RESEARCH THAT MATTERS

SOCIAL ACCEPTANCE OF LGBTI PEOPLE IN 175 COUNTRIES AND LOCATIONS

1981 to 2020

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Andrew R. Flores

UCLA School of Law Williams Institute

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EXECUTIVE SUMMARY

This report describes updates to the LGBTI (lesbian, gay, bisexual, transgender, and/or intersex) Global Acceptance Index (GAI), which seeks to measure the relative level of acceptance of LGBTI people and issues in each country for a specific time period.

Understanding acceptance and rejection of LGBTI people lies at the heart of understanding violence, discrimination, and the multitude of negative consequences arising from exclusion and unfair treatment. Sexual and gender minorities all over the world are heavily impacted by the attitudes and beliefs of those around them. Low levels of acceptance are tied to bullying and violence, physical and mental health problems, discrimination in employment, and underrepresentation in positions of civic leadership. Additionally, exclusion can result in lower levels of workforce productivity and decreased business profits.

Updates to the Global Acceptance Index. Using an advanced statistical model, the author updated the Global Acceptance Index to measure acceptance in 175 countries and geographic locations. Acceptance is the extent to which LGBTI people are seen in ways that are positive and inclusive, both with respect to an individual's opinions about LGBTI people and with regard to an individual's position on LGBTI policies. Updates included an expanded database of social surveys that measure attitudes toward LGBTI people and rights (drawing upon data from AfroBarometer, America's Barometer, Eurobarometer, European Social Survey, European Values Survey, Gallup World Poll, International Social Survey Programme, Ipsos International, Latinobarómetro, Pew Global surveys, and World Values Surveys); the addition of surveys collecting information pertaining specifically to transgender people, intersex people, and rights related to transgender and intersex people; and modifications to the estimation process to increase estimation accuracy.

The resulting dataset included 6,198 country-question-years (meaning results for a particular country in a particular year for a particular question) under analysis with 98 different question wordings, 175 different countries and locations, and 37 years. The combined individual-level sample involves 7,059,822 responses to questions relating to LGBTI people and rights.

KEY FINDINGS

Continued Polarization

Globally, the average level of acceptance has increased since 1980.

- 56 of 175 countries and locations experienced increases in acceptance since 1980.
- 57 countries and locations experienced a decline.
- 62 countries and locations experienced no change.
- Brazil, Canada, Great Britain, and the United States have all increased their acceptance of LGBTI people and rights.
- In 2020, Iceland, Norway, the Netherlands, Sweden, and Canada were the most accepting countries.
- Countries in Australia and Oceania, North and South America, and Western Europe have had

positive changes in their GAI scores since 1990. Trends in the GAI in other regions have either not changed over this timeframe or trended slightly downward.

In the past decade, the range of levels of acceptance has increased. Levels of acceptance have become less polarized, yet

- The most accepting countries have experienced increased levels of acceptance.
- The least accepting countries have experienced decreased levels of acceptance.
- Levels of acceptance in countries near the global average have stayed relatively stable, though stable attitudes are also present for countries that have long been more accepting and less accepting.
- Peru, Mozambique, Barbados, Saint Kitts and Nevis, and Palestine each had very little change in acceptance between 2010 and 2020.

INTRODUCTION

UNDERSTANDING ACCEPTANCE AND EXCLUSION

Social attitudes about LGBTI people can heavily influence whether LGBTI people are accepted or rejected by employers, family members, teachers, clergy, and society in general.[1, 2] Negative beliefs about LGBTI people can serve as the basis for the impulse to reject and exclude LGBTI people,[3] all too often leading to violence and discrimination against LGBTI people.[4] These shared beliefs are stigmas, which can be generally understood as a belief about a person based on a characteristic, or mark, of a person.[5] Powerful forces in society, such as tradition, religion, law, medicine, politics, and the media can contribute to the existence of beliefs about LGBTI people.[6, 7] In some cultural settings, being LGBTI carries with it the stigma that underlies a belief that the LGBTI person is sick, immature, unskilled, sinful, or generally undesirable.[8,9]

Anti-LGBTI stigma can lead to the exclusion of LGBTI people from full participation in society. Not only can societal stigma affect how individuals view LGBTI people, but it can also influence how people view laws and policies relevant to LGBTI populations.[10, 11] LGBTI people may face rejection from others at an interpersonal level as well as social exclusion because of stigmatizing and discriminatory laws

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[1] Gregory M. Herek, "Confronting Sexual Stigma and Prejudice: Theory and Practice." Journal of Social Issues 63, no. 4 (2007): 905-925.

[2] Suen, Yiu Tung, Randolph C. H Chan, and M. V. Lee Badgett. 2021. "The Experiences of Sexual and Gender Minorities in Employment: Evidence from a Large-Scale Survey of Lesbian, Gay, Bisexual, Transgender and Intersex People in China." *The China Quarterly*, 245: 142–164

[3] Gregory M. Herek, "Sexual Stigma and Sexual Prejudice in the United States: A Conceptual Framework," in Contemporary Perspectives on Lesbian, Gay, and Bisexual Identities, D. A. Hope (ed.), 54, p. 65-111 (New York, NY: Springer, 2009); Judit Takács, Social Exclusion of Young Lesbian, Gay, Bisexual, and Transgender (LGBT) People in Europe (Brussels, BE and Amsterdam, NL: ILGA-EUROPE and IGLYO, 2006).

[4] A. Theron, "Anti-Gay Violence and Discrimination: The Need for Legislation Against Anti-Gay Hate Crimes in the Sociopolitically Changing South Africa." ACTA Criminologica 7, no. 3 (1994): 107-114.

[5] Gregory M. Herek, "Confronting Sexual Stigma and Prejudice: Theory and Practice;" Gregory M. Herek, "Sexual Stigma and Sexual Prejudice in the United States."

[6] Amy Adamczyk, Cross-National Public Opiion about Homosexuality: Examining Attitudes across the Globe (Berkeley and Los Angeles, CA: University of California Press, 2017).

[7] Hegarty, Peter, Lois Donnelly, Paul Francis Dutton, Sara Gillingham, Valentino Vecchietti, and Kaz Williams. 2021. "Understanding of Intersex: The Meanings of Umbrella Terms and Opinions About Medical and Social Responses Among Laypeople in the United States and United Kingdom." *Psychology of sexual orientation and gender diversity*, 8(1): 25–37.

[8] Erving Goffman, Stigma: Notes on the Management of Spoiled Identity, (New York, NY: Penguin, 1963).

[9] Dunchack, Daniel H. 2019. "Intersex and Federal Public Policy." In *The Routledge Handbook of LGBTQIA Administration and Policy*, edited by Susan Wallace. New York, NY: Routledge.

[10] Gregory M. Herek. "Beyond 'Homophobia': Thinking about Sexual Prejudice and Stigma in the Twenty-First Century." Sexuality Research & Social Policy 1, no. 2 (2004): 6-24.

[11] Hegarty P, Smith A, Bogan-Carey T. 2019. "Stigma as framed on YouTube: Effects of personal experiences videos on students' beliefs about medicalizing intersex." *Journal of Applied Social Psychology*: 49:133–144

and policies.[12, 13] Additionally, laws that are often considered "inclusive" of LGBTI people often ignore the experiences and needs of highly marginalized groups, such as intersex people.[14, 15]

Acceptance, on the other hand, is the extent to which LGBTI people are seen in ways that are positive and inclusive, both with respect to an individual's opinions about LGBTI people and with regard to an individual's attitudes about LGBTI rights. As defined here, acceptance is a broad concept which encompasses social beliefs about LGBTI people as well as prevailing opinion about laws and policies relevant to protecting LGBTI people from violence and discrimination and promoting their full inclusion and well-being.

The LGBTI Global Acceptance Index (GAI) incorporates survey data about public beliefs regarding LGBTI people and policies in order to come up with a single country score for acceptance. Acceptance, as measured in the GAI, is a country's average societal attitude toward LGBTI people that is expressed in public attitudes and beliefs about LGBTI people and rights.

UNDERSTANDING THE CONSEQUENCES OF A LACK OF ACCEPTANCE AND EXCLUSION

The stigma faced by LGBTI people has been linked to violence and discrimination against LGBTI people[16,17] and decreases in economic growth and productivity.[18,19] In order to understand these linkages more deeply, development practitioners need data that is comparable both across different time points and also different countries. As explained below, the current survey data do not provide us with such an opportunity because of variability in the ways surveys document public attitudes about LGBTI people. The following kinds of inquiries are made more possible if there are data that can be consistently compared across both time and place.

Physical and Mental Health. The connection between stigma, prejudice, and health has been well-documented throughout the world. According to the minority stress model, articulated by psychologist and Williams Senior Distinguished Scholar Ilan Meyer, PhD., the stigma and prejudice

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[12] Mark L. Haztenbuehler, K. M. Keyes, and D. S. Hayes. "State-level Politics and Psychiatric Morbidity in Lesbian, Gay, and Bisexual Populations." American Journal of Public Health 99, no. 12 (2009): 2275-2281.

[13] MacKenzie, Drew, Annette Huntington, and Jean A. Gilmour. 2009. "The experiences of people with an intersex condition: a journey from silence to voice." *Journal of clinical nursing*, 18(12): 1775-1783.

[14] Dunchack, Daniel H. 2019. "Intersex and Federal Public Policy." In *The Routledge Handbook of LGBTQIA Administration and Policy*, edited by Susan Wallace. New York, NY: Routledge.

[15] Garland, Fae and Travis Mitchell. 2018. "Legislating Intersex Equality: Building the Resilience of Intersex People through Law." *Legal Studies*, 38(4): 587-606.

[16] Gregory M. Herek, "Confronting Sexual Stigma and Prejudice: Theory and Practice;" Gregory M. Herek, "Sexual Stigma and Sexual Prejudice in the United States."

[17] The World Bank Group, Discrimination against Sexual Minorities in Education and Housing: Evidence from Two Field Experiments in Serbia (Washington, DC: The World Bank Group, 2017).

[18] M.V. Lee Badgett, Sheila Nezhad, Kees Waaldijk, and Yana van der Meulen Rodgers, The Relationship between LGBT Inclusion and Economic Development: An Analysis of Emerging Economies (Los Angeles, CA: The Williams Institute, 2014).

[19] The World Bank Group, Life on the Margins: Survey Results of the Experiences of LGBTI People in Southeastern Europe (Washington, DC: The World Bank Group, 2018).

experienced by sexual and gender minorities produces stress and anxiety that is different than the types of stress faced by most people in their everyday life.[20] In response to events of prejudice in their life, sexual and gender minorities frequently develop a fear and expectation that such events will happen again. This expectation leads to hypervigilance in one's surroundings, relationships, and interactions with others, even when stigma and prejudice may not be in operation.[21] The individual begins to develop additional coping mechanisms, such as identity concealment or other strategies to mitigate the negative consequences of stigma and prejudice. These processes can lead to internalization of social stigma, in the form of internalized homophobia or transphobia, where individuals begin to devalue themselves in a manner consistent with the prejudice being directed at them by others.[22,23]

The impact of minority stress on LGBTI people is reflected in poor health outcomes. A systematic review of 199 studies in the Global North and South showed that sexual minorities were at increased risk for depression, anxiety, suicide attempts, or suicides.[24] Further, intersex people in America have high levels of depression and anxiety disorders and general poor mental health.[25] However, such global reviews are rare. One study shows that acceptance toward LGB people at the country-level for 34 OECD countries is a predictor of country-level suicide rates.[26] Though the connection between stigma and health outcomes is well established, there is still a great need to understand how stigma impacts specific populations at the national level. Establishing an acceptance index will enhance the ability of researchers to examine the stigma/health connection on a country-by-country basis, as well as across countries.

Bullying and Violence. Exclusion of LGBTI people can also manifest in the form of bullying, violence, and harassment.[27,28] In a major study in Thailand, half of self-identified LGBTI students report having

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[20] David M. Frost and Meyer, I.H., "Internationalized Homophobia and Relationship Quality Among Lesbians, Gay Men, and Bisexuals," Journal of Counseling Psychology 56, no. 1(2009): 97-109.

[21] Jennifer Crocker. "Social Stigma and Self-Esteem: Situational Construction of Self-Worth." Journal of Experimental Social Psychology 35, no. 1 (1999): 89-107 cited in Ilan Meyer, "Prejudice, Social Stress, and Mental Health in Lesbian, Gay and Bisexual Populations: Conceptual Issues and Research Evidence," Psychological Bulletin 129, no. 5 (2003): 674-697.

[22] One of the first studies on this issue can be found at Gilbert H. Herdt. Children of Horizons: How Gay and Lesbian Teens Are Leading a New Way Out of the Closet (Boston: Beacon Press, 1996), 205.

[23] See also: MacKenzie, Drew, Annette Huntington, and Jean A. Gilmour. 2009. "The experiences of people with an intersex condition: a journey from silence to voice." *Journal of clinical nursing*, 18(12): 1775-1783.

[24] The study included 199 studies which had a heterosexual comparison group. 26 studies had nationally representative studies using clinical interviews. Martin Ploderl and Pierre Tremblay, "Mental Health of Sexual Minorities. A Systematic Review," International Review of Psychiatry 27, no. 5 (2015): 367-85.

[25] Rosenwohl-Mack, Amy ,Suegee Tamar-Mattis,Arlene B. Baratz,Katharine B. Dalke,Alesdair Ittelson,Kimberly Zieselman,Jason D. Flatt. 2020. "A national study on the physical and mental health of intersex adults in the U.S." *PLoS ONE*, 15(10): e0240088.

[26] Heiner Stuke, Andreas Heinz, and Felix Bermpohl, "Acceptance towards LGB Persons Is an Independent Protective Factor against Suicide on a Country Level," Sexuality Research and Social Policy, doi: 10.1007/s13178-020-00477-3.

[27] Gregory M. Herek, "Confronting Sexual Stigma and Prejudice: Theory and Practice;" Gregory M. Herek, "Sexual Stigma and Sexual Prejudice in the United States."

[28] Exclusion and stigma have been used interchangeably, see M.V. Lee Badgett, The Economic Cost of Stigma and the

been bullied, leading to absenteeism rates twice as high as other students, increased dropout rates, and mental and physical problems.[29] According to the Inter-American Commission on Human Rights, LGBTI people face "high levels of cruelty and heightened levels of violence."[30] The UN Independent Expert on the protection against violence and discrimination based on sexual orientation and gender identity reports that such violence occurs in all parts of the world.[31]

Though it is clear that violence against LGBTI people exists, there is currently no method to track violence on a country-by-country basis.[32] We currently lack both a uniform definition of violence and a mechanism to collect statistics about violence worldwide and therefore are unable to examine its relationship with a country's level of LGBTI social acceptance. To the extent that violence is related to levels of acceptance of LGBTI people, the creation of an LGBTI acceptance index can help inform discussions about violence.

Employment discrimination. The economic potential of LGBTI people is also limited by exclusion from the workplace, educational opportunities, and economic advantages which can be accessed by others.[33] An international review of studies reveals that sexual minorities face two kinds of discrimination. First, they face exclusion when seeking to enter the workplace. Second, once on the job, LGBTI people face harassment and few opportunities for advancement.[34] According to a global meta-analysis, gay men make 11 percent less than their heterosexual counterparts.[35] Of the few studies that have explored this relationship with intersex people, Suen et al. 2021 find that intersex people in China are more likely to experience workplace discrimination and have negative

Exclusion of LGBT People: A Case Study of India. World Bank Group Working Paper, no. 94040 (Washington, DC: The World Bank Group, 2014).

[29] Pimpawun Boonmongkon et al., Bullying Targeting Secondary School Students Who Are or Are Perceived to Be Transgender or Same-Sex Attracted: Types, Prevalence, Impact, Motivation and Preventive Measures in 5 Provinces of Thailand (Salaya: Mahidol University, Plan International Thailand, United Nations Educational, Scientific and Cultural Organization (UNESCO) Bangkok Office, 2014), 81.

[30] Inter-American Commission on Human Rights, "Press Release 153114: IACHR Expresses Concern over Pervasiveness of Violence against LGBTI Persons and Lack of Data Collection by OAS Member States," December 17, 2014, http://www.oas.org/ en/iachr/media_center/PReleases/2014/153.asp; Idem, "Press Release 153114, Annex: An Overview Of Violence Against LGBTI Persons," December 17, 2014, http://www.oas.org/en/iach r/lgtbi/docs/An nex-Registry-Violence-LGBTI.pdf.

[31] Human Rights Council, United Nations General Assembly, Report of the Independent Expert on Protection Against Violence and Discrimination Based on Sexual Orientation and Gender Identity, 2017, A/HRC/35/36, Geneva, CH: Office of the High Commissioner for Human Rights, https://documents-dds-ny.un.org/doc/UNDOC/GEN/G17/095/53/PDF/G1709553.pdf?OpenElement.

[32] Some data collection systems, such as sinviolencia.LGBT, collect country-level data on violence against LGBTI persons throughout Latin America and the Caribbean. However, there is no standardized measure of violence or data collection system across all countries.

[33] Badgett, Nezhad, Waaldijk, and Rodgers, The Relationship between LGBT Inclusion and Economic Development.

[34] Ozeren Emir, "Sexual Orientation Discrimination in the Workplace: A Systematic Review of Literature. Procedia, Sexual and Behavioral Sciences," Procedia-Sexual and Behavioral Sciences 109 (2014): 1203-1215, 1208-10.

[35] Marieka Klawitter, "Meta-Analysis of the Effects of Sexual Orientation on Earnings," Industrial Relations 54, no. 1 (2014): 4-32, 21.

workplace experiences than non-intersex people.[36] Though there is growing attention to the impact of employment discrimination, there has never been a study of the relationship between societal acceptance and employment discrimination experienced by LGBTI people. An acceptance index makes such an inquiry possible.

