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From propaganda to alarm: International economic news about controlled and free press countries

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Abstract

International news both reflects and affects economic changes. Yet, the impact of press freedom on this relationship was not systematically studied. The present paper analyzed the trends of country mentions in international economic news and their corresponding GDP trends over a period of six years.

Findings identified the different functions of economic news. Controlled press countries were mentioned more frequently in economic news around the world about one month before an increase and after a decrease in their GDP. This time lag reflected the use of economic news as a mean of propaganda to promote the country and strengthen its economy. Free press countries, on the other hand, were mentioned more frequently in economic news a few months before a decrease and after an increase in their GDP. In this case, economic news primarily functioned as a warning system for economic deviance.

Keywords: economic news; GDP; cross-lagged correlation; controlled and free press countries; cross-national comparative analysis

From propaganda to alarm: International economic news about controlled and free press countries

1. Introduction

International economic news plays a significant role in the global economic sphere. It marks raising economic leaders such as China, but also alerts of possible problems, such as the ongoing economic crisis in Europe of 2010. It therefore reflects some of the important positive and negative changes in the world economy, providing a descriptive map for the public to navigate and make further economic decisions. In this way, international economic news not only reflects but also affects the economic reality.

The production of economic news has certainly increased over the last decades, attracting a growing number of readers around the world. The *Financial Times* alone reports of more than two million readers worldwide (Financial Times, 2013), including its print newspaper, websites, and mobile applications. This proliferation of what has been considered for many years to be a niche resulted in the diversification of sections in the news (such as business news, financial news, and international economic news), as well as a separation between domestic and international economic coverage (Wu & Day, 2005). The following study focuses on international economic news, or in other words, the news coverage of the economy of foreign countries.

A body of empirical studies examined the relationship between economic news and the economic reality, suggesting that indeed economic news not only reflects but may also affect the economy (Goidel, Procopio, Terrell, & Wu, 2010; Lischka, 2015; Quiring & Weber, 2012). This effect was found to be particularly significant when news is negative

(Nadeau, Niemi, Fan, & Amato, 1999; Shah, Watts, Domke, Fan, & Fibison, 1999; Soroka, 2006). For example, there were some initial empirical indications that the negative new coverage of some countries such as Spain and Greece during the 2010 economic crisis in Europe preceded further decline of their Gross Domestic Product (GDP) (Blondheim, Segev, and Cabrera, 2015).

Since economic news has the power to affect the economic realty, it is reasonable to expect that government, particularly in press controlled countries, would be interested in controlling the economic news coverage. Along the studies looking at the relationship between news and economy, a separate body of studies examines the relationship between press freedom and the economy, suggesting that free press environment is generally associated with positive economic growth of countries (Alam & Shah, 2013; Roll & Talbott, 2003; Stiglitz, 2000). However, up to date the combined relationship of the three dimensions: economic news, economic indicators, and press freedom was not systematically studied.

This paper examined the cross-lagged correlations between GDP trends and the corresponding trends of country mentions in economic news. It combines measurements of all the three dimensions together in order to examine whether the function of economic news as reflecting or affecting the economic reality differs across countries with different level of press freedom.

1.1. International news and the economic reality

There is no doubt that news by definition, and economic news in particular, follows the political and economic changes around the world. Yet, there is also empirical evidence to suggest that economic news affects people's attitudes toward the economy, and thus also the

economic reality. Although at the beginning scholars questioned this effect (Haller & Norpoth, 1997), more recent studies (Goidel et al., 2010; Lischka, 2015; Quiring & Weber, 2012) found a significant effect of economic news on people's perception, depending on the media used, the length of exposure, the economic reality, and news content. While more balanced reporting correlated with more positive financial evaluations, negative reporting correlated with negative financial evaluations. In fact, Soroka (2006) found that negative economic news have much stronger impact on people's attitudes than positive news.

More specifically, when looking at the news coverage of the economic crisis in Europe, Quiring and Weber (2012) found that economic news served as a dominant source of information for the public, and as an influential factor in justifying economic policies. Lischka (2015) further revealed that both news and public expectations mediate the economic reality. She found that economic indicators are related to news sentiments, which in turn affect public expectations, particularly during recession periods. Eventually, public expectations can forecast the future of real world economy. Hence, there is a common agreement that economic news not only reflects major events, but can also mediate and affect public expectations, investors, and decision makers (see also Mutz, 1992).

Blondheim et al. (2015) analyzed the trends of country mentions in economic news from around the world and their corresponding GDP trends. Looking at the news coverage of the ten most prominent countries in economic news during crisis over a period of four years, they found mainly negative correlation between GDP and news mentions. In other words, a decrease in the GDP of certain countries attracted more news attention toward them, suggesting that news tends to emphasize negative rather than positive economic changes (see also Bennett, 1988; Harrington, 1989; Nadeau et al., 1999; Shah et al., 1999; Wu & Day, 2005). Moreover, they identified three types of relationship between news mentions and GDP

trends. For the leading economies, such as the US, GDP trends were temporally aligned with trends of news mentions. For European countries facing the economic crisis, such as Spain, news mentions preceded GDP trends. Finally, for countries with more restricted press, such as China and Russia, GDP trends preceded news mentions. Thus, it seems that the press freedom of countries may have a certain impact on the relationship between their GDP trends and their economic news coverage around the world.

