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Analyzing and Comparing the Twitter Data of Political Parties in Germany and Turkey

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With the ubiquity of computers and the Internet, social media has become one of the most important tools of news dissemination and mass mobilization, making it an ideal tool for all political parties and movements. It can be used to access large populations in autocratic countries, where mass media may be under direct or indirect government control. This is also true for more democratic settings, where social media provides a fast and flexible tool for political propaganda and all kinds of organizational activities.

Social media does not replace older venues such as the written or electronic press. Rather, it complements them. It provides three important advantages over the older venues: (1) the *ubiquity* of mobile devices, (2) *swiftness*, and (3) *many-to-many communication* (which contrasts with the one-to-many flow of communication in the older venues). The third advantage is perhaps the most important.

The first phase of this research investigated the use of Twitter by political parties and their leaders in Turkey and Germany. Specifically, it compared the influence of party leaders and their organizations. The second phase will investigate several other countries and look for meaningful patterns.

Social Media in Politics: the Example of Facebook and Twitter

Twitter and Facebook are the two largest social-media venues, and almost all political parties and movements around the world use them. Twitter has a much smaller domain of users than Facebook ([319 million vs. 1.86 billion as of Q4 2016](#)), and it is the most common microblog software that is used for political and other purposes.

Twitter provides Application Programming Interfaces (APIs) to access the tweets. There are two main kinds of APIs: *streaming* and *REST* (Representational State Transfer). The former allows users to access and download the tweets as they are posted, while the latter allows them to access tweets that have already been posted and to post new tweets. Twitter normally limits the traffic flowing through the APIs to 1% of its total data traffic at any time (Gu et al., 2016). In other words, the APIs do not guarantee that the data accessed are complete. Nevertheless, the user is informed about the missing data while trying to access them, and well under 1% of the data were missing under the auspices of this project.

First Phase: Comparing Germany and Turkey

This research measures the effectiveness of communication in the Twitter environment in terms of its influence on others, i.e. followers and other Twitter users. I have collected the streaming tweets of the political parties and their leaders, as well as the tweets that mention them, and stored them in a database in a structured format, with more than 50 million tweets having been collected by the end of March 2018. These are the Twitter handles from which the tweets have been collected:

> @AK Parti, @RT_Erdogan, @herkesicinCHP, @kilicdarogluk, @MHP_Bilgi,
> @dbdevletbahceli, @HDPgenelmerkezi, @hdpdemirtas, @SerpilKemalbay,
> @PervinBuldan, @SezaiTemelli, @iyiparti, @meral_aksener, @spdde, @MartinSchulz,
> @OlafScholz, @katarinabarley, @HeikoMaas, @CDU, @dieLinke, @Swagenknecht,
> @DietmarBartsch, @b_riexinger, @katjakipping, @CSU, @Die_Gruenen, @cem_oezdemir,
> @GoeringEckardt, @Abaerbock, @RobertHabeck, @fdp, @c_lindner, @AfD,
> @Alice_Weidel, @Joerg_Meuthen, @GtzFrmming, @Beatrix_vStorch

Both Germany and Turkey have a population of about 80 million. However, political engagement in Turkey is perhaps usually higher than it is in Germany. According to a Pew study (2012), 57% of social-media users in Turkey express their political views via social media, which is much higher than the world median of 34%. In 2016, there were 42 million active social-media users in Turkey, and 29 million in Germany, despite the fact that the Internet penetrations were 58% and 89% respectively (Kemp, 2016).

Facebook is the largest social-media venue in German politics. Twitter is mainly used by the more educated sections of society, and it has a smaller user base. In contrast, Twitter is regarded as more important in Turkish politics. The tweets collected also support this argument: the ratio of German-language to Turkish-language tweets is about one to four. However, there is also the practise in Turkish politics of buying fake Twitter followers, which might partly explain the exceptionally high numbers of followers (Kırlıdoğ, 2017). There is no evidence that this practise is widespread in Germany. This might suggest that a meaningful comparison of the two countries is difficult. Nonetheless, since the aim of the study is to compare the influence that the party leaders and party organizations have *within* each country, the comparison does make sense. This is also true in the case of fake followers in Turkey, since party organizations and leaders can both buy fake followers from the "market".

