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

| 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   |
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 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%) |

**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 | Chi-square tests |
|--------------------------------------------------------------------|------------------|
| World system category | Negative | Neutral | Positive | $X^2$  |
|-----------------------|----------|---------|----------|--------|
| 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   |        |

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

### Table 4

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

**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 exist 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 0.8379
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 77.0389 28.5455 −47.3657
South Korea 1077 826 1866 12,333 16,102
Iran 739 705 909 2401
China 1077 826 1866 12,333 16,102
India 1959 (2.6%) 7.6229 126.7602 51.6798 −51.5359
Turkey 3161 (4.2%) 6.7229 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 | Total |
|----------------|-------------|-------|
|                | AFP         | AP    | Reuters | Xinhua |
| United States  | 2810        | 3454  | 6434    | 7836   | 20,534 |
| Libya          | 276         | 342   | 593     | 31     | 1242   |
| Japan          | 563         | 563   | 593     | 31     | 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 | 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  

References
1. McBride S. Many voices, one world: communication and society today and tomorrow. UNESCO, International Commission for the Study of Communication Problems: Paris. 1980. https://unesdoc.unesco.org/ark:/48223/pf0000040066
2. Mowlana H. International flow of information: a global report and analysis. UNESCO: Paris, France. 1985. https://unesdoc.unesco.org/ark:/48223/pf0000065258
3. Griessner C. News agencies and social media: a relationship with a future? Reuters Institute for the Study of Journalism. 2012; 2012–2013. http://dl.icdst.org/pdfs/files/0cbb8fc22449e14fb30c750cc972c72.pdf
4. Kulshmanov K, Ishanova A. News agencies in the era of globalization and new challenges of reality. Mediterranean Journal of Social Sciences. 2014, 5(19), 48–53. DOI: 10.5901/mjss.2014.v5n19p48.
5. Ambrogi-Yanson M. International news coverage online as presented by three news agencies [Unpublished dissertation]. Rochester Institute of Technology: New York. 2010. https://scholarworks.rit.edu/cgi/viewcontent.cgi?article=5592&context=theses
6. Bielsa E. The pivotal role of news agencies in the context of globalization: a historical approach. Global Networks. 2008, 8(3), 347–366. DOI: 10.1111/j.1471-0374.2008.00199.x.
7. The International News Agencies and the New World Information Order. 1996. http://dergipark.ulakbim.gov.tr/kurgu/article/viewFile/5000174901/5000157773. Date accessed: 06/06/2016.
8. MacGregor P. International news agencies: global eyes that never blink. In: K. Fowler-Watt, S. Allan, editors. Journalism. Centre for Journalism & Communication Research: Bournemouth University, UK. 2013; 35–63. https://microsites.bournemouth.ac.uk/cjcr/files/2013/10/JNC-2013-Chapter-3-MacGregor.pdf
9. Ray A, Dutta A. Information Imbalance: A Case Study of Print Media in India. International Journal of Scientific and Research Publications. 2014, 4(7), 1–5. http://www.ijsrp.org/research-paper-0714/ijsrp-p3198.pdf
10. Stover WA, Anawalt H. Who makes news? An inquiry into the creation and controls of international communications. Peace Research. 1983, 15(1), 15–23. https://www.jstor.org/stable/23609553
11. Anatsui TC, Adekanye EA. Comparative Analysis of foreign and local news agencies: public relations approach in restoring the image of the local media for national development. Developing Country Studies. 2014, 4(10), 131–142. https://www.iiste.org/Journals/index.php/DCS/article/view/12870
12. Jirik J. The world according to (Thomson) Reuters. Sur le Journalism About Journalism Sobre Journalism. 2013, 2(1), 24–41. https://www.academia.edu/10790347/The_world_according_to_Thomson_Reuters
13. Armstrong CL, Gao F. Now tweet this how news organizations use twitter. *Electronic News*. 2010, 4(4), 218–235. https://doi.org/10.1177/1931243110389457

14. Alejandro J. Journalism in the age of social media. Reuters Institute Fellowship Paper, University of Oxford. 2010. https://reutersinstitute.politics.ox.ac.uk/sites/default/files/research/files/Journalism%2520in%2520the%2520Age%2520of%2520Social%2520Media.pdf

