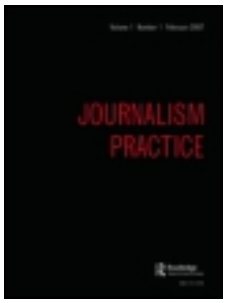

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Content Analysis in Business Digital Media Columns: Evidence From Colombia

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ABSTRACT
The business world is a voracious consumer of business media content. Research on business columnists has been focused mainly on the effects of columns' content on stock prices and stock exchange performance indicators. In this study, we delve into the characteristics of business media and their development in terms of the readability and content of business digital media columns from a developing country (Colombia). For this, we conducted a readability and content analysis of a sample of 565 columns from *Dinero* and *Portafolio*, two of the most influential business media outlets in Colombia. Our results showed an over-representation of male columnists, a lower readability compared with columnists from abroad, and non-significant differences in readability regarding the media outlet and the columnists' academic degree or gender. We also found that both media outlets have similar patterns in terms of their narratives.

KEYWORDS
Business media; columns; opinion; content analysis; readability; Colombia

Introduction

Business people and entrepreneurs are conspicuous consumers of business news content. For example, *The Wall Street Journal* reaches an audience of 42 million digital readers per month (*The Wall Street Journal, 2017*). People such as Kara Goldin, Warren Buffett, Kat Cole, and Bill Gates are loyal readers of the *Financial Times* or *The Economist*, which provide data and stories relevant to their daily decision-making activities (Gillett, Cain, and De Luce 2019).

Research on business news and columnists has been following three streams, i.e., (i) the balance in terms of mentions of individuals by gender and ethnicity; (ii) the positive association between a high level of readability and the diffusion of posts on social networks (e.g., Facebook) (Austin 2010; Omar et al. (2010); Pancer et al. 2019), and (iii) the effect of the content of columns on buying/selling stocks and on stock exchange performance (Davies and Canes 1978; Lee 1986; Liu, Smith, and Syed 1990; Beneish 1991; Tetlock 2007; Brown, Ferguson, and Jackson 2009; Palmon, Sudit, and Yezegel 2009; Dougal et al. 2012). This study is framed within the first two streams.

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In essence, the research of the first two streams has been geographically focused on the Global North (i.e., developed countries). Second, there has been a broader use of readability indices such as the Flesch–Kincaid Grade Level (FKGL), the Gunning Fog Score (GFS), the Coleman–Liau Index (CLI), and the Automated Readability Index (ARI). Third, these indices have been consistently used in several disciplines, from business and management to health sciences (Robinson and Schumacher 2013; Wong and Levi 2017; Nassif, Wong, and Levi 2018; Leira et al. 2019). Fourth, the majority of authors of the texts or columns studied have been men. And fifth, texts or columns analyzed have been gathered from a single media outlet (e.g., *WSJ* or *Forbes*).

Despite the contributions above, several aspects remain open. There is a gap regarding the study of the content and readability of business media from the Global South (i.e., developing countries). From the perspective of developing countries, there is a lack of insights into potential differences in readability and content by business media outlets, author gender, or educational attainment. Also, there is no evidence on distinctiveness or similarities in content between business media outlets. Those research gaps motivated the following research questions:

- What are the characteristics in terms of readability and content of business digital media columns from developing countries (particularly Colombia), and how have they developed?
- Are there significant differences between groups (e.g., by media outlets, gender, or educational attainment) or differences in readability or content topics in business and management digital media columns?
- What are the essential topics and their similarities or distinctiveness between the business media outlets studied?

This study aims to comprehend the content features of the business and management digital media columns of two of the most consulted business media outlets in Colombia (i.e., *Dinero* and *Portafolio*) (ACIM 2016). This study contributes to the research literature on digital business media opinion content in developing countries, comparing features from different sources and analyzing differences by gender and educational attainment of the authors. On the other hand, practitioners might use these research findings as a benchmarking for improving their columns' readability, or for editorial strategic planning to strengthen a business news content distinctiveness far from current dominant topics.

After this introduction, we present the research background associated with business columnist and content analysis in management and business media. In the methodology section, we present the sample of columns analyzed and the methods and software used. Then, the results are presented. Finally, the discussion and conclusion section contrasts the results with the literature reviewed and presents the limitations of this study and further research agenda.

Research Background

The core literature on business columnist is focused on the effect of their recommendations on stock prices and stock exchange performance, and superficial insights on their content and readability and further effect on returns and trading volume.

Considering that the latter is not our central inquiry (i.e., business columns' effect on the stock exchange) —but not possible to set it aside— we present a further section on content analysis and readability in management and business media in general.

Business Columnists

In a seminal study, Davies and Canes (1978) extracted buy/sell recommendations from *The Wall Street Journal* column "Heard on the Street" to measure the effects on the New York Stock Exchange (NYSE). On the day a stock received a buy recommendation, it had a 70% probability of rising in value, while on the day a stock received a sell recommendation, it had a 90% probability of falling in value. Subsequent studies using the same columns found that there was not only an impact on stock prices on the publication day but also a smaller, but still significant, impact on stock prices two days after publication (Liu, Smith, and Syed 1990). Using the column *Abreast of the Market* (also published by the *WSJ*), Dougal et al. (2012) found a causal effect between financial reporting and stock market performance in the Dow Jones Industrial Average from 1970 to 2007. Regarding writing styles in areas such as sentence structure, complexity, article length, and pessimism or optimism about market conditions, journalists differ markedly from each other. The mean Fog score of the columns was 11.1, which is readable for high school seniors.

Similarly, Tetlock (2007) showed that columns with a higher percentage of negative words foreshadow low next-day returns and that high or low degrees of pessimism predict high market trading volume. Besides *WSJ* columns, Lee (1986) analyzed a column written by Heinz Biel in *Forbes* from 1962 to 1979, finding that the financial advice provided by Biel was associated with increases in the short run in the prices of the securities recommended.

