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ANALYSIS OF THE SOCIAL NETWORKS' IMPACT ON DEMOCRACY DEVELOPMENT¹

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ABSTRACT

The Internet and social networks are of high importance in the modern world we live in. Whatever their perception is, whatever they are used for, they have a big influence over the people's lives and they are main drivers for the changes that cause new challenges. The access to the Internet and the contents placed on the network enable non-selective access to the contents in which the users are interested. The users can read arguments of opposing parties for the subjects they are interested in. So, in this study, we have analyzed the Internet users' interest in using social networks in R. N. Macedonia, of the growth of the Internet users number, and the users' interest in accessing the digital media sites. Based on such a cross-sectional analysis, and an analysis of the corresponding literature in this area, some concluding considerations on the democracy development in our country, have been brought.

KEYWORDS: Internet, social networks, democracy

¹ original scientific paper

INTRODUCTION

There are some researchers and papers (Gayo-Avello, 2015; Jha & Kodila-Tedika, 2019; Strauss, Zuniga, & Huber, 2018) that examine the Internet influence as a medium for posting content and the influence of the social networks where the individuals and users' groups can give their opinion on the democracy development. While some authors have concluded that some parameters may influence the democracy development, (Barro, 1999)(Margetts, 2013), other authors (Jha & Kodila-Tedika, 2019), through a cross-sectional analysis of these parameters in a large number of analyzed countries (125), have concluded that there is a direct causal connection between the Internet and social networks access growth and the democracy development. Some researchers point out the fact that social networks have a significant influence on the users' political expression (Boullianne, 2015; Boullianne, 2018).

The Access to Internet services and social networks is even more important during times when people are forced to spend a large part of the day and their leisure time at home or indoor, as was the situation during the pandemic.

Why are the Internet and social networks important in the process for democracy improvement? First, the users have an opportunity to be better informed on the government and parliament activities from several sources. They can communicate directly with the competent ministries about the problems, and give their opinion on the decisions to be made, which contributes to the participation of individuals in the important activities for the community (Strauss, Zuniga, & Huber, 2018). That provides two-way communication between the individual and the government representatives. The social networks have been proved as a good medium for organizing protests, as well (Howard, et al., 2011) (Chan, 2016) with a large number of protestants and for a relatively short time, although some authors think that "the social networks have been created by a communicative capitalism and their aim is not a political action" (Gayo-Avello, 2015). On the other hand, the politicians adjust their speeches and activities to the majority opinion (Pingree, 2007).

Based on the reviewed literature, the purpose of this paper is to examine the structure of independent variables on the development of democratization in our country. The analysis is made to be comparable to the analysis of other relevant papers given in the reference list (Jha & Kodila-Tedika, 2019). Special attention is paid to the impact of topics of special interest to citizens published in the most widely read media in our country, why access to

independent media (or several different sources of information) is important for the development of democratization.

DATA AND ANALYSIS

The data analyzed in this study have been collected from various sources, such as State Statistical Office of the Republic of N. Macedonia, Freedom House, and various websites that offer relevant statistical data. The specific source is listed in the references of this paper. For the needs of this paper, the research methodology used is correlation and regression analysis. The research period for the structure of democratization is 2010-2020, while for the study of the impact of a topic that is of special importance for people is done for the period of the bigger waves of the pandemic November-2020, July-2021.

For monitoring the democracy level, the scores of Freedom House for the democracy percentage, Democracy Score, and the overall score, have been taken into account. Freedom House is a leading non-government organization that analyses the democracy development in the world. The score is created based on the assessment of a defined number of parameters, such as: **Managing the national democracy**: assesses the democratic character of the government by assessing the independence, effectiveness and the legislative and government predictability. The second parameter for assessment is the election process, if there have been elections in the corresponding year. The third parameter is the score for the civil society. Through this parameter, the organizing capacity and financial sustainability of the civil sector are assessed, then the legislative and political environment in which the civil society functions, and if there are threats and anti-democratic extremist groups. The fourth parameter is media independence. The current state of the press freedom, the private media work, and the work of the public media are assessed. The fifth parameter is the local democracy managing. The power of the decentralization, the local self-management capacity, working transparency, and the predictability of working, are assessed. The sixth parameter is the judicial authority and independence. The Statute and the human rights protection, the status of the ethnic minorities, the guaranteed legal equality, the treatment of the accused persons and prisoners, and the compliance with the court decisions, are assessed. And the last, seventh parameter, is the corruption level. The public perception of the corruption, the businessmen's interest in high political functions, the laws for transparent financial working and collision of interests, and the effectiveness of the anti-corruption initiatives, are assessed.

