May 1st, 2021

Elections, social networks, and democracy

Data from Brazil's Joint Parliamentary Committee of Inquiry for Fake News, and from Facebook dynamics between 2010 and 2020

Research Group on Democracy and Digital Technologies
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Summary

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1. On the research presented in this report

This partial research report opens a series of analyzes on the influence of Facebook social network pages on the dynamics of the 2018 Brazilian presidential election, which resulted in the victory of candidate Jair Messias Bolsonaro, and in its developments in the political-democratic field.

With a descriptive statistical approach, through the movement of 27 Facebook pages, this first research report presents an analysis of the "ecosystem" of individuals and communities that operate on Facebook and which had some of their platforms being digital – as mobile app, website, and/or YouTube channel - listed as producers and diffusers of disinformation in the Technical Information Attachment [Anexo da Informação Técnica] prepared by Brazil's Chamber of Deputies' Legislative Consultancy [Consultoria Legislativa da Câmara de Deputados] for Brazil's Joint Parliamentary Committee of Inquiry for Fake News [Comissão Parlamentar Mista de Inquérito do Congresso Nacional para as Fake News] (BRASIL, 2020b)[1].

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[1] the Technical Information Attachment [Anexo da Informação Técnica] prepared by Brazil's Chamber of Deputies' Legislative Consultancy [Consultoria Legislativa da Câmara de Deputados] for Brazil's Joint Parliamentary Committee of Inquiry for Fake News [Comissão Parlamentar Mista de Inquérito do Congresso Nacional para as Fake News], had as its object the analysis of the "channels on which Brazil's Federal Government ads, contracted through Google Adwords, were displayed from January 1st to November 10th, 2019". In their work, legislative consultants identified and classified inappropriate content channels - p. ex. 47 of Fake News - which received federal funds (BRASIL, 2020a).

The proposed quantitative analysis provides data on the number of Facebook pages' followers, on the number of posts and on respective interactions. These are metrics that allow the measuring of the reach of digital platforms and the understanding of the extent to which internet users have interacted with the online addresses indicated over the years that precede, accompany, and succeed Brazil's 2018 presidential elections.

The data show Facebook as an important technological tool used in Brazil's electoral process in 2018 and the way it expanded the space for digital interactions in later years. The partial outcomes systematized in this research expand the reflections on how politics and democracy were impacted by the world wide web, which accelerated the processes of participation and public competition in democratic regimes in scale, volume, and intensity. Partial conclusions indicate such acceleration to be incompatible with the rationality of time existing until the cybernetic turn[2].

The structure of this report, in addition to this introduction, includes a section presenting the selection criteria for the digital platforms analyzed. Following, one finds a discussion of the methodology, which explains the details of extraction and treatment of the analyzed information. Then, there is a section for presenting the outcomes of the analysis, comparing the dynamics of Facebook pages which had their digital platform indicated in Brazil's Joint Parliamentary Committee of Inquiry for Fake News [Comissão Parlamentar Mista de Inquérito do Congresso Nacional para as Fake News]. Finally, there is a section where brief conclusions about the material presented were aligned.

2. On the object definition

The determined source of information was the CrowdTangle System[3], made available by Facebook for the analysis of wide relevance social networks since the mid-

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[2] The social, political and economic impacts of technological acceleration, after the cybernetic turn, are addressed by several authors. We can highlight: Waldby (2000), Santos (2003) e Martins (2003).

[3] "Data from CrowdTangle, a Facebook-owned tool that tracks interactions in public contente, including all verified users, profiles, and accounts across Facebook, Instagram and Reddit. It does not track any private accounts". (CROWDTANGLE, 2020).

2000s. The CrowdTangle System makes it easier to follow, analyze and register the content audience of social networks, such as Facebook, Instagram, Twitter and Reddit, which bring together hundreds of millions of individuals and collectives, in Brazil and worldwide[4]. This first partial research report focuses on Facebook, which may be one of the most important social networks in Brazil, from a political point of view, as it mobilizes individuals and collectivities in interest groups, discussion forums and so on.

The defined focus on data mining carried out at CrowdTangle was on existing Facebook pages, which were identified from the data crossing available in the Technical Information Attachment [Anexo da Informação Técnica] prepared by Brazil's Chamber of Deputies' Legislative Consultancy [Consultoria Legislativa da Câmara de Deputados] for Brazil's Joint Parliamentary Committee of Inquiry for Fake News [Comissão Parlamentar Mista de Inquérito do Congresso Nacional para as Fake News], concerning the "channels on which Brazil's Federal Government ads, contracted through Google Adwords, were displayed from January 1st to November 10th, 2019" (BRASIL, 2020a, p. 1, translation).

The technical document prepared for Brazil's Joint Parliamentary Committee of Inquiry for Fake News [Comissão Parlamentar Mista de Inquérito do Congresso Nacional para as Fake News] points out a total of 843 channels receiving paid advertisements from Brazil's federal government categorized as inappropriate. The reason of inappropriateness is grouped as follows: from the 843 channels, (a) 4 contain sexual content; (b) 22 disrespect copyright or transmission rights; (c) 741 are channels removed from YouTube for breaching guidelines; (d) 12 contain illegal gambling games; (e) 47 spread Fake News; (f) 7 offer illegal investments; (g) 5 promote personal authorities; and (h) 5 belong to holders of elective office (BRASIL, 2020a, p. 7, translation).

More related to the present research, from the above (e) 47 different platforms listed as Fake News spreaders by Brazil's Chamber of Deputies' Legislative Consultancy [Consultoria Legislativa da Câmara de Deputados] – as mobile app, website, and/or YouTube channel - it was identified that 30 of them also had active accounts on Facebook. After new Technical Information of June 4th, 2020, from Brazil's Chamber of Deputies'

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[4] A description of CrowdTangle, with its potentialities and limitations can be found in Dotto (2020) and Dotto and Smith (2019).

Legislative Consultancy [Consultoria Legislativa da Câmara de Deputados], concerning a methodological note on the Technical Information of April 23rd, 2020 and corrections on the database (BRASIL, 2020c), and after 3 Technical Information of June 4th, 2020, about the manifestation of vehicles of communication, the pages of Gazeta do Povo (BRASIL, 2020d), Revista Fórum (BRASIL, 2020e) and Diário do Centro do Mundo (BRASIL, 2020f) were excluded of this research, leaving 27 pages suitable for scientific analysis.