One of the first studies, to the best of our knowledge, to gather data from multiple outlets and columnists was conducted by Palmon, Sudit, and Yezegel (2009). This study considered *Business Week, Forbes*, and *Fortune* from 2000 to 2003. The evidence showed that the anomalous returns documented in prior studies were sample-specific and not representative of columnist recommendations in general. Outside the United States, Brown, Ferguson, and Jackson (2009) determined that stocks with positive coverage in Pierpont's column (a character created by Australian business journalist Trevor Sykes) in the *Australian Financial Review* enjoyed abnormal returns averaging 6.4%, while stocks with negative coverage suffered abnormal losses of 5.5%.

Content Analysis and Readability in Management and Business Media

Readability reflects the level of comprehension of written materials to avoiding unnecessary complexities (Flesch 1948; Gunning 1969). Higher readability enhances the levels of understanding in corporate communications (Linsley and Lawrence 2007; Rennekap, 2012).

Omar et al. (2010) stated that "Male" references in more than 3.5 million business news make up 60% of references, whereas "Female" only account for 6.7%. Compared to Sport-related articles, Business-related articles showed an inferior level of readability. Readability is also important for online media engagement. Pancer et al. (2019) showed that easy-to-read posts were more liked, commented on, and shared on social media.

In terms of public relations, Austin (2010) examined two influential outlets (i.e., *Public Relations Tactics* and *The Public Relations Strategist*) for understanding the framing of gender and diversity issues. Findings showed that diversity in terms of ethnic groups (e.g., African Americans) was set aside in its issue or column. These disparities in public relations still exist among gender, racial, and ethnic groups.

Methodology

Data

We selected two of the most stable and influential online business media outlets in Colombia: *Dinero* and *Portafolio* (ACIM 2016). *Dinero* has a daily audience of 261,000 readers, while *Portafolio* has 353,000 (ACIM 2016).

We searched and gathered the available columns published by both media outlets on their respective websites. A group of five research assistants gathered columns published between February 2017 and April 2018. Twenty-four columnists published 810 columns in *Dinero* for the period 2016-2019. In *Portafolio,* 417 columnists published 4,893 columns for the period 2008-2018.

The average number of columns per author was 33 for *Dinero* and 14 for *Portafolio*; thus, authors with less than the respective media outlet average were likely to be guest or sporadic columnists and therefore were excluded from the sample.

A stratified sample was implemented considering the asymmetric number of columns per author. The size of the samples was calculated separately. The sample was composed of 228 columns of *Dinero* and 357 of *Portafolio* for a total sample of 585 columns (confidence level: 95%). We gathered a random sample of columns per author. First, we counted the total columns per author. Then, we calculated the percentage of columns of each author over the total of columns of the media outlet. Finally, we multiplied that percentage by the sample of the media outlet.

For instance, the columnist *Jorge Alonso Ruíz* published 277 columns in *Portafolio* which are equivalent to 5.6% of the total of columns in that outlet. The 5.6% was multiplied by 357, which is the sample calculated for *Portafolio*. Thist is equal to 20 columns to be analyzed for *Jorge Alonso Ruíz*.

If a given column was not accessible due to a paywall, a worldwide trend (Fletcher and Nielsen 2017), or a missing link, another column was selected randomly. The final sample was composed of 565 columns because it was not feasible to gather 19 columns from *Portafolio* and one from *Dinero*. Information regarding academic degrees and institutional affiliations was gathered from the authors' official websites or LinkedIn profiles.

The following permanent link provides open access to the complete dataset for further replication or triangulation, as recently required by the academic community (Munafò and Davey Smith 2018; Servick 2018): https://doi.org/10.34848/FK2/CLNLMG

Methods and Software

We choose methods according to the three research questions (R.Q.s) stated in the *Introduction*. For R.Q.1 we calculated the readability properties of each column employing the Simple Measure of Gobbledygook (SMOG) (McLaughlin 1969; Contreras et al. 1999) and analyzed their longitudinal trend. Readability indices were used to determine the level

of comprehension difficulty of written material (Flesch 1948) and avoidance of needless complexities in the mechanics of writing (Gunning 1969). Previous studies of readability in Spanish-language materials had used the Fernandez–Huerta index (Haller et al. 2019) or the Simple Measure of Gobbledygook (SMOG) (McLaughlin 1969; Contreras et al. 1999). The Fernandez–Huerta index, however, was based on the Flesch–Kincaid Reading Ease (FKRE) index (Kincaid et al. 1975), which was designed to test the readability of technical documents in English.

Along with the indices mentioned above, further indices such as the Flesch–Kincaid Grade Level (FKGL), the Gunning Fog Score (GFS), the Coleman–Liau Index (CLI), and the Automated Readability Index (ARI) have been used in readability studies. Table 1 presents the formulas and interpretation for the readability indices selected. Most of the interpretation of these indices, lead either to the calculation of the number of years of formal education achieved or of the age needed to understand a given text at first reading.

For R.Q.2 we used ANOVA (Analysis of variance) to identify readability differences among groups means (e.g., media outlet, gender, or educational attainment) in a sample.

For R.Q.3 we implemented content analysis, which attempts to reveal the latent or manifest significance of published texts with the assistance of software. This technique has developed into a systematic and quantitative approach in which a combination of computer-assisted content analyses are conducted to perform a cluster analysis. Cluster analysis can be understood as the grouping of similar objects into groups in cases where the number of groups or their forms is unknown (Aldenderfer and Blashfield 1984; Lancia 2012). The following steps were followed for the content analysis:

- Exclusions: words without meaning were excluded (e.g., pronouns, articles, prepositions, adverbs).
- Lemmatization: organizing the database into lexical units or keywords that help to reveal the deep meanings of the texts (e.g., for words like "billion," the plural "billions" was included unless there was a group of words representing a concept, such as "billions of Colombian pesos," was repeated continuously). In those cases, the system analyzed the group of words as a single lexical unit.

