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INVESTIGATION OF THE IMPACTS OF ECONOMIC CRISES ON THE HEALTHSYSTEM IN TURKEY: AN ARDL BOUNDS TESTING APPROACH

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Abstract: In this study, the impacts of 1994, 2001 and 2009 economic crises on 9 indicators related to the health system in Turkey between 1974-2015 were investigated through the ARDL Cointegration approach. It was found that the 1994 economic crisis affected the total number of other health personnel significantly ($p<0.05$) in a negative way. The 2001 economic crisis was found to have a significantly negative effect on public health expenditures, total health expenditures and number of beds. For the 2009 economic crisis, private and total health expenditures decreased significantly ($p<0,05$), while public health expenditures increased significantly ($p<0.05$). Conclusively, in this study, it has been found that political choice plays an important factor in the impacts of the economic crises on the health system.

Keywords: *Economic crisis, health system, Turkey, ARDL bounds testing*

Introduction

In an economic crisis, countries often apply austerity measures in many areas, and the health system emerges as one of the important areas in which these measures are implemented (Doctors of World, 2014). In crises, these responses, which are generally given by countries as short-term changes in health policies, also indicate the effects of economic crises on the health system (Modrek et al., 2013). Therefore, these influences on the health system also significantly affect the health of the population and the individual. Decisions on the health care system may protect health from the effects of the crisis, but on the contrary, may lead to the worsening of the health of the population and the individual (Musgrove, 1997, 2004; Thomas et al., 2012). Studies show that mortality rates are higher in countries where economic crises have a relatively negative impact on the health system (Borowy, 2011; Cutler et al., 2002; Stuckler et al., 2009).

One of the important areas that economic crises affect is health expenditure. As is known, there is a pro-cyclical relationship between health expenditures and GDP. Health expenditures also increase when GDP increases. From this point of view, it can be said that health expenditures will decrease in line with the decrease of GDP in times of economic crisis (Keegan et al., 2013). On the other hand, it is theoretically stated that health expenditures will increase during periods of economic crisis for three reasons (Thomas et al., 2012): Reducing opportunity cost of time may lead to greater use of health services. Opportunity to renew the existing capital and make basic repairs may increase health spending. An increase in the number of eligible people for state-funded health programs may also increase health spending. Contrary to this theoretical explanation, there is evidence in many developing countries that health spending has declined, but not permanently, during an economic crisis (Thomas et al., 2012; WHO, 2009).

One of the most common interventions to reduce public spending and control health spending in economic crises is the reduction of health budgets (Clemens et al., 2014). As a consequence of the 2008 economic crisis, many Eurozone countries have decreased their health budgets (Dubois and Molinuevo, 2014; HOPE (European Hospital and Healthcare Federation), 2011; KPGM (KPGM International Cooperative), 2012). In addition to the countries that have cut their health budgets, there are also countries that have increased their health budgets. Malta, Armenia, Albania, Georgia, Lithuania, Moldova, Macedonia, Kyrgyzstan, and Turkey are countries that have increased their health budgets (HOPE (European Hospital and Healthcare Federation), 2011; McKee, 2013; WHO, 2009).

In the event of an economic crisis, one of the short-term responses by policymakers to save money in health budgets comes from postponing or canceling capital investments (Clemens et al., 2014; WHO, 2009). During the economic crisis, some measures directly affect health professionals (HOPE (European Hospital and Healthcare Federation), 2011). Measures such as reducing the number of health personnel, freezing the recruitment of new health personnel or reducing the number of new personnel recruitment or reducing personnel wages or awards, and freezing wage increases emerge as applications that affect the health personnel directly (Clemens et al., 2014; De Belvis et al., 2012; Dubois and Molinuevo, 2014; Kondilis et al., 2013; Menabde, 2009; Mladovsky et al., 2012a, b; WHO, 2009).

1. Research Methodology

1.1 Study Design

To investigate the impact of economic crises on the health system, ARDL cointegration analysis will be applied. The stationary of the series lies at the basis of the cointegration analyzes, which is developed for the determination of long-run relationships between time series and variables. In this context, the ordinary least squares (OLS) technique can be used if all variables are stationary at the level values, i.e. I(0) (Ciftci and Yildiz, 2015). Nevertheless, macroeconomic time series data are generally stationary at their first difference, not in level values (Gujarati, 2004, 2011). Some cointegration techniques like Engle and Granger (1987), Johansen (1988), Phillips and Hansen (1990), and Johansen and Juselius (1990) can be used instead of the standard regression technique when all the variables to be used in econometric analysis are stationary at their first difference, i.e. I(1) (Ciftci and Yildiz, 2015; Erdogan and Bozkurt, 2008).

