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## E-Government Usage in Turkey: An Analysis of the Social Security Institution

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**Abstract:** This paper investigates the general situation of e-government usage of the Turkey. The monthly reports of Social Security Institution E-Government Gateway of Turkey were published for the years of 2012, 2013 and 2014. In this paper, these data are used as an indicator of e-government usage of Turkey. Basic time series graphs are used in the analysis. The results show that there is no trend in the series. The series move mostly by changes in rules and regulations governing SSI after related news coverage on the media and this could be called as the "curiosity effect". At last, seasonality of the series was investigated and the seasonal graphs show that generally variables have the lowest level in June.

### I. INTRODUCTION

E-Government or electronic-government could be defined as using the Internet and the other information technology (IT) tools to provide governmental services electronically. It is also called digital-government. Probably the most important aspect of e-government services is its ease to reach information and services electronically without visiting the government offices. Moreover, it reduces costs of providing such services on the government's side and also reduces bureaucracy and increases transparency and trust.

49.1% of households in Turkey have access to internet according to the Household Information and Communication Technology (ICT) Usage Survey of April 2013. This rate was 47.7 % in March 2012. 35.7% of households that do not have access to the Internet claimed that they do not have need to use Internet [1].

Turkey ranks 21st in the world ranking on financial statements thanks to financial policies implemented in recent years, whereas it ranks 80th in the rate of e-government usage that indicates social capital in the world. In direct proportion to its rate of e-government usage, Turkey ranks 92nd in confidence index [2].

Turkey ranked 80th on United Nations E-Government Development Index in 2012 and even though its position has improved in 2 years and it only ranked 71st in 2014 [3]. [4] states that developing countries such as Turkey and China have to concentrate more on the efforts towards raising the awareness on e-government applications and to increase the extent of the services. [5] argues that the real outcome of e-government is to make public activities transparent and enable citizens to participate more actively and interactively in the country's administration.

The research on e-government activities, their design, effectiveness, and their effects of related parties are limited in Turkey as e-government is relatively a new concept. While most of studies interested in the effects of e-government services on users, [6] analyzed the issue of how public employees think about the e-government activities and to what extent they use them. [7] explains that there are different types of e-government models such as government-to-citizens, government-to-business, and government-to-government and while establishing an effective e-government system, it is important recognizing the differences among these models. After reviewing the developments on the topic of e-government in the world and in Turkey, [8] reports the main findings of their survey questioning the effect of education and gender among e-government users in Turkey.

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The efforts to build an e-government in Turkey started during the 1990s with the establishment of Information Society. The early efforts aimed at strengthening Information and Communication Technologies (ICT) capacities in Turkey. The main electronic service provided by government was providing simple information to the public via official web sites [9]. E-Turkey initiation was started in 2001 by the Prime Ministry's "Action Plan" circular of 2001/352. The idea behind this act was to create a more competitive, dynamic, and knowledge based economy in Turkey. This initiation failed due to economic and politic instability during 2001-2002 in Turkey. A new initiation was started on February 27th, 2003 entitled "E-Transformation Turkey Project". The Information Society Department was established in March 2003 under the control of current Ministry of Development. Finally, in order to gather all sorts of electronic government services under the same portal, it was decided to constitute an "E-Government Gateway" by the Council of Ministers decision dated 2006/103016 and started to operate at <https://www.turkiye.gov.tr> web address. As stated in [10], thousands of addresses could be accessed through e-government gateway since 2008 in Turkey. In 2013 the e-government gateway provided 638 public services of 80 government organizations.

In order to provide quality health services for all citizens a General Health Insurance program is targeted by the government in 2006 and after two years delay a new legislation put into law with the decree of 5510 on October 1st, 2008. All sorts of health insurance concerns are coordinated under the E-Government Gateway.

This study takes the case of e-services provided by the Republic of Turkey Social Security Institution as part of the E-Government Gateway. Another study [11] discusses the interactions between e-government and the position of e-government application in SSI and the benefits of these applications for the citizens and accountants.

Our aim is to analyze the use of e-government services by public using monthly data from SSI for the period of January 2012 to December 2014. We would like to determine how the use of these services has changed through time for the period, whether certain changes took place during this period or not.

