptance rises sharply to 48.28% among Germans and 68.54% among Americans. This pattern aligns with Choudhury et al.'s (2025) study, which finds that 81% of DeepSeek users are willing to switch from other chatbots such as ChatGPT to DeepSeek.

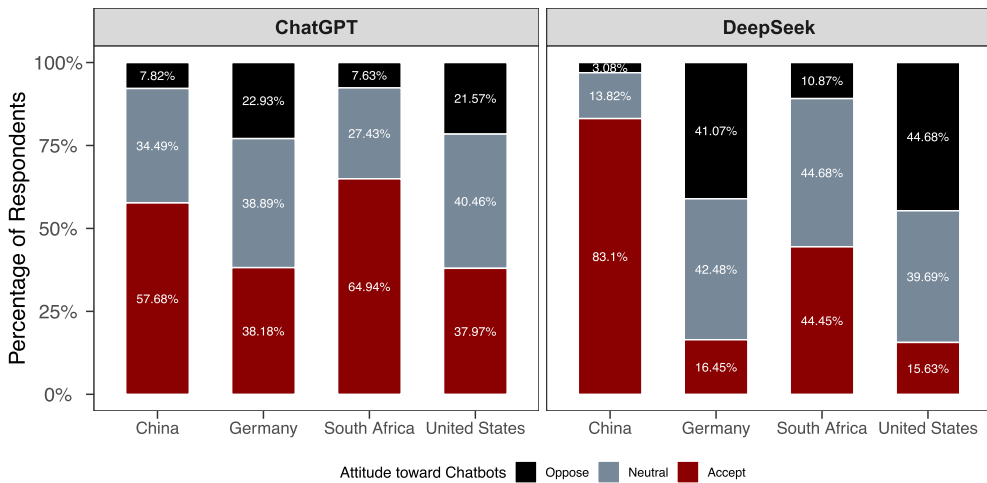


Figure 1. Chatbot acceptance across the four countries.

4.2. Explaining chatbot acceptance

We use structural equation modeling to explain the acceptance of ChatGPT and DeepSeek. Because several key concepts are measured by multiple survey items, we specify latent constructs based on the underlying relationship across those items. Reliability checks show acceptable internal consistency for the four TAM/UTAUT indicators (Cronbach's $\alpha \approx 0.80$) and the privacy-related indicators (Cronbach's $\alpha \approx 0.75$). In contrast, the individual belief items show low internal consistency, with Cronbach's $\alpha \approx 0.35$. The country-of-origin perception items for China and the United States show the lowest internal consistency, with Cronbach's $\alpha \approx 0.09$ and 0.08 , respectively. We therefore model TAM/UTAUT perceptions and privacy concerns as latent constructs, while retaining individual beliefs and country-of-origin evaluations as separate observed variables. The regression results are presented in Table 2.

Overall, the latent TAM/UTAUT perception performs strongly in explaining user attitudes. It shows a significant coefficient in both models. The effect magnitude is especially large for the acceptance of ChatGPT. In contrast, privacy concerns are negatively correlated with chatbot acceptance, which is consistent with our expectation. However, the effect magnitude of privacy concerns is much smaller than that of TAM/UTAUT. Cross-country patterns further reveal that privacy concerns are more pronounced among Americans and Germans than among Chinese and South Africans (see Figure A-5 in the online Appendix). Country-level regressions show that the negative effect of privacy concerns is driven primarily by respondents in Germany and the United States (see Figure A-6 in the Appendix). Hence, the previously observed acceptance gap characterized by higher acceptance in developing countries and lower acceptance in developed ones may partly reflect differences in privacy sensitivity across countries.

Individual beliefs also correlate with chatbot acceptance. Foreign respondents with strong ethnocentric preferences are less likely to accept ChatGPT, but their ethnocentrism does not affect the acceptance of DeepSeek, perhaps because the acceptance of

Table 2. Structural equation modeling of chatbot acceptance.

