

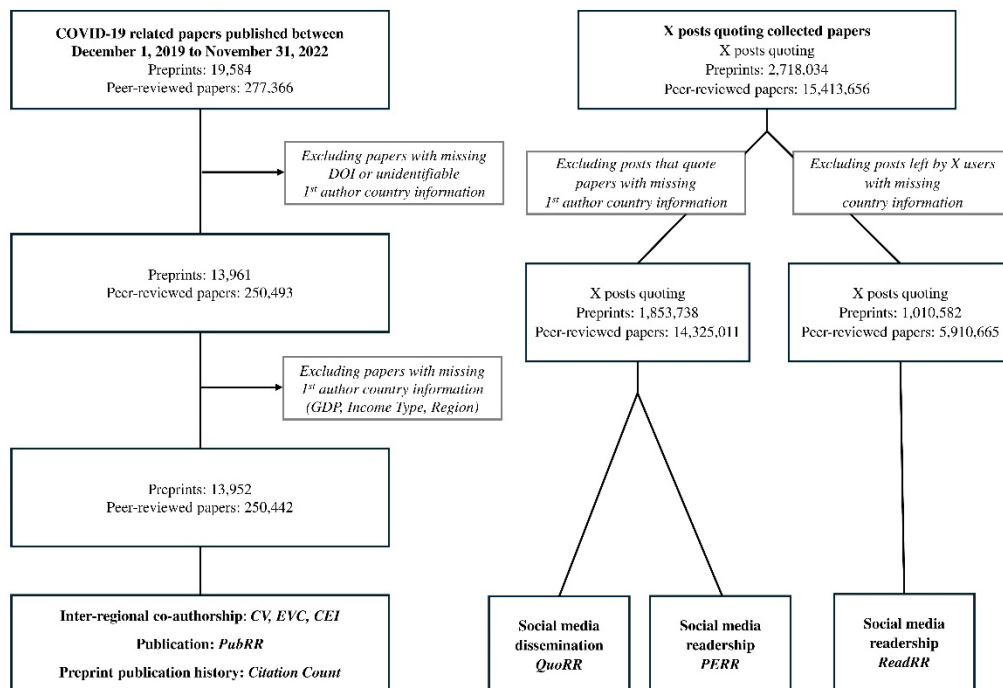
Supplementary Materials

Appendix S1. STROBE Statement checklist

Text S1. Search queries

TITLE-ABS-KEY(sars-cov-2 OR 'coronavirus 2' OR 'corona virus 2' OR covid-19 OR {novel coronavirus} OR {novel corona virus} OR 2019-ncov OR covid OR covid19 OR ncovid-19 OR 'coronavirus disease 2019' OR 'corona virus disease 2019' OR corona-19 OR SARS-nCoV OR ncov-2019)

Figure S1. Dataflow Chart



The monthly publication trends of peer-reviewed papers and preprints are categorized by region, ranging from December 2019 to October 2022, with November 2022 excluded due to a lack of

publications. The y-axis reflects the proportion of publications within each paper type for a given month. A vertical line indicates when half of the publications were reached. Preprints show a notable surge at the onset of the COVID-19 pandemic across all regions, demonstrating a capacity for rapid response and dissemination of numerous studies. Preprints reached half of the publications faster than peer-reviewed papers in all regions. The publication time difference between preprints and their corresponding subsequent peer-reviewed papers is approximately 196 days when considering the latest version of preprints and around 215 days when considering the first version of preprints.

COVID-19, Coronavirus Disease 2019; DOI, Digital Object Identifier; GDP, Gross Domestic Product; CV, Coefficient of Variation; EVC, Eigenvector Centrality; CEI, Co-authorship Enhancement Index; PubRR, Publication Relative Ratio; QuoRR, Social Media Quotation Relative Ratio; ReadRR, Social Media Readership Relative Ratio; PERR, Public Engagement Relative Ratio.

Figure S2. Inter-regional co-authorship matrices

(A) Higher paper type (B) Difference ratio

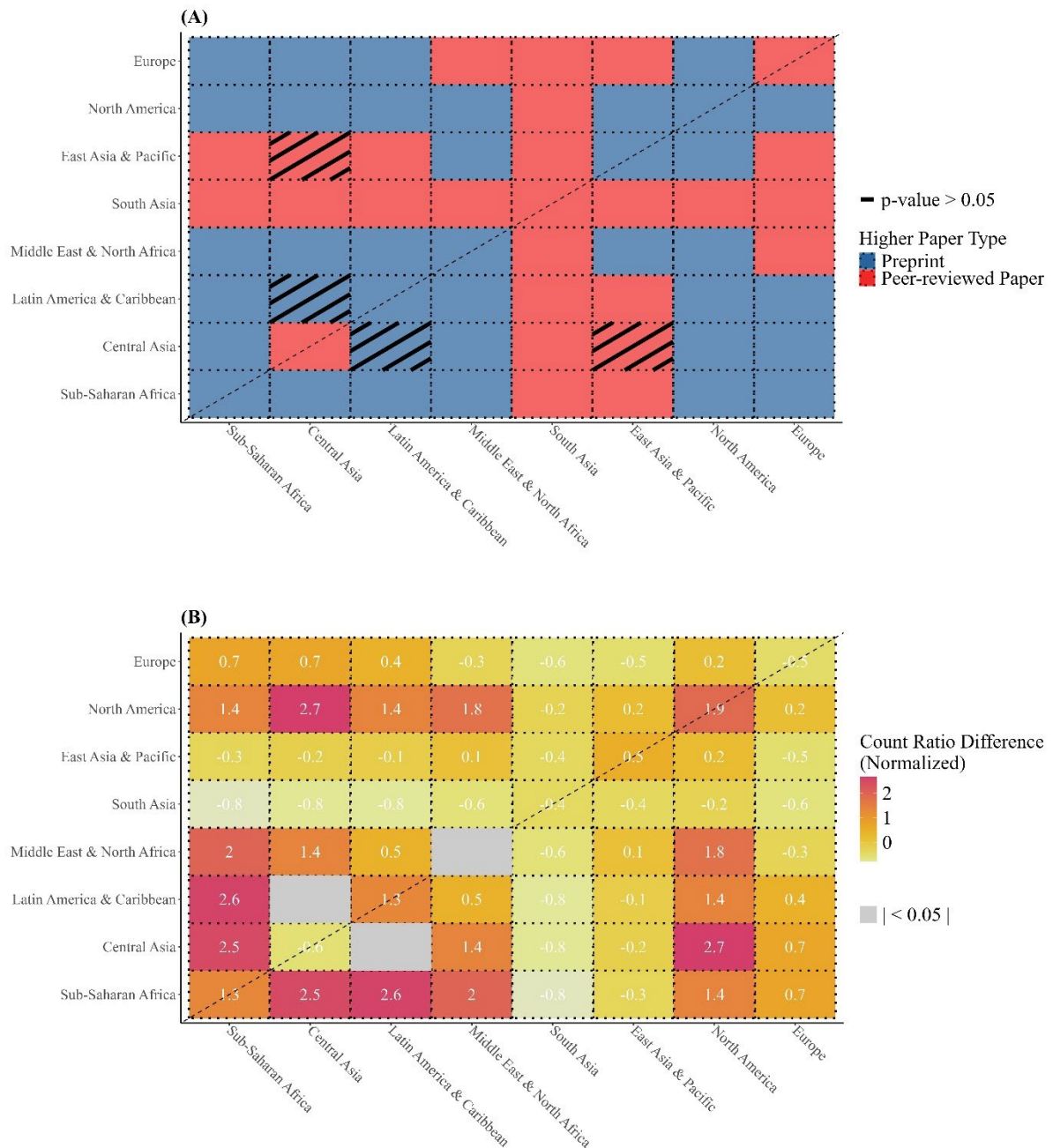
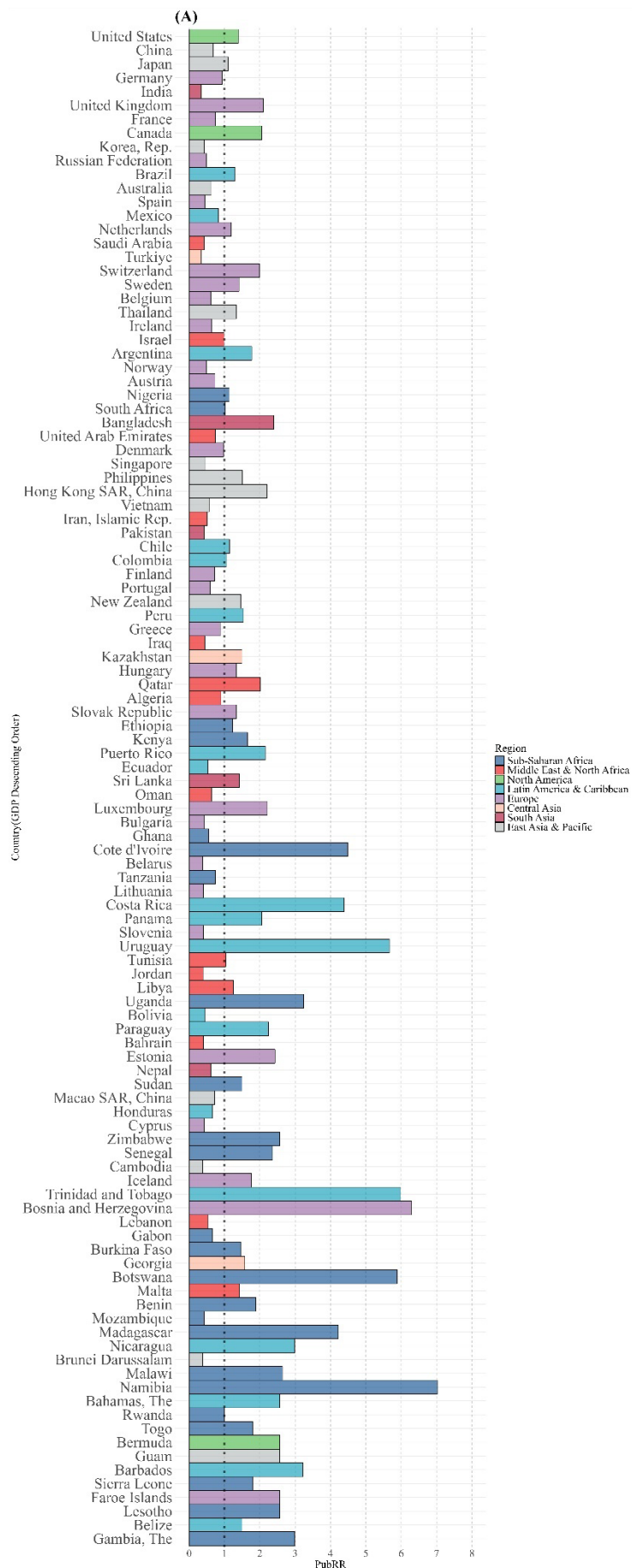


Figure S2 is a set of adjacency matrices of inter-regional co-authorship among regions depicted in Figure 1. (A) shows what type of paper has a higher inter-regional co-authorship count ratio between regions, with regions arranged according to the average GDP of their constituent countries. If the difference in ratio was shown to be non-significant in two-sample proportion

test, black slash was marked in that specific cell. (B) further goes on to show the % difference between two types of paper calculated by $(\text{Inter-regional Co-authorship Count Ratio in Preprints} - \text{Inter-regional Co-authorship Count Ratio in Peer-reviewed Papers}) / (\text{Inter-regional Co-authorship Count Ratio in Peer-reviewed Papers})$, rounded up to the first decimal point.

