



Digital Media Usage, Social Trust, and Ideological Extremity in Latin America:

An Analysis with World Values Survey Wave 7

by

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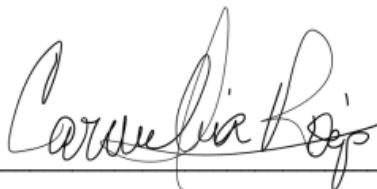
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Dedication

To my mother, who has always supported my dreams, instilled
in me the will to persevere no matter the difficulty,
to have the mindset that the impossible can be possible, if I try.
To my grandmother, whose values shaped me and continue to inspire
the choices that led to this research.
And to all of those who believe in the power of dialogue
and are committed to building a more connected, compassionate world.

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Abstract

This master's thesis explores the relationship between digital media usage, ideological extremity, and social trust within the Latin American region. Grounded in concerns about the societal trust degradation and the influence that digital media has had on democratic engagement and social cohesion globally. The research seeks to answer the following questions: How is digital media usage associated with individual's levels of social trust and ideological self-placement? Does political extremity intensify the relationship between digital media use and trust? And how do these patterns vary across age groups and national contexts? To address these questions, the study adopts a data-driven approach, drawing on cross-national survey data from Wave 7 of the World Values Survey, which includes responses from 13 Latin American countries.

Methodologically, the analysis constructs standardized indices for core variables and applies ordinary least squares (OLS) regression models to assess direct and interaction effects.

Specifically, the study tests whether digital media usage is associated with lower social trust and higher ideological extremity, and whether these effects vary depending on individual characteristics such as age or national context. Preliminary findings suggest a consistent negative relationship between frequent digital media usage and social trust. Its insights are expected to inform future research, policy development, and dialogue initiatives and design efforts aimed at mitigating polarization and fostering social cohesion in digitally connected societies.

Keywords: *Digital media, Social trust, Ideological extremity, Latin America, Polarization, World Values Survey, Social cohesion*

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1. Introduction

Over the last two decades, digital media have rapidly transformed political communication, social interaction, and even identity formation in societies. When the news in one's social feed repeatedly echoes existing beliefs, does it lead to greater trust in others, or not? In addition, does frequent exposure like-minded perspectives on digital platforms push individuals toward more extreme ideological positions or does it help moderate their views?

While platforms such as Facebook, Twitter, and TikTok promised to connect citizens and democratize information flows, mounting evidence suggests they may also degrade generalized social trust defined as the belief in the goodwill of others, and foster more extreme ideological attitudes. A large-scale systematic review finds that digital media use is frequently associated with declining political trust and rising polarization, even if effects vary by context and variable in question (Lorenz-Spreen, Oswald, Lewandowsky, & Hertwig, 2022; Törnberg, 2022).

These are times where digital media serves as a primary channel for both information dissemination and social interaction, which add relevance to understand how *digital media usage* defined as the frequency of use in any online platform that distributes news, opinions, and social content, shapes perceptions of *social trust* defined as one's general confidence in others and *ideological extremity* (i.e., the extent to which individuals place themselves at the extremes of the left–right spectrum).

Understanding these dynamics is critical not only for academic knowledge but also for designing societal interventions that aim to mitigate adverse effects and enable a more cohesive society. Existing research suggests that the consumption of digital media content tends to create environments that reinforce pre-existing beliefs, which may lead to greater ideological extremity and reduced opportunities for cross-cutting exposure to diverse viewpoints (Park, 2024; Levy, 2021).

The scope of this introduction is to frame the empirical puzzle linking digital media usage to social trust and ideological extremity, on to explain why this relationship is critical for understanding democratic quality and societal well-being. Moderating factors such as life-course stage (e.g., age) and national media environments (e.g., country) are central to grasp the complexity of these societal elements. Empirical evidence from global contexts, including China and Europe, indicates that digital media can intensify polarization by fostering homogeneous online communities and driving selective exposure (Guo & Hu, 2023; Falkenberg et al., 2022).

Digital media's impact extends beyond polarization and ideological extremity; it also significantly influence public trust, decision-making processes, and social engagement, factors that are essential to social cohesion. Therefore, understanding whether and under what conditions digital media usage undermines social trust represents an important dimension to explore.

Other recent studies indicate declining trust in traditional and digital media, potentially exacerbated by misinformation and disinformation campaigns (Shirikov, 2020; Salaverría et al., 2024). In Latin America, where institutional trust and interpersonal trust have historically been low, digital platforms may either amplify existing mistrust through the dissemination of false

information or conversely, provide opportunities to rebuild social trust by fostering transparency and accountability (Lupu et al., 2020; Mitchelstein et al., 2020). Furthermore, the region's diverse political landscape and rapid digital adoption make Latin America a particularly relevant case for examining how digital media usage relates to trust and polarization.

Nevertheless, global concerns about the impact of digital media on democratic processes are growing, with scholars highlighting risks related to echo chambers, filter bubbles, and affective polarization (Lorenz-Spreen et al., 2022; Chan & Yi, 2024). Affective polarization refers to the extent to which partisans not only disagree on issues but also express increasingly negative emotions toward members of opposing political groups, while exhibiting stronger positive emotions toward their own group. It is commonly measured by the gap between warmth felt for the in-group and coldness felt for the out-group using feeling thermometer scales (Bauer, 2019; Törnberg, 2022). Clarifying this concept is essential for understanding the structure of this research and its conceptual model, which will be elaborated in the following sections on the theoretical framework and literature review.

Despite significant academic attention, empirical analyses focused on Latin American contexts remain limited. Previous studies highlight the underrepresentation of Global South contexts in studies examining the interplay between media, democracy, and social trust (Lorenz-Spreen et al., 2022). This research gap is substantial, as understanding region-specific interactions between digital media use, ideological extremism, and social trust is crucial for informed policymaking and societal interventions aimed at enhancing democratic resilience and social cohesion (Fenoll et al., 2024; Salaverría et al., 2024), which is one of the main elements this study brings by focusing on and showcasing regional trends across the Latin American region.

The societal implications of digital media-induced polarization and the erosion of trust are profound, influencing democratic governance, civic participation, and broader societal cohesion (Allison et al., 2021; Bodrunova et al., 2019). These effects are not only limited to institutional systems; they also extend to the individual level, shaping how people interact, form relationships, and engage in collective efforts to build a more equitable and sustainable future. For instance, rising polarization and declining trust can reduce democratic engagement and increase social tensions, potentially escalating into conflict or contributing to societal fragmentation which delay decisions to be across all systems (Kaun, 2021; Von Nostitz et al., 2024).

This fragmentation is real and multidimensional. In essence, this study seeks to contribute to a better understanding of this societal phenomenon, which is complex and shaped by multiple interrelated factors. While this research does not address every dimension of the issue, it provides a foundation for future studies to build upon.

The following chapters present the theoretical framework that provides the basis for this study, a review of prior research on digital media, trust and polarization, the methodological approach and measurement strategies employed, key results and findings, and finally, recommendations for future research based on this study limitations.

2. Theoretical Framework

2.1 Overview and Conceptual Model

This study investigates two central empirical puzzles. First, we ask whether greater engagement with digital media, measured via frequency of use, is associated with **(a)** lower levels of generalized social trust and **(b)** higher levels of ideological extremity as captured by self-ideological identification between left and right scale extracted from the *Q240* question of the World Values Survey. Second, we check whether these associations are moderated by **(1)** age cohort, drawing on the Differential Susceptibility to Media Effects Model which highlights developmental differences in responsiveness to media (Valkenburg & Peter, 2013), and **(2)** national context, recognizing that cross-national comparability of value orientations may hinge on WVS measurement invariance and country-specific media environments (Alemán & Woods, 2016; Haerpfer et al., 2024). We control for demographic covariates such as age and country-level context to assess both average effects and subgroup differences to gain a better understanding of these dynamics and their effect.

With cross-national data through the World Values Survey Wave 7 (Haerpfer et al., 2024), this thesis is intended to address three fundamental research questions:

(RQ1) How is digital media usage related to social trust? **(RQ2)** Is frequent digital media usage linked to increased ideological extremism? And **(RQ3)** Do these relationships differ significantly across demographic groups defined by age or country?

The figure below represents the conceptual model of this study and the baseline for the subsequent steps taken along the research journey, such as the methods selected and key findings.

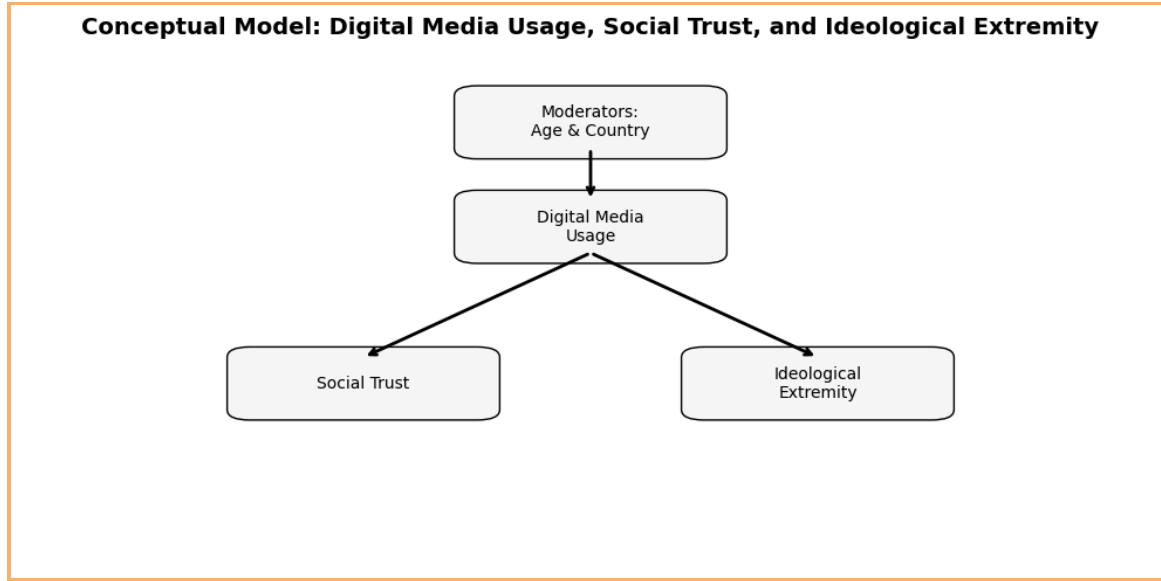


Figure 1. Illustrates the conceptual model for this study, linking digital media usage with social trust (RQ1) and ideological extremity (RQ2) and showing the potential moderating influences of age and country (RQ3).

2.2 Definitions and Key Constructs

To ground the analysis and clarify the variables under study, three core constructs are build and defined:

Digital Media Usage refers to the frequency with which individuals consume digital content, operationalized through an index combining responses on general Internet usage (Q206) and social media engagement (Q207). This construct captures habitual exposure to online platforms, including both news consumption and social interaction (Lorenz-Spreen et al., 2022; Kaun, 2021).

Social Trust is conceptualized as a multidimensional construct comprising generalized, bonding, and bridging trust. Generalized trust refers to the belief that most people can be trusted (Q57), while bonding trust reflects confidence in close ties such as family, neighbors, and personally known individuals (Q58–Q60). Bridging trust, by contrast, captures attitudes toward individuals outside one's immediate social circle—such as strangers, people of other religions, or other nationalities (Q61–Q63). This is measured using an index averaging responses to six items (Q57–Q63) that assess trust in family, neighbors, acquaintances, and various social groups (Shirikov, 2020; Haerpfer et al., 2024). This index captures respondents' overall orientation toward interpersonal trust while acknowledging its underlying subdimensions.

Ideological Extremity is derived from respondents' self-placement on a 1–10 left–right political scale (Q240). Scores of 1–3 (left) and 8–10 (right) are considered ideologically extreme, while scores 4–7 are categorized as moderate. This variable is used both as a continuous index and a binary classification to capture the degree and direction of ideological positioning (Chan & Yi, 2024; Bodrunova et al., 2019).

This research analyzes responses from approximately 15,000 adults across 13 Latin American countries, surveyed between 2017 and 2022, to empirically examine these constructs and their interrelations. The indices used for social trust and digital media were rescaled for interpretability, with higher values consistently indicating higher trust or more frequent media usage.

For reference, additional concepts, such as *affective polarization*, referring to strong emotional bias against ideological out-groups, and *algorithmic exposure*, describing the curated

nature of digital content delivery, are discussed within the theoretical framework chapter right below to contextualize the mechanisms linking media, trust, and political ideology.

2.3 Core Theoretical Foundations

2.3.1 Social Capital Theory

Social trust, or generalized interpersonal trust, is widely recognized as a key component of social capital (Putnam, 2000, 2002; Schmitt-Beck, 2008; Whiteley, 2000). It has been linked to positive outcomes across economic growth (Neira, Portela & Vieira, 2010; Whiteley, 2000), governance and institutional performance (Uslaner, 2002; Zmerli & Newton, 2008), public health (Rostila, 2007), crime reduction (Akcomak & ter Weel, 2011), and subjective well-being (Inglehart, 1999). Putnam's (2000) Social Capital Theory emphasizes that interpersonal and institutional trust are foundational to cooperative civic life.

Digital technologies can influence this dynamic in ambivalent ways. On one hand, they offer tools for expanding social networks and bridging geographical divides, potentially enhancing social capital. On the other hand, they may negatively affect interpersonal trust by facilitating the spread of misinformation and reducing meaningful social interaction (Mak, Li, & Rojas, 2024).

Shirikov (2020), drawing on World Values Survey data, documents notable declines in generalized social trust across Latin American countries, a pattern possibly exacerbated by unchecked digital rumors and disinformation. This tension positions digital media as both a facilitator and a threat to social capital, adding points in favor of the need for closer empirical scrutiny of its relationship with trust.

2.3.2 Echo Chamber Theory

Digital media has transformed the political communication landscape, fostering both greater access to information and increased ideological segregation. Lorenz-Spreen et al. (2022) provide a systematic review of global evidence on how digital media affects democratic processes. Their findings suggest that while digital platforms can democratize access to information, they often contribute to polarization by reinforcing preexisting beliefs, especially through algorithmic curation and echo chambers.

Törnberg (2022) explains how affective polarization is exacerbated through digital media by promoting partisan sorting, leading individuals to experience stronger emotional reactions toward opposing groups. Similarly, Levy (2021), through a field experiment, finds that exposure to partisan news on social media can intensify polarized attitudes, particularly in fragmented media ecosystems.

Echo Chamber Theory argues that algorithmic filtering and selective exposure lead users to inhabit digital “bubbles” of like-minded content, reinforcing preexisting beliefs and intensifying ideological extremity (Törnberg, 2022; Fenoll et al., 2024). Empirical studies gather how these dynamics operate in Latin American contexts, where debates over corruption and security often polarize online communities, thereby reducing cross-cutting discourse and amplifying affective divisions.

2.3.3 Differential Susceptibility to Media Effects Model (DSMM)

Developed by Valkenburg and Peter (2013), provides a valuable theoretical lens for understanding how media impacts vary across individuals and contexts. According to this

framework, media effects are not uniform but are instead shaped by dispositional, developmental, and social-contextual variables. These include personal characteristics such as age, education, and personality traits, as well as environmental factors like cultural norms and media systems.

In the context of this study, age plays a particularly central role. Younger users, often referred to as “digital natives”—tend to be more immersed in digital media environments and may be more vulnerable to its influence, particularly regarding ideological positioning and perceptions of trust. On the other side, older cohorts might engage with digital content differently, potentially exhibiting greater resistance to polarization or reduced media saturation effects.

DSMM thus supports the hypothesis that the relationship between digital media usage and both social trust and ideological extremity is moderated by age. Validating the need to consider developmental and contextual variability when interpreting media influence across Latin American countries.

2.3.4 Network Media Logic

Van Dijck and Poell (2013) describe a distinct shift from traditional media logic to what they term “network media logic,” which is characterized by programmability, algorithmic visibility, popularity-driven content amplification, and real-time dissemination. This new logic privileges sensational and emotionally charged content, favoring material that maximizes user engagement over factual accuracy or balanced debate.

These dynamics have profound implications for democratic discourse. For instance, Falkenberg et al. (2022) demonstrate how network media logic contributes to the growing

polarization of climate change debates on social platforms. Similarly, Törnberg (2022) highlights how politically charged news thrives in environments optimized for visibility and virality, further reinforcing ideological segregation.

In the Latin American context, these mechanisms may be particularly salient due to the region's fragmented media systems and highly polarized political landscapes. Von Nostitz et al. (2024), using agent-based simulations, find that the promise of global connectivity often leads to clustering into antagonistic partisan groups, even without classic algorithmic filtering. This clustering effect intensifies affective polarization, diminishing opportunities for shared understanding and civic cohesion.

Taken together, network media logic illustrates how structural features of digital platforms interact with social dynamics to amplify ideological extremity and erode trust both central themes explored in this study.

3. Literature Review

Recent studies utilizing the World Values Survey (WVS) have provided critical insights into global and regional differences in social attitudes and behaviors. Alemán and Woods (2016), analyzed the comparability of value orientations cross-nationally within WVS data, confirming its suitability for examining nuanced social dynamics, such as trust and polarization, across diverse contexts. Additionally, Allison, Wang, and Kaminsky (2021) employed data science techniques on WVS data to reveal significant correlations between religiosity, skepticism, fairness perceptions, and societal tranquility, underscoring the intricate relationships between values, beliefs, and social harmony.