The following diagrams show the Twitter followers in both countries at the end of March 2018. In cases where there is more than one leader, consideration was given to the one with the highest number of followers. Former leaders like Selahattin Demirtaş, Martin Schulz, and Katrin Göring-Eckardt were also considered because they have a higher number of followers than the current leaders, who are less well-known.
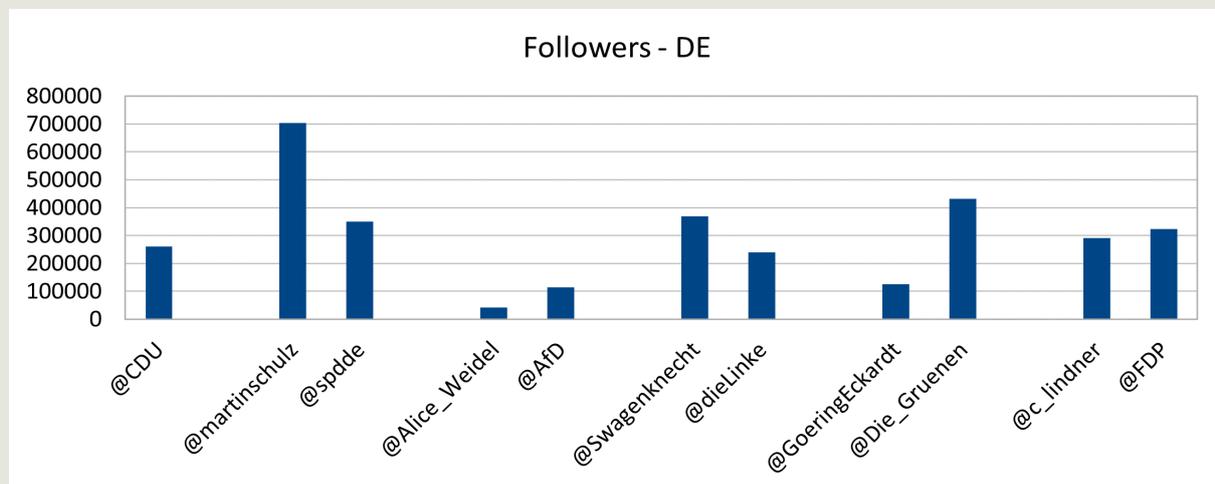

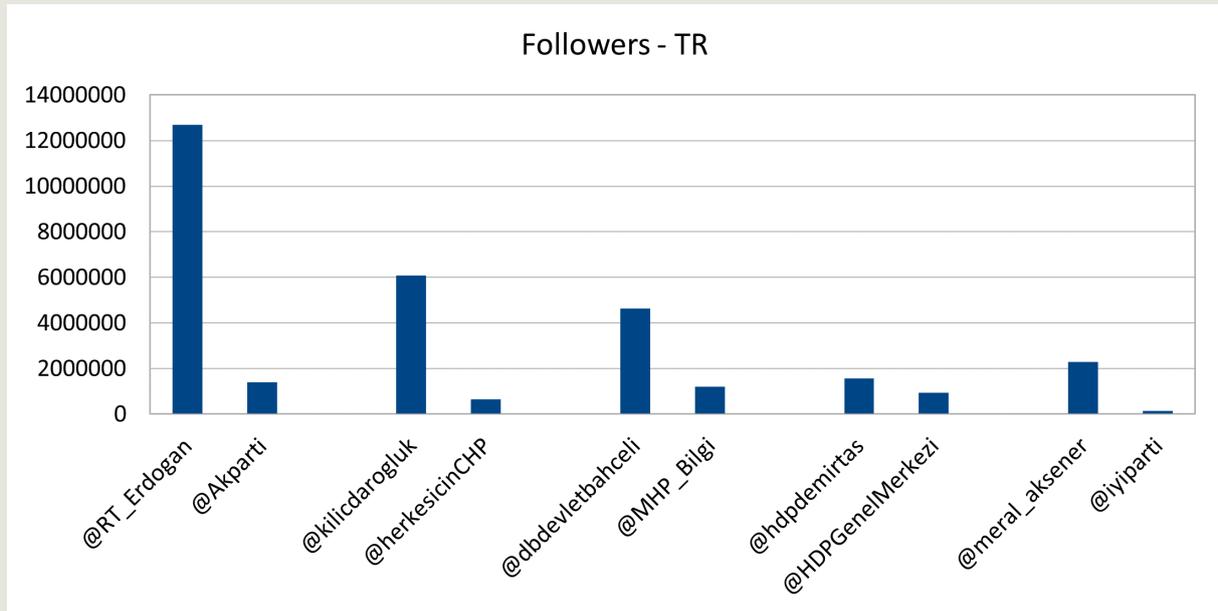Figure 1. Followers of party leaders in Germany