Figure S3. (A) Country-specific PubRR by descending order (top to bottom) of the country's GDP (B) Bar Graph: Percentage of Countries with PubRR > 1 by region



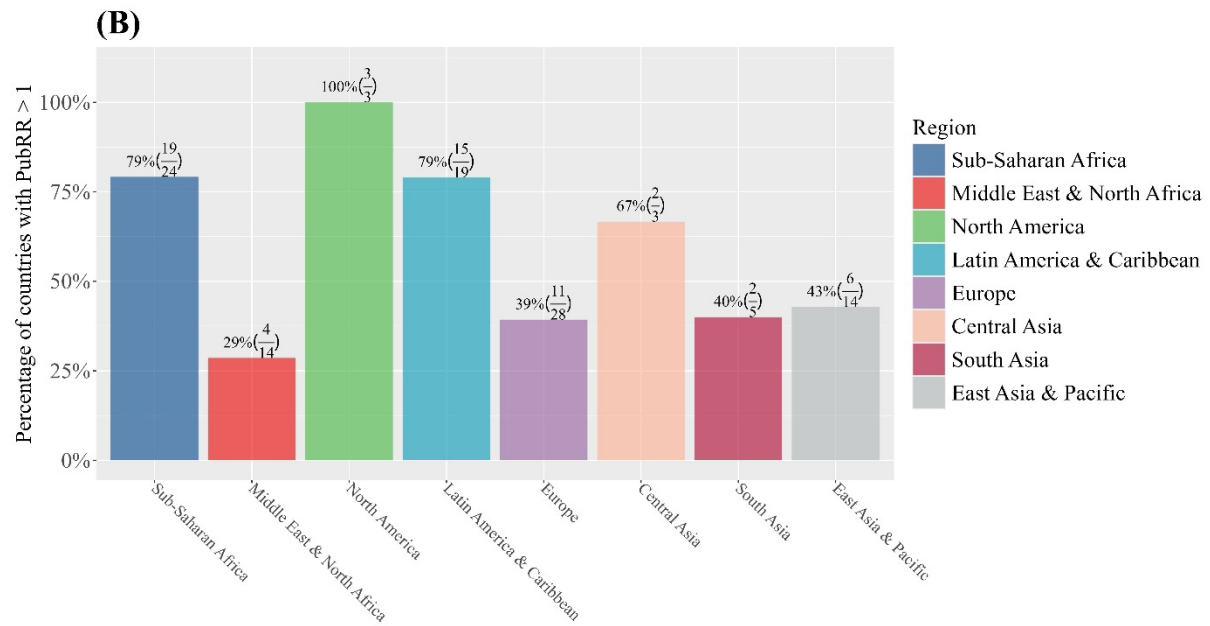
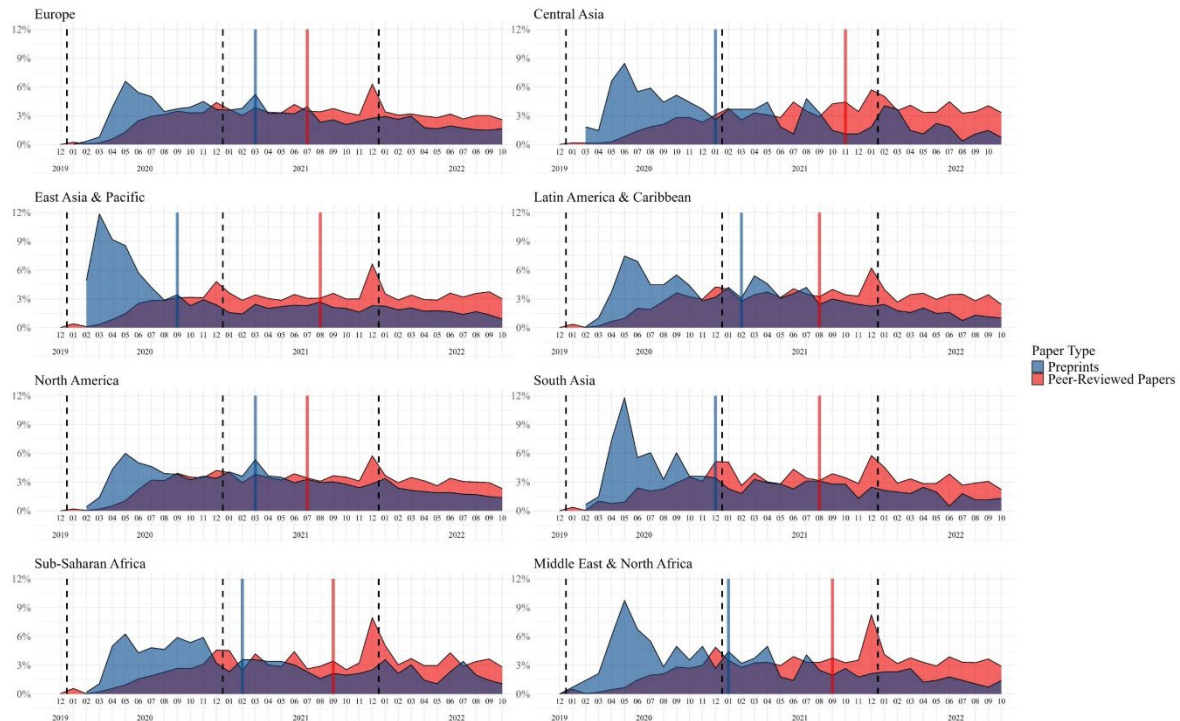


Figure S3(A) shows countries' PubRR by descending order of the country's GDP. Top 10% and bottom 10% outliers of PubRR values were excluded like in Figure 2. The countries were colored by the region they belong to. (B) shows the percentage of the number of countries with PubRR value exceeding 1 in each region, along with the total number of countries and the number of countries with PubRR value exceeding 1 countries as well.

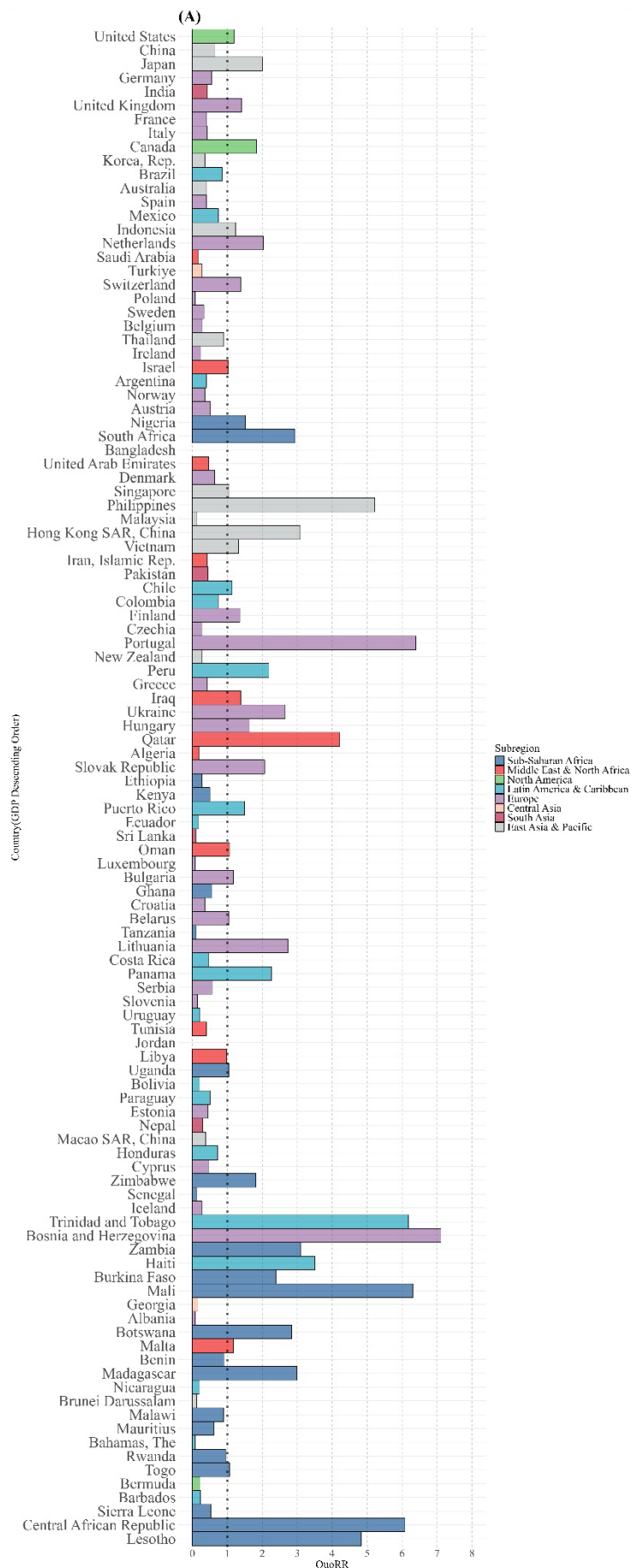
GDP, Gross Domestic Product; PubRR, Publication Relative Ratio.