Bauer (2019) provides a foundational conceptualization and review of polarization, emphasizing the multidimensional nature of ideological extremity and the need for precise operational definitions. Similarly, Bodrunova et al. (2019) demonstrate through analyses of Twitter discussions on inter-ethnic conflicts that polarization extends beyond traditional left-right divisions, manifesting in real-world, issue-specific contexts.

In exploring social media's role in fostering polarization, Chan and Yi (2024) illustrate that affective and issue polarization significantly influence political engagement, particularly in developed democracies. Levy (2021), through experimental evidence, confirms that social media consumption patterns can profoundly shape polarization outcomes, amplifying existing divisions by fostering selective exposure and homogeneity within online communities.

Fenoll, Gonçalves, and Bene (2024) expand these findings within the Latin American context, highlighting how social media interactions around divisive issues significantly amplify

polarization, particularly during electoral campaigns. Similarly, Falkenberg et al. (2022) illustrate that social media platforms significantly exacerbate polarization around climate change debates, driven by network media logic that favors emotionally charged content.

Lupu, Bustamante, and Zechmeister (2020) specifically address how social media can contribute to declining public trust in Latin America, where misinformation significantly shapes public perception and amplifies skepticism toward political institutions. Moreover, studies like Mak, Li, and Rojas (2024) underscore the critical role that perceived platform affordances and uncivil political discourse play in intensifying perceptions of polarization.

Research on digital disconnection also offers valuable insights, with Kaun (2021) arguing for critical perspectives on digital culture, highlighting potential social benefits from moderated digital engagement. Complementing the work of Mitchelstein, Matassi, and Boczkowski (2020), who find minimal direct democratic impacts from social media use but substantial indirect effects through panic and misinformation in Latin America.

Finally, Shirikov's (2020) work identifies a notable decline in trust in media across multiple countries, suggesting widespread implications for civic trust and democratic stability. Together, these studies illuminate the complex interplay between digital media usage, social trust, and ideological extremity, highlighting critical gaps that this thesis seeks to address by providing comprehensive, cross-national empirical insights into these dynamics in Latin America.

The Latin American media landscape is characterized by partisan fragmentation and rising misinformation. Studies by Lupu et al. (2020), Mitchelstein et al. (2020), and once again, Fenoll et al. (2024) highlight how digital platforms fuel political mistrust and polarization during election cycles.

3.1 Gaps and Research Contribution

Although prior research focus on many facets of media-driven polarization and trust dynamics, few studies have simultaneously examined both outcomes, social trust and ideological self-placement, in a large, cross-national Latin American sample. Moreover, the interaction between media usage and trust remains underexplored. By applying consistent index measures and four complementary regression models to WVS Wave 7 data, this thesis fills these gaps and offers new insights into how digital media shapes civic attitudes in Latin America such as social trust.

The literature reveals a complex and dynamic relationship among digital media usage, ideological self-placement, and social trust. While digital platforms facilitate connectivity and pluralism, they also pose risks that potentially undermine social cohesion. The main objective of this thesis is to enrich the existing body of knowledge by examining how digital media habits correlate with political ideology and social trust in Latin America.

While prior studies have significantly advanced our understanding of media-driven polarization and trust dynamics, notable gaps remain, particularly in comparative Latin American contexts. Existing research often examines these concepts independently, focusing separately on social trust (Shirikov, 2020; Mak et al., 2024) or ideological polarization (Fenoll et al., 2024; Chan & Yi, 2024), without systematically addressing their interconnectedness. Moreover, most investigations have centered on single-country analyses or narrow case studies, limiting broader regional insights (Mitchelstein et al., 2020; Lupu et al., 2020). This study contributes uniquely by examining social trust and ideological extremity within a comprehensive

cross-national framework encompassing 13 Latin American countries. This research provides nuanced insights into the complex interplay between digital media usage, trust, and ideological self-placement across diverse socio-demographic groups by employing consistent measurement indices and applying robust statistical modeling to World Values Survey Wave 7 data (Haerpfer et al., 2024).

Although prior research has linked digital media to either social trust or ideological extremity, few studies examine both outcomes jointly in Latin America. This study addresses this gap by analyzing cross-national data from 13 countries, applying normalized index construction and OLS regression models to examine the effects of digital media usage across diverse socio-demographic groups. This dual focus contributes to our understanding of how digital technologies shape civic life and ideological identity in emerging democracies, more details to come in the next chapter.

4. Data & Methods

4.1 Data Source and Sample

The original dataset used in this study was obtained from the World Values Survey (WVS) Wave 7, a cross-national public-opinion survey conducted by the World Values Survey Association (Haerpfer et al., 2024). It contained a total of **97,220** observations collected between 2017 and 2022.

The dataset was accessed in CSV format and imported into Python for preprocessing and analysis. To align with the research focus on Latin America, the sample was filtered to include only respondents from the 13 selected Latin American countries: *Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guatemala, Mexico, Nicaragua, Peru, Puerto Rico, Uruguay, and Venezuela* (Table 1). After applying this country filter and selecting variables relevant to the research questions, the analytic sample was reduced to **17,439** observations.

Additional data cleaning steps, including the systematic replacement of original missing value codes (-1, -2, -3, -5) with NaN values, were performed to prepare the dataset for analysis. These cleaning procedures, detailed in the following sections, ensured proper handling of missing data without excluding additional observations beyond the initial filtering process. As a result, the final analytic sample size remained consistent at **17,439** observations. However, the number of valid observations vary slightly across specific analyses depending on the distribution of missing values for each variable, as detailed below.

Cases with missing data were handled using pairwise deletion for correlation analyses and listwise deletion for regression analyses, as detailed in the corresponding sections. A subset of variables was carefully selected based on theoretical relevance, literature review, and the structure of the original questionnaire. These included general identifiers (study, year, country), interpersonal trust questions (Q57P–Q63P), digital media usage (Q206P and Q207P), political self-placement (Q240), and basic demographic information (gender, age, and migration background: Q260, Q262, Q263).

Variables related to institutional trust (e.g., Q66P, Q67P, Q69P, Q71P, Q72P, Q75P, Q78P) were identified initially as potential candidates for expansion of the social trust index. Still, they were not included due to the scope decision to focus and define social trust within interpersonal social trust variables only, excluding institutional trust variables.

Table 1. List of selected Latin American countries for this study by country code, original identifier in survey data, and name.

Country Code	Country Name	Country Code	Country Name	Country Code	Country Name
1. ARG	<i>Argentina</i>	6. ECU	Ecuador	11. PRI	<i>Puerto Rico</i>
2. BOL	<i>Bolivia</i>	7. GTM	<i>Guatemala</i>	12. URY	<i>Uruguay</i>
3. BRA	<i>Brazil</i>	8. MEX	<i>Mexico</i>	13. VEN	<i>Venezuela</i>
4. CHL	<i>Chile</i>	9. NIC	<i>Nicaragua</i>		
5. COL	<i>Colombia</i>	10. PER	<i>Peru</i>		

4.2 Variables Selection

The variables included in the analysis were selected based on theoretical relevance to the research questions, covering topics such as social trust, digital media consumption, political orientation, and sociodemographic characteristics. Table 2 provides an overview of the selected variables, including their original survey codes, new names assigned for clarity, brief descriptions, and their assignment to analytical indices.

Political extremity was captured using the original self-placement variable (*Q240_placement_left_right*), measured on a continuous 1–10 scale, and the political extremity score (*political_orientation*) was computed by taking the absolute distance between the respondent's original left-right self-placement (*Q240_placement_left_right*) and the theoretical center (5.5) of the scale.

To allow for more detailed analysis, two other derived variables were constructed based on the Q240 question: a binary indicator of political extremity (*Q240_extremity*) and a categorical indicator of political direction (*Q240_direction*). Respondents were classified as **extreme** (*Q240_extremity* = 1) if their political placement was between 1 and 3 (extreme left) or between 8 and 10 (extreme right), and as **moderate** (*Q240_extremity* = 0) if their placement fell between 4 and 7. The second derived variable (*Q240_direction*) categorized respondents into **left** (scores 1–4), **center** (score 5), and **right** (scores 6–10) political orientations. These variables were used

interchangeably in the analysis, depending on the research focus, but were not combined into a formal index.

Table 2. *Overview of the selected variables, their original survey codes, the new variable names used, a brief description, and their assignment to thematic indexes. A full list of the original survey questions and their corresponding response scales is provided in [Table B1](#).*

Original Code	New Code	Description	Index
A_STUDY	a_study	Study identifier	—
S025	s025	Study region	—
A_YEAR	a_year	Year of survey	—
B_COUNTRY_ALPHA	country	Country (alpha code)	Control variable
Q260	Q260_gender	Gender of respondent	—
Q262	Q262_age	Age of respondent	Control variable
Q263	Q263_native_Inmigrant	Migration background (native/immigrant)	Sociodemographic Controls

Q57P	Q57_trust_people	Trust in people in general	Social Trust Index
Q58P	Q58_trust_family	Trust in family members	Social Trust Index
Q59P	Q59_trust_neighborhood	Trust in people in the neighborhood	Social Trust Index
Q60P	Q60_trust_friends	Trust in friends	Social Trust Index
Q61P	Q61_trust_new_people	Trust in new acquaintances	Social Trust Index
Q62P	Q62_trust_people_another_religion	Trust in people from another religion	Social Trust Index
Q63P	Q63_trust_foreigners	Trust in foreigners	Social Trust Index
Q206P	Q206_consume_internet	Frequency of internet use	Digital Media Usage Index
Q207P	Q207_consume_socialmedia	Frequency of social media use	Digital Media Usage Index

Q240	Q240_placement_left_right	Political self-placement on the left-right scale	Ideological Extremity Orientation Variable
(Derived)	Q240_extremity	Binary indicator: 1 = extreme (1–2 or 8–10), 0 = moderate (3–7)	Ideological Extremity Orientation Variable
(Derived)	Q240_direction	Categorical indicator: left (1–3), center(4-7), right (8–10)	Ideological Extremity Orientation Variable

To improve interpretability and ensure consistency across variables, the items included in the Social Trust Index and the Digital Media Usage Index were rescaled. All selected variables were transformed so that higher values consistently indicate higher levels of trust or higher frequency of digital media use. For example, in the original survey, the item *Q58P* (“*How much do you trust your family?*”) was coded as 1 = “Trust completely” and 4 = “Do not trust at all.” This item was recoded so that higher values reflected greater trust, reversing the original scale. Similarly, for digital media use, *Q206P* (“*How often do you use the internet?*”) originally coded 1 = “Daily” and 5 = “Never”; it was recoded to ensure that higher values indicated more frequent internet usage.

4.3 Missing-Value Treatment

To assess whether missing data patterns were associated with respondents' countries, we conducted a series of *chi-squared tests of Independence* for each key variable. The Chi-Square Test evaluates whether there is a statistically significant relationship between two categorical variables—in this case, the presence or absence of missing values and the country of the respondent. Mathematically, the test compares the observed frequency distribution of missing data across countries to the expected distribution under the assumption of independence.

The test statistic is calculated where O represents the observed frequencies and E the expected frequencies if missing values were independent of the country. A small p-value (typically $p < 0.05$) leads to the rejection of the null hypothesis of independence.

Our results indicate that for most variables, missingness is *not randomly distributed* across countries ($p < 0.001$), suggesting potential systematic patterns of missingness that must be accounted for in further analyses. Only for the variable *Q262_age* was the missingness found to be approximately random ($p = 0.136$).

The political self-placement variable (*Q240_placement_left_right*) exhibited a notable number of missing values (Figure 2), primarily due to respondents declining to position themselves on the ideological scale. Cases with missing data on Q240 were excluded from analyses involving political orientation. This approach preserved analytic consistency while slightly reducing the number of observations for the OLS models.

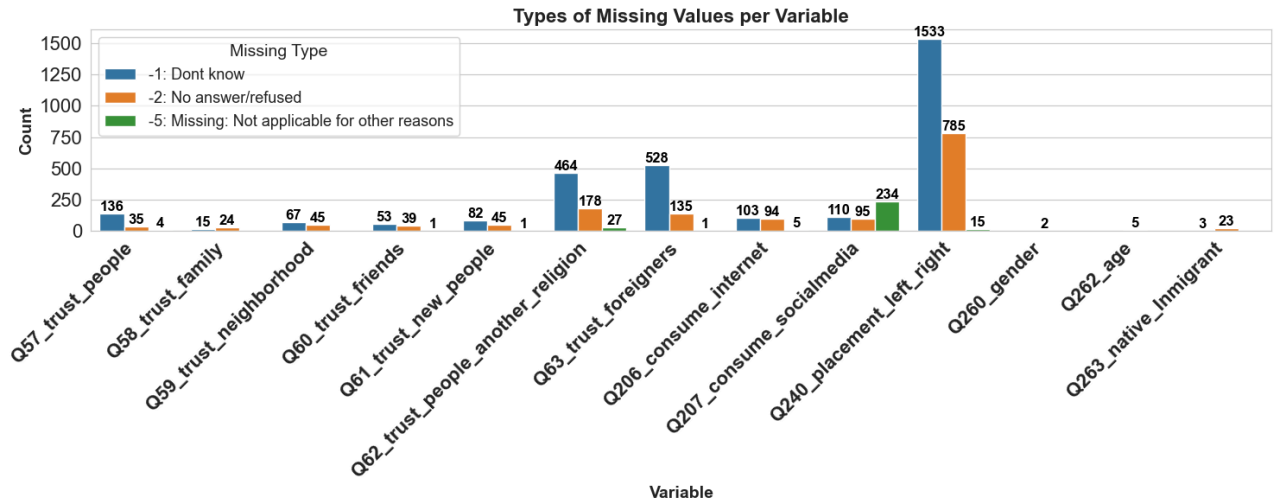


Figure 2a. Distribution of missing values across variables. The figure shows the absolute count of missing entries per variable, categorized by missingness type (-1: Don't know, -2: No answer/refused, -3: Not applicable, -5: Missing for other reasons). Variables with higher rates of missingness were carefully reviewed for treatment decisions to ensure data quality.

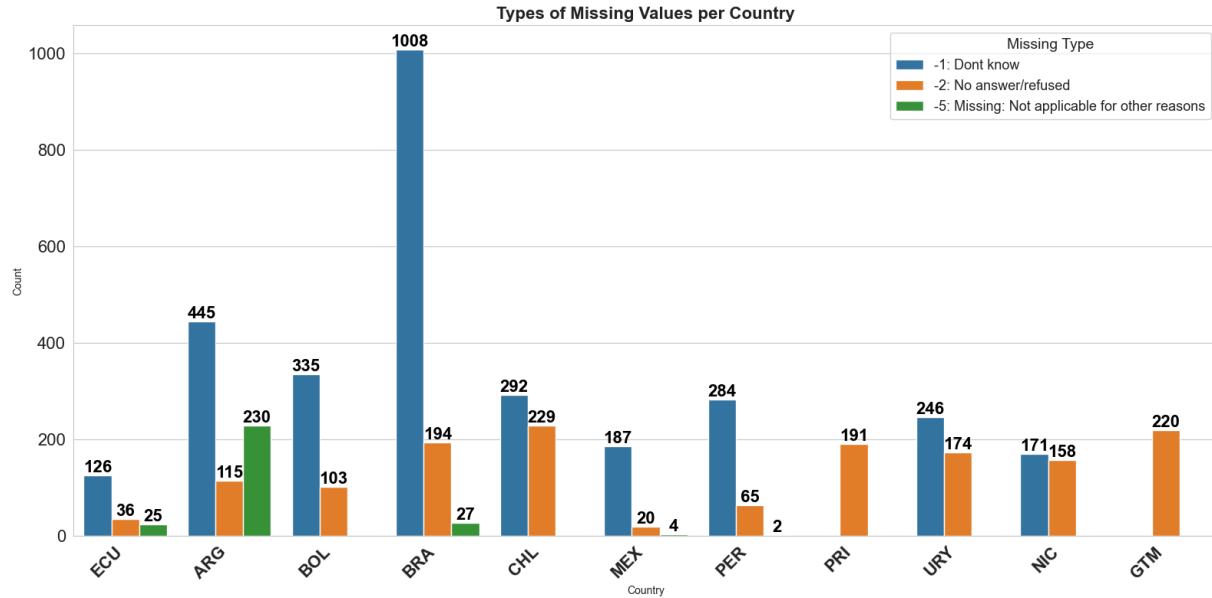


Figure 2b. Distribution of missing values across countries. The figure displays the total number of missing type entries aggregated by country and distinguished by missingness type. Differences between countries were assessed to determine whether missingness was randomly distributed or systematically patterned.

To prepare the dataset for analysis, two versions were created: *df_raw* and *df_clean*. The *df_raw* version retained the original missing value codes (-1: Don't know, -2: No answer/refused, -3: Not applicable, and -5: Missing for other reasons) to allow for detailed missingness diagnostics. In the *df_clean* version, these codes were systematically replaced with NaN values, following best practices for missing data management in statistical analysis. This approach enabled the use of built-in analytical functions that correctly account for missingness without unnecessarily excluding entire cases.

Analyses were conducted using all available data after this cleaning process. For correlation matrices, pairwise deletion was applied, whereby each correlation was computed based on the maximum number of available observations for the respective variable pair. For regression analyses, listwise deletion was used, and cases with missing values in any of the included variables were excluded, resulting into a total of **15,000** observations.