Table 1 shows data on the value of the democracy percentage, democracy score and overall score from Freedom House, and values for Internet use penetration in the country, and the use of the social networks in the period from 2015-2020. For this period, we have found data for all mentioned parameters on an annual level in a consistent way. Before 2015, Freedom House gives scores for all seven mentioned parameters, but there is not a score for the democracy degree and overall score. Due to these reasons, we have restricted the analysis for the period 2015-2020.

Table 1. Overview of the values for the democracy degree, number of Internet users and users of social networks, by years

Year	Freedom house			Internet users	Social media users (mil users.)	GDP
	Democracy Percentage (max 100)	Democracy score (max 3,57)	Score			
2021	47,02	3,82	47		1,224	
2020	45,83	3,75	46	81,9	1,1	664010
2019	44,64	3,68	45	81,8	1,087	689425
2018	44,05	3,64	44	79,3	1,079	660878
2017	42,86	3,57	43	73,6	1,0292	618106
2016	45,24	3,71	45	75,3	0,996	594795
2015	48,81	3,93	49	69,4	0,9794	558954

(Sources: Freedom House, stat.gov.mk, napoleoncat.com, statista.com)

To make a comparison to the results from other researches that have investigated the causal connection of the Internet users' number, social media, and democracy degree, we shall make a correlation analysis of the overall score given by Freedom House, the extent of Internet users penetration and the number of social media users. Table 2 gives the correlation analysis of the selected data.

Table 2. Table of correlation coefficients for the democracy degree, Internet users' penetration, number of social networks users, and GDP

	Overall score	Internet users	Social media users	GDP	p-values
Overall score	1	-0,403	0,40033	-0.51118	
Internet users	-0,403	1	0,93518	0.94981	0,4282
Social media users	0,40033	0,93518	1	0.96112	0,4316

GDP	-0.51118	0.94981	0.96112	1	0,3
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(Source: Authors' estimations)

From the results obtained in Table 2, it can be concluded that the results are unexpected. The Freedom House score for democratization has the highest correlation with GDP, which is negative, and the correlation for the Internet users' growth, as well. The degree of correlation with the growth of social media use is moderate, and at the same time, this parameter is in a very high correlation with GDP series and Internet penetration. The unexpected thing is the fact that with the growth of Internet penetration rate and GDP, democratization decreases, and that marks the negative degree of correlation. That is contradictory to the conclusions in some reference studies (Barro, 1999).

Furthermore, we have tried to create a regression model in which the Internet penetration rate extent and a constant have been inserted as independent variables, while a dependent variable is the democracy degree. The results are given in Table 3.

Table 3. Regression model of the democracy degree (Internet penetration)

Dependent Variable: Democracy

Method: Least Squares

Date: 07/29/21 Time: 20:13

Sample: 2015 2020

Included observations: 6

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	58.68378	14.11693	4.156980	0.0142
Internet_penetration	-0.174881	0.183294	-0.954104	0.3941
R-squared	0.185388	Mean dependent var		45.23833
Adjusted R-squared	0.018265	S.D. dependent var		2.026499
S.E. of regression	2.044922	Akaike info criterion		4.529797
Sum squared resid	16.72682	Schwarz criterion		4.460384
Log likelihood	11.58939	Hannan-Quinn criter.		4.251929
F-statistic	0.910315	Durbin-Watson stat		1.249835
Prob(F-statistic)	0.394060			

Although the correlation shows some dependence of the dependent variable (democracy degree) and Internet penetration, when modeling the series, it can be seen that the variable Internet penetration rate is not a valid independent variable for the democracy degree. The reason for that may be the small number of values in the series.

In the Freedom House report for 2014, the values of democracy score are given. We have attempted to extend the series to 110 years and to take this series as an independent variable, but the results from the modeling have been almost unchanged. That shows that the Internet penetration rate extent and the increased use of social networks do not contribute to the improvement of the democracy degree in our country. According to the p-values of the independent variables, we can conclude that for all tested variables p-value is greater than 0.05 and they are not relevant to model the dependat variable democratization score.