Figure S4. Monthly Publication Rate from December 2019 to October 2022 by Region and Paper Type



The monthly publication trends of peer-reviewed papers and preprints are categorized by region, ranging from December 2019 to October 2022, with November 2022 excluded due to a lack of publications. The y-axis reflects the proportion of publications within each paper type for a given month. A vertical line indicates when half of the publications were reached. Preprints show a notable surge at the onset of the COVID-19 pandemic across all regions, demonstrating a capacity for rapid response and dissemination of numerous studies. Preprints reached half of the publications faster than peer-reviewed papers in all regions. The publication time difference between preprints and their corresponding subsequent peer-reviewed papers is approximately 196 days when considering the latest version of preprints and around 215 days when considering the first version of preprints.

Figure S5. (A) Country-specific QuoRR by descending order (top to bottom) of the country GDP (B) Bar Graph: Percentage of countries with QuoRR > 1 in each region (C) QQ-Plots of Social Media Quotation Count by Income Group



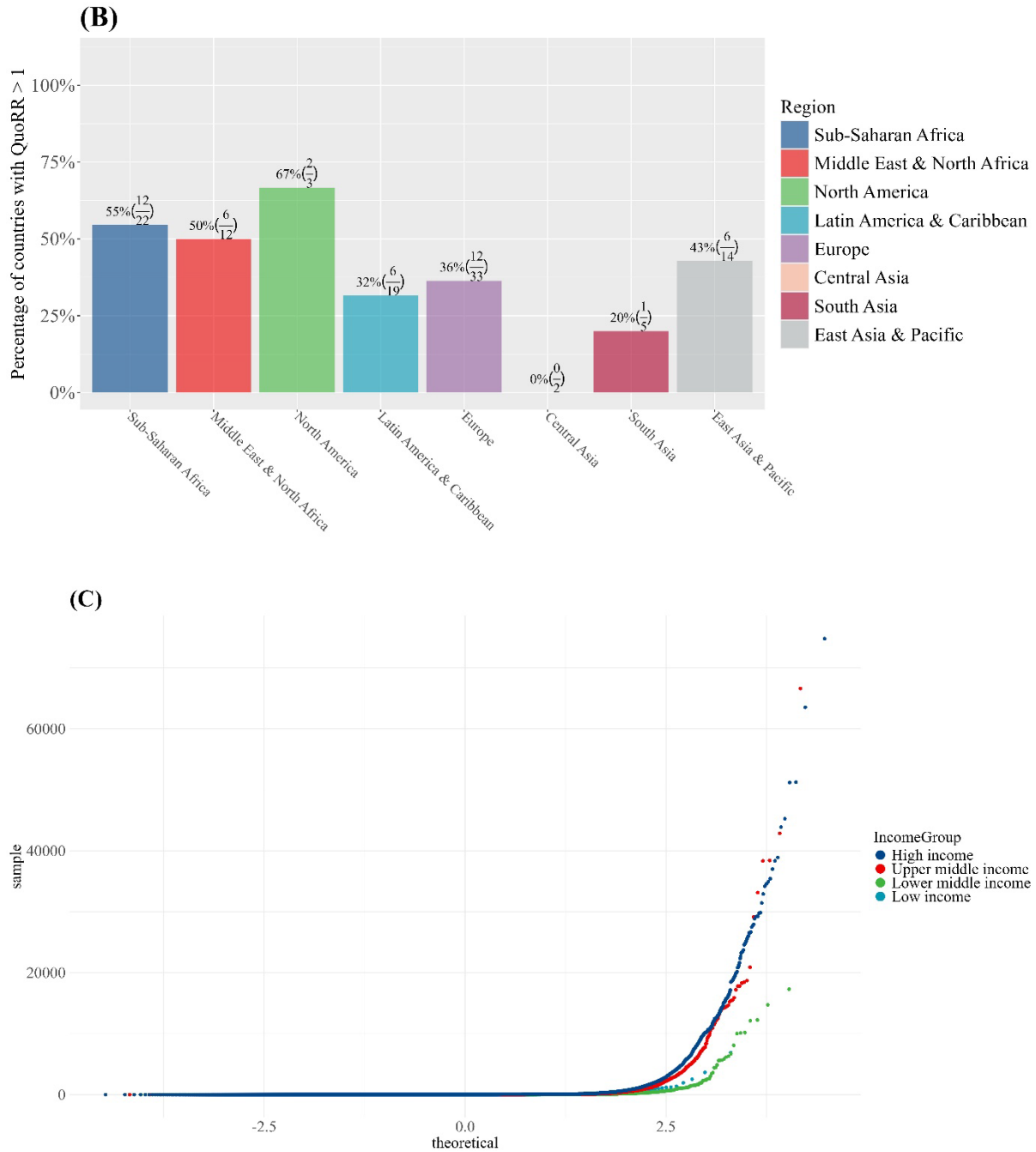


Figure S5(A) shows countries' QuoRR by descending order of the country's GDP. The top 10% and bottom 10% outliers of QuoRR values were excluded. Figure (b) shows a bar graph of the percentage of the number of countries with QuoRR value exceeding 1 in each region. Under the percentage is written both the total number of countries and the number of countries with QuoRR value exceeding 1 country in each region as well. Figure (c) shows Quantile-Quantile plots of social media quotation count to ensure non-normality when comparing via Wilcox test.

Due to the abundance of data ($n > 5,000$), Shapiro-wilk test was not valid.

GDP, Gross Domestic Product; QuoRR, Social Media Quotation Relative Ratio.