Table 1. Readability indices and their calculation formulas.

Index	Formulas	Interpretation
GFS	$0.4(ASL + PHW)$	Years of formal education a person needs to understand the text on the first reading (e.g., 17 is equivalent to a college graduate)
FKRE	$206.835\text{-}1.015\left(\frac{\text{words}}{\text{sentences}}\right) - 84.6\left(\frac{\text{syllables}}{\text{words}}\right)$	Scale of 0–100. A higher score means greater readability
FKGL	$0.39\left(\frac{\text{words}}{\text{sentences}}\right) + 11.8\left(\frac{\text{syllables}}{\text{words}}\right) - 15.59$	American school grade a person needs to be in to comprehend the text (e.g., 7.5 means that the text should be understandable for a person who is in 7th or 8th grade, or 12–14 years old)
SMOG	$1.0430\sqrt{30\left(\frac{\text{complexwords}}{\text{sentences}}\right) + 3.1291}$	Approximates the age needed to understand the text
CL	$5.89\left(\frac{\text{characters}}{\text{words}}\right) - 0.3\left(\frac{\text{sentences}}{\text{words}}\right) - 15.8$	American school grade needed to be in to comprehend the text
ARI	$4.71\left(\frac{\text{characters}}{\text{words}}\right) + 0.5\left(\frac{\text{words}}{\text{sentences}}\right) - 21.43$	Approximates the age needed to understand the text

Note: *ASL* (Average Sentence Length) = number of words in a text of at least 100 words divided by the number of sentences. *PHW* (Percent Hard Words) = number of words that contain more than three syllables (non-proper nouns, combinations of easy or hyphenated words, or two-syllable verbs that become three syllables by adding "-es" or "-ed" endings) divided by the total number of words. The variable *complexwords* means words with three or more syllables. Source: The author based on Webpagefx (2019).

- Recodification*:* words may appear as a group, but are, in fact, a single word (e.g., United States [U.S., U.S., U.S]). The detection of the meaning of groups of words was prepared with the assistance of AntConc (2019), specifically with the option "N-Grams composed of 2–6 words." We detected and recoded 119 groups of words that were repeated at least ten times in the sample. That minimum percentage is equal to 0.005% of the total words in *Dinero*. Below this number, it is assumed that those words are not representative of the general tendencies of the corpus.

IBM's SPSS v. 24 was used to calculate descriptive statistics, correlations, and ANOVA (IBM Corp., 2016). T-LAB Pro 2017 was used for content analysis (Cortini and Tria 2014).

Results

Sample By Groups

Table 2 presents a summary of the sample of columns by each media outlet, gender, academic degree, and affiliation. Female columnists were under-represented. In *Dinero*, only two out of ten columnists were female, whereas in *Portafolio* only one out of ten. Most of the columnists held a master's degree. Most columnists were males affiliated with the private, while most female columnists were affiliated with the non-profit sector.

Readability Indices and Intra-Correlations

The six readability indices presented above were calculated for each column of the sample to test correlations. Table 3 presents the readability indices' descriptive statistics and

Table 2. Sample of columns and columnists analyzed by media, gender and educational attainment.

			Media			
Item			Dinero	%	Portafolio	%
Total columns			227	40%	338	60%
Columnist by gender		M	8	80%	72	92%
		F	2	20%	6	8%
		Total	10		78	
Columnist by academic degree	Bachelor	M	–	–	4	5%
		F	–	–	–	–
	Master	M	8	80%	51	65%
		F	1	10%	6	8%
	PhD	M	–	–	10	13%
		F	1	10%	–	–
	N/A	–	–	–	7	9%
Affiliation	Universities	M	3	30%	11	14%
		F	2	20%	–	–
	Private sector	M	4	40%	20	26%
		F	–	–	2	3%
	Public sector	M	1	10%	8	10%
		F	–	–	1	1%
	Non–profit	M	–	–	9	12%
		F	–	–	3	4%
	Other (independent)	M	–	–	10	13%
		F	–	–	–	–
	N/A		–	–	14	18%

Source: Dinero and Portafolio websites; author's personal websites or LinkedIn profiles. Note: M = Male; F: Female.

correlations. All indices were significantly correlated with each other at the $p < .01$ level. Considering the level of significance of the correlations among indices and the language of the text, we selected the SMOG since it has been used for measuring readability in Spanish (Contreras et al. 1999) and showed a correlation above .9 at the $p < .01$ with four out of five indices.

Readability Trends and Differences Among Groups

Figure 1 displays the columns' SMOG index in *Dinero* and *Portafolio* for the periods 2016–2019 and 2008–2018, respectively. Although the readability trends of *Portafolio's* and *Dinero's* appear to be diverging, the differences are not significant. *Portafolio's* SMOG index trend has been static but is slightly lower than that of *Dinero*. Meanwhile, *Dinero's* SMOG index trend has been decreasing, which means that the columns' readability has been improving. For instance, while in 2017 a 17-year-old individual was able to understand a column's text on a first read, in 2018, this could be done by a 16-year-old individual. A detailed analysis using ANOVA showed no significant difference between media groups (G1: *Dinero*; G2: *Portafolio*) and readability at the $p < .05$ level [$F(1,563) = 1.41$, $p = .235$].

Readability means were higher for female authors with bachelor's and master's degrees, but lowest for female authors with a Ph.D. degree (Figure 2); nevertheless these differences between gender and educational attainment were not significant. ANOVA results showed neither a significant difference between gender groups [$F(1,563) = .42$, $p = .516$] (G1: male n = 495; G2: female n = 70) nor between academic degree groups [$F(2,562) = 1.344$, $p = .262$] and readability at the $p < .05$ level (G1: bachelor's/NA n = 48; G2: master's n = 449; G3: Ph.D. n = 68).