Civic Participation. Finally, exclusion can limit the ability of LGBTI people to participate in civic institutions and political leadership roles. For example, throughout the world, sexual and gender minorities are drastically underrepresented in elected positions. In one study, LGBTI people occupied, at most, only six percent of all seats in the upper legislative houses globally.[37] Socio-cultural factors including acceptance and dominant religious orientation of a country, and institutional factors such as representation systems, were major determinants of whether LGBTI people were elected into legislative bodies.[38]

CURRENT PUBLIC OPINION DATA AND ITS SHORTCOMINGS

Global and regional social surveys have documented public attitudes toward various segments of LGBTI people and policies. These surveys provide a wealth of information, although with some limitations. A single survey can provide snapshots of acceptance, and repeated surveys can convey whether public attitudes in certain countries have changed over time. Public opinion polls and social surveys offer an opportunity for the public to speak for themselves instead of having advocates, celebrities, or politicians speak on their behalf. In this way, polls can be a more accurate predictor of public sentiment and levels of acceptance experienced by LGBTI people as they interact with those around them. Indeed, cultural norms regarding sexual orientation and gender identity are critical components of structural stigma.[39,40]

Surveys can inform an analysis of legal reform efforts as well. Some studies suggest that public attitudes and changes in public attitudes precede inclusion of LGBTI people in public policy[41] or in political representation.[42] Understanding attitudes and attitude change may be precursor to further inclusion of LGBTI people in many areas of social, economic, and political life.

Unfortunately, very few of the surveys conducted about LGBTI people or LGBTI-related issues provide sufficient data for global, cross-national comparisons of public sentiment, especially for longitudinal

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[36] Suen, Yiu Tung, Randolph C. H Chan, and M. V. Lee Badgett. 2021. "The Experiences of Sexual and Gender Minorities in Employment: Evidence from a Large-Scale Survey of Lesbian, Gay, Bisexual, Transgender and Intersex People in China." *The China quarterly*, 245: 142–164.

[37] Andrew Reynolds. "Representation and Rights: The Impact of LGBT Legislators in Comparative Perspective." American Political Science Review 107, no. 2 (2013): 259-274.

[38] Ibid.

[39] Mark L. Hatzenbuehler, Andrew R. Flores, Gary J. Gates, "Social Attitudes Regarding Same-Sex Marriage and LGBT Health Disparities: Results from a National Probability Sample." Journal of Social Issues 73, no. 3 (2017): 508-528.

[40] Mark L. Hatzenbuehler and B. G. Link, "Stigma as a Fundamental Cause of Population Health Inequalities." American Journal of Public Health 103, no. 5 (2013): 813-821.

[41] Jeffrey R. Lax and Justin H. Phillips, "Gay Rights in the States: Public Opinion and Policy Responsiveness." American Political Science Review 103, no. 3 (2009): 367-386.

[42] Andrew Reynolds. "Representation and Rights."

comparisons. Such efforts are confounded by three challenges. First, current public opinion surveys use a variety of questions. In total, we identified 98 different questions that have been used in surveys. These surveys ascertain a range of responses, including the acceptability of homosexuals as elected leaders, the perceived prevalence of discrimination against LGBTI people in the workplace, having gay or transgender friends, the perceived origin of diverse sexual orientations and gender identities, whether couples should have the right to marry, whether homosexuals are desirable as neighbors, and others. Not all LGBTI subgroups have equal representation in these surveys, with homosexuality, gay men, lesbians, and same-sex couples being the predominant topics in these surveys. Only recently have questions about transgender and gender diverse populations become more common, and questions about intersex remain limited. Surveys also traditionally measure general attitudes about a specific target group (e.g., LGBTI people) and may overlook potentially more negative attitudes toward people with multiple marginalized identities, traits, or group memberships.[43]

Secondly, these inconsistencies are compounded by the nature of the issues involved in the survey. As an example, the Pew Global Survey asks questions about specific favorability for *policies* such as same-sex marriage as well as questions about whether homosexual conduct should be *accepted*.[44] The Gallup World Poll asks the respondents whether homosexual *acts* are *morally acceptable* or *morally wrong* as well as whether people view their surrounding neighborhood is as *accepting or unaccepting* of lesbians and gay men. Some questions focus on policy, some on acts, and some on characteristics of homosexuals themselves.

In addition, some questions, such as the Gallup World Poll, ask the respondent to use morality as a criterion to arrive at an answer. However, moral opposition does not necessarily equate to lack of support for an individual or a policy, particularly in liberal democracies where questions of private morality may be distinct from policy discussions.[45] The World Values Survey has asked about whether or not homosexuality is ever *justified*: "Please tell me as to each of the following actions whether you think it can always be justified, never be justified or something in between: homosexuality." The notion of justification is odd because homosexuality is rarely seen in a framework of having to be proven. For some, justification may have a theological meaning of being declared righteous or guiltless.[46]

Thirdly, different questions have been used in different countries during different years. None of the surveys identified have ever asked the same question in the same year in every country in the world. The most extensive of the global survey programs, the World Values Survey, is deployed in roughly 50 countries each year. Most other surveys were either regional, deployed in a small number of countries, or were one-time efforts in a single country, except for the Pew Global Attitudes Project and the Gallup World Poll.

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[43] The LGBTI Acceptance estimates presented here do not resolve this issue, as it is ubiquitous in survey research to measure social attitudes toward a single target group.

[44] Andrew Kohut, The Global Divide on Homosexuality: Greater Acceptance in More Secular and Affluent Countries (Washington, DC: Pew Research Center, 2013).

[45] Carlos A. Ball, The Morality of Gay Rights: An Exploration in Political Philosophy (New York, NY: Routledge, 2003).

[46] Oxford Dictionaries, s.v. "justify," accessed January 25, 2018, https://en.oxforddictionaries.com/definition/justification

As with all surveys, variability in content across surveys and among surveys over time is to be expected, and any studies based on surveys are constrained by such variability. Given these limitations and inconsistencies in survey data, a potential response might be to limit any analysis of stigma and acceptance to those countries where the same questions have been asked regularly. This type of criterion would seriously limit the scope of a study, both in the number of years studied and in the number of countries included. Imposing such a limitation would significantly restrict options for engaging in global, cross-country comparisons, and the only remedy would entail new, costly and time-consuming data collection. Even such a remedy would be imperfect as it would be unable to understand longitudinal attitude change prior to the 2010s.

METHODOLOGY

UPDATES TO AN APPROACH TO MEASURE OPINION

By utilizing advanced statistical methods and computer modeling, we were able to analyze survey data from 175 different countries and locations[47] to produce a single score that we call the Global Acceptance Index, for each country for each year. The Williams Institute created a data archive, where we consolidated the results from cross-national global and regional surveys that measure attitudes toward LGBTI people and rights. These surveys include: the AfroBarometer (2014-2018), the America's Barometer (2004-2019), the Eurobarometer (1993-2019), the European Social Survey (2002-2018), the European Values Survey (1981-2018), the Gallup World Poll (2006-2020), the International Social Survey Programme (1988-2018), Ipsos International (2013-2017), the Latinobarómetro (2002-2015), the Pew Global surveys (2002-2019), and the World Values Surveys (1981-2020). Most of the questions contained in these surveys are subject-matter specific to homosexuality, but more recent surveys collected information pertaining specifically to transgender people, intersex people, and rights related to transgender and intersex people.

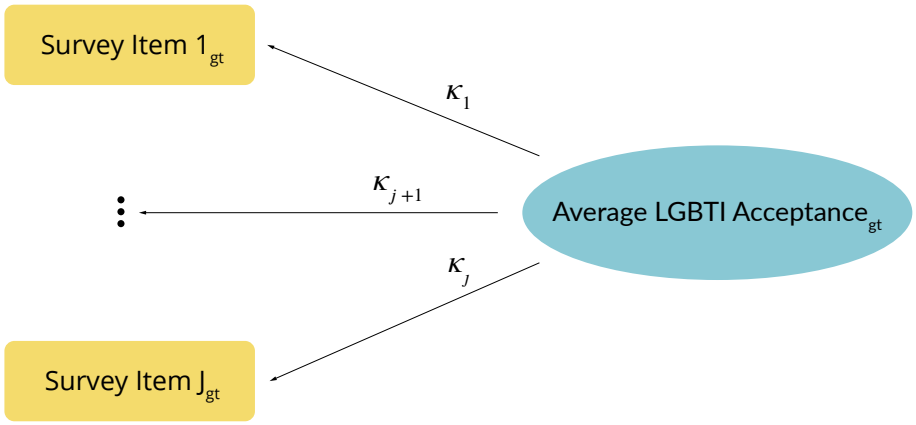
The resulting dataset included 6,198 country-question-years (meaning results for a particular country in a particular year for a particular question) under analysis with 98 different question wordings, 175 different countries and locations, and 37 years. The combined individual-level sample involves 7,059,822 responses to questions relating to LGBTI people and rights. Though the questions varied in form and time period, they are all related to a respondent's core acceptance of LGBTI people. An individual might have different answers to questions about the morality of homosexuality, the desirability of an LGBTI person as a coworker, and the acceptability of discrimination. Nevertheless, all the answers point to a respondent's underlying acceptance of LGBTI people, and collectively these answers help specify the degree to which a respondent accepts LGBTI people. According to this approach, people's acceptance of LGBTI people is considered a latent, unobserved variable which is related to survey responses that have been observed by these questions. (Those readers who are less interested in methodological considerations might want to skip to the beginning of the next section.)

Figure 1 provides a conceptual schematic reflecting how social acceptance of LGBTI people may be a latent, unobserved variable that accounts for a portion of the variation in responses to multiple survey items (j) about LGBTI people and rights, with country (g) being asked a survey item at time (t). Since not every survey item may equally measure acceptance, each item is allowed to have its unique relationship () with Average LGBTI Acceptance. This may mean that some questions may poorly operationalize the concept of the GAI, which means that their relationship may be relatively small.

[47] There are 177 unique countries and locations, which include Puerto Rico and some countries that no longer exist due to changing political circumstances (e.g., the Federation of Bosnia and Bosnia Srpska). We do not report results for these geographic regions, but we include them in the measurement model because more information about question responses across contexts helps condition how much covariance certain questions have with LGBTI acceptance.

This also means that longitudinal changes in responses to some questions that do not share the covariance of the other questions may matter less than changes in other questions that share a greater amount of covariance, such that when there is fluctuation in a question that strongly covaries with the other items, it is more attributable to changes in the GAI than for other reasons (i.e., unique variation attributable to the question, the time period, or the survey vendor). Additionally, the model discounts respondents who are asked multiple questions about LGBTI people and rights, such that a single survey that, for example, may ask 20 questions on this subject adequately takes into account that the same people answered those 20 questions.[48]

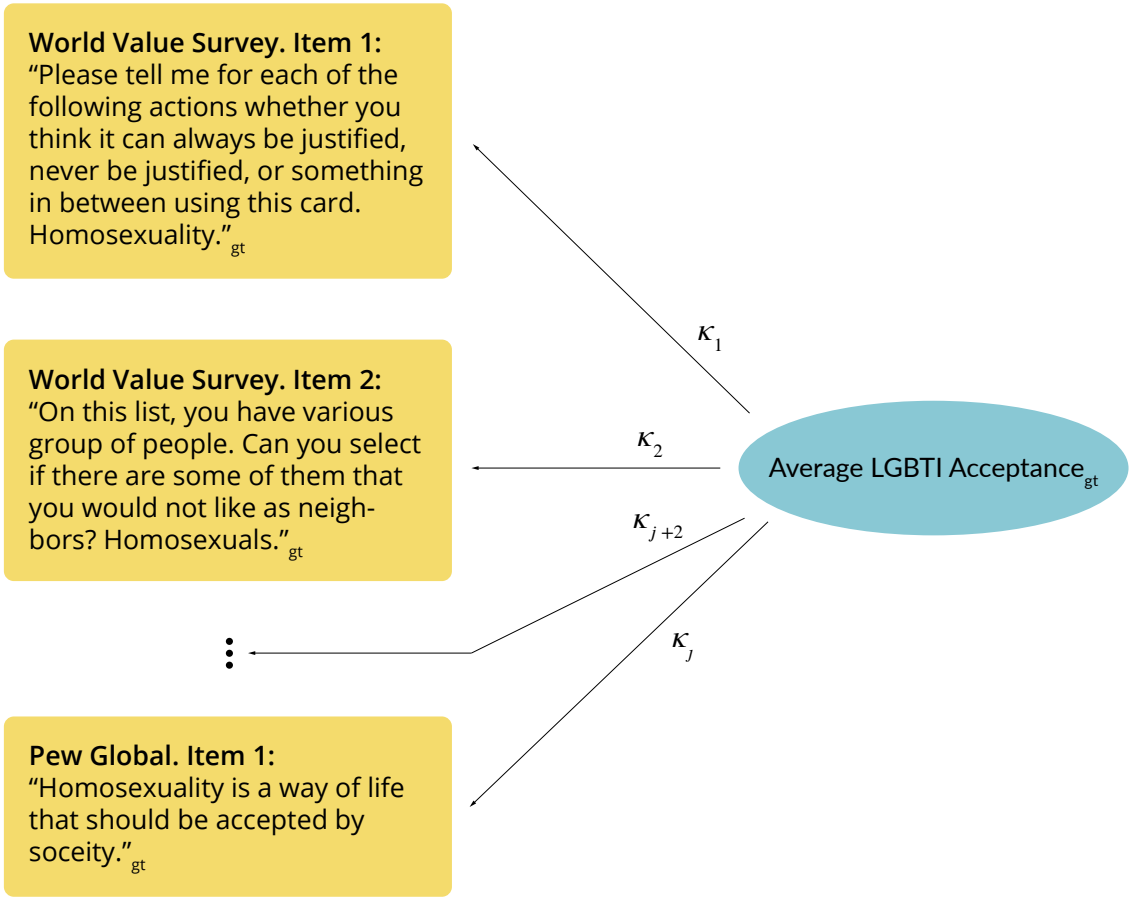
Figure 1. Conceptualizing LGBTI Acceptance in a country given specific survey items asked a certain time



Note: κ_j is the relationship between Average LGBTI Acceptance and the jth Survey Item, is the relationship for last Survey Item.

[48] This is done by transforming the sample size n to $n^* = \left\lceil \sum_{i=1}^{n_{gjt}} 1/(r_{(i[gt])} d_{gt} \right\rceil$ where $r_{i[gt]}$ is the number of questions answered by respondent i and d_{gt} is within-group variation in survey weights, and $\lceil . \rceil$ represents a ceiling function. Since all of the weighting strategies for these surveys are designed to generalize at the country-level, $d_{gt} = 1$ in this context. If only one question is asked ($r_{i[gt]} = 1$) and there is no within-group variation in the survey weights ($d_{gt} = 1$), then $n^* = n$. Since the estimation process is an aggregation of multiple survey measures, the full sample size for a country in a survey is recovered in aggregation. For further details, see: Devin Caughey and Christopher Warshaw, "Dynamic Estimation of Latent Opinion using a Hierarchical Group-level IRT Model." Political Analysis 23, no. 2 (2015): 197-211.

Figure 2. Conceptualizing LGBTI Acceptance in a given country given specific survey items asked at a certain time



Building on this conceptualization, our approach relies on the method of the Group-level Item Response Theory (G-IRT) model.[49] Readers interested in the full derivation of the G-IRT model should consult Caughey and Warshaw (2015). The model uses item-response theory (IRT), which examines the relationship between a characteristic of a test subject and the answers they give to questions. IRT originated in educational psychology where the inquiry was on the relationship between an individual's academic ability and responses to a test. IRT provides a family of analytical methods for modeling the individual probability that a person will answer a question correctly, and they can be used to index or scale individuals based upon their ability (e.g., standardized test scores).[50]

A central concept of IRT is that each question is associated with a particular level of academic skill required to answer a question. If a test subject is given a collection of questions, each associated with different levels of academic skill, then the subject can be given a single score, or ideal point, that approximates academic ability. A dynamic ideal point estimation process estimates academic ability

[49] Devin Caughey and Christopher Warshaw, "Dynamic Estimation of Latent Opinion using a Hierarchical Group-level IRT Model."

[50] F.M. Lord. *Applications of Item Response Theory to Practical Testing Problems*. Hillsdale, NJ: Earlbaum (1980).

and its change over time based on the subject's responses over time. In social and political contexts, ideal point estimation processes can measure the liberalness or conservativeness of representatives,[51] Supreme Court justices,[52] and social attitudes.[53] The IRT model has been extended to understand abilities for a grouping of subjects, aggregating responses to understand average abilities of groups.[54] In the domain of social attitudes, G-IRT can estimate the policy liberalism of geographic regions over time.[55] In the current study, the country serves as the grouping of subjects and country-level results in each survey serve as the responses, each response associated with a different level of acceptance. Through dynamic ideal point estimation, the executed model can identify the dynamic relationship between the country level responses in each survey and, based on this relationship, gives a value to each country's level of LGBTI acceptance for each year.

The first step in the G-IRT is to transform the individual level survey data into a summary file for each country-question-year, which aggregates the individual-level survey data. The aggregation process identifies the number of weighted respondents who took a position supportive of LGBTI people and/or rights and the total number of weighted respondents in the sample. The weighted sample size of every survey affects how reliable a survey estimate is,[56] and conditions how influential a single poll result is to the overall model. Thus, the sample size is explicitly taken into account. While surveys may vary in their sampling strategy—face-to-face, telephone, or online panel—each survey attempts to adjust their data through weighting procedures. These procedures for probabilistic samples include the probability of selection. For empaneled online samples, the weighting process is a further effort to adjust the demographics of the sample to reach target demographics. If done appropriately, empaneled samples collected from samples that are not recruited in probabilistic ways can be adjusted to be as accurate at probabilistic samples.[57, 58] G-IRT does not assume that each question perfectly operationalizes the concept of acceptance. Each question shares a common portion of variation with the latent concept of acceptance while still having its own unique portion. This unique

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[51] Royce Carroll, Jeffrey B. Lewis, James Lo, Keith T. Poole, and Howard Rosenthal, "Measuring Bias and Uncertainty in DW-NOMINATE Ideal Point Estimates via the Parametric Bootstrap." Political Analysis 17, no. 3 (2009): 261-275.

