



Article

Propaganda and Manipulation in Mexico: A Programmed, Coordinated and Manipulative “Pink” Campaign

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Abstract: Thanks to digital media communication, customers can receive targeted communications. Political actors increasingly engage in political marketing on social media in order to strengthen and propagate propaganda. There is enough evidence of a coordinated effort to spread official propaganda and imitate digital support with the aim of influencing and manipulating social media users, as well as the public opinion, primarily through official Twitter accounts and influencers on TikTok, using the Salario Rosa (Pink Salary) social program as cover. Through data mining and visualization tools, we gathered information about Tweets and TikTok videos containing the hashtag #SalarioRosa, and a variety of correlated hashtags, which is the main goal of this analysis. Our research indicates that traditional “brute force” astroturfing campaigns and a novel “mimicking conversation” tactic were employed to promote and raise awareness about political figures as well as to improve their reputation by manipulating the public opinion on social media platforms, without taking into account the negative impact on the current reality of women living in the State of Mexico, as stated in the Pink Salary for Vulnerability program.

Keywords: political marketing; propaganda; astroturfing; social media; manipulation; Mexico



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1. Introduction

The primary objective of the DIF (Integral Family Development)-sponsored social development program “Pink Salary for Vulnerability” (Salario Rosa por la Vulnerabilidad) is to increase the economic income of Mexican women living in poverty who are between the ages of 18 and 59, pregnant, breastfeeding, and without access to any other source of income. The recipients receive financial assistance of USD 125 via banking transfers, on one to six occasions to aid economically and to promote community development and women’s entrepreneurship (DIF Estado de México n.d.).

We examined how The Pink Salary program is being promoted on social media, Twitter and TikTok, as a cover for extensive propaganda through coordinated astroturfing campaigns, which instead of highlighting the program’s outcomes and beneficiaries, help to promote, improve and raise awareness of political actors.

It is necessary to define terms such as political marketing, propaganda, astroturfing and manipulation. According to [Henneberg \(2002\)](#) political marketing acts as the theoretical manual of marketing tools and techniques in communication and the voting behavior model. There is, however, little research that defines the concept as such. [Lees-Marshment \(2010\)](#) and [Perloff \(2014\)](#) agree that political marketing (as in any other marketing/communication program) disseminates propaganda in order to affect attitudes and modify behaviors. Social media platforms, such as Twitter, have been part of political communication (propaganda) and *astroturfing* for a while; TikTok has now become a crucial part of the communication strategies ([López 2022](#)).

There is not much information available online about Mexico’s “Pink Salary” program or other social development initiatives. This research aims to study how political figures are

promoted through the use of digital propaganda and how coordinated campaigns attempt to influence public opinion on TikTok and Twitter.

The first known large-scale deployment of pro-government (political involvement) bots was carried out to support President Medvedev (Russia) in the mid-2000s; fake accounts to retweet and repost propaganda and to boost the popularity of a political candidate or party (Sanovich 2019) were used. According to Piña-García and Espinoza (2022), there is evidence to confirm that the Mexican government and political actors use coordinated campaigns to manipulate public perception, social networks, preferences and the promote propaganda, as has been the case in Venezuela, South Korea, Germany, Turkey, Spain and Canada (Forelle et al. 2015; Keller et al. 2017; Brachten et al. 2017; Elmas et al. 2019; López 2022; Marland et al. 2016).

Marketing usually intends to identify and satisfy human and social needs in a profitable way. Regarding the social definition, it refers to the exchange of value offered between groups and individuals, where both obtain what they need and want (Kotler and Keller 2016). There is no definition for what is known as “Political Marketing”; according to marketing scientists, there is not even consensus on whether the term or field of study are correct. “Political administration”, “promotional politics” or “modern political communications” are suggested; however, it is considered an interdisciplinary area between marketing, communication and politics that ponders the promotional elements and the analysis of the communication of institutions, political parties and the electorate (Scammell 1999). In contrast, Minar (1961) defines political behavior as any individual’s political life and activities, which is essentially an ideology dynamic.

According to Kotler and Keller (2016), social marketing actions are the actions used by a governmental entity to promote a social cause with the goal of motivating citizens to become *entrepreneurs* (action) or discouraging drug use (behavioral). Social marketing programs are complex and time consuming to plan, execute and analyze, just like any other marketing communication plan. Marketing communication is the medium through which brands and organizations are presented to their own audiences (consumers). The goal is to stimulate a dialogue that, ideally, with a full interaction will lead to the conclusion of the purchase process: loyalty (Fill 2005). However, according to O’Shaughnessy (1996), marketing communication confronts the manipulative paradigm with social propaganda by involving political figures.

The relationship between politicians and the media is symbiotic, and the phenomenon of permanent campaigning is witness to the fact that propaganda is endemic in media culture. Axford and Huggins (2002) define “meta coverage” as the importance of digital media, entertainment values and marketing techniques in political communications. It refers to the way politics and propaganda are carried outside “conventional” news and current social programs, trying to start a conversation among people about it “organically”.

The “Pink Salary” program depends on institutional communication to pass message to the audience, first to the target market, to whom the program is directed, and then to other types of consumers (voters) who are the ones that “consume” the motivation and image perception. Additionally, it is considered as a political phenomenon, exemplifying the postmodern aestheticization of everyday life (women in need), whose function is to operate as a populist vehicle for the spread of propaganda to particular sections (segments) of society in a political style that makes sense to them (Axford and Huggins 2002).

1.1. Political Context in the State of Mexico

On 3 June 2023, the elections will be held for the renewal of the governorship of the State of Mexico. Currently, multiple political actors lead electoral preference surveys in different simulated scenarios, some considering alliances between political parties. The narrative speaks of a process of unity, respect for the institutions and defense of the State of Mexico. Alejandra del Moral (Twitter: @AlejandraDMV), member of the Institutional Revolutionary Party (PRI), spreads the message of improving social conditions and building success for families (Redacción 2022). On the other hand, Delfina Gómez

(Twitter: @delfinagomez), a member of the MORENA party, leads the preference polls with a similar narrative (Moreno 2022). Alfredo del Mazo (Twitter: @alfredodelmazo), current Governor of the State of Mexico (PRI, 2017–2023), advocates for respect for the (anticipated) electoral campaign process, the future results and the well-being of the entity, according to Redacción Animal Político (2022).

In the State of Mexico, during 2021, high-impact crimes, such as extortion and kidnapping, increased; gender, psychological and family violence increased in 2020, compared to 2019 (Ríos 2022). The largest number of complaints for such crimes is concentrated on ten municipalities in the State of Mexico, where almost 80% of women over the age of 15 have suffered some type of violence (Montaño 2022).