1.2. Economic news and press freedom

Several studies stressed the importance of press freedom in stimulating economic growth (Alam & Shah, 2013; Roll & Talbott, 2003; Stiglitz, 2000). Thus, with some exceptions, such as China, countries with more free press are more likely to show economic growth. This is mainly since press freedom contributes to a more transparent and immediate information flow, which helps foreign investors to make more effective decisions. Thus, economic news in free press countries reflects changes in the economic sphere, and provides the public with a descriptive map for further navigation.

Additionally, in an era dominated by a global and capitalist free market, press freedom was found to significantly reduce corruption (Chowdhury, 2004 Freille, Haque, & Kneller, 2007), and therefore increase public trust in economic institutions. In other words, economic news in free press countries also functions as the watchdog, alerting on diversions from norms and values of the global economic system. Many empirical studies over the years confirmed this observation, suggesting that economic development and press freedom are closely associated; although cross-lagged correlation analyses indicated that press freedom

can also be a result rather than the cause for economic development (Dutta & Roy, 2009; Siebert, 1952; Weaver, 1977, 1985).

On the other hand, in restricted press countries, economic news seems to play a different role. In part it is utilized as an effective mean for governments to shape a desirable economic map for potential investors. Yu (1994), for example, found that although China introduced a free market policy, economic news was increasingly centralized, and more controlled. Huailin and Chan (1998) further revealed that Xinhua News Agency has been responsible to centralize and supervise all economic news of the foreign press in China. These trends have been substantiated in more recent studies (Winfield & Peng, 2005; Yi, 1997). Similar to censoring political events that may damage the reputation of a country, it is very possible that a government with the ability to control the press may limit or delay negative economic news, while promoting and pushing forward positive economic news. Economic news is therefore used in controlled press countries as a means to facilitate the functioning of the economy, ensuring the stability of those in power (Weaver, 1985).

Following these observations, it seems that the role of economic news as reflecting or affecting economic change depends on at least two crucial dimensions. First, it depends on the level of press freedom, and second, on whether the news focuses on positive or negative economic changes. Particularly, in controlled press countries, governments would be interested to promote positive economic changes, and delay or censor negative economic changes. In free press countries, on the other hand, economic news would provide a more reliable descriptive map, which reflects economic changes, but in case of the coverage of negative economic developments, could also trigger further negative economic changes.

As there are no studies to date that examine directly the triangular relationship between press freedom, economic indicators, and economic news, it will be fashioned here as four hypotheses. Since the primary role of economic news in free press countries is to warn of a possible negative economic change (Bennett, 1988; Blondheim et al., 2015; Harrington, 1989; Nadeau et al., 1999; Shah et al., 1999; Soroka, 2006; Quiring & Weber, 2012; Wu & Day, 2005), the first set of hypotheses addressed in this paper is:

H1a. Economic news about free press countries would precede negative changes in their GDP.

H1b. Economic news about free press countries would follow positive changes in their GDP.

In line with previous indications of a possible time lag between economic news and GDP trends (Blondheim et al., 2015), and the essentially different function of economic news in controlled press countries as a mean of propaganda (Weaver, 1985; Winfield & Peng, 2005; Yi, 1997), the second set of hypotheses addressed in this paper is:

H2a. Economic news about controlled press countries would follow negative changes in their GDP.

H2b. Economic news about controlled press countries would precede positive changes in their GDP.

2. Methods

In order to examine the effect of press freedom on the news-economy nexus this study analyzed the cross-lagged correlations between news mentions and GDP trends of 77

countries over a period of six years. Two sets of data were used: (1) Trends of country mentions in the economic news from around the world, and (2) trends of countries' GDP over time.

2.1. The sample of economic news

Economic news data was collected from prominent news websites in 11 different countries and 10 different languages over six years. The sample included economic news from China (Mandarin), France (French), Germany (German), Egypt (Arabic), Iran (Persian), Israel (Hebrew), Japan (Japanese), Russia (Russian), Spain (Spanish), the UK and US (English). These countries were selected on the basis of several considerations. Countries with a large number of online users were chosen, since they often act as information hubs. They disseminate news in general and economic news in particular to smaller countries in their region (Tunstall, 2008).

Additionally, economically leading countries with high GDP such as China, Germany, and the US were chosen due to their global economic influence. Three key Middle Eastern countries: Egypt, Israel, and Iran were also included to provide a broader picture of economic news coverage from an increasingly important geopolitical and economic region (Segev & Blondheim, 2010, 2013; Segev, Sheafer, & Shenhav, 2013). Finally, during the sampling period the economic recession in Europe significantly affected the GDP level of some countries. It was therefore important to include economic news from countries to which the economic recession had varying degrees of relevance such as France, Germany, Spain, and the UK.

In each of the countries selected, three most visited news sites were chosen for

tracking. Two of them were the online websites of well-established traditional news media, such as the *New York Times* and the *CNN* in the US, or the *Guardian* and the *BBC* in the UK. The third news source was the *Google News* site of each country, a news aggregator of several hundreds and sometimes thousands of popular country-specific news sources.

News items from the economic section of each of the chosen websites were collected in real-time, based on its RSS feeds if available or by direct parsing of the relevant text every other day, over six years between 1 February 2009 and 31 January 2015 at 12.00 UTC. In total, 419,693 news items from 30 news sites were collected and analyzed. Table 1 details the countries and news sites that were studied.