[52] Andrew D. Martin and Kevin M. Quinn, "Dynamic Ideal Point Estimation via Markov Chain Monte Carlo for the U.S. Supreme Court, 1953-1999," Political Analysis 10, no. 2 (2002): 134-153.

[53] Devin Caughey and Christopher Warshaw, "Dynamic Estimation of Latent Opinion using a Hierarchical Group-level IRT Model."; Devin Caughey and Christopher Warshaw, "Policy Preferences and Policy Change: Dynamic Responsiveness in the American States, 1936-2014," American Political Science Review (2017) doi: 10.1017/S0003055417000533; Devin Caughey and Christopher Warshaw, "The Dynamics of State Policy Liberalism, 1936-2014," American Journal of Political Science 60, no. 4 (2016): 899-913.

[54] Robert J. Mislevy, "Item Response Models for Grouped Data." Journal of Educational Statistics 8, no. 4 (1983): 271-288.

[55] Devin Caughey and Christopher Warshaw, "The Dynamics of State Policy Liberalism."

[56] Steven G. Heeringa, Brady T. West, and Patricia A. Berglund, Applied Survey Data Analysis, 2nd ed. (New York: Chapman and Hall/CRC, 2017).

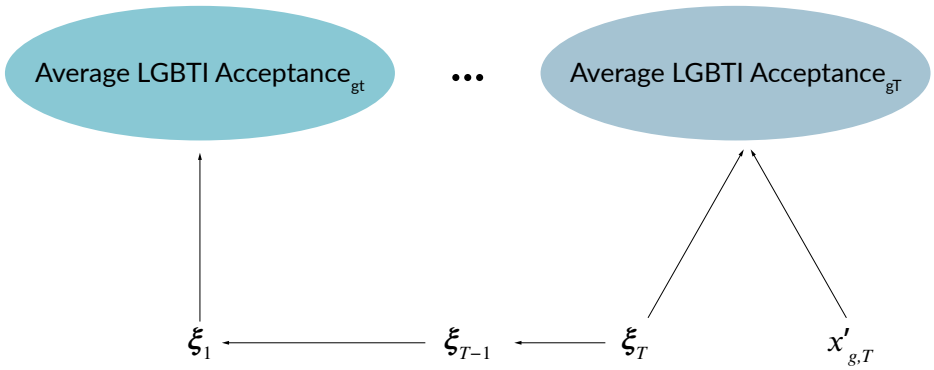
[57] Courtney Kennedy, Andrew Mercer, Scott Keeter, Nick Hatley, Kyele McGeeney, and Alejandra Gimenez. *Evaluating Online Nonprobability Surveys*. Washington, DC: Pew Research Center, 2016.

[58] In the first edition of these estimates, data from the ILGA-RIWI surveys were included; however, it is not entirely clear whether the data are appropriately adjusted via weighting to representative of countries, so these data are excluded from the estimation. In addition, any online survey that was fielded in a country that does not have high internet penetration are also excluded for those countries due to a similar concern for representativeness.

portion takes into account varying countries, varying survey vendors who may utilize different survey methodologies, and varying time points.

The model is made dynamic by allowing a country's acceptance to be estimated for each year. An update to the present GAI is that a country's score in one year directly informs the estimate for a country in a previous year.[59] This means that for years when there is no survey data for a country, a country's current estimate is the source for the country's previous estimate. This is represented in the schematic in Figure 3. The benefit of this approach is that it smooths the annual estimates over time and also fills in gaps when a country may not have been surveyed. This provides a more complete time series, where $x'_{g,T}$ represents information about a country at the first time point in the estimation process and the average level of support at a time period is ξ_t. The advantage of starting with more recent years is that the quality and quantity of data is far greater than distant years, such that the estimates will be more reliable and stable.

Figure 3. Conceptualizing the dynamic portion of the model estimation



Countries are given a reverse random-walking prior, such that their estimate in a current year is determinative of their previous estimate: $\xi_{t-1} \backsim N(\xi_t, \sigma_\gamma^2)$ which assumes that a country's estimate is normally distributed about a country's estimate in the time period prior. The variance determines the influence of the data in period t relative to t−1, and if there are no new data in period t-1, then ξ_t acts predictively. It imputes the estimated value for ξ_{t-1},[60] and the imputation follows a normal distribution. In instances where no data exist at ξ_T, then a country's level of globalization provides some additional information about countries in the estimation process.[61, 62] However, in the absence of data, the model is conservative and will tend to report a country's acceptance as the average (i.e.,

[59] In the original estimation, a country's estimate in one year directly informed the estimate for country in a subsequent year. We went with the original approach in 2015 but made this change in 2019.

[60] Simon Jackman. *Bayesian Analysis for the Social Sciences.* Hoboken, NJ: Wiley and Sons, 2009.

[61] A. Dreher, N. Gaston, W. Martens, Measuring Globalisation: Gauging Its Consequences (New York: Springer, 2008).

[62] Phillip M. Ayoub and Jeremiah Garretson, "Getting the Message Out: Media Context and Global Changes in Attitudes toward Homosexuality." Comparative Political Studies 50, no. 8 (2017): 1055-1085.

grand mean) of the GAI with a wide credible interval. This interval will narrow when new data are present to inform the estimate.

We explicitly controlled for survey source (e.g., World Values, Gallup World Poll, etc.), since surveyors may have unique "house effects" on their measures due to sampling strategies, question wordings, interview methods, weighting strategies, and other idiosyncrasies unique to particular sources. After estimation, we post-stratified the results to weight by the prevalence of survey sources by decade. This way, the estimates for the World Values Survey in the 1980s contribute more to the estimate; whereas, estimates for the Gallup World Poll contribute more in the 2010s. These estimates are not calibrated in any way to represent the unevenness of the subgroups represented in the database, as doing so may over-extrapolate recent survey data on attitudes about transgender and intersex people to 10 to 20 years prior. Instead, the estimates reflect the latent concept of LGBTI Acceptance, or the common variation shared in attitudes toward all LGBTI people.

The estimates of the LGBTI Global Acceptance Index range from 0 to 10 with a mean of 4.6 and standard deviation of 1.2.[63] The model diagnostics suggest the estimation procedure was successful, which means that the model estimates are reliable.

We performed validity tests to ensure that out-of-sample comparisons reflected a country's GAI. We did this, for example, by comparing the GAI in the United States to national survey data not included in the dataset used for estimation. We found a strong relationship between the GAI and the national survey data. We were able to make trend comparisons with the United States, with the cumulative General Social Survey (1982-2018) sponsored by NORC, and with Great Britain, with the British Social Attitudes Survey (1982-2012) sponsored by the National Centre for Social Research. Both questions pertained to whether being gay was "always wrong" to "not at all wrong" asked at varying years in the time series, for which both had within-country trends data. In each, the GAI was strongly correlated with LGB attitudes ($r>0.80$, in each comparison).[64] In addition, Table 1 reports the correlation between measures that should relate to the GAI and the GAI including: the GAI 2019 estimates,[65] the Global Index on Legal Recognition of Homosexual Orientation (GILRHO),[66] the Franklin and Marshall Global Barometer of Gay Rights™ (GRBR),[67,68] a score measuring restrictions on freedom of the press,[69] and

[63] The original estimation had a mean of zero and standard deviation of one for model identification, though this was rescaled to fall within the interval of zero and ten.

[64] There is an obvious limitation that these three countries are all western and developed countries. However, the presence within-country repeated cross-sectional surveys over time is necessary for comparison.

[65] Andrew Flores and Andrew Park, Polarized Progress: Social Acceptance of LGBT People in 141 Countries, 1981 to 2014 (Los Angeles, CA: The Williams Institute, 2017).

[66] M. V. Lee Badgett, Sheila, Nezhad, Kees Waaldijk, Yana van der Meulen Rodgers, The Relationship between LGBT Inclusion and Economic Development: An Analysis of Emerging Economies (Los Angeles, CA: The Williams Institute, 2014).

[67] Susan Dicklitch-Nelson, Scottie Thompson Buckland, Berwood Yost, and Danel Dragulijć, "From Persecutors to Protectors: Human Rights and the F&M Global Barometer of Gay Rights™ (GRBR)." Journal of Human Rights 18, no. 1: 1-18.

[68] The GRBR scores countries in a letter grade fashion and in a continuous score from 0-100. Letter grades range from low (F) to high (A), which we scored as 1-5.

[69] Freedom House. *Freedom of the Press (FOTP) Data: Editions 1980-2017*. Washington, DC: Freedom House. <http://info.worldbank.org/governance/wgi/#home>.

norms on the rule of law.[70] Some of these indicators were shown to relate to the GAI estimates from 2019.[71] The correlations are in the expected direction and range from moderate to large in size. These correlations are similar in 2021 compared to 2019, which may reflect additions to the comprehensive archive that more thoroughly measure attitudes across countries over time. The scaling of the GAI 2021 creates more nuance in levels of unacceptance, as described in the following paragraph. Furthermore, some comparison measures are primarily about formal legal inclusion. For example, two countries that are less accepting may have different GAI 2021 scores (e.g., a 4 and a 2) but both countries may criminalize same-sex sexual conduct. While GAI 2021 scores may differ, the country scores on policy measures would be the same. This would result in a weaker correlation between these measures, even though they both operationalize aspects of LGBTI inclusion.

Table 1. Correlations of key indicators with the GAI 2019 updated estimates

	GAI 2021
GAI 2019	0.84*
GILRHO	0.48*
F&M GRBR Letter Grade	0.82*
F&M GRBR Score	0.81*
Freedom of the Press	0.57*
Rule of Law	0.69*

Note: *Correlations are statistically significant at $p<0.05$.

As a point of reference, a GAI estimate of 6 corresponds to about 30 percent of American adults agreeing that homosexuality is "not wrong at all."[72] A GAI estimate of 6 also corresponds to about 30 percent of British adults agreeing that homosexuality is "not at all wrong."[73,74] Similarly, a GAI estimate of 5.6 corresponds to about 31 percent of Mozambique adults saying the place they live is good for gay or lesbian people. Thus, the GAI better differentiates among less accepting countries than the most accepting countries.

Given the variability that can occur in the estimation process, we present and report local averaged estimates (i.e., LOESS) of the GAI. The reverse random walking prior should smooth the estimates somewhat, but the amount of smoothing was minimal, as detailed in the appended figures. It is recommended to use these local averaged GAI estimates, which reduce the variability in the trend. Results are presented from 1990 onward, considering that data are far sparser prior to 1990. (Raw estimates are plotted in appended figures along with these smoothed estimates for researchers with methodological interests.)

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[70] The World Bank Group. "Worldwide Governance Indicators." *The World Bank Group*, 2017.

[71] Andrew Flores and Andrew Park, Examining the Relationship between Social Acceptance of Sexual Minorities and Legal Inclusion of Sexual Minorities. (Los Angeles, CA: The Williams Institute, 2017).

[72] Comparison made with the General Social Survey.

[73] Data compiled from Table 3 of Ben Clements and Clive D. Field, "Public Opinion Toward Homosexuality and Gay Rights in Great Britain." Public Opinion Quarterly 78, no. 2 (2014): 523-547.

[74] In total about 80% of the variation in GAI scores in Great Britain and 90% of the variation in GAI scores in the United States can be explained by the repeated cross-sectional survey data referenced.

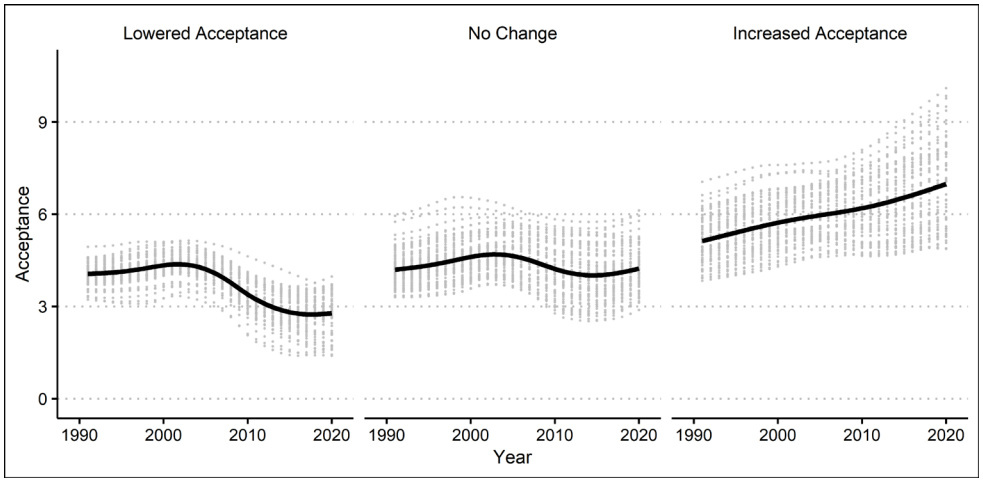
FINDINGS

IMPROVEMENT, STABILITY, AND SOME POLARIZATION

Patterns in acceptance

Looking at the general trend of all countries for the entire period, the level of acceptance has increased. Figure 4 shows the GAI estimates for the countries comparing their position in 1990 to their final position in 2020 separated by whether their acceptance levels increased, decreased, or reflected little change. Each point in Figure 4 represents an estimate for the GAI for a certain country in a given year. About 32 percent of countries experienced an increase in acceptance in this timeframe, 35 percent experienced no change, and 33 percent of the countries had a decrease in acceptance. Since data quality are better in later years, these trends reflect a country's acceptance over time more than being an artifact of the estimation process. The increases and decreases in acceptance reflect general trends and are consistent with prior reports noting polarized progress.

Figure 4. Trends in acceptance with a rolling average (LOESS)



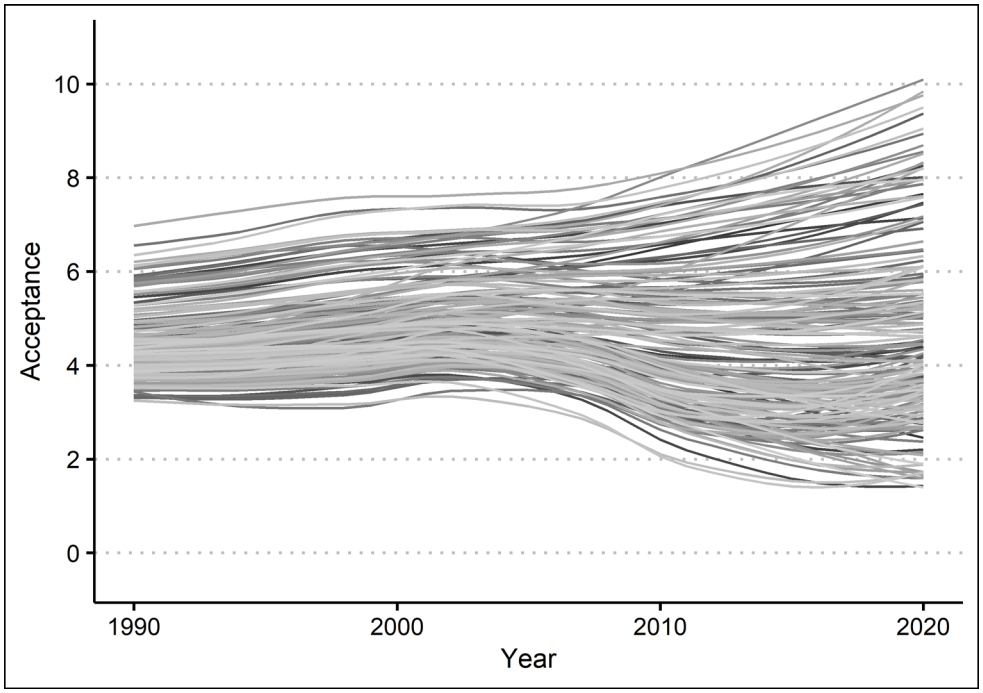
Some countries experienced some increase in acceptance

Of the 175 countries and locations examined, 32 percent experienced an increase in acceptance. This translates to:

- 56 of 175 countries and locations experienced increases in acceptance since 1980.
- 57 countries and locations experienced a decline
- 62 countries and locations experienced no change

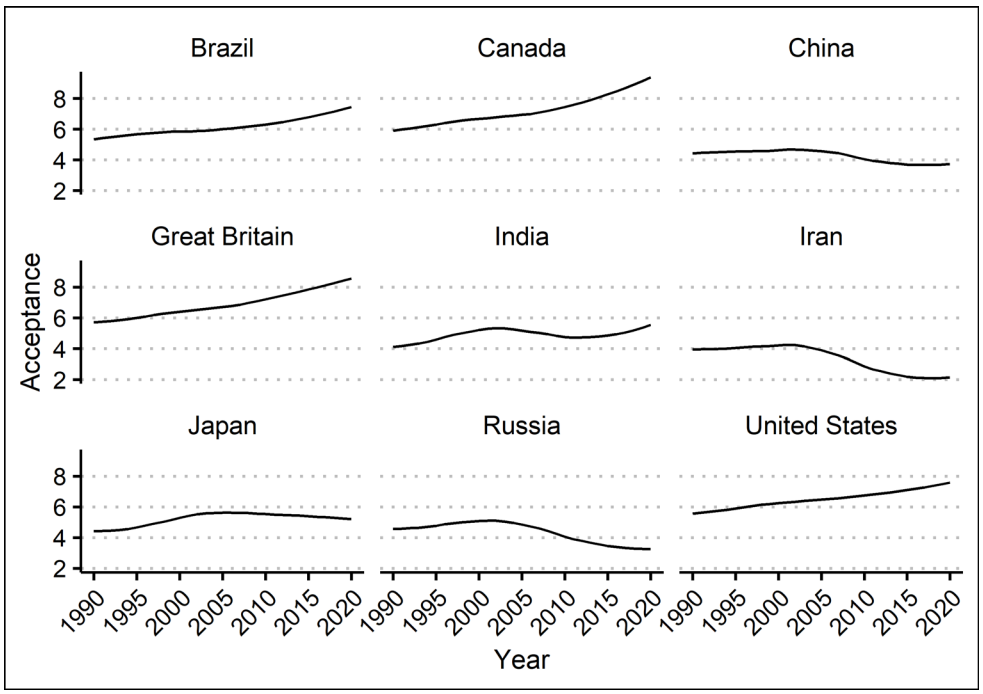
In total, as shown in Figure 5, there is a great deal of diversity in trends in the acceptance of LGBTI people.