Content Analysis

Table 4 presents the descriptive statistics of the content of the columns. The sample contained two corpora with a difference of fewer than 9,000 words. The mean of types or unique words per token (total occurrences of words in each corpus) was nearly equivalent; *Portafolio* (+0,1) was slightly higher than *Dinero*, probably because more words were detected in the first case. At the same time, the number of tokens (total occurrences of words in each corpus) was reduced after the lemmatization and recodification in each collection of texts: these normal processes decreased the total number of words in *Portafolio*

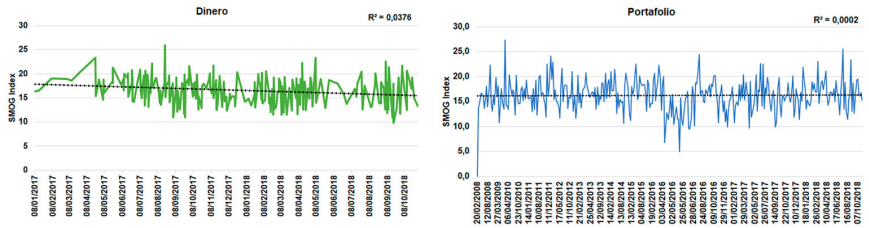

Figure 1. Columns' SMOG index. Left: *Dinero*; right: *Portafolio*. Source: the authors.

Table 3. Readability indices' descriptive statistics and intra-correlations.

							Correlations					
R.I.	Mean	SD	Mean (Portafolio)	SD (Portafolio)	Mean (Dinero)	SD (Dinero)	FKRE	FKGL	GFS	SMOG	CLI	ARI
FKRE	9.1	14.2	9.5	14.7	8.6	13.4	1					
FKGL	19.0	3.9	18.8	4.0	19.3	3.9	−.924**	1				
GFS	22.2	4.2	21.8	4.2	22.7	4.1	−.915**	.984**	1			
SMOG	16.3	3.0	16.2	3.0	16.5	2.9	−.933**	.985**	.978**	1		
CLI	12.5	1.8	12.5	1.8	12.5	1.7	−.693**	.426**	.458**	.457**	1	
ARI	15.3	4.9	15.0	5.0	15.9	4.9	−.891**	.982**	.972**	.961**	.427**	1

Note: **: significance at the $p<.01$ level. Source: the authors' based on Dinero and Portafolio columns. SPSS was used for calculations.

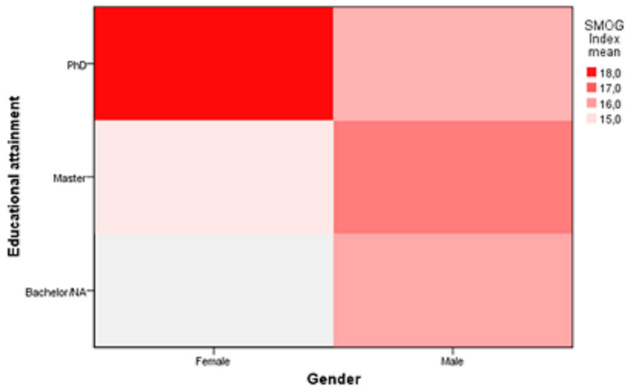

Figure 2. SMOG index mean by gender and education attainment. Source: the authors.

Table 4. Descriptive statistics of the content analysis.

Media	Number of items analyzed	Number of words before processing (*tokens*)	Number of *types*	Index of *types-tokens* ratio	Number of words after processing (*tokens*)	Lexical units analyzed	Elemental contexts analyzed
Portafolio	338	179,113	18,410	0.1	177,369	1,692	3,737
Dinero	227	170,502	16,185	0.09	168,559	1,577	3,540

Source: the authors' based on the sample of columns and processed with T-LAB Pro 2017 (Cortini and Tria 2014).

and *Dinero* by 0.82% and 1.13%, respectively. T-LAB programmed the analysis procedure with the non-supervised clustering method bisecting K-Means focused on fragments of texts, with a minimum of two co-occurrences and a maximum of ten clusters. Finally, we analyzed a total of 1,692 lexical units or keywords from the *Portafolio* corpus, and 1,577 from *Dinero*. These lexical units were produced by the steps explained previously. A total of 3,737 elemental contexts were identified in *Portafolio* and 3,540 in *Dinero*.

We found different clusters of keywords that reveal the narratives of these media outlets in each corpus. Four clusters of keywords emerged from *Dinero* (Table 5). Cluster 1: "Analysis of general work and business topics" (22.2%) is concerned with the complexity of contemporary work and business relationships. It is a cluster that presents useful information to delight or entertain the readers. Cluster 2: "International economic scenarios" (29.2%), discusses the economic agendas at the international level and how they may affect Colombia's economy. Cluster 3 "Abilities and attitudes to becoming a leader" (20%) is concerned with the managers and executives who might influence the readers through their reputation (more than proved in the *real* sector) and also presents/evaluates the abilities and attitudes relevant to becoming a leader. Cluster 4 "Topics relevant to the Colombian agenda" (28.5%) is sensitive to Colombian politics and social reality, and also includes topics from an international perspective. Table 6 presents an example of each cluster. Figure 3 presents a factorial space. This space represents the relationships among clusters. Cluster 1 and Cluster 3 are linked and share some common groups of words. Cluster 4 and Cluster 2 represent consistent informative tendencies of the economic columns in *Dinero*.

Table 5. Characteristics keywords and clusters in the columns in Dinero (top-ten with the highest X^2).