4.4 Subgroup and Descriptive Analysis

Before conducting inferential analyses, descriptive statistics were computed to provide an overview of the distribution, central tendencies, and variability of the key variables included in the study. These analyses aimed to assess the general characteristics of the sample and identify any potential anomalies or patterns. Histograms and density plots were generated to visually inspect the distributions, which exhibit reasonable variability that makes subsequent analysis valid. Minor skewness and outliers were noted for some variables, but were retained to preserve the integrity of the original data distributions.

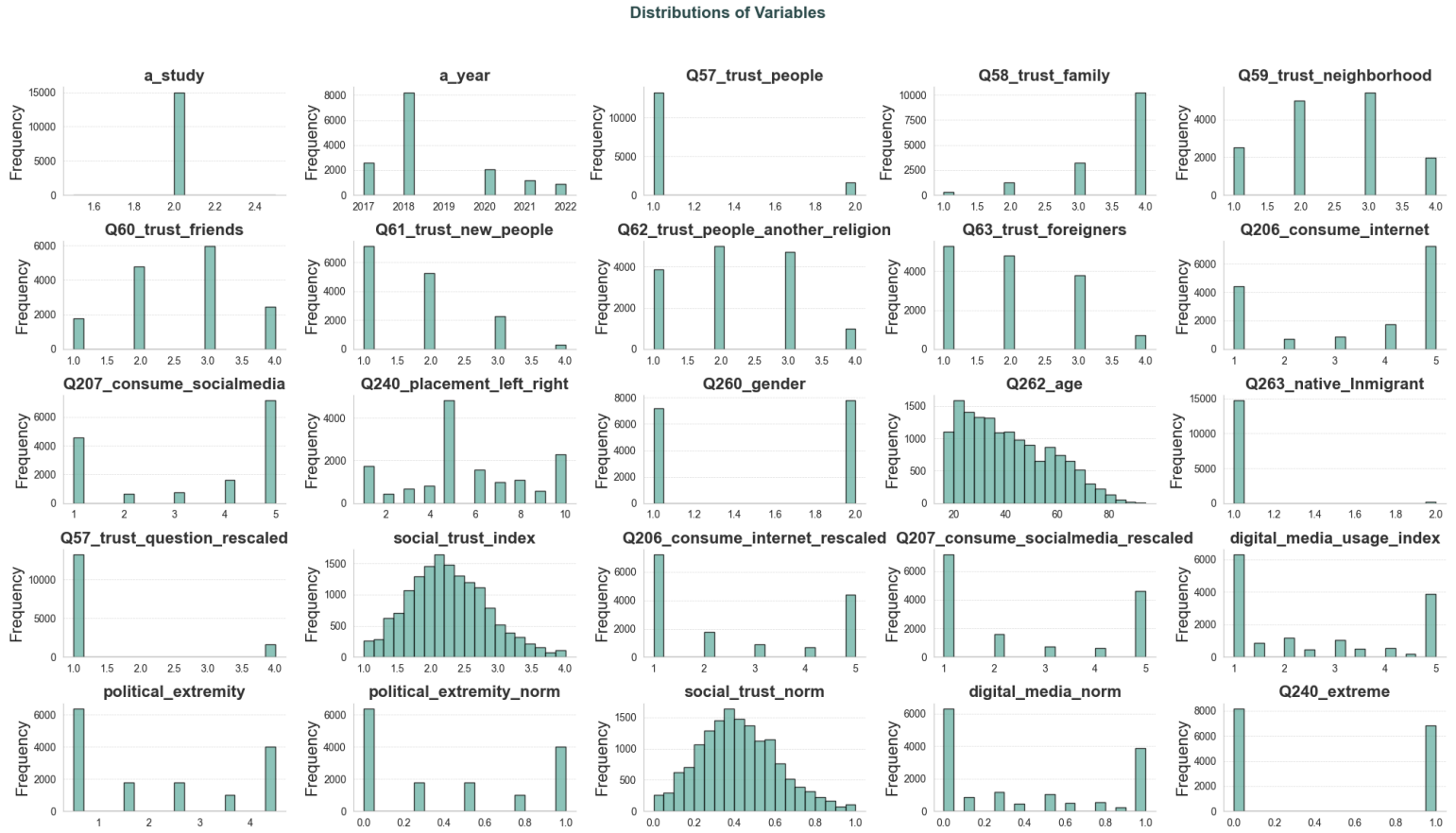


Figure 3. Presents the density and frequency distributions for the main survey items related to social trust (*Q57P–Q63P*), digital media usage (*Q206P–Q207P*), political self-placement (*Q240_placement_left_right*), and sociodemographic characteristics (*Q260_gender*, *Q262_age*, *Q263_native_Inmigrant*).

Descriptive statistics were computed to provide an overview of the sample's demographic structure and distribution across countries. Figure 4.a. and 4.b present the distribution of respondents across the 13 selected countries and age groups, respectively.

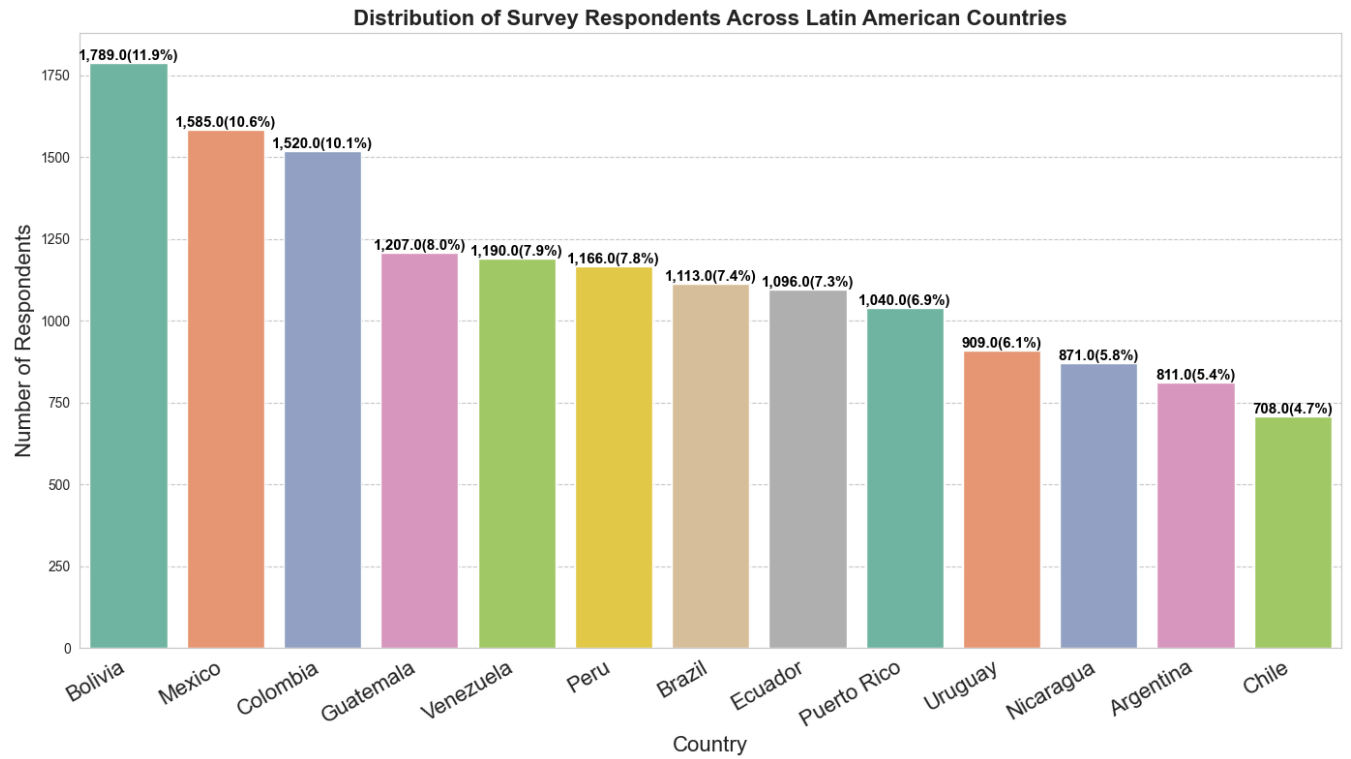


Figure 4a. *Distribution of survey respondents across countries. The number and proportion of respondents from the 13 selected Latin American countries included in the analyzed sample ($N = 15,005$).*

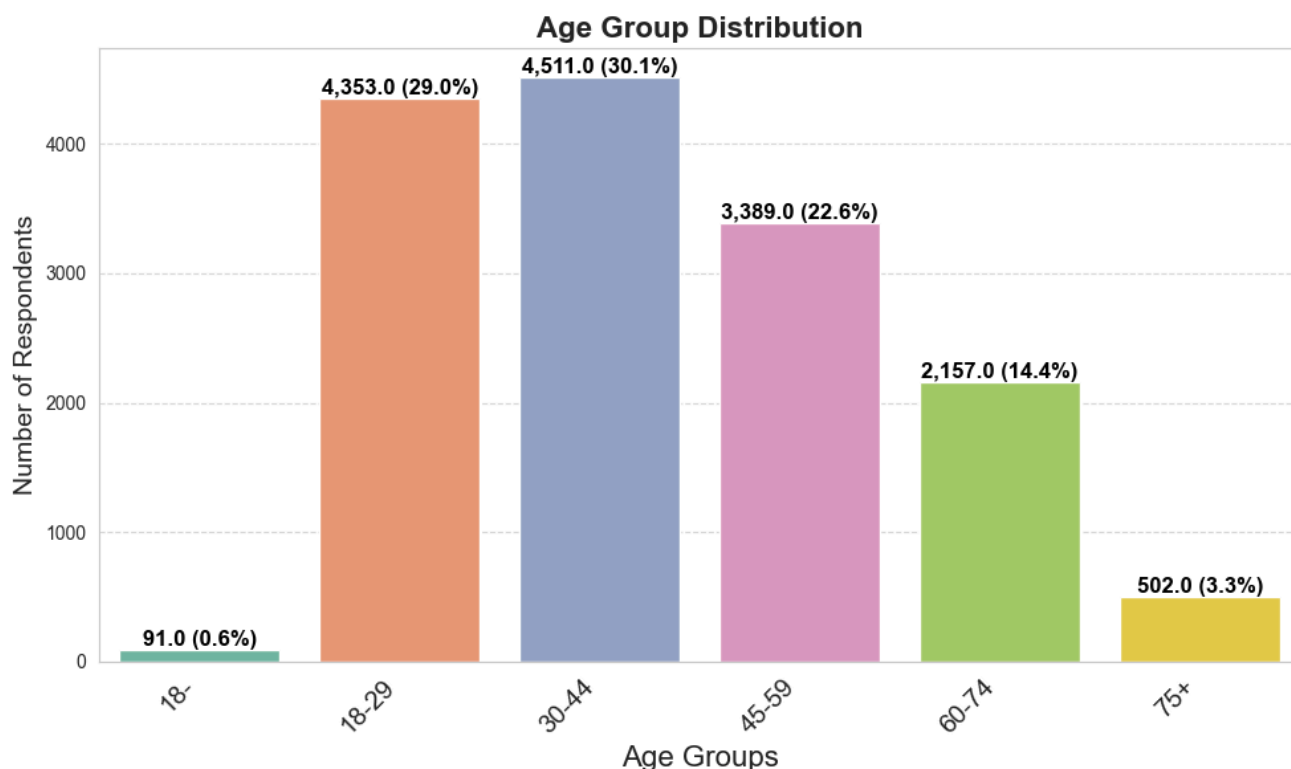


Figure 4b. Distribution of survey respondents across six categorized age groups (18–24, 25–34, 35–44, 45–54, 55–64, and 65+ years). Differences in sample sizes reflect variations in national survey designs, demographic characteristics, and respondent availability.

To assess whether nativity status (native-born vs. immigrant) should be considered as an analytical dimension in the study, the distribution of respondents by migration status was examined (Figure 5). The results show that the vast majority of the sample consists of native-born respondents (approximately 98.5%), while only a small proportion identified as immigrants. Given the highly unbalanced distribution, distinguishing respondents by nativity would not meaningfully contribute to the analysis and was therefore not pursued further in the study.

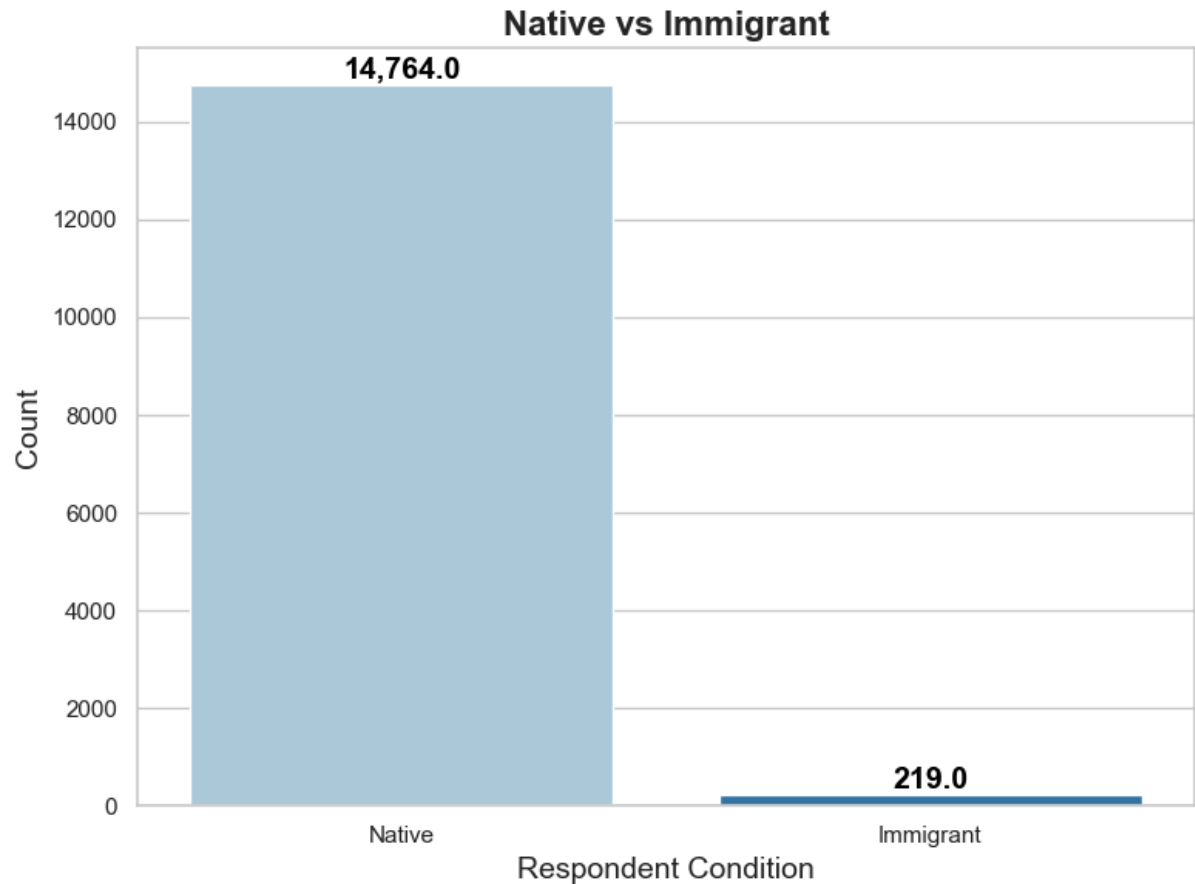


Figure 5. *Distribution of respondents by nativity status. The figure shows the number of native-born and immigrant respondents in the final analytic sample. Given the small proportion of immigrants ($N = 219$), nativity status was not used as a differentiating variable in the subsequent analyses.*

Following the construction of the two key indices, the *Social Trust Index* and the *Digital Media Usage Index*, their distributions were examined to assess general patterns in the sample. Figures 6a and 6b present the histograms and box plots for each index, providing a visual overview of the variability, symmetry, and presence of outliers. These initial distribution checks are essential for understanding the nature of the data prior to normalization and inferential analysis. The *Social Trust Index* distribution is approximately symmetric, centered around

moderate trust levels, with a few mild outliers. The *Digital Media Usage Index* distribution, with respondents concentrated at both the lowest and highest usage levels. These descriptive patterns provide critical context for interpreting later analyses. Both indices were subsequently normalized to a 0–1 scale to enhance comparability across age groups and countries.

