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Examining terrorism threat and police performance

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Abstract: The purpose of this paper is to examine the relationship between terrorism threat and police performance. Hierarchical multivariate linear modelling technique is used in this study. The units of analyses were provinces of Turkey (at level two) and years (at level one). The relationship between terrorism threat (operationalised as ideological incidents reported to the police) and police performance (operationalised as crime clearance rate) is assessed. Socio-economic development, population size, and the size of minority population are controlled. This paper concludes that there is a significant relationship between terrorism threat and police performance within the provinces of Turkey. However, this relationship is contextualised by the size of the minority population within the provinces. More specifically, as the size of the minority population increases, the negative effect of terrorism threat on police performance strengthens. Police performance is operationalised as crime clearance rates. Moreover, only the more serious crimes are included in the calculation of crime clearance rates. Other operationalisations of police performance might yield different results. The level of terrorism threat needs to be considered while assessing police performance.

Keywords: terrorism threat; police performance; crime clearance rate; public policy; Turkey.

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1 Introduction

The threat of terrorism has long been in the interest of the police to investigate. However, it has gained a more central role after the 9/11 attacks in New York and Washington, DC, USA. According to some scholars (Schaible and Sheffield, 2012; Oliver, 2006; Ratcliffe, 2008), the 9/11 attacks have totally changed policing in the USA, which had evolved through three eras: the political, professional, and community/problem solving eras (Kelling and Moore, 1988). The fourth era, which began with the 9/11 attacks, is the homeland security era (Oliver, 2006). Police organisations had different functions, social interactions, and structures in different eras. In the homeland security era, they became more proactive, authoritarian, and centralised. Quality of life and citizen satisfaction were the targeted outcomes during the community era. In the homeland security era, police orientation has turned to crime control, citizen safety, and anti-terrorism (Oliver, 2006).

It can be argued that terrorism threat (or its perception) in the homeland security era had an important influence on all these changes. It is likely that the increased level of terrorism threat has affected police organisations' performance as well as its functions, social interactions and structure. Scientific evidence indicates that the terrorism threat has an effect on police performance (Weisburd et al., 2010). If there is a relationship between police performance and terrorism threat, it is important to understand the extent of this relationship and the theoretical mechanism(s) that cause it for at least two reasons. First, police are accountable to the public which they serve and the states that employ them. Thus, the public and the governments constantly evaluate police performance. In order to make a fair evaluation, it is necessary to control for factors that are beyond the control of police, such as demographics (e.g., percent 16–25 years old males) or economic distress. Terrorism threat is one of these factors. Therefore, first of all it is important to know whether there is a relationship between terrorism threat and police performance, and the direction of this relationship.

Second, terrorism threat surely has an effect on policing process. It is argued that the 9/11 attacks drastically changed the policing in the USA (Schaible and Sheffield, 2012; Oliver, 2006; Ratcliffe, 2008). There are countries that have endured chronic levels of terrorism threat for decades such as Israel, the UK, or Spain. These countries likely have developed different policing strategies, or adaptations, than other countries. It is also likely that the effect of terrorism threat on police performance is indirect via such adaptations. For example, a higher level of intelligence sharing among local and federal police agencies is an adaptation that is caused by the increased level of terrorism threat after 9/11. If the higher level of intelligence sharing has improved police performance, then police performance can be further improved by understanding why and how such an effect has occurred. Therefore, it is important to understand the theoretical mechanism behind the relationship between terrorism threat and police performance.

In a recent study, Weisburd et al. (2010) examined the relationship between terrorism threat and police performance in Israel. They found that there was a relationship, but the

direction of this relationship depended on the social context. More specifically, they found that terrorism threat had a positive effect in communities with a higher proportion of Palestinian residents, and a negative effect in communities with a higher proportion of Israeli residents. The present study investigates the relationship between terrorism threat and police performance in Turkey. Similar to Weisburd et al. (2010), it operationalises police performance as crime clearance rates, and examines how the effect of terrorism threat varies by proportions of minorities across provinces.

Policing has never been an important research topic in Turkey. There are only a few studies on police performance (Karakus, 2017; Sahin, 2010), and the relationship between terrorism threat and police performance has never been studied in the Turkish context. Therefore, this research will be an important contribution to the literature and it will bring a different perspective to the debate.