Cluster 1 (22.29%)		Cluster 2 (29.18%)		Cluster 3 (20.06%)		Cluster 4 (28.47%)	
Analysis of general working and businesses topics		International economic scenarios		Abilities and attitudes to become a leader		Relevant topics of the Colombian agendas	
Keywords	χ^2	Keywords	χ^2	Keywords	χ^2	Keywords	χ^2
Persona (person)	217.71	EEUU (USA)	296.217	Líder (leader)	488.36	País (country)	489.631
Cliente (client)	201.527	Aumento (increase)	218.361	Liderazgo (leadership)	159.756	Colombia	373.499
Trabajo (work)	186.894	Tasa (rate)	214.795	Mundo (world)	132.476	Educación (education)	346.291
Empresa (enterprise)	130.851	Expectativa (expectation)	178.627	Organización (organization)	130.05	Corrupción (corruption)	225.878
Empleado (employee)	117.144	Gráfico (graphic)	175.759	Gente (people)	125.993	Estudiante (student)	132.218
Major (better)	110.336	Precio (price)	175.053	Modelo (model)	93.833	Nacional (national)	120.899
Vendedor (salesperson)	105.641	Crecimiento (growth)	167.485	Capacidad (capacity)	91.717	Vietnam	115.832
Trabajar (work)	102.83	Inflación (inflation)	147.686	Corporativo (corporate)	85.469	Año (year)	112.57
Tiempo (time)	99.159	China	144.954	Diferente (different)	80.506	OCDE (OECD)	103.366
Venta (sale)	86.556	USD	137.243	Humano (human)	79.436	Desarrollo (development)	100.993

Source: the authors' based on the sample of columns and processed with T-LAB Pro 2017 (Cortini and Tria 2014).

Meanwhile, six clusters resulted from the analysis of *Portafolio* (Table 6). Cluster 1 "Politics and economic information" (13.7%) is concerned with politics and its possible effects on the economy on the national and international levels, highlighting news from the

Table 6. Example for each cluster in Dinero.

Analysis of general working and businesses topics (cluster 1)

La transición de tener un trabajo pagado a actividad voluntaria no remunerada requiere un cambio actitudinal para poder ser disfrutado y ser vivido como un momento liberador. Vemos con frecuencia que muchas personas continúan trabajando después de llegar a la edad de jubilación, personas que se exceden en el número de horas de trabajo diariamente.

Translation: The transition from paid work to unpaid voluntary work requires an attitudinal change in order to be enjoyed and experienced as a liberating moment. We often see that many people continue to work after reaching retirement age, people who exceed the number of hours of work daily.

International economic scenarios (cluster 2)

Hoy el PIB de EEUU es 15 veces superior al de la Federación Rusa. En la última conferencia de prensa del presidente Obama, transmitida el 16 de diciembre de 2016, el líder dijo explícitamente.

Translation: Today, the GDP of the United States is 15 times higher than that of the Russian Federation. At President Obama's last press conference, broadcast December 16, 2016, the leader explicitly said.

Abilities and attitudes to become a leader (cluster 3)

En septiembre de 2017, el presidente de Rusia, Vladimir Putin, declaró que el control de la inteligencia artificial será crucial para determinar los poderes globales, y que aunque tiene oportunidades colosales también tiene amenazas difíciles de predecir, y enfatizó " quien sea que se convierta en el líder en la inteligencia artificial será el soberano del mundo .

Translation: In September 2017, Russian President Vladimir Putin declared that control of artificial intelligence will be crucial in determining global powers, and that although he has colossal opportunities he also has threats that are difficult to predict, and emphasized "whoever becomes the leader in artificial intelligence will be the sovereign of the world.

Relevant topics of the Colombian agendas (cluster 4)

Ese año Colombia se convirtió en el mayor productor de marihuana en el mundo y comenzó la bonanza marimbera. El 12 de abril fue legalizada la dosis máxima personal de marihuana en este país (28 gramos); el 6 de junio fue descubierta La Ciudad Perdida por un grupo de antropólogos en la Sierra Nevada de Santa Marta < … >

Translation: That year Colombia became the largest producer of marijuana in the world and the "bonanza marimbera" began. On April 12, the maximum personal dose of marijuana in this country (28 grams) was legalized; on June 6, "Ciudad Perdida" was discovered by a group of anthropologists in the Sierra Nevada de Santa Marta.

Source: the authors' based on the sample of columns.

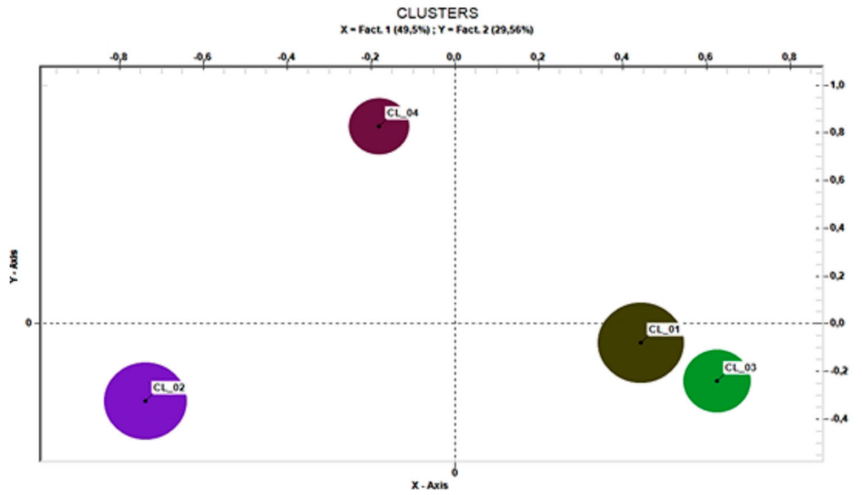

Figure 3. Factorial space which represents the relationships among the clusters that emerged in the economic columns in *Dinero*. Source: the authors, based on the sample of columns and processed with T-LAB Pro 2017 (Cortini and Tria 2014).