15. Bruns A, Stieglitz S. Quantitative approaches to comparing communication patterns on Twitter. *Journal of Technology in Human Services*. 2012, 30(3–4), 160–185. https://doi.org/10.1080/15228835.2012.744249

16. Willis A, Fisher A, Lvov I. Mapping networks of influence: tracking Twitter conversations through time and space. *Participations: Journal of Audience & Reception Studies*. 2015, 12(1), 494–530. https://www.participations.org/Volume%2012/Issue%201/30.pdf

17. Wu B, Shen H. Analyzing and predicting news popularity on Twitter. *International Journal of Information Management*. 2015, 35(6), 702–711. https://doi.org/10.1016/j.ijinformat.2015.07.003

18. Wu S, Hofman JM, Mason WA, Watts DJ, editors. Who says what to whom on twitter? Proceedings of the 20th international conference on World Wide Web. ACM: Hyderabad, India. 2011. https://doi.org/10.1145/1963405.1963504

19. Barthel M, Shearer E, Gottfried J, Mitchell A. The evolving role of news on Twitter and Facebook. Pew Research Center. 2015. https://www.journalism.org/2015/07/14/the-evolving-role-of-news-on-twitter-and-facebook/

20. Bloom T, Cleary J, North M. Traversing the “Twittersphere” social media policies in international news operations. *Journalism Practice*. 2016, 10(3), 343–357. https://doi.org/10.1080/17512786.2015.1017408

21. Böttcher AV. Twitter, News Aggregators & Co: journalistic gatekeeping in the age of digital media culture. [Unpublished Dissertation]. Blekinge Institute of Technology: Sweden. 2014. http://www.diva-portal.org/smash/get/diva2:833239/FULLTEXT01.PDF

22. Bruns A, MoE H. Structural layers of communication on Twitter. In: K. Weller, A. Bruns, J. Burgess, M. Mahrt, C. Puschmann, editors. Twitter and society. Peter Lang: New York. 2013; 15–28. http://snurb.info/files/2014/Twitter%20and%20Society%20-%20Structural%20Layers%20-%20Communication%20-%20Twitter%20-%20Society.pdf

23. Engesser S, Humprecht E. Frequency or skillfulness: How professional news media use Twitter in five Western countries. *Journalism Studies*. 2015, 16(4), 513–529. https://doi.org/10.1080/14601981.2014.939849

24. Malik MM, Pfeffer J. A macroscopic analysis of news content in Twitter. *Digital Journalism*. 2016, 4(8), 955–979. DOI: 10.1080/21670811.2015.1133249.
29. Murthy D. Twitter: microphone for the masses? *Media, Culture & Society*. 2011, 33(5), 779–789. https://pdfs.semanticscholar.org/75b7/8ce319da641f0fca09d3db17cbc76cea2a4b.pdf

30. Murthy D. Twitter: social communication in the twitter age. Polity Press: Cambridge, UK. 2013. https://www.amazon.com/Twitter-Social-Communication-Digital-Society/dp/0745652395

31. Wasike BS. Framing news in 140 characters: how social media editors frame the news and interact with audiences via Twitter. *Global Media Journal*. 2013, 6(1), 5–23, https://core.ac.uk/download/pdf/25913598.pdf

32. Weller K, Bruns A, Burgess J, Mahrt M, Puschmann C. Twitter and society: P. Lang. 2014. https://doi.org/10.3726/978-1-4539-1170-9

33. Wu HD, Groshek J, Elasmar MG. Which countries does the world talk about? An examination of factors that shape country presence on Twitter. *International Journal of Communication*. 2016, 10, 1860–1877. https://ijoc.org/index.php/ijoc/article/view/5002/1624

34. Wallerstein I. The modern world system. Academic Press: New York. 1974. https://www.jstor.org/stable/10.1525/j.ctt1pnrj9

35. Theories of globalization. http://kisi.deu.edu.tr/timucin.yalcinkaya/Theories%20of%20Globalization.pdf. Date accessed: 07/04/2007.