The social development program Pink Salary for Vulnerability aims to assist women from the State of Mexico, between the ages of 18 and 59 who are struggling with poverty without access to any other source of income. This study will not elaborate on the relationship between poverty and violence against women in the State of Mexico; instead, it will concentrate on how the program was communicated as propaganda and how audiences were manipulated on Twitter and TikTok with coordinated astroturfing campaigns, all in the name of political marketing.

Figure 1 reveals that there has been a gradual increase in the prevalence of violence against women by almost 4%, according to data from INEGI (n.d.). Alternatively, Figure 2 shows that the total population in situations of extreme poverty almost doubled, moderate poverty increased by over half a million (CONEVAL 2021), when the social development program was launched. Both elements, violence against women and poverty, are key factors in the targeted demographic group of the program.

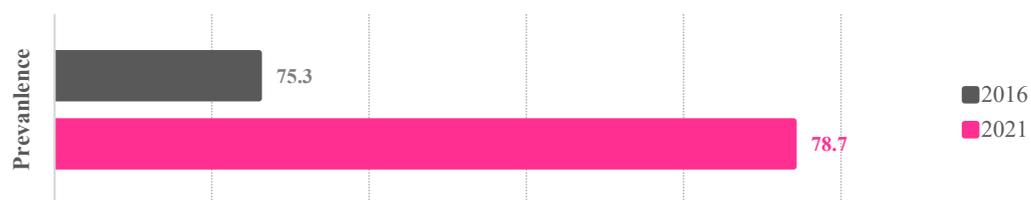


Figure 1. Total prevalence of violence against women over 15 years old in the State of Mexico (2016–2021). Note: in percentages.

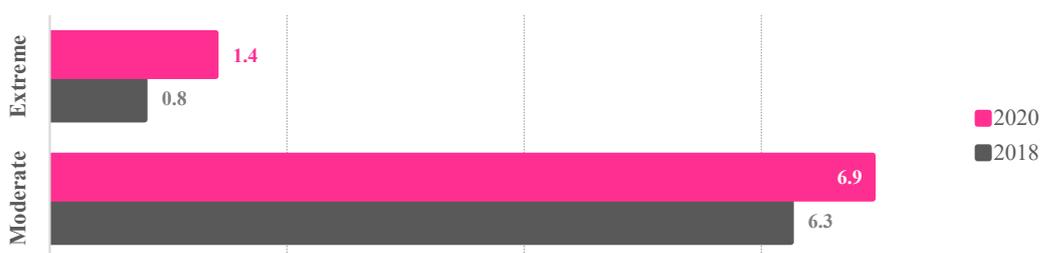


Figure 2. Population in poverty in the State of Mexico (2018–2020), in millions.

1.2. Political Marketing

Marketing is employed to sell politics like any other product; political actors are also being offered and received by constructing “personalities” or “product presenters” in order to manipulate image as politicians (and other political figures as political parties) compete for votes in the same way media touts for audiences (Axford and Huggins 2002) in an attempt to manipulate (impose) the behavior of the message receiver and the media (Marland et al. 2016) through an intensely controlled communication campaign. This is contemporarily referred to as political marketing.

1.2.1. A Concept Overview

Rothschild (1978) stated in the 1970's that "the use of television has probably been the greatest catalyst in changing the marketing/political relationship from implicit to explicit". Axford and Huggins (2002) agree that media professionals are located right in the center of the political process. Media have, obviously, evolved but the intentions may have not. Communication is a crucial element of marketing.

According to Howard et al. (2018) political communication is the process of putting information, technology, and media in the service of power. Through political (or social) marketing, a governmental institution manipulates the charity management process for a cause that, for example, helps to feed hungry children, or women in poverty (Winterich et al. 2012). In the case of promoting a social program through social media, the propaganda needs a boost to meet the program's political objective. Astroturfing provides the enthusiasm and constant presence of "traditional" volunteers, creating, also, the appearance of support and consensus at a relatively cheaper cost. Campaign managers, both marketing and political, have been manipulating the platforms and its users by using fake accounts to create the false idea that several people (already) support a politician, a political party, a specific policy (or social program) or an idea.

Henneberg (2002) states that political marketing should be seen as a holistic, permanent, theoretical and international phenomenon, as well as an interactive and ethical problem. It is holistic because it involves a marketing mix and diverse political actors, permanent due to the fact that it is not restricted to the period of political campaigning, theoretical as it must be considered a starting point, and an international phenomenon because it occurs in all democratic countries. Finally, it is an interactive and ethical problem, as it is part of the systemic process of political management and has an impact on the democratic process.

On the other hand, as a strategy, "Political Selling Philosophy" focuses on existing political, or social, programs *pushing* the propaganda in order to achieve the main goal of political actors (organization), electoral power by disseminating propaganda to the electorate (target), which vigorously sells a candidate, idea, or social program, to voters as a fantastic option for them, hiding flaws and facts from the audience because the aim is to obtain "the sale" at that very moment and not worrying about consumer satisfaction afterwards (Henneberg 2002). Nevertheless, the "Political Marketing" concept is juxtaposed with the previous definition, and also with the marketing concept, as the political actor focuses on the voter/customer needs through integrated marketing in order to obtain votes through voter/customer satisfaction. The marketing process remains the same throughout its variances, as manipulation is part, mostly, in any marketing communication plan. It is intended to promote the message, mainly with advertising, in the right channels in order to deliver it to a specific audience, in some cases, to several audiences when the main objective intends to.

According to O'Shaughnessy (2002), the usage and significance of the media distinguish political marketing from consumer marketing; in politics, (social) media are more essential, and passing the message to the target audience depends on controlling the media. In contrast to consumer brands, political actors cannot control or maintain their brand loyalty through political marketing. Recently, political actors have come to the realization that they are seen by consumers (voters) as brands and that they must change this perception, particularly during election seasons when the level of turbulence may make it challenging to control communications and the ultimate goal of (political) marketers is gaining and maintaining brand loyalty.

Political marketing depends on active communication to fill the gap left by the opinions and ideologies of the political actor's propaganda (Sherman 1987).

1.2.2. Propaganda

Propaganda is defined as the systematic and deliberate attempt to shape perceptions, manipulate cognitions, and direct behavior to achieve a response that exceeds the propa-

gandist's desired intent. It is deliberate since it is premeditated, systematic because it is precise and methodological, intentional, given that it directs communication towards an objective established a priori, it shapes perceptions through visual elements and language, and it manipulates cognitions by influencing and modifying behaviors and beliefs. Finally, it aims to achieve a response motivated by the ideology of the propagandist, who is the sole beneficiary of the audience's response (Jowett and O'Donnell 2019). However, the main of propaganda in the form of advertising is to persuade, influence, convince and condition the audience that would normally do otherwise, to act in a favorable way towards the propagandist (McGarry 1958). The direction of a specific behavior is more likely the intent of a propaganda effort. Political marketing has been used by political figures in strategies that require a large audience.