Figure S6. Scatter plot of the country's GDP and ReadRR

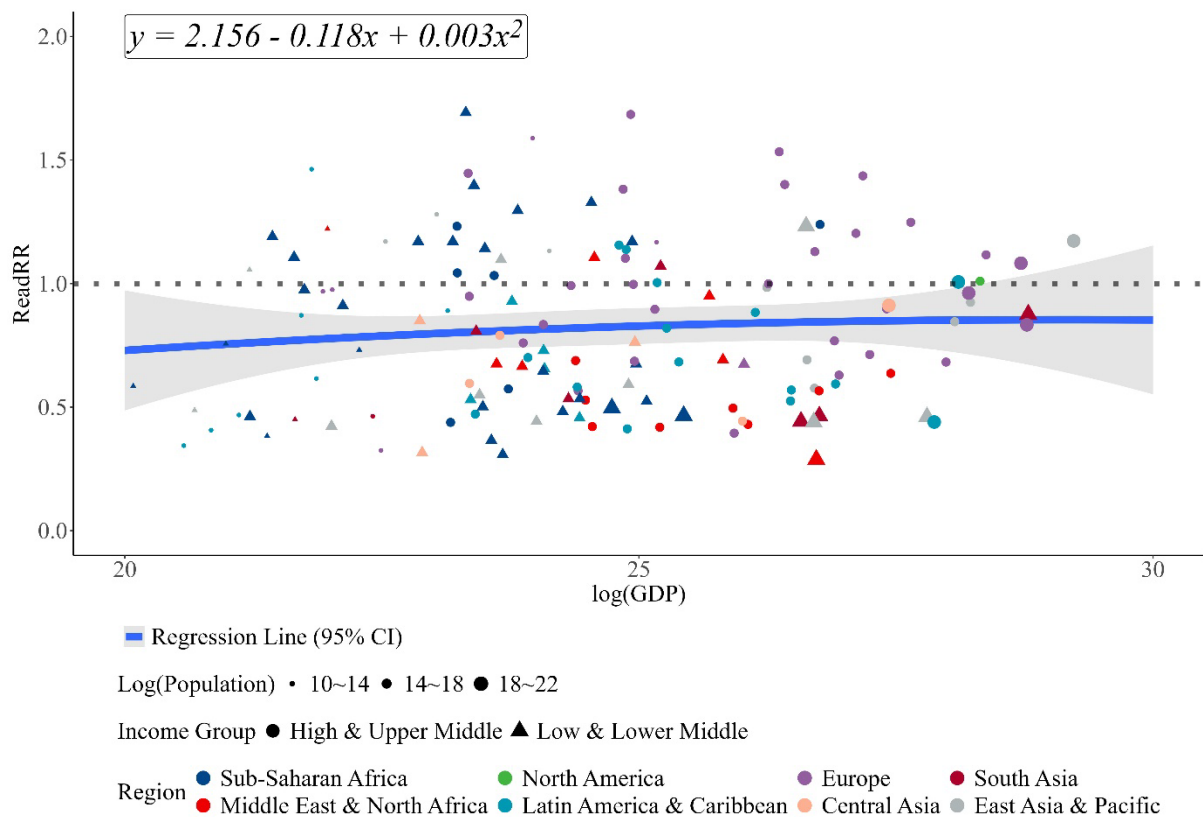
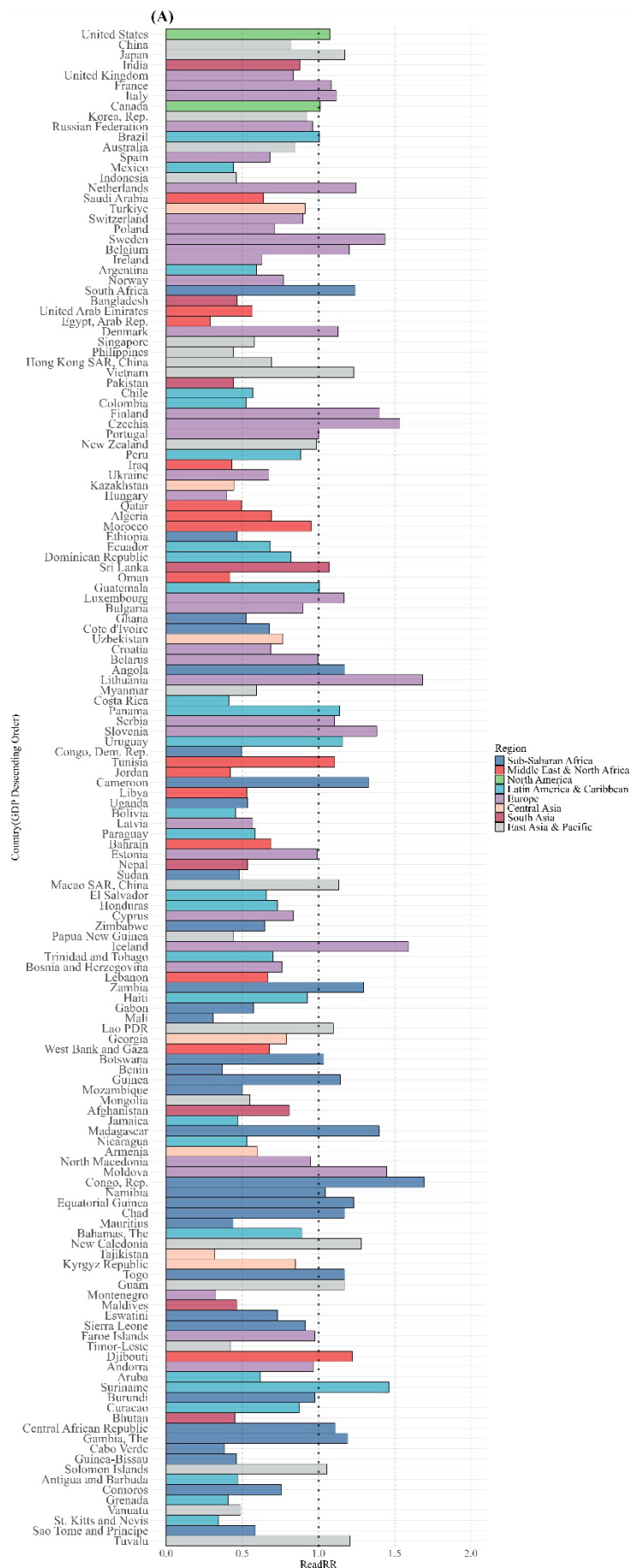
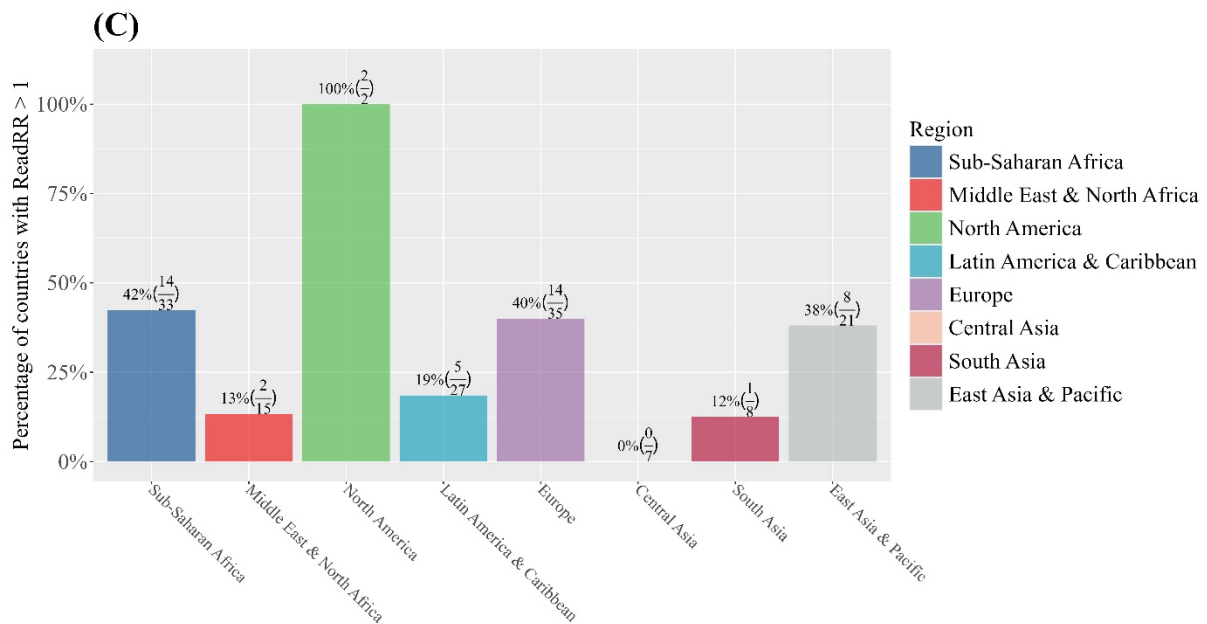
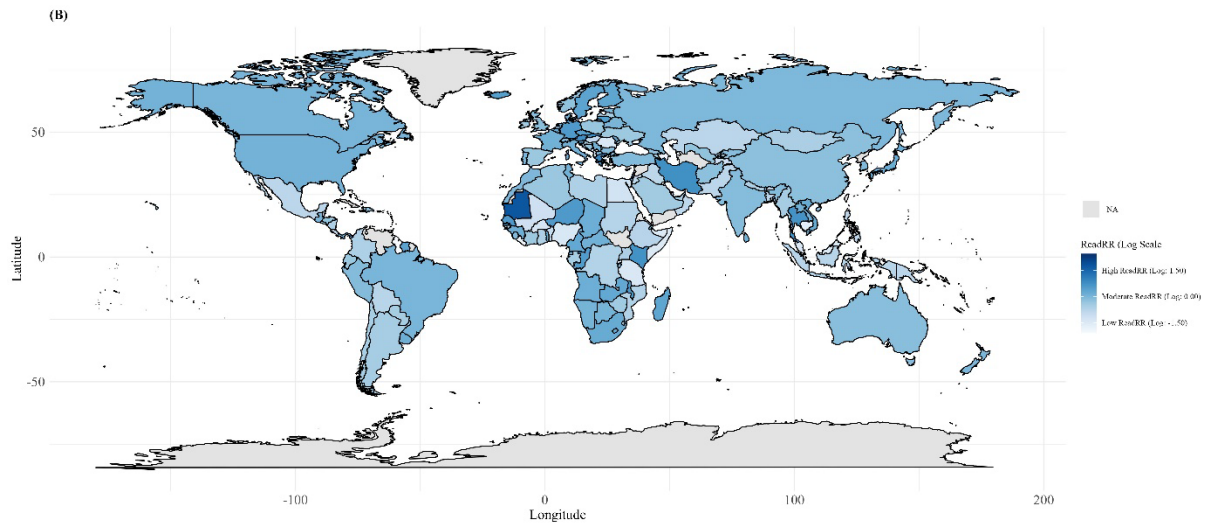


Figure S6 was made by first examining social media quotation counts of peer-reviewed papers and preprints left by X users from each country then calculating ReadRR. The second-order polynomial trend line is shown to be $y = 2.16 - 0.12x + 0.003x^2$ ($R^2 = 0.01$), and the Pearson correlation coefficient -0.11 but with a non-significant p-value of 0.136.

GDP, Gross Domestic Product; ReadRR, Social Media Readership Relative Ratio; CI, Confidence Interval; Log, Common Logarithm; HMIC, High-Middle Income Countries; LMIC, Low-Middle Income Countries.

Figure S7. (A) Country-specific ReadRR by descending order of the country's GDP (B) Geographic heatmap of ReadRR (C) Bar Graph: Percentage of countries with ReadRR > 1 in each region

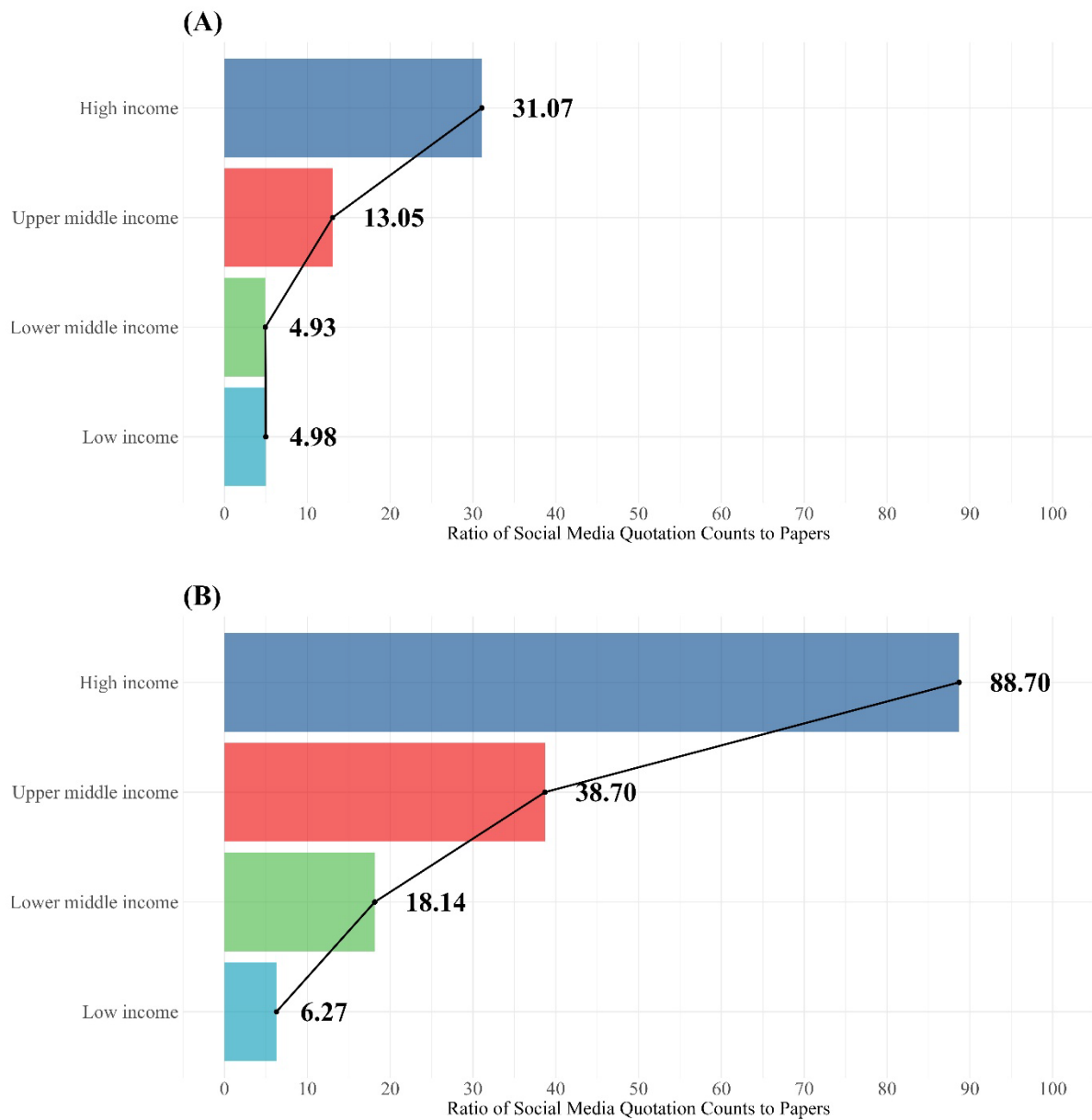




Countries' ReadRR values are displayed in descending order of GDP, with top and bottom 10% outliers excluded. The geographical heatmap features countries with missing ReadRR values in gray, and the bar graph shows the percentage of countries with ReadRR values exceeding 1 in each region. The non-significant relationship between country-specific ReadRR and GDP is evident in the relatively uniform bar plot.