Yet another model is being made in this paper in which the series of GDP for the period 2010-2020 is taken as an independent variable. The results of this modeling are given in Table 4.

Table 4. Regression analysis of the democracy degree (GDP)

Dependent Variable: Democracy

Method: Least Squares

Date: 08/13/21 Time: 20:12

Sample: 2010 2020

Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.185348	0.158874	26.34376	0.0000
GDP	-4.78E-06	1.18E-06	-4.040142	0.0037
Internet_penetration	0.033229	0.010062	3.302437	0.0108
R-squared	0.751644	Mean dependent var		3.791818
Adjusted R-squared	0.689555	S.D. dependent var		0.136075
S.E. of regression	0.075818	Akaike info criterion		-2.093971
Sum squared resid	0.045986	Schwarz criterion		-1.985455
Log likelihood	14.51684	Hannan-Quinn criter.		-2.162376
F-statistic	12.10592	Durbin-Watson stat		2.006011
Prob(F-statistic)	0.003805			

This model gives significantly better results compared to the previous one. The extent of the model variance description is not insignificant, but it is about 69%. That is a high extent, and it is significantly better compared to the previous model. The p-values of the GDP (0.0037) and Internet penetration rate (0.0108) are both smaller than, or almost equal to 1%, so it can be concluded that the dependence of the democracy level from both independent variables is statistically significant at 1% level of significance. It is comparable i.e. it is better than the values given in other studies making such an analysis (Jha & KKodila-Tedika, 2019). Durbin-Watson's statistics shows absence of residuals serial correlation, while F-statistics and informative

criteria point to a good model. The values of the informative criteria are significantly lower compared to the same ones given in model 1.

A devastating thing in the data analysis is the fact that in 2020 and 2021, the score for the democracy degree is lower than the score given in 2015; indeed, after the democracy degree fall in 2016 and 2017, the value that the state had in 2015 has not been achieved yet.

Table 5 gives a comparison of parameters from our analysis and the analysis made in the (Jha & KKodila-Tedika, 2019) study.

Table 5. Comparative analysis of parameters for a regression analysis

	R.N. Macedonia		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	M1	M2	World Sample				Low-income countries			
Facebook penetration			0.650*** (0.203)	0.518** (0.200)	0.625*** (0.216)	0.818*** (0.211)	0.813*** (0.221)	0.858*** (0.241)	0.589** (0.224)	0.620** (0.249)
Internet penetration	-0.17 (0.18)	0,033** (0,01)	0.192 (0.128)	0.203 (0.156)	0.121 (0.160)	0.000989 (0.162)	-0.0444 (0.189)	-0.134 (0.182)	-0.131 (0.156)	-0.141 (0.192)
Constant	58.68** (14.11)	4,19*** (0,16)	41.82*** (2.827)	38.51 (25.48)	39.72 (25.16)	45.96*** (3.073)	33.74 (27.25)	49.01* (26.98)	13.62 (25.34)	16.33 (27.35)
Log(GDP)		-4,78e-6** (1,18e-6)		0.884 (3.430)	-0.762 (3.559)	5.379* (3.132)	4.952 (3.154)		1.641 (3.684)	-3.289 (4.070)
Adjusted R ²	0.018	0,690	0.351	0.394	0.451	0.295	0.300	0.314	0.430	0.405

(*p<0.10, ** p<0.05, *** p<0.001 Robust standard errors in parentheses)

From the data in the table, the following things can be concluded:

- Model 1, according to the estimated values, is significantly weaker than all other models analyzed in other studies.
- The model 2 gives better results than the models of other countries, as per the Adjusted R² value, also as per the validity extent of the independent variables in the model.
- The value of the coefficient for GDP is negative. That is not an exemption, it also exists in other analyzed countries, but generally, with the growth of GDP, democracy growth is expected (Barro, 1999). By GDP increasing, the poverty and financial dependence of the people should decrease, and with that, the democracy degree will increase.
- With all analyzed countries, the degree of the democracy original series monitoring is low (the highest value is 0,451), which means

that the analyzed independent variables are not sufficient for modeling the dependant series.

Furthermore, we give an analysis of the influence of active corona cases growth on the extent of following the most relevant Internet media in the country. The idea is to analyze how much the actual news or actual process can influence the readers' interest.