Figure 5. Single country acceptance trends, 1990-2020



These trends can be further characterized by highlighting particular countries. Figure 6 plots nine countries and their trends in LGBTI acceptance. Brazil, Canada, Great Britain, and the United States have all increased their acceptance of LGBTI people and rights. Brazil and the United States have had a steady increase in acceptance; whereas, Canada and Great Britain appear to have steeper trends, indicating a faster rate of change. China, Iran, and Russia appear to have had little change in acceptance up to the mid-2000s, after which there appears to be a marked decline in acceptance. In 2020, China, Iran, and Russia remain less accepting than many other countries; acceptance in these countries appears lower in 2020 than in 1990. Japan and India appear to have improved in average LGBTI acceptance until the mid-2000s, reflecting a punctuated increase between 1990 and 2000. Since then, there has been a slight decline and leveling in LGBTI acceptance, and for India, acceptance begins to increase again slightly after 2010. As these trends show, countries have not had a uniform change in acceptance of LGBTI people and rights over time, leaving open questions about why countries have had different trajectories (see Appendix 3 for trends for each country).

Figure 6. Trends in acceptance for nine specific countries



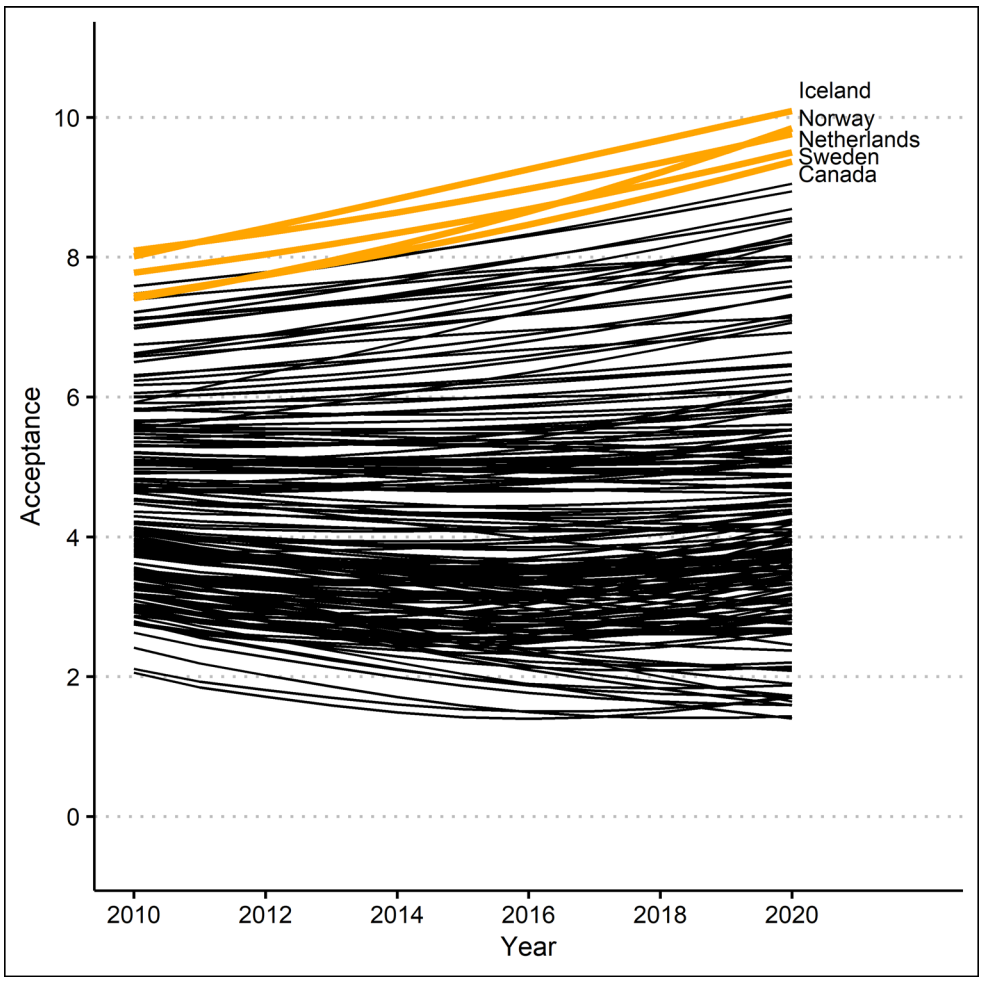
The most accepting countries are becoming more accepting

In general, the most accepting countries are becoming more accepting, the least accepting countries are becoming less accepting, and those in the middle stay in the middle. By comparing trends of the scores between 2010 and 2020 in Figure 7, these results become clear.

In 2020, Iceland, Norway, the Netherlands, Sweden, and Canada were the most accepting countries. These countries had a significant increase in their level of acceptance since 2010. A common pattern among these countries is that they are some of the most accepting countries in all of the time periods, and their trajectory continued upward. These countries are also clustered in Western Europe and the Nordic region. As studies show that a country's economy and religious orientation may affect how accepting people are within that country,[75] these trends might further suggest that growth in acceptance is potentially related to regional, economic, and religious characteristics. Cross-sectional studies have found that these characteristics are associated with a country's average level of acceptance toward LGBTI people. The GAI offers a chance to examine dynamic explanations for countries that have differing trajectories in acceptance.

[75] Robert Andersen and Tina Fetner, "Economic Inequality and Intolerance: Attitudes toward Homosexuality in 35 Democracies." American Journal of Political Science 52, no. 4 (2008): 942-958.

Figure 7. Five countries with the highest GAI, 2010-2020

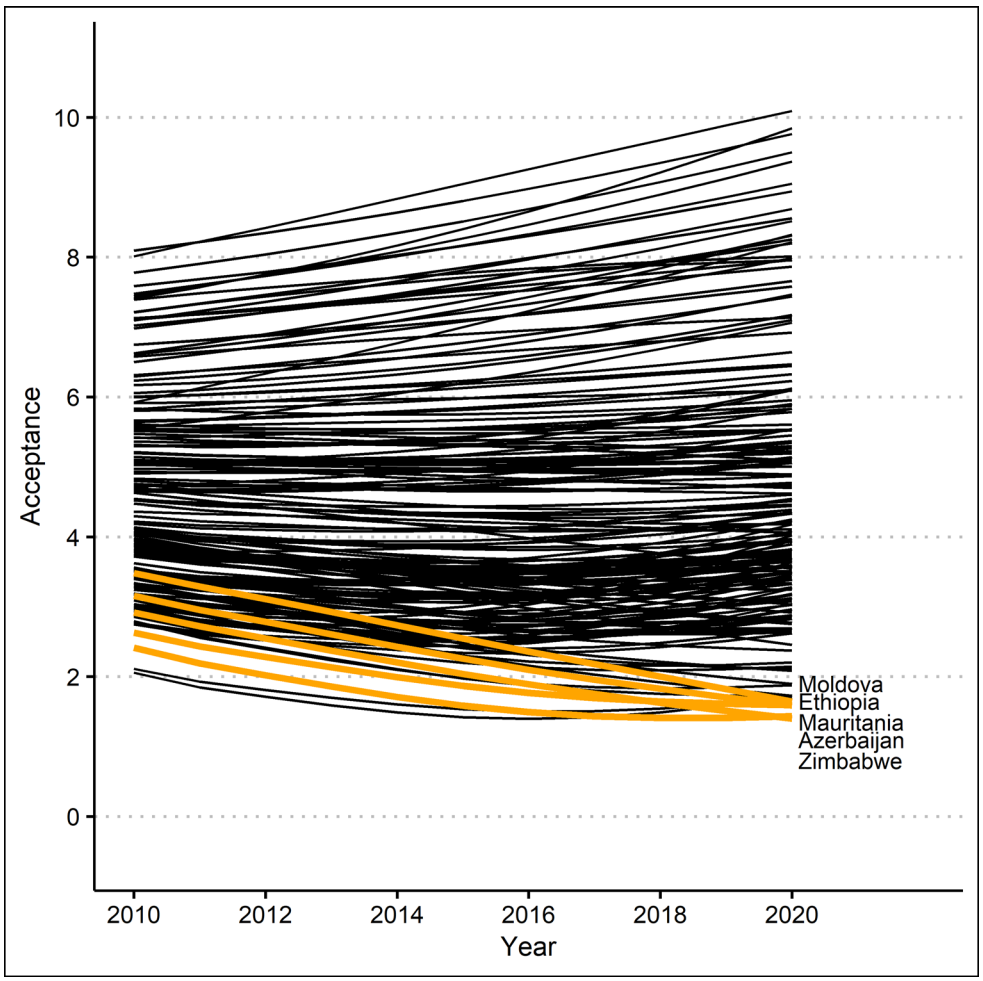


The least accepting countries are becoming less accepting

The countries that were the least accepting in 2020 were Moldova, Ethiopia, Mauritania, Azerbaijan, and Zimbabwe, and they each became less accepting since 2010. These decreases were similar to the increases of the top five most accepting countries in magnitude. These countries had a significant decrease in their level of acceptance since 2010.

While theories exist that explain the stratification of countries in their acceptance of LGBTI people, there are fewer explanations for why countries would decrease in their average country-level support of LGBTI people. The GAI offers an opportunity to unpack these unique trajectories, providing a more comprehensive understanding in the ways adults in countries accept LGBTI people.

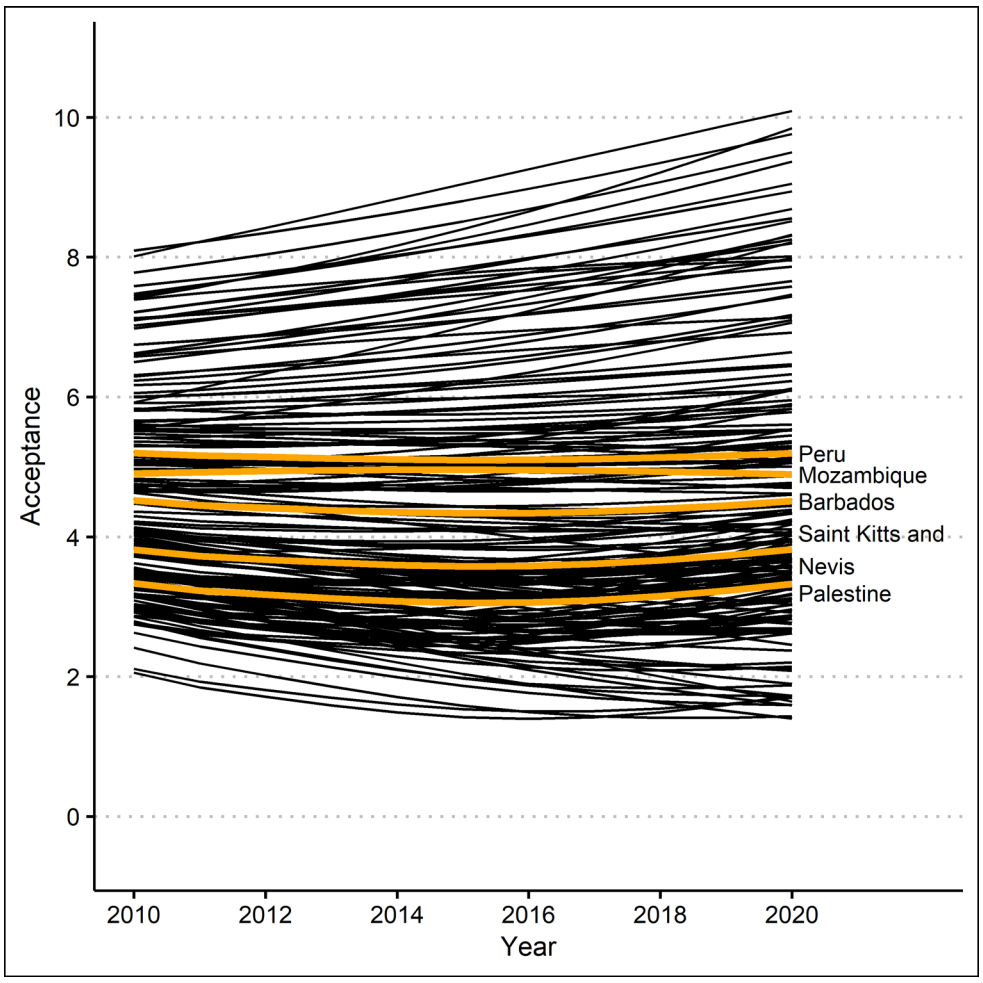
Figure 8. Five countries with the lowest GAI, 2010-2020



Some countries have stayed the same

Some countries experienced little change between 2010 and 2020. The five countries that had the least change in acceptance are highlighted in Figure 9. Peru, Mozambique, Barbados, Saint Kitts and Nevis, and Palestine each had very little change in acceptance between 2010 and 2020. These countries tend to have GAI scores that are in the middle of the GAI scores of other countries.

Figure 9. Five countries that had the least amount of change, 2010-2020

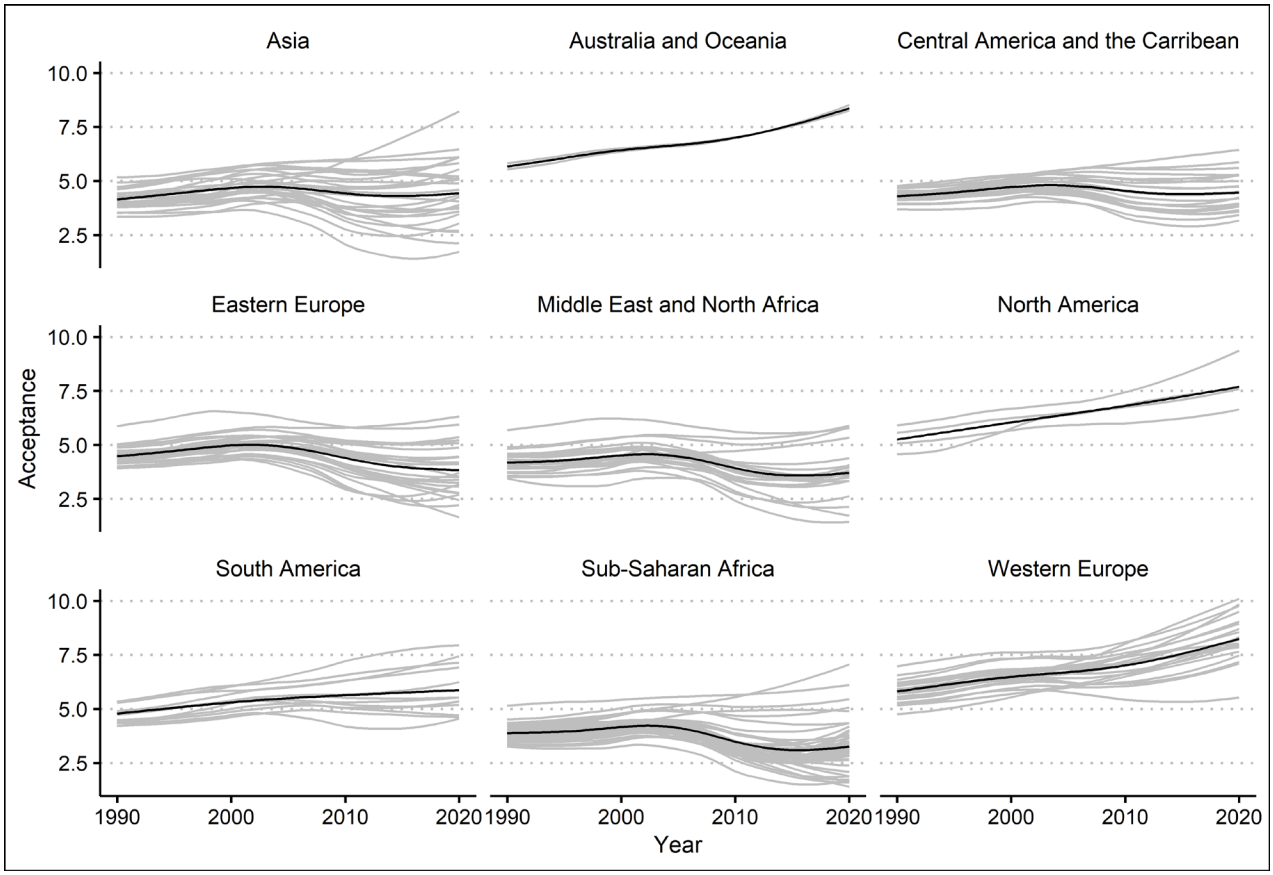


What is clear, however, is that countries have somewhat diverged over time. That is, a group of countries grew more accepting, a different group had some increases with slight declines, and a small group of countries grew more unaccepting. The gap between the most and least accepting has widened. The countries that have experienced little change do not follow either of those trends. While it is more difficult to explain why countries did not experience any substantial changes in acceptance in the GAI, these countries may be useful comparison cases for countries that did experience change.