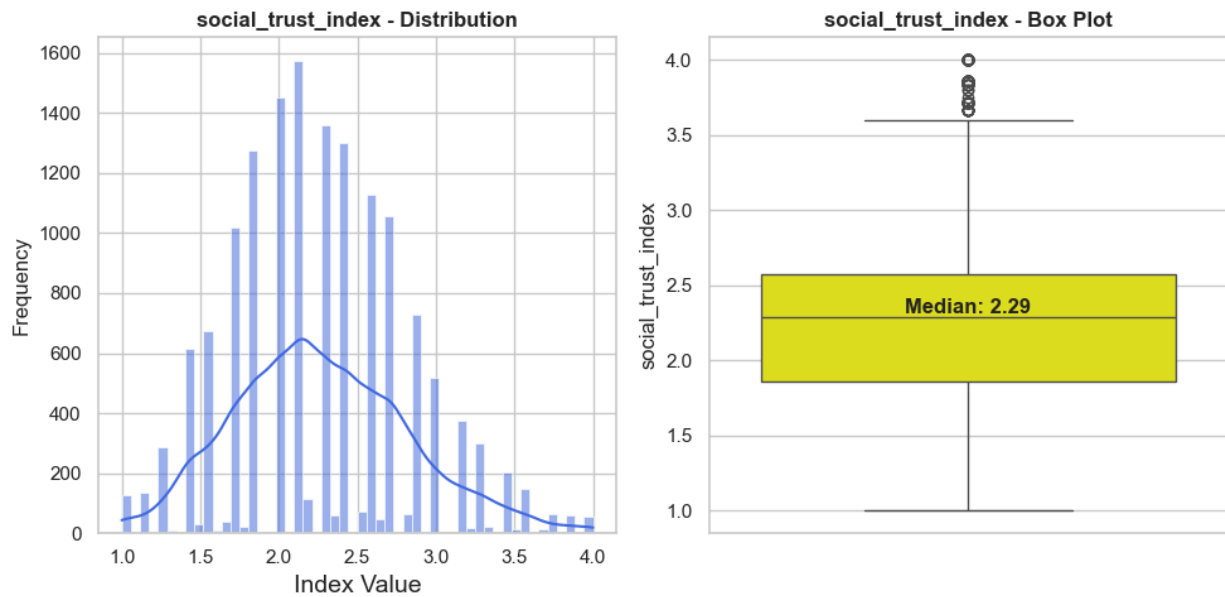


Figure 6.a *Distribution of Social Trust Index*

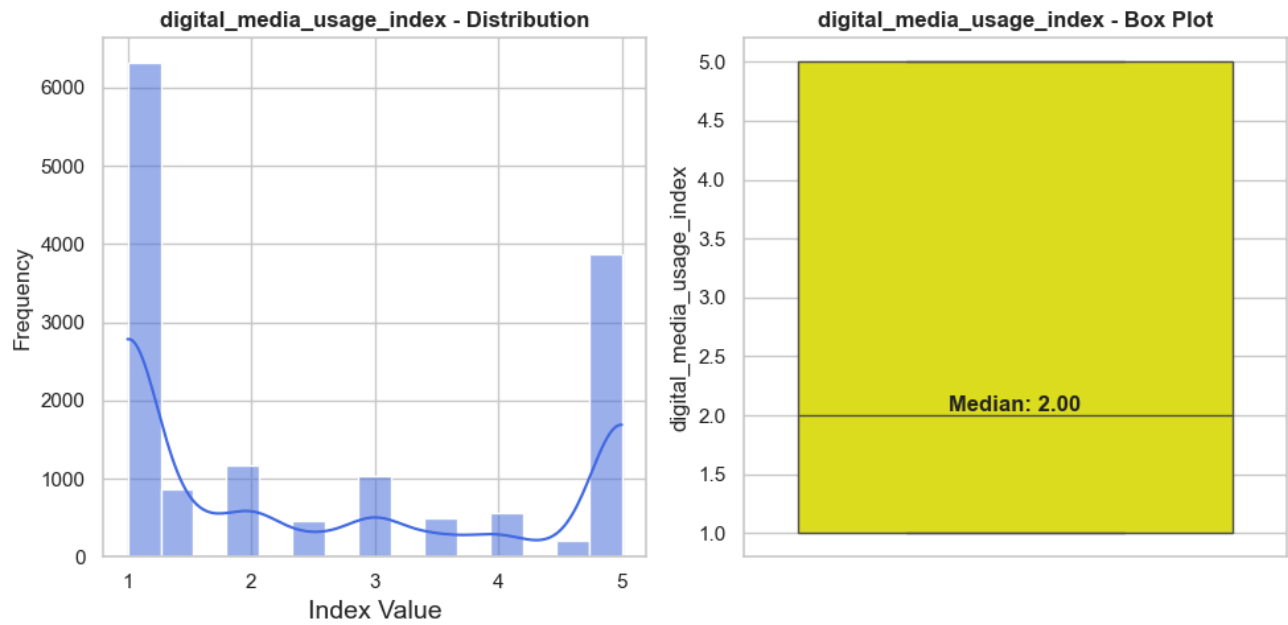


Figure 6.b *Distribution of Digital Media Index*

4.5 Index Normalization and Reliability

After the preliminary examination of the Social Trust Index and the Digital Media Usage Index, additional processing steps were performed to prepare the indices for inferential analysis. First, the internal consistency of the indices was evaluated using *Cronbach's alpha* to verify their reliability. Second, normalization procedures were applied to ensure cross-variable and cross-group comparability

The formula for Cronbach's alpha (α) is given by:

$$\alpha = (k / (k - 1)) \times [1 - (\Sigma \sigma^2_i / \sigma^2_{\text{total}})] \quad (1)$$

where k is the number of items, σ^2_i the variance of item i , and σ^2_{total} the variance of the total index score.

The reliability of the constructed indices was assessed using Cronbach's alpha. The *Social Trust Index* showed acceptable internal consistency with a Cronbach's alpha of 0.769, while the *Digital Media Usage Index* demonstrated excellent internal consistency with a Cronbach's alpha of 0.899.

Second, *Min-Max normalization* was applied to the indices and political_extremity variable, scaling values between 0 and 1 to ensure comparisons across countries and age groups.

All index components were then normalized to a 0–1 scale using Min-Max Normalization:

$$x_{\text{norm}} = (x - x_{\text{min}}) / (x_{\text{max}} - x_{\text{min}}) \quad (2)$$

where x is the original value, x_{min} and x_{max} are the minimum and maximum values of the variable, and x' is the normalized value.

4.6 Statistical Methods

Pearson correlation analysis was conducted to examine the bivariate relationships among the normalized Social Trust Index, Digital Media Usage Index, and the Political Extremity variable. This preliminary analysis served to explore the direction and strength of associations among key constructs before the application of regression models. Correlations were computed using pairwise deletion to handle missing data.

Quantitative techniques such as correlation analysis, subgroup analysis, and regression modeling will be applied to examine patterns across countries and age groups. All statistical methods were performed with the same ready dataframe **df_analysis**. While the analysis included

respondents from 13 Latin American countries, the models primarily assessed regional trends across the Latin American context, controlling for country-level differences through fixed effects. Country-specific comparisons were not the primary focus of this thesis. All analyses were conducted using Python (*pandas*, *statsmodels*, *seaborn*, and *matplotlib*), and diagnostic checks confirmed that key regression assumptions were reasonably met.

To examine the relationships outlined in the research questions, a series of ordinary least squares (OLS) regression models were employed. Model 1 estimates the direct relationship between digital media usage and social trust without adjusting for any additional covariates. It serves as the simplest test of RQ1 by assessing the bivariate association.

Model 2 introduces political extremity, age group, and country as control variables. It provides a more context-aware test of whether digital media usage remains a significant predictor of social trust when accounting for key sociodemographic factors.

Model 3 incorporates an interaction term between digital media usage and political extremity. This allows for testing whether the relationship between media usage and trust varies depending on individuals' ideological positioning, thereby exploring conditional effects.

All models used normalized index variables to facilitate interpretation and cross-variable comparison. The reference categories for categorical predictors (e.g., country and age group) were carefully documented to ensure clarity in coefficient interpretation. Also, diagnostic checks were performed to confirm the validity of assumptions underlying linear regression, and results are presented in both tabular and graphical form in the results and appendix sections.

4.7 Use of Digital and Writing Support Tools

To ensure the quality and coherence of the research process, various digital tools were integrated throughout the development of this thesis. ChatGPT (including different model versions) and Perplexity.ai were used to support literature synthesis, identify conceptual connections and fixing code issues. Grammarly assisted in refining grammar and clarity. These tools were used as supplementary aids under the author's critical supervision and academic judgment. Finally, peer review prior submission supported formatting consistency.

5. Results

Following the showcase of descriptive and inferential analyses results will be found below, providing a comprehensive understanding of digital media usage, ideological extremity, and social trust across Latin America. It starts with descriptive statistics and visualizations, then followed by inferential models that test our hypotheses and test our conceptual model stayed in the theoretical framework. Additional detailed visualizations supporting these results are presented in [Appendix C](#).

5.1 Descriptive

The following two figures show the distribution of moderate versus extreme ideological placements across key demographic dimensions. Figure 7a presents the comparative distribution by country, highlighting notable variations and emphasizing the diverse ideological landscapes within the Latin American region. Figure 7b illustrates the ideological distribution (moderate vs. extreme) by age group. Older cohorts tended to display slightly higher levels of ideological extremity compared to younger age groups. For instance, respondents aged above 45 showed higher percentages of extreme ideological self-placement than respondents below that age.

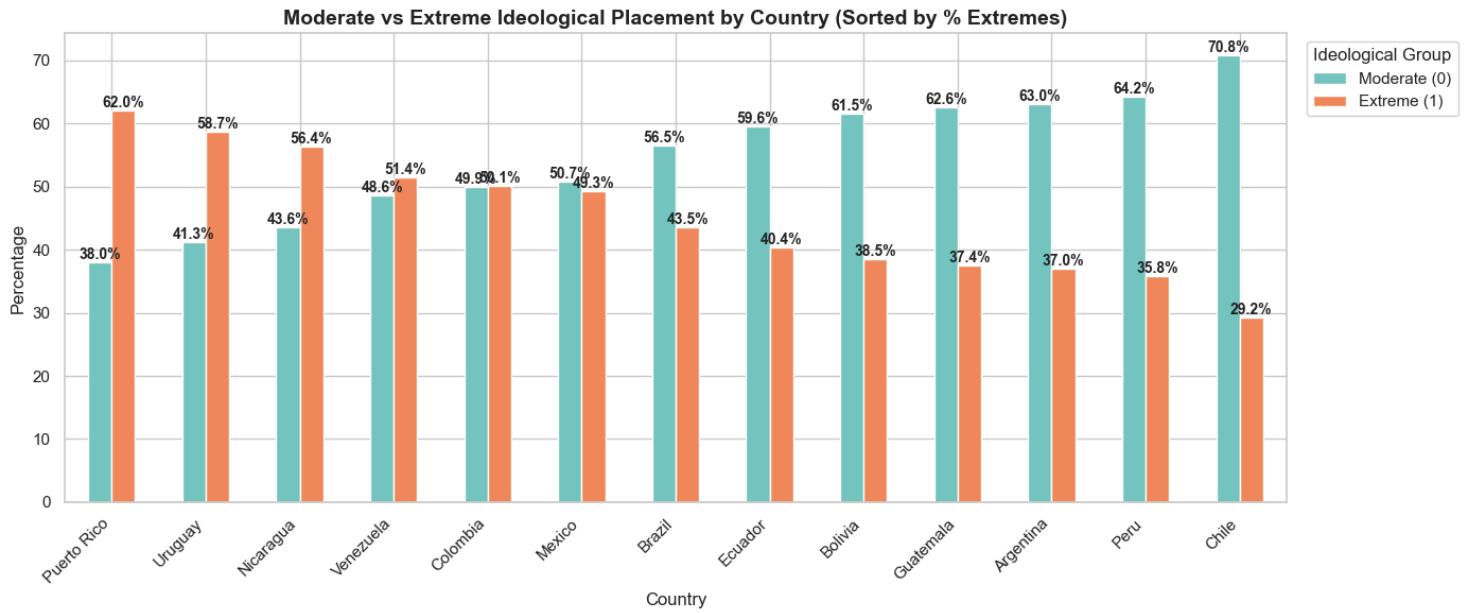


Figure 7a. *Moderate vs Extreme Ideological Placement by Country.*

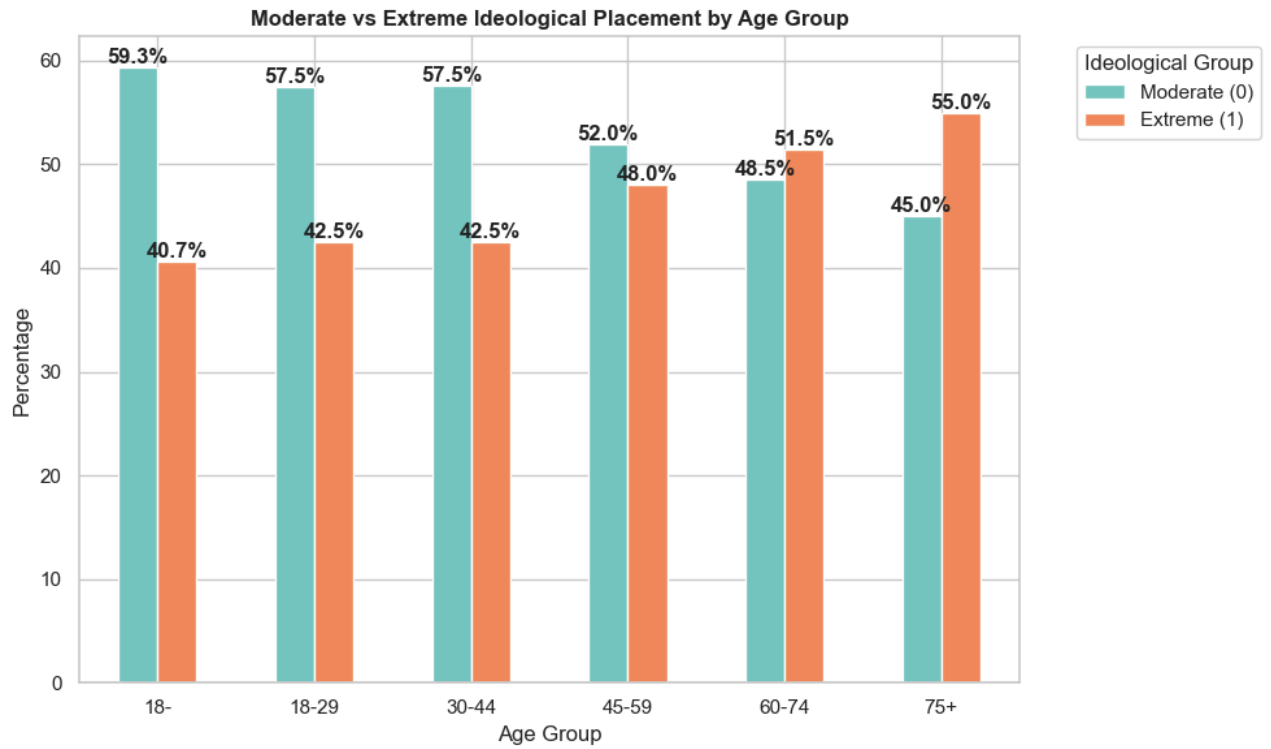


Figure 7b. *Moderate vs Extreme Ideological Placement by Age Group*

Country-level ideological distinctions were also apparent. [Figure C4](#) and [Figure C5](#), in the appendix section shows the percentage of individuals identifying with extreme ideological positions (left or right) by country and age group. Peru and Venezuela exhibited higher proportions of respondents with extreme ideological positions, with clear dominance by right-leaning extremism in Peru and left-leaning extremism in Uruguay and Chile. This highlights substantial variation in ideological self-placement across the region. Age variation within countries were moderate but consistently highlighted older populations as more ideologically polarized.

5.2 Inferential Results: Regression Models.

This section presents the main empirical findings of the study. The analysis proceeds in stages, beginning with an exploration of the bivariate relationships among the key normalized variables: political extremity, social trust, and digital media usage. A correlation matrix is presented first to provide an overview of the direction and strength of these associations. Subsequent sections will examine subgroup regression analyses to test the study's research questions more deeply.

These Pearson correlation coefficients among the normalized Social Trust Index, Digital Media Usage Index, and Political Extremity variable are interpreted based on the magnitude and direction of the relationships, with values closer to ± 1 indicating stronger associations. All

correlations are small in magnitude, suggesting limited direct associations among these constructs on a high-level.

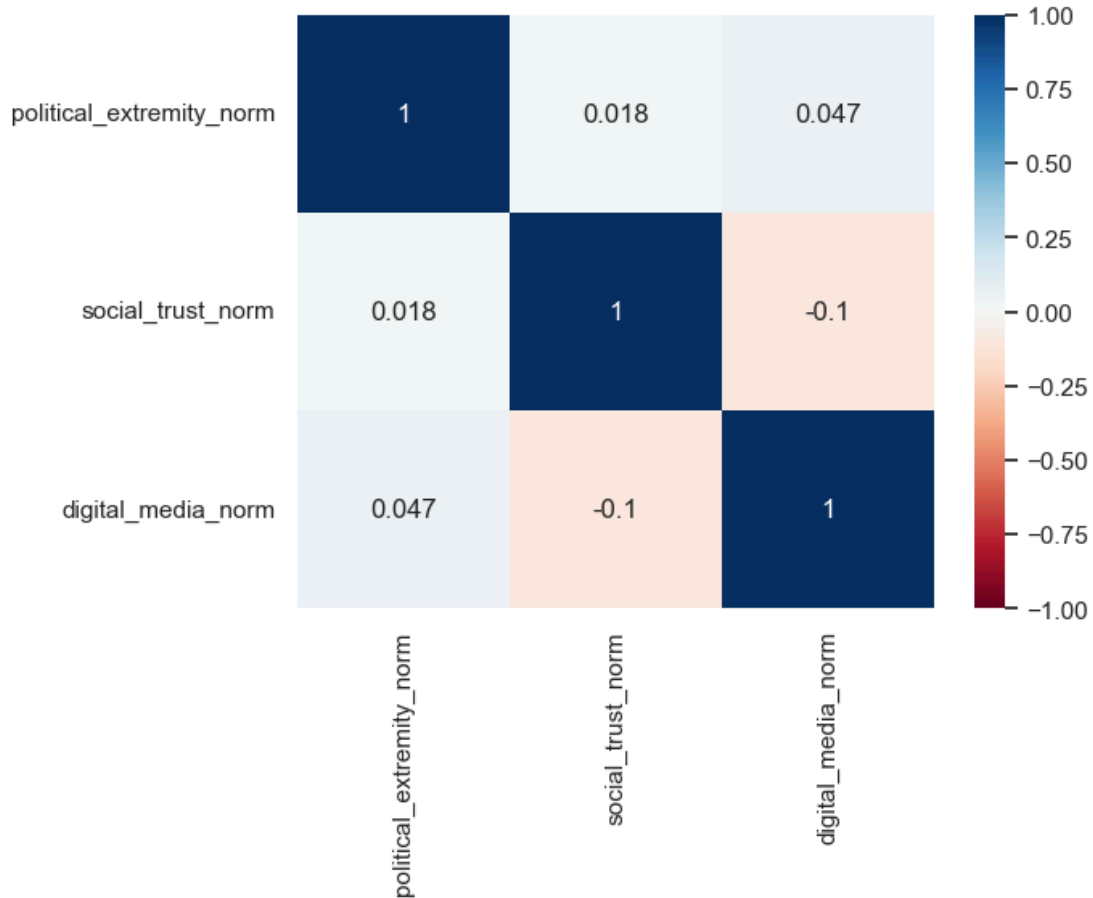


Figure 8. *Pearson correlation matrix of normalized variables. The matrix shows a very weak positive correlation between political extremity and digital media usage $r = 0.047$, and a very weak positive correlation between political extremity and social trust $r = 0.018$. A weak negative correlation was observed between social trust and digital media usage $r = -0.10$.*

5.2.1 Model 1: Digital Media Usage and Social Trust

Since the correlation matrix result was very weak, the following models are employed to better explain these relationships and see whether these results are consistent or if they vary across demographic groups.