Based on the information and the respective filtering indicated above, we sought quantitative data from posts and interactions of the 27 Facebook pages – managed by the same person or group – which were considered producers and diffusers of disinformation in the Technical Information Attachment [Anexo da Informação Técnica] prepared by Brazil's Chamber of Deputies' Legislative Consultancy [Consultoria Legislativa da Câmara de Deputados], in the year previous, during and after Brazil's 2018 presidential election. These pages are listed in Table 1:

Table 1. List of the 27 Facebook pages considered producers and diffusers of disinformation

Facebook Page	Page URL	Number of Followers
A Terra é Plana - Flat Earth	https://www.facebook.com/aterraeplana/	126,643
Antropofagista Jornalismo	https://www.facebook.com/antropofagista	6,200
Bernardo Kuster	https://www.facebook.com/bbernardopkuster	5,863
Click Política	https://www.facebook.com/paginaclickpolitica	26,324
Conexão Política	https://www.facebook.com/conexaopoliticabrasil	72,021
Conservador e Patriota	https://www.facebook.com/conservadorepatriota	3,000
Conservadorismo do Brasil	https://www.facebook.com/ConservadorismoDoBrasil3.0	36,289
Desperte - Thiago Lima	https://www.facebook.com/desperte.thiagolima	69,000
Diário do Brasil	https://www.facebook.com/DiariodoBrasil	342,465
Diego Rox	https://www.facebook.com/diegoroxoficial	744,000
Direita Política	https://www.facebook.com/direitapoliticap	39,926
Dr. News	https://www.facebook.com/drnewsbrasil	13,339
Dr. Robert Rey	https://www.facebook.com/DrRobertRey	555,017
Estudos Nacionais	https://www.facebook.com/estudosnacionais	27,942
Filósofo Ghiraldelli	https://www.facebook.com/filosofo.ghiraldelli	32,365
Gospel Prime	https://www.facebook.com/gospelprime	602,853
Jornal da Cidade Online	https://www.facebook.com/jornaldacidadeonline	1,536,996
Nando Moura	https://www.facebook.com/NandoMouraOficial	476,000
Naturalmente Saudável	https://www.facebook.com/naturalmentesaudavel0	98,263
Notibras	https://www.facebook.com/notibras	69,225
O Jacaré de Tanga	https://www.facebook.com/ojacaredetanga	922,809
Opinião Crítica	https://www.facebook.com/OpiniaoCriticaBR	12,817
Questione-se	https://www.facebook.com/canalquestionese	116,025
Terça Livre TV	https://www.facebook.com/tercalivre	454,945
Tijolaço	https://www.facebook.com/tijolacooficial	97,116
Veja Isso	https://www.facebook.com/Vejaisso	8,797
VlogdoLisboa	https://www.facebook.com/vlogdolisboa	485,000

Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
Table elaborated by authors.

After the definition of the Facebook pages to analyze, the definition of the temporal scope for data extraction and analysis was made, as stated in item 3 on the session about methodology and method of data extraction.

3. On methodology and the method for data extraction

The research of descriptive statistical approach structured in this partial report does not make a qualitative analysis of the Facebook pages and posts to find out the number of diffusers of misinformation. The criterion was the classification prepared by Brazil's Chamber of Deputies' Legislative Consultancy [Consultoria Legislativa da Câmara de Deputados] on Fake News platforms, based on the observation of behavior of Facebook pages within the universe of their respective posts and interaction in the social network.

The information on CrowdTangle was extracted, processed, and analyzed in the most disaggregated scope possible: following each individual post published on Facebook, with information being associated from each. Examples of such disaggregation of information constitute in: (a) types of authorship of the posts: from those 27 pages extracted from the intersection of data from the Technical Information Attachment [Anexo da Informação Técnica] prepared by Brazil's Chamber of Deputies' Legislative Consultancy [Consultoria Legislativa da Câmara de Deputados] for Brazil's Joint Parliamentary Committee of Inquiry for Fake News [Comissão Parlamentar Mista de Inquérito do Congresso Nacional para as Fake News]; (b) types of posts: texts, links, photos, videos, other formats; (c) types of interactions obtained from the posts: likes, comments, shares, etc; (d) whether the posts are explicitly sponsored; (e) if other texts are associated with the posts: links, comments, etc; and (f) full addresses of the posts: if it is interesting to fully investigate them.

Despite the focus on Facebook posts and interactions between the 1st and 2nd rounds of Brazil's 2018 presidential elections, the goals of this research included tracing a complete history of the activities of such Facebook pages, from mid-2004 to the end of

2020. In this sense, it was extracted all the history of published posts from the middle of 2004 until the end of 2020.

The extraction of information from CrowdTangle took place through the Historical Data tool, more appropriate to deal with large volumes of data. Such extraction took place year by year, with the subsequent consolidation of the data generated in a single series, from mid-2004 to the end of 2020.

Considering the period of creation of the Facebook pages and their dynamic in social networks, it was decided to present the data only for the period from 2010 to 2020 (when working with the universe of the 27 pages) and, later, from 2015 to 2020 (when working with a restrict number of 6 profiles). Both options present more appropriately the functioning of the surveyed "ecosystems", as will be seen on the survey outcomes.

The analysis techniques used from this series of information were descriptive statistical techniques. This is because the purpose of this first report is only to offer an overview of the dynamics of the 27 Facebook pages indicated, as it was revealed on Facebook. The main focus of this dynamic is in the second round of the 2018 elections, which is complemented with information from before and after that specific period.

4. On the partial research outcomes

Empirical results achieved so far with the selected sources of information, as well as the statistical techniques referred to, are presented in two blocks following this report. In the first, one will carry out an analysis of different markers of the dynamics of the 27 Facebook pages, month by month, in a period that covers from 2010 to 2020. In the second block of this report, 6 profiles will categorize the 27 Facebook pages in our universe of analysis, which are: (a) humor; (b) religion; (c) politics; (d) anti-scientific; (e) health; and (f) public personality. The intent is to present a balance of each of the markers already studied, in order to verify, in every month between 2015 and 2020, which of the archetypes reached a dominance in the debate that occurred through such Facebook pages.

## 4.1. On the dynamics of the selected group of Facebook pages

The 27 Facebook pages listed in this partial report show an interesting movement between 2010 and 2020. Regarding the high number of posts produced by the Facebook pages, which to some extent reveals their "effort", there is a dynamic of accelerated growth from January 2015 until Brazil's presidential election of October 2018. In that month, the total number of posts produced by the universe of 27 Facebook pages was 216 and, in 2018, the Facebook pages reached the election month with 3,600 publications monthly.

The increase in posts continued in 2019 – the 1st year of the Jair Messias Bolsonaro's presidential term - reaching a peak in May 2020 with the number of 5,000 monthly publications (graph 1). Some relevant facts stood out in the national political and legal scenario in the month of May 2020: (a) the testimony of ex-minister Sérgio Moro to the Federal Police [Polícia Federal]; (b) the video release of a ministerial meeting, which would prove the government's interference within the Federal Police [Polícia Federal]; (c) the second replacement of the Minister of Health [Ministro da Saúde], in an interval of less than 30 days, during the Covid-19 pandemic.