United States. Cluster 2 "Colombian socioeconomic agendas" (11.7%) discusses topics related to the Colombian socioeconomic agenda. Cluster 3 "Economic indicators" (15%) deals with economic indicators, with an emphasis on the current Colombian situation. Cluster 4 "Laws and taxes and economic information" (19.5%) analyzes the economic effects of the proposal or approval of laws and the Colombian tax calendar and important dates for taxpayers. Cluster 5 "International economic scenarios" (16%) concerns topics related to international scenarios and socio-political topics, mostly in Latin America. Finally, Cluster 6 "Relevant topics on financial information" (24%) deals with topics relevant to investors (e.g., petroleum prices, international currencies) and their effect on Colombian taxes. Tables 7–8 presents an example of each cluster. Figure 4 presents the factorial space. Cluster 1 and Cluster 5 share some keywords, as they share some vocabulary on international and political topics. Likewise, Cluster 2 and Cluster 4 present a higher volume of keywords in common, as Cluster 4 describes the causes, and Cluster 2 describes the effects. Both Cluster 3 and Cluster 6, however, are complementary since the former is related to the economy and the latter to finance.

Discussion and Conclusion

This study echoes the underrepresentation of women in executive roles in the private sector. Only 9% of the columnists were female, which is comparable with the 7% of women CEOs in the Fortune 500 list (Fortune 2019) and the 6.7% of "Female" references in business news found by Omar et al. (2010). Such underrepresentation was because most of the columnists were males working in leadership roles in the private sector, and a *glass cliff* prevents both women and minorities from reaching such roles (Cook and Glass 2014). In Colombia, nevertheless, the involvement of women in such roles is increasing, as 50% of

Table 7. Characteristics keywords and clusters in the columns of Portafolio (top-ten with the highest X^2).

Cluster 1 (13.76%)		Cluster 2 (11.72%)		Cluster 3 (14.91%)		Cluster 4 (19.59%)		Cluster 5 (16.03%)		Cluster 6 (23.98%)	
Politics and economic information		Colombian socioeconomic agendas		Economic indicators		Laws and taxes and economic information		International economic scenarios		Relevant topics on financial information	
Keywords	χ^2	Keywords	χ^2	Keywords	χ^2	Keywords	χ^2	Keywords	χ^2	Keywords	χ^2
Presidente (president)	352.786	Social	224.769	Precio (price)	320.869	Ley (law)	334.329	País (Country)	437.673	USD	431.658
Trump	286.547	Educación (education)	148.238	Inflación (inflation)	255.782	Proyecto (project)	174.221	Mundo (world)	345.619	Año (year)	259.451
Guerra (war)	271.209	Salud (health)	117.13	Crecimiento (growth)	202.476	Impuesto (tax)	138.943	Colombia	250.533	Día (day)	137.639
Juan Manuel Santos	156.246	Desarrollo (development)	95.378	Consumir (consumming)	142.942	Recurso (resource)	127.17	Future (future)	98.823	Barril (barrel)	133.099
Paz (peace)	149.647	Trabajo (work)	93.867	exportación (exportation)	135.526	Inversión (investment)	116.449	Economía (economy)	79.634	Tasa (rate)	107.021
Candidato (candidate)	139.868	Sociedad	80.575	Aumento (increase)	131.413	Reforma (reform)	93.427	Brasil (Brazil)	77.377	Petróleo (petroleum)	103.618
EEUU (USA)	126.646	Bienestar (wellness)	70.359	Mercado (market)	125.486	Congreso (congress)	87.841	Gran (great)	75.59	Ultimo (last)	89.454
Negociación (negotiation)	122.203	Ciudad (city)	61.177	Hogar (home)	100.769	Billón (billion)	81.409	Chile	70.019	Millones (millions)	88.338
Ganar (win)	97.708	Rural	58.748	Product (product)	94.9	Público (public)	76.494	Perú	58.398	Subir (go up)	86.427
Claro (clear)	86.675	Productivo (productive)	56.733	Menor (minor)	80.582	Gobierno (government)	75.031	Ocupar (Occupy)	44.16	Libro (book)	84.554

Source: the authors' based on the sample of columns and processed with T-LAB Pro 2017 (Cortini and Tria 2014).

Table 8. Example for each cluster in Portafolio.