Propaganda needs a "vehicle" to arrive at its destination. According to Dahl (2018), social media platforms have helped to broadcast the "message" by making it available to a larger audience, known as the mass audience.

The political actor (propagandist) may attempt to appear as a(n) (acknowledged) persuader with a defined purpose that pretends to satisfy needs that they supposedly have in common with the recipients of the message (audience-victim/propagandist). According to Jowett and O'Donnell (2019), this could not be further from reality: (1) The wellbeing of the audience is not a concern; (2) The propagandist's interest always comes first; (3) The propagandist is detached from the recipient; (4) The propagandist does not believe the message sent.

Jowett and O'Donnell (2019) also state that the propagandist controls the information flow in two main ways: (1) Controlling media as a source and distribution; (2) Presenting information from a credible source. In this particular case, releasing information in juxtaposition with other information may result in the influence of the public opinion and perception, promoting information to a specific audience. This statement is known as manipulation of the public opinion (an "answer" that an individual gives in response to a specific stimulus). The objective of the propaganda and its efforts is to manipulate the behavior of the audience (voting), and this could happen through the creation of an affective and emotional behavior linking the product (political actor, politician, and party) with the buyer (electorate). This must be achieved, like in any other type of advertising, by creating a behavioral pattern repeatedly promoted over time, according to a well-planned agenda.

Nevertheless, Jowett and O'Donnell (2019) state that propaganda always intends to mimic an ideology by taking many forms: Agitative, attempting to rouse an audience to a certain objective; Integrative, trying to render the audience passive and obedient; White, gray or black, depending of its source and accuracy of information. For the present research we will only focus on the Integrative form of propaganda.

Bernays (1942) compares the dissemination of propaganda with psychological warfare and breaks it down to five elements: (1) Propaganda of enlightenment: obtaining true facts and denying false information; (2) Propaganda of despair: promoting bad outcomes to the "victim"; (3) Propaganda of hope: communicating "golden" promises; (4) Particularist propaganda: seeking to polarize; (5) Revolutionary propaganda: attacking the coordinators of the opposition groups. Singer and Brooking (2018) claim that social media can be used as a tool for political, commercial, and psychological warfare.

As perceptions are shaped, cognitions may be manipulated to the propagandist's own advantage, changing a person's beliefs, values and trust in their own senses. However, any manipulation or change in cognitions and attitudes depends on a complex process linked to cultural and personal values and emotions: persuasion (Jowett and O'Donnell 2019).

1.2.3. Persuasion

Anderson (2018) defined persuasion as the use of psychological techniques to "deceive" the user in order to acquire attention and the constant use of social network applications. Persuasion is a component of social engineering, regarding the growth of users, the use of an app, and attention.

Additionally, [Jowett and O'Donnell \(2019\)](#) define persuasion as a communicative, continuous and complex process to influence others, where the persuader and the audience are attached to each other by symbols (a political figure). The persuader tries to influence the persuadee to embrace a change in their behavior, perception and/or attitude. It is a fundamental part the propaganda needs in order to work and spread. A social media influencer may be a persuader in favor of and most likely working alongside the propagandist to control the information flow and to manipulate public opinion. Although persuasion is transactional, both parties depend on each other to satisfy their needs; in order for persuasion to be successful, it must result in the persuadee's realizing that they have discovered something new or seeing a benefit in the new information they were presented.

1.2.4. Perception

Perception is commonly defined as the process by which an individual forms a coherent image of their surrounding stimuli ([Kotler and Keller 2016](#)). However, [Hawkins et al. \(2004\)](#) define perception as a series of activities by which stimuli are perceived, interpreted and memorized. This is part of the first three out of four stages of the "Information process for Consumer Decision Making", with purchase and consumption decisions as the final stage.

Firstly, exposure is when a stimulus is detected in the surroundings of the individual (social media platforms) by sensory receptor nerves. Secondly, when the signal travels from the receptor nerves to the brain for processing, attention is present. According to [Hawkins et al. \(2004\)](#), despite being constantly overexposed to stimuli, only those that are pertinent to and align with the person's interests "go through". Finally, interpretation assigns meaning to those sensations. It is divided into cognitive and affective interpretations. For the purposes of this research, we refer to the affective interpretation, since one of the objectives of the coordinated campaign is to consistently trigger an emotional response to the stimulus of supporting women in need.

A coordinator's or marketer's main objective is to create or alter (persuade) the individual's perception of, in this particular instance, political figures. Because Twitter and TikTok users, not participants in the Pink Salary program, are constantly targeted in the media and they consume content they are interested in, the exposure in terms of media strategy as part of political marketing is not random. Nevertheless, exposure to propaganda raises the ethical dilemma of not having accurate information, which is part of our research question.

1.2.5. Astroturfing

Astroturfing is defined as the attempt to create an impression of genuine support for a policy, individual or product; related to artificial grass imitating natural grass. According to [Bienkov \(2012\)](#), it refers to a coordinated campaign with the objectives of promoting and artificially amplifying a message and manipulating information, social media, perception, opinions, realities, and the (organic) users themselves.

In political astroturfing, a centrally coordinated manipulation campaign, participants pretend to be ordinary citizens acting independently; they have the potential to influence electoral outcomes and other forms of political behavior ([Keller et al. 2020](#)).

Currently, political communication and influence occur mainly online; it is possible to amplify propaganda on digital platforms, according to [Barnhill \(2022\)](#). Astroturfing coordinators use false accounts, mostly automated, to spread political content, turning it into more persuasive content, simulating digital support. [Capasso \(2022\)](#) claims that various political actors manipulate their "consumers" through promotional incentives and other means. However, according to [Keller et al. \(2020\)](#), it is hard to evaluate the scope and effectiveness of a political astroturfing campaign without "ground truth" information, such as the sources and the verified identity of its "agents".

There is proof that coordinated campaigns through astroturfing are used to improve a brand's perception or as public relations tool ([Kirsch and Chowdhury 2023](#)). However,

the goal is the same and as any other communication campaign; coordinated astroturfing campaigns require planning, definition, execution and analysis to achieve their objectives; however, those same objectives aim to promote and amplify propaganda and/or manipulate narratives with the sole intention of influencing and manipulating perceptions on (public) opinion or behavior.

1.2.6. Manipulation

Without entering into the philosophical realm of this definition, manipulation is the direct influence on the preferences, beliefs, desires and/or emotions of an individual. A key element of manipulation is that the “victim” is not aware that they are being manipulated. Advertising is considered a form of media manipulation since it uses techniques to square (manipulate) the perceptions of the audience with the broadcasted message (Barnhill 2014), as propaganda does with electors. Repetition weakens resistance, reinforces associations and the memory of the message at a sub-rational level, in the same way that the emotional needs of the individual are attacked and they are made to think that there is a good intention (e.g., improving the image of a political actor), according to Wood (2014).