However, after this peak in May 2020, there was a sharp drop in posts between June and October 2020. In such period, the numbers went back to the level of February 2019. There are some relevant facts in the national political and legal scenario in the interval between June and October 2020: (a) the Supreme Federal Court [Supremo Tribunal Federal] maintained the Inquiry n. 4871 [Inquérito 4781], known as the Fake News Inquiry; (b) the Supreme Federal Court [Supremo Tribunal Federal] Minister Alexandre de Moraes, within the scope of the Fake News Inquiry, determined searches and seizures to the detriment of businessmen, parliamentarians and bloggers; (c) the Supreme Federal Court [Supremo Tribunal Federal] Minister Alexandre de Moraes, within the scope of Inquiry n. 4828 [Inquérito 4828], known as the Anti-Democratic Acts Inquiry,

determined the arrest of militant Sara Winter, of group Brazil's 300 [Grupo 300 do Brasil], and stated that there were indications the acts were financed by businessmen (Graph 1).

Graph 1. Total number of posts
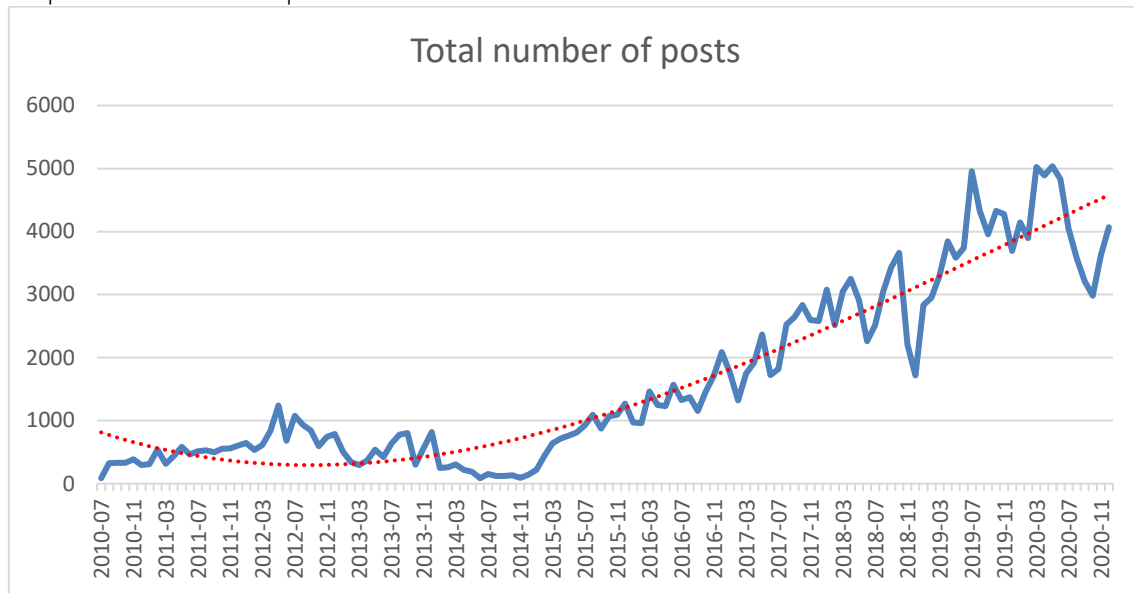
Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
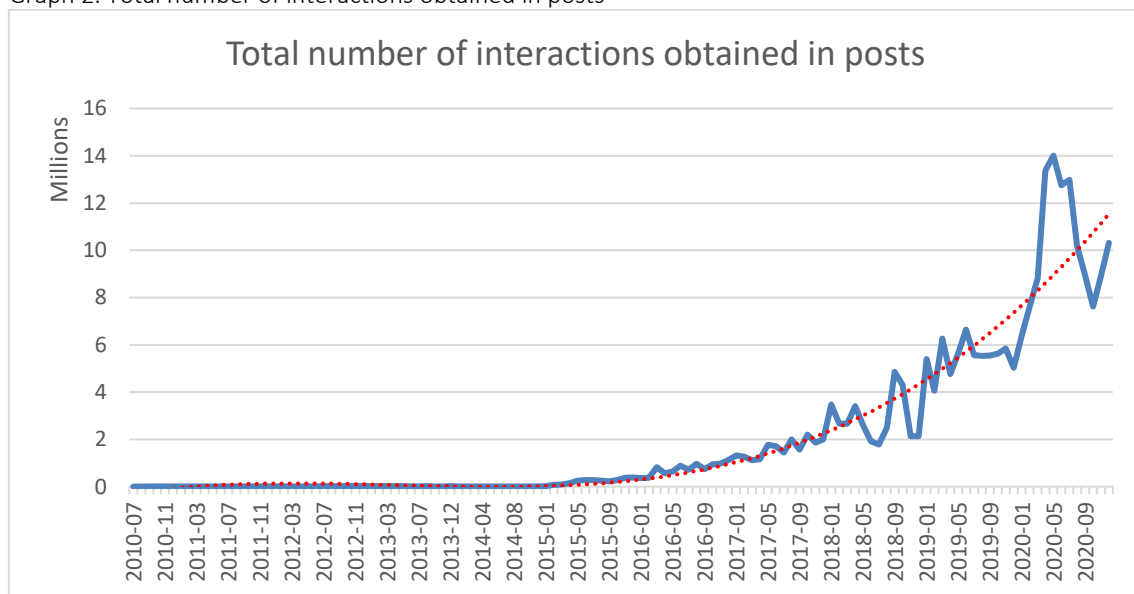Graph elaborated by authors.

Regarding the total number of interactions, which to some extent reflected the impact of the set of posts produced by the Facebook pages in the broader political debate, there are also a perceived dynamic until December 2014 – of 6,956 interactions – and an accelerated growth of interactions since 2015, of 21,700 in January, 74,900 in March and 91,800 in February (Graph 2).

The months of September and October 2018 show a balance in the growth trend of interactions. In both election months, the total number of interactions reached 4.8 million and 4.2 million, respectively, totalizing 9 million reactions to posts in the universe of 27 pages (Graph 2).

The strategy of posts that amplifies the reactions of individuals increased in 2019 and had the peak of interactions in May 2020, the same period in which the peak of the total number of posts was reached (Graph 1). In such month, the set of pages reached 14 million interactions (Graph 2).

However, the number of interactions decreased markedly between the months of June and October 2020, changing the trend of continuous growth that was presented. In the month of October 2020, the total of interactions was 7.6 million, reaching the same level as in February 2019 (Graph 2). It is interesting to note that the fluctuations in the total number of interactions, in the months of June and October 2020, followed the same downward curve in the total number of posts (Graphs 1 and 2).