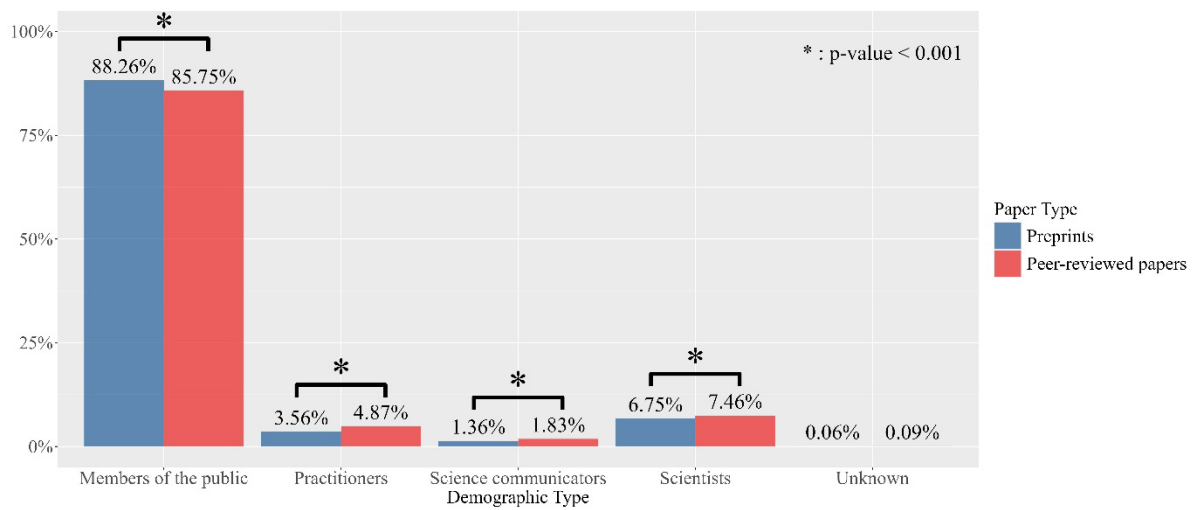
GDP, Gross Domestic Product; ReadRR, Social Media Readership Relative Ratio; NA, Not Available.

Figure S8. Ratio of Social Media Quotation Counts to Papers (A) Peer-reviewed Paper (B) Preprint



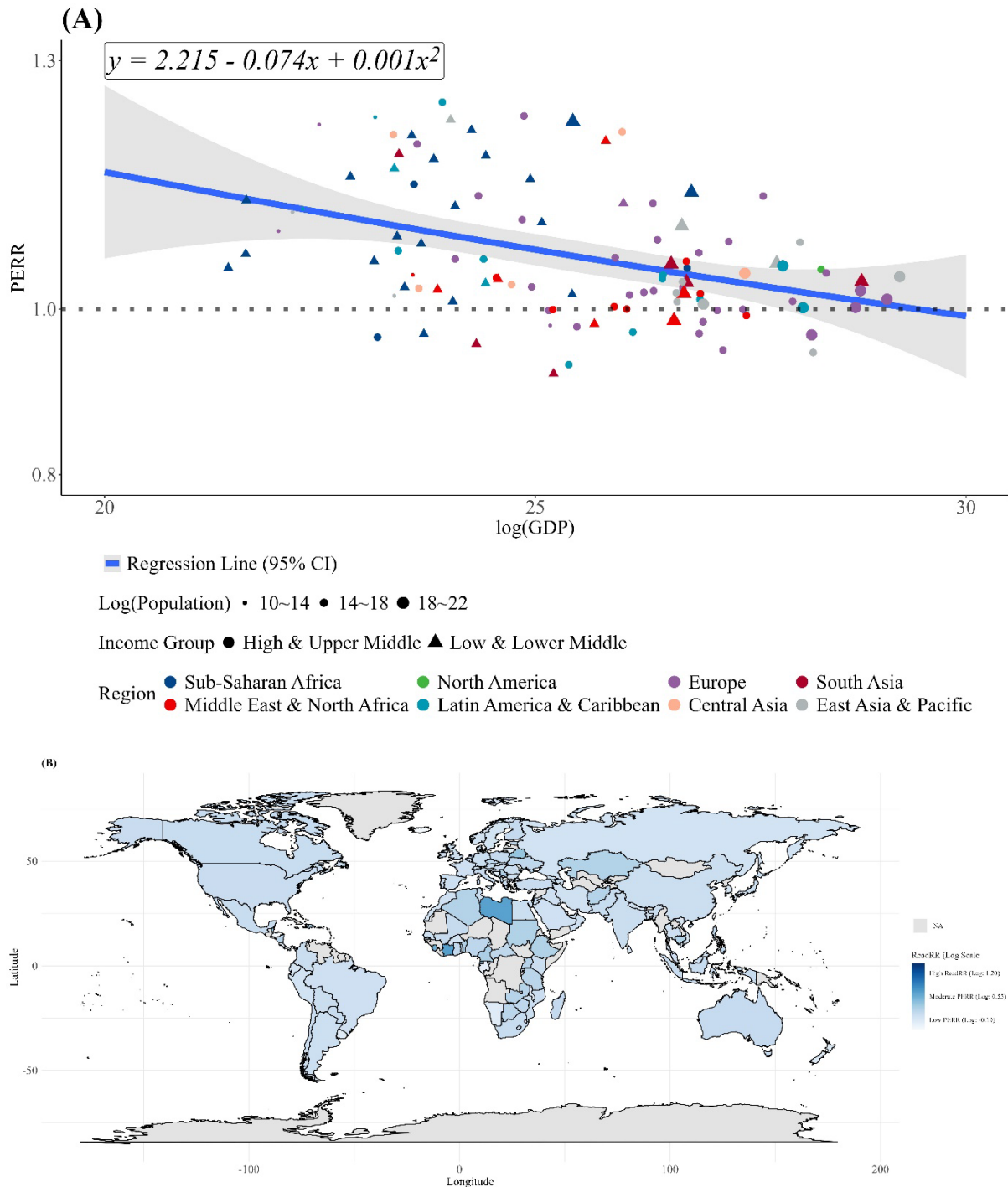
Both peer-reviewed papers and preprints exhibit a similar decline in the ratio of total social media quotation count to total paper counts as income levels decrease, moving from high-income to low-income groups. This trend is further supported by a two-sample proportion test, which shows no significant difference in the proportion of social media quotation count for low-income ($p\text{-value} = 0.287$) and high-income groups ($p\text{-value} = 1.000$) between the two types of papers.

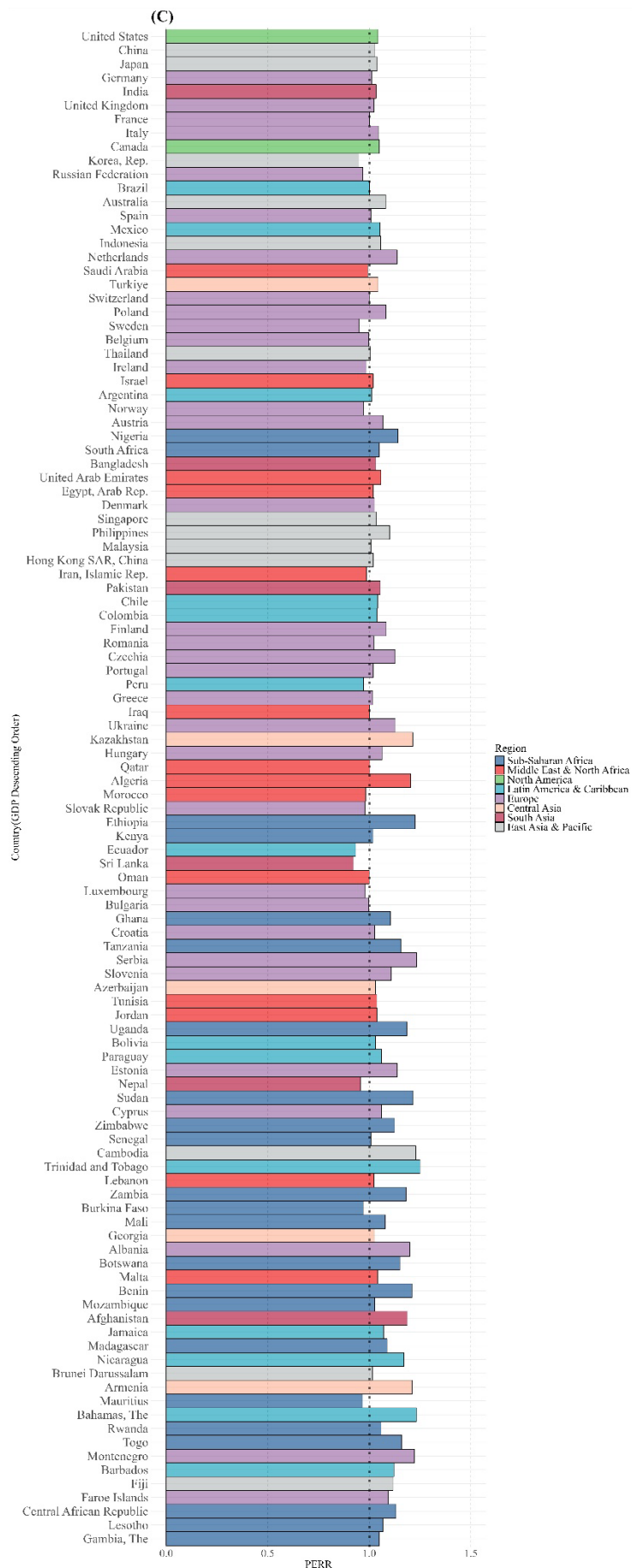
Figure S9. Overall X Demographics by Paper type