	ChatGPT		DeepSeek	
	Coefficient	SE	Coefficient	SE
TAM/UTAUT	0.457***	0.014	0.245***	0.014
Privacy Concerns	−0.068***	0.012	−0.051***	0.012
Belief (Ethnocentrism)	−0.071***	0.011	−0.002	0.010
Belief (Government Role)	−0.028**	0.011	0.013	0.010
Belief (Democratic Disposition)	0.029***	0.011	0.005	0.010
Belief (Technological Openness)	0.083***	0.012	0.074***	0.011
Origin (Feeling about China)	−0.022	0.014	0.227***	0.013
Origin (Feeling about USA)	0.116***	0.012	−0.046***	0.011
Origin (China Democratic)	−0.039***	0.014	0.143***	0.013
Origin (USA Democratic)	0.057***	0.012	0.039***	0.011
Origin (China Tech Advanced)	−0.008	0.011	0.003	0.011
Origin (USA Tech Advanced)	0.049***	0.012	0.016	0.011
Age	−0.035***	0.012	−0.041***	0.011
Female	−0.001	0.010	−0.004	0.010
Education	0.015	0.012	0.005	0.011
Middle Income	−0.009	0.012	−0.011	0.012
High Income	0.003	0.015	−0.005	0.014
German Respondent	−0.048***	0.018	−0.164***	0.018
South African Respondent	−0.009	0.015	−0.079***	0.016
U.S. Respondent	−0.067***	0.017	−0.167***	0.018
Perceived Censorship	−0.042***	0.010	−0.053***	0.010
Prior Experience	0.253***	0.013	0.156***	0.014
Premium User	0.058***	0.012	0.022*	0.011
Observations	6,597		6,597	
R ²	0.398		0.451	
Adjusted R ²	0.396		0.449	

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

DeepSeek is very rare among foreign users. Respondents who favor strong government over limited government are less likely to accept ChatGPT, while those with stronger pro-democracy attitudes are more inclined to accept ChatGPT. Individuals who are more open to new technologies show higher acceptance of both chatbots. The country of origin further shapes user attitudes. Respondents with favorable views toward a chatbot's home country are more likely to accept it: positive perceptions of China are associated with higher acceptance of DeepSeek and lower acceptance of ChatGPT, whereas positive perceptions of the United States show the opposite pattern.

Regarding the effect of sociodemographic variables, we find significant and negative correlations between age and chatbot acceptance, suggesting older individuals are less likely to adopt chatbots. This pattern is consistent with research on the second-level digital divide, which emphasizes that even when Internet access is widespread, individuals may still differ in digital skills and patterns of use (Hargittai, 2001). Older respondents may therefore be less likely to adopt AI chatbots because they face greater barriers related to digital skills and prior experience with digital tools. Additionally, controlling for other factors, we do not observe significant correlations for socioeconomic variables, including gender, education, and income. This finding implies that chatbot adoption is a common phenomenon across different socioeconomic groups.

Finally, perceived censorship is negatively associated with chatbot acceptance. Respondents who associate a chatbot with censorship are less likely to accept it, even after controlling for country-level factors. Prior usage experience with chatbots also matters. Those with prior experience are more likely to accept chatbots, and a similar positive

effect is observed for the use of premium services. These findings suggest that AI’s capabilities may help foster a positive perception toward these chatbots.

4.3. Heterogeneity across countries

The preceding regression results highlight the significance of a chatbot’s country of origin in shaping user evaluations. Yet, this effect may not be uniform across all respondents, given the cross-cultural nature of our survey. To examine cross-national heterogeneity, we estimated the SEM models separately for respondents in China, Germany, South Africa, and the United States. Because our main variables of interest in this analysis are observed country-of-origin perceptions rather than multi-item latent constructs, formal measurement invariance testing is less applicable to these focal predictors. Therefore, the country-specific SEM analysis is intended as a supplementary robustness check rather than a formal multi-group invariance analysis.

Figure 2 summarizes standardized SEM coefficients with 95% confidence intervals for the country-of-origin variables. The results underscore that respondents’ overall feelings toward a country are a key predictor of chatbot acceptance. Positive sentiment toward China is associated with a greater likelihood of accepting DeepSeek, and this effect is substantially stronger among foreign users than Chinese users themselves. For example, a one-standard-deviation increase in positive feeling toward China corresponds to a 0.122-standard-deviation increase in acceptance of DeepSeek among Chinese respondents, compared to increases of 0.237, 0.235, and 0.197 among Americans, Germans, and South Africans, respectively. A similar pattern emerges for ChatGPT: a more positive evaluation of the United States significantly correlates with acceptance of ChatGPT among all respondents, particularly among the Chinese (0.195 vs. 0.077, 0.091, and 0.084).