36. Chang T-K. All countries not created equal to be news: world system and international communication. *Communication Research*. 1998, 25(5), 528–563. https://doi.org/10.1177/009365098025005004

37. Golan GJ. Where in the world is Africa? Predicting coverage of Africa by US television networks. *International Communication Gazette*. 2008, 70(1), 41–57. https://doi.org/10.1177/174804850707084577

38. Kick EL, McKinney LA, McDonald S, Jorgenson A. A multiple-network analysis of the world system of nations, 1995–1999. In: J. Scott, P.J. Carrington, editors. Sage handbook of social network analysis. Sage Publications Ltd.: London. 2011; 311–327. https://dx.doi.org/10.4135/9781446294413.n22

39. Louw IP. The international flow of news regarding the 2003 Iraq War: a comparative analysis. [Unpublished Dissertation]. University of South Africa: South Africa. 2009. http://uir.unisa.ac.za/bitstream/handle/10500/2973/dissertation_louw_%20i.pdf?sequence=1&isAllowed=y

40. Naustdalslid J. A multi-level approach to the study of center-periphery systems and socio-economic change. *Journal of Peace Research*. 1977, 14(3), 203–222. https://doi.org/10.1177/002234337701400301

41. Sorinel C. Immanuel Wallerstein’s world system theory. *Annals of Faculty of Economics*. 2010, 1(2), 220–224. http://anale.steconomieuroadea.ro/volume/2010/n2/031.pdf

42. Wanta W, Mikusova S. The agenda setting process in international news. *Central European Journal of Communication*. 2010, 3(2 (5)), 221–235. http://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.desklight-d55bc9b0-540f-4198-9a37-800329ed219b

43. Blondheim M, Segev E, Cabrera M-Á. The prominence of weak economies: Factors and trends in global news coverage of economic crisis, 2009–2012. *International Journal of Communication*. 2015, 9, 46–65. https://ijoc.org/index.php/ijoc/article/view/2262

44. Guo L, Vargo CJ. Global intermedia agenda setting: a big data analysis of international news flow. *Journal of Communication*. 2017, 67(4), 499–520. DOI: 10.1111/jcom.12311.

45. Chase-Dunn C, Kawano Y, Brewer BD. Trade globalization since 1795: waves of integration in the world-system. *American Sociological Review*. 2000, 65(1), 77–95. DOI: 10.2307/2657290.