[Table 1 about here]

The countries mentioned in the title and content of each news article were automatically mined and extracted. For this purpose, a database of 195 country names in all 10 languages was built. For each language several native-speaker research assistants were employed to translate country names into their languages. For each country name, the research assistants were asked to provide all common names and alternatives names (e.g. "Unites States," "USA", and so on). They were then asked to omit all alternative country names that might be ambiguous (e.g. "US") and therefore yield irrelevant search results.

The percentage of news items that mentioned a foreign country out of the total economic news items that mentioned foreign countries was calculated for each country each annual quarter to fit the GDP trends (see below). Thus, for each of the 195 countries, a news trend variable was constructed, offering 24 time points equivalent to 24 annual quarters of economic news coverage. The current analysis focused on news coverage of *foreign* countries in economic news, and therefore self-mentions were omitted. For example, the news variable

of the US included the percentage of US mentions in non-American economic news around the world over 24 annual quarters.

2.2. GDP time series data

Although GDP is only one of many economic indicators, it has been found in various studies to be a particularly significant determinant of country mentions in world news in general (Kim & Barnett, 1996; Robinson & Sparkes, 1976; Segev, 2015; Wu, 2000), and economic news in particular (Blondheim et al., 2015). GDP trends for each country obtained from the UN (2015) monthly bulletin of statistics. Since the GDP is calculated in annual quarters, news data for each country was calculated in annual quarters as well. Although not all 195 countries had GDP related data, the UN monthly bulletin provided data on 77 countries in an average of 20 annual quarters. Pearson correlation between news and GDP trends was calculated for each country. Additionally, time lag correlations were calculated in up to 3 annual quarter differences. Thus, six different time-lag correlations between economic news mentions and the GDP were obtained for each country. In the first three, GDP preceded the news measure by one, two, and three quarters; and in the other three, economic news preceded GDP by one, two, and three quarters.

Apart from the absolute trends of country GDP and their news mentions, the quarterly *changes* in GDP and news mentions were examined in order to avoid the bias of seasonality. The general findings observed in the absolute trends of country GDP and news mentions were similar to those of their quarterly changes, indicating that correlations were not significantly affected by seasonality of the time series. Since the news data was based on the actual country prominence, the annual quarter GDP levels were used rather than the changes

in GDP in order to keep the comparison between the two measurements as equivalent and consistent as possible.

2.3. Dependent and independent variables

The dependent variable in this study, **GDP-news lag**, was defined as the time lag in which the maximum (positive or negative) correlation between GDP and news trends was measured. It ranged from –3 to 3, where a value of –3 indicated that the maximum correlation between GDP and news was obtained when GDP preceded news in 3 annual quarters. A value of 3, on the other hand, indicated that the maximum correlation between GDP and news was obtained when news preceded GDP in 3 annual quarters. For example, the value of the GDP-news lag of Spain was 2, indicating that the maximum correlation between the GDP and news mentions of Spain was achieved when news preceded GDP in two annual quarters. A value of 0 indicated that the maximum correlation between GDP and news was obtained when there was no time lag between them.

Two independent variables were operationalized to explain this GDP-news time lag. First, the **Press Freedom** of each country was obtained from the Freedom House (2015) for the relevant period. The Freedom of the Press Index measured the level of media independence in different countries. Two measurements were used. One is an ordinal measurement, containing two levels (free or controlled press), and the other is a scale measurement, ranging from 0 (most free) to 100 (least free) on the basis of a set of indicators from the legal, political, and economic spheres.

The second independent variable was the **type of news focus** (on positive or negative economic changes). This was achieved by looking at the correlations between GDP and news

trends. Negative correlations indicate that news mentions of a country increase when its GDP declines and vise versa. In other words, news tends to focus on the negative changes or ignore positive changes in GDP. Positive correlations, on the other hand, indicate that the trends of the two measurements are aligned, that is news mentions of a country increase when its GDP increases and vise versa. In other words, news tends to focus on the positive changes or ignore negative changes in GDP. For example, an *Associated Press* headline published on *Bloomberg Business Week* on April 27, 2012 reported on the deepening crisis in Spain as its unemployment rate rises (Giles & Pylas, 2012). In this case, the prominent news attention given to Spain due to its declining economic power would result in a negative correlation between its GDP trends and news mentions. By contrast, a *Reuters* headline from June 13, 2011 mentioned the solid and growing Swiss economy despite of the European crisis (Moretimer, 2011). A prominent news attention toward Switzerland as its economy gets relatively stronger would result in a positive correlation between its GDP trends and news mentions.

The purpose of this variable is thus to distinguish between the focus of news on positive or negative economic changes. Two measurements were used. One was a binary measurement, indicating whether the maximum correlation between GDP and news (among the cross-lagged correlations) was positive or negative. The other was a scale measurement of the maximum (positive or negative) correlation between GDP and news trends, ranging from –1 to 1. For example, the maximum GDP-news correlation of Spain was negative (r = -.78), while the maximum GDP-news correlation of Switzerland was positive (r = .412).

Hence, both the GDP-news lag (the dependent variable) and the type of news focus (one of the two independent variables) were calculated based on the correlation between GDP and news mentions. These variables, however, examined two very different aspects of the

GDP-news correlation. The time-lag aimed at determining if news coverage of a country preceded changes in its GDP or vice versa. The type of news, on the other hands, focused on the *direction* of the correlation, or in other words, whether it was positive or negative.