In the particular case of the present research, it is believed that astroturfing seeks to manipulate both social media platforms and users. More specifically, bots proliferate on Twitter due to its easy integration with apps that handle “bad automated organisms” that can manipulate hashtags and spread propaganda and disinformation. Additionally, Howard et al. (2018) state that *malicious* bots are being used by political actors, including governments, to manipulate public opinion (users).

1.2.7. Public Opinion

As defined by Spier (1950), public opinion is the free and open expression of a citizen’s concerns to their government on issues pertaining to both domestic and international affairs. However, the Computational Propaganda Research Project (CPRP) claims that social media is actively being utilized to sway public opinion (Bradshaw and Howard 2018). According to Lippmann (1921), (social) media plays a significant role in presenting (manipulating) information and public opinion in a democracy, particularly with regard to its influence on public problems (political elections), as a component of the majority rule.

According to Sweeney (2022), government and private agencies can influence or manipulate public opinion using social media through intensive digital storytelling: propaganda.

1.2.8. Automated Propaganda

In the atmosphere of amplifying propaganda, bots have proven to be reliable tools, often supplanting organic users. According to Sanovich (2019), some coordinated campaigns trying to manipulate social media platforms and their users, involve fully automated bots to spread propaganda. The current research requires, firstly, the identification of content as propaganda, and then the use of bots as tools to amplify content from a particular source as a political decision. This aims to reveal the possible objective of a communication campaign, as every marketing communication plan must have one. Additionally, bots provide an obvious connection to the coordinator’s or client’s objective. The use of existing technologies as an opportunity to achieve propaganda targets is very interesting to government officials in charge.

Yang et al. (2022) claim that malicious bots are being used to control information and communication channels, despite the fact that automated bots can be employed for good. There is proof that malicious bots influenced the Brexit vote as well as the political elections in the United States, France and Germany. Additionally, bots are being actively used as conversation controllers and information boosters in non-political discussions about public health (Piña-García and Espinoza 2022), cannabis (Allem et al. 2020), climate change (Marlow et al. 2021) and even cryptocurrency (Nizzoli et al. 2020).

Gorwa (2019) considers automated social media bots (political bots) and coordinated campaigns as new forms of “computational propaganda” and as an important aspect in contemporary digital politics and a key part in promoting propaganda. The role of bots in political communication depends on a pre-made script coded to perform one task (or several) tailored to the exact client needs, goals or objectives, one of them being the manipulation of the target market’s opinion. The tactics could differ according to the political objective, as in any other marketing communication plan (Howard et al. 2018).

Despite Twitter’s recent efforts to stop malicious actors, new tactics are being used in the atmosphere of manipulation.

Specifically, we tried to understand if political marketing communication is intended to improve some political actor’s public image instead of benefiting the target demographic of the social program “*Salario Rosa*”. We posed the following research questions:

RQ1: What is the nature of the promotion of the hashtag #SalarioRosa?

RQ2: What are the techniques *astroturfers* use to amplify the propaganda?

RQ3: Who is the target audience of the digital promotion of the Pink Salary?

2. Materials and Methods

It is possible to study astroturfing through quantitative case studies of both Twitter and TikTok (Elmas et al. 2019; López 2022). Retweets of original tweets (Twitter) and views (TikTok) indicate that the propaganda of the selected hashtag and its linked variants that were utilized for amplification have gained a high degree of engagement. It is important to note that the political context that was previously established, with an increase in crime, poverty, and a close-proximity political election atmosphere in the State of Mexico, was considered when the hashtag #SalarioRosa was examined.

Table 1 presents information regarding the scale of the data gathered for the present research from both the Twitter and TikTok data sets.

Table 1. Gathered data set information. Including the hashtag #SalarioRosa (Pink Salary) and its variants. TikTok mentions a filtered data set and does not provide date of publication.

	Total Data	Date Ranges	Hashtag
Twitter	72,000	- 15 January–1 February 2023 - 15–28 February 2023	#SalarioRosa
TikTok	52 videos	Gathered on 20 November 2022	

2.1. Twitter Data Collection

We have collected 72,000 publicly available tweets from January, 2023 to February, 2023 (time window) via the Twitter streaming application programming interface (API). According to the privacy policy, this research inspected only those tweets that were public (i.e., no privacy settings were selected by the user). The goal was to adhere to Twitter’s terms of service, so data cannot be made available to the general public. We also integrated two extra safeguards to protect participants’ privacy: data anonymization and modifications to the tweets’ content to prevent de-anonymization. We have selected tweets that contain at least one of the Spanish language hashtags: #SalarioRosa, #SalarioRosaParaTi, #SalarioRosaParaLasAmasDeCasa, and #SalarioRosaEnLasMejoresManos. It is essential to note that for this study, certain kinds of tweets were taken into consideration, including recently shared tweets and retweets.

We developed the following python script to retrieve data from Twitter:

```
#This is where you initialize the client with your own bearer token (replace the XXXX with your own bearer token)
client = Twarc2(bearer_token="XXXXXXXXXX")
# Specify the start time in UTC for the time period you want Tweets from
start_time = datetime.datetime(2023, 1, 19, 0, 0, 0, datetime.timezone.utc)
# Specify the end time in UTC for the time period you want Tweets from
end_time = datetime.datetime(2023, 2, 28, 0, 0, 0, datetime.timezone.utc)
#we specify our queries
query = "#SalarioRosa" -is:retweet lang:es"
# The counts_all method call the full-archive Tweet counts endpoint to get Tweet volume based on the query
count_results = client.counts_all(query=query, start_time=start_time, end_time=end_time)
# The search_all method call the full-archive search endpoint to get Tweets based on the query, start and end times
search_results = client.search_all(query=query, start_time=start_time, end_time=end_time, max_results=100)
```

Our collected data sets contain information, such as user ID, the screen name or alias, number of followers, date, text, device used to post the tweet (source) and the user-defined location. In order to detect, filter, and remove corrupt or inaccurate tweets, we carried out a process of data cleansing and data management. To begin this process, we removed errors such as nulled fields, empty sets and incomplete data.

2.2. TikTok Data Collection

Since TikTok is a relatively new social media platform, there are fewer available methods to capture and collect metadata (in a qualitative manner) of the shared short videos on TikTok. Although the content is accessible to the general public, the dynamic between posting and gathering differs from that of other social media, such as Twitter. The data set was gathered using the mining tool 4CAT (Peeters and Hagen 2022), which allowed for the collection of relevant information (metadata) about videos using the hashtag #SalarioRosa, all videos using related hashtags, and videos using both words separately: *rosa* (pink) and *salario* (salary or wages). In order to ensure data accuracy for the sake of the current study, a thorough and extensive cleaning of the data set was performed. It exploited 4CAT's modularity to analyze various portions of the data set by choosing various parameters. The metadata were also filtered, networked, text-analyzed and visualized utilizing 4CAT's various processors, including co-word network, word tree and picture download.