The outline of the paper is as follows. In the next section, the relationship between terrorism threat and crime clearance rate is discussed. As mentioned above, crime clearance rate is the measure that is used to assess police performance in the present study. Other factors that are likely to be related to both terrorism threat and crime clearance rate are also discussed. In the third section, the data, measures, and the analytic strategy are presented. Then, results of the statistical analyses are presented and discussed. The final section presents the conclusion and the overall contribution of the study to the literature.

2 Terrorism threat and crime clearance rates

There may be a positive or a negative relationship between terrorism threat and crime clearance rates. Or, there may be both a positive and a negative relationship between terrorism threat and crime clearance rates at the same time depending on the social context. Terrorism threat may have a positive influence on crime clearance rates – that is, increases crime clearance rates – for the following reasons. First, in the case of higher level of terrorism threat, police increase their efforts and capabilities, and work extra hours to thwart the threat. They scrutinise local communities more extensively (Weisburd et al., 2010). They intercept communications and run criminal database searches more often (Herzog, 2003). By doing so, they are likely to find evidence that can be used to clear other crimes. Second, the level of intelligence sharing among different police agencies (local and federal) is expected to increase during high level of terrorism threat (Jiao and Rhea, 2007). This helps to increase crime clearance rates, because each one of the contributing police agencies now can use other agencies' databases, and thus the likelihood of finding incriminating evidence increases. Third, some scholars argue that police are expected to be better equipped (both personally and technically) to combat crime in the homeland security era (Oliver, 2006). Then, their capabilities to clear crimes are also expected to increase as the level of terrorism threat increases. For these three reasons, terrorism threat might increase crime clearance rates.

On the other hand, terrorism threat may also have a negative influence on crime clearance rates. First, policing is a zero-sum game in many respects. Police have limited resources, and they must prioritise between combatting terrorism and clearing ordinary crimes. Obviously, they are expected to prefer the former over the latter. Therefore, terrorism threat may decrease police performance (Hasisi et al., 2009; Weisburd et al., 2010). For example, between 2010 and 2014 in Diyarbakir province of Turkey the level

of terrorism threat was among the highest. There is a neighbouring province, Gaziantep, which is comparable to Diyarbakir in size and other socio-economic conditions. Diyarbakir and Gaziantep police departments had comparable police forces during these time periods (about 3,500 sworn officers). However, about 10% of the police personnel in Gaziantep Police Department worked in counter-terrorism units whereas more than 40% of the police personnel in Diyarbakir Police Department worked in counter-terrorism units. The level of crime clearance is expected to be lower in Diyarbakir than in Gaziantep for the simple fact that there were fewer police officers to work on solving ordinary crimes.

Second, police heavily rely on victims' and witnesses' testimonies, and on intelligence provided by local communities to solve crimes. Therefore, it is important for police to have good relationships with the communities that they serve. For that to happen, the community must see the police on their side. However, in the case of counter-terrorism, police sometimes see local communities as sources of terrorism and scrutinise these communities to find possible terrorism suspects (Thacher, 2005; Waxman, 2009; Bayley and Weisburd, 2009; Weisburd et al., 2010; Hasisi et al., 2009). This is more likely to occur if the local community is a minority group. For example, Thacher (2005) finds that police scrutiny of Muslim communities in Dearborn, Michigan had such an effect. Deterioration of police community relationships because of counter-terrorism measures may obstruct the flow of intelligence that is necessary to solve crimes, and thus have a negative effect on crime clearance rates.

In addition to these two opposing effects, terrorism threat may have both a positive and a negative effect on crime clearance rate depending on the social context. For instance, the increased level of terrorism threat may increase crime clearance rate in communities with higher percentages of minorities, and decrease it in the communities with lower percentages of minorities. In such a case, an interaction between terrorism threat and percentage of minorities in a community (i.e., the social context) is hypothesised. Weisburd et al. (2010) found such a relationship in their study. They found that terrorism threat had a negative effect on crime clearance rates in majority Jewish communities, and a positive effect in majority Arab communities. Their findings indicate that both of the arguments presented above might be true.