To assess the relationships between digital media usage, social trust, and political extremity, a series of ordinary least squares (OLS) regression models were estimated. The first model examines the bivariate association between digital media usage and social trust. This initial model serves as a baseline for evaluating whether digital media usage is associated with changes in interpersonal trust levels across the Latin American sample. Both variables were min–max normalized to allow for comparability across countries and facilitate interpretation. The results of Model 1 are presented below, followed by progressively more complex models that incorporate sociodemographic controls and interaction terms.

Model 1 used a simple linear regression to estimate the association between digital media usage and social trust. The observed coefficient ($\beta = -0.045$) aligns directionally with the Pearson correlation ($r = -0.102$), though it differs in magnitude due to the use of normalized (min-max scaled) variables in the regression model.

To verify the mathematical relationship between correlation and regression coefficients in a bivariate model, both variables (social trust and digital media usage) were z-standardized. As expected, the regression coefficient ($\beta = -0.1016$) matched the Pearson correlation coefficient ($r = -0.1016$), see figure C6 in the appendix section. This confirms that the difference observed in the main model, where min–max normalization was used, is purely due to scaling.

Model 1 tested the basic relationship between digital media usage and social trust without control variables. Figure 9, illustrates this negative trend, indicating that higher digital media consumption correlates with lower levels of generalized social trust.

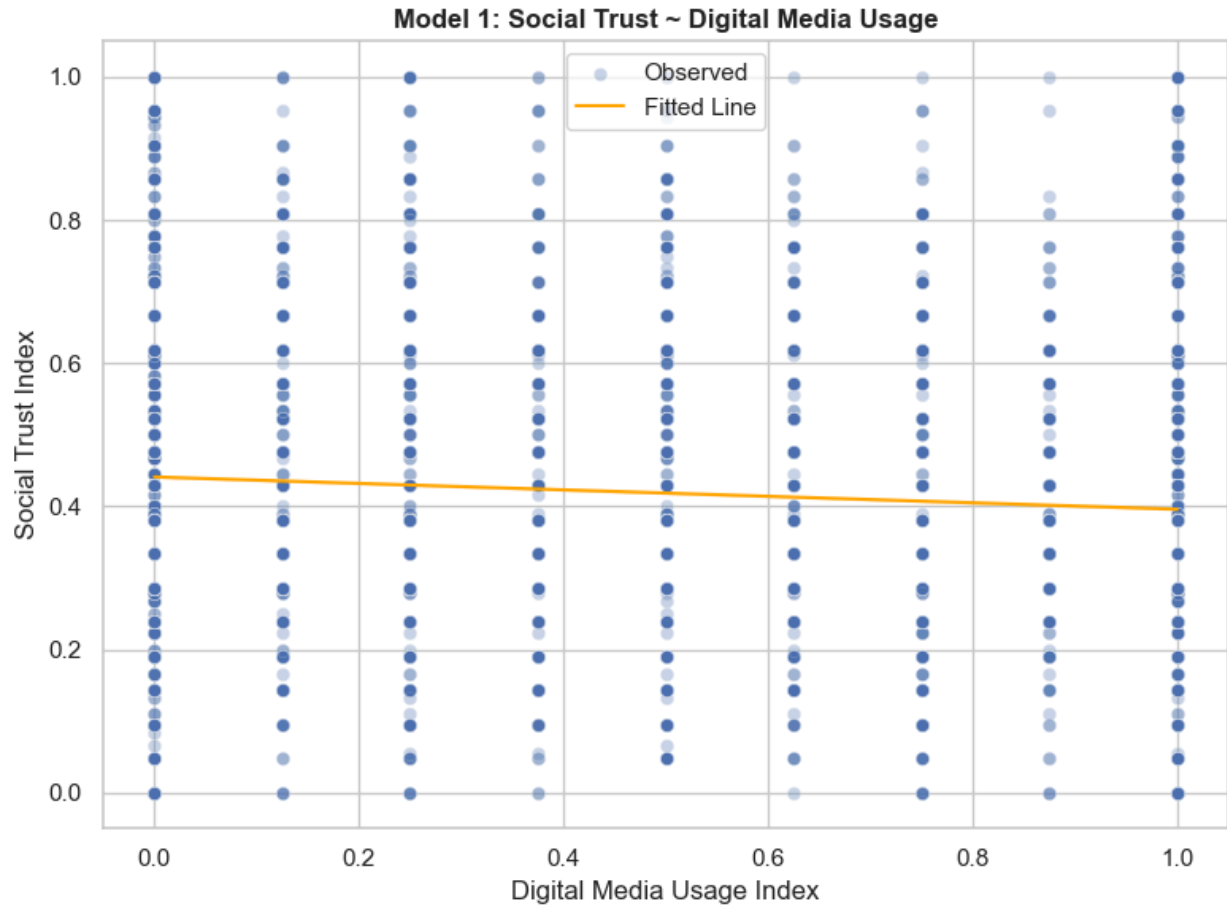


Figure 9. Scatterplot and fitted regression line for the relationship between digital media usage and social trust (Model 1). Displays the observed values and the predicted linear relationship (orange line) between the normalized Digital Media Usage Index and the normalized Social Trust Index. A small but statistically significant negative association is observed ($\beta = -0.045$, $p < 0.001$), indicating that higher digital media usage is associated with lower social trust.

5.2.2 Model 2: Adding Political Extremity, Age, and Country Controls

A multiple linear regression, Model 2, was conducted to predict normalized social trust levels based on digital media usage, political extremity, age group, and country, see Figure 10. The model explained approximately 13.7% of the variance in social trust ($R^2 = 0.137$), marking a meaningful improvement over Model 1.

Digital media usage remained a significant negative predictor ($\beta = -0.0454, p < 0.001$), with its effect stable even after controlling for demographic and national context. Political extremity showed no independent association with social trust ($\beta = 0.001, p = 0.789$), consistent with results from a bivariate specification.

While most age groups did not differ significantly from the baseline (<18), respondents aged 60–74 and especially those 75+ reported slightly higher levels of trust. Country-level effects were pronounced: compared to the reference group (Argentina), respondents from Peru, Ecuador, Bolivia, and Colombia exhibited substantially lower social trust scores. These findings suggest that although social trust levels vary by country and age, digital media usage predicts lower trust across contexts.

Additionally a detailed regression coefficients for Model 2 are shown in [Table C7](#).

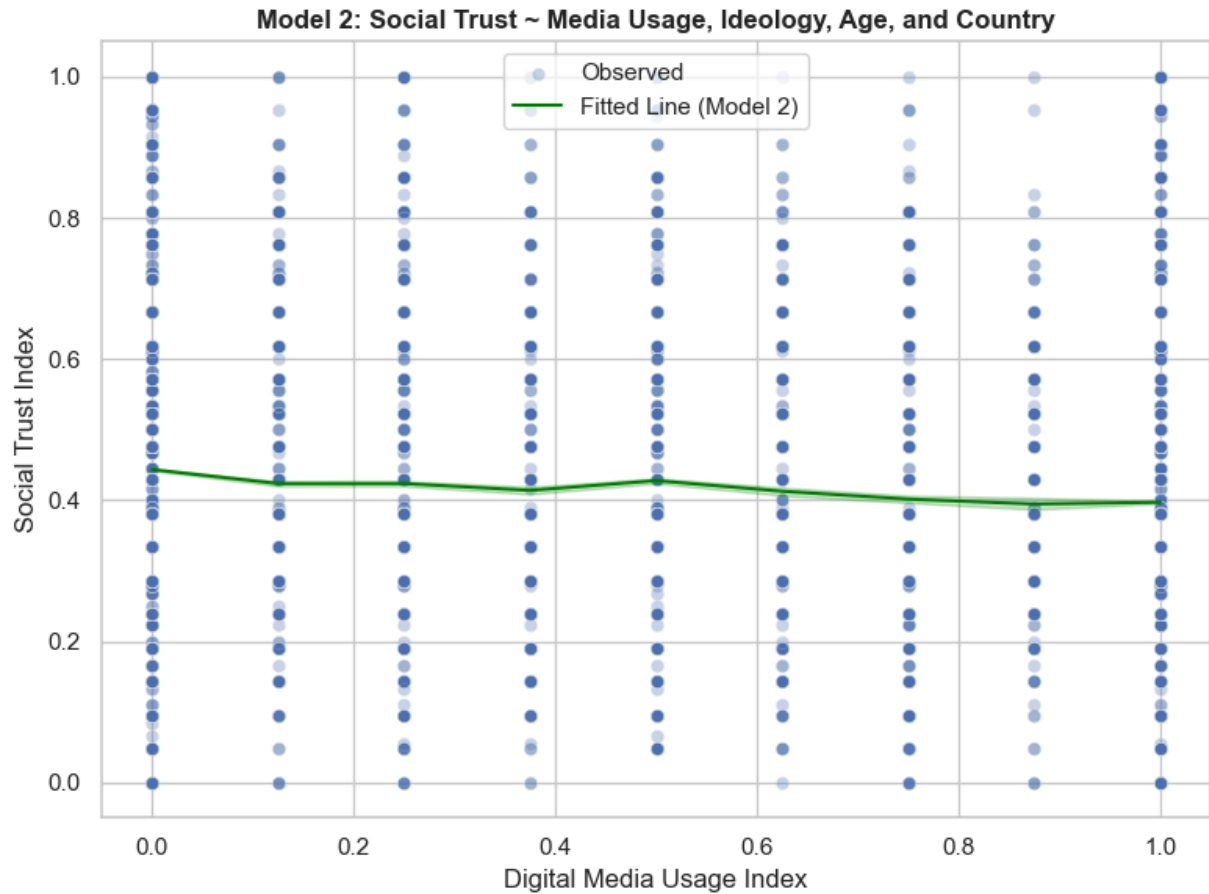


Figure 10. Scatterplot of normalized social trust index against normalized digital media usage index with fitted regression line from Model 2. Predicted values control for political extremity, age group, and country.

To explore potential cross-national differences in the relationship between digital media usage and social trust, [Figure C8](#) in the Appendix section, presents a series of faceted linear regression plots, one for each of the 13 Latin American countries included in the analysis. Each subplot displays observed values and the fitted regression line from Model 2, showing how the association varies across contexts. While the overall pattern reflects a modest negative trend

between digital media usage and social trust, the strength and slope of this relationship differ between countries, suggesting that national-level factors may moderate the effect of digital media on trust.

Seemingly, [Figure C9](#), shows the variation in digital media trust relationships across five age groups using various regression plots. Although the general trend remains weakly negative across all groups, the slope appears slightly steeper among older respondents, particularly those aged 60–74 and 75+. This visualization complements the regression findings, where the oldest age group exhibited significantly higher social trust than younger groups. It supports the notion that age may moderate how digital media relates to interpersonal trust.

To isolate the effect of ideological extremity on social trust, a bivariate regression was conducted using only the political extremity index as a predictor. As shown in the [Figure C10](#), the regression line is essentially flat, confirming the null result reported in the full Model 2. The coefficient for political extremity was not statistically significant ($\beta = 0.0009$, $p = 0.789$), suggesting no direct association between ideological extremity and social trust in the sample.

5.2.3 Model 3: Interaction between Digital Media and Political Extremity

Last but not least, our third model introduces an interaction term between digital media usage and political extremity to assess whether the association with social trust varies by ideological intensity. The interaction effect was not statistically significant ($\beta = 0.0075$, $p = 0.348$), suggesting that the negative association between digital media use and social trust is consistent across politically moderate and extreme respondents. Digital media usage remained a significant negative predictor ($\beta = -0.0486$, $p < 0.001$), while political extremity itself showed no

independent association with trust ($\beta = -0.0020$, $p = 0.664$). See Figure 11 below, which indicates that the effect of digital media usage on social trust does not significantly differ between individuals with moderate versus extreme political views.

The OLS regression results for Model 3 can be found in [Table C11](#).

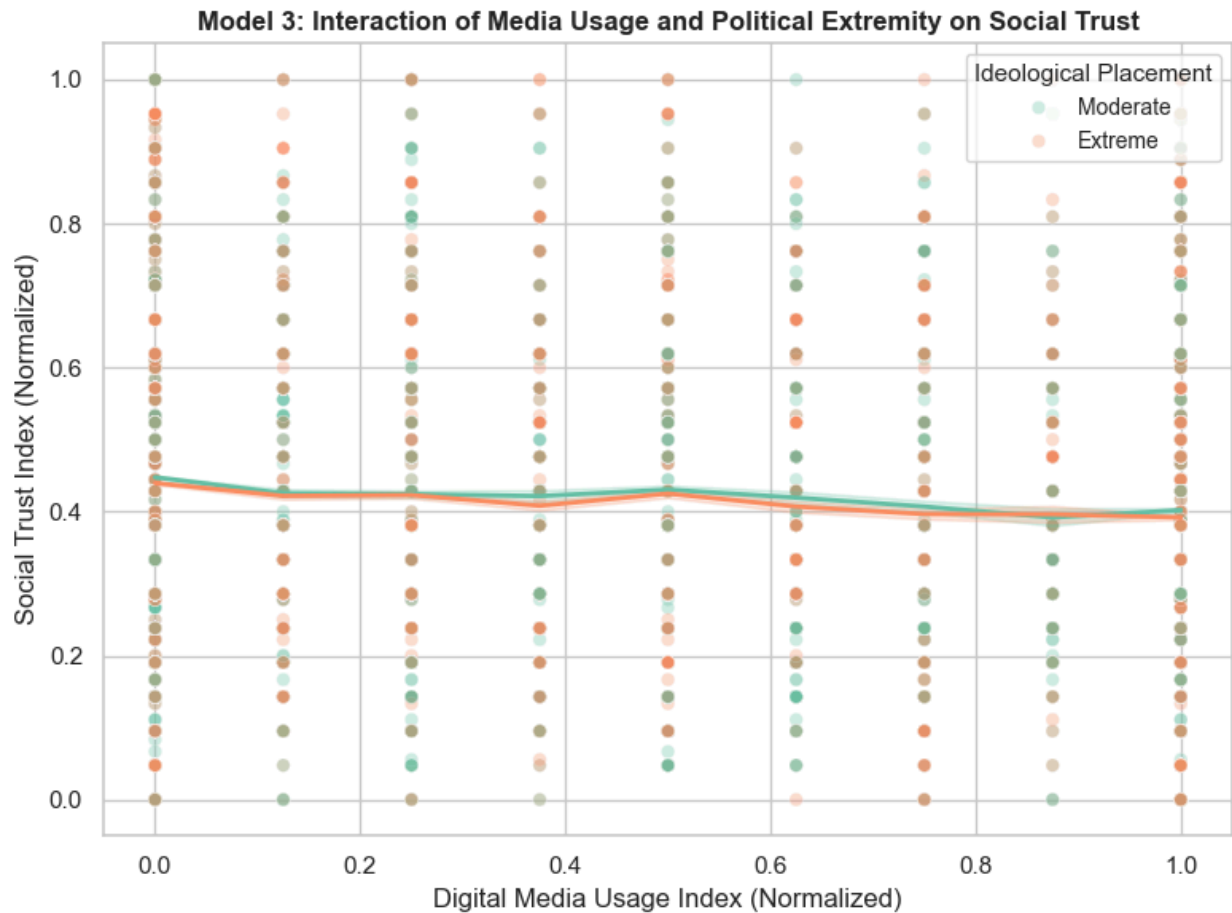


Figure 11. Scatterplot of normalized social trust index against normalized digital media usage index with fitted regression line from Model 3. With the interaction effect between digital media and ideological placement, moderate green line and extreme orange line.

5.3 Summary of Key Findings

These results reveals that greater digital media usage is consistently associated with slightly lower levels of social trust, even after accounting for demographic and contextual controls. In contrast, ideological extremity does not independently predict social trust, suggesting that holding more extreme political views alone is not a significant drive of generalized trust.