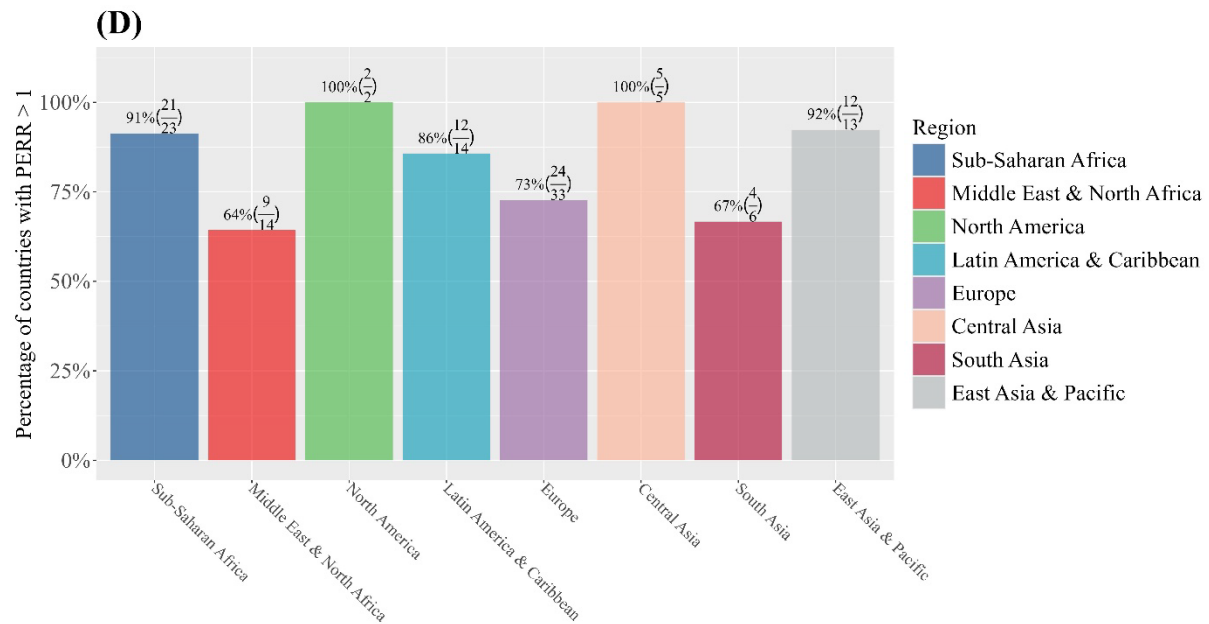


A bar graph of quoted post counts classified by a comprehensive demographic profile of X users for both peer-reviewed papers and preprints shows that the ratio of quoted posts from “members of the public” is approximately 2.5% higher for preprints, with a statistically significant p-value of < 0.001. Other demographic profiles all show statistically significant differences according to the chi-squared test.

Figure S10. (A) Scatter plot of PERR (B) Geographic heatmap of PERR (C) Country-specific PERR by descending order (top to bottom) of the country's GDP (D) Bar Graph: Percentage of countries with PERR > 1 in each region