In this study, the effect of terrorism threat on crime clearance rates is studied in Turkey. Unlike in the USA, which has been threatened by terrorist attacks on the US soil only in the last couple of decades, terrorists have threatened Turkey, similar to the UK, Spain, and Israel, for several decades. The main source of terrorist attacks in Turkey in early 2000s (the study time period of this research) was the PKK (Onat, 2016; Akyuz and Armstrong, 2011). However, there are many other terrorist organisations, and the most well-known of them are the revolutionary people's party/front (DHKP/C), the Revolutionary Communist Union of Turkey (TIKB), Turkish Communist Party/Marxist Leninist (TKP/ML), Marxist Leninist Communist Party (MLKP), Al Qaida, the Turkish Hezbol-lah, and the Great Islamic Raiders/Front (IBDA/C).

The PKK is the main source of terrorism in Turkey. In a recent study, Onat (2016) found that the PKK conducted nearly 80% of terrorist attacks in Turkey. Therefore, it is necessary to discuss the PKK and its relevance to the present study in more detail. The PKK is regarded as a terrorist organisation by Turkey and the USA. It has been active in mainly the south eastern part of Turkey since the late 1970s (Criss, 1995). It has declared ceasefires several times, but has never laid down its weapons. According to Ergil (2000),

it has caused more than thirty thousand deaths in Turkey since its first deadly attack in 1984. Its broader goal is to liberate Kurds scattered in Turkey, Iran, Iraq, and Syria (Dahlman, 2002; Gergin et al., 2015).

Lafree and Dugan (2009) listed the PKK as one of the ten deadliest terrorist organisations of the world. However, Unal (2012, p.433) argues that the PKK, rather than being merely a terrorist organisation, can be considered as a guerrilla insurgency that uses terror and guerrilla tactics, because it has a large support from the Kurdish population in Turkey. This fact makes Weisburd et al. (2010) study more relevant to the present study. In Israel, the war on terrorism is fought against terrorists who have a large base of support from the Arab population. In Turkey, a similar war is fought against terrorists who have a large base of support among the Kurdish population. As stated above, terrorism threat may have both positive and negative relationship to crime clearance rates at the same time depending on the social context. Similar to the Israeli case, terrorism threat may have a positive effect in provinces with higher proportion of Kurds, and a negative effect in provinces with higher proportion of Turks in Turkey. However, considering that more police personnel are allotted to counter-terrorism units in majority Kurdish provinces, the opposite may also be true. Both possibilities are tested in the present study.

Terrorism threat is not the only factor that affects crime clearance rates; there are other factors such as type of crime or population size (Pare et al., 2007). At least two of them are related to both terrorism threat and crime clearance rates, and therefore they need to be controlled for as a third variable in the present study. First of them is the population size. Places with larger populations are likely to attract more terrorist attacks due to a larger number of available targets. Moreover, terrorist attacks in such places attract more media attention, disrupt more people's lives, and thus contribute more to terrorists' goals. Terrorists chose metropolises such as New York, London, or Istanbul for a reason. As former British President Margaret Thatcher once said that publicity is the oxygen of terrorism (Nacos, 2003). Large cities provide that oxygen better than smaller ones, and therefore they attract terroristic attacks more often. On the other hand, crime clearance rates are likely to be lower in places with large populations due to anonymity (e.g., Roberts, 2007; Litwin, 2004; Pare et al., 2007). In such places, police are less likely to know offenders and offenders' networks, and citizens are less likely to identify offenders when they witness a crime (Pare et al., 2007). Thus, crime clearance rates are expected to be lower in such places.

Second, socio-economic development is likely to be related to both terrorism threat and crime clearance rates. Places with higher levels of socio-economic development are likely to attract more terrorist attacks, again, due to a larger number of available targets. In such places, however, crime clearance rates are also likely to be higher, because police have more resources available for them, and there is a higher level of political pressure on them to solve crimes (Davies, 2007; Keel et al., 2009; Pare et al., 2007). In addition to these two factors, crime rates might also have an effect on crime clearance rates. Higher rates of crime (i.e., work overload) are likely to decrease crime clearance rates (Pare et al., 2007).