A useful way to understand this distinction would be to look at one particular event, such as the economic news prominence of Singapore and its respective GDP. The left part of Figure 1 displays a significant increase in news attention during the fourth annual quarter of 2009. Apart from a steady growth of Singapore's GDP, a significant peak in GDP trends was observed during the second annual quarter of 2010, two annual quarters after the news peak.

[Figure 1 about here]

When shifting the news trends two annual quarters later, as demonstrated in the right part of Figure 1, a much stronger and significant positive correlation was achieved between news and GDP trends. This means that (a) the strongest GDP-news correlation was achieved when news preceded GDP trends, and (b) the correlation was positive since both news and GDP increased. These two measurements might not be related to each other. As will be displayed in the result section below, depending on the country observed, all four cases could be materialized—news preceded GDP with positive correlation, GDP preceded news with positive correlation, news preceded GDP with negative correlation, and GDP preceded news with negative correlation.

Another important point to bear in mind is that news trends of country mentions are typically different from GDP trends. GDP could display upward and downward peaks following positive or negative economic changes respectively. News, on the other hand, is about events, and therefore mostly displays upward peaks, indicating a raise of attention toward negative or positive economic changes. There are rare cases (see, for example, Segev,

2016) in which the country prominence temporarily shrinks as a result of the rise in attention toward other "competing" countries. Thus, most temporal changes in news attention would be upward rather than downward peaks.

On the other hand, it is still possible that some countries would display a continuous decline in news prominence. In economic news, this is usually the case after a prominent and ongoing coverage of a financial crisis. For example, Blondheim and Segev (2015) found that the attention toward the US in economic news around the world has been steadily decreased since the 2008 financial crisis, while its GDP gradually recovered. This resulted in a general negative correlation between GDP and news trends, again suggesting that economic news is about negative rather than positive economic changes. As mentioned above, to study whether those specific cases significantly affected the results, the correlations between news trends and the *changes* in GDP for each country were studied as well. The GDP-news lag and the type of news focus were recalculated based on this, and all the analyses described below were performed. However, the results in both cases were similar, and finally the annual quarter GDP trends were used to keep the consistency with the news data.

3. Results

In order to study the different function of economic news in free and controlled press countries a two-way analysis of variance was conducted. The affect of two variables (press freedom of a country and the type of news focus) on the dependent variable (GDP-news lag) was examined. Table 2 shows that the GDP-news lag was significantly affected by the interaction between the two variables. Each variable alone was not significant in explaining the differences of country GDP-news time lag, however, their interaction effect was

significant at the $p = .003$ level [$F(1, 73) = 9.59$].

[Table 2 about here]

Figure 2 outlines the estimated marginal means of GDP-news lag as a function of the Type of News Focus and the Press Freedom of countries. In line with H1a and H1b, it shows that economic news about free press countries *followed positive* GDP changes in about one annual quarter ($\mu = -1$). At the same time, economic news about free press countries *preceded negative* GDP changes in about one and a half annual quarter ($\mu = 1.46$). By contrast, in line with H2a and H2b, economic news about controlled press countries *preceded positive* GDP changes in about less than a third of annual quarter ($\mu = .21$). At the same time, economic news about controlled press countries *followed negative* GDP changes in about a third of annual quarter ($\mu = -.31$).

[Figure 2 about here]

Figure 3 visualizes this division of countries on a scatter plot by the Maximum GDP-News Correlation and Press Freedom. The maximum GDP-news correlation among the seven possible cross-lagged correlations is presented for each country as well as its press freedom level. Countries, in which GDP trends preceded their mentions in economic news, are marked in black. Countries, in which mentions in economic news preceded GDP trends, are marked in white.

Figure 3 clearly shows a high concentration of black dots on the upper right corner, indicating that news mentions of some free press countries, such as Switzerland, Luxemburg, or Belgium, *followed positive* changes in their GDP. News mentions of other free press countries, such as Spain or the UK, *preceded negative* changes in their GDP. Among the controlled press countries this GDP-news lag was reversed. News mentions of Singapore or

Qatar, for example, *preceded positive* changes in their GDP. News mentions of Ukraine, Paraguay, or Mexico *followed negative* changes in their GDP.

[Figure 3 about here]

Figure 4 offers a closer look into the GDP and news trends in four representative countries: Singapore and Switzerland, a controlled and free press countries respectively, in which the maximum GDP-news correlation was positive; and Ukraine and Spain, a controlled and free press countries respectively, in which the maximum GDP-news correlation was negative. This figure displays the annual quarter values of the GDP, news mentions, and news mentions after the time lag in which the maximum GDP-news correlation was achieved. Standardized values are ranged from 0 to 1, where 0 represents the minimum value and 1 the maximum value measured during the period of observation.

The content of news items mentioning those four countries during the peaks of news attention further illustrates the different functions of economic news. Thus, economic news around the world frequently mentioned Switzerland during the third annual quarter of 2011, praising its comparatively robust economy despite the European financial crisis (Moretimer, 2011). This news appeared a few months *after* a significant rise in its GDP. The higher news attention toward Spain in the second quarter of 2012, on the other hand, dealt with its deepening crisis and rising unemployment rate (Giles & Pylas, 2012). This news *preceded* a significant drop in its GDP level a few months later.

By contrast, Singapore received a prominent news attention in November 2009, among others, as a result of hosting the annul summit of the Asia-Pacific Economic Cooperation (APEC). A *CNN* news items dated from November 13, 2009 praised the GDP growth of Singapore despite the economic crisis (CNN, 2009). This increase in news

attention *preceded* a significant GDP growth in Singapore toward the second annual quarter of 2010.