It is crucial to note that by utilizing the aforementioned tools, all videos that contained the words "*salario*" (salary) and "*rosa*" (pink) in the text, hashtags, or comments posted in the months prior to the data collection were included. Text, song titles, the duet function, likes, shares, comments, plays (views), and other hashtags were all included in the TikTok videos' metadata. Additionally, we decided that each TikTok had to use Spanish as its main language.

2.3. Astroturfing Dynamics

According to Piña-García and Espinoza (2022), astroturfing has become a prevalent tactic to manipulate conversations. It is not only Twitter, but also TikTok and many other platforms, that political actors, "astroturfers" and planners are using as part of a communication plan and strategy to amplify a specific cause or propaganda in most cases.

The pump and dump behavior, described by Pacheco et al. (2020), was chosen as a selection criterion. This behavior is defined as a campaign that aims to create artificial digital support through the coordination of fake accounts and to "pump" a hashtag so that Twitter users amplify it (dump) through the use of the retweets and likes; a behavior noticeable in Twitter trends (Piña-García and Espinoza 2022). It has been mentioned that on some occasions similar hashtags were used in order to avoid being considered a trend due to the repetitive use of #SalarioRosa.

It was discovered that repeated images and, in some cases, the same hashtags were shared in an effort to temporarily (few hours in most cases) position the hashtag at the

top of Twitter trends list, simulating an organic conversation in an effort to create artificial support of the content and propaganda, resulting in a manipulation of the social media platform, information and organic users. The current study researched the dynamic of the hashtag following an artificial behavior pattern that promoted it and caused an accelerated growth of retweets in a short period of time.

3. Results

We carried out a preliminary exploration of the hashtag #SalarioRosa and found that it was first used on 3 April 2017 (Story Wrangler n.d.). It has consistently appeared on Twitter (except for some brief pauses from 2017–2019). For six months, the hashtag #SalarioRosa was followed; during that time, no posts from the State of Mexico’s official TikTok accounts were found, including DIF social communication; all the propaganda was communicated through “influencer” accounts.

3.1. TikTok

When we conducted a preliminary investigation on TikTok, we found that some influencers (*TikTokers*) were tagging their content with the hashtag #SalarioRosa in the comments, text and/or linked hashtags. Figure 3 exhibits a TikTok video from the account @rodrigomose; this is one of the most popular TikTok videos, with over 8.5 million likes and over 3 million plays; this TikTok video was found in the data set gathered on 29 October 2022. The tag #SalarioRosa is related to other words in text, stickers and hashtags: *mujeres* (women), “EdoMex” and “fyp” (for you page).

<p>Thumbnail:</p> 	<p>Stickers: Support for WOMEN 🧑‍🦰 Insta: @rodrigomose (Available at EdoMex)</p> <p>difem.edomex.gob.mx/ salario_rosa-por-el-dif</p> <p>Hashtags: #womenthatinspire #woman #oportunity #mom #8m #caregiver #fyp 🌸</p>	<p>Body: Support for women 🧑‍🦰</p> <p>❤️ 176K 🎵 3M 🗨️ 3K 🔄 35K</p> <p>User Followers: 1.2M</p> <p>User Likes: 8.5M</p> <p>Music name: You’re my sunshine</p>
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Figure 3. TikTok video with highest engagement for the hashtag #SalarioRosa.

A picture wall of TikTok thumbnails was created from the data set gathered from the TikTok videos, as shown in Figure 4. The “Duet” function is specifically mentioned as being utilized for content dissemination. This enables users to employ a published video as background or to refer to it. This refers to photographs and videos showing, mainly, the image of the Governor of the State of Mexico, Alfredo del Mazo, or political rallies.

Finally, the most frequent terms on TikTok campaigns are displayed in Figure 6. We can see that the majority of these words is closely associated with hashtags that promote women. It should be emphasized that TikTok videos contain words that were counted in the text, replies hashtags, comments, replies, body and related hashtags. However, the key component of these kinds of propaganda campaigns is still video material. The data set was filtered to match the related content to the hashtag #SalarioRosa.



Figure 6. Word count from TikTok. Filtered data set. Gathered on 15 November 2022.

3.2. Twitter

In the case of Twitter, it was discovered that the account that belongs to the Governor of the State of Mexico, Alfredo del Mazo (@alfredodelmazo, on Twitter), was the campaign igniter by setting the message, hashtag, line and strategy, adhering to the “brute force” tactic by using and abusing the Twitter retweet and favorite functions.

Figure 7 shows a time series related to the hashtag #SalarioRosa within a specific time period: 19–23 January 2023; it is possible to observe peak activity times every day when the hashtag is amplified. In addition, a bar chart displays the number of retweets (~18,000) over organic tweets (~300). These results allow us to identify this behavior as a “brute force” astroturfing campaign. Similarly, in Figure 8, during the time period of 25–27 February 2023, we found the same behavior on the time series with peaks of activity on specific times and the number of retweets being ~18,000.

Astroturfing was consistent across all data sets gathered on the hashtag #SalarioRosa. All data sets on the hashtag #SalarioRosa that were gathered revealed consistent astroturfing; it peaked within for a few hours attempting to mislead and manipulate the social media platform by leading the (organic) users to believe (falsely) that there is a collective support for the hashtag on social media. The governor of the State of Mexico’s Twitter publications, including photographs, videos and live broadcasts, were retweeted using false accounts (sock puppets/bots), the “classic” dynamic amplification by “brute force” of propaganda. We refer to this quote retweet behavior as “mimicking conversation”, which is an alternative version of astroturfing. Fake accounts created with the intention of frequently quoting an igniter tweet, typically from @alfredodelmazo, are used in this instance to artificially promote a fake conversation effect. The greatest proportion between the number of tweets and the number of retweets can be seen in Figure 8 (#SalarioRosaEnLasMejoresManos) and Figure 9 (#SalarioRosaEsUnaRealidad). This is a variation of traditional astroturfing, where the ratio of retweets to tweets is higher.

