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Relationship Among the Attributes of World Countries and Their Coverage in Tweets of International News Agencies: 2010–2016

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Abstract

Background/objectives: To examine the factors which can influence the presence of world countries in news tweets of international news agencies. **Methodology:** The study draws upon the World Systems Theory, which categorizes the world into Core, Semi-Periphery, and Periphery with respect to economic, political, and communication relationships. We attempt to study and compare the coverage of Core, Periphery, and Semi-Periphery countries in tweets of international news agencies. Scholars argue that certain attributes of a country make that country more newsworthy for international news agencies and also these factors contribute significantly in making these countries more prominent on the digital landscape of twitter. We used the method of content analysis of purposively selected tweets of four international news agencies; AFP, AP, Reuters, and Xinhua about the 15 sample countries, including Pakistan, for the period of 7 year from 2010–2016. **Findings:** We found that there are significant differences in the coverage of world countries in tweets of international news agencies. Core and Semi-Periphery countries are given more coverage in international news tweets. Similarly, Core and Semi-Periphery countries are more retweeted and liked by the followers of international news agencies. Finally, we found that GDP is not the sole determinant of countries portrayal and their sharing on Twitter by the international news agencies and their followers. **Novelty/improvements:** If a country, including Pakistan, wants to increase its sharing on Twitter, the country should develop its information sector and internet penetration should be accelerated.

Keywords: International News Flow, World System Theory, News Tweets, News Determinants, Country Attributes.

1. Introduction

International news flow remains a debated topic in international communication scholarship [1–2]. In the modern world, social media and the internet have changed the journalism trends of information gathering, production, and distribution [3–4]. On the other side, international news agencies always remain a key focus of international news flow studies [5–10]. With the arrival of modern communication and information technologies, their working also witnessing remarkable changes in information propagation.

News agencies are the most important organizations in the field of global news. They are instrumental [6] and the powers to propagate both the good and evil agenda reside with the international news agencies [11]. They often portray the Western world view and distorted image of underdeveloped countries [5–10]. Currently, the major international news agencies are; The Associated Press (AP), Reuters [12], and Agence France Presse (AFP). Chinese Xinhua is also emerging as the dominant news agency in the world. Although, modern information & communication technologies (ICTs) are bringing change in communication landscape, yet these agencies can be seen as monopolistic creatures that stifle the growth of other news providers, news models, and agendas [8].

Furthermore, in this era of digital journalism, Twitter, a site of microblogging in 280 characters, is gaining popularity day by day for news sharing and consumption [13]. Tweets provide an interesting case to understand the public opinion about issues and policies. Additionally, communicative structures of Twitter (tweets, retweets, following, #hashtags, @replies, and actors) also make Twitter focus of information flow scholars [14–18].

Moreover, social media and the internet have changed the journalism trends of information gathering, production, and distribution [3–4]. Now, International news agencies are also using twitter for news gathering as well as news distribution. These factors provide an enormous reason to study news tweets of international news agencies as a case for information flow concerns among the developed and underdeveloped countries.

Due to this dynamic and important scholarship of information flow on twitter [19–33], the tweets of dominant international news agencies provide us an important case to study the presence and portrayal of world countries.

1.1. World System Theory and International News

Theoretically, to date, a well-defined theory regarding international news flow on Twitter is absent. However, the world-system approach to international news flow and portrayal of countries on traditional media is borrowed. World System Theory has been previously used by Ref. [33] to study the countries mentions and prominence on twitter. In Ref. [34], Wallerstein defined a world-system as one in which there is extensive division of labor. He categorized nations into three categories; core nations (originally comprised of Western Europe and later expanded to include North America and Japan), periphery (Latin America, Africa, Asia, the Middle East and Eastern Europe, etc.), and semi-periphery (India, China and Japan, etc.) [35]. Several studies on international news flow and portrayal of world countries have used world system theory as theoretical foundations [36–42]. It has also been tested in the digital age for studying the information flow concerns [43–44].