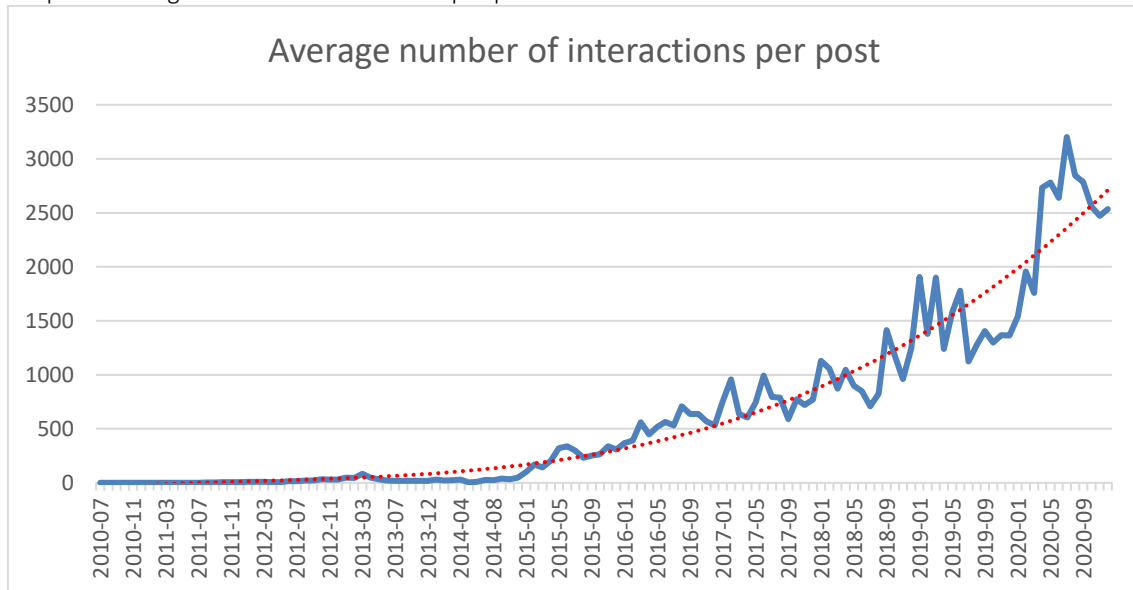Graph 2. Total number of interactions obtained in posts

Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
Graph elaborated by authors.

As a result of the dynamics exposed above, which to some extent portrays the "effort" made by the Facebook pages in the production of their content, as well as the degree of repercussion of this content in Brazilian political debate, the following graph monitors the evolution of the average number of interactions for each post made. It is worth mentioning that we regard interactions of any kind, such as "Likes", "Comments", "Shares", "Love", "Wow", "Haha", "Sad", "Angry" and "Care"[5].

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[5] Although the relevance of each type of interaction is quite different, with a greater number of "Likes", "Comments" and "Shares". But this will already be the specific object of analysis in a future research report.

Until December 2014, the average number of interactions was in the field of ten per post made. The continuous growth of interactions in the hundreds occurred between the years 2015 and 2017. From 2018, the dynamics of interaction for each post shifted, consolidated and oscillated in the thousands until 2020 (Graph 3).

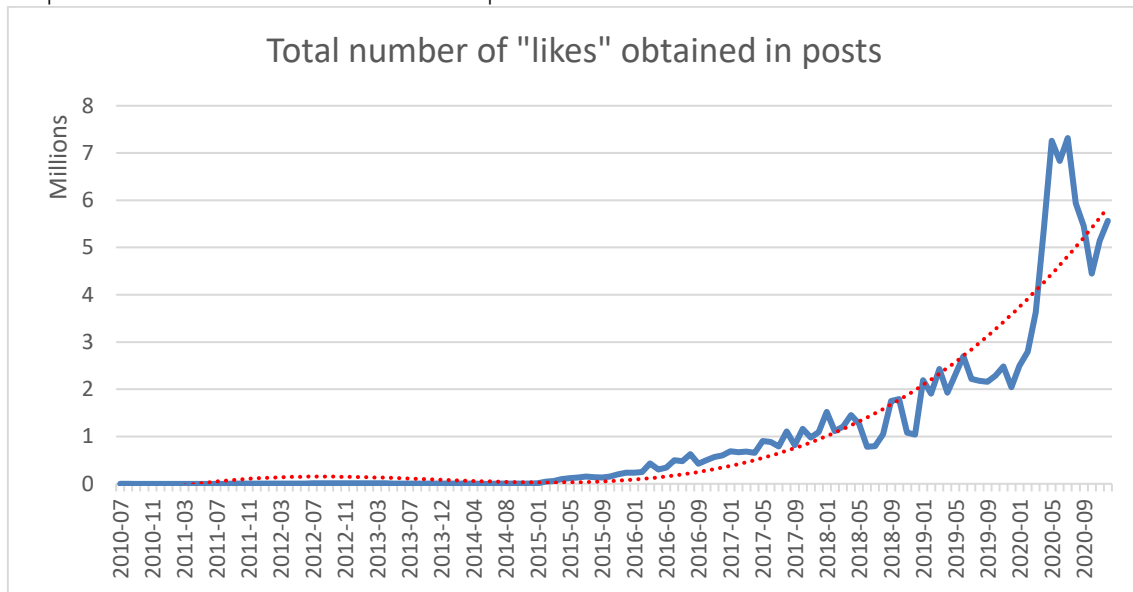Graph 3. Average number of interactions per post

Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
Graph elaborated by authors.

The graph on the total number of "likes" obtained in the posts of the 27 Facebook pages shows an increase since 2015. However, the jump from July to October 2018, the period of Brazil's presidential election, is noteworthy. In 4 months, "likes" went from 793,000 to 1,794,000 (Graph 4).

Another period that draws attention is from December 2019 to May 2020, the moment of the beginning of the pandemic, the crisis in the government and the change of ministers of health [Ministros da Saúde] and justice [Justiça]. In a few months, the number of "likes" started from approximately 2 million to 7.5 million (Graph 4).
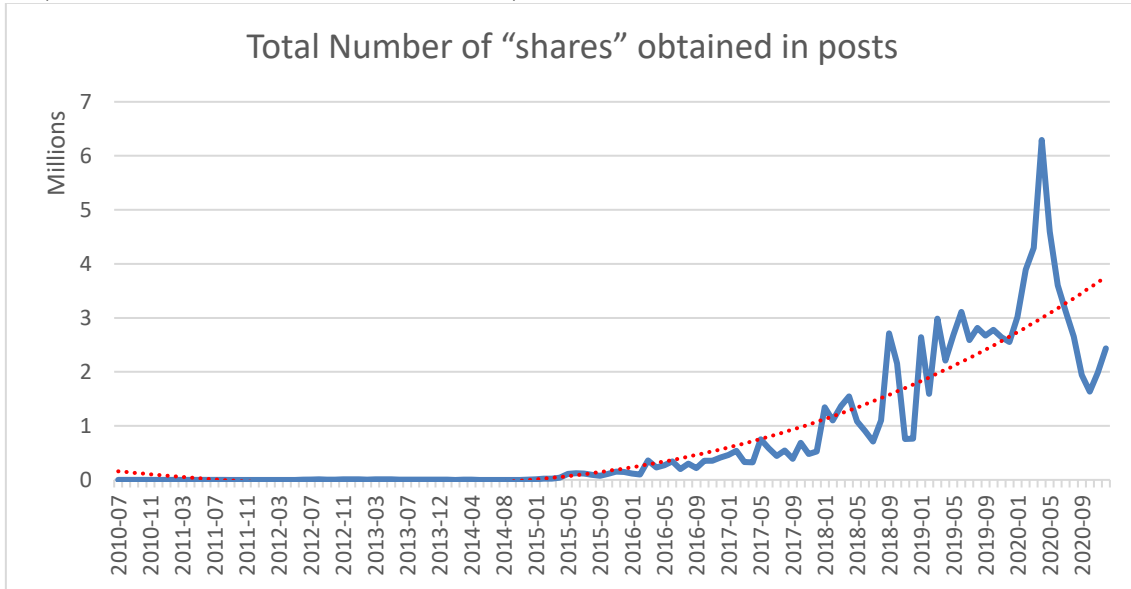
Graph 4. Total number of "likes" obtained in posts

Total number of "likes" obtained in posts

Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
Graph elaborated by authors.