However, both age, and national context emerge as significant predictors highlighting the importance of life-course stage and societal environment in shaping trust levels. Lastly, the interaction between digital media usage and ideological extremity did not produce significant moderation effects, indicating that the negative association between media use and trust holds regardless of individual's ideological positioning.

6. Discussion

6.1 Digital Media Usage and Social Trust

Our study consistently identified a negative association between digital media usage and social trust. This result held across all regression models (Models 1, 2, and 3), aligning with existing scholarship that suggests heightened digital engagement may reduce generalized social trust (Mak, Li, & Rojas, 2024; Shirikov, 2020). The observed effect, although relatively modest ($\beta = -0.045$, $p < 0.001$), is particularly noteworthy because it remained stable after controlling for demographic variables such as age and country, noting the directness of digital media's negative influence on trust.

From a theoretical perspective, this result substantiates Putnam's Social Capital Theory (Putnam, 2000), highlighting digital media's potential to undermine social cohesion. The negative impact of digital media may stem from frequent exposure to misinformation, polarized narratives, and uncivil discourse prevalent on digital platforms, as previously documented by Mak et al. (2024). These online dynamics often promote skepticism and distrust towards individuals and institutions alike, disrupting traditional community bonds and weakening the layers of collective social trust.

6.2 Political Extremity and Social Trust

Contrary to our initial expectations derived from Echo Chamber Theory (Fenoll et al., 2024; Törnberg, 2022), political extremity did not exhibit a significant independent effect on social trust. Across both the combined regression (Model 2) and the separate extremity-focused model, political extremity's coefficient was non-significant ($\beta = 0.001$, $p = 0.789$). This unexpected

finding contrasts with literature suggesting that ideological polarization contributes to lower interpersonal trust, particularly in highly polarized environments (Levy, 2021).

One interpretation of this result is that ideological extremity, measured by self-placement on a left-right scale, may not fully capture the dimensions of polarization that most impact social trust. According to Park (2024), the presence of limited yet meaningful exposure to diverse viewpoints, particularly on social media, can sometimes mitigate perceptions of polarization. Moreover, ideological self-placement might reflect symbolic rather than practical political behavior, less directly linked to interpersonal interactions and trust dynamics than previously theorized.

It is also plausible that, in Latin America, structural and institutional trust issues, such as corruption or governance quality, overshadow personal ideological differences when it comes to generalized trust.

6.3 Age Groups and Social Trust

One intriguing finding was the positive relationship between age and social trust, where older respondents consistently demonstrated higher levels of trust than younger groups. Specifically, respondents aged 75 and above exhibited the highest trust levels ($\beta = 0.084$, $p < 0.001$), followed by the 60–74 age cohort ($\beta = 0.040$, $p < 0.05$). This pattern partially aligns with the Differential Susceptibility to Media Effects Model (DSMM) proposed by Valkenburg and Peter (2013), which predicts that younger individuals, or "digital natives," would be more negatively impacted by digital media due to their heavy reliance on online platforms.

However, the observed pattern of older adults exhibiting higher trust challenges some contemporary narratives about generational shifts in media consumption. This result may reflect generational differences in media literacy and skepticism towards digital content, with older cohorts possibly placing greater trust in established societal structures and norms compared to younger generations who are more critically engaged with digital media. It could also reflect historical experiences unique to older Latin Americans, where long-term social relationships and community solidarity have been crucial coping mechanisms amidst regional socioeconomic and political instability.

6.4 Country-Level Differences in Social Trust

Significant national variations were found in the levels of social trust, suggesting the importance of country-specific factors. Respondents from countries like Peru, Ecuador, and Bolivia reported notably lower trust levels compared to the reference category of Argentina (coefficients ranging from $\beta = -0.177$ to $\beta = -0.225$, $p < 0.001$). This finding resonates with Alemán and Woods' (2016) assertion regarding the importance of cultural and institutional contexts when interpreting social attitudes cross-nationally.

The observed variations in social trust may reflect broader institutional quality, historical events, economic disparities, and governance efficacy within these countries. For example, nations experiencing prolonged political unrest, high levels of corruption, or economic instability may see trust severely impacted, irrespective of individual digital media usage or ideological alignment. Hence, these contextual factors significantly mediate the social trust dynamics, highlighting the complex exchange between individual behaviors and national contexts.

6.5 Interaction Between Digital Media Usage and Political Extremity

The interaction term between digital media usage and political extremity included in Model 3 did not output statistically significant results. This suggests that the negative effect of digital media on social trust is relatively consistent across ideological positions, contrary to theoretical expectations derived from Echo Chamber Theory, which posits intensified media effects among ideologically extreme individuals (Törnberg, 2022).

One possible explanation is that digital media's effect on trust is broad and pervasive, affecting both moderate and extreme ideological groups similarly, due to widespread misinformation and negative interactions that surround digital spaces. Alternatively, the operationalization of ideological extremity used in this study may not fully capture more deeper dimensions of polarization, such as affective polarization or selective exposure to partisan media, which could output more pronounced interaction effects.

6.6 Ideological Extremity and Digital Media Usage

When directly examining the relationship between digital media use and ideological extremity (Model Extremity Only), we identified a modest yet statistically significant positive association ($R^2 = 0.050$). This suggests frequent digital media engagement correlates with slightly increased ideological self-placement towards extremes, aligning with theoretical expectations about digital media's potential to foster polarization through echo chambers and selective exposure (Fenoll et al., 2024).

This finding complements our primary models by confirming that while ideological extremity itself may not strongly predict social trust, digital media consumption could still play a role in

promoting ideological division. Such dynamics underscore the dual influence of digital media, potentially, degrading social cohesion while simultaneously reinforcing ideological divides, but in a subtle, less visible way.

6.7 Limitations and Recommendations for Future Research

Despite the strengths of this study, which include a broad regional analysis using the World Values Survey Wave 7 dataset (Haerpfer et al., 2024), several limitations should be considered.

First, since this study relies on cross-sectional data, it's not possible to establish clear causal relationships. While I identified meaningful associations between digital media usage, social trust, and ideological extremity, I cannot definitively say that digital media usage causes changes in trust or ideological positions. This limitation aligns with ongoing discussions in the literature about the difficulty of confirming causation from correlational research in media and democracy studies (Lorenz-Spreen et al., 2022). Future research would benefit from longitudinal data collection, panel studies, or experimental approaches like field or natural experiments (Levy, 2021) to better clarify these relationships.

Second, the measure of ideological extremity used in this study, a simple binary classification based on a 10-point self-placement scale, could oversimplify the complex nature of ideological positions. By grouping positions into 'extreme' (1–3 or 8–10) and 'moderate', subtle nuances and multidimensional aspects of political identities and affective polarization might have been overlooked (Chan & Yi, 2024; Törnberg, 2022). Future studies could benefit from using more precise scales or multinomial classifications to better capture varying levels of ideological commitment and polarization (Bodrunova et al., 2019).

Third, the measurement of digital media usage was broad, frequency-based, and did not differentiate among specific platforms. Different platforms, such as Twitter, Facebook, or WhatsApp, offer distinct user experiences and modes of engagement, potentially affecting polarization and trust differently (Mak et al., 2024; Von Nostitz et al., 2024). Future research should focus on platform-specific analyses, examining the unique features and affordances that shape user interactions and their implications for trust and polarization (Kaun, 2021).

Fourth, although this study included respondents from multiple Latin American countries and accounted for national contexts, it did not thoroughly explore within-country differences. Issues like media regulation, political contexts, or social inequalities, which significantly affect digital behavior and ideological attitudes, were beyond the scope of this regional-level analysis (Shirikov, 2020; Palonen, 2009). To gain deeper insights, future studies could bring in mixed-method approaches, including qualitative methods like interviews or ethnographic studies, or perform detailed country-specific case studies to provide greater context.

Fifth, the current analysis did not include psychological factors such as emotional responses, openness to experience, authoritarianism, or intra-individual conflict, which are increasingly recognized as crucial for understanding political polarization (Sassenberg & Winter, 2024). Integrating these psychological constructs could significantly enrich our understanding of why and how individuals might shift toward ideological extremes or lose trust in others.

Relying on self-reported survey data introduces potential biases, such as social desirability effects, where respondents might portray themselves in a more socially acceptable manner. Additionally, there might be linguistic and cultural interpretations of survey items that vary across different countries, potentially affecting comparability.

Finally, while I observed clear regional patterns, a deeper analysis of country-specific differences using advanced techniques like multilevel modeling or deeper stratified analyses was outside the scope of this thesis. Future research could incorporate these methods to provide more detailed insights into how national contexts influence the dynamics between digital media use, social trust, and ideological positioning.

7. Conclusions & Implications

This study had the main objective to explore the relationship between digital media usage, political extremity, and social trust within the Latin American context using data from the World Values Survey Wave 7. The analysis confirmed a consistent negative correlation between frequent digital media usage and social trust, suggesting that higher exposure to digital media may reinforce perceptions of polarization and undermine societal cohesion.

Contrary to initial expectations, political extremity alone did not significantly predict social trust. This finding indicates that holding extreme ideological positions may not inherently degrade social trust unless amplified by digital environment. Furthermore, stratified analysis across demographic groups revealed details into the dynamics, emphasizing the importance of generational and country- specific factors in shaping social trust levels.

The robust methodological approach, including regression modeling and control for demographics variables strengthens the validity of these findings.

7.1 Theoretical Implications

This study contributes to the growing body of literature of the social effects of digital media by offering empirical evidence from Latin America, a region often underrepresented in global discussions of polarization and trust. The limited independent effect of political extremity suggests a need to refine theoretical models: rather than framing extremity as inherently harmful, future search should focus on how digital contexts amplify or mediate these ideological differences.

7.2 Practical Implications

Educators, entrepreneurs, digital platform designers, policymakers and anyone who is interested in these phenomena, should consider interventions to mitigate the potential degradation of social trust through digital media. These may include:

- Promoting digital literacy initiatives
- Enhancing transparency in content algorithms, and
- Creating environments that facilitate cross-ideological engagement and dialogue.

In addition, community-based efforts, such as structured offline dialogues and programs that encourage face-to-face interactions can play a crucial agency in rebuilding interpersonal trust and seeding social resilience. An illustrative example is Heineken's *Worlds Apart* campaign, which brought together individuals with opposing views and guided them through a shared task before revealing their ideological differences. The result demonstrated the potential of creating emotionally safe, respectful environments to foster mutual understanding and reduce social fragmentation. Such initiatives confirm the value of designing interactions that encourage connection beyond disagreement, both in public discourse and digital platform design.

Ultimately, this study reminds us that while technology may connect our devices, it does not guarantee connection between people. A world that is digitally connected but socially fragmented cannot thrive. If we are to truly confront the challenges we face as a global society, we must ensure that we are not merely sharing content, but genuinely sharing understanding, one dialogue at a time.

8. References

- Alemán, J., & Woods, D. (2016). Value Orientations From the World Values Survey: How Comparable Are They Cross-Nationally? *Comparative Political Studies*, 49(8), 1039–1067. <https://doi.org/10.1177/0010414015600458>
- Allison, L., Wang, C., & Kaminsky, J. (2021). Religiosity, neutrality, fairness, skepticism, and societal tranquility: A data science analysis of the World Values Survey. *PLOS ONE*, 16(1), e0245231. <https://doi.org/10.1371/journal.pone.0245231>
- Bauer, P. C. (2019). Conceptualizing and measuring polarization: A review. SocArXiv. <https://doi.org/10.31235/osf.io/e5vp8>
- Bodrunova, S. S., Blekanov, I., Smoliarova, A., & Litvinenko, A. (2019). Beyond left and right: Real-world political polarization in Twitter discussions on inter-ethnic conflicts. *Media and Communication*, 7(3), 119–132. <https://doi.org/10.17645/mac.v7i3.1934>
- Chan, M., & Yi, J. (2024). Social media use and political engagement in polarized times: Examining the contextual roles of issue and affective polarization in developed democracies. *Political Communication*, 41(5), 743–762. <https://doi.org/10.1080/10584609.2024.2325423>
- Fenoll, V., Gonçalves, I., & Bene, M. (2024). Divisive Issues, Polarization, and Users' Reactions on Facebook: Comparing Campaigning in Latin America. *Politics and Governance*, 12, 7957. <https://doi.org/10.17645/pag.7957>
- Falkenberg, M., Galeazzi, A., Torricelli, M., Di Marco, N., Larosa, F., Sas, M., Mekacher, A., Pearce, W., Zollo, F., Quattrociocchi, W., & Baronchelli, A. (2022). Growing polarization

around climate change on social media. *Nature Climate Change*, 12(12), 1114–1121.

<https://doi.org/10.1038/s41558-022-01527-x>

Grammarly Inc. (2024). Grammarly [AI writing assistant]. <https://www.grammarly.com/>

Guo, J., & Hu, Y. (2023). Does Social Media Use Polarize or Depolarize Political Opinion in China? Explaining

Opinion Polarization Within an Extended Communication Mediation Model. *Social Media + Society*, 9(3), 20563051231196899. <https://doi.org/10.1177/20563051231196899>

Haerpfer, C., Inglehart, R., Moreno, A., Welzel, C., Kizilova, K., Diez-Medrano, J., Lagos, M., Norris, P., Ponarin, E., & Puranen, B. (2024). *World Values Survey Wave 7 (2017–2022) Cross-National Data-Set* (Version 6.0.0) [Dataset]. World Values Survey Association.

<https://doi.org/10.14281/18241.24>

Kaun, A. (2021). Ways of seeing digital disconnection: A negative sociology of digital culture. *Convergence: The International Journal of Research into New Media Technologies*, 27(6), 1571–1583. <https://doi.org/10.1177/13548565211045535>

Levy, R. (2021). Social media, news consumption, and polarization: Evidence from a field experiment. *American Economic Review*, 111(3), 831–870.

<https://doi.org/10.1257/aer.20191777>

Lorenz-Spreen, P., Oswald, L., Lewandowsky, S., & Hertwig, R. (2022). A systematic review of worldwide causal and correlational evidence on digital media and democracy. *Nature Human Behaviour*, 7(1), 74–101. <https://doi.org/10.1038/s41562-022-01460-1>

- Lupu, N., Bustamante, M. V. R., & Zechmeister, E. J. (2020). Social Media Disruption: Messaging Mistrust in Latin America. *Journal of Democracy*, 31(3), 160–171.
<https://doi.org/10.1353/jod.2020.0038>
- Mak, M. K. F., Li, M., & Rojas, H. (2024). Social media and perceived political polarization: Role of perceived platform affordances, participation in uncivil political discussion, and perceived others' engagement. *Social Media + Society*, 10(1), 20563051241228595.
<https://doi.org/10.1177/20563051241228595>
- Mitchelstein, E., Matassi, M., & Boczkowski, P. J. (2020). Minimal Effects, Maximum Panic: Social Media and Democracy in Latin America. *Social Media + Society*, 6(4), 2056305120984452. <https://doi.org/10.1177/2056305120984452>
- OpenAI. (2023). ChatGPT (Mar 2023 version) [Large language model]. <https://chatgpt.com/>
- Palonen, E. (2009). Political polarisation and populism in contemporary Hungary. *Parliamentary Affairs*, 62(2), 318–334. <https://doi.org/10.1093/pa/gsn048>
- Park, C. S. (2024). Exposure to cross-cutting information on social media and perceived political polarization. *Asian Journal for Public Opinion Research*, 12(4), 243–266.
<https://doi.org/10.15206/AJPOR.2024.12.4.243>
- Perplexity AI. (2024). Perplexity [AI-powered research assistant]. <https://www.perplexity.ai/>
- PublicisLondon. (2017, April 20). Heineken | Worlds apart | #OpenYourWorld [Video]. YouTube.
<https://www.youtube.com/watch?v=IbIjGxclvj0>

- Salaverría, R., Bachmann, I., & Magallón Rosa, R. (2024). Desinformación y confianza en los medios: Propuestas de actuación [Disinformation and trust in the media: Proposals for action]. *Index.Comunicación*, 14(2), 13–32. <https://doi.org/10.62008/ixc/14/02Yconfi>
- Sassenberg, K., & Winter, K. (2024). Intraindividual conflicts reduce the polarization of attitudes. *Current Directions in Psychological Science*, 33(3), 190–197. <https://doi.org/10.1177/09637214241242452>
- Shirikov, A. (2020). Is trust in media decreasing? Evidence from the World Values Survey. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3754404>
- Törnberg, P. (2022). How digital media drive affective polarization through partisan sorting. *Proceedings of the National Academy of Sciences*, 119(42), e2207159119. <https://doi.org/10.1073/pnas.2207159119>
- Valkenburg, P. M., & Peter, J. (2013). The Differential Susceptibility to Media Effects Model: Differential Susceptibility to Media Effects Model. *Journal of Communication*, 63(2), 221–243. <https://doi.org/10.1111/jcom.12024>
- Von Nostitz, F.-C., Neihouser, M., Sandri, G., & Haute, T. (2024). Patterns and factors of political disconnection on social media: A cross-platform comparison. *Media and Communication*, 12, 8544. <https://doi.org/10.17645/mac.8544>

9. Appendix

Appendix A: Data and Code Repository

The full dataset and all Python scripts used for data preprocessing and modeling are available at