In [45] categories of core, periphery, and semi-periphery countries to classify sample countries. In Ref. [45], Chase-Dunn et al. studied the phenomenon of economic globalization over the past two centuries. On the base of world trade data, they classified the countries into three categories of core, periphery, and semi-periphery countries. Firstly, we conducted a pilot study of randomly selected one year from 2010 to 16 to find out the mentions of world countries in tweets of sample international news agencies. Then most mentioned five Core countries (United States, United Kingdom, Russia, Japan, and Israel), five Semi-Periphery countries (South Korea, China, Iran, India, and Turkey), and five Periphery countries (Libya, Egypt, Syria, Pakistan, and Afghanistan). Countries were categorized into Core, Semi-Periphery, and Periphery on the basis of previous world system studies [46].

1.2. Country Attributes and International News

A country attributes influence its coverage in the international news. According to [47] world system variables of GDP, levels of exports and population are the key predictors of international news coverage. They also found that the negative valence of a nation gets more coverage prominence in the international news.

In Ref. [33], Wu et al. studied the factors influencing the countries mentioned on Twitter. They studied the three kinds of factors which may influence the countries' mentions on Twitter. In his excellent work on international communication, Chang [36] studied the coverage of world countries in the news of Reuters. He found that Core nations are more prominent in the coverage of international news agency. However, Semi-Peripheral and Peripheral nations have to pass through different filters including determining events, context, internal attributes, and international interaction to become prominent in the news coverage of international news. His model presented world-system position and determining events as the primary filters for the international news coverage. The present study also takes its roots from this model. We also extend this scholarship in the context of digital media. We aim to study the relationships among the filters of world system status, news determinants and attributes of countries for the study of news tweets of international news agencies.

In Ref. [48], Wu investigated the influence of systemic determinants on international news coverage in 38 countries. Systemic factors include traits of nations, magnitude of interaction and relatedness between nations and logistics of newsgathering. Multiple regression is implemented to assess 9 systemic determinants in each country in the world. In spite of some variation, trade volume and presence of international news agencies were found to be the 2 primary predictors of the amount of news coverage. In this way, we can argue that trade and economy is one of the main determinants of international news. By gaining theoretical support from their findings, the researchers also examined the relationship of a country attributes of population, area, freedom of expression and index, GDP, political instability with their mentions, retweets, favorites, replies and shared portrayal. These attributes data were collected from different sources. Population and GDP data were collected from the World Bank. Population data were collected from The World Bank, area data from CIA website, Freedom of expression and political instability

data were collected from world governance indicators of World Bank, and GDP data were collected from World Development indicators of World Bank.

In the present study, country attributes of population, area, internet users, voice and accountability index, political stability index, and GDP were considered to measure their relationship with the countries' mentions, retweets, favorites and shared portrayal via tweets of international news agencies. The date of population was collected from the databank of World Bank. Internet users' data were retrieved from The Global Economy website and from Internet Live Statistics website. Data of countries area were collected from the American CIA library. GDP data were also collected from the World Bank, and The Global Economy website. In the World Governance Indicators, Voice and Accountability Index reflects perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. The index ranges from −2.5 to 2.5. Similarly, in the World Governance Indicators political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. In this way, we build an argument that there are differences and imbalances in coverage of Core, Periphery, and Semi-Periphery countries by the international media, particularly international news agencies.

After reviewing the literature on international news flow and world system theory in the context of digital media, we attempt to continue the effort of [33] for building a comprehensive theory about the news flow on twitter. With this theoretical and conceptual support, we hypothesize the following statements.

H1: There would be significant differences in the presence of Core, Periphery, and Semi-Periphery countries in tweets of international news agencies.

H2: There would be significant differences in the portrayal of Core, Periphery, and Semi-Periphery countries in tweets of international news agencies.

H3: There would be significant differences in the sharing of Core, Periphery, and Semi-Periphery countries via tweets of international news agencies.