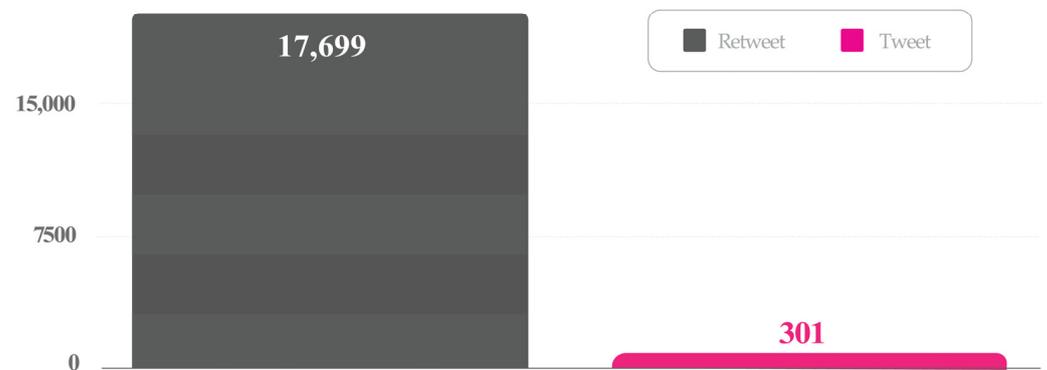
On the other hand, in Figures 9 and 10, we observe a different strategy to amplify and promote artificial campaigns; we discovered a clever method to manipulate the Twitter platform by using the “Quote Retweet” feature. As a result, a grass-roots campaign was simulated by quoting comments because Twitter’s preventive algorithms cannot accurately identify this form of platform manipulation.

January 19-23, 2023: #SalarioRosa

(a) Tweet Igniter



(b) Frequency by Tweet Type



(c) Cumulative Representation of Tweet Type Over Time

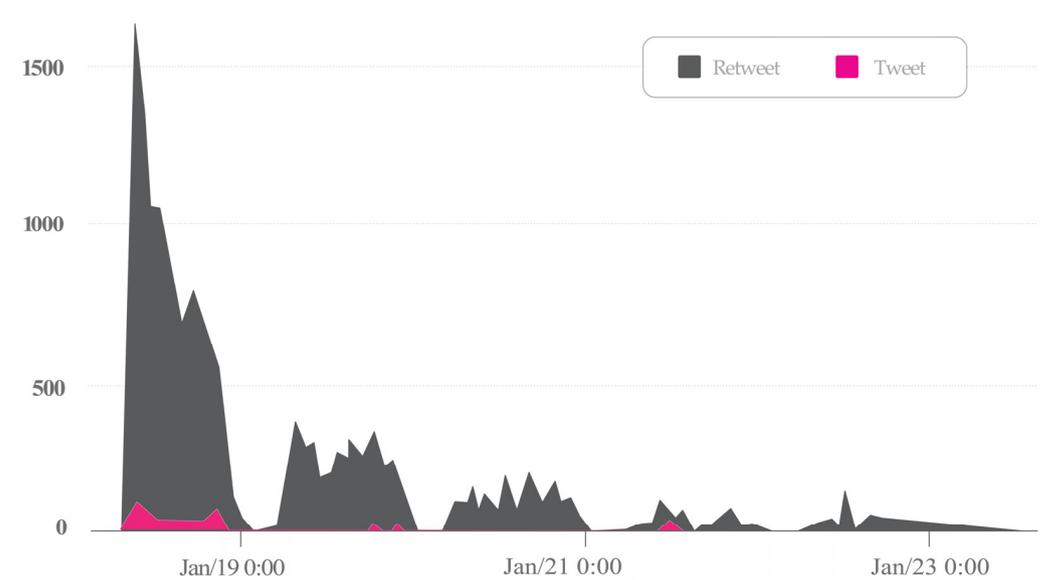


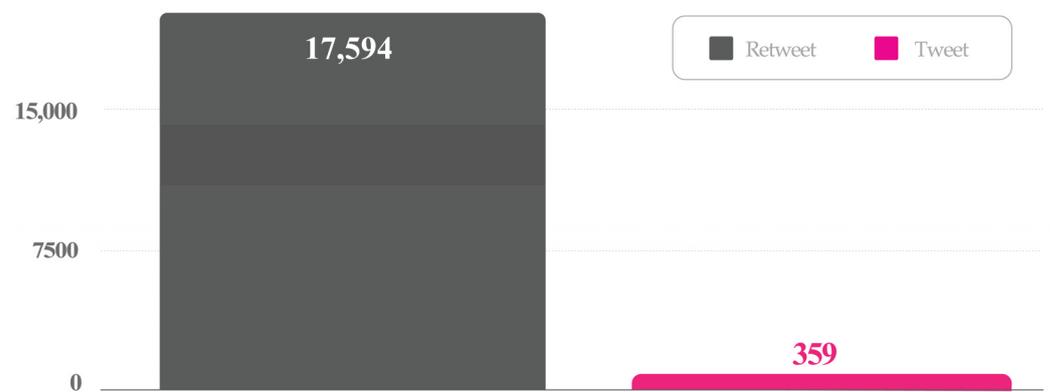
Figure 7. General view of the “traditional” astroturfing strategy of the hashtag #SalarioRosa: “Brute Force” (retweets over tweets). Data from 19–23 January 2023, including: (a) Tweet igniter; (b) Frequency by tweet type; and (c) Cumulative representation of tweet type over time. Data from Twitter.