The same trend for large jumps was observed in the number of "shares" obtained in the posts. In July and September 2018, the set of Facebook pages shared 708,000 and 2,600,000 publications, respectively. In December 2019 and April 2020, 2.5 million and 6.2 million publications were shared, respectively. Both periods show a dynamic in the set of the 27 pages, with large jumps in the number of "shares" in a short period of time (Graph 5).
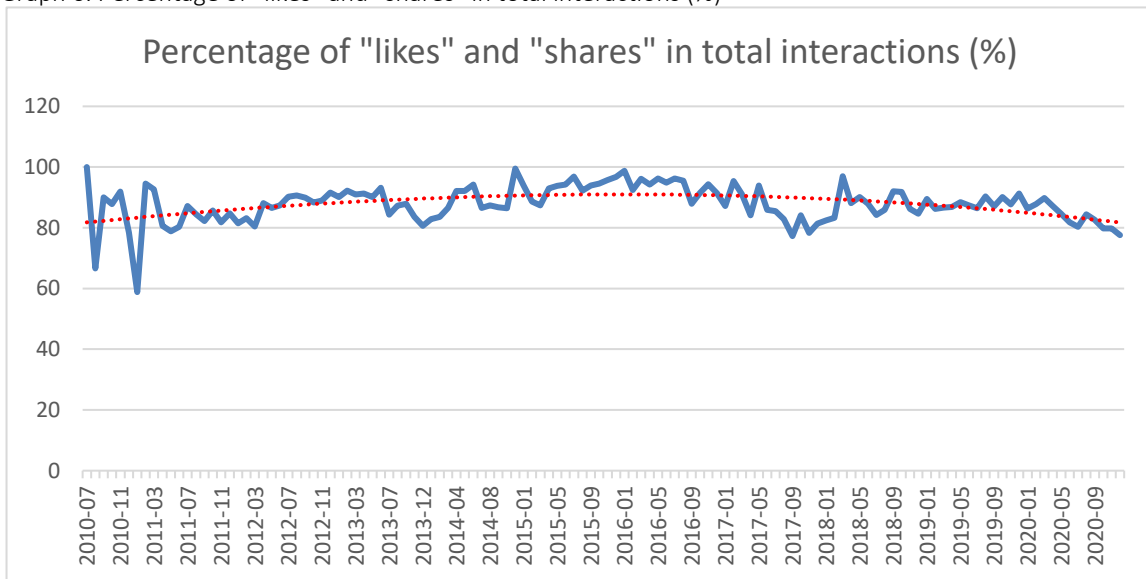
Graph 5. Total Number of "shares" obtained in posts

Total Number of "shares" obtained in posts

Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
Graph elaborated by authors.

Checking the dynamics of the set of 27 Facebook pages, it appears that "likes" and "shares" are the main mechanisms of interaction of individuals with posts. Both correspond to an average of 87.9% in the total of interactions over the years 2010 and 2020 (Graph 6). Annual variations indicated in the graph show that - in a decade of analysis - the dynamics of interaction has always been concentrated on the two most popular mechanisms on the Facebook platform, that is, "likes" and "shares".

Graph 6. Percentage of "likes" and "shares" in total interactions (%)

Percentage of "likes" and "shares" in total interactions (%)

Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
Graph elaborated by authors.

So far, the goal of this research has been to conduct a study of different metrics that, each month from 2010 to 2020, characterize the dynamics of the 27 Facebook pages linked to individuals or groups that had any of their other platforms - mobile app, website and/or YouTube channel - related to the Technical Information Attachment [Anexo da Informação Técnica] prepared by Brazil's Chamber of Deputies' Legislative Consultancy [Consultoria Legislativa da Câmara de Deputados] for Brazil's Joint Parliamentary Committee of Inquiry for Fake News [Comissão Parlamentar Mista de Inquérito do Congresso Nacional para as Fake News].

As one concludes the first analysis block, in summary, some points are highlighted: (a) the accelerated growth in the performance of the pages from 2015; (b) the leaps in posts and interactions in the 2018 elections and the political and health crises of 2020; (c) the sharp drop in the dynamics of the pages in the second half of 2020, especially after the court orders issued by Minister Alexandre de Moraes, of the Supreme Federal Court [Supremo Tribunal Federal], in both Fake News and Antidemocratic Acts Inquiries.

4.2. On dominance among Facebook pages profiles

The second block of analysis in this report presents 6 profiles identified as representative of the universe of the 27 Facebook pages. The profiles were categorized as environments that have a preponderant personality in communicative action with network users. They are expressed in behavior, text, and image, as profiles of: (a) humor; (b) religion; (c) politics; (d) anti-scientific; (e) health; and (f) public personality (Table 2).:

Table 2. List of 27 Facebook pages by profile

Facebook Page	Page URL	Page Profile
A Terra é Plana - Flat Earth	https://www.facebook.com/aterraeplana/	Anti-scientific
Antropofagista Jornalismo	https://www.facebook.com/antropofagista	Politics
Bernardo Kuster	https://www.facebook.com/bbernardopkuster	Public Personality
Click Política	https://www.facebook.com/paginaclickpolitica	Politics
Conexão Política	https://www.facebook.com/conexaopoliticabrasil	Politics
Conservador e Patriota	https://www.facebook.com/conservadorepatriota	Politics
Conservadorismo do Brasil	https://www.facebook.com/ConservadorismoDoBrasil3.0	Politics
Desperte - Thiago Lima	https://www.facebook.com/desperte.thiagolima	Public Personality
Diário do Brasil	https://www.facebook.com/DiariodoBrasil	Politics
Diego Rox	https://www.facebook.com/diegoroxoficial	Public Personality
Direita Política	https://www.facebook.com/direitapoliticap	Politics
Dr. News	https://www.facebook.com/drnewsbrasil	Politics
Dr. Robert Rey	https://www.facebook.com/DrRobertRey	Public Personality
Estudos Nacionais	https://www.facebook.com/estudosnacionais	Politics
Filósofo Ghiraldelli	https://www.facebook.com/filosofo.ghiraldelli	Public Personality
Gospel Prime	https://www.facebook.com/gospelprime	Religion
Jornal da Cidade Online	https://www.facebook.com/jornaldacidadeonline	Politics
Nando Moura	https://www.facebook.com/NandoMouraOficial	Public Personality
Naturalmente Saudável	https://www.facebook.com/naturalmentesaudavel0	Health
Notibras	https://www.facebook.com/notibras	Politics
O Jacaré de Tanga	https://www.facebook.com/ojacaredetanga	Humor
Opinião Crítica	https://www.facebook.com/OpiniaoCriticaBR	Politics
Questione-se	https://www.facebook.com/canalquestionese	Politics
Terça Livre TV	https://www.facebook.com/tercalivre	Politics
Tijolaço	https://www.facebook.com/tijolacooficial	Politics
Veja Isso	https://www.facebook.com/Vejaisso	Politics
VlogdoLisboa	https://www.facebook.com/vlogdolisboa	Public Personality

Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
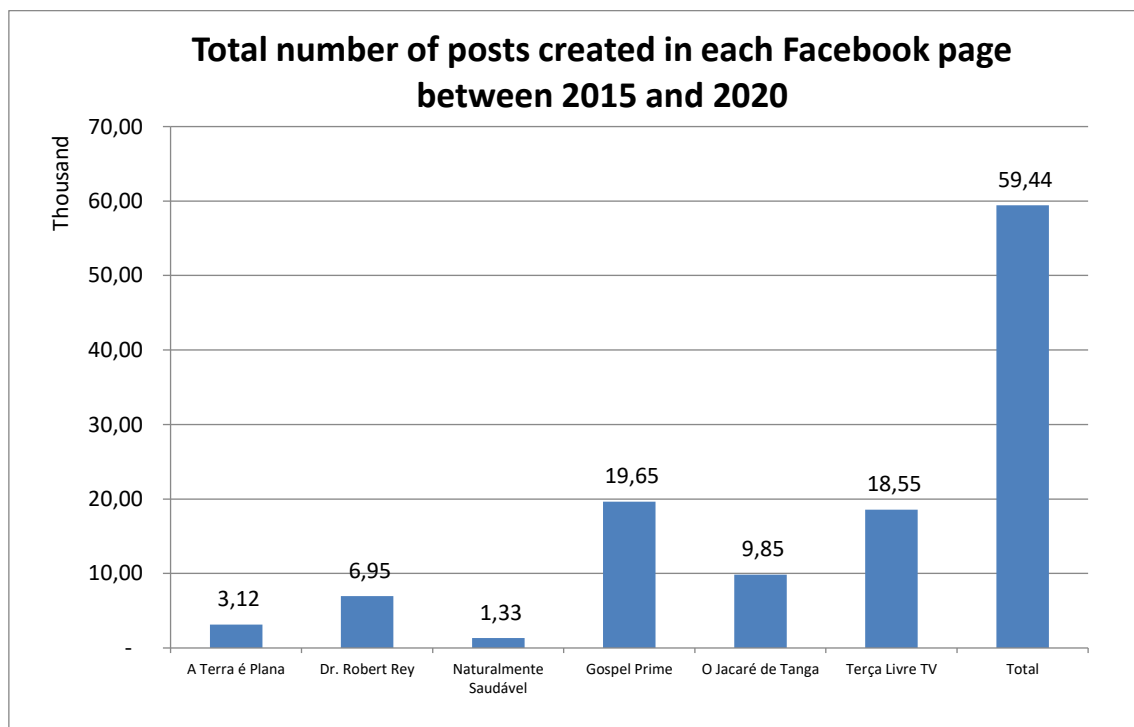Table elaborated by authors.

After the classification of pages by the profile, an expression of each representation was sought for a comparative analysis. The profiles selected for analysis followed the criteria: (a) unique in relation to one of the 6 profiles indicated; (b) public

figures of national and international scope; and (c) nominated in the press as investigated in Fake News Inquiries or Anti-Democratic Acts.

The selected Facebook pages were: (a) A Terra é Plana – Flat Earth; (b) O Jacaré de Tanga; (c) Dr. Robert Rey; (d) Terça Livre TV; (e) Gospel Prime; and (f) Naturalmente Saudável. Having been made the classifications and indications of representations of each of the 6 profiles, it was verified, in the period from 2015 to 2020, month by month, which Facebook pages were dominant in the dynamics of the networks, under different metrics, over the years.

In relation to the total number of posts created on each page between 2015 and 2020, there is a large volume of material made available on the networks by the 6 profiles indicated. In the period of 6 years, 59,400 publications were made. "Gospel Prime" and "Terça Livre TV" pages were responsible for 19,600 and 18,500 posts, respectively. The production of both represented 38,100 publications, that is, 64.2% of the total (Graph 7).
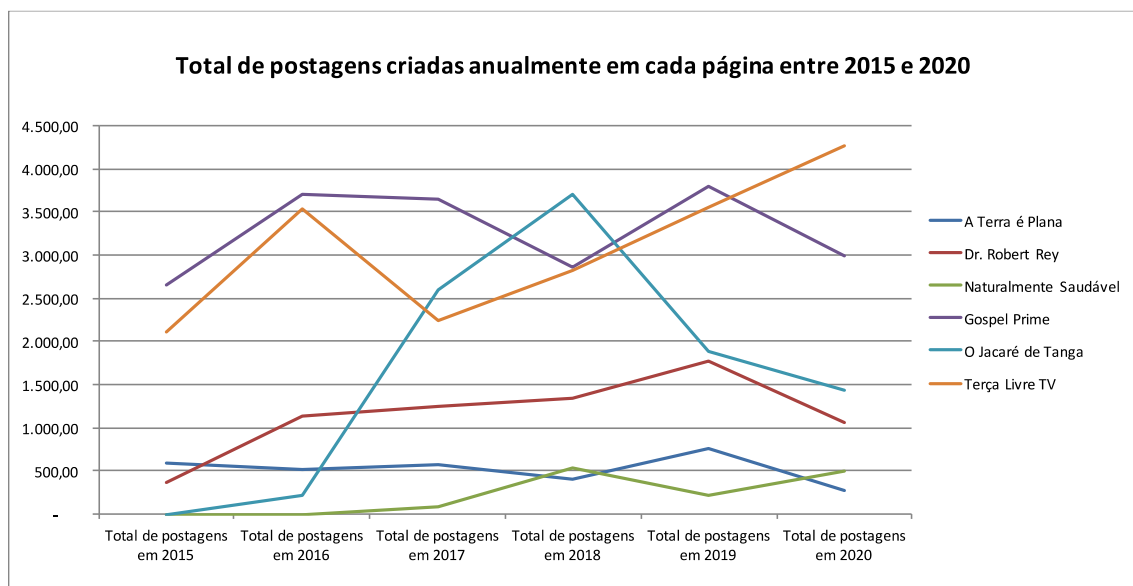
Graph 7. Total number of posts created in each Facebook page between 2015 and 2020

Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
Graph elaborated by authors.