Politics and economic information (cluster 1)
Bueno, resulté viéndome un noticiero y explicaron muchas cosas: que Donald Trump podría quedar como candidato, que habían entrevistado al presidente de Colombia en una emisora y respecto a lo_que analizaban oí algo sobre las bancadas, un término llamado Mermelada y algo sobre una empresa llamada Reficar.
Translation: Well, I turned out to be watching a newsreel and they explained a lot of things: that Donald Trump could remain as a candidate, that they had interviewed the president of Colombia on a radio station and regarding what they were analyzing I heard something about the bancadas, a term called "Mermelada" and something about a company called Reficar.
Colombian socioeconomic agendas (cluster 2)
Lo primero es reconocer que el país ha logrado avances muy importantes, tanto en cobertura como en calidad. Hoy, el 51 por ciento de quienes terminan el bachillerato accederán a algún tipo de educación superior en los siguientes cinco años. Ya tenemos 73 instituciones acreditadas como de alta calidad y 1.258 programas de pregrado.
Translation: The first thing is to recognize that the country has made very important progress, both in terms of coverage and quality. Today, 51 percent of high school graduates will have access to some form of higher education in the next five years. We already have 73 institutions accredited as high quality and 1,258 undergraduate programs.
Economic indicators (cluster 3)
En 1983, 1990, 1993, 1996, 1999 y 2001, años en los que la tasa general de IVA cambió, el freno en el gasto de hogares y en el crecimiento del PIB fue claro. Esto se debe a que causó una mayor inflación y menor capacidad de compra en los hogares, generando menos velocidad de crecimiento en la demanda interna y una sensación desconfianza del mercado.
Translation: In 1983, 1990, 1993, 1996, 1999 and 2001, years in which the overall VAT rate changed, the brake on household spending and GDP growth was clear. This is due to the fact that it caused higher inflation and lower purchasing power in households, generating slower growth in domestic demand and a sense of mistrust of the market.
Laws and taxes and economic information (cluster 4)
La carta retoma la argumentación que hace 88 años esgrimieron 1. 028 economistas para llamar a los congresistas a no aprobar la Ley Smoot-Hawley, que imponía elevadísimos aranceles, creyendo que por esa vía derrotarían la recesión desencadenada en 1929. Los legisladores hicieron caso omiso de ese llamado y dicha ley ahondó la recesión.
Translation: The letter takes up again the argument that 88 years ago 1,028 economists used to call on congressmen not to approve the Smoot-Hawley Law, which imposed very high tariffs, believing that in this way they would defeat the recession unleashed in 1929. Legislators ignored that call and the law deepened the recession.
International economic scenarios (cluster 5)
Lo anterior es real –así los ciudadanos normales no lo entiendan–, como el hecho de unas tasas de interés negativas que existen hoy en el mundo, en países como Japón y Alemania, tema absolutamente increíble hace unos años, y que quien lo dijera, el menor calificativo que recibía era de 'demente e irracional '. Obama le va entregar una buena economía a Trump.
Translation: This is real - even if normal citizens do not understand it - as well as the fact of negative interest rates that exist in the world today, in countries such as Japan and Germany, an absolutely incredible subject a few years ago, and that whoever said it, the least qualifying thing they received was "insane and irrational". Obama is going to give Trump a good economy.
Relevant topics of financial information (cluster 6)
Como vemos, las novedades de la agenda son los temas optimistas, en contraste, los problemas son los mismos de hace años. Tenemos una agenda de pendientes que retrasan nuestro progreso y los_cuales, de forma persistente, nos negamos a afrontar de manera decidida. Varios análisis y varias justificaciones "La SEMANAPASADA cerramos con un USD a 2.
Translation: As we can see, the novelties of the agenda are the optimistic themes, in contrast, the problems are the same as they were years ago. We have an agenda of slopes that delay our progress and which we persistently refuse to tackle decisively. Several analyses and various justifications: Last week we closed with a USD at 2.

Source: the authors' based on the sample of columns.

executive roles are now held by women (OIT-ILO 2017). In this line, Hurley and Choudhary (2016) stated that years of education and number of children are factors that negatively influence the likelihood of women to be appointed as CEO, whereas a higher number of employees has a positive influence.

Worth noticing the absence of topics related to gender and diversity issues, which was spotted as a research agenda in public relations in business and management research (Austin 2010). None of the clusters proposed made any mention to those topics. Not even female columnists wrote any columns related to the gender of feminism issues (only one exception was identified: "*Las mujeres tienen que creérsela*" or "Women have to believe it" translated into English).

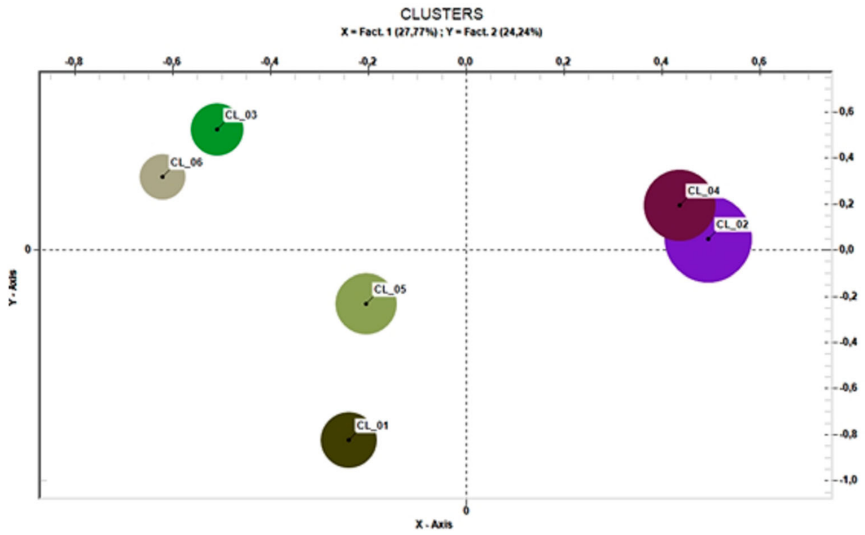

Figure 4. Factorial space which represents the relationships among the clusters that emerged in the economic columns in *Portafolio*. Source: the authors, based on the sample of columns and processed with T-LAB Pro 2017 (Cortini and Tria 2014).

The mean GFS is higher for columnists from Colombia than for those from abroad. The mean GFS (22.2) of the columns analyzed was almost double the mean (11.1) found by Dougal et al. (2012) for columnists from the *WSJ*. Furthermore, the mean FKRE (9.1/100) of the columns analyzed fell way below the mean FKRE (40/100) of business news calculated by Omar et al. (2010). The content and readability of mass media may be caused by several factors, such as reporters have become better educated, the adaptation of news media to changes and the introduction of new competitors, relying on the concept of technical experts, among others (Shoemaker 1996). Concerning readability in particular, the low scores of the columns analyzed may have been caused by the complexity of the topics discussed (e.g., international economic scenarios or laws and taxes and economic information). Evidence along these lines showed that *authentic* news stories, as opposed to *deceptive* news stories, had lower readability scores due to the challenge of analyzing and communicating information about the real world, whereas deceptive news, which is not constrained by reality, describes a "simpler" world (Dalecki, Lasorsa, and Lewis 2009). Readability differences in the news between countries also have been discussed by Weeks and Wallace (2002), who claimed that both British journalists and authors were more readable than those from the U.S. Readability scores may vary due to educational policies or cultural differences regarding what should be considered "mass" media (i.e., a form of communication the vast majority of the population can understand) (Dalecki, Lasorsa, and Lewis 2009).