Figure 2. Followers of Party Leaders in Turkey

The diagrams (see Figure 1 and Figure 2) show that the numbers of followers of the leaders are well above the numbers of followers of the parties in Turkey. This is even true of Selahattin Demirtaş of the HDP, who has been in prison since November 2016 and cannot use Twitter. In Germany, the situation is somewhat patchy: Martin Schulz, who has more followers than his party (SPD), owes many of his followers to his former post as president of the European Parliament. Besides Schulz, Sahra Wagenknecht of "Die Linke" is the only exception to the trend.

The number of followers can give an idea of the potential influence in the Twitter environment, but there are several other parameters, including retweets, which are commonly and easily produced by bots (computer software that sends tweets) in both countries. Not much intellectual effort is needed to create retweets, and they allow the party faithful to spread the word by creating huge "echo chambers". The data collected show that bots are used by all major parties in Germany. The right-wing populist party AfD is the most active party in normal Twitter activity, as well as bot usage. For example, the right-hand column of the following Table (Table 1) shows the number of retweets that some apparently AfD-aligned bot accounts posted within a second (UTC/GMT time). Since this is impossible in normal human-computer interaction, the retweets must have been created by bots.

Bots are also used extensively by so-called AKP trolls for retweeting. The data for the following Figure (see Figure 3) were obtained from the retweets in the Trend Topic "#Kemalİstifa" on 2 December 2017, which were posted at less than 0.1 second intervals. The TT reiterates the AKP arguments, and it seems that the bot accounts retweeting the known AKP trolls were mainly responsible for improving the Turkey TT ranking which are shown at the center (@islambey1453, @divanuyesi, @ZamanFotograf and @HatirlaCHP).

Account name	Day	Date	Time	Number of retweets	Comment
renate_rudolph	Sat	Sep 02	08:14:33	5	
PeterPa34083139	Fri	Nov 10	18:38:16	5	
renate_rudolph	Thu	Aug 31	04:44:25	3	
renate_rudolph	Thu	Aug 31	18:30:38	3	
RobSchumann2	Wed	Sep 06	08:55:05	3	(later deleted)
Chri440312421	Sat	Aug 19	03:32:15	3	
aufdemlandleber	Tue	Sep 05	21:14:52	3	
HermannMaier23	Wed	Sep 06	16:19:04	3	
0930uhr	Mon	Aug 28	04:53:21	2	
mrstone0856	Sun	Sep 03	10:22:11	2	