Regarding the total number of posts created annually on each page between 2015 and 2020, the dynamics present a variation in the dominance of profiles over time. Between 2015 and 2017, the "Gospel Prime" religious page was the Facebook page that most published, posting in that order: 2,600, 3,600 and again 3,600 posts. Brazil's 2018 presidential election year showed a sharp growth in "O Jacaré de Tanga" humor page. It was responsible for the largest number of posts, totaling 3,700. "Terça Livre TV" political page grew steadily from 2017 to 2020. This year, it totalized 4,200 publications and became the page with the highest number of posts (Graph 8), among the pages analyzed.

Graph 8. Total amount of posts annually created on each Facebook page between 2015 and 2020
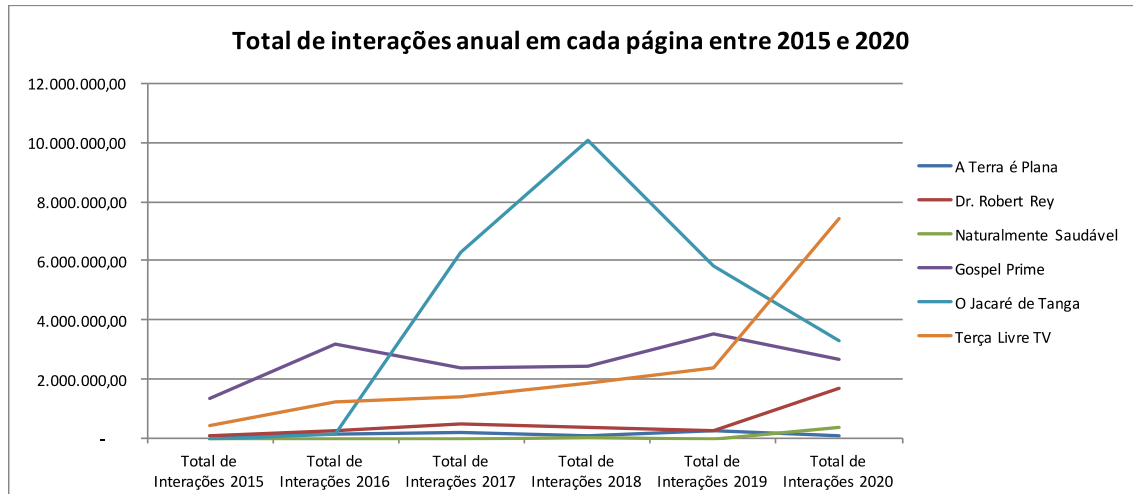

Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
Graph elaborated by authors.

The total number of posts and annual interactions show a performance of the very similar curves of "O Jacaré de Tanga" page from 2016 to 2020. Apparently, the volume of publications found the same resonance with Facebook users who received the posts. In the year 2018, the humor page reached 10 million interactions (Graph 9).

Between 2016 and 2020, "O Jacaré de Tanga" received 25.6 million interactions. The volume achieved was absolutely higher than the interactions carried out within other pages: (a) "Naturalmente Saudável" received 420,000; (b) "A Terra é Plana" received

946,000; (c) "Dr. Robert Rey" received 3.1 million; (d) "Terça Livre TV" received 14.8 million; and (e) "Gospel Prime" received 15.5 million (Graph 9).

Graph 9. Total annual interactions in each Facebook page between 2015 and 2020

Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
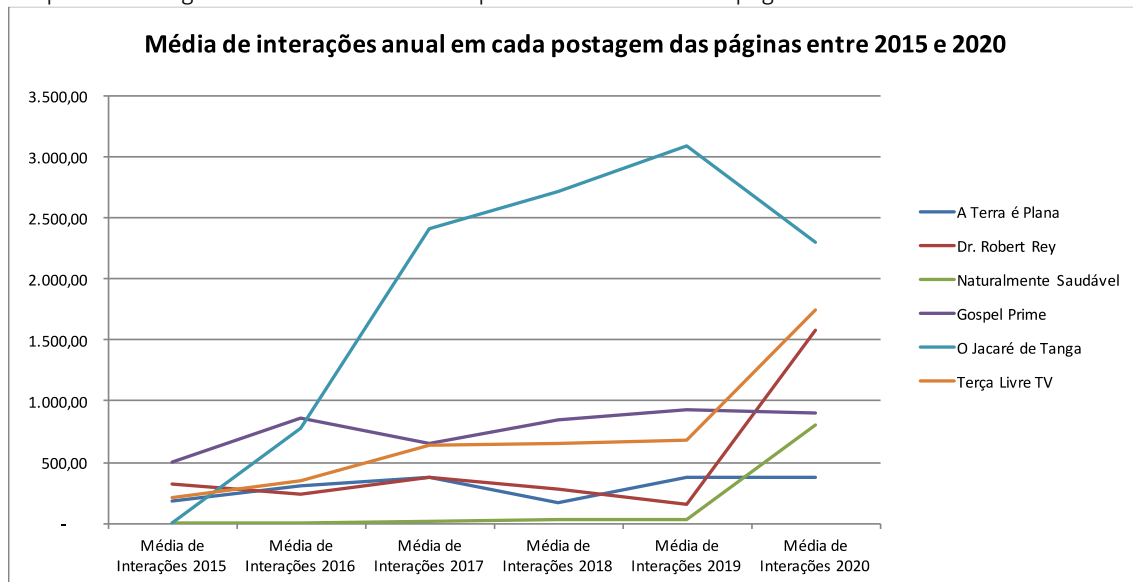Graph elaborated by authors.

Despite the volume of posts created in the period from 2015 to 2020 by the pages "Terça Livre TV" and "Gospel Prime", the table shows a dominance of "O Jacaré de Tanga" page in relation to the average annual interactions in each post. In the 2018 Brazil's presidential election year, the three pages had the following average annual interactions on each post: (a) "Terça Livre TV": 659; (b) "Gospel Prime": 846; (c) "O Jacaré de Tanga": 2,700.

However, there is a marked growth in the average interactions of the pages "Terça Livre TV", "Naturalmente Saudável" and "Dr. Robert Rey" from 2019 until the end of 2020, years that respectively mark the beginning of the term of President of the Republic Jair M. Bolsonaro and the Covid-19 pandemic (Graph 10).

The three pages expand the average repercussion of each post significantly between 2019 and 2020. They go from ten to a thousand in the average of annual interactions in each post, in the following order of magnitude: (a) "Naturalmente Saudável" goes from 27 to 805 interactions, which represents a percentage growth of 2,881%; (b) "Dr. Robert Rey" goes from 159 to 1,500 interactions, which represents a

percentage growth of 843%; and (c) "Terça Livre TV" goes from 677 to 1,700 interactions, which represents a percentage growth of 151% (Graph 10).