H4: A country attributes (population, area, GDP, political stability, freedom of expression, and internet penetration) will more likely to determine its mention, retweet rate, portrayal and shared portrayal in tweets of international news agencies.

2. Methodology

The study uses the method of content analysis and secondary data analysis. Firstly, the researchers performed the content analysis to study the presence and portrayal of the countries in news tweets. Secondly, we used secondary data about the attributes of countries to measure their relationship with the variables of study. Lastly, one-way ANOVA test was applied to compare the coverage and portrayal of core, periphery, and semi-periphery countries. The correlation and regression was applied to measure the relationships of country attributes and their coverage in international news agencies.

The **Universe** of this study is tweets of international news agencies and population was the all countries of the world. We selected 15 countries purposively (details are explained

earlier) and Twitter accounts of four international news agencies; AFP, AP, Reuters, and Xinhua. Firstly, because these four agencies have highest twitter followers. Secondly, these agencies have been studied in international news flow studies; **Reuters, AP** [49–53], **AFP** [54–55], and [56]. Study evident that most of the U.S journalists depend on global news services for getting the content of international news [57]. We selected 75,932 tweets related to the sample countries from the official twitter accounts @Reuters @AP @AFP and @XHNews. Tweets were retrieved from twitter API during the month of July, 2017. **Unit of Analysis** for this study was defined as tweet of sample news agencies, mentioning the name of any sample countries. Only English language tweets were coded. Moreover, only the text of the tweets was coded. Images and hyperlinks were not coded nor followed. Only the tweet by the selected accounts was coded. @Replies to the selected accounts were also excluded.

2.1. Coding Procedures

In this study, the tweets were collected from the Twitter API live streaming. All tweets were retrieved during the months of May & June of 2017. Due to the slow rate of downloading, it took two months to retrieve all tweets of selected news agencies from year 2010 to 2016. Then tweets were stored in the form of PDF documents. Furthermore, after the selection of sample countries, tweets were coded manually by searching the name of sample country. Three coders were selected to code the content. These coders were graduated in Mass Communication & Media Studies & their medium of instruction was English. They were provided three weeks training about the code book and coding instructions. Intercoder reliability was obtained 0.82 by Cohen Kappa. Furthermore, validity of the coding sheet was ensured through expert opinion.

2.1.1. Portrayal

The three categories of portrayal are defined as: Positive, if a tweet creates positive image of the mentioned country on human perception; neutral, if a tweet creates neither positive nor negative image of the mentioned country/nation on human perception and negative, if a tweet creates negative image of the mentioned country on human perception. For making data measurement at ordinal level and to calculate shared portrayal, positive was assigned code +1 and neutral was assigned 0 and negative was assigned −1 code. We also quantify the number of replies, favorites, and retweets to the selected tweets for the analysis of world countries sharing on twitter.

2.1.2. Retweets, Favorites, and Shared Portrayal

In this study [58], we quantify the number of retweets, replies, and favorites of news tweets about the selected countries. Retweet is an essential feature of twitter which amplifies the message of international news agencies. As Choi found online opinion leaders are still influential in spreading news content on Twitter. Here, in this study, it is argued that if a country is tweeted positively by international news agencies and further it is retweeted

more by the followers of these agencies then the collective impact and shared portrayal of the tweet will also increase in the positive direction. However, if a country is tweeted negatively by an international news agency, and it is more retweeted and favorited by its followers then it will create a negative shared portrayal of that country. So, we developed a formula to measure shared portrayal as follows.

Shared portrayal = Portrayal × (Number of Replies + Number of Retweets + Number of favorites)

Here, valence denotes the portrayal of country-issue network. Which is valued as +1, 0, and −1. Shared portrayal was calculated by using SPSS and putting variables to the above-defined formula.