Regional patterns in acceptance

There are regional differences in GAI trends. The GAI trends from 1990 to 2020 are plotted by region in Figure 10. Countries in Australia and Oceania, North and South America, and Western Europe have had positive changes in their GAI scores in this timeframe. Trends in the GAI in other regions have either not changed over this timeframe or trended slightly downward. Within each region, some countries follow the regional trends, whereas others follow a distinctive trend that is unique from the rest of the region. Since it is likely that countries that are within the same geographic region share similar contexts, more analyses can determine why particular countries differ from the regional trend in GAI.

Figure 10. Regional trends in acceptance, 1990-2020



Note: Gray lines are each country, and the black line is the regional average.

RECOMMENDATIONS FOR FUTURE RESEARCH

The GAI utilizes the most comprehensive collection of social attitudes data about LGBTI people and rights. As such, numerous studies can utilize this metric and its underlying methods to examine the global position of LGBTI people in societies:

- Contours, characteristics, and dynamics that explain country-, regional-, and/or global-level changes in LGBTI acceptance, which may involve political, economic, sociological, and/or regional dynamics, among others
- The relationship between LGBTI acceptance and
    - violence faced by LGBTI people
    - discrimination faced by LGBTI people
    - LGBTI physical and mental health disparities
    - economic outcomes for LGBTI people
    - LGBTI policy inclusiveness
    - psychiatric morbidity in LGBTI populations
    - the probability that LGBTI people have a higher level of representation in a country's policymaking institutions

Global and regional surveyors should continue to collect social attitudes data about LGBTI people and LGBTI rights, and they should be inclusive of transgender, intersex, and other sexual and gender diverse subgroups. Further development on the estimation approach should also consider updating the estimation procedure with the most recent global surveys and examining changes in the estimates to the addition of time-varying covariates (i.e., using a time-series variable known to be associated with social attitudes about LGBTI people).

AUTHOR

Andrew R. Flores, Ph.D., is a Visiting Scholar at the Williams Institute and an Assistant Professor of Government at American University.

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This report is an update to 2019 and 2017 reports:

Andrew R. Flores, Social Acceptance of LGBTI People in 174 countries, 1981-2017 (Los Angeles, CA: The Williams Institute, 2019).

Andrew Flores and Andrew Park, Polarized Progress: Social Acceptance of LGBTI People in 141 Countries, 1981 to 2014 (Los Angeles, CA: The Williams Institute, 2017).

ABOUT THE WILLIAMS INSTITUTE

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The Williams Institute, UCLA School of Law
Box 951476, Los Angeles, CA 90095-1476
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RESEARCH THAT MATTERS



APPENDICES

APPENDIX 1. QUESTION WORDINGS FROM GLOBAL AND REGIONAL SURVEY DATA

Table A.1 provides the survey sources and question wordings for all of the questions used in the measurement of the GAI. While some questions may not necessarily seem to be related to LGBTI acceptance, some of them may serve as a proxy for LGBTI acceptance. All of these questions which are based on prior scholarly studies have been shown to be related to a person's level of acceptance of LGBTI people and rights. For example, people who are more accepting of LGBTI people and rights tend to acknowledge the presence of discrimination against LGBTI people in society, while those who are less accepting are less likely to acknowledge such discrimination. Our coding categorized responses that inferred a favorable attitude toward LGBTI people as a one and all other attitudes (neutral or antagonistic) as a zero.

In the first edition of this report, we also examined estimation sensitivity by removing a number of questions that may lack face validity. These were items from the Eurobarometer, including: "Do you think that diversity is sufficiently reflected in the media in terms of Sexual orientation (being gay, lesbian, or bisexual)?", "Do you think that in COUNTRY, measures to fight the economic crisis and policies to promote recovery are excluding people from each of the following groups? People with a different sexual orientation than the majority of the population.", "Do you think that in COUNTRY, measures to fight the economic crisis and policies to promote recovery are excluding people from each of the following groups? Transgender or transsexual people", and "There are differing views about whether people inherit particular characteristics or whether they acquire them mainly from their upbringing or conditions in which they lived. Please tell me whether you think each of the following characteristics is mainly inherited or mainly the result of upbringing and living condition. Homosexual tendencies." We removed these items from the database and re-estimated the GAI. These new estimates had a correlation of r = 0.76 with the GAI as presented.

Table A.1. Question wordings from the global and regional survey data

SURVEY SOURCE	QUESTION WORDING
Afrobarometer	For each of the following types of people, please tell me whether you would like having people from this group as neighbors, dislike it, or not care. Homosexuals?
Afrobarometer	I would not mind having someone in a same-sex relationship as a coworker.
Afrobarometer	I would not mind having someone in a same-sex relationship as a supervisor.
Afrobarometer	I would not mind having someone in a same-sex relationship who is a religious community member.
Afrobarometer	Would you report to the police if a friend is in a same-sex relationship?
Afrobarometer	Would you report to the police if a son/daughter is in a same-sex relationship?
Afrobarometer	Would you report to the police if a brother/sister is in a same-sex relationship?
Afrobarometer	Would you report to the police if a relative is in a same-sex relationship?
Afrobarometer	Would you report to the police if a coworker is in a same-sex relationship?
Afrobarometer	Would you report to the police if other people are in a same-sex relationship?

SURVEY SOURCE	QUESTION WORDING
America's Barometer	For each of the following types of people, please tell me whether you would like having people from this group as neighbors, dislike it, or not care. Homosexuals?
America's Barometer	And now changing the topic and thinking of homosexuals, how strongly do you approve or disapprove of such people being permitted to run for public office?
America's Barometer	How strongly do you approve or disapprove that same-sex couples can have the right to marry?
Eurobarometer	Adoption of children should be authorized for homosexual couples throughout Europe.
Eurobarometer	And to what extent do you agree or disagree with each of the fallowing statements? School lessons and material should include information about diversity in terms of gender identity (transgender or transsexual people).
Eurobarometer	And to what extent do you agree or disagree with each of the fallowing statements? School lessons and material should include information about diversity in terms of sexual orientation (gay, lesbian, or bisexual people).
Eurobarometer	And using a scale from 1 to 10, please tell me how you would feel about having a person from each of the following groups in the highest elected political position in OUR COUNTRY. A homosexual.
Eurobarometer	And using a scale from 1 to 10, please tell me how you would feel about having someone from each of the following categories in the highest elected political position in OUR COUNTRY. A homosexual.
Eurobarometer	And using a scale from 1 to 10, please tell me how you would feel about having someone from each of the following groups in the highest elected political position in OUR COUNTRY? A homosexual.
Eurobarometer	Discrimination can happen outside working life. For example, in education, when people go shopping, visit restaurants/bars, try to rent an accommodation or buy a property, go to a doctor or to a hospital. Could you please tell me whether, in your opinion, discrimination outside working life is very widespread, fairly rare, or very rare in COUNTRY? Discrimination on the basis of Sexual orientation.
Eurobarometer	Do you have friends or acquaintances who are [Gay, lesbian, or bisexual]?
Eurobarometer	Do you think that homosexual couples should, or should not, have the right to adopt children?
Eurobarometer	Do you think that homosexual couples should, or should not, have the right to inherit from one another, in the same way as married couples?
Eurobarometer	Do you think that homosexual couples should, or should not, have the right to live together, without being married, but with the same advantages as married couples?
Eurobarometer	Do you think that homosexual couples should, or should not, have the right to marry each other?
Eurobarometer	Do you think that transgender or transsexual persons should be able to change their civil documents to match their inner gender identity?
Eurobarometer	For each of the following propositions, tell me if you Totally agree/Tend to agree/Tend to disagree/ Totally disagree/Don't know. Homosexual marriages should be allowed throughout Europe.

SURVEY SOURCE	QUESTION WORDING
Eurobarometer	For each of the following situations, please tell me using the scale from 1 to 10 how you would personally feel about it. On this scale, "1" means that you would be "very uncomfortable" and "10" means that you would be "totally comfortable" with the situation. Having a homosexual as a neighbor
Eurobarometer	For each of the following types of discrimination, could you please tell me whether, in your opinion, it is very widespread, fairly widespread, fairly rare, or very rare in (OUR COUNTRY)? Discrimination on the basis of sexual orientation.
Eurobarometer	If you compare the situation with 5 years ago, would you say that the following types of discrimination are more common or less common in COUNTRY? Discrimination on the basis of sexual orientation (for example being gay or lesbian).
Eurobarometer	In COUNTRY when a company wants to hire someone and has the choice between two candidates with equal skills and qualifications, which of the following criteria may, in your opinion, put one candidate at a disadvantage? The Candidate's gender identity.
Eurobarometer	In COUNTRY when a company wants to hire someone and has the choice between two candidates with equal skills and qualifications, which of the following criteria may, in your opinion, put one candidate at a disadvantage? The Candidate's sexual orientation.
Eurobarometer	In the past 12 months, have you personally felt discriminated against or harassed on one or more of the following grounds? Gender identity (being transgender or transsexual).
Eurobarometer	In the past 12 months, have you personally felt discriminated against or harassed on one or more of the following grounds? Sexual orientation (being gay, lesbian, or bisexual).
Eurobarometer	In the past 12 months, have you witnessed someone being discriminated against or harassed on the basis of one or more of the following grounds? Was it discrimination on the basis of [Sexual orientation (being gay, lesbian, or bisexual)]?
Eurobarometer	Regardless of whether you have children or not, please tell me, using a scale from 1 to 10, how comfortable you would feel if one of your children was in a love relationship with a person from each of the following groups. A homosexual.
Eurobarometer	Regardless of whether you have children or not, please tell me, using a scale from 1 to 10, how comfortable you would feel if one of your children was in a love relationship with a person from each of the following groups. A transgender or transsexual person.
Eurobarometer	To what extent do you agree or disagree with each of the following statements? Gay, lesbian, and bisexual people should have the same rights as heterosexual people.
Eurobarometer	To what extent do you agree or disagree with each of the following statements? Same sex marriages should be allowed throughout Europe.
Eurobarometer	To what extent do you agree or disagree with each of the following statements? There is nothing wrong in a sexual relationship between two persons of the same sex.
Eurobarometer	Using a scale from 1 to 10, please tell me how comfortable you would feel with people in each of the following groups showing affection in public (e.g. kissing or holding hands). Homosexuals.

SURVEY SOURCE	QUESTION WORDING
Eurobarometer	Are you in favour or opposed to providing anonymous information about … as part of a census or statistical survey, if that could help to combat discrimination in (OUR COUNTRY)? Sexual Orientation.
Eurobarometer	In the past 12 months, have you personally felt discriminated against or harassed on the basis of one or more of the following grounds? Was it discrimination on the basis of [(intersex)]?
Eurobarometer	Regardless of whether you have children or not, please tell me, using a scale from 1 to 10, how comfortable you would feel if one of your children was in a love relationship with a person from each of the following groups. Intersex.
Eurobarometer	Regardless of whether you have children or not, please tell me, using a scale from 1 to 10, how comfortable you would feel if one of your children was in a love relationship with a person from each of the following groups. Same-sex couples.
Eurobarometer	Do you think that official documents should include a third gender option? Yes.
Eurobarometer	Using a scale from 1 to 10, please tell me how comfortable you would feel with people in each of the following groups showing affection in public (eg. kissing or holding hands). Men.
Eurobarometer	Using a scale from 1 to 10, please tell me how comfortable you would feel with people in each of the following groups showing affection in public (eg. kissing or holding hands). Women.
Eurobarometer	Do you think that enough is being done to promote diversity in your work place as far as each of the following is concerned? Sexual Orientation/
Eurobarometer	Do you think that enough is being done to promote diversity in your work place as far as each of the following is concerned? Transgender.
Eurobarometer	Do you think that enough is being done to promote diversity in your work place as far as each of the following is concerned? Intersex
Eurobarometer	For each of the following types of discrimination, could you please tell me whether, in your opinion, it is very widespread, fairly widespread, fairly rare or very rare in (OUR COUNTRY)? Transgender.
Eurobarometer	For each of the following types of discrimination, could you please tell me whether, in your opinion, it is very widespread, fairly widespread, fairly rare or very rare in (OUR COUNTRY)? Intersex.
Eurobarometer	And to what extent do you agree or disagree with each of the fallowing statements? School lessons and material should include information about diversity in terms of gender identity (intersex).
Eurobarometer	Regardless of whether you are actually working or not, please tell me, using a scale from 1 to 10, how comfortable you would feel if one of your colleagues at work belonged to each of the following groups. Sexual orientation.
Eurobarometer	Regardless of whether you are actually working or not, please tell me, using a scale from 1 to 10, how comfortable you would feel if one of your colleagues at work belonged to each of the following groups. Transgender.
Eurobarometer	Regardless of whether you are actually working or not, please tell me, using a scale from 1 to 10, how comfortable you would feel if one of your colleagues at work belonged to each of the following groups. Intersex.

SURVEY SOURCE	QUESTION WORDING
Eurobarometer	Do you have friends or acquaintances who are [Transgender / Transexual]?
Eurobarometer	Do you have friends or acquaintances who are [Intersex]?
Eurobarometer	In COUNTRY when a company wants to hire someone and has the choice between two candidates with equal skills and qualifications, which of the following criteria may, in your opinion, put one candidate at a disadvantage? The Candidate's intersex.
European Social Survey	Gay men and lesbians should be free to live their own life as they wish.
European Social Survey	Ashamed if a close family member is gay or lesbian.
European Social Survey	How would you feel about the following statements? Do you agree or disagree with them? Homosexual couples should be able to adopt children.
European Social Survey	Using this card, please say to what extent you agree or disagree with each of the following statements. Gay male and lesbian couples should have the same rights to adopt children as straight couples.
European Values Survey	Could you please mention any that you would not like to have as neighbors? Homosexuals.
European Values Survey	How would you feel about the following statements? Do you agree or disagree with them? Homosexual couples should be able to adopt children.
European Values Survey	How would you feel about the following statements? Homosexual couples are as good parents as other couples.
European Values Survey	Please tell me for each of the following actions whether you think it can always be justified, never be justified, or something in between using this card. Homosexuality.
Gallup World Poll	Next, I'm going to read you a list, for each item on the list, please tell me whether you personally believe that it is morally acceptable or morally wrong. How about homosexual acts?
Gallup World Poll	Is the city or areas where you live a good place or not a good place to live for gay or lesbian people?
International Social Survey Programme	And what about sexual relations between two adults of the same sex, is it always wrong, almost always wrong, wrong only sometimes, or not wrong at all?
International Social Survey Programme	Homosexual couples should have the right to marry one another.
International Social Survey Programme	Same-sex female couples can raise a child as well as opposite sex couples.
International Social Survey Programme	Same-sex male couples can raise a child as well as opposite sex couples.
Ipsos	Same-sex couples are just as likely as other parents to successfully raise children.
Ipsos	Same-sex couples should have the rights to adopt children as heterosexual couples do.
Ipsos	Same-sex marriage is or could be harmful to society.

SURVEY SOURCE	QUESTION WORDING
Ipsos	When you think about the rights of same-sex couples, which of the following comes closest to your personal opinion?
Ipsos	Please indicate whether you agree or disagree with each statement below about people who dress and live as one sex though they were born another. They should be protected from discrimination by the Government.
Ipsos	Please indicate whether you agree or disagree with each statement below about people who dress and live as one sex though they were born another. They should be allowed to marry a person of their birth sex.
Ipsos	Please indicate whether you agree or disagree with each statement below about people who dress and live as one sex though they were born another. They should be allowed to adopt children.
Latinobárometro	Do you strongly agree, agree, disagree, or strongly disagree with the following statements I am going to read. Homosexual Marriage.
Latinobárometro	On this list, you have various groups of people. Can you select if there are some of them that you would not like as neighbors? Homosexuals.
Latinobárometro	Please tell me for the following statement whether you think it can always be justified, never be justified, or something in between. Homosexuality.
Pew	Homosexuality is a way of life that should be accepted by society.
Pew	Do you personally believe that homosexuality is morally acceptable, morally unacceptable, or is not a moral issue?
Pew	Please tell me how much of a priority you think gays and lesbians should be for human rights organizations.
World Values Survey	Could you please mention any that you would not like to have as neighbors? Homosexuals.
World Values Survey	I'd like to ask you about some groups that some people feel are threatening to the social and political order in this society. Would you please select from the following list the one group or organization that you like least? Homosexuals.
World Values Survey	On this list, you have various groups of people. Can you select if there are some of them that you would not like as neighbors? Homosexuals.
World Values Survey	Please tell me for each of the following actions whether you think it can always be justified, never be justified, or something in between using this card. Homosexuality.