Graph 10. Average of annual interactions in posts of each Facebook page between 2015 and 2020

Média de interações anual em cada postagem das páginas entre 2015 e 2020
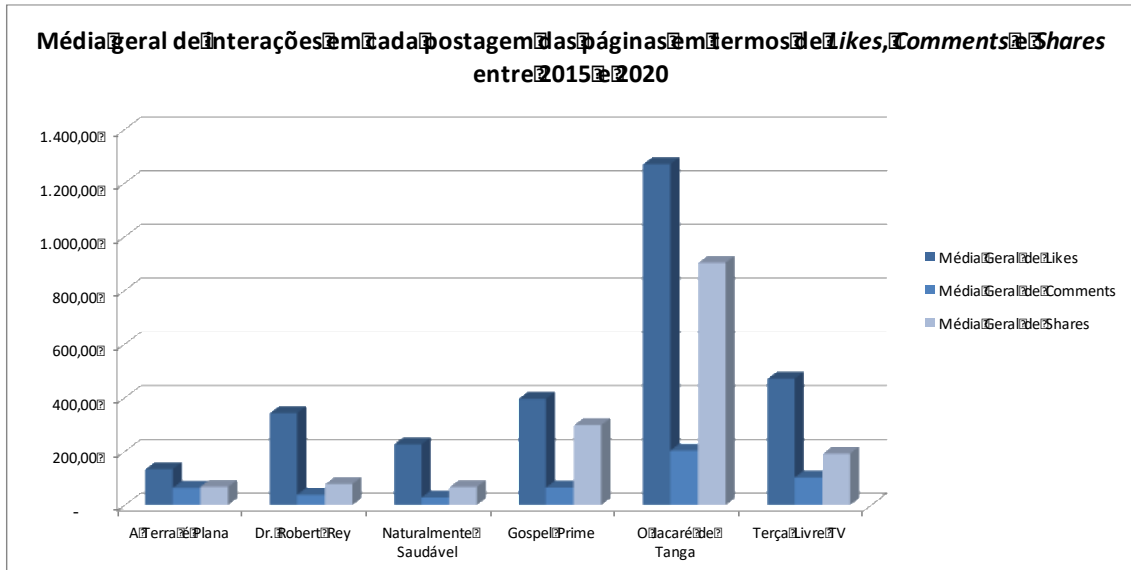
Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
Graph elaborated by authors.

Regarding the reactions obtained in each publication made on Facebook, the general average of interactions in each post in terms of "likes", "comments" and "shares" shows a better performance of "O Jacaré de Tanga" page (Graph 11).

Among the three variables indicated, "likes" is the form of interaction that predominates in all six profiles (Graph 11). It is noteworthy that the Facebook pages of "Dr. Robert Rey" and "Naturalmente Saudável", which have a lower volume of posts, achieve an interaction in terms of expressive number of "likes" compared to the pages that have a higher total of posts created (Graph 7).

Graph 11. General average of interactions in each post of Facebook pages in terms of "likes", "comments" and "shares" between 2015 and 2020

Média geral de interações em cada postagem das páginas em termos de *Likes, Comments* e *Shares* entre 2015 e 2020

Source: Data from CrowdTangle, a public insights tool of property and operated by Facebook.
Graph elaborated by authors.

In relation to the second block of analysis, in summary, a few points stand out: (a) the accelerated growth in the performance of the Facebook pages from 2015; (b) the extended interactions during the 2018 Brazil's presidential elections period; (c) the leaps in the average annual interaction in each post on the Facebook pages "Terça Livre TV", "Dr. Robert Rey" and "Naturalmente Saudável" in the 1st year of the presidential term of Jair M. Bolsonaro; (d) the continuous growth of annual interactions in each posting of the Facebook pages "Terça Livre TV", "Dr. Robert Rey" and "Naturalmente Saudável" in the 1st year of the Covid-19 pandemic in 2020; (e) the dominance in the dynamics of posts, between 2015 and 2020, of the religious page "Prime Gospel" and political page "Terça Livre TV"; and (f) the dominance in the interaction dynamics of the networks of "O Jacaré de Tanga" humor page.

5. Final Considerations

Facebook has acquired relevance as a forum for political debate, especially since the middle of the decade of 2010. The number of individuals and collectivities engaged in this debate has expanded and diversified a lot, as shown by the indicators of the social network itself.

This is the first partial report of the survey "Elections, social networks, and democracy". With descriptive statistics tools, this document is focused on the dynamics of the "ecosystem" of individuals and collectivities that work on Facebook and that integrate a universe of platforms - managed by the same person or group - that were considered producers and diffusers of "Fake News " in the Technical Information Attachment [Anexo da Informação Técnica], of April 23rd, 2020, prepared by Brazil's Chamber of Deputies' Legislative Consultancy [Consultoria Legislativa da Câmara de Deputados].

In relation to the 1st block of analysis presented in the report, this dynamic showed an evolution in the set of 27 Facebook pages, over the years 2010 and 2020, which can evidence:

(a) that the small universe of 27 Facebook pages was responsible for a total of 206,600 publications between 2010 and 2020 and, consequently, there were 253.7 million interactions in the posts over the same period;

(b) that, in terms of number of posts and interactions, 2015 is a key moment for the continuous growth of the dynamics of the universe of 27 Facebook pages, with Brazil's elections for president in 2018, the 1st year of the presidential term of Jair M. Bolsonaro in 2019, and the 1st year of the Covid-19 pandemic, until mid-2020, accentuating the upward trend line;

(c) that in terms of number of posts and interactions, the second half of 2020 presents a sharp drop in the dynamics of the universe of 27 Facebook pages, especially after the court orders issued by the Federal Supreme Court [Supremo Tribunal Federal] Minister Alexandre de Moraes in the Fake News Inquiries and Anti-Democratic Acts.

In relation to the 2nd block of analysis presented in the report, this dynamic showed an evolution in the set of the 6 page profiles selected on Facebook, over the years 2015 and 2020, which can evidence:

(a) that the small universe of 6 Facebook page profiles was responsible for a total of 59,400 posts between 2015 and 2020 and that, as a result, there were 60.6 million interactions in the posts over the same period;

(b) that, in terms of the number of posts and interactions, 2015 is also a key moment for the continuous growth of the dynamics of the set of 6 profiles on Facebook;

(c) that, in terms of the number of posts and interactions, 2018 Brazil's presidential election year showed full dominance of "O Jacaré de Tanga" humor profile;

(d) that the profiles which directly address political and health issues – "Terça Livre TV", "Dr. Robert Rey" and "Naturalmente Saudável" – had a jump in the average of annual interactions in each post in 2019 (the beginning of the government of President Jair M. Bolsonaro), and 2020 (the beginning of the Covid-19 health crisis in Brazil), with the religious profile "Gospel Prime" and anti-science "A Terra é Plana" showing a growth in 2018 and maintaining constancy in 2019 and 2020.

Thus, it seems that Facebook has assumed importance as a space for political discussion since the mid-2010s, so as to even influence, to some extent, the elections and the dynamics of Brazilian democracy.

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