The ARDL bounds testing approach developed by Pesaran et al. (2001) does not require all the explanatory variables to be I(1), unlike the other cointegration techniques (Pesaran et al., 2001). It is also stated that the ARDL bounds testing approach provides robust and efficient results in studies with few observations (Musgrove, 1997; Narayan and Smith, 2006; Narayan and Narayan, 2004; Wang, 2009; WHO, 2009). Moreover, since it includes error correction factors for previous years, analysis of error correction and delay difference terms can allow testing of both long and short-term relationships between variables. For this reason, the ARDL approach can be used within a set of variables, including economic crises (Wang, 2009). In the ARDL procedure, there are many studies that introduce the variables such as economic crisis and policy changes to the model as dummy variables, and investigate the impacts of these variables on the independent variable (Babych, 2011; Erdem et al., 2011; Oskanbayev et al., 2011; Salleh et al., 2007; Wang, 2009). The

introduction of economic crises as a dummy variable is usually done by assigning 1 for the years of crisis and 0 for other years (Salleh et al., 2007; Wang, 2009). Since the health effects of economic crises are often delayed (De Belvis et al., 2012; Dubois, and Molinuevo, 2014; Kim and Serra-Garcia, 2010; Lehto et al., 2012; Stuckler et al., 2011; Tangcharoensathien et al., 2000) and the lagged values of the variables are taken into account in the ARDL method, it is possible to reveal the impacts of the economic crises on health in a better way.

1.2 Data

The data of the study were obtained annually with a total of 42 observations between 1974 and 2015. These data are shown in Table 1. In addition to these data, three crisis dummy variables were added for the economic crises of 1994, 2001 and 2009. The coding of these variables was carried out by assigning 1 for negative years of GDP and 0 for other years.

Table 1. Data, Abbreviations and Data Source

Data	Abbreviation	Data Source
% of public health expenditures in total health expenditures	Public Health Expenditures	(OECD, 2016)
% of private health expenditures in total health expenditures	Private Health Expenditures	(OECD, 2016)
% of total health expenditures in GDP	Total Health Expenditures	(OECD, 2016)
Share of Ministry of Health budget in General Budget (%)	Ministry of Health Budget	BUMKO
Number of physicians		(TurkStat, 2016b)
Number of other health personnel		(TurkStat, 2016b)
Number of total health personnel		(TurkStat, 2016b)
Number of inpatient health institutions		(TurkStat, 2016b)
Total number of beds		(TurkStat, 2017)
Real GDP	RGDP	(World Bank, 2016)
Unemployment rate	UNEPM	(TurkStat, 2016a), (Bulutay,1995) (Turkey, 2014)
Inflation rate	INF	(World Bank, 2016)

1.3. Statistical Analysis

To perform the ARDL cointegration method, the EViews 9.5 statistical program was used. The ARDL method was carried out in four stages. First, unit root tests for time series were performed. The Augmented Dickey-Fuller (ADF) test was used for the unit root test (Ciftci, 2009; Tuncsiper and Bicen, 2013). Second, an Unrestricted Error Correction Model (UECM) was built, the model was estimated with the OLS technique, and the boundary test (Wald test) was performed. Then, it was decided whether there was a cointegration relation between the variables by comparing F-statistic value obtained from the Wald test with the upper and lower critical values derived by Pesaran et al. (2001) (Pesaran et al., 2001). Akaike information criterion is used to calculate the optimal lag length for each variable in the UECM. In the determination of the maximum lag length of the estimated model, the lag length at which no autocorrelation is found is taken into account. Whether autocorrelation is present or absent was determined by the Breusch-Godfrey LM test for autocorrelation. Due to the fact that the lagged values of the dependent variable are included in the model as explanatory variables, Breusch- Godfrey autocorrelation LM is used instead of the Durbin-Watson test statistic in investigating the autocorrelation problem. In addition, diagnostic tests of the selected model have been carried out. In this context, the Jarque-Berra test for normal distribution fit, the ARCH test for heteroskedasticity, and the Ramsey Reset test for the functional form misspecification were performed. Moreover, CUSUM and CUSUM-SQ tests were performed to determine the stability of the models.