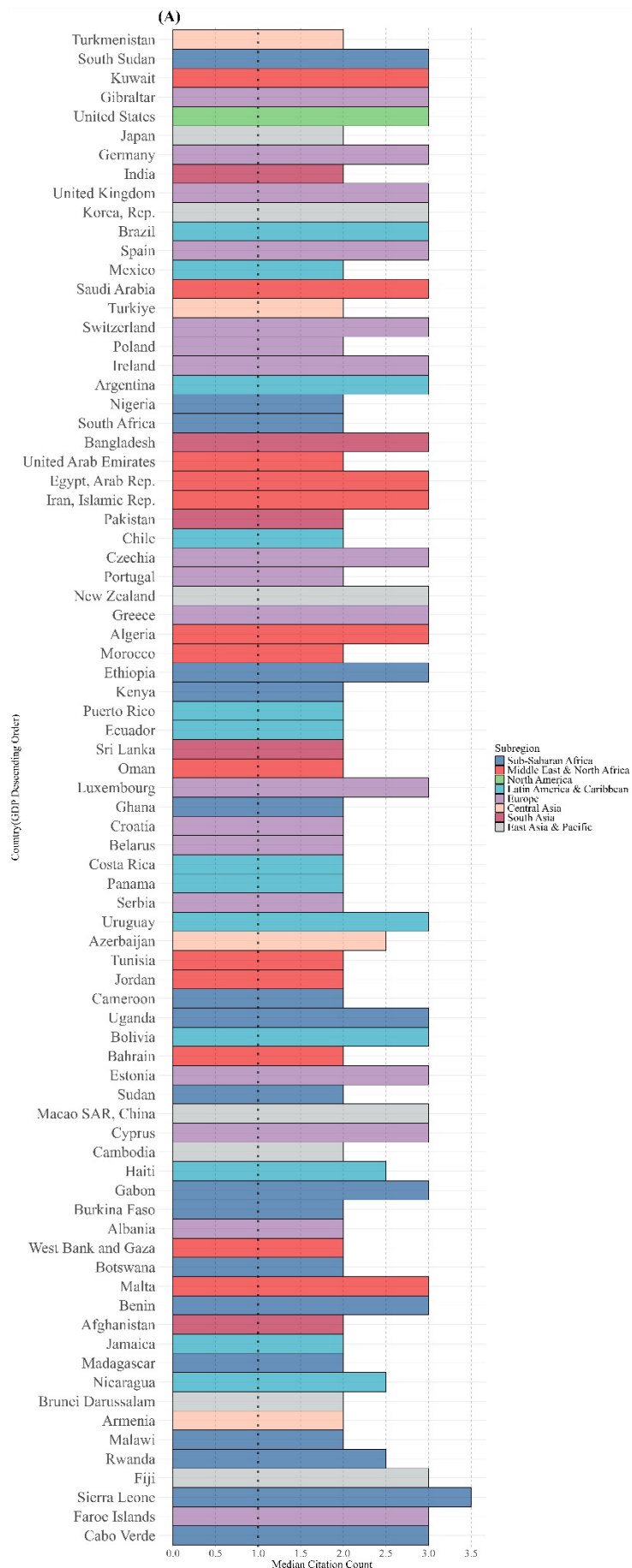


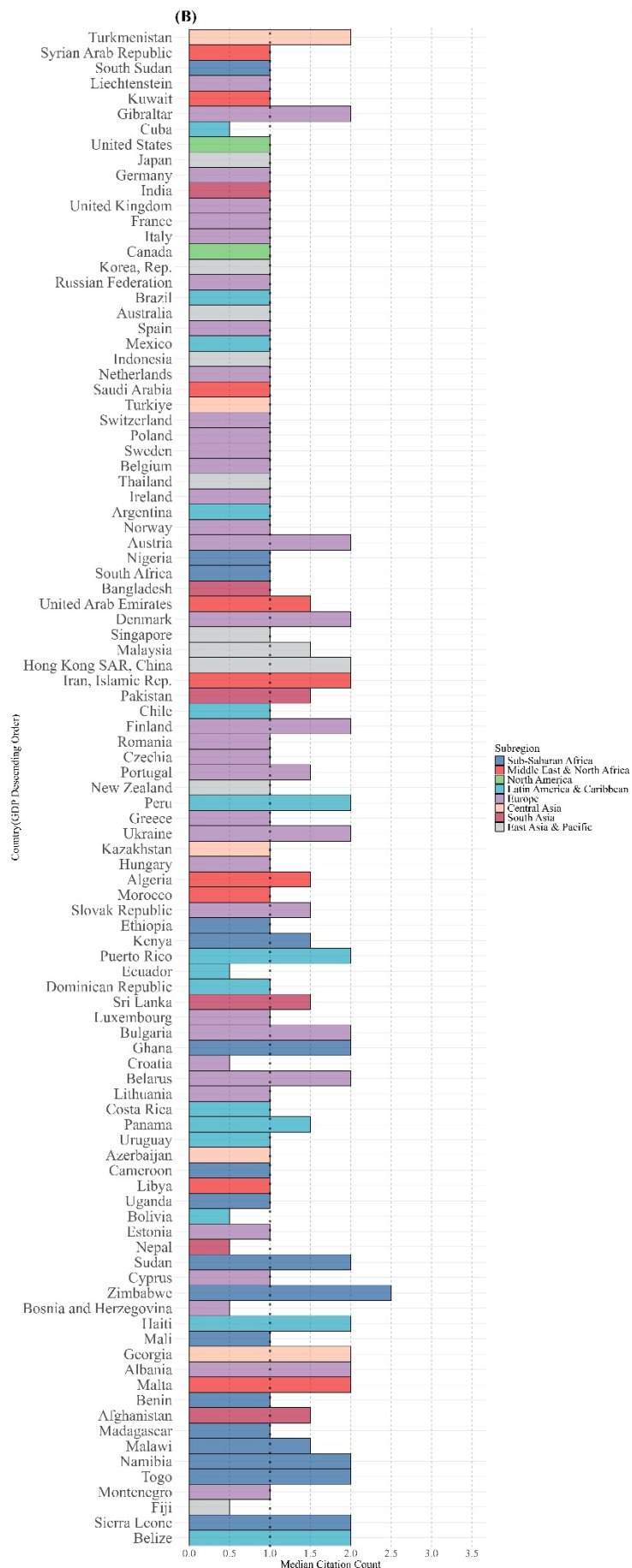


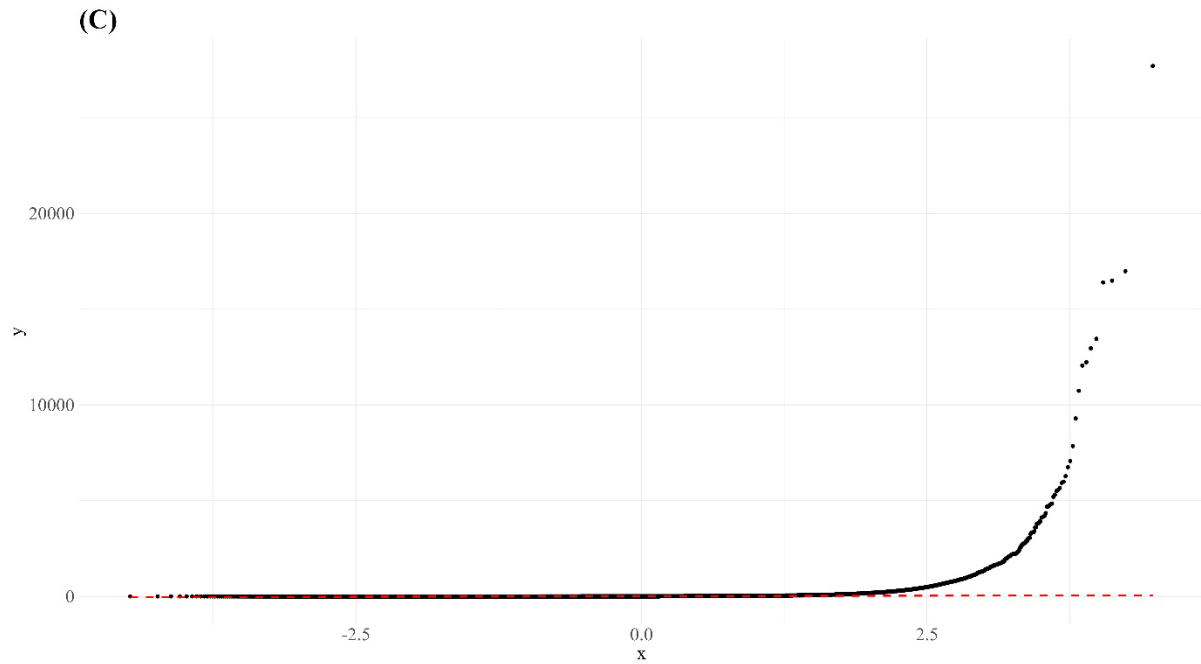
A significant negative correlation between the PERR and GDP was found, with a Pearson correlation coefficient of -0.20 (p-value = 0.021). A second-order polynomial trend line ($y = 2.21 - 0.07x + 0.001x^2$, $R^2 = 0.16$) illustrates this relationship in the scatter plot, indicating higher public engagement with preprints in countries with lower GDP compared to peer-reviewed papers. Countries' ratio values are shown in descending order of GDP, excluding the top and bottom 10% outliers. The geographical heatmap highlights countries with high ratio values, such as Palestine, Cameroon, and Cambodia.

GDP, Gross Domestic Product; PERR, Public Engagement Relative Ratio; CI, Confidence Interval; Log, Common Logarithm; HMIC, High-Middle Income Countries; LMIC, Low-Middle Income Countries; NA, Not Available.

Figure S11. Median of Citation Count by descending order(top to bottom) of the country's GDP (A) Peer-reviewed Paper (B) Preprint (C) QQ-Plots of Peer-reviewed papers' citation counts







Countries' median citation counts are shown in descending order of GDP for each type of paper, with the top and bottom 10% outliers excluded. A quantile-quantile plot of peer-reviewed papers' citation counts was used, revealing non-normality. Consequently, a Wilcoxon test was conducted for comparisons of citation counts of peer-reviewed papers with and without publication history, as shown in Figure 5.

GDP, Gross Domestic Product; QQ-plot, Quantile-Quantile Plot.

Table S1. Paper Counts Per Region and Income group

	Peer-reviewed papers	Preprints	
Region			<i>p</i>-value
East Asia & Pacific	53,890 (21.5%)	2092 (15.0%)	< 0.001
South Asia	19,964 (8.0%)	611 (4.4%)	< 0.001
Central Asia	5,791 (2.3%)	272 (1.9%)	0.006
Europe	81,511 (32.5%)	4183 (30.0%)	< 0.001
Latin America & Caribbean	14,196 (5.7%)	1063 (7.6%)	< 0.001
North America	54,365 (21.7%)	4607 (33.0%)	< 0.001
Middle East & North Africa	16,063 (6.4%)	564 (4.0%)	< 0.001
Sub-Saharan Africa	4,662 (1.9%)	560 (4.0%)	< 0.001
Total	250,442 (100.0%)	13952 (99.9%)	
Income Group			<i>p</i>-value
High	163,353 (65.2%)	10,027 (71.9%)	< 0.001
Upper Middle	50,898 (20.3%)	2,513 (18.0%)	< 0.001
Lower Middle	34,881 (13.9%)	1,275 (9.1%)	< 0.001
Low	1,310 (0.5%)	137 (1.0%)	< 0.001
Total	250,442 (99.9%)	13,952 (100.0%)	

Paper counts by region and income group for both preprints and peer-reviewed papers are categorized into 8 regions and 4 income groups. The *p*-value column reports the results of a two-sample proportion test for each row, all of which are significant. According to the first

authors' countries, North America has a higher percentage of preprints (33.0%) compared to peer-reviewed papers (21.7%), while East Asia & Pacific and Europe have larger proportions of peer-reviewed papers. Preprints are more frequently represented in Sub-Saharan Africa and Latin America & the Caribbean by region, and in high-income and low-income groups by income level.

Table S2. Social Media Quotation Counts Per Region and Income group

(A) Social Media Quotation Counts Per Region and Income group (By Paper)

	Peer-reviewed papers	Preprints	
Region			<i>p</i>-value
East Asia & Pacific	2,858,895 (20.0%)	262,087 (14.1%)	< 0.001
South Asia	260,241 (1.8%)	41,217 (2.2%)	< 0.001
Central Asia	169,808 (1.2%)	12,163 (0.7%)	< 0.001
Europe	5,215,531 (36.4%)	574,757 (31.0%)	< 0.001
Latin America & Caribbean	677,435 (4.7%)	68,997 (3.7%)	< 0.001
North America	4,293,892 (30.0%)	718,293 (38.8%)	< 0.001
Middle East & North Africa	732,486 (5.1%)	112,730 (6.1%)	< 0.001
Sub-Saharan Africa	116,723 (0.8%)	63,494 (3.4%)	< 0.001
Total	14,325,011 (99.9%)	1,853,738 (100.0%)	
Income Group			<i>p</i>-value
High	11,633,706 (81.2%)	1,527,919 (82.4%)	< 0.001
Upper Middle	2,224,448 (15.5%)	234,551 (12.7%)	< 0.001
Lower Middle	427,481 (3.0%)	87,212 (4.7%)	< 0.001
Low	39,376 (0.3%)	4,056 (0.2%)	< 0.001
Total	14,325,011 (100.0%)	1,853,738 (100.0%)	

Social media quotation counts for peer-reviewed papers and preprints are categorized by 8 regions and 4 income groups based on the country of the lead authors of the papers, which are

also used for analysis of dissemination. The p-value column reports the results of a two-sample proportion test for each row, all of which are statistically significant. North America and Europe have the highest counts for both peer-reviewed papers and preprints. High-income groups dominate the quotation counts, with 81.2% for peer-reviewed papers and 82.4% for preprints. Other regions, such as East Asia & Pacific, South Asia, Latin America & Caribbean, as well as upper-middle and lower-middle income groups, display varying proportions, all showing significant differences between peer-reviewed papers and preprints.

(B) Social Media Quotation Counts Per Region and Income group (By User)

	Peer-reviewed papers	Preprints	
Region			<i>p</i>-value
East Asia & Pacific	775,455 (13.1%)	149,965 (14.8%)	< 0.001
South Asia	119,326 (2.0%)	17,327 (1.7%)	< 0.001
Central Asia	44,526 (0.8%)	6,870 (0.7%)	< 0.001
Europe	2,008,971 (34.0%)	333,298 (33.0%)	< 0.001
Latin America & Caribbean	564,405 (9.6%)	68,563 (6.8%)	< 0.001
North America	2,333,045 (39.5%)	424,169 (42.0%)	< 0.001
Middle East & North Africa	26,312 (0.5%)	4,032 (0.4%)	< 0.001
Sub-Saharan Africa	38,625 (0.7%)	6,358 (0.6%)	0.005
Total	5,910,665 (100.2%)	1,010,582 (100.0%)	
Income Group			<i>p</i>-value
High	5,071,094 (85.8%)	889,393 (88.0%)	< 0.001
Upper Middle	662,958 (11.2%)	97,209 (9.6%)	< 0.001
Lower Middle	170,664 (2.9%)	23,133 (2.3%)	< 0.001
Low	5,949 (0.1%)	847 (0.1%)	< 0.001
Total	5,910,665 (100.0%)	1,010,582 (100.0%)	

Social media quotation counts for peer-reviewed papers and preprints are categorized by region and income group based on the country information of the X users citing the papers. 8 regions and 4 income groups were used to classify the quotations and also used for analysis of

readership. The p-value column displays the results of a two-sample proportion test for each row, all showing statistical significance. The data indicates that North America has the highest social media quotation counts for both peer-reviewed papers (39.5%) and preprints (42.0%). High-income groups are prominently represented in the social media quotation counts, with 85.8% for peer-reviewed papers and 88.0% for preprints. Other regions, including East Asia & Pacific, Europe, Latin America & Caribbean, and income groups such as upper-middle and lower-middle, show varying proportions, all showing significant differences between peer-reviewed papers and preprints. The discrepancy in total quotation counts between (A) and (B) arises from the lack of X users' country information due to X's stringent privacy policies.