Finally, Ukraine was often mentioned in economic news around the world as a result of its gas dispute with Russia. For example, a *Guardian* news item from September 7, 2011, reported on the opening of a direct gas pipeline from Russia to Europe bypassing Ukraine (Macalister, 2011). The GDP of Ukraine, on the other hand, significant declined already toward the beginning of 2011, between two to three annual quarters *earlier*.

[Figure 4 about here]

4. Discussion

International economic news both reflects and affects the economic trends of foreign countries around the world. Yet, the different function of economic news in controlled and free press country was not subject to systematic analysis. The current study attempted to contribute both empirically and theoretically by considering the triangular relationship of economic news, economic indicators, and press freedom. Employing cross-lagged correlations of country mentions in economic news around the world over six years with their corresponding GDP trends and press freedom, it unveiled significant differences in the function of economic news in controlled and free press countries.

A first indication for the possible difference in the function of economic news was observed by Blondheim et al. (2015) when studying the correlations between GDP trends and country mentions of the ten most mentioned countries in economic news. While studying a limited number of countries during the period of an economic crisis they found negative

correlations between country mentions and their GDP trends, showing that economic news focused mainly on negative economic changes. In analyzing a much larger number of countries over a longer period, the current study revealed the presence of positive correlations as well, indicating that for some countries in certain periods economic news covers their positive economic changes.

One of the most important and intriguing patterns could be identified when differing between those positive and negative GDP-news correlations in a large number of countries. In line with the hypotheses it was found that economic news about controlled press countries followed negative GDP changes and preceded positive GDP changes. Taking into account the governmental involvement in the production and dissemination of economic news (Weaver, 1985; Winfield & Peng, 2005; Yi, 1997), this time lag provides an empirical evidence for its particular function as a means of propaganda to promote the country and strengthen its economy. Positive changes in GDP are pushed forward, while negative changes are often censored and delayed.

The implications of restricted or controlled economic news on the actual economic growth are therefore twofold. First, as news is slow to reflect negative economic changes, it minimizes the possible fall in foreign investments. Second, as news often precedes positive economic changes, it seems to be, to some extent, effective in improving the economy. This manipulation of economic news, however, has its price, since controlled press countries generally enjoy much less the trust of foreign investments than free press countries (Alam & Shah, 2013; Roll & Talbott, 2003; Stiglitz, 2000).

The time lag between news about free press countries and their GDP trends was reversed. News followed positive economic changes and preceded negative economic

changes. In line with the expectations, it seems that economic news about free press countries functions primarily as a warning system for economic deviance (Bennett, 1988; Blondheim et al., 2015; Harrington, 1989; Nadeau et al., 1999; Shah et al., 1999; Soroka, 2006; Quiring & Weber, 2012; Wu & Day, 2005). It would therefore often precede economic downfall. Its secondary role is to indicate economic growth. News coverage would usually follow positive economic changes in free press countries.

Yet, the fact that economic information flows freely certainly does not mean that it is free of manipulations. Companies in free press countries carefully choose the wording of their press releases in order to minimize the damage and propagate investment as much as governments in controlled press countries do. At the same time, a free press environment is considered to be more accountable (Chowdhury, 2004; Freille, Haque, & Kneller, 2007), and thus also enjoys more the trust of foreign investors.

In this information-saturated environment, previous studies show that negative news are more effective than positive news in influencing people's perceptions and decision making (Goidel et al., 2010; Lischka, 2015; Quiring & Weber, 2012). With the mediation of public perceptions, negative news turns out to influence the economic reality in free press countries, indicating the primary role of economic news as a warning alarm for negative development. News on positive economic changes, on the other hand, which seemed to be less effective in influencing public perceptions (Nadeau et al., 1999; Shah et al., 1999; Soroka, 2006), was found to follow economic trends. This finding unveils the secondary role of economic news in free press country, which is to reflect the economic reality, and provide a descriptive map for further navigation. Figure 5 summarizes how this principle works, indicating that the dynamic relationship between international news and economic change is affected by the level of press freedom in the reported country.

[Figure 5 about here]

It is important to note, however, the limitations of the present study. First, although GDP is currently one of the most significant and reliable measurements to compare with country mentions in economic news from around the world, it is relatively limited for the conduct of trend analysis. As many other macroeconomic variables, it is generated in a relatively low frequency of annual quarters. Future studies should seek to operationalize other economic measurements with a higher granulation of days and hours that would allow a plausible cross-national comparison, and a finer cross-lagged analysis of this kind. Second, this study focused on the macro level. Further qualitative and sentiment analyses are required to compare the content of economic news around the world. Qualitative analyses would complement the current findings and deepen our understanding of the contexts in which countries are mentioned, and how this affects public perceptions, and the actual economy.

Notwithstanding these limitations, the main contribution of the current paper is in highlighting the different functions of economic news around the world when reporting on the economic changes in controlled and free press countries. Based on the distinction between negative and positive GDP-News correlations and their time lags, it indicated that international economic news can serve both as a means of propaganda or as a warning alarm depending on the reported country in question. Future studies should therefore bear in mind this useful distinction, and seek to further operationalize and consider the triangular relationship between press freedom, economic news, and the economic reality.