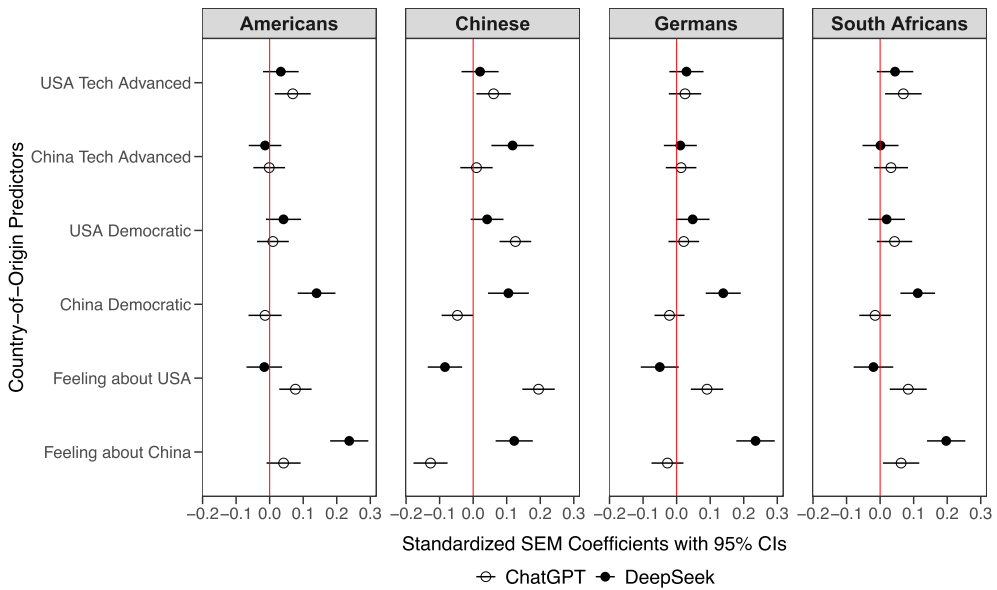


Figure 2. SEM analysis of chatbot acceptance across countries.

Further analysis suggests that the country-of-origin effect operates through both political and technological evaluations (see mediation analysis in Table A-2 and Table A-3 in the online Appendix). Respondents who view the United States as technologically advanced are generally more likely to accept ChatGPT (with the exception of German respondents). By contrast, the perceived technological advancement of China shows no consistent relationship with the acceptance of DeepSeek (except among Chinese respondents). This finding is surprising given that on average, participants rate China's technological level slightly higher than that of the United States. This implies that technological prowess alone is insufficient to boost China's chatbot appeal among foreign users.

Perceptions of the political context, however, appear to play a more decisive role. Across all countries, respondents who attribute a higher level of democracy to China are significantly more likely to accept DeepSeek. This finding suggests that many Western users remain reluctant to adopt DeepSeek despite acknowledging China's technological progress, largely due to unfavorable views of its political system.

5. Discussion

While the TAM/UTAUT framework remains effective in explaining the acceptance of AI chatbots, our findings suggest that chatbot adoption cannot be understood solely as a function of perceived usefulness, ease of use, social influence, and facilitating conditions. Consistent with prior technology acceptance research, TAM/UTAUT-related perceptions are the strongest predictors of chatbot acceptance in our models. However, our results also extend the TAM/UTAUT framework by showing that chatbot acceptance is shaped by factors beyond functional evaluations. In particular, user characteristics, sociopolitical beliefs, and country-of-origin perceptions also influence acceptance. This suggests that AI chatbots are not evaluated as politically neutral technologies. Instead, users attach broader meanings to them based on the national, institutional, and political contexts from which they emerge.

This finding contributes to the literature by highlighting the need to connect technology acceptance models with research on trust, country-of-origin effects, and the geopolitics of digital technologies. Prior studies have shown that trust is a strong predictor of technology adoption and user engagement (Acikgoz et al., 2023; Ng & Zhang, 2025). Our findings suggest that trust may be shaped not only by the perceived performance of the chatbot but also by users' perceptions of the country associated with the technology. Future research could therefore examine whether country-of-origin evaluations influence chatbot acceptance through perceived trustworthiness, political compatibility, or expectations about data governance.