## II. E-GOVERNMENT SERVICES OF SOCIAL SECURITY INSTITUTION OF TURKEY

The Social Security Institution (SSI) was established in 2006 with the objective of the realization of a social security system in Turkey. It is constituted by syndicating three social security institutions, which are Social Insurances Institution, Retirement Fund and BaĖ-Kur (The Social Insurance Institution for Tradesmen and Craftsmen and Other Self-Employed People) under a single roof by Law No 5502 of 2006. Briefly duties of the SSI according to Article 3 of the Law No. 5502 are summarized as; implement the social security policies; inform natural and legal persons, follow up international developments, to collaborate with the European Union and International organizations.

There are various e-government applications available on the SSI web site, however; they are only available in Turkish. Moreover, statistics about e-government applications are available in e-book format titled "SSI E-Government Gateway Statistics" for the years of 2012, 2013 and 2014 on the SSI web page (<http://www.sgk.gov.tr>).

In this paper we use "SSI E-Government Gateway Statistics" for 2012, 2013, and 2014. The number of service applications provided on SSI web site was increased from 31 in 2012 to 42 applications in 2013 and 2014. In order to have a balanced time series data, we omitted the services which are not common to all three years and thus we obtained 26 variables. The 27<sup>th</sup> variable is the total number of transactions performed with these 26 applications. Table 1 shows the abbreviation of the variables and their definition.

TABLE I  
DEFINITION OF VARIABLES

Abbreviation	Definition	Abbreviation	Definition
AGBRP	4A Germany/Bulgaria Retirement Payments	BRPI	4B Retiree Pension Information
ACBA	4A Change of Bank and Address	BSI	4B Service Information
ARPC	4A Retiree Pension Cuts	BPR	4B Payment Record
ARPI	4A Retiree Pension Information	BRR	4B Registry Record
ARPAI	4A Retiree Payment Information	CCB	4C Change of Banks
ARR	4A Retirement Registration	COMSP	4C One Month Salary/Pension Preference
ASR	4A Service Record	CRPC	4C Retiree Pension Cuts
ADIRR	4A Determination of Insured Registry	CRPI	4C Retiree Pension Information
ABDP	4A/4B Disability Payments	CTRP	4C Tracking of Retirement Process
ABCDTI	4A/4B/4C Drug Use Time Inquiry	CROP	4C Record of Optional Payments
ABCEPFI	4A/4B/4C Examination Participation Fee	CRR	4C Registry Record
BCBA	4B Change of Bank and Address	TII	Treatment Information Inquiry
BGSI	4B Grade/Seniority Information	Total	Total
BSD	4B Status of Debt		

The variables listed on Table 1 are divided into three categories as 4A, 4B, and 4C. This classification is due to Article 4 of Law No 5510. The three categories that were covered by previous legislation: employees (4A), self-employed (4B) and civil servants (4C) [12].

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III. AN ANALYSIS OF ISI E-GOVERNMENT GATEWAY STATISTICS

There are total of 26 variables to work with in this data set and performing graphical analysis for ach variable separately would not be suitable for presentation purposes. Therefore, we gathered similar applications in the same group for presentation and analysis purposes.

Figure 1 has two panels and while the line graphs of the variables of ABCDTI, ABCEPFI, ABDP and ACBA are shown on the first panel on the left; the line graphs of the variables of ADIRR, ARPI, BSD, ARR, CROP, and BSI are shown on the second panel on the right.

The first observation on Figure 1 is that the use of applications was clearly high on the first month of 2012 and started to decline gradually for the following months for almost all of the variables representing various use of e-government applications. This situation could be called as the “curiosity effect” as using SSI web site became easier after December 2011. [13] informs public about a change in regulations related to use of SSI services provided on the web. At the beginning, people who have social security related inquiries had to use e-government gateway portal which required a password that could be obtained only at PTT centers for a small fee. This situation has changed and people are allowed to use SSI web site directly without any password after December 15, 2011.

About the first panel on the left, values of all variables (ABCDTI, ABCEPFI, ABDP, ACBA, and ADIRR) are approximately on the same interval of 100,000 to 400,000 uses for the period under analysis, however, there is a single peak for ACBA in the fourth month of 2013. This application is “Change of Address and Bank” for the users.