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Table 1

Countries and News Sites Included in the Study

Country	Website	News Items	Country	Website	News Items
China	Google News	9,270	Japan	Google News	108
	People Daily	53,170		NHK	35,967
	Sina	12,228		Yahoo	6,329
Egypt	Al Ahram	185	Russia	Gazeta	24,556
	Al Masry Alyoum	7,046		Google News	8,786
France	Google News	7,266		Pravda	11,163
	Le Figaro	8,233	Spain	El Mundo	11,043
	Le Monde	8,450		El Pais	11,003
Germany	Google News	7,563		Google News	7,503
	Spiegel	12,862	UK	BBC	25,231
	Welt	11,628		Google News	14,219
Iran	Aftab	4,532		Guardian	18,544
Israel	Google News	33,004	US	CNN	13,156
	Haaretz	13,289		Google News	7,728
	Ynet	16,329		NYTimes	19,302
Total News Items					419,693

Note. During the sampling period *Google News* did not offer Egyptian or Iranian edition.

Table 2

Two-Way Analysis of Variance of GDP-News Lag by the Type of News Focus and Press Freedom of Countries

Source	Type III SS	*df*	MS	F	*p*
Corrected Model	53.234	3	17.745	4.456	.006
Intercept	.582	1	.582	.146	.703
Type of News Focus	16.143	1	16.143	4.054	.048
Press Freedom	1.322	1	1.322	.332	.566
Type of News Focus * Press Freedom	**38.197**	**1**	**38.197**	**9.591**	**.003**
Error	290.714	73	3.982		
Total	344.000	77			
Corrected Total	343.948	76			

Note. R Squared = .155 (Adjusted R Squared = .120). The dependent variable, GDP-News lag, was measured in annual quarters. The press freedom of countries was based on the Freedom House values classified into free (n = 36, Freedom House value ≤ 30), and controlled press (n = 41, Freedom House value > 30). The Type of News Focus was a binary variable (positive or negative) based on the maximum GDP-news correlation.

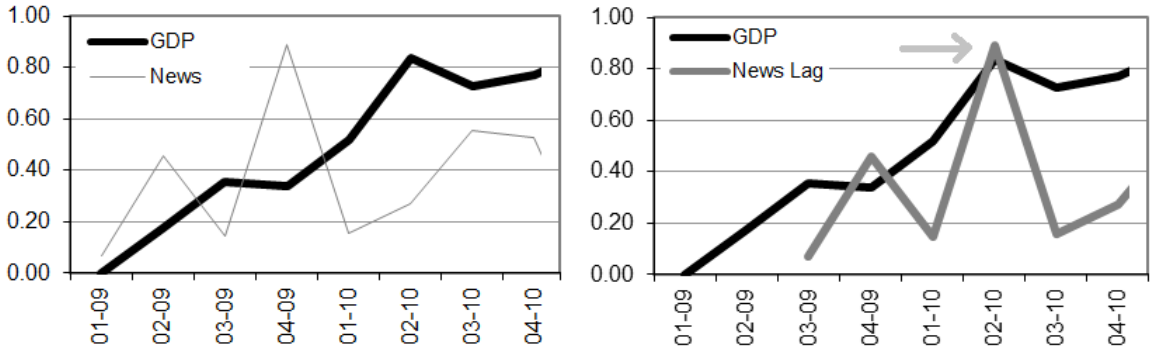

Figure 1. Annual quarter trends of Singapore's GDP and economic news mentions

Note. The gray line titled "News Lag" indicates the trends of Singapore news mentions during the lag in which the maximum GDP-news correlation was achieved. Values were standardized to range between 0 and 1.