APPENDIX 2. RANKINGS IN ACCEPTANCE FOR EACH COUNTRY IN 2020

Table A.2. Ranking countries and locations by their average LGBTI Acceptance Index score in 2017-2020

RANK	COUNTRY	GAI	RANK	COUNTRY	GAI	RANK	COUNTRY	GAI
1	Iceland	9.78	34	Slovenia	6.21	67	Namibia	4.93
2	Netherlands	9.46	35	Colombia	6.1	68	Mozambique	4.92
3	Norway	9.38	36	Philippines	6.06	69	Laos	4.89
4	Sweden	9.18	37	South Africa	6.01	70	Slovakia	4.82
5	Canada	9.02	38	Czech Republic	5.87	71	Paraguay	4.74
6	Spain	8.77	39	Singapore	5.86	72	Guatemala	4.71
7	Denmark	8.69	40	Thailand	5.81	73	Trinidad and Tobago	4.7
8	Ireland	8.41	41	Cuba	5.8	74	Suriname	4.64
9	Great Britain	8.34	42	Taiwan	5.74	75	South Korea	4.53
10	New Zealand	8.23	43	Bahrain	5.73	76	Barbados	4.43
11	Australia	8.03	44	Israel	5.69	77	Latvia	4.42
12	Malta	8.01	45	Northern Cyprus	5.59	78	Lithuania	4.38
13	Switzerland	8	46	Nicaragua	5.57	79	Guyana	4.36
14	Finland	7.96	47	Venezuela	5.51	80	Botswana	4.3
15	Belgium	7.95	48	Ecuador	5.47	81	Algeria	4.28
16	Uruguay	7.9	49	Greece	5.44	82	Bulgaria	4.19
17	Nepal	7.84	50	Mauritius	5.34	83	Bhutan	4.18
18	Luxembourg	7.82	51	India	5.28	84	Lesotho	4.18
19	France	7.73	52	Panama	5.28	85	Belize	4.14
20	Germany	7.73	53	Japan	5.26	86	Myanmar	4.11
21	Puerto Rico	7.52	54	Estonia	5.25	87	Romania	4.1
22	Andorra	7.48	55	Bolivia	5.24	88	Bahamas	4.09
23	United States	7.42	56	El Salvador	5.22	89	Macau SAR	4.01
24	Brazil	7.22	57	Syria	5.22	90	Turkey	3.94
25	Austria	7.2	58	Cyprus	5.16	91	Grenada	3.88
26	Argentina	7.07	59	Poland	5.15	92	Benin	3.88
27	Italy	6.94	60	Honduras	5.15	93	Jamaica	3.83
28	Portugal	6.87	61	Peru	5.15	94	Iraq	3.81
29	Chile	6.83	62	Hungary	5.08	95	Saint Lucia	3.8
30	Cape Verde	6.78	63	Croatia	5.05	96	Libya	3.78
31	Mexico	6.5	64	Vietnam	4.99	97	Serbia	3.71
32	Hong Kong	6.38	65	Dominican Republic	4.98	98	Saint Kitts and Nevis	3.71
33	Costa Rica	6.35	66	Cambodia	4.96	99	Bangladesh	3.69

RANK	COUNTRY	GAI
100	China	3.69
101	Uzbekistan	3.68
102	Pakistan	3.66
103	Angola	3.66
104	Uganda	3.63
105	Lebanon	3.63
106	Kenya	3.62
107	Kuwait	3.61
108	Saudi Arabia	3.6
109	Dominica	3.56
110	Cote d'Ivoire	3.55
111	Qatar	3.54
112	Montenegro	3.53
113	Kosovo	3.52
114	Antigua and Barbuda	3.52
115	Malaysia	3.48
116	Comoros	3.47
117	Yemen	3.41
118	Morocco	3.39
119	Tunisia	3.38
120	Belarus	3.38
121	Madagascar	3.36
122	Afghanistan	3.32
123	Haiti	3.32
124	Democratic Republic of the Congo	3.32
125	Burundi	3.3
126	Russia	3.28
127	Republic of the Congo	3.27
128	Tanzania	3.27
129	Sri Lanka	3.23
130	Palestine	3.2

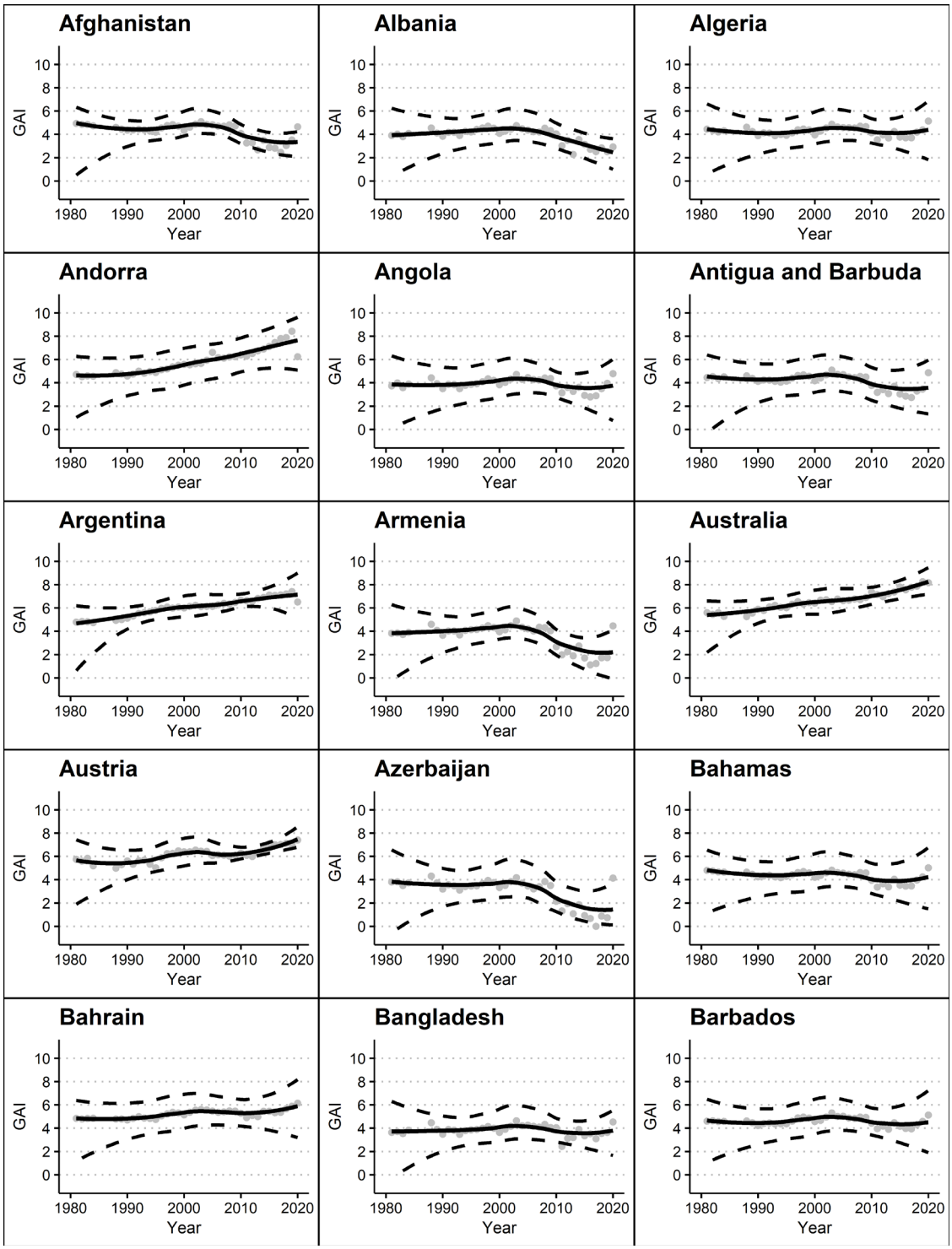
RANK	COUNTRY	GAI
131	Togo	3.15
132	Sao Tome and Principe	3.15
133	North Macedonia	3.13
134	Guinea	3.06
135	Saint Vincent and the Grenadines	3.04
136	Swaziland	3.02
137	Sudan	2.99
138	Sierra Leone	2.97
139	Niger	2.97
140	Burkina Faso	2.96
141	Georgia	2.94
142	Ukraine	2.91
143	Djibouti	2.89
144	Bosnia Herzegovina	2.87
145	Gabon	2.8
146	Cameroon	2.79
147	Indonesia	2.79
148	Rwanda	2.77
149	Mali	2.74
150	South Sudan	2.73
151	Chad	2.72
152	Mongolia	2.71
153	Kazakhstan	2.69
154	Ghana	2.68
155	Albania	2.65
156	Liberia	2.65
157	Central African Republic	2.62
158	Nagorno-Karabakh	2.54
159	Egypt	2.48
160	Gambia	2.44
161	Nigeria	2.18

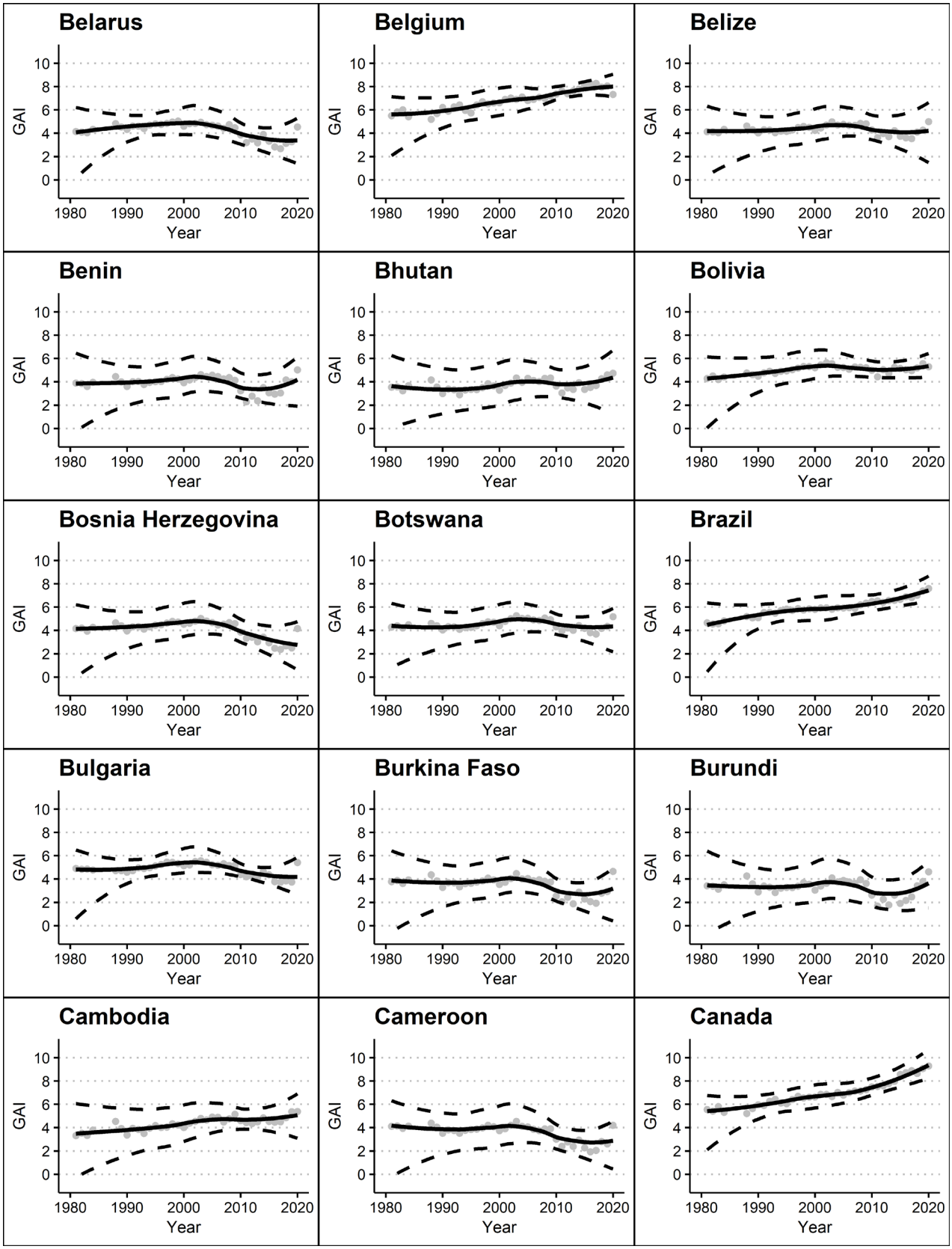
RANK	COUNTRY	GAI
162	Armenia	2.17
163	Kyrgyzstan	2.16
164	Iran	2.11
165	Zambia	2.04
166	Moldova	1.91
167	Jordan	1.87
168	Senegal	1.85
169	Mauritania	1.77
170	Malawi	1.75
171	Ethiopia	1.63
172	Somaliland	1.59
173	Zimbabwe	1.57
174	Tajikistan	1.56
175	Azerbaijan	1.42

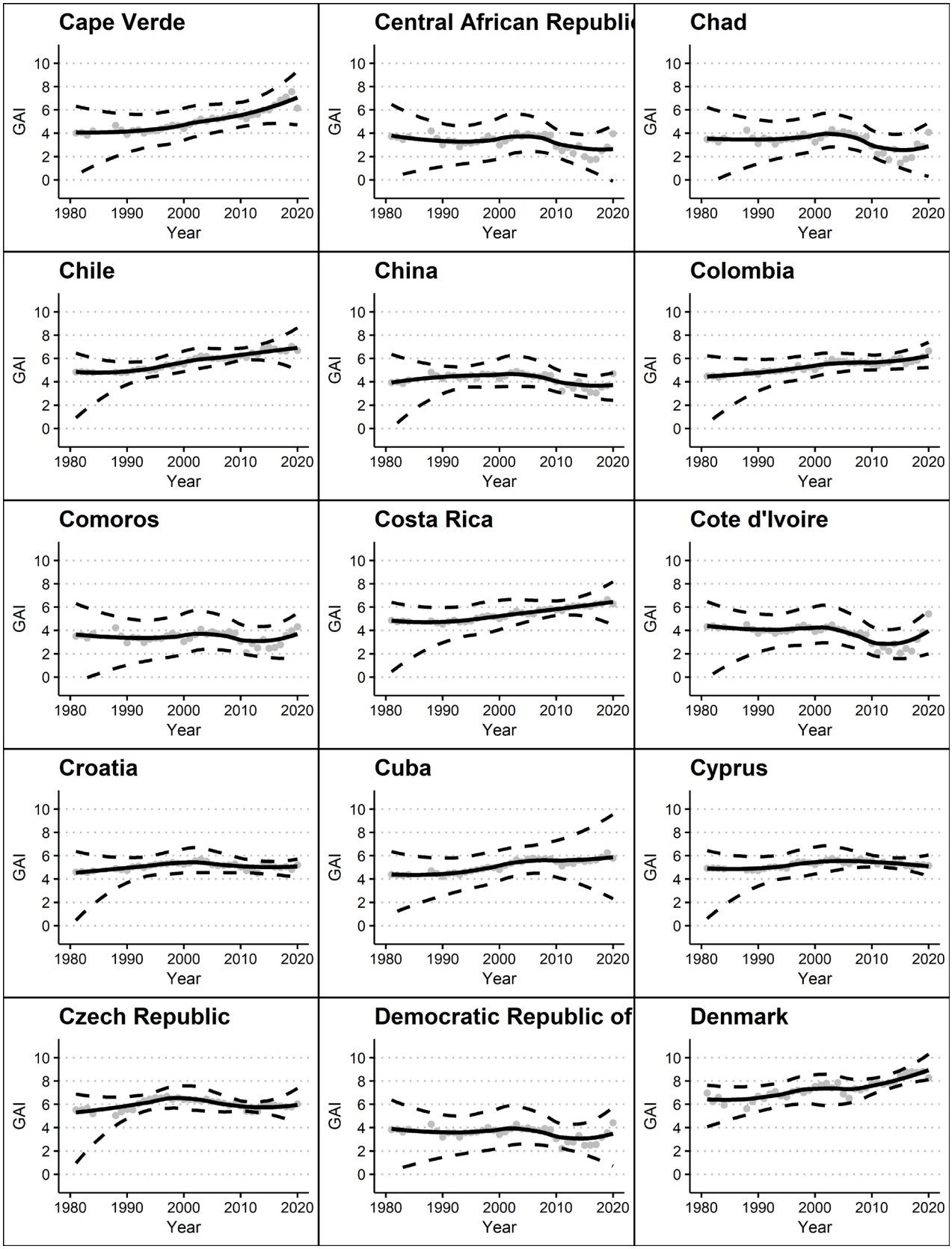
APPENDIX 3: TRENDS IN ACCEPTANCE FOR EACH COUNTRY

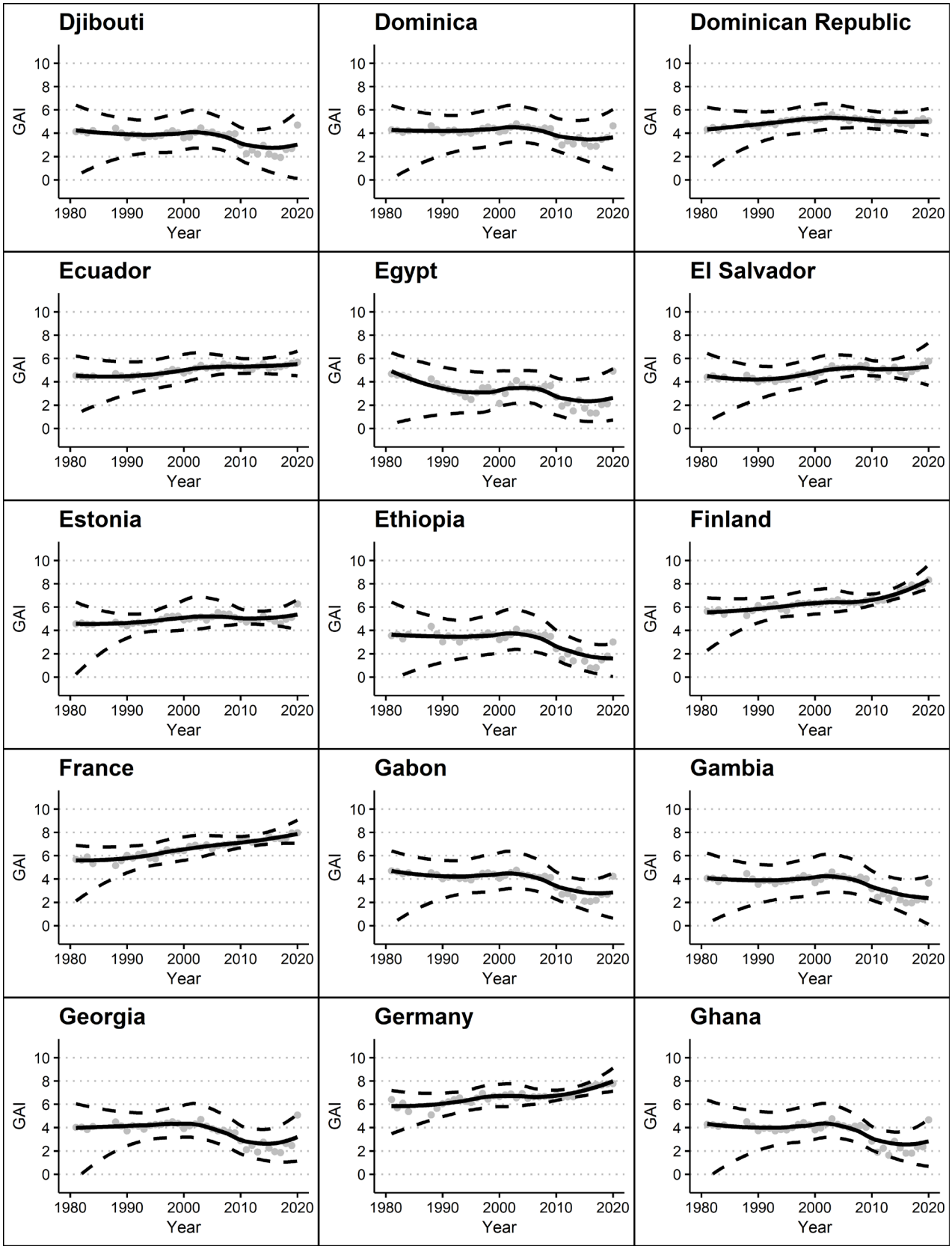
Plots are provided for each country's estimated GAI between 1981-2020. An 95% confidence interval is plotted about the trends to represent estimation error, censored if above 11 or below -1. As can be seen, estimates are far more stable after 2000 due to the presence of more data to more precisely estimate a country's level of acceptance.