<https://github.com/linaroig/bridging-divides-latam>

Appendix B: Survey Questions Used in the Study

Table B1. *List of the selected WVS questions for this study*

Original Code	Survey Question (Wording)	Scale / Response Options
Q57P	Generally speaking, would you say that most people can be trusted, or that you need to be very careful in dealing with people?	1 = Most people can be trusted 2 = Need to be very careful
Q58P	How much do you trust your family?	1 = Trust completely 2 = Trust somewhat 3 = Do not trust very much 4 = Do not trust at all
Q59P	How much do you trust people in your neighborhood?	1 = Trust completely 2 = Trust somewhat 3 = Do not trust very much

		4 = Do not trust at all
Q60P	How much do you trust people you know personally?	1 = Trust completely 2 = Trust somewhat 3 = Do not trust very much 4 = Do not trust at all
Q61P	How much do you trust people you meet for the first time?	1 = Trust completely 2 = Trust somewhat 3 = Do not trust very much 4 = Do not trust at all
Q62P	How much do you trust people of another religion?	1 = Trust completely 2 = Trust somewhat 3 = Do not trust very much 4 = Do not trust at all
Q63P	How much do you trust people of another nationality?	1 = Trust completely 2 = Trust somewhat 3 = Do not trust very much 4 = Do not trust at all
Q206P	How often do you use the internet?	1 = Daily 2 = Weekly 3 = Monthly

		4 = Less than monthly 5 = Never
Q207P	How often do you use social media (e.g., Facebook, Twitter, etc.)?	1 = Daily 2 = Weekly 3 = Monthly 4 = Less than monthly 5 = Never
Q240	In political matters, people talk of "the left" and "the right." Where would you place your views on this scale, generally speaking?	From 1 to 10 1 = Left 10 = Right
Q260	Respondent's Sex	1 = Male, 2 = Femaler
Q262	This means you are ____ years old	Open-ended (years)
Q263	Are you an immigrant to [country]?	1 = Native-born, 2 = Immigrant

Appendix C: Supplementary Figures and Tables

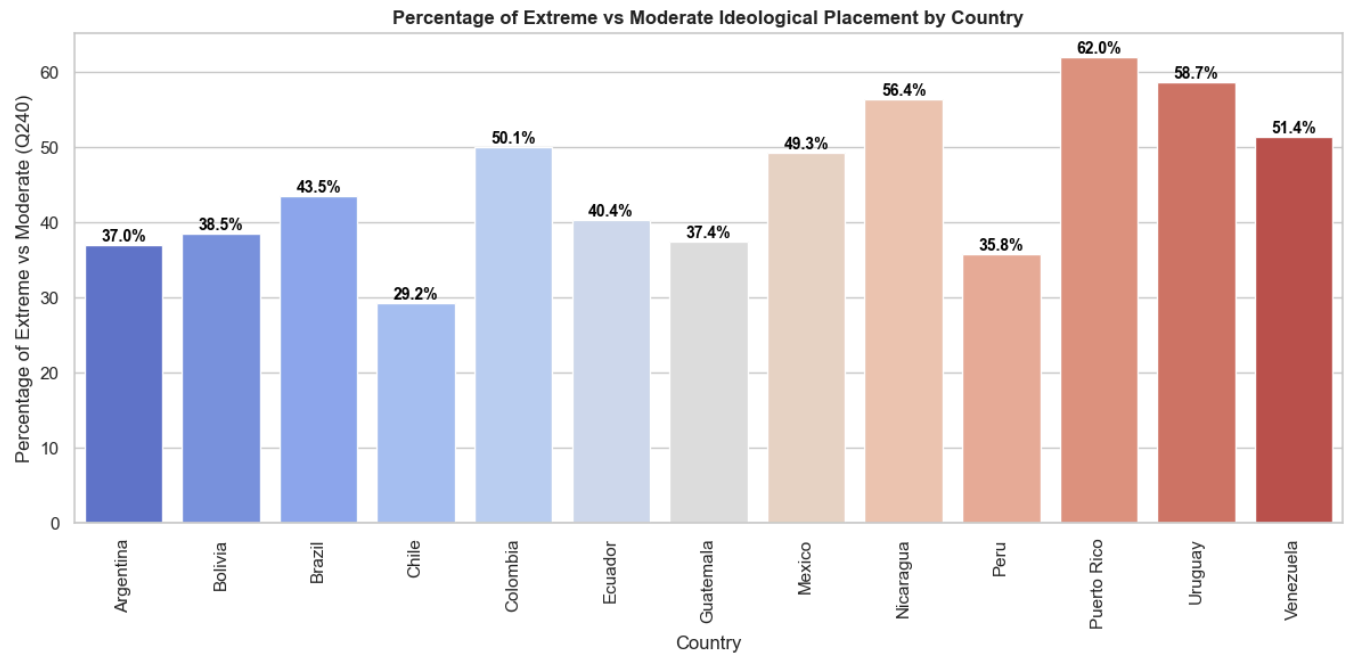


Figure C1. *Percentage of Extreme vs Moderate Ideological Placement by Country.*

The % represents the extremity proportion between countries.

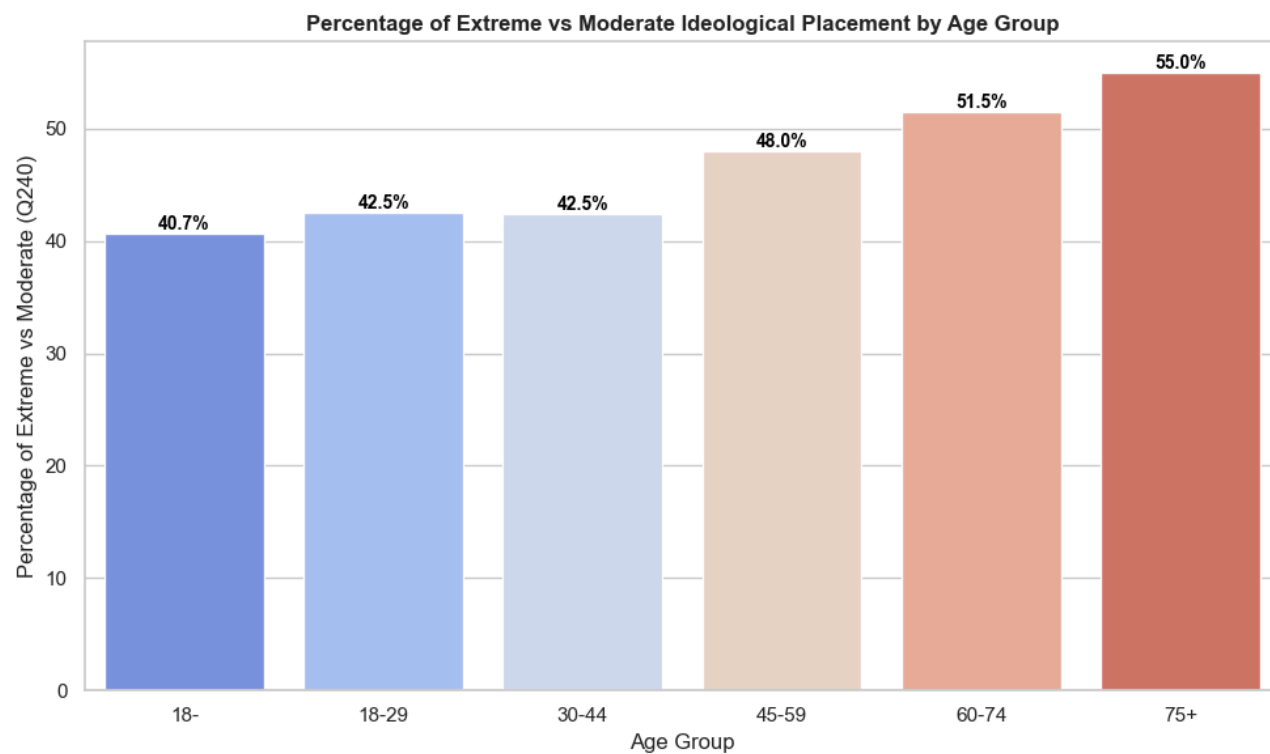


Figure C2. *Percentage of Extreme vs Moderate Ideological Placement by Age Group*

The % represents the extremity proportion between countries.