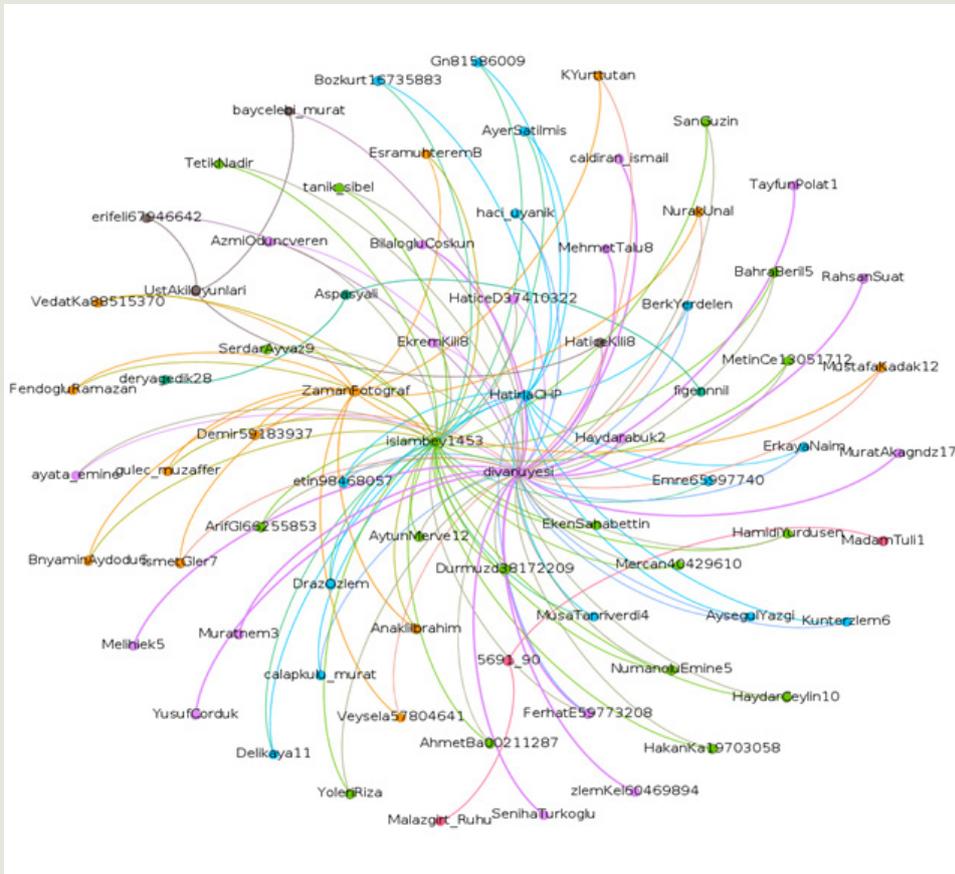Table 1. Retweets by AfD-aligned Bot Accounts