Table S3. Inter-regional Co-authorship Counts**(A)** Peer-reviewed papers

	East Asia & Pacific	South Asia	Centr al Asia	Europe	Latin America & Caribbea n	North Americ a	Middle East & North Africa	Sub- Saharan Africa
East Asia & Pacific	443,115 (6.26)							
South Asia	96,315 (1.36)	218,603 (3.09)						
Central Asia	2,005 (0.03)	2,868 (0.04)	831 (0.01)					
Europe	402,249 (5.68)	166,189 (2.35)	4,073 (0.06)	3,166,938 (44.75)				
Latin America & Caribbean	35,430 (0.50)	35,073 (0.50)	770 (0.01)	151,710 (2.14)	132,241 (1.87)			
North America	155,914 (2.20)	85,986 (1.22)	1,549 (0.02)	551,951 (7.80)	60,331 (0.85)	531,010 (7.50)		

Middle East & North Africa	45,233 (0.64)	48,048 (0.68)	946 (0.01)	234,140 (3.31)	21,093 (0.30)	63,193 (0.89)	135,856 (1.92)	
Sub- Saharan Africa	30,692 (0.43)	49,676 (0.70)	851 (0.01)	67,142 (0.95)	13,400 (0.19)	37,531 (0.53)	23,155 (0.33)	60,496 (0.85)

(B) Preprints

	East Asia & Pacific	South Asia	Centr al Asia	Europ e	Latin America & Caribbea n	North Americ a	Middle East & North Africa	Sub- Saharan Africa
East Asia & Pacific	23,490 (9.55)							
South Asia	2,104 (0.86)	4,492 (1.83)						
Central Asia	58 (0.02)	24 (0.01)	12 (0.00)					
Europe	6,470 (2.63)	2,073 (0.84)	240 (0.10)	58,586 (23.81)				
Latin America & Caribbean	1,078 (0.44)	282 (0.11)	28 (0.01)	7,592 (3.09)	10,685 (4.34)			
North America	6,742 (2.74)	2,267 (0.92)	197 (0.08)	23,134 (9.40)	5,067 (2.06)	53,609 (21.79)		
Middle East & North	1,794 (0.73)	640 (0.26)	79 (0.03)	5,862 (2.38)	1,070 (0.43)	6,046 (2.46)	4,923 (2.00)	

Africa								
Sub-Saharan Africa	740 (0.30)	377 (0.15)	103 (0.04)	3,992 (1.62)	1,677 (0.68)	3,149 (1.28)	2,440 (0.99)	4,889 (1.99)

Supplementary Table 3 presents inter-regional co-authorship counts in a diagonal table format, where only the lower triangular half is populated to avoid redundancy. (A) shows count for peer-reviewed papers, while (B) shows counts for preprints. Figure 1 is based on this edge weight distribution, divided into six quantiles with the following cutoff values: for peer-reviewed papers, the cutoffs are 2,725.2, 33,622.9, 55,040.8, 108,458.0, and 221,283.1; for preprints, the cutoffs are 181.4, 960.8, 2,186.1, 4,900.5, and 6,888.6.

Table S4. Statistics for countries exhibiting high PubRR values

Country name	Number of Peer-reviewed papers Publications	Number of Preprints Publications	PubRR
Mali	26	23	15.87
Cameroon	270	168	11.16
South Sudan	7	13	33.32
Ukraine	42	23	9.83
Turkmenistan	2	4	35.88

Statistics for countries exhibiting high PubRR values, as shown in the geographical heatmap in Figure 2B, are shown. The table includes the number of peer-reviewed paper publications and preprint publications, along with the calculated PubRR values. A high PubRR value indicates that, relative to the distribution of peer-reviewed papers, there were more preprints published in that area, suggesting a publication preference for preprints.

PubRR, Publication Relative Ratio.

Table S5. Average of Social Media Quotation Counts Per Region and Income Group

	Median value (Q1–Q3)		Mean value (SD)		
	Peer-reviewed	Preprint	Peer-reviewed	Preprint	
Region					p-value
East Asia & Pacific	4 (2-13)	7 (4-20)	85.33 (890.67)	125.28 (888.01)	< 0.001
South Asia	3 (1-8)	5 (4-10)	27.20 (299.58)	67.46 (718.83)	< 0.001
Central Asia	3 (1-9)	7 (4-13.25)	51.49 (441.62)	44.72 (271.00)	< 0.001
Europe	6 (2-19)	10 (5-32)	90.56 (891.02)	137.40 (808.25)	< 0.001
Latin America & Caribbean	5 (2-15)	7 (4-21)	73.59 (770.91)	64.91 (311.40)	< 0.001
North America	7 (2-21)	9 (5-32)	100.43 (810.35)	156.02 (975.77)	< 0.001
Middle East & North Africa	3 (1-10)	7 (4-26)	74.75 (752.67)	200.23 (920.25)	< 0.001
Sub- Saharan	4 (2-13)	6 (4-14)	39.78 (300.75)	113.38 (821.06)	< 0.001

Africa					
Income Group					p-value
High	6 (2–22)	9 (5–32)	95.50 (855.03)	152.41 (923.85)	< 0.001
Upper-middle	3 (1–12)	7 (4–17)	72.74 (808.9)	93.34 (619.77)	< 0.001
Lower-middle	3 (1–10)	6 (4–11)	28.52 (256.96)	68.40 (646.96)	< 0.001
Low	4 (2–14)	6 (4–13)	45.33 (289.77)	29.61 (94.02)	< 0.001

Descriptive statistics for social media quotation counts of both peer-reviewed papers and preprints are presented, classified by 8 regions and 4 income groups based on the paper's country. The p-value column shows the results of Wilcoxon rank-sum test comparing the two types, all indicating significance. Preprints have consistently higher median quotation counts compared to peer-reviewed papers across all regions and income groups. This suggests greater engagement with preprints on X, indicating broader dissemination compared to peer-reviewed papers regardless of the region or economic status of the lead authors' countries.

SD, Standard Deviation.

Table S6. Statistics for countries exhibiting high QuoRR values

Country name	Number of Peer-reviewed Paper Quotations	Number of Preprint Quotations	QuoRR
Sudan	253	1,202	36.71
South Sudan	90	732	62.85
Cameroon	3,426	35,823	80.80
Turkmenistan	12	30	19.32
Kazakhstan	284	483	13.14

The number of peer-reviewed paper quotations, preprint quotations for countries with high QuoRR values, highlighted in the geographical heatmap in FigureS6C, are shown. QuoRR values are included as well. A high QuoRR means that, relative to the quoted posts for peer-reviewed papers, there were more social media quotations for preprints with lead authors from that area, indicating higher engagement with preprints on X.

QuoRR, Social Media Quotation Relative Ratio.

Table S7. Statistics for countries exhibiting high PERR values

Country name	Members of the public rate in Peer-reviewed paper quotations	Members of the public rate in Preprint quotations	PERR
Algeria	0.72	0.87	1.21
Palestine	0.20	0.87	4.36
Cameroon	0.71	0.93	1.26
Kazakhstan	0.73	0.89	1.21
Armenia	0.83	1.00	1.21
Cambodia	0.81	1.00	1.23

The members of the public rate in peer-reviewed paper quotations and preprint quotations, for countries with high PERR values, are shown. These countries are also shown in the geographical heatmap in Figure S8B. A high PERR indicates that in that area, the proportion of public engagement with preprints is relatively higher compared to peer-reviewed papers, showing greater public interest in preprint quotations.: PERR, Public Engagement Relative Ratio.

Table S8. Average of Citation Counts Per Region and Income group

	Median value (Q1–Q3)		Mean value (SD)		
	Peer-reviewed	Preprint	Peer-reviewed	Preprint	
Region					p-value
East Asia & Pacific	3 (0-12)	1 (0-7)	26.37 (244.82)	9.33 (28.63)	< 0.001
South Asia	2 (0-8)	1 (0-4)	10.16 (37.18)	3.63 (8.42)	< 0.001
Central Asia	2 (0-8)	1 (0-4)	11.71 (57.50)	4.18 (9.09)	< 0.001
Europe	3 (1-12)	1 (0-4)	17.95 (94.45)	5.27 (16.99)	< 0.001
Latin America & Caribbean	2 (0-9)	1 (0-3)	12.68 (86.40)	3.98 (18.77)	< 0.001
North America	3 (1-12)	1 (0-5)	18.79 (85.42)	5.94 (16.64)	< 0.001
Middle East & North Africa	3 (1—11)	2 (0-6)	13.79 (47.96)	5.99 (15.59)	< 0.001
Sub- Saharan Africa	2 (0-8)	1 (0-3)	11.09 (49.25)	4.38 (15.20)	< 0.001

Income Group					p-value
High	3 (1–12)	1 (0–5)	18.40 (91.91)	5.59 (16.58)	< 0.001
Upper-middle	3 (0–11)	2 (0–6)	24.91 (247.87)	8.31 (27.98)	< 0.001
Lower-middle	2 (0–8)	1 (0–4)	9.85 (37.34)	3.85 (11.70)	< 0.001
Low	3 (0–9)	1 (0–3)	10.04 (25.06)	3.55 (12.61)	< 0.001

Descriptive statistics of papers' citation counts by region and income group for both peer-reviewed papers and preprints are presented, classified into 8 regions and 4 income groups. The p-value column shows Wilcoxon rank-sum test results, all indicating statistical significance. Peer-reviewed papers consistently receive higher median citations than preprints across all regions and income groups. East Asia & Pacific and Europe have the highest median citations for peer-reviewed papers, while South Asia and Central Asia have lower values. High-income and upper-middle-income countries both show a median citation value of 3, while lower-middle and low-income groups have values of 2 and 3, respectively. Preprints generally have lower median citations, with most regions showing a median value of 1, except for the Middle East & North Africa, which has a value of 2. High-income countries have a median citation value of 1, upper-middle-income countries 2, and lower-middle and low-income groups a value of 1.

SD, Standard Deviation.

Table S9. Income group transition of lead author's country from preprint to peer-reviewed paper (Column: Peer-reviewed paper, Row: Preprint)

	Low	Lower-middle	Upper-middle	High	Total
Low	22	1	2	26	51
Lower-middle	9	209	29	164	411
Upper-middle	2	21	770	224	1,017
High	24	119	278	4,317	4,738
Total	57	350	1,079	4,731	

The transition of lead authors' country income groups from preprints to peer-reviewed papers is detailed. Preprints by researchers from lower-income countries often get published in peer-reviewed journals with lead authors from high-income countries. Notably, 26 out of 51 preprints (51%) with lead authors from low-income countries transitioned to having high-income lead authors in peer-reviewed publications. Similarly, 164 out of 411 preprints (40%) from lower-middle-income countries experienced the same transition. This pattern is consistent with previous studies suggesting that authors from low-income groups, such as African researchers, frequently remain as middle authors in traditional research papers.