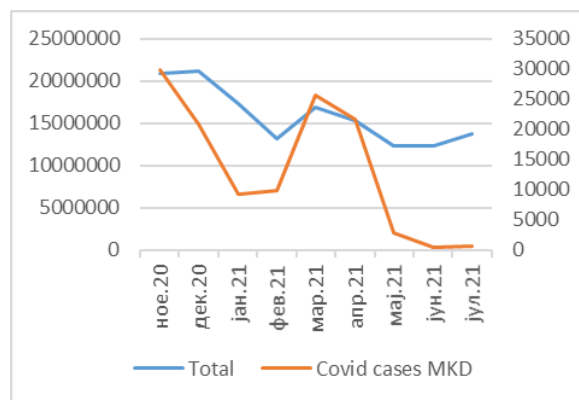
Table 6. Data on the access to the most relevant websites in R.N.M. and the influence of the actual theme on the readership

	time.mk	sitel	mkd	kurir.mk	plusinfo	faktor.mk	Total	Covid cases MKD
Nov-20	9350000	2370330	870000	6181410	990000	1100000	20861740	29966
Dec-20	9400000	2538432	770000	6626127	780000	1050000	21164559	20916
Jan-21	7850000	2345147	650000	4841210	730000	910000	17326357	9189
Feb-21	6700000	1795474	670000	2641935	650000	800000	13257409	9789
Mar-21	8550000	2642377	870000	3061274	870000	980000	16973651	25724
Apr-21	7900000	2602807	750000	2458596	680000	920000	15311403	21728
May-21	7550000	2074220	660000	716261	540000	780000	12320481	2902
Jun-21	7200000	1780385	720000	980407	710000	940000	12330792	410
Jul-21	7800000	2117109	780000	1292403	820000	1000000	13809512	615

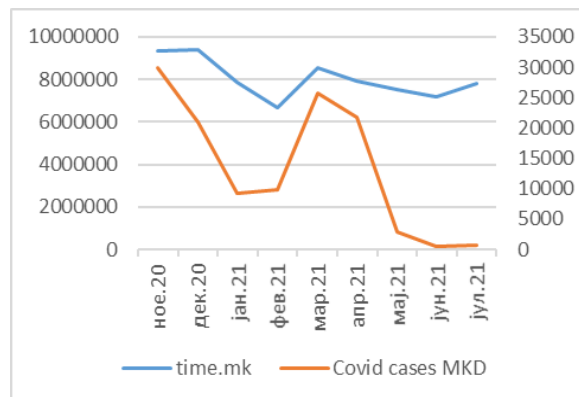
(Source: similarweb.com)

For the data in able 6, we have made diagrams of the series of active covid-19 cases and the number of searches on the relevant Internet media.

From the figure, we can see that there is an overlapping in part of the curves for media readership and the number of active cases. For the series, a correlation coefficient is estimated. For the series of the total number of views and active covid-19 cases (figure 1a), the correlation coefficient is 0.792, while for the series time.mk and active covid-19 cases (figure 1a), the coefficient is 0.747. That is a high and positive correlation degree, which indicates the fact that the worse the situation with active corona cases, the higher readers' interest in Internet media. On the other hand, the significant decrease in the number of infected people does not reflex too much in the number of readers' increase but has some influence.



(a)



(b)

Figure 1. Comparison of the readership series on Internet media and the number of active covid-19 cases

CONCLUSIONS

The standard independent variables analyzed in other countries in the influence on the democracy development, are also relevant for R. N. Macedonia. The degree of monitoring the variance with our model is rather higher than in the other countries. The specific thing is the fact that GDP growth in our country has negative influence on the democracy development, although the expectations are opposite. That means that the allocation of funds from GDP is inappropriate or is politically controlled and does not contribute to democracy growth.

The bad news influencing the future of the whole population is reflected in the number of Internet media openings. The estimated correlation coefficient is high and positive. As an example, we took the increase of active corona

cases and the influence of that information on the total number of informative websites openings. That is also an example of other possible information interesting for the people. Although Internet penetration rates in continuous growth in the analyzed period, the number of views of relevant Internet media is not in continuous growth. That points out the fact that the readership of the contents placed on these media is in correlation with the type and attractiveness of the information that the readers like following. Unfortunately, for the social networks, we cannot find information on which type of information the readers have released most frequently, or which users' groups have followed them, to make an additional analysis.

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