Figure 3. Retweets in the Trend Topic "#Kemalİstifa" on 2 December 2017

The unreliability of retweets for gauging influence is also true for "likes" or favorites. @mentions and replies are important because some effort is needed to create them, which makes them "valuable" in terms of influence in the Twitter environment (Yep et al., 2017). They are also comparatively difficult for bot activity. They can indicate both positive and negative interest, i.e. Twitter users may reply to a post in order to express their dislike or disagreement. Methods of data mining and sentiment analysis can be used to distinguish positive interest in replies, which can be regarded as a measure of influence (Dang-Xuan et al., 2013). Dislike or disagreement at @mentions is usually negligible compared to approval and support. Therefore, party supporters form clusters in @mention networks. The @mention diagrams below (see Figure 4 and Figure 5) are produced from the main database, which contains 48,219,359 tweets and retweets covering the period from 26 July 2017 to 16 March 2018.
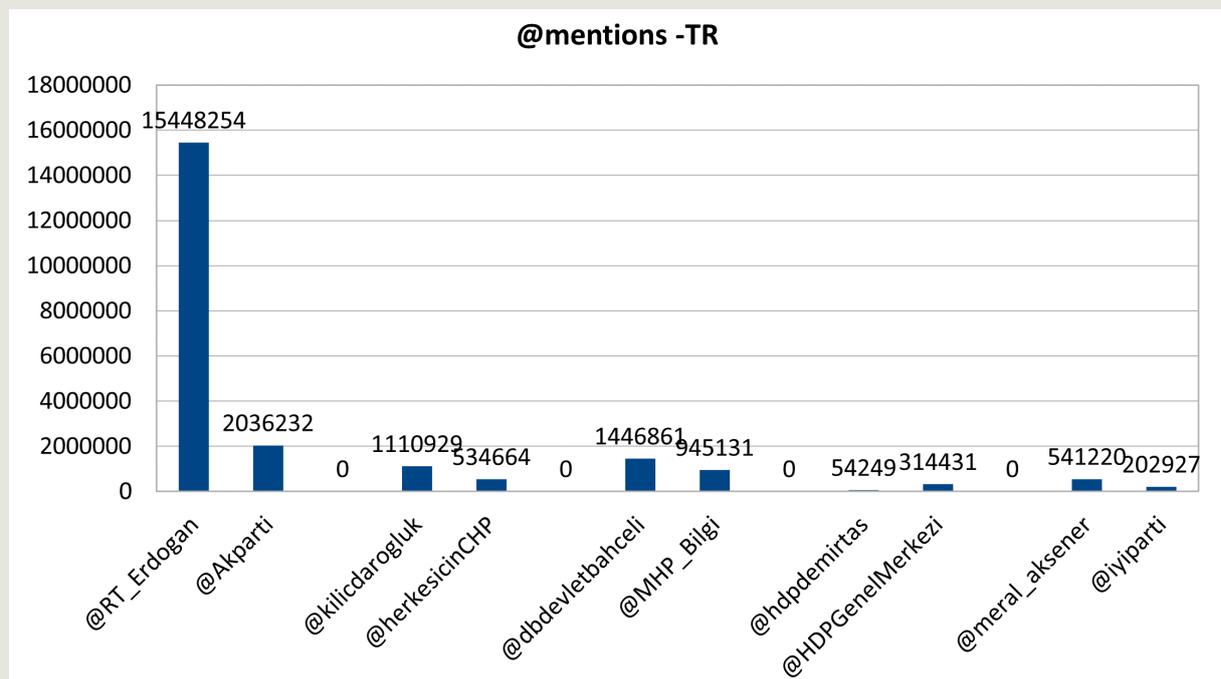