3. Findings and Discussion

We found that international news agencies are using twitter effectively for the distribution of news (Table 1). In the previous studies on international news flow, scholars found Reuters and AP more influential [59–60]; however, we found Xinhua, Chinese news agency is tweeting more than other news agencies (Table 1). It shows that the social media is assisting to change the global patterns of international news distribution. Now, Xinhua, a news agency of semi-peripheral country, is also competing for the dominant world news agencies; Reuters, AP, and AFP on Twitter. Moreover, Xinhua also has 3rd more twitter followers. However, here, we cannot undermine the fact that China is now also moving towards core countries due to its technological, economic and political advancement.

Furthermore, we found that as previous literature on traditional media claim that there are significant differences in news coverage of developed and underdeveloped countries () we also note that core and semi-periphery countries are given more coverage (44.6%) and (36.7%) respectively as compare to periphery countries (18.7%) (Table 2). It reveals that international news agencies are still cultivating dominant structures of global news distribution in the social media age. They are using their tweets for establishing the dominance of powerful countries in other world countries. Hence, we find support to confirm **H1** that "There would be significant differences in the presence of core, periphery and semi-periphery countries in tweets of international news agencies".

Previous studies evident that international news agencies are instrumental and they promote the global inequality [60–61]. It is claimed that international news agencies portray developed world positively and presents a distorted and negative image of

TABLE 1. Frequency of news tweets by international news agencies about selected countries during 2010–2016

News agencies	Frequency	Percent
AFP	16,384	21.6
AP	13,633	18.0
Reuters	20,675	27.2
Xinhua	25,240	33.2
Total	75,932	100.0

TABLE 2. Frequency of core, periphery and semi-periphery countries in the news tweets of international news agencies during 2010–16

World system category	Frequency
Periphery	14,173 (18.7%)
Semi-periphery	27,889 (36.7%)
Core	33,870 (44.6%)

underdeveloped countries [62–67]. Within the paradigm of world system approaches, it is argued that core, semi-periphery, and periphery countries are portrayed differently in international news by the global media [68–69].

In the present study [3], we also find to support the argument of world system theorists. In case of news tweets, we found that there are significant differences in the portrayal of core, periphery, and semi-periphery countries (Table 3). Core and semi-periphery countries are covered more positively in tweets of international news agencies. On the other hand, periphery countries are covered more negatively in tweets of international news agencies (Table 3). Therefore, on the contrasting to previous study, which found twitter as change agent in international news distribution, we found it invalid in case of tweets of international news agencies. Global news agencies are reproducing the traditional news flow imbalances among the developed and underdeveloped countries rather than changing it. Therefore, we find support to confirm **H2** that developed countries would be portrayed positively and underdeveloped countries would be portrayed negatively in tweets of international news agencies.

Twitter has different dynamics of news distribution as well as consumption [14–18]. Replies, Retweets, and favorites are essential features of the twitter. These are considered the influential feature which allows twitter users to receive as well as propagate international news instantly [14]. Mass media provides major topics on Twitter and influential Twitter users also propagate these major topics [70]. In this study, we found that there are significant differences in the mean of replies, favorites, and retweet rate of core, periphery, and semi-periphery countries (Table 4). Moreover, core countries are more favorites and retweeted than semi-periphery and periphery countries by the followers of international news agencies (Table 4). However, interestingly semi-periphery countries are less retweeted and

TABLE 3. Portrayal differences among the core, periphery & semi-periphery countries in the news tweets of international news agencies during 2010–16

World system category * Portrayal of the country cross tabulation				
World system category	**Portrayal of the country**			**Chi-square tests**
	Negative	**Neutral**	**Positive**	
Periphery	9494	1234	3445	$X^2 = 7027.827^a$
Semi-periphery	8612	2983	16,294	$p = .000$
Core	11,247	6389	16,234	
Total	29,353	10,606	35,973	

[a]0 cells (.0%) have expected count less than 5. The minimum expected count is 1979.65.