February 25-27, 2023: #SalarioRosa

(a) Tweet Igniter



(b) Frequency by Tweet Type



(c) Cumulative Representation of Tweet Type Over Time

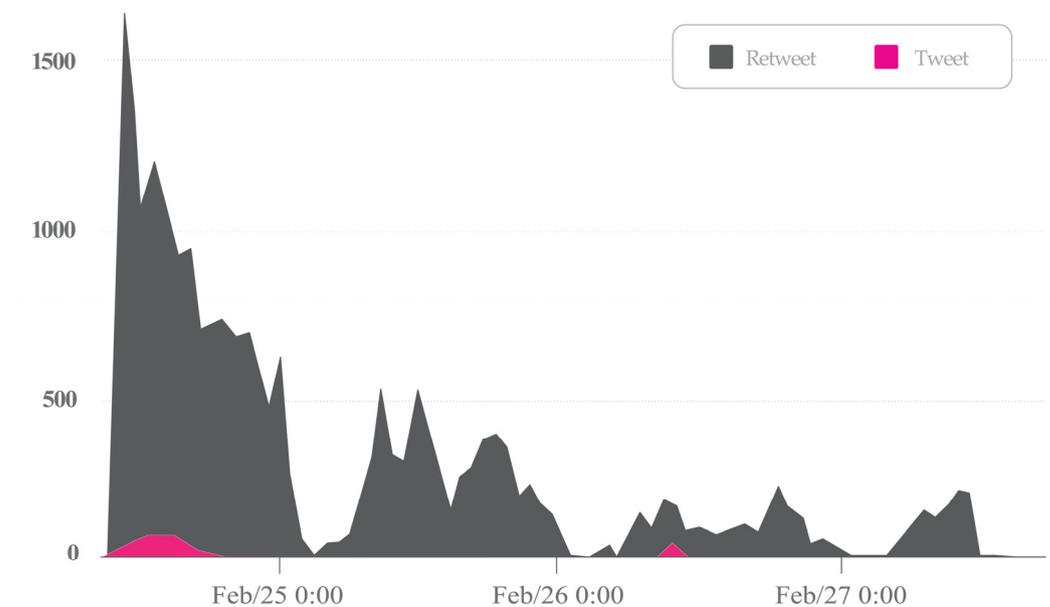


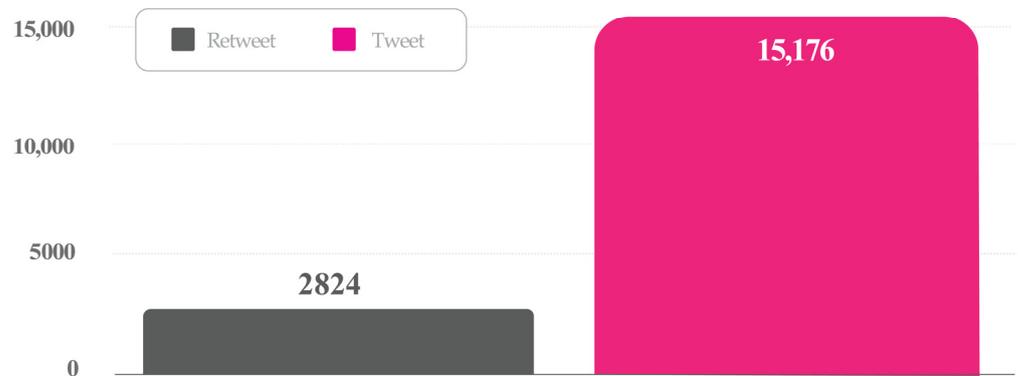
Figure 8. General view of the “traditional” astroturfing strategy of the hashtag #SalarioRosa: “Brute Force” (retweets over tweets). Data from 25–27 February 2023, including: (a) Tweet igniter; (b) Frequency by tweet type; and (c) Cumulative representation of Tweet type over time. Data from Twitter.

January 31 - February 1, 2023: #SalarioRosaEnLasMejoresManos

(a) Tweet Sample



(b) Frequency by Tweet Type



(c) Cumulative Representation of Tweet Type Over Time

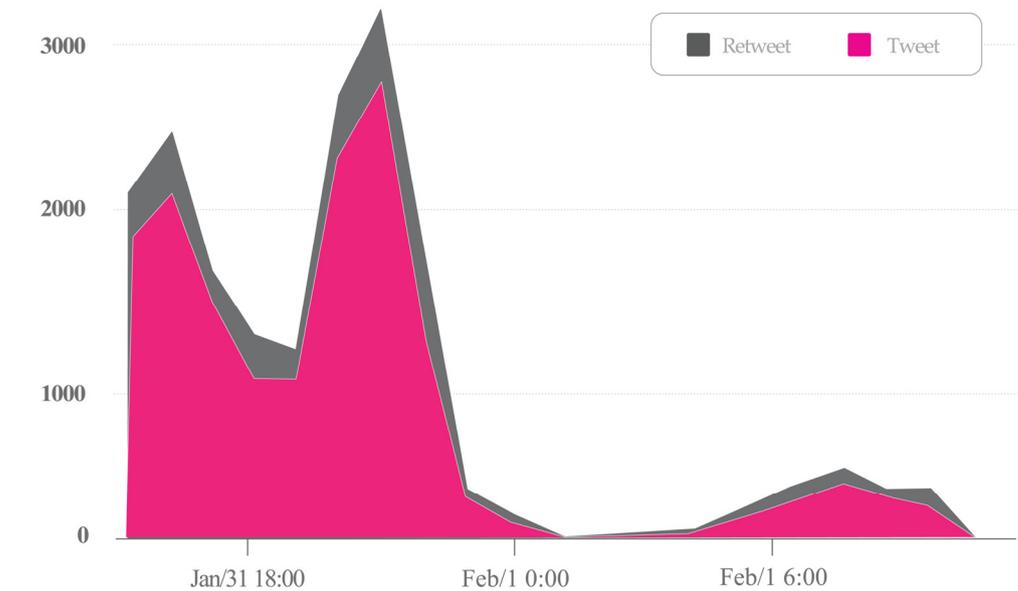


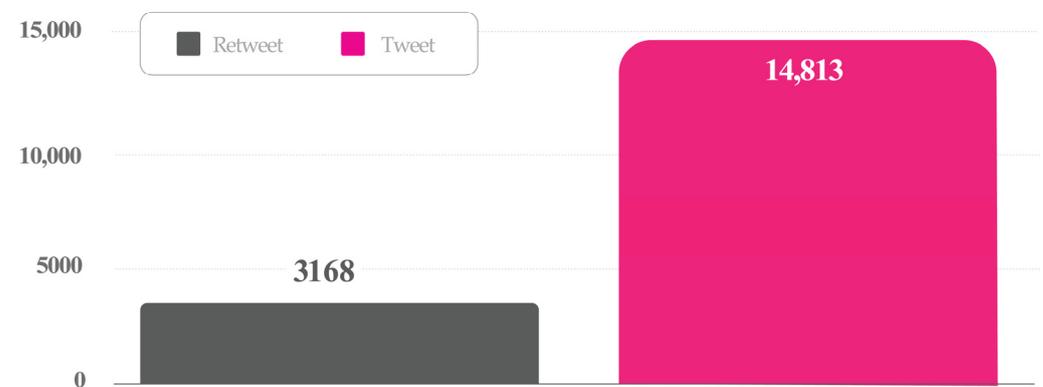
Figure 9. Particular view of the “Mimicking Conversation” strategy: quote retweet. Data related to the hashtag #SalarioRosaEnLasMejoresManos (Pink Salary in the best hands) from 31 January–1 February 2023, including: (a) Tweet sample; (b) Frequency by tweet type; and (c) Cumulative representation of tweet type over time.