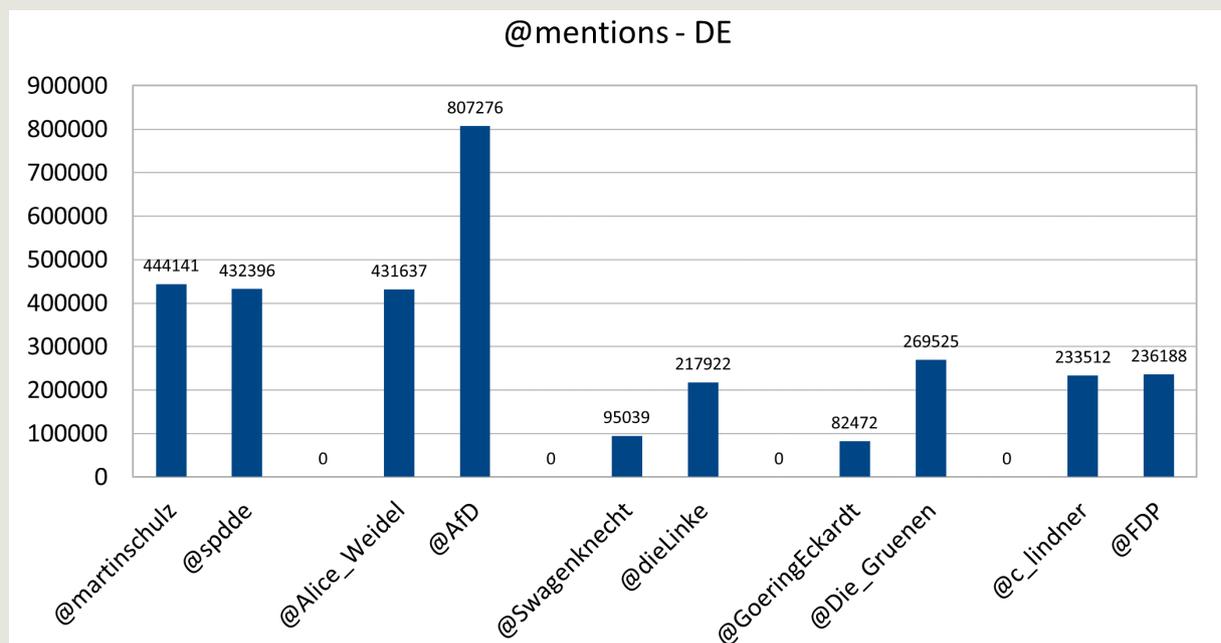Figure 4. Mention of Leaders in Turkey

Figure 5. Mention of Leaders in Germany

The pattern is evident in the diagrams: the party leaders in Turkey are more influential than their organizations, while the situation is the reverse in Germany. Although Demirtaş and Schulz seem to be outliers, they represent special circumstances, as I have explained above.

Second Phase: Are the Results Generalizable?

Can we generalize these results? In other words, are party leaders more influential than their organizations in the Twitter environment in countries similar to Turkey? Are party organizations more influential than their leaders in countries similar to Germany? Since Turkey and Germany are very different culturally, and the two countries differ greatly in economic (GDP/capita, national debt etc.) and social (health, education, democracy index etc.) terms, do the findings of the first phase have any relation to the parameters of development?

To answer this question, we can analyze the economic and social parameters of a set of countries including Turkey and Germany along with their Twitter data, which is the subject of the first phase of this project. In other words, we can collect Twitter data of the political parties and the leaders of a set of countries and seek correlations between those data and national parameters.

For example, there are correlations between several parameters of development, including between GDP/capita and level of literacy of the adult population. The data in the following Figures were obtained from the *Human Development Report* (2016) of the United Nations Development Program. In Figure 6, 31 countries, whose initials are A, B and C, are chosen and sorted according to their GDP/capita (USD) in ascending order. Figure 7 shows the literacy rate of the adult population in the same three countries. The red figures show the equations of the distributions in each Figure.
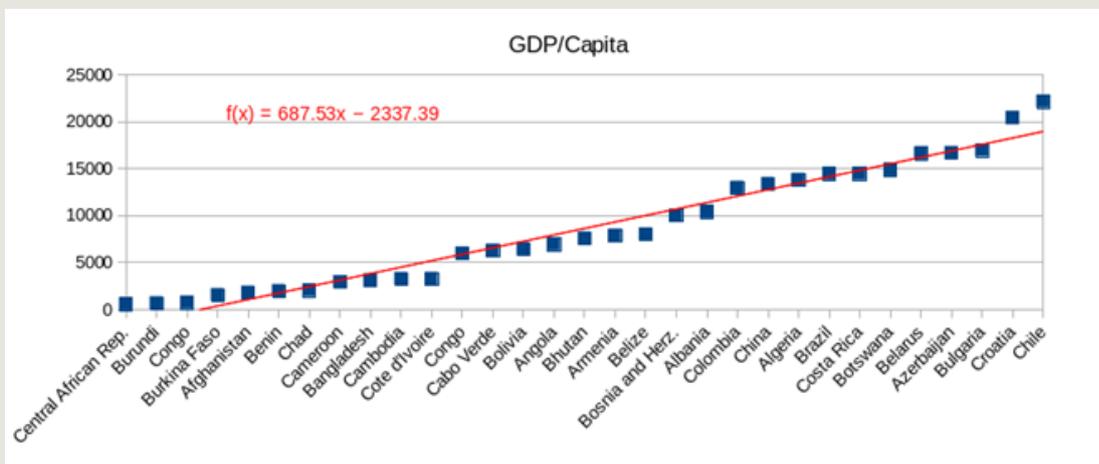

Figure 6. Countries Sorted According to their GDP/capita (USD) in Ascending Order
(Source: Human Development Report2016 of the United Nations Development Program)