In the third stage, the ARDL model was estimated to determine the long-term coefficients. At this stage, the Akaike information criterion was used to determine the maximum lag length. For the estimated model, the diagnostic tests, and CUSUM and CUSUM-SQ stability tests were again performed. In the fourth stage, the Error Correction Model (ECM) was created by using the ARDL model and this model was estimated with the OLS technique.

1.4. Limitations and Assumptions

It is accepted that the data obtained for our study is accurate. Real GDP, unemployment, and inflation rates have been used as independent (explanatory) variables in our study. There are many factors besides these variables that affect health system-related variables. In this context, it is assumed that the results of the estimation obtained from the related models in our research

are valid with other factors that are fixed (ceteris paribus). Also, in our research, the years when the real gross domestic product was negative were taken as indicators of an economic crisis. Another important limitation of our research is related to the number of observations. The data with 42 observations can be assumed as small when evaluated in the scope of the time series analysis.

2. Results

2.1. Unit root test results

The results of unit root tests are shown in Table 2 and are only given for the models which are used in the ARDL bound tests. By comparing the ADF unit test statistics with the critical values of MacKinnon (1996), it is observed that all the variables have the condition of not being stationary in their level values but being stationary in their first difference values.

Table 2. Unit root test results

Variables	Models	Level Values		First Difference Values	
		t	p	t	p
Inflation	Intercept	-0.88	0.7816	**-6.26*****	0.0000
	Int. and Trend	-2.05	0.5540	**-6.53*****	0.0000
	No Int. and Trend	-0.53	0.4802	**-6.32*****	0.0000
Real GDP	Intercept	-0.39	0.9013	**-6.44*****	0.0000
	Int. and Trend	-3.20	0.0983	**-6.35*****	0.0000
	No Int. and Trend	6.21	1.0000	**-2.66*****	0.0090
Unemployment	Intercept	-2.14	0.2273	**-5.50*****	0.0000
	Intercept and Trend	-2. 40	0.3723	**-5.43*****	0.000
	No Int. and Trend	0.40	0.7951	**-5.54*****	0.0000
Public Health Expenditures	No Int. and Trend	1.092	0.925	**-1.679***	0.087
Private Health Expenditures	Intercept	-0.82	0.800	**-5.26*****	0.000
Total Health Expenditures	Intercept	-0.82	0.801	**-6.82*****	0.000
Ministry of Health Budget	Intercept and Trend	-2.70	0.238	**-7.22*****	0.000
Number of Physicians	Intercept	-2.21	0.204	**-3.60****	0.010
Number of Other Health Personnel	Intercept	-0.23	0.925	**-4.46*****	0.000
Number of Total Health Personnel	Intercept	-0.72	0.829	**-3.95*****	0.003
Number of Inpatient Health Institutions	Intercept	0,21	0,970	**-5,25*****	0,000
Total Number of Beds	Intercept	-0.68	0.837	**-7.02*****	0.000

Note: * 10% significance level, ** 5% significance level, *** 1% significance level.

2.2. Unrestricted Error Correction Model Results (ARDL Bounds Testing)

The results of ARDL Bound tests are shown in the Table 3. According to test results, it is observed that the LNIHI model (number of inpatient health institutions) has cointegration at 10% level of significance, the LNPHYC model (physician number) and LMOHB (Ministry of

Health budget) have cointegration at 5% level of significance, the LPPBHETHE and LTHEGDP models have cointegration at 2.5% significance level, and the others have cointegration at 1% significance level. Note that, diagnostic tests including the Breusch- Godfrey autocorrelation LM test, Jarque-Berra normality test, ARCH test, Ramsey Reset test and, CUSUM and CUSUM-SQ stability tests were performed for all UECM models shown in Table 3. According to the results of diagnostic tests, there were no problems in the models except for the result of CUSUM-SQ for number of other health personnel. There was a small overflow in CUSUM-SQ of number of other health personnel. According to Yakisik and Cetin (2014)49, such small overflows do not disturb the stability of the model as long as they return to the confidence interval. In this context, it can be said that the coefficients belonging to the model are stable since the small overflow in the CUSUM-SQ graph of the estimated model returns to the confidence interval again.