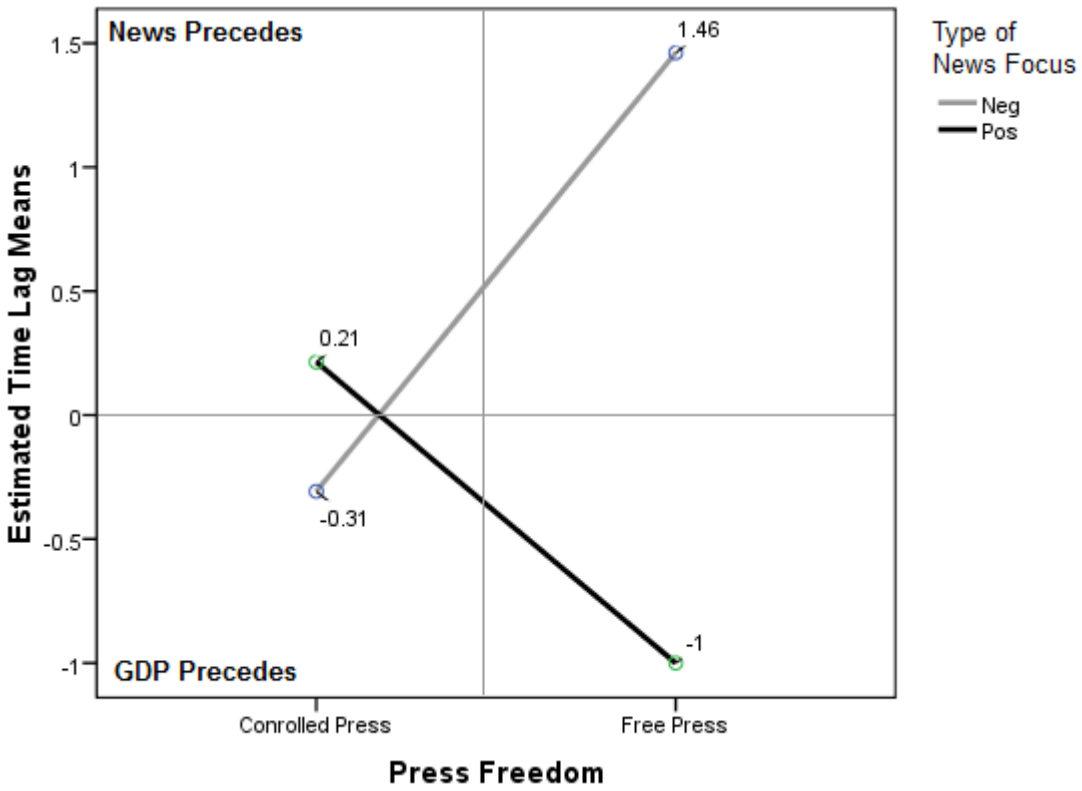

Figure 2. The estimated marginal means of GDP-news lag as a function of the Type of News Focus (positive or negative) and the Press Freedom of countries

Note. GDP-news lag was measured in annual quarters (-3 to 3). Positive values indicate that country mentions in economic news preceded GDP trends, while negative values indicate that GDP trends preceded country mentions.

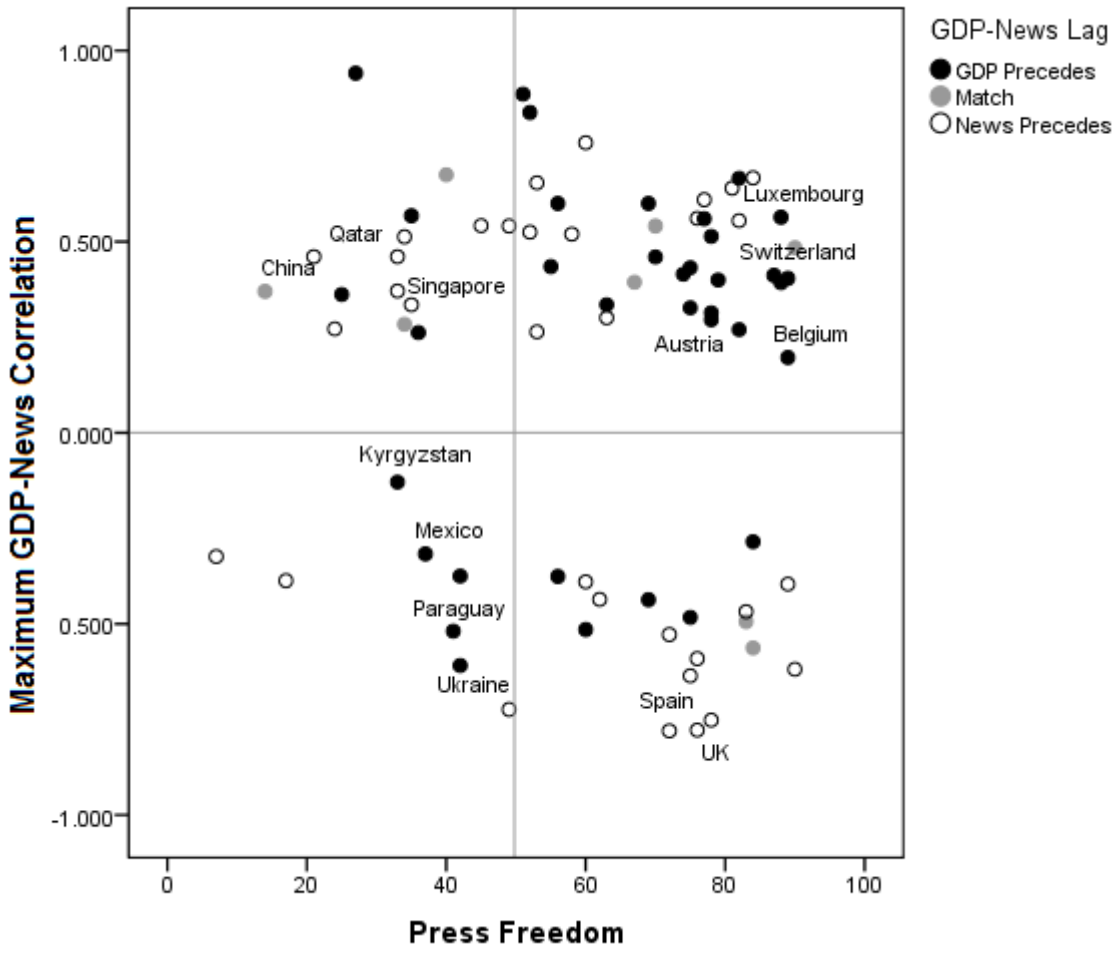

Figure 3. A scatter plot of the Maximum GDP-News Correlation and the Press Freedom of countries

Note. The Press Freedom variable in this figure is based on the reversed Freedom House values, where 100 indicates maximum press freedom and 0 minimum press freedom. The Maximum GDP-News Correlation of each country is among the seven possible cross-lagged correlations. Countries, in which GDP trends preceded country mentions in economic news, are marked in black. Countries, in which country mentions in economic news preceded GDP trends, are marked in white.