Although there are wide fluctuations between the levels of literacy in the countries, the slopes of the straight lines in the two Figures clearly show that there is a positive correlation (Pearson's r=0.73) between income and literacy. In other words, income increases with increasing literacy, although it is difficult to determine whether there is a causal relationship between the two variables, i.e. which is the cause, and which is the effect.
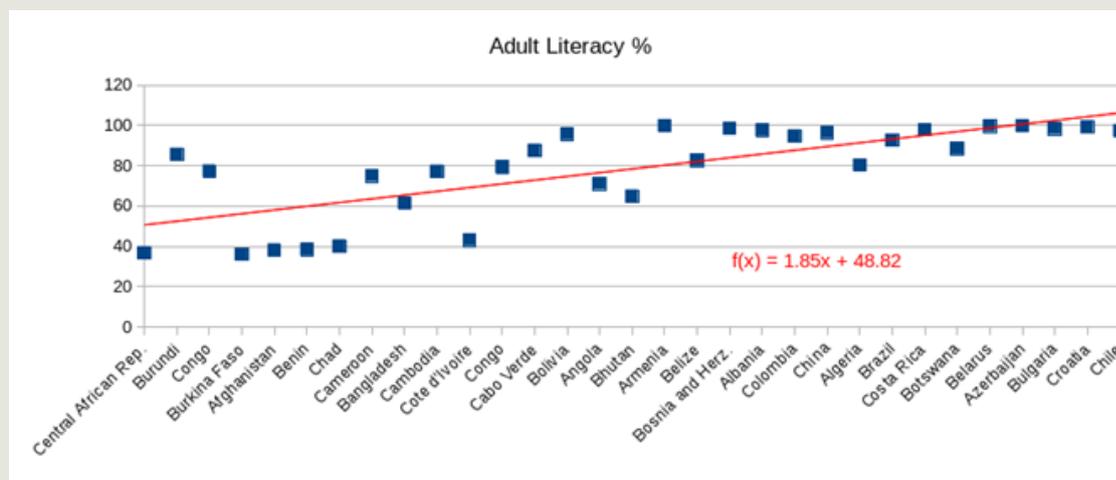
Figure 7. Literacy Rate of the Adult Population

(Source: Human Development Report-2016 of the United Nations Development Program)

The second phase of the project aims to test the relationship of several variables with the arithmetical expression of the power ratio of political leaders to their parties. To this end, we collected for the parameters data for around 30 developing and "developed" countries (see Table 2), which were selected according to the criterion of whether there are reasonably free and fair elections.

Group		Source
Economic & social	Human development index	UNDP HDR 2016
Social	Gender development index	UNDP HDR 2016
Social	Gender inequality index	UNDP HDR 2016
Social	Infant mortality rate	UNDP HDR 2016
Social	Life expectancy of 60	UNDP HDR 2016
Social	Adult literacy rate	UNDP HDR 2016
Social	Gov. expenditure on education (% of GDP)	UNDP HDR 2016
Social	Tertiary enrolment ratio	UNDP HDR 2016
Social	Unemployment ratio	UNDP HDR 2016
Social	Prison population (per 100,000 people)	UNDP HDR 2016
Social	Internet users (% of population)	UNDP HDR 2016
Social	Confidence in judicial system	UNDP HDR 2016
Social	Trust in national government	UNDP HDR 2016
Social	Gender inequality index	UNDP HDR 2016
Economic	GNI/capita	World Bank Data
Economic	Gini index	World Bank Data
Economic	Poverty headcount ratio	World Bank Data
Social	Democracy index	Economist Intelligence Unit
Social	Freedom score	Freedom House
Social	Corruption perceptions index	Transparency International
Social	Rule of law index	World Justice Project
Social	Power distance index	Hofstede (1984)

Table 2. Overview of Country Parameters

Relevant Twitter data for these countries will be collected and compared to the above list to test whether it is possible to generalize the Turkey-Germany relationship to other developing and "developed" countries.

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