Table 3 The Results of ARDL Bound Tests

Estimated ARDL Model	k^{**}	F	p	R^2	A-R	Pesaran, Shin & Smith (2001) Tables
Number of Physicians (2, 0)	1	4.74	0.008	0.35	0.17	
Number of Other Health Personnel (1, 0)	1	5.95	0.002	0.35	0.21	
Number of Total Health Personnel (1, 0)	1	6.05	0.002	0.39	0.26	Table CI(ii) *
Number of Inpatient Health Institutions (1, 0)	1	4.10	0.014	0.28	0.12	
Total Number of Beds (2, 4)	1	8.35	0.000	0.62	0.44	
Share of Ministry of Health budget in General Budget (%) (2, 4, 0, 0)	3	Nis.29	0.008	0.62	0.28	Table CI(iv) *
% of private health expenditures in total health expenditures (2, 2, 2, 0)	3	6.Oca	0.001	0.73	0.53	Table CI(ii) *
% of total health expenditures in GDP (2, 4, 4, 4)	3	4.Oca	0.02	0.82	0.47	
% of public health expenditures in total health expenditures (2, 4, 4, 2)	3	Nis.31	0.016	0.85	0.65	Table CI(i) *

* **Critical Values for:**

Table CI (ii): for 1%– the lower limit 4.94. – the upper limit 5.58; for 2.5%– the lower limit 4.18 and the upper limit 4.79; for 5%– the lower limit 3.62 and the upper limit 4,16; for 10%– the lower limit 3.02 and the upper limit 3.51.

Table CI (iv): for 1%– the lower limit 4.3 – the upper limit 5.23; for 2.5%– the lower limit 3,80 and the upper limit 4.68; for 5%– the lower limit 3.38 and the upper limit 4.23; for 10%– the lower limit 2.97 and the upper limit 3.74.

Table CI (ii): for 1%– the lower limit 3.65 – the upper limit 4.66; for 2.5%– the lower limit 3.15 and the upper limit 4.08; for 5%– the lower limit 2.79 and the upper limit 3.67; for 10%– the lower limit 2.37 and the upper limit 3.20.

CI (i): for 1%.– the lower limit 3.42 – the upper limit 4.84; for 2.5%– the lower limit 2.87 and the upper limit 4.16; for 5%.– the lower limit 2.45 and the upper limit 3.63; for 10% – the lower limit 2.01 and the upper limit 3.10.

2.2.1. The Results of ARDL Error Correction Models

In Table 4, the results of the ARDL error correction model are shown and are only given for estimation results of the short-term coefficients for the economic crisis variables, although both long-term and short-term estimations are done.

Table 4. Results of ARDL Error Correction Models

ARDL Model:	Variables	ΔD_1994	ΔD_2001	ΔD_2009	ECM(-1)	C	Trend
(1, 4, 3, 3)	Coefficient	0.144	-0.667	0.389	-0.15		
Ind. Var.: ΔL Public Health	t	0.827	-3.020***	2.331**	-3.587***		
Expenditure	p	0.418	0.007	0.03	0.002		
(2, 2, 0, 2)	Variables	ΔD_1994	ΔD_2001	ΔD_2009	ECM(-1)	C	
	Coefficient	-0.156	-0.135	-0.555	-0.618	31.933	
Ind. Var.: ΔL Private Health	t	-1.925	-1.678	-5.628***	-4.756**	2.113***	
Expenditure	p	0.065	0.105	0.000	0.000	0.000	
(2, 5, 5, 5)	Variables	ΔD_1994	ΔD_2001	ΔD_2009	ECM(-1)	C	
	Coefficient	-0.039	-0.276	-0.272	-0.238	-27.639	
Ind. Var.: ΔL Total Health	t	-0.626	-3.965***	-4.402***	-6.979***	-2.213**	
Expenditure	p	0.542	0.002	0.001	0.000	0.045	
(1, 0, 4, 4)	Variables	ΔD_1994	ΔD_2001	ΔD_2009	ECM(-1)	C	Trend
	Coefficient	0.151	0.296	0.152	-71.931	-0.756	-0.154
Ind. Var.: ΔL Ministry of	t	1.102	2.113**	1.143	-4.931***	-4.926***	-1.969*
Health Budget	p	0.283	0.047	0.266	0.000	0.000	0.062
(2, 0)	Variables	ΔD_1994	ΔD_2001	ΔD_2009	ECM(-1)	C	
	Coefficient	0.022	0.014	0.008	-0.04	-7.46	
Ind. Var.: ΔL Number of	t	1.777	1.181	0.619	-3.960***	-0.642	
Physicians	p	0.085	0.246	0.54	0.000	0.525	
(2, 0)	Variables	ΔD_1994	ΔD_2001	ΔD_2009	ECM(-1)	C	
	Coefficient	-0.038	0.01	-0.018	-0.204	-21.261	
Ind. Var.: ΔL Number of	t	-2.081**	0.576	-0.999	-5.010***	-16.220***	
Other Health Personnel	p	0.045	0.569	0.325	0.000	0.000	
(2, 0)	Variables	ΔD_1994	ΔD_2001	ΔD_2009	ECM(-1)	C	
	Coefficient	-0.016	0.013	-0.009	-0.156	-18.726	
Ind. Var.: ΔL Number of	t	-1.292	1.043	-0.743	-4.997***	-15.673***	
Total Health Personnel	p	0.205	0.305	0.463	0.000	0.000	
(1, 0)	Variables	ΔD_1994	ΔD_2001	ΔD_2009	ECM(-1)	C	
	Coefficient	-0.001	0.033	0.003	-0.24	-7.657	
Ind. Var.: ΔL Number of	t	-0.035	0.991	0.086	-3.500***	-3.983***	
Inpatient Health Institutions	p	0.972	0.328	0.932	0.001	0.000	
(3, 5)	Variables	ΔD_1994	ΔD_2001	ΔD_2009	ECM(-1)	C	
	Coefficient	-0.002	-0.124	-0.027	-1.508	-2.707	
Ind. Var.: ΔL Total Number	t	-0.12	-3.400***	-1.225	-5.951***	-33.508***	
of Beds	p	0.904	0.002	0.232	0.000	0.000	