46. Babones S. The country-level income structure of the world-economy. *Journal of World-Systems Research*. 2005, 11(1), 29–55. https://doi.org/10.5195/jwsr.2005.392
47. Garcia MM, Golan GJ. Not enough time to cover all the news: An analysis of international news coverage in Time and Newsweek. *Journal of Global Mass Communication*. 2008, 1(1/2), 41–56.
48. Wu HD. Systemic determinants of international news coverage: a comparison of 38 countries. *Journal of Communication*. 2000, 50(2), 110–130. https://doi.org/10.1111/j.1460-2466.2000.tb02844.x
49. Aguiar P. News agencies, development, and the state: models of the BRICS countries. *Brazilian Journalism Research*. 2016, 12(1), 34–57. https://doi.org/10.25200/BJR.v12n1.2016.937
50. Boyd-Barrett O. National and international news agencies: issues of crisis and realignment. *Gazette (Leiden, Netherlands)*. 2000, 62(1), 5–18. https://doi.org/10.1177/0016549200062001001
51. Boyd-Barrett O. News agency majors: ownership, control and influence reevaluated. *Journal of Global Mass Communication*. 2008; 1(1/2), 57–71.
52. Giffard CA, Rivenburgh NK. News agencies, national images, and global media events. *Journalism & Mass Communication Quarterly*. 2000, 77(1), 8–21. https://doi.org/10.1177/10776990007700102
53. Kunczik M. Globalisation: News media, images of nations and the flow of international capital with special reference to the role of rating agencies. *Journal of International Communication*. 2002, 8(1), 39–79. https://doi.org/10.1080/13216597.2002.9751921
54. Kim K, Barnett GA. The determinants of international news flow a network analysis. *Communication Research*. 1996, 23(3), 323–352. https://doi.org/10.1177/009365096023003004
55. Wanta W, Golan GJ, Lee C. Agenda setting and international news: media influence on public perceptions of foreign nations. *Journalism & Mass Communication Quarterly*. 2004, 81(2), 364–377. https://doi.org/10.1177/107769900408100209
56. Jiang K, Barnett GA, Taylor LD. Dynamics of culture frames in international news coverage: a semantic network analysis. *International Journal of Communication*. 2016, 10, 3710–3736. https://ijoc.org/index.php/ijoc/article/view/4484
57. Ran H. International news agencies in the era of global communications: CCTV’s contra-flow and the factors that influence us media’s selection of news about China. University of New Mexico: Mexico. 2018. https://digitalrepository.unm.edu/cj_etds/115?utm_source=digitalrepository.unm.edu%2Fcj_etds%2F115&utm_medium=PDF&utm_campaign=PDFCoverPages
58. Choi S. The two-step flow of communication in Twitter-based public forums. *Social Science Computer Review*. 2015, 33(6), 696–711. https://doi.org/10.1177/0894439314556599
59. Palmer M, Nicey J. Social media and the freedom of the press: a long-term perspective from within international news agencies (AFP, Reuters). *Journal for Communication Studies*. 2012, 5(1/9), 107–123. https://www.essachess.com/index.php/jcs/article/view/153
60. Putnis P. The international distribution of news: the associated press, press association, and reuters, 1848–1947. *Media History*. 2014, 20(4), 469–472. https://doi.org/10.1080/13688804.2014.952552
61. Arya K. The over-dependence of Indian English newspapers on global news agencies for international news. [Unpublished Dissertation]. University of Leeds: UK. 2011. http://citeseerx.ist.psu.edu/messages/downloadexceeded.html
62. Mohammadi AS. The “world of the news” study. *Journal of Communication*. 1984, 34(1), 121–134. https://doi.org/10.1111/j.1460-2466.1984.tb02990.x
63. Mohammadi AS. Media imperialism. In: J. Wright, editor. International encyclopedia of the social & behavioral sciences. 2nd edn. Elsevier Ltd.: USA. 2002; 55–59. https://www.elsevier.com/books/international-encyclopedia-of-the-social-and-behavioral-sciences/wright/978-0-08-097086-8
64. Mohammadi AS, Nordenstren K, Stevenson R, Ugboajah F. Foreign news in the media: International reporting in 29 countries. UNESCO: Paris. 1987. https://unesdoc.unesco.org/ark:/48223/pf0000065257

65. Mowlana H. Mass media: implications of the information explosion. USA Today, ProQuest Research Library. 1988.

66. Mowlana H. Global communication in transition: the end of diversity? Thousand Oaks: London. 1996. http://dx.doi.org/10.4135/9781483327518

67. Mowlana H. Global communication as cultural ecology. China Media Research. 2014, 10(3), 1–7. https://web.a.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=crawler&jrnlnl=1556889X&AN=97418383&h=blds5eRROWyXGlrlhDPxKq8oLYPvew0W%f
fdA4%2f7XNbxbrxA9FHOnZRnPeK7qcnqDjBuUp1dgkbLF%2fmrZxP4eA%3d%3d&crl=false&resultN=AdminWebAuth&resultLocal=ErrCrlNotAuth&crlhashurl=login.aspx%3f%direct%3dtrue%26profile%3dehost%26scope%3dsite%26authtype%3dcrawler%26jrnlnl%3d1556889X%26AN%3d97418383

68. el-Ojilei C. Reflections on Wallerstein: the modern world-system, four decades on. Critical Sociology. 2015, 41(4–5), 679–700. https://doi.org/10.1177/0896920513497377

69. Letukas L, Barnshaw J. A world-system approach to post-catastrophe international relief. Social Forces. 2008, 87(2), 1063–1087. https://www.jstor.org/stable/20430903?seq=1

70. Cha M, Benevenuto F, Haddadi H, Gummadi K. The world of connections and information flow in twitter. IEEE Transactions on Systems, Man and Cybernetics, Part A: Systems and Humans. 2012, 42(4), 991–998. http://twitter.mpi-sws.org/cyberneticsA-2012.pdf

71. Mendoza M, Poblete B, Castillo C. Twitter under crisis: can we trust what we RT? Proceedings of the first workshop on social media analytics. ACM: Washington, DC. 2010. https://doi.org/10.1145/1964858.1964869