TABLE 4. Differences in replies, retweet, and favorite rate among the core, periphery, & semi-periphery countries in the news tweets of international news agencies during 2010–16

		Mean	SD	*F*	Sig.
Number of tweet replies	Periphery	4.59	14.11	303.439	.000
	Semi-periphery	3.83	11.65		
	Core	6.48	14.94		
	Total	5.15	13.71		
Number of retweets	Periphery	93.70	121.52	533.058	.000
	Semi-periphery	68.39	102.58		
	Core	97.40	119.81		
	Total	86.06	114.92		
Number of favorites	Periphery	32.47	62.24	787.613	.000
	Semi-periphery	48.36	81.99		
	Core	66.15	102.53		
	Total	53.33	89.69		
Shared portrayal	Periphery	-58.12	202.63	877.11	.000
	Semi-periphery	18.61	186.69		
	Core	29.04	237.47		
	Total	8.93	216.03		

replied than periphery countries (Table 4). In this way, we found a little evidence to claim that the tweets of international news agencies and their sharing is changing the traditional hierarchies of world countries in their propagation on twitter.

Furthermore, in this study, we introduced the concept of shared portrayal for the study of collective impacts of tweets of international news agencies. We calculated the shared portrayal of countries according to the formula given in methodological section. We studied the collective effect of a tweet, retweets, favorites, replies, and portrayal. Because @replies and favorites allows the twitter users to interact with the news tweets [14–18]. Secondly, retweet multiplies the magnitude of that tweet [71]. More importantly, portrayal determines the direction of that magnitude either it is positive for a country or not. We found that there are significant differences in shared portrayal of Core, Periphery, and Semi-Periphery countries via tweets of international news agencies (Table 4). Core and Semi-Periphery countries are valued more positively than periphery countries by international news agencies and their twitter followers (Table 4). So, our findings do not support the argument that twitter is altering the traditional information and portrayal imbalances among the nations. We found an empirical evidence to argue that not only the tweets of international news agencies, but also the followers of the international news agencies are reproducing the traditional structure of international news imbalances among the nations. Twitter followers of international news agencies are also taking part in this propagation. Hence, we found support to confirm **H3** that there would be significant differences in the sharing of Core, Periphery, and Semi-Periphery countries via tweets of international news agencies. In this way, tweets of international news agencies are also becoming instrumental and establishing their monopoly on the agenda of twitter users about the developed and underdeveloped countries.

Finally, the study attempts to explain the relationship between different attributes of countries and their sharing via tweets of international news agencies. As it was evident

that certain attributes of countries like area, population, freedom of expression, internet users, political stability, and GDP are the predictors of a countries mentions and portrayal in international news coverage [36]. We also consider these attributes to explain their relationships with countries' mentions, retweets, favorites, @replies and shared portrayal via the tweets of international news agencies. We found that the population of a country negatively correlates with its retweet rate and geographical area of a country has positive correlation with its mentions of a country in news tweets of international news agencies (Table 5). Interestingly, freedom of expression of a country does not matter in determining its mentions, retweets, favorites, replies, and shared portrayal (Table 5). However, Internet

TABLE 5. Relationships among the attributes of countries and their mentions, retweets, Favorites, portrayal, and shared portrayal in tweets of international news agencies during 2010–16

	1	2	3	4	5	6	7	8	9	10	11
1. Population of country	1	−.181	.362	.052	.133	.347	.403	−.323	−.666**	.039	.356
2. Average internet penetration percentage		1	.128	.460	.832**	.287	.160	.140	.260	.371	.630*
3. Area of country			1	−.018	.242	.493	.555*	.253	−.007	.488	.348
4. Average freedom of expression index				1	.610*	.356	.123	.158	.174	.185	.402
5. Average political stability of country					1	.607*	.374	.107	.057	.489	.794**
6. Average GDP of country						1	.853**	.153	−.174	.564*	.588*
7. Frequency of tweets about country							1	.296	−.256	.694**	.555*
8. Replies to Tweets about Country								1	.568*	.783**	.119
9. Number of retweets about country									1	.158	−.357
10. Number of favorites about country										1	.598*
11. Shared portrayal of Tweet											1

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

penetration and political stability are significantly correlated with the shared portrayal of countries (Table 5).