February 15-16, 2023: #SalarioRosaEsUnaRealidad

(a) Tweet Sample



(b) Frequency by Tweet Type



(c) Cumulative Representation of Tweet Type Over Time

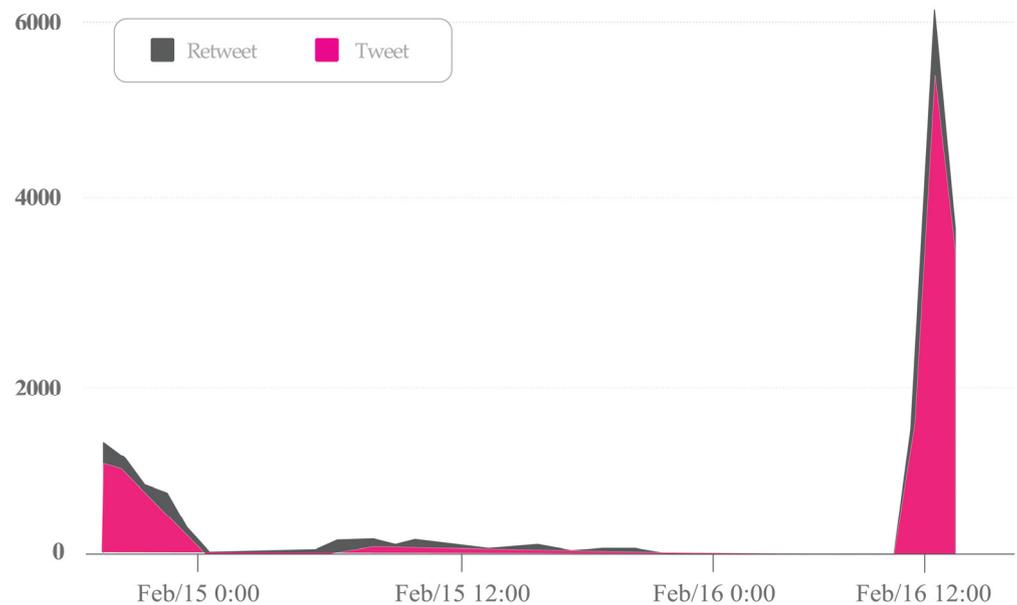


Figure 10. Particular view of the “Mimicking Conversation” strategy: quote retweet. Data related to the hashtag #SalarioRosaEsUnaRealidad (Pink Salary is a reality) from 15–16 February 2023, including: (a) Tweet sample; (b) Frequency by tweet type; and (c) Cumulative representation of tweet type over time. Data from Twitter.

We uncovered some interesting details about various Twitter profiles used to create the appearance of an organic conversation. Figure 11 shows an image wall of 66 profile

pictures of fake accounts that actively engaged in the coordinated campaign from 15–28 February 2023, using the hashtag #SalarioRosaEsUnaRealidad.



Figure 11. Image wall of profile pictures of users engaging with the hashtag #SalarioRosaEsUnaRealidad. Time frame: 15–28 February 2023. Data from Twitter.

In this respect, the majority of profile pictures were a low-resolution head shot of a woman looking straight at the camera. However, after carefully reviewing these profiles, we discovered that almost all of them only shared (retweeted and/or quote-retweeted) the hashtags #SalarioRosa and its related hashtags. We classified these accounts as fake accounts. Therefore, the primary goal of these accounts was to give the impression that women are truly engaging in the conversation, contributing, and promoting the social program.

As demonstrated by [Singer and Brooking \(2018\)](#), the use of fictitious accounts such as automated ones (sock puppets/bots), has the intention to influence even elections by amplifying propaganda to shape public opinion. In this specific case, in the run-up to (and during) an election period in the State of Mexico in mid-2023, this aimed to enhance the image of political actors, such as the current Governor of the State of Mexico, Alfredo del Mazo, and their political parties.

4. Discussion and Conclusions

Various congresswomen and congressmen (representatives) questioned the outcomes and effectiveness of the social development programmes in terms of alleviation of poverty when the Federal Secretary of Well-being (*Bienestar*), Ariadna Montiel, appeared before the Mexican Congress on 24 November 2022, claiming that these programs were being used as electoral promotion tools to threaten and coerce voters, during political (pre-) campaign periods ([Latinus 2022](#)).

Given that the State of Mexico has a total population of approximately 17 million people, 51.7% of them are women ([INEGI 2021](#)), and that over 8 million of its residents lived in moderate or extreme poverty as of 2020, which continuously increases, the program's official results are incompatible with actual statistical demographic data.

In this study, we discovered that the astroturfing coordinators, who could have given a daily line of action with a particular promotional strategy, may have provided a well-defined approach. As soon as the official @alfredodelmazo account shared some material, a coordinated effort was made to amplify and spread the message (propaganda) on Twitter and TikTok.

According to data from 2022 provided by the Secretary of Social Development of the State of Mexico (SEDESEM 2022), over 600,000 women living in poverty who are between the ages of 18 and 59, pregnant, nursing, and without access to any other source of income have been given economic assistance in at least 125 municipalities in that state since the *Salario Rosa* (Pink Salary) program's early launch in February, 2018 (Chávez 2022; Cruz 2018; SEDESEM n.d.). This is despite the increase in physical, psychological, sexual, and/or other forms of violence against women.

Moreover, we observed that the TikTok social network platform is mainly used to engage with younger users between the ages of 12 and 18, whereas Twitter targets older users. As a result, the content, "influencers," and interaction differ between the two social media platforms (micro text blogging and micro video broadcasting). The Pink Salary social initiative in the State of Mexico targets women as its beneficiaries (women); however, neither demographic takes into account the fundamental terms of the program and instead intends to manipulate Twitter almost every single day in Mexico.

The main purpose of a coordinated campaign through astroturfing is the same as that of any marketing and/or communication campaign; it is intended that the audience learns and memorizes the propaganda by amplifying and repeating it. This will then allow the propagandist to affect the audience's values, perceptions, and behavior, which is consistent with the current findings.

We can conclude that the communication on social media of the Pink Salary for Vulnerability program in the State of Mexico through the hashtag #SalarioRosa, and its correlated hashtags, aims to manipulate public opinion, promote propaganda and to improve the perception of the primary political figure of the State of Mexico, Governor Alfredo del Mazo, and his political party, in order to create a specific dynamic of the political behavior of the voters, prior to the 2023 election that will determine the same political position; the aforementioned aims are achieved through a well-coordinated campaign (RQ1).

We found two techniques that were used to spread propaganda messages on Twitter. First, "brute force" astroturfing was used to trick Twitter's algorithm for message discovery. Second, a conversation-like environment was created using the quote retweet feature. In both instances, Twitter was effectively controlled, and in the majority of cases #SalarioRosa was listed among the top three trends in Mexico.

On the other hand, our TikTok analysis indicates that the strategy was different since in this case, many pseudo-influencers frequently shared videos with tags related to #SalarioRosa. Therefore, astroturfing was successfully used in both platforms in terms of political marketing. The message's (marketing communication plan) objective to disseminate propaganda on social media, simulating genuine support at political rallies in order to raise the political profile of Alfredo del Mazo and Alejandra del Moral, Governor and candidate of the same political party, respectively, was achieved (RQ2).

Finally, the target audience for the propaganda is not the women beneficiaries of the Pink Salary program, but rather users of social media platforms, such as Twitter and TikTok, whose political behavior, public opinion and perceptions can be manipulated by the constant exposure to this sort of digital propaganda (RQ3).

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