A second important finding concerns the role of privacy. Contrary to expectations that privacy concerns would strongly discourage chatbot adoption, privacy is not among the strongest predictors in our models. Although privacy concerns are statistically significant in the SEM results, their effect size is much smaller than that of TAM/UTAUT-related perceptions, and the significant relationship appears mainly among German and U.S. respondents (see Figure A-6). The relatively weak role of privacy concerns is consistent with the 'privacy paradox,' which refers to the gap between people's stated privacy concerns and their actual privacy-related behavior (Barnes, 2006). Users may express

concern about data collection, surveillance, or misuse of personal information, but these concerns do not necessarily translate into rejection of AI chatbots. The privacy calculus perspective provides a further explanation: users may weigh the perceived benefits of chatbot use against potential privacy risks (Culnan & Bies, 2003). In this context, the perceived usefulness, convenience, and accessibility of chatbots may outweigh privacy concerns, leading users to accept chatbots despite recognizing potential risks. Thus, our findings diverge from a simple privacy-risk explanation of AI adoption and instead suggest that privacy concerns operate within a broader cost–benefit evaluation.

The most distinctive contribution of this study lies in the effects of country-of-origin perceptions. Our results show that acceptance of ChatGPT and DeepSeek is shaped not only by general attitudes toward AI but also by how users evaluate the countries associated with these systems. Positive perceptions of a country are associated with greater acceptance of its chatbots. However, the relevant country-of-origin factors differ across the two cases. Acceptance of ChatGPT is more strongly associated with favorable perceptions of the United States and its technological advancement, whereas acceptance of DeepSeek is more closely related to perceptions of China’s political and institutional environment. This asymmetry suggests that users evaluate U.S.- and China-origin AI products through different symbolic frames. U.S.-origin AI may be associated more strongly with technological leadership, innovation, and market-based digital culture, while China-origin AI may activate concerns or evaluations related to political governance, censorship, and state influence.

This finding is especially important as China is increasingly perceived as a major technological power. For example, Brand Finance’s *Global Soft Power Index 2026* reports that China ranks first globally for ‘technology and innovation’ and ‘advanced science’ (Brand Finance, 2026, p. 31). Yet our findings suggest that technological recognition alone may not be sufficient to ensure international acceptance of Chinese AI products. Foreign users may recognize China’s technological capabilities while remaining hesitant to adopt Chinese-origin chatbots because of political concerns, trust deficits, or perceptions of state involvement.

Overall, this study has broader implications for AI firms and policymakers. The global AI race is not only a competition over computing power, model performance, data resources, or commercial scale. It is also a competition over trust, legitimacy, governance norms, and soft power. Despite citizens’ tendency to support domestic players in AI governance (Li, 2025), countries and firms that seek global leadership in AI must pay attention to the international community, which can evaluate AI systems through the lens of technological advancement, political values, data governance and institutional trust. As a result, the diffusion of AI technologies across borders will depend not only on product quality but also on whether users perceive the provider as credible, transparent, and normatively acceptable.

6. Conclusion

AI-powered chatbots have become integral to everyday digital interactions, raising an important question: why are some chatbots widely accepted while others face resistance? While previous research on chatbot adoption has largely emphasized the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology

(UTAUT), this study extends these frameworks by incorporating political, cultural, and country-of-origin factors.

Our results confirm the explanatory power of TAM/UTAUT constructs while revealing several novel insights. Both Chinese and American respondents exhibit a clear preference for domestic chatbots, even after controlling for other factors. Yet, this preference does not translate into blind ethnocentrism – users also express openness toward foreign chatbots when they hold positive attitudes toward the originating country. The country-of-origin effect thus reflects a complex interplay of political and technological evaluations. Respondents who view the United States as technologically advanced are more likely to adopt ChatGPT, while those who rate China's political system more positively are more inclined to accept DeepSeek. In short, Western users appear to prioritize political considerations over technological assessment, often rejecting Chinese products due to concerns about China's political environment despite recognizing its technological achievements.

Readers should take caution when interpreting these findings for three reasons. First, the observational nature of our survey data restricts causal inference. Future research should employ experimental or longitudinal designs to identify causal mechanisms more precisely. Second, sensitive survey questions such as perceptions of democracy can trigger preference falsification (Kuran, 1998). Although robustness checks excluding Chinese respondents confirm the stability of our main findings (see Table A-4 in the online Appendix), future studies could use techniques such as list experiments to better address potential sensitivity bias. Third, despite the use of quotas, our survey does not guarantee a nationally representative sample. Therefore, readers should be cautious when generalizing the findings to national populations across the four countries.

Author contributions

CRedit: **Hui Zhou**: Conceptualization, Data curation, Formal analysis, Methodology, Software, Validation, Visualization, Writing – original draft; **Genia Kostka**: Funding acquisition, Methodology, Project administration, Resources, Supervision, Writing – review & editing.

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