Note: In ΔL, Δ refers to differencing term and L refers to logarithmic values of variables. It should also be noted that diagnostic tests of the models (Breusch-Godfrey LM test for autocorrelation, Jarque-Berra normality test and Ramsey Reset test) were conducted and there were no problem in the models regarding diagnostic tests.

According to the ECM results shown in Table 4, it is observed that all the coefficients of ECM(-1) are negative and statistically significant as expected. These coefficients are interpreted as the following examples:

- For the public health expenditure, it can be said that 15% of the deviations in the long-term equilibrium of the system after the shocks that can occur in the short-term period in the system after the error correction model coefficient (-0.15) will be eliminated.

- The coefficient of the error correction model for the total number of beds is found to be -1,508. As stated by Narayan and Smyth (2006), when the coefficient is greater than 1, the system will balance by fluctuating, and this fluctuation will decrease every time and return to the balance in the long term.

According to the error correction model results shown in Table 4, for the percentage of public health expenditures in total health expenditures, it was found that the coefficient for the 1994 economic crisis was not statistically significant (p= 0.418). In contrast, the 2001 economic crisis had negatively (-0,667) and statistically significantly (p = 0.007) affected the public health expenditures. The effect of the 2009 economic crisis was positively (0.389) and statistically significant (p=0.030) on the public health expenditures. When the effects of economic crises on the share of private health expenditures in total health expenditures are examined, it is observed that the economic crises of 1994, 2001 and 2009 have a negative effect on the private health expenditures. However, only the effect of the 2009 economic crisis (-0.555) was statistically significant (p=0,000), while the others had no significant effect (p>0.05). When the effects of economic crises on the share of total health expenditures in GDP are examined, it is observed that the coefficients of the 1994, 2001 and 2009 economic crises were negative. However, the negative effects of the 2001 and 2009 economic crises were statistically significant (p= 0.000).

The results in Table 4 show that the economic crises of 1994, 2001 and 2009 did not significantly affect the number of physicians (p>0,05). On the other hand, it was found that the 1994 economic crisis significantly (p=0,045) negatively (-0,03) affected the number of other health personnel. But, the 2009 economic crisis had no significant effect on the number of other health personnel (p>0.05). For the total number of health personnel, it is observed that the economic crisis has no significant effect (p>0.05).

Although the coefficient of the 1994 crisis is negative and the coefficients of the 2001 and 2009 economic crises are positive, there are no significant effects of these crises on the number of inpatient health institutions (p>0,05). It is also detected that only the 2001 crisis had a significant effect on the total number of beds (p<0,05), although the coefficients of the 1994, 2001 and 2009 crises are negative.

3. Discussions

In this study, it was found that the percentage of public health expenditures in total health expenditures have reduced significantly in the 2001 economic crisis, while it increased in the 2009 economic crisis. It is argued that the reason of the negative effect of the 2001 economic crisis may have been due to people delaying the health care use. On the other hand, it is argued that the increase after the 2009 economic crisis may be directly related to political choice. This is because the policies play an important role in the increase or decrease of public health expenditures during crisis periods. Especially with the Health Transformation Program, the government has adopted making health services more accessible as one of its priority policy areas. As a result of the initiatives made in this context, the government introduced universal health insurance in 2006 in line with its policy of making health services more accessible, and this practice entered into force in 2008. The government's making health services more accessible may also be a factor in the increase in health expenditures, not being affected by the 2009 crisis.