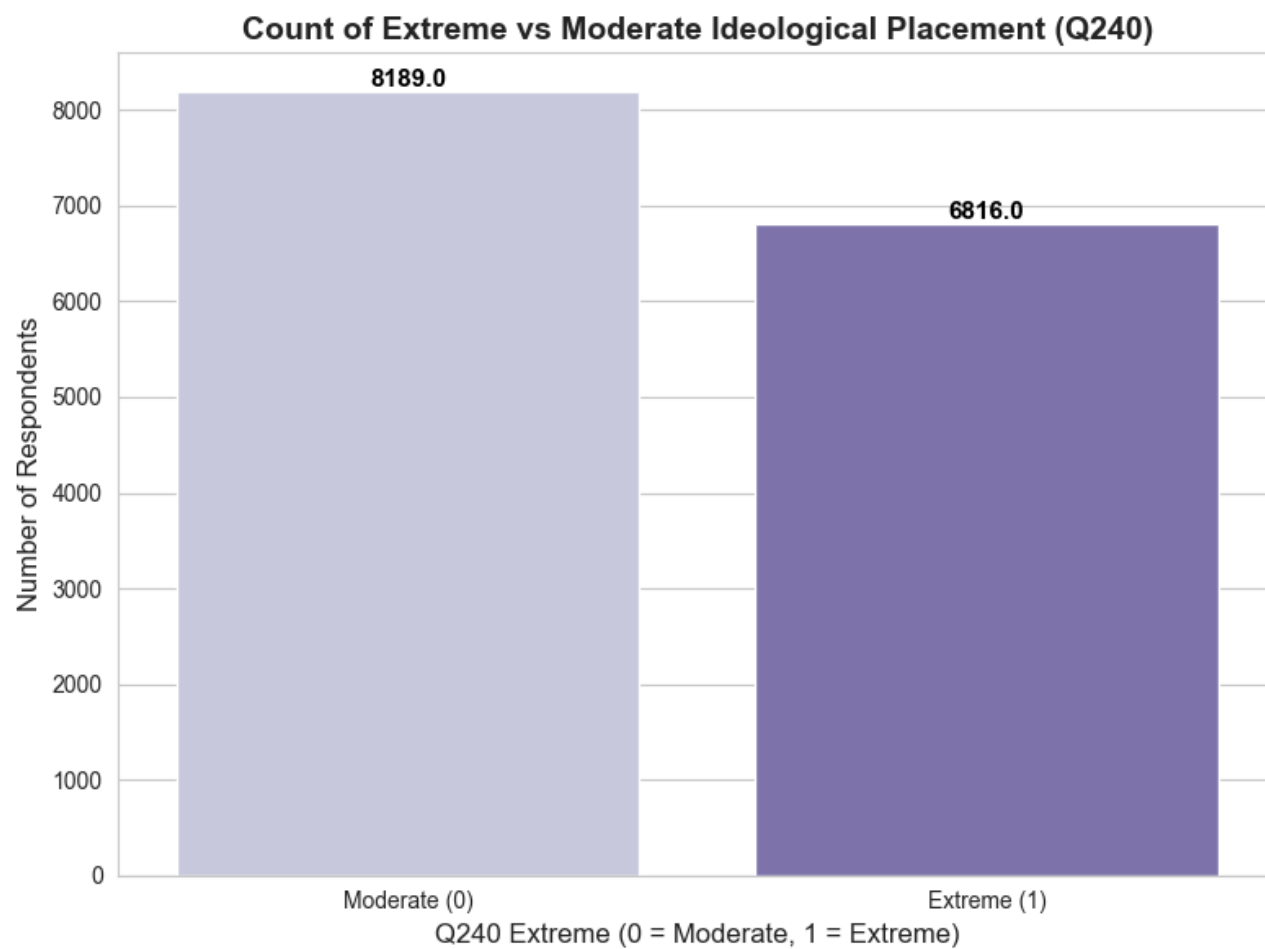


Figure C3. *Count of Extreme vs Moderate Ideological Placement (Q240)*

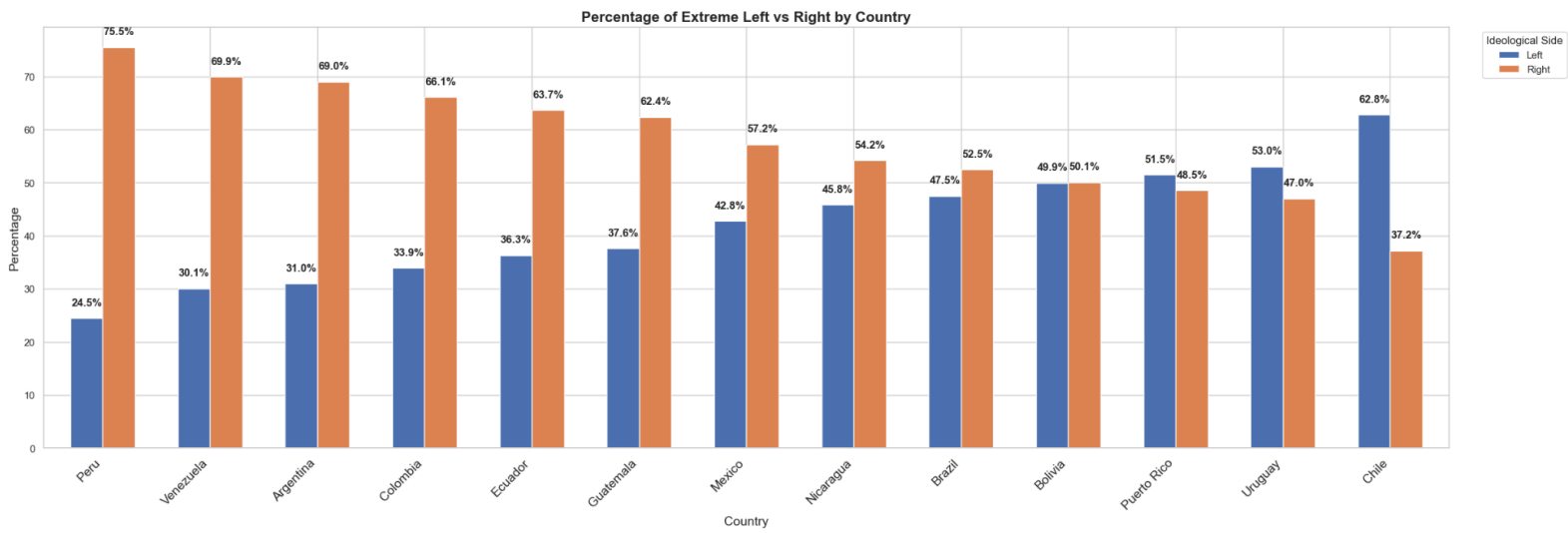


Figure C4. *Percentage of Extreme Left vs Right by Country*

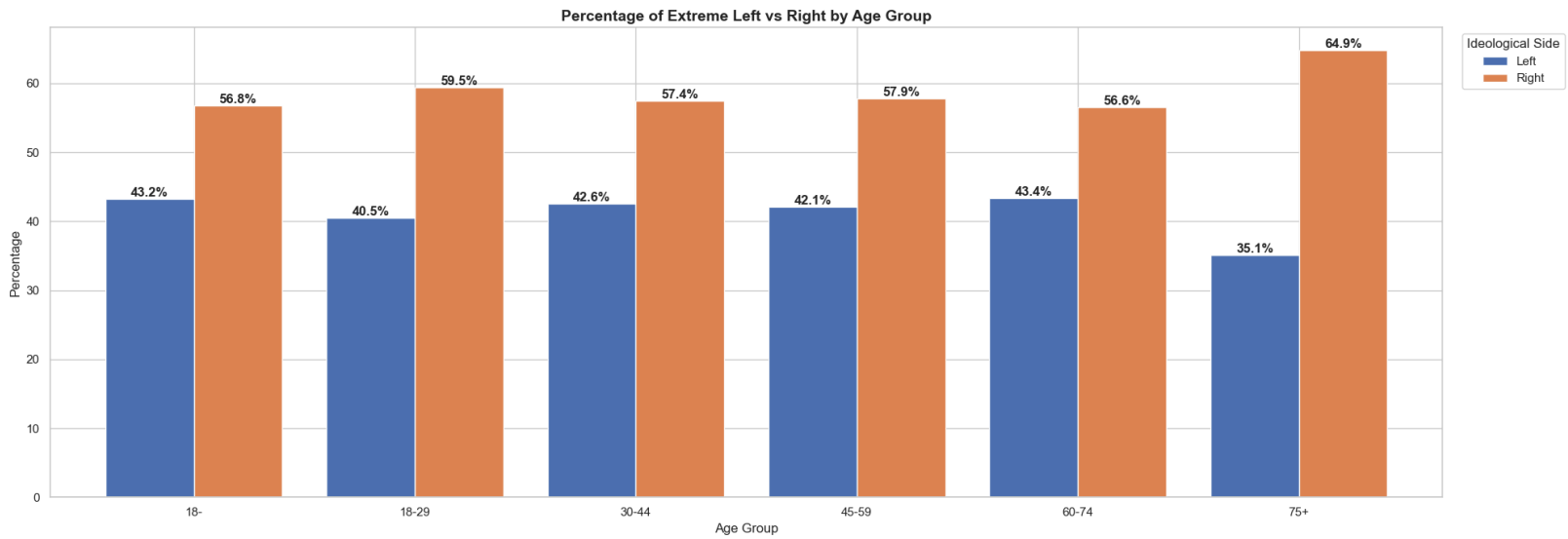


Figure C5. *Percentage of Extreme Left vs Right by Age Group*

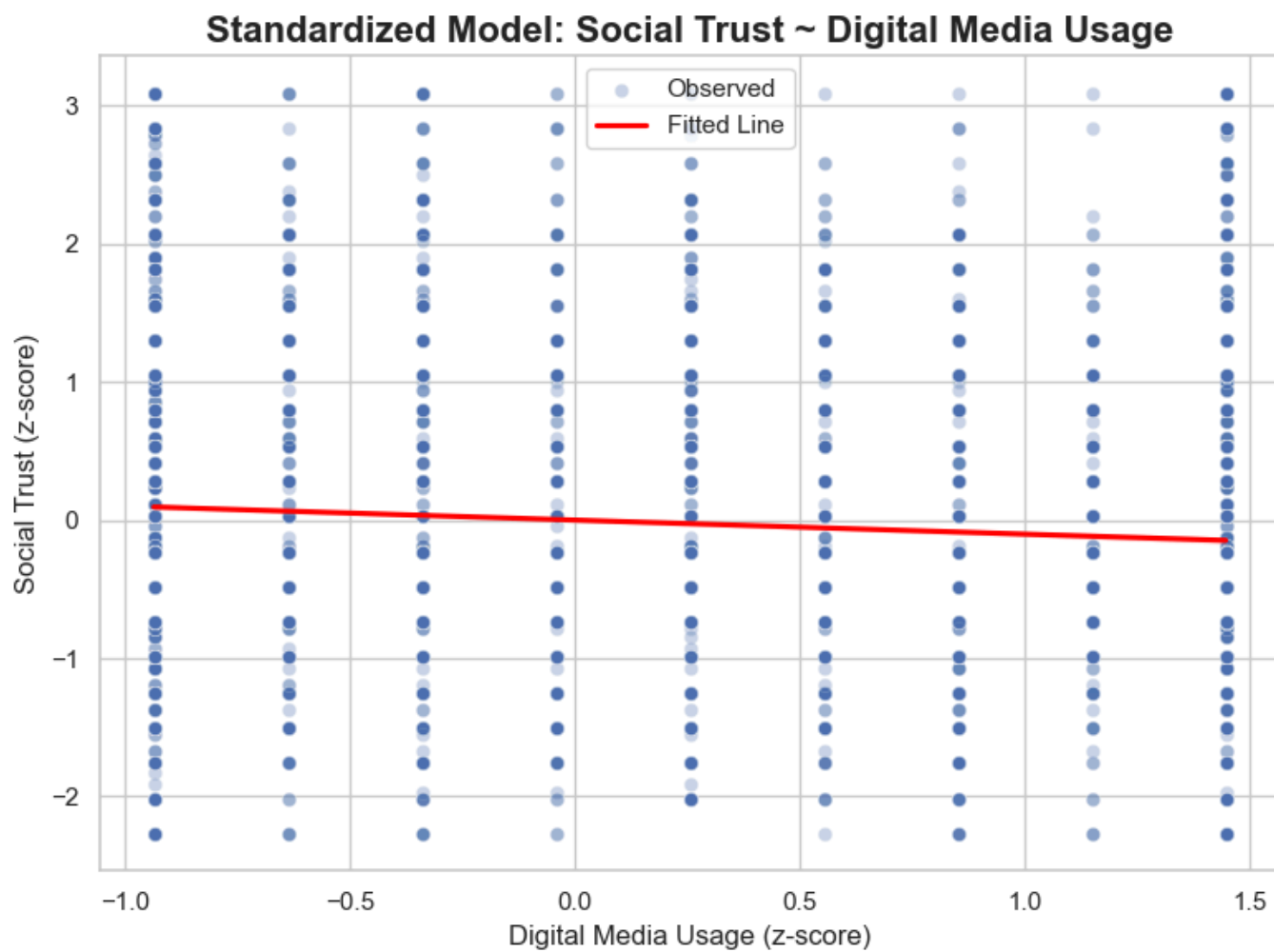


Figure C6. *Standardized relationship between digital media usage and social trust*

Table C7. *Coefficients for the Model 2: Adding Political Extremity, Age, and Country Controls*

Variable	Coefficient	Std. Error	P-value
Intercept	0.5755	0.02	0.0
Digital Media Usage (norm)	-0.0454	0.004	0.0
Political Extremity (norm)	0.0009	0.003	0.789
Age: 18-29	-0.0012	0.019	0.948
Age: 30-44	0.005	0.019	0.79
Age: 45-59	0.015	0.019	0.427
Age: 60-74	0.0404	0.019	0.034
Age: 75+	0.0842	0.02	0.0
Country: Bolivia	-0.2026	0.007	0.0
Country: Brazil	-0.134	0.008	0.0
Country: Chile	-0.1769	0.008	0.0

Country: Colombia	-0.2248	0.008	0.0
Country: Ecuador	-0.1099	0.008	0.0
Country: Guatemala	-0.1698	0.008	0.0
Country: Mexico	-0.1698	0.008	0.0
Country: Nicaragua	-0.1865	0.009	0.0
Country: Peru	-0.225	0.008	0.0
Country: Puerto Rico	-0.0569	0.008	0.0
Country: Uruguay	-0.0866	0.008	0.0
Country: Venezuela	-0.131	0.008	0.0

Model 2: Social Trust ~ Digital Media Usage (by Country)

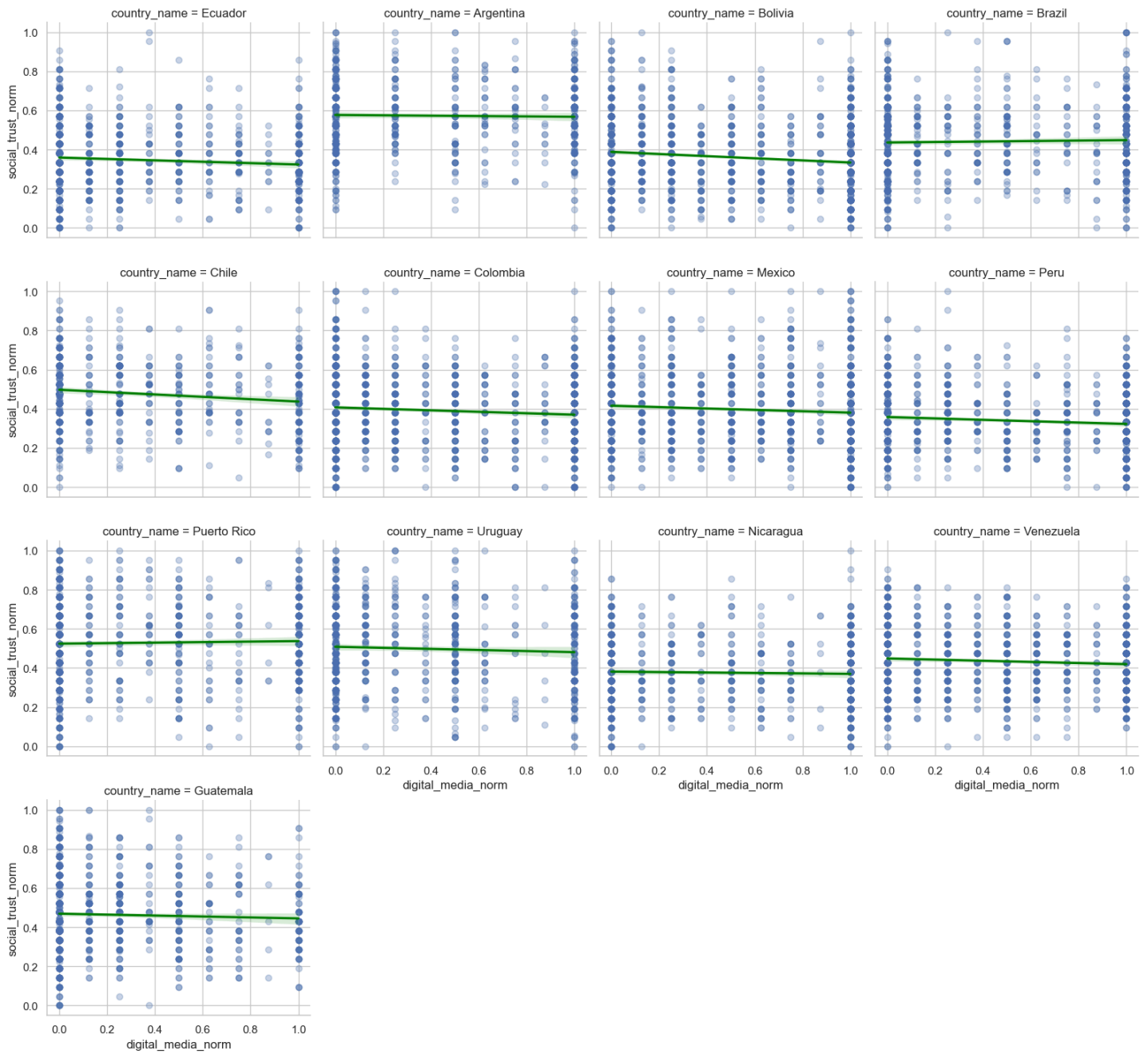


Figure C8. Zoomed-in Model 2 Subplots by Country

Variation in Social Trust by Digital Media Use Across Age Groups

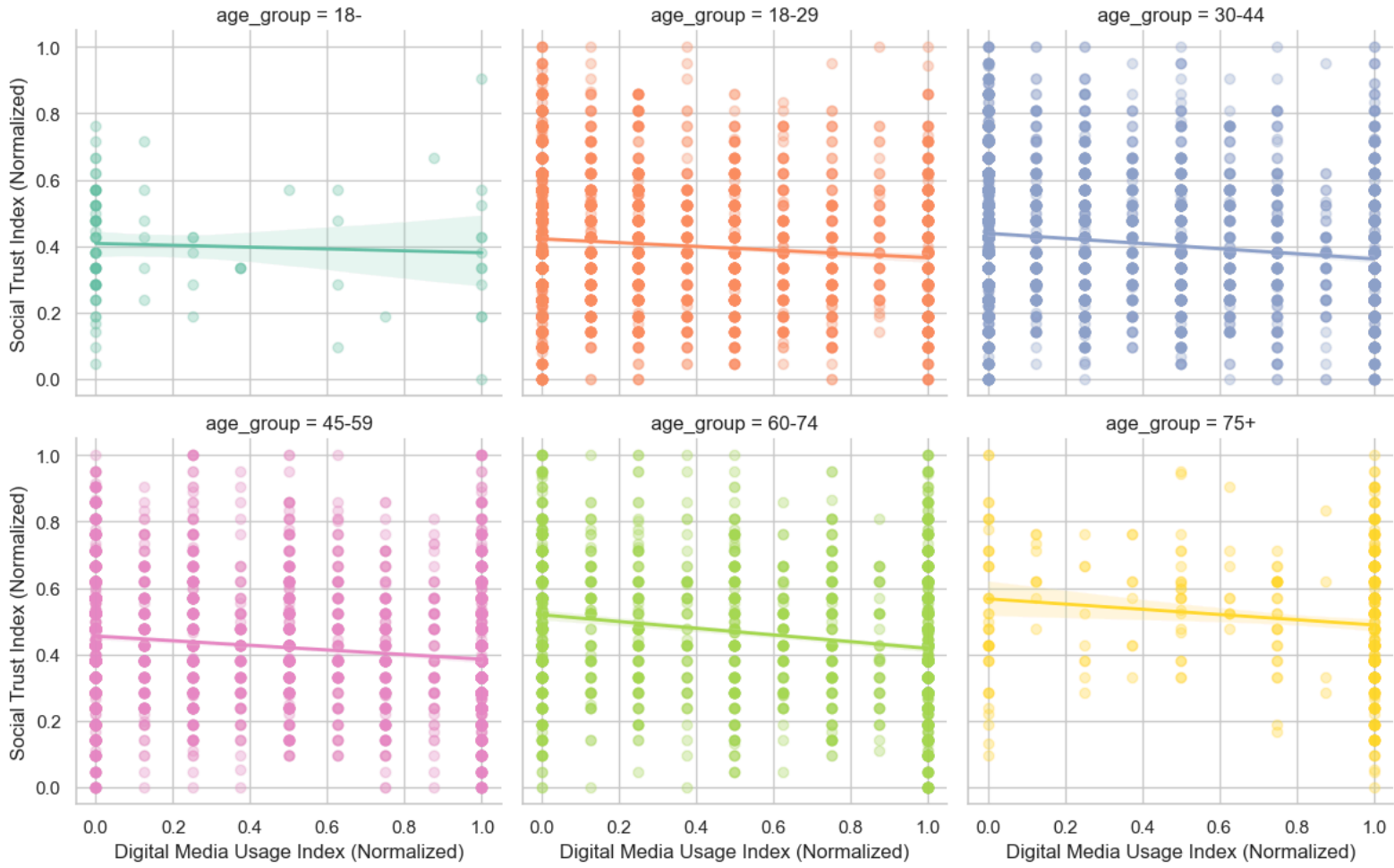


Figure C9. Zoomed-in Model 2 Subplots by Age Group

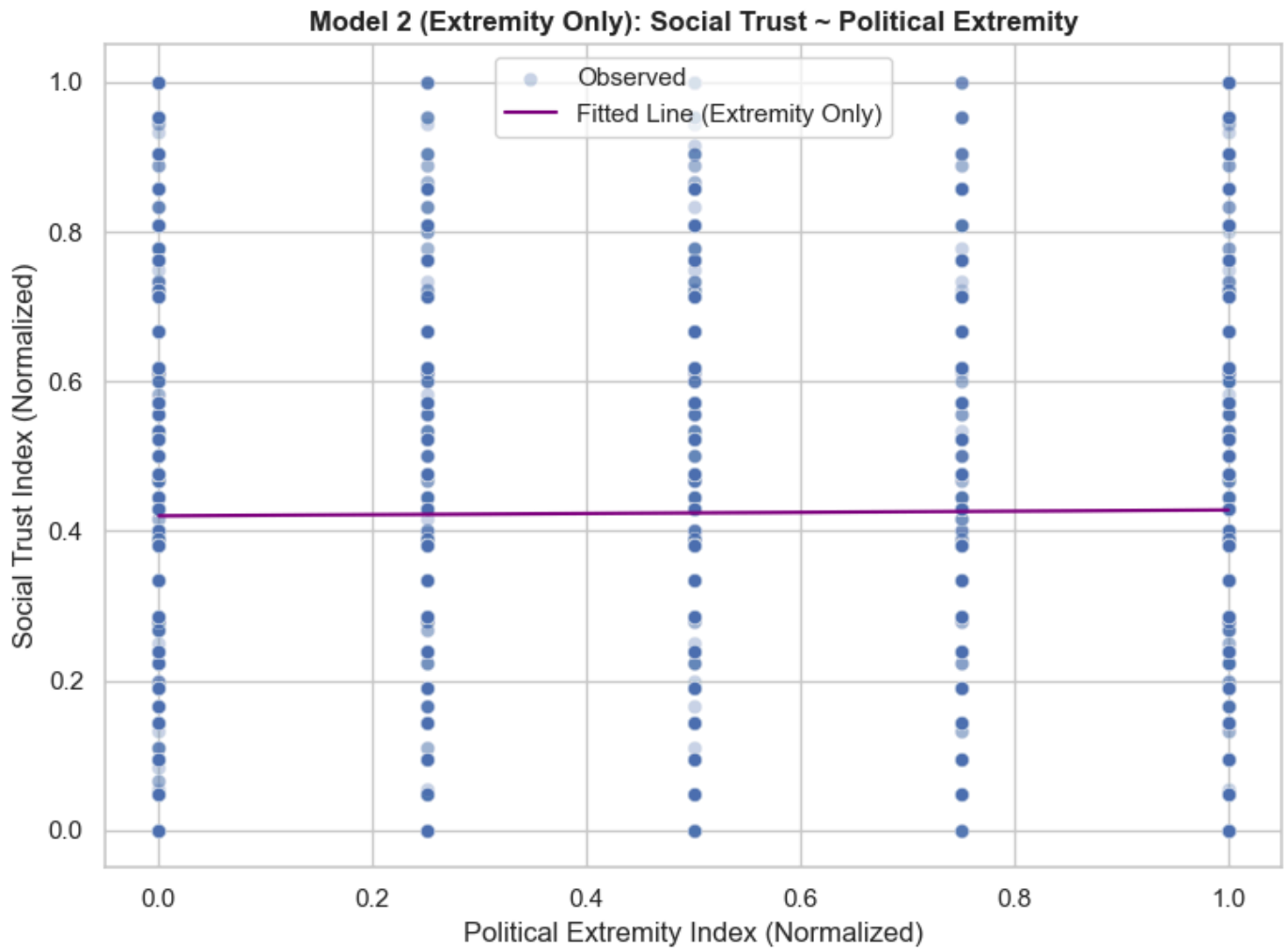


Figure C10. *Extremity only, extension and additional from Model 2*

Table C11. *OLS Regression Results from the extremity only Model 2*

Variable	Coefficient	Standard Error	t-Statistic	p-value	95% CI Lower	95% CI Upper
Intercept	0.5765	0.02	29.298	0.0	0.538	0.615
Digital Media Usage (Normalized)	-0.0486	0.005	-9.463	0.0	-0.059	-0.039
Political Extremity (Normalized)	-0.002	0.005	-0.434	0.664	-0.011	0.007
Interaction: Media x Extremity	0.0075	0.008	0.938	0.348	-0.008	0.023