The panel on the right has two sub-groups where ARR, CROP and BSI values are measured on the left vertical axis and the values of ARPI and BSD are measured on the right vertical axis. These two-sub groups followed two different patterns for the whole period while variables in each sub-group moved together. ARR, CROP, and BSI started very high back in January 2012, declined gradually until the second quarter of 2013 and they stayed stable at low use values until the middle of 2014 and they started to increase again until the end of 2014. ARPI and BSD, on the other hand, showed more fluctuations but moved together. ARPI is retiree pension information and BSD is status of debt services. There is a sharp increase on the value of BRPI in the first month of 2013.

Similarly Figure 2 has two panels and while the line graphs of AGBRP, BCBA, BGSI, CCB, COMSP and CRR variables are located in the first panel on the left, and the line graphs for variables of BRPI, BPR, BRR, CRPC,CTRP and TII variables are located in the second panel on the right.

AGBRP (Germany/Bulgaria Retirement Payments) is located on the first panel and it has the lowest values for the whole period. The highest frequency of AGBRP is about 2,000 while frequencies for other variables are about 200,000. Therefore, the values of AGBRP are measured separately on the right axis on the first panel. AGBRP application is only used by retirees of the system who worked out of Turkey and therefore it has remarkable low use as e-government application in the system. The trend of the six variables on the first panel is similar to the general trend on Figure 1; their values were very high in January 2012 and first declined gradually and later increased relatively again towards the end of 2014 with the exception of BCBA. BCAB shows increases around the second quarters of 2012, 2013, and 2014.

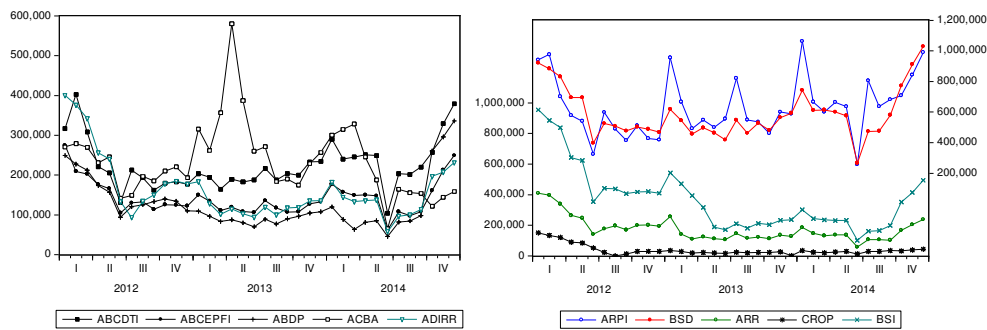


Figure 1. Graphs of ABCDTI, ABCEPFI, ABDP , ACBA, ADIRR, ARPI, BSD, ARR, CROP

The variables in the second panel are consisted of two groups. The first group consisted of BRR, CRPC, CTRP, and TII variables which are measured on the left axis of the right panel and their highest value is 280,000 uses. The second group consisted of BRPI and BRP variables which are measured on the right axis of the right panel and their values are around 500,000 uses a month. One important observation about the variables on the second panel is the sharp increase on the value of BRPI in the first month of 2013.

While values of ARPFI are presented on the right axis on panel 1, values of CRPI and ARPC are presented on the left axis in the first panel on the left. On the other hand, the values of ASR and TOTAL are presented in the second panel on the right.

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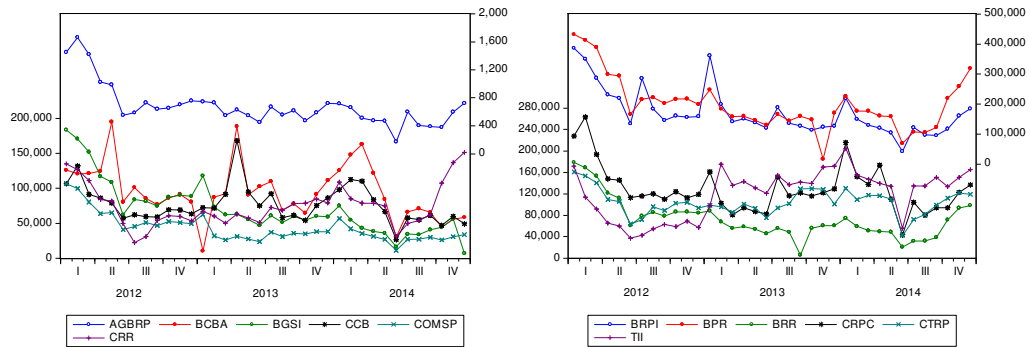


Figure 2. Graphs of AGBRP, BCBA, BGSİ, CCB, COMSP , CRR, BRPI, BPR, BRR, CRPC,CTRP, TII .