GDP is also a determining factor for the mentions, favorites, and shared portrayal of a country in news tweets of international news agencies. Therefore, it is argued that the GDP of a country has a strong influence on the decision of media editors and also on twitter users' decision about the international news consumption and sharing except retweeting (Table 5). In this way, on the contrary, to the argument of [33] those periphery countries are also becoming a core in mentions of countries on twitter. But in case of news tweets, periphery countries are still in the periphery in mentions, favorites and shared portrayal (Table 5).

The retweet rate, favorite rate and @replies to the tweets of international news agency. Interestingly, we found that not only the international news agencies, but also their followers are spreading inequality and imbalances among the developed and underdeveloped countries. Developed countries are more retweeted, liked, and commented than underdeveloped countries by the followers of international news agencies. In the present study, the major reason of these imbalances is not only GDP, but also the internet penetration and political stability of the country (Table 5). Underdeveloped countries are mostly shared negatively due to the conflicts and political instability. Here, it is noteworthy to mention, that most of the conflicts in underdeveloped countries had a direct or indirect link with the military interventions of developed countries. For example, in Syria, Egypt, and Afghanistan, the developed countries like Russia, U.S, and Israel are stake holders. Therefore, it is claimed that international news agencies are instrumental in portraying underdeveloped countries negatively. In sum, we find partial support for the confirmation of **H4** that "a country attributes (population, area, GDP, political instability, freedom of expression, and internet penetration) will more likely to determine its mention, retweet rate, portrayal and shared portrayal in tweets of international news agencies." Hence, study reveals that GDP is not the sole determinant of countries portrayal and their sharing on twitter by the international news agencies and their followers.

4. Conclusion

We found that communication imbalances among the Core, Semi-Periphery, and Periphery exist in the tweets of international news agencies. Core countries are covered more and positively and on the other side, Semi-Peripheral and Peripheral countries are covered less, and negatively. However, Semi-Periphery countries like China are growing towards positive coverage in international news. Chinese news agency Xinhua is also competing the dominance of western news agencies effectively to influence the image of the China in global news flow. We also studied the retweet rate, favorite rate and @replies to the tweets of international news agency. Interestingly, we found that not only the international news agencies, but also their followers are spreading inequality and imbalances among the Core, Semi-Periphery, and Periphery countries. Core countries are more retweeted, liked and commented upon than Semi-Periphery and Periphery countries by the followers of international news agencies.

Finally, it is concluded that information flow and communication imbalances exists on the digital platform of twitter. Tweets of international news agencies are reproducing the traditional world hierarchies in distribution of international news rather than changing or replacing it. Although the social media is playing an important role of alternative media, yet it has several limitations. It is not as effective as assumed in changing the structures and patterns of international news distribution. In the modern information societies, there is a need to formulate the global communication policy to create and disseminate balanced world view in social media platforms generally and on news tweets specifically. Moreover, if a country wants to create and influence its positive image on the Twitter, Moreover, if a country wants to increase its sharing on the Twitter, the country should develop its information sector and internet penetration should be accelerated. These findings provide valuable insights to harness Pakistan's information and digital policies as a strategic goal.

5. Limitations and Future Recommendations

Findings of our study should be viewed in the context of several limitations. Firstly, only limited numbers of countries were selected due to the methodological and time constraints. Furthermore, these countries were selected on the base of randomly selected one-year pilot study. We performed the countries' mentions study of the year 2011. Later on, during the study variations were observed among the mentions of countries depending upon the context of international issues. Therefore, in future studies this phenomenon should be studied with more sample countries along with time series design. Secondly, only mainstream Twitter accounts of sample news agencies were selected. Now, international news agencies like Reuters and AP also have their different twitter accounts for different regions. These twitter accounts should also be studied and coverage and sharing of world countries in these regional accounts can also be compared with their coverage and portrayal in mainstream twitter account of international news agencies.