Female columnist readability embraced the extremes: female columnists with Ph.D. degrees had the lowest mean readability index (18), while female columnists with master's degrees had the highest (15). Velte (2018) similarly found that firms with a

higher percentage of women on audit committees show higher readability scores for crucial audit matters reports, accompanied by stricter monitoring and significant risk avoidance. However, this should be contrasted with the absence of significant differences between male and female columnist readability found in this study. The lower readability scores found in Colombia in this study are also consistent with the results of studies comparing another business-management essential text, organizations' mission statements (MS), in Latin America with those in other countries. The mean GFS of MS for Latin American firms is 24.8 (Cortés-Sánchez and Rivera 2019), whereas the mean GFS of M.S. in the United States and India is around 19 (Daniel 1986; Yadav and Sehgal 2019).

Economic information requires a high level of specialization and knowledge of the elements analyzed. That knowledge has to be even higher in the case of the analysts because their interpretations can influence matters as sensitive as investments (Tetlock 2007). From a linguistic point of view, we have found language characterized by a large number of adjectives because the texts analyzed are columns, that is to say, an informative genre that helps the reader to interpret the news conveyed by the media outlet. We also found a precision vocabulary, which is identified by the mentions of dates, specific amounts of money, or volumes, among others.

The informative orientation of *Dinero* is more specialized than that of *Portafolio*. The former is specially oriented to leaders, managers, salespeople, and business executives. In contrast, *Portafolio* is oriented toward a more diverse community, as it not only focuses on economic reality but also on some other topics that emerged from the national and international agendas. The links between the government and these media outlets are more profound in the case of *Portafolio*, as shown by the fact that we detected different keywords that show the attention paid by this media outlet to Colombia's government agenda. The first similarity found between these two media outlets is related to the lack of analysis linked to a regional or local point of view. Relevant investors are frequent consumers of and advertisers in these media outlets, as happens in the U.S. (Gillett, Cain & De Luce, 2019). However, by omitting the regional or local debate, these media outlets lose an opportunity to establish new readers and new funding supporters that might emerge if their narrative logic were to become more participative and socially dynamic.

In general, both media outlets have similar patterns according to their narratives. First, they share a common treatment of the international agenda, including some general topics, such as those coming from the U.S. News from the U.S. is relevant to both media outlets, something which could also be decisive for other international media, not just in Colombia, due to the economic significance of the U.S. in the world. Second, there is an expected common inclusion of topics related to Colombian national politics. However, this last agenda opens up a significant difference between the two media outlets. While *Dinero* includes a "must-know" set of news about the Colombian facts, *Portafolio* incorporates more exhaustive coverage of national topics. At the same time, *Portafolio* describes Latin American agendas more exhaustively, while *Dinero* refers more often to the international context of Asia or in Europe. Furthermore, while *Dinero* prefers to treat topics linked to the economic reality characterized by economic indicators, *Portafolio* presents coverage more concerned with socioeconomic facts.

However, in both media outlets, there is a lack of language linked to the platform through which these media circulate, namely, the internet. This conclusion could be related to the maladaptation of these media outlets to online interaction, as was observed

in the leading national Colombian media (Barredo and Díaz-Cerveró 2017). The columns analyzed were transposed from the offline to the online outlets without any major adaptation or process of transformation. In these columns, as they are mainly published online, there should be more content addressed to the reader or user, which would encourage greater empathy toward online collectives or communities (Orozco and Ortiz 2014). In addition to interaction being one of the basic characteristics of digital media (Barredo and Díaz-Cerveró 2017), this is a lost opportunity for these headers to be distinguished before some means that have been identified by their lack of contrast or depth.

In sum, in this study, we presented the content features of the business and management digital media columns of the two most consulted specialized business media outlets in Colombia. Findings showed an over-representation of male columnists, lower readability compared with columnists from abroad, and non-significant differences in readability regarding the media outlet and the columnists' level of education or gender. Also, both media outlets have similar patterns in terms of their narratives.

Our contributions shed light on the content similarities and differences in business media columnists from a developing country and their place among the developed countries' research. Our comparative is one of the few efforts to synthesize the narrative agenda among leading news media in developing countries, detailing gender and educational attainment of the authors, and their differences in readability features.

For practitioners, this study could serve as a comparison point in terms of readability and crucial topics in business media in developing countries. For instance, either columnist or editorial directions could draw writing or strategic guidelines for improving the readability of their content or allocating intellectual or financial resources to generate underdevelopment content based on the landscape presented in the cluster analysis. Writing guidelines could be aimed to increase the usability of columns by enhancing the readability of the text below the average here shown and integrating other tips (e.g., highlighting keywords, using sub-headings, bullet lists, one idea per paragraph, among others). On the other hand, incentivizing the participation and inclusion of female columnists and developing underexplored content topics (e.g., minority issues such as women in business media or industry or 4.0 Industry such as big data or artificial intelligence), could be strategic guidelines for reaching a wider audience for such business media outlets.

This study is restricted by several limitations and may nourish potential further studies. First, the national focus: even though this is one of the first studies focused on analyzing business columns in developing countries, further research could examine developed and developing countries from a comparative perspective, for instance. Second, we still do not know how to end-users use the columns' content, even though this is one of the first studies to perform a detailed analysis of the content of business columns, there is a gap regarding the further use of this data/information in the daily activities of business people/entrepreneurs, executives, researchers, students, and so forth, besides buy/sell-oriented actions in the stock market and how much of this daily decision-making is influenced by the content of business media.

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