The values of ARPAI reach approximately to 1,200,000 and its graph is located on the left panel. On the other hand, the most frequently used application is ASR (Service Record) is drawn on the right panel and its values are on the left vertical axis. ASR values reach approximately to 5,000,000 . At the same time we can see that total numbers of service use values are in 3 million to 16 million ranges. It reaches 16 million in the first moth of 2014 also it has a peak in first month of 2013. ARPAI, CRPI and ARPC have the same peak dates with the TOTAL variable.

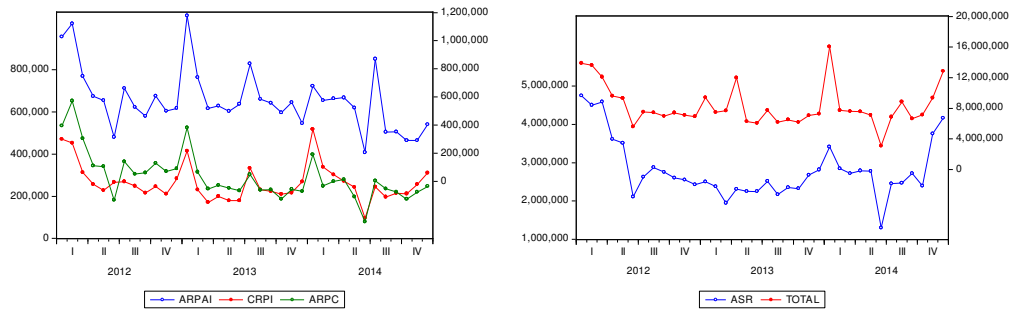


Figure 3. Graphs of ARPAI, CRPI, ARPC, ASR, TOTAL

The ARPI, BRPI, and CRPI values are presented on three different figures and all of them have a peak value in January 2013. A new law published in the Official Gazette dated March 1st, 2012 stating the monthly pension payments of people who retired before year 2000 [14]. Following this law, there were lots of news coverage on the media starting with January 2013 about the retiree pension adjustment which would take place in 2013 [15].

Figure 4 shows seasonal means of all the variables. It is clear from the seasonal graphs that there is seasonality in the series. Access to e-government gateway services look high at the beginning of each year and start to decline until June. The uses of services stay relatively low during the summer months and start to increase during the last quarter of each year. It is possible to argue that the decline in summer months is due to fact that summer months are considered as the main vacation period for the majority of Turkish population. As almost all schools are closed for these months, most of the workers prefer to use their vacation days during these months. Furthermore, the high use rates during the first month of each year is probably due to curiosity of the public using SSI about new rules and regulation and their possible effects on their pensions. Finally, the relatively high use of services at the end of each year could be about year-end check and control activities by individuals and/or firms for fiscal concerns.

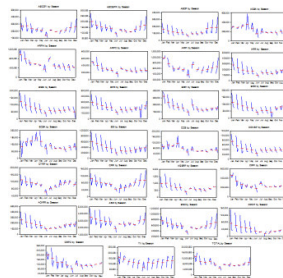


Figure 4. Seasonal Graphs of the all variables

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## IV. CONCLUSION

SSI E-Government Gateway statistics are used in this study for the period of 2012-2014. Time series characteristics of the series are investigated and evaluated.

At first, the peak values are determined and possible reasons behind them are investigated. It looks like that the news in the media about changes in regulations and adjustments to benefits is the main reason behind the change in the use rate of e-government services. Moreover, the use declines starting after January and reaches its lowest level in June and stays low during the summer months. This is probably because of summer months are used for vacation. It is expected to see an increase in use of e-government services through time since the use of Internet.

Furthermore, the use of Internet among Turkish households increased only a small percentage from 47.7% in 2012 to 49.1% in 2013 as mentioned above in introduction. Our study shows that while the use of SSI E-Government Gateway services fluctuated during the 3-year period, any increase in e-government service use could not be found.

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