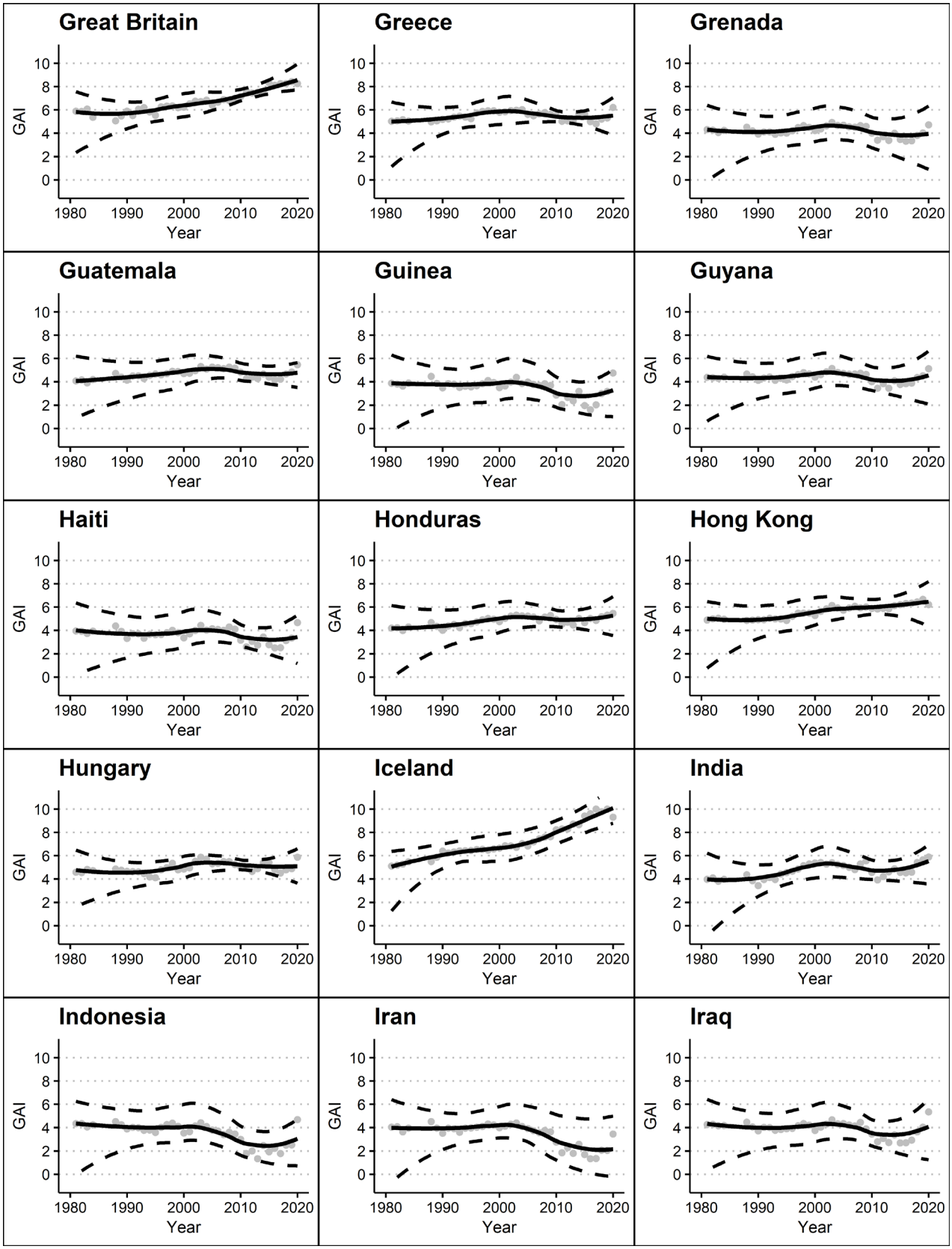
Figure A.1. Trends in acceptance

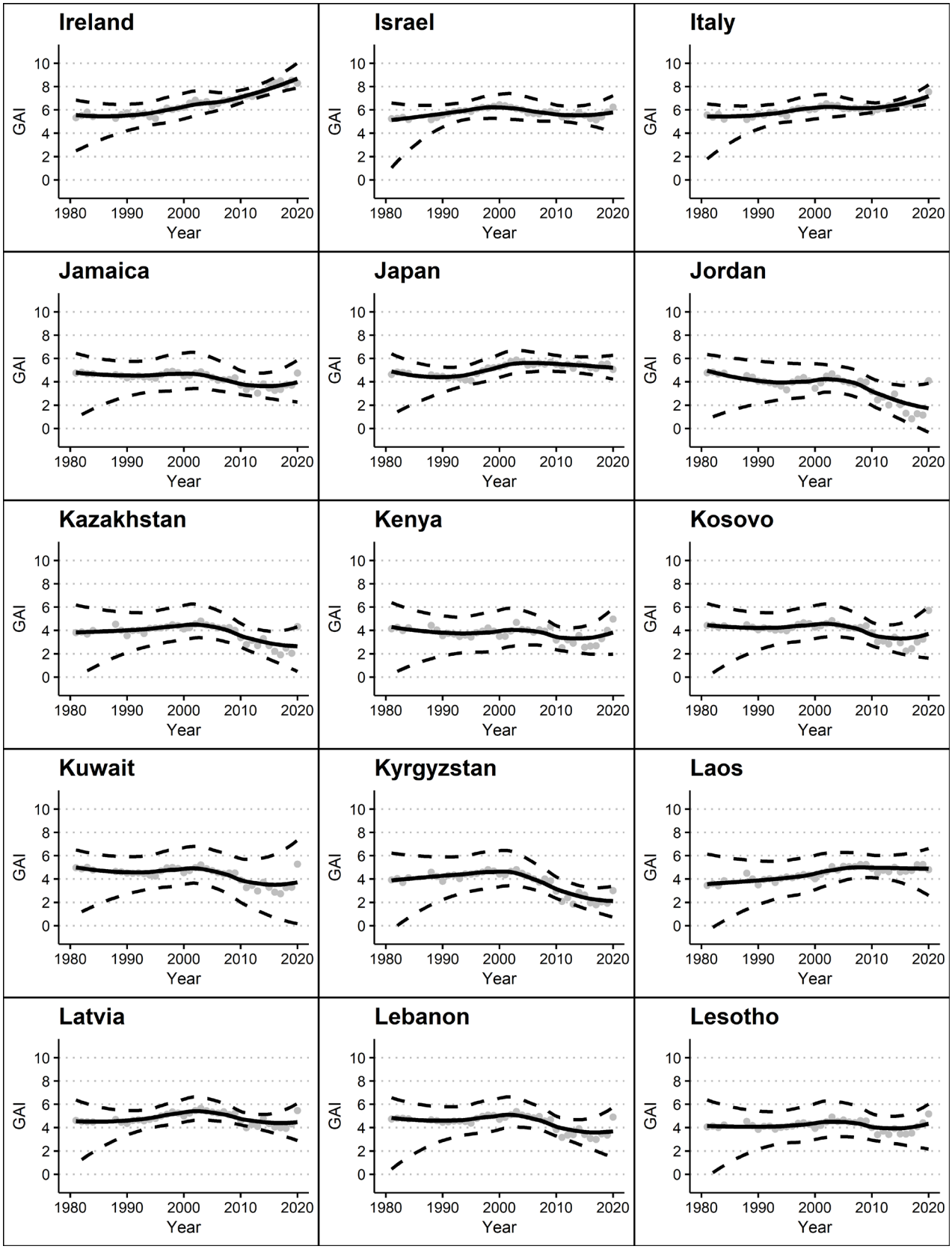


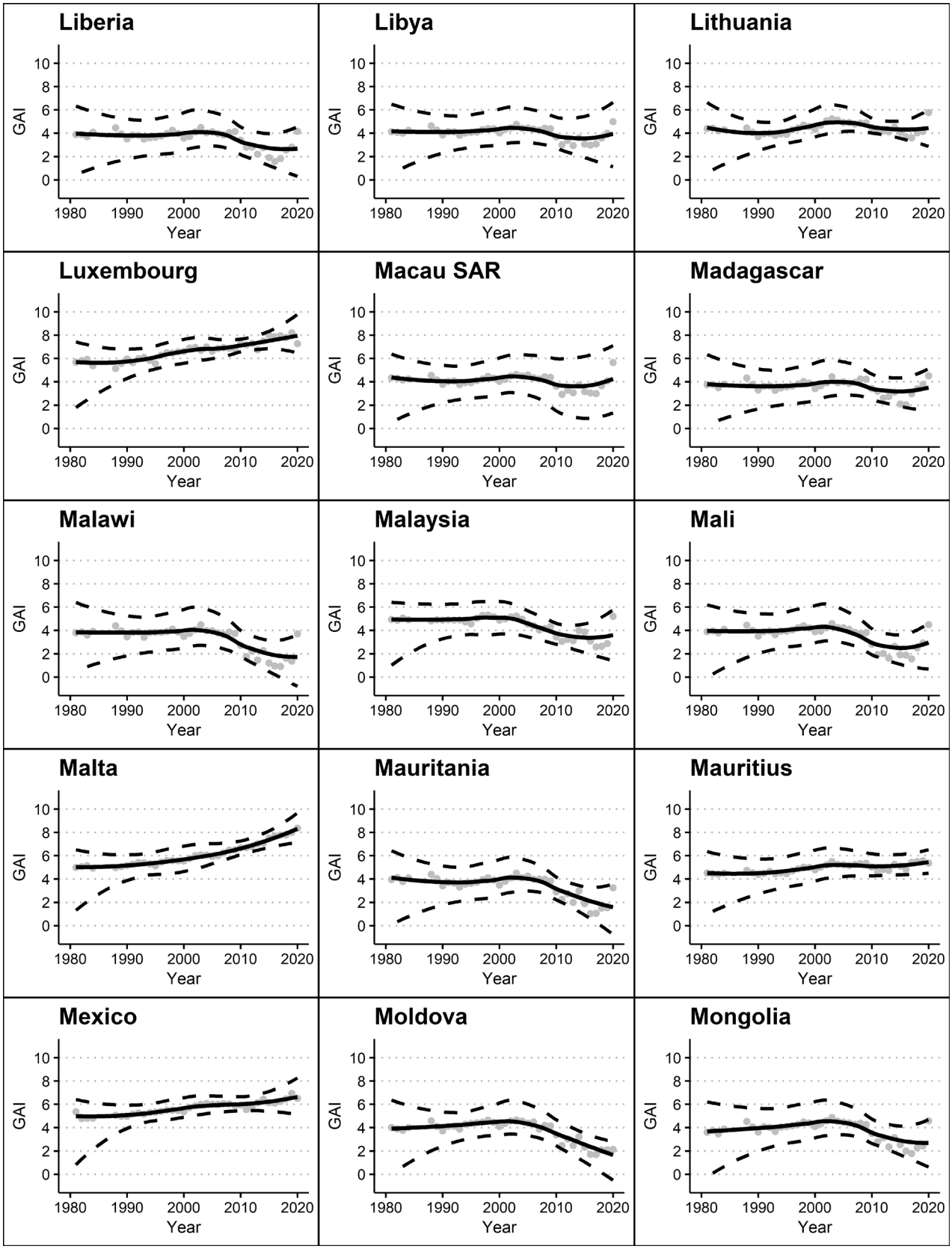

Belarus
Belgium
Belize
Benin
Bhutan
Bolivia
Bosnia Herzegovina
Botswana
Brazil
Bulgaria
Burkina Faso
Burundi
Cambodia
Cameroon
Canada
GAI
Year
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1980
1990
2000
2010
2020

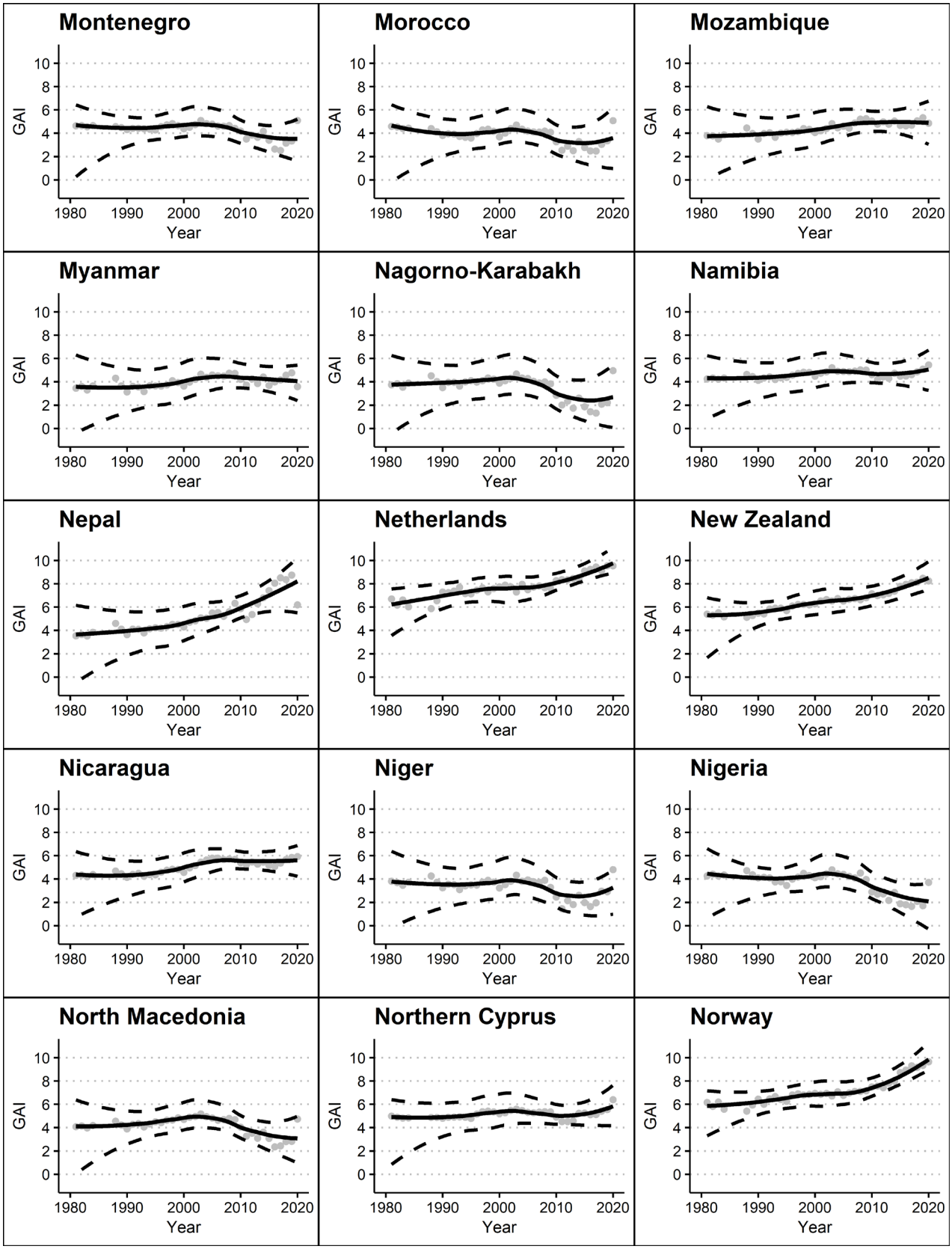

Cape Verde
Central African Republi
Chad
Chile
China
Colombia
Comoros
Costa Rica
Cote d'Ivoire
Croatia
Cuba
Cyprus
Czech Republic
Democratic Republic of
Denmark
GAI
Year
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2020