Based on the discussion above, it is hypothesised that there is a relationship between terrorism threat and crime clearance rates in provinces of Turkey, controlling for the number of crimes, population size, and the level of socio-economic development of the province. Moreover, similar to Weisburd et al. (2010), it is hypothesised that the relationship between terrorism threat and crime clearance rates varies depending on the proportion of Kurdish minorities in a province.

Before presenting the methods of the study, a note on the use of crime clearance rates as a measure of police performance is in order. Crime clearance rates has some advantages over other indicators of police performance such as, crime rates, fear of crime, or the public's satisfaction with the police services. The two most important of these advantages are the following. First, it is easier to operationalise crime clearance rates than, for example, fear of crime or satisfaction with the police services. Second, data on crime clearance rate is more readily available than other indicators of police performance; most (if not all) police agencies record crimes that occur in their jurisdictions, and close them once they solve these crimes. However, some scholars have criticised the use of crime clearance rates as a measure of police performance (Bayley, 1993; Brodeur, 1998; Hoover, 1996; Petersilia et al., 1990). The main point of criticism is that crime clearance is defined differently across jurisdictions. However, this is not a problem in the Turkish context, because Turkey has a unified police agency, and all police departments define crime clearance the same. Thus, using crime clearance as a measure of police performance in Turkey is a defensible strategy.

3 Methods

In this section, the data, variables, and the analyses that are used for the study are discussed.

3.1 Data

The data for this study come from four different sources. The first of these sources is the Province Inventory Modernisation Project (ILEMOD, 2007). The ILEMOD was a data management project of the Ministry of the Interior of the Turkish Republic. Statistics on various inventories pertaining to Turkey – including administrative, social, and economic inventories – were stored in this project. These statistics were publicly available online at <https://www.ilemod.gov.tr> and data from the ILEMOD have been used in previous scientific research (e.g., Tanik et al., n.d.; Sisman and Sesli, 2009; Ambarli and Bilgin, 2014). The data that are used for the present study were retrieved from <https://www.ilemod.gov.tr> in 2008. These data were used to measure terrorism threat and crime clearance rates.

Second, data on socio-economic development levels of provinces were obtained from the Turkish State Planning Organization's (SPO) 1996, 2003, and 2011 reports. The 1996 and 2003 reports were publicly available on the SPO's website. These reports included socio-economic development indices of the provinces calculated by the SPO. The 2011 report was not publicly available; only a brief note was available for this report. This note contained a list of provinces ordered by their level of socio-economic development.

Third, population sizes of provinces were obtained from the Turkish Statistical Institute. Last, the vote percentages for the democratic people's party (DEHAP) in the general elections in 2002 in each province were retrieved from <http://arsiv.ntvmsnbc.com>. The DEHAP is the main Kurdish political party in Turkey. The data obtained from these sources were used to create the measures that are discussed (see in Section 3.3).

3.2 *Analytic strategy*

Turkey is a transcontinental country in Eurasia with a small part in the European Continent and the largest portion in Western Asia. It has a population of about 80 million. It is a republic with a centralised administrative system. It has 81 provinces, and the central government assigns the provincial governors. Each province has its own police department. However, unlike the USA and some other Western countries, these departments are not separate entities; they are parts of the centralised Turkish National Police (TNP). Thus, heads of police departments are responsible to both provincial governors (in provinces) and to the General Director of the TNP (in capital, Ankara). The TNP is not the only law enforcement agency; there is also the Turkish Gendarmerie General Command (TGGC). While the TNP has jurisdiction over urban areas, the TGGC has jurisdiction over rural areas. Policing, for the most part, is done by the TNP. Therefore, we limit our study to the TNP.

Data on terrorism threat and crime clearance rates were retrieved from the ILEMOD Project. The ILEMOD Project included crime statistics from 1985 to 2008 (inclusive). These statistics were reported in aggregated form at the province level (i.e., yearly totals for each province). Since data from the other sources were available for 1990, 1996, 2002, 2003, and 2011, crime statistics for only 1991 to 2008 from the ILEMOD Project were used. A total of 1,423 province years were available for analysis from 1991 to 2008¹ (i.e., 18 years across 81 provinces).

The ILEMOD data did not have any indicator of missing values. Therefore, it was not possible to know whether a case was