Thirdly, we only focused on English language tweets. The area can be explored further in native languages. It can also be compared with the language and discourse of mainstream twitter accounts of international news agencies. The scholarship can also be extended to study and compare the role of these news tweets in influencing the news agenda of regional news outlets. Lastly, due to the methodological constraints, we only focused on the number of retweets, @replies, and number of favorites. We adopted the quantitative technique; we do not include the content of retweets, quote tweets, and @replies. Moreover, the authenticity of the followers of international news agencies is also a limitation of this study.

APPENDIX 1. Descriptives of sample core, periphery, and semi-periphery countries in news tweets of international news agencies from 2010 to 16

Countries	Frequency	Reply mean	Retweet mean	Favorite mean	Shared portrayal
United States	20,534 (27%)	7.6880	95.4695	81.9669	47.6376
Libya	1242 (1.6%)	2.4219	100.0040	18.8815	−70.7583

Japan	2860 (3.8%)	3.7685	95.3294	38.8463	.8379
Egypt	2401 (3.2%)	3.7634	97.2608	28.7350	−42.8329
China	16,102 (21.2%)	2.2936	49.9401	44.5806	41.3910
Iran	5296 (7%)	6.3612	83.2474	66.1261	7.4690
United Kingdom	2835 (3.7%)	4.7464	92.3280	42.2561	61.0268
Syria	6758 (8.9%)	5.4358	100.5917	38.5598	−66.9062
Israel	3262 (4.3%)	3.1983	94.9917	29.5170	−31.9945
Pakistan	1792 (2.4%)	4.2874	77.0714	28.2913	−48.6283
South Korea	1371 (1.8%)	3.8519	87.3815	40.2020	3.6579
Russia	4379 (5.8%)	6.1937	112.9016	52.6145	−14.9573
Afghanistan	1980 (2.6%)	4.4015	77.0389	28.5455	−47.3657
India	1959 (2.6%)	3.4824	72.4893	31.8469	−14.6874
Turkey	3161 (4.2%)	7.6229	126.7602	51.6798	−51.5359
Total	75,932	5.1579	86.0603	53.3312	8.9416

APPENDIX 2. Frequency of news tweets about the selected countries in tweets of different news agencies during 2010–16

Countries name * News agency cross tabulation					
Countries name	**News agency**				**Total**
	AFP	**AP**	**Reuters**	**Xinhua**	
United States	2810	3454	6434	7836	20,534
Libya	276	342	593	31	1242
Japan	563	662	1086	549	2860
Egypt	691	705	909	96	2401
China	1077	826	1866	12,333	16,102
Iran	739	527	1740	2290	5296
United Kingdom	863	869	872	231	2835
Syria	2597	1643	2226	292	6758
Israel	1076	972	1083	131	3262
Pakistan	723	415	502	152	1792
South Korea	360	431	363	217	1371
Russia	1835	1226	735	583	4379
Afghanistan	618	645	647	70	1980
India	813	400	460	286	1959
Turkey	1343	516	1159	143	3161
Total	16,384	13,633	20,675	25,240	75,932

APPENDIX 3. Portrayal of countries in news tweets of international news agencies during 2010–16

Countries name * Portrayal of the country cross tabulation				
Countries name	**Portrayal of the country**			**Total**
	Negative	**Neutral**	**Positive**	
United States	5521	4733	10,280	20,534
Libya	849	153	240	1242
Japan	1185	376	1299	2860
Egypt	1474	219	708	2401
China	3025	1470	11,607	16,102
Iran	2400	566	2330	5296

United Kingdom	566	554	1715	2835
Syria	4784	342	1632	6758
Israel	1989	257	1016	3262
Pakistan	1106	246	440	1792
South Korea	576	183	612	1371
Russia	1986	469	1924	4379
Afghanistan	1281	274	425	1980
India	915	460	584	1959
Turkey	1696	304	1161	3161
Total	29,353	10,606	35,973	75,932

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