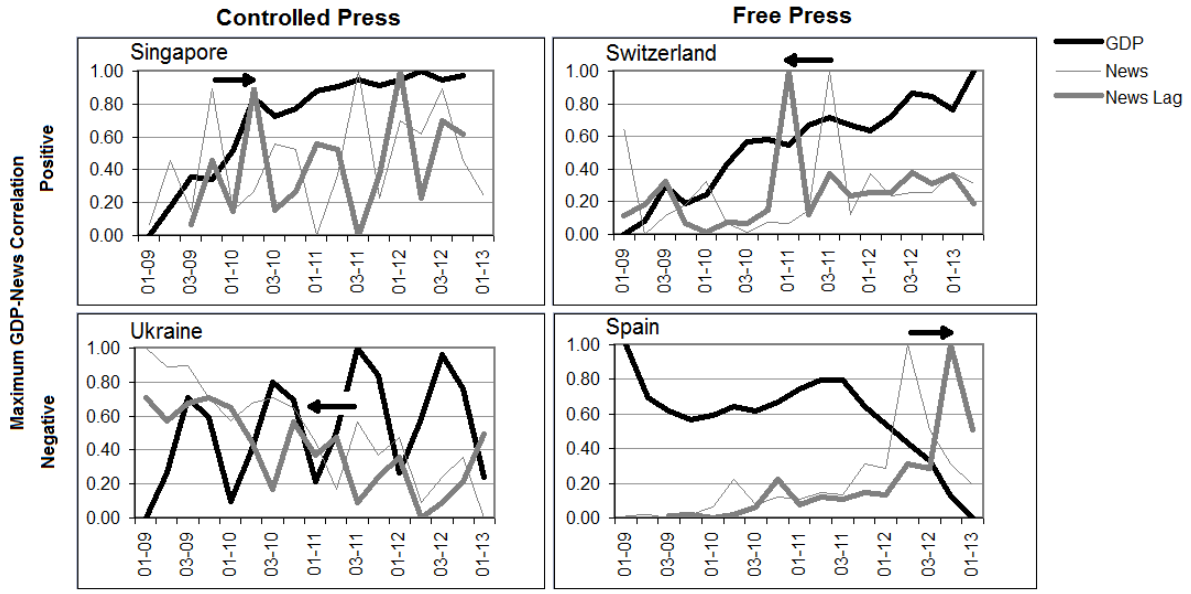

Figure 4. Annual quarter trends of GDP and economic news mentions of four countries

Note. The gray line titled "News Lag" indicates the trends of news mentions during the lag in which the maximum (positive or negative) GDP-news correlation was achieved for each country. Values were standardized to range between 0 and 1.

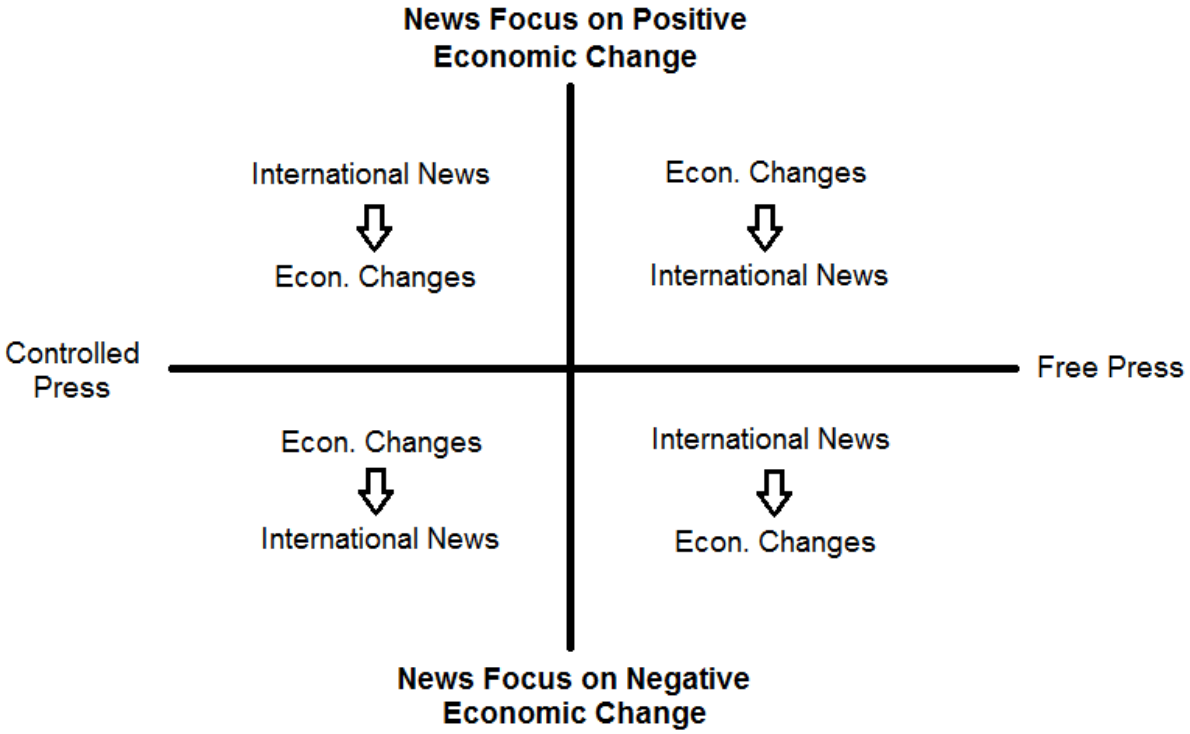

Figure 5. The time-lag between economic changes and their coverage in international news as a function of press freedom and the news focus on positive or negative changes