This study shows that only the 2009 economic crisis significantly reduced the share of private health expenditures in total health spending, while the others have had no significant effect. It is evaluated that the private health expenditures may be influenced directly by the increasing number of people eligible for public health programs during crises.

For the share of total health expenditures in real GDP, it is possible to say that the 2001 and 2009 economic crises significantly reduced the total health expenditures. In the 2001 economic crisis, which is more severe in terms of the negative growth in real GDP, it is considered that political choice plays an important factor in the significant reduction of both public health expenditures and total health expenditures. On the other hand, for the 2009 economic crisis, the decline in private health spending may be the reason for decrease of the share of total health expenditures in real GDP.

The results of estimates show that the 1994, 2001 and 2009 economic crises had an increasing effect on the budget of the Ministry of Health, but only the 2001 economic crisis was significant. Therefore, it can be said that political preferences in times of economic crisis in Turkey actualized as increases in the budget to protect the public from potential adverse effects of economic crises.

In this study, it was found that the number of physicians has not been affected by the economic crises. Considering the fact that an examination of physician recruitment is usually not carried

out and physician recruitment is made according to the chart of personnel distribution in Turkey, and even taking into consideration the work carried out by the physicians from abroad, the number of physicians is considered to have developed independently from the economic crises in Turkey. On the other hand, it is evaluated that the significantly reducing effect of the 1994 economic crisis on the number of other health personnel reflects the political choice.

This study shows that the 1994, 2001 and 2009 economic crises have no significant effect on the number of inpatient health institutions. Construction of health institutions is a high capital investment. In this context, it is difficult for the economic crises to have significant decreasing effects on the number of inpatient health institutions unless they are very severe and long. From these results, it is possible to say that during the economic crisis in 2001, Turkey reduced the total number of beds. This result is thought to be because the 2001 economic crisis was relatively more severe than the others were.

4. Conclusions and Suggestions

The main aim of this study was to evaluate the impact of the economic crises on the health system in Turkey. In this context, the impact of the 1994, 2001 and 2009 economic crises on 9 indicators related to the health system in Turkey was investigated through the ARDL Cointegration approach.

As a result of the analyses made, in terms of the impacts of the economic crises on the health system in Turkey, it was found that the 1994 economic crisis affected 3 of the 9 indicators significantly ($p<0.05$) in a negative way, namely, total health expenditures, total number of health personnel, and total number of beds. In addition, the 1994 economic crisis was observed to not have had a significant positive effect on any variable ($p>0.05$). The 2001 economic crisis was found to have a significant negative effect on 3 out of 9 variables; public health expenditures, total health expenditures and total number of beds. On the other hand, it was found that the 2001 economic crisis affected only one variable significantly positive, which was the budget of the Ministry of Health. For the 2009 economic crisis, private and total health expenditures decreased significantly ($p<0,05$), while public health expenditures increased significantly ($p<0.05$).

It can be concluded from the results of this study that while private health expenditures generally decreased during the 1994, 2001 and 2009 economic crises in Turkey, public health expenditures increased during the 1994 and 2009 economic crises and decreased during the 2001 economic crisis. Therefore, it can be concluded that private health expenditures tend to

decrease during crisis periods. Furthermore, it can be said that political preference during the crisis period has been developed to increase the budget of the Ministry of Health in Turkey in order to protect public health from possible adverse effects of crisis.

This study shows that the results obtained here are positive for the number of physicians, but uncertain in terms of the number of other health personnel in case of an economic crisis in Turkey. For this reason, politicians need to give some importance to the employment of other health personnel. Since the health sector is a labor-intensive sector, it is going to be difficult to meet the increasing number of health service demands in terms of quality and quantity during the crisis period. In this case, crises are increasingly likely to have a negative impact on health. In the study, we conclude that economic crises will not have a decreasing effect on the number of inpatient health institutions and the number of beds unless they are very severe and long.

Conclusively, in this study, it has been found that economic crises have both negative and positive impacts on the health system in Turkey, and political choice plays an important factor in the impact of economic crisis on the health system. On the other hand, the positive effects of economic crises on the health system in Turkey should not be perceived as a positive phenomenon for economic crises. It should be emphasized that factors that enable economic crises to have a positive impact on the health system, how these factors are maintained at a time when the economy is good, and how to prevent the possible negative effects of economic growth periods on the health system are determined.

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