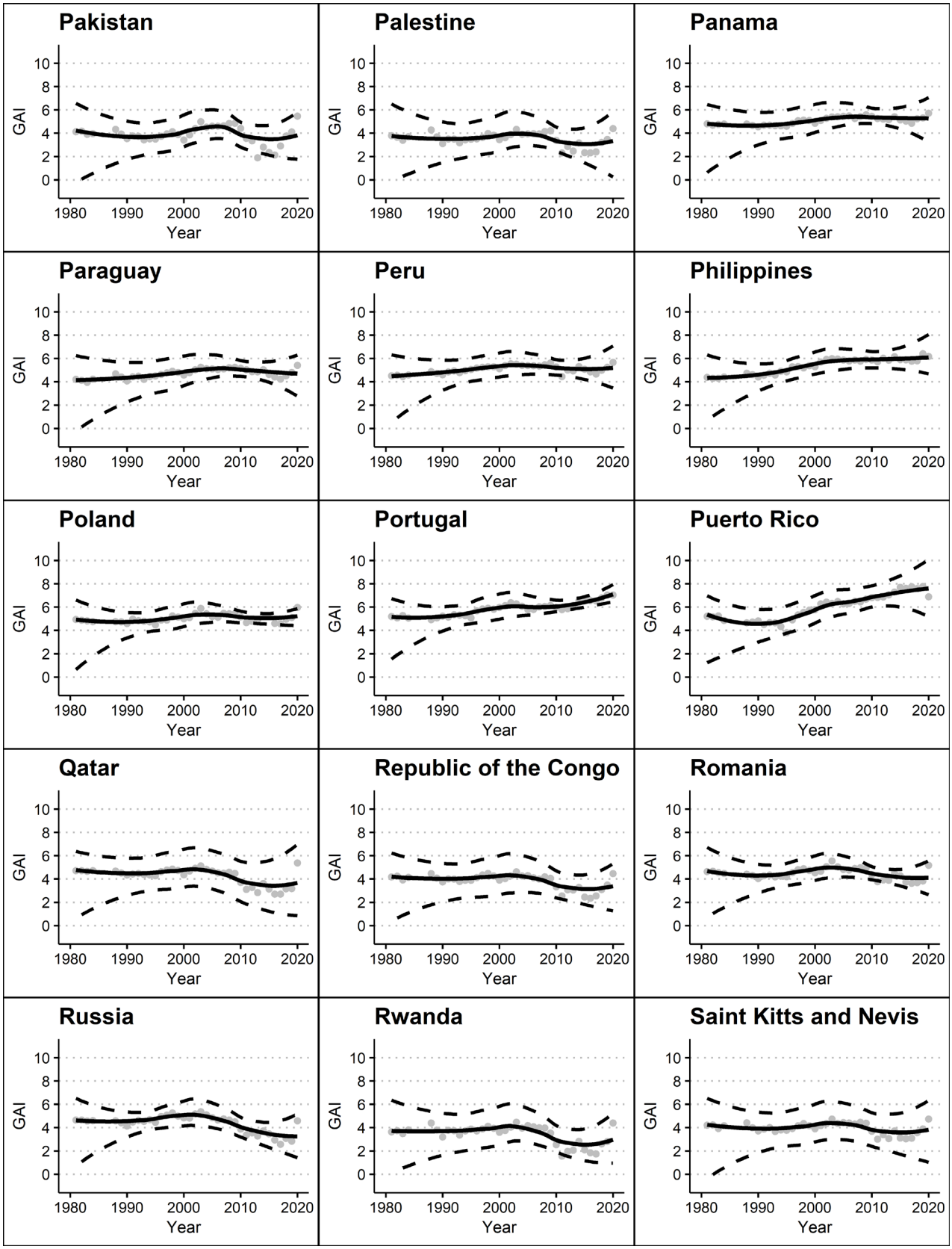

Djibouti
Dominica
Dominican Republic
Ecuador
Egypt
El Salvador
Estonia
Ethiopia
Finland
France
Gabon
Gambia
Georgia
Germany
Ghana
GAI
Year
0
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1980
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2010
2020

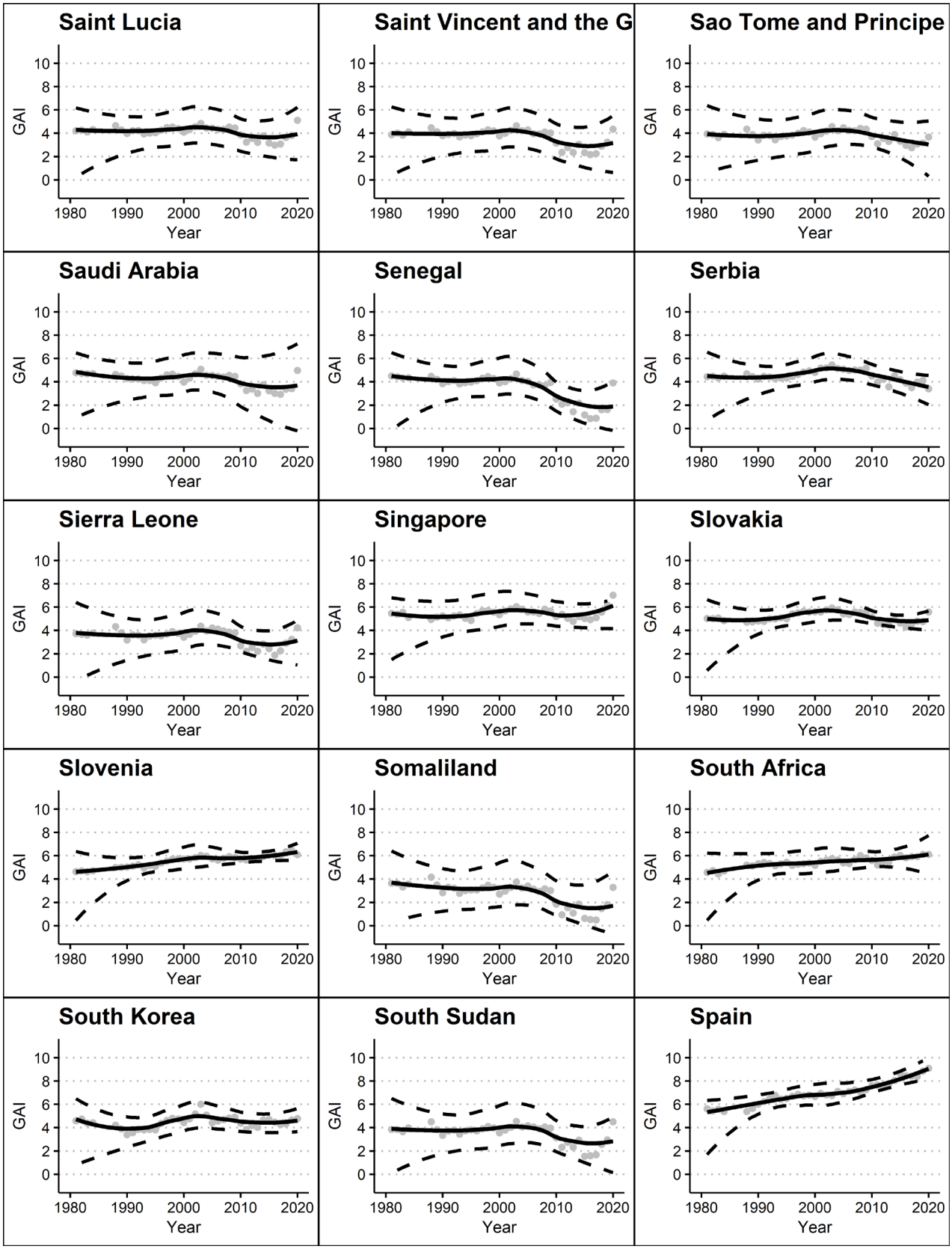

Great Britain
Greece
Grenada
Guatemala
Guinea
Guyana
Haiti
Honduras
Hong Kong
Hungary
Iceland
India
Indonesia
Iran
Iraq
GAI
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2010
2020

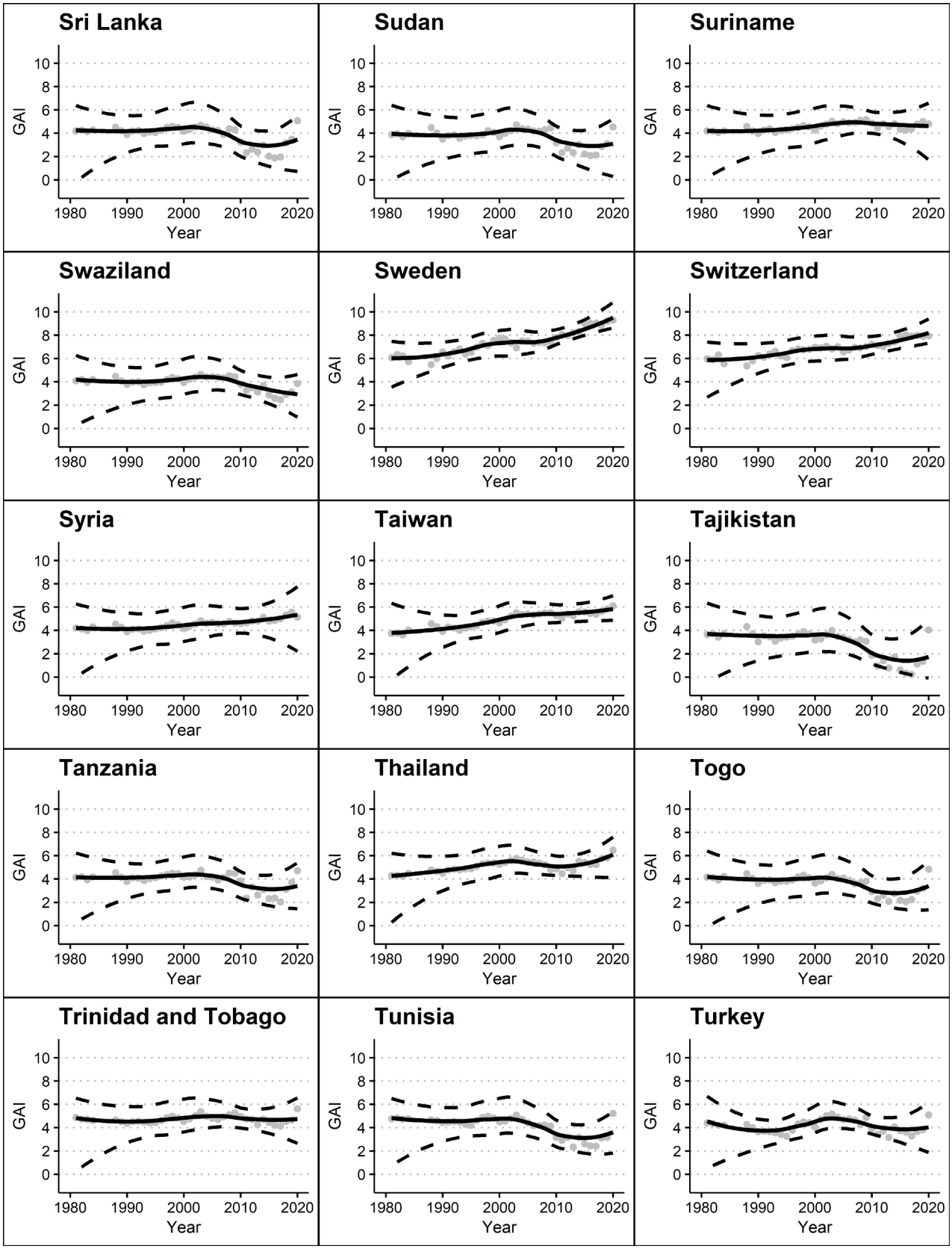

Ireland
Israel
Italy
Jamaica
Japan
Jordan
Kazakhstan
Kenya
Kosovo
Kuwait
Kyrgyzstan
Laos
Latvia
Lebanon
Lesotho
GAI
Year
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2010
2020

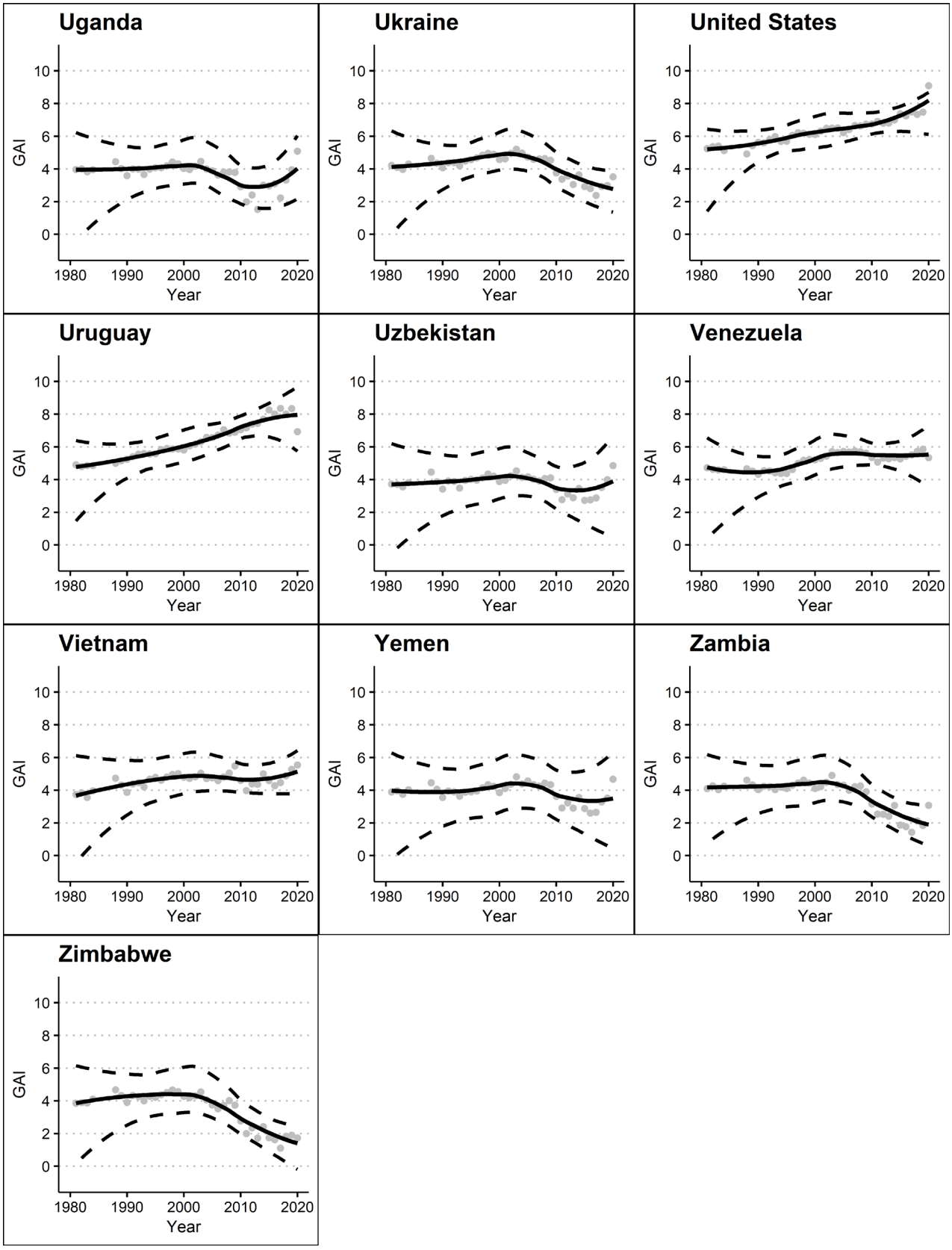

Liberia
Libya
Lithuania
Luxembourg
Macau SAR
Madagascar
Malawi
Malaysia
Mali
Malta
Mauritania
Mauritius
Mexico
Moldova
Mongolia
GAI
Year
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2010
2020


Montenegro
Morocco
Mozambique
Myanmar
Nagorno-Karabakh
Namibia
Nepal
Netherlands
New Zealand
Nicaragua
Niger
Nigeria
North Macedonia
Northern Cyprus
Norway
GAI
Year
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2010
2020


Pakistan
Palestine
Panama
Paraguay
Peru
Philippines
Poland
Portugal
Puerto Rico
Qatar
Republic of the Congo
Romania
Russia
Rwanda
Saint Kitts and Nevis
GAI
Year
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2010
2020


Saint Lucia
Saint Vincent and the G
Sao Tome and Principe
Saudi Arabia
Senegal
Serbia
Sierra Leone
Singapore
Slovakia
Slovenia
Somaliland
South Africa
South Korea
South Sudan
Spain
GAI
Year
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1980
1990
2000
2010
2020


Sri Lanka
Sudan
Suriname
Swaziland
Sweden
Switzerland
Syria
Taiwan
Tajikistan
Tanzania
Thailand
Togo
Trinidad and Tobago
Tunisia
Turkey
GAI
Year
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1980
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2010
2020


Uganda
Ukraine
United States
Uruguay
Uzbekistan
Venezuela
Vietnam
Yemen
Zambia
Zimbabwe
GAI
Year
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1980
1990
2000
2010
2020

APPENDIX 4. SIGNIFICANCE TEST OF TRENDS

To evaluate the significance of the difference between acceptance scores, differences from post-stratified posterior draws between 2020 and 2010 were conducted for each country. Then, the median and 80% credible interval are reported from these differences. An 80% interval is consistent with a one-tailed *p*-value of 0.10 and is a common interval when reporting from Bayesian models. The results show that there is greater confidence in the significance of positive changes in the top five countries than in determining whether the bottom five countries have significantly declined in support. The estimates indicate that declines are often not significant and that some of countries may have improved.

Table A.4. Difference from 2010 to 2020

COUNTRY	Δ	CI
Iceland	0.6	0.08, 1.06
Norway	1.08	0.72, 1.66
The Netherlands	0.64	0.28, 1.18
Sweden	0.77	0.45, 1.12
Canada	0.87	0.45, 1.43
Moldova	-0.63	-1.02, -0.18
Ethiopia	0.28	-0.20, 0.80
Mauritania	0.18	-0.65, 1.30
Azerbaijan	1.03	0.15, 2.32
Zimbabwe	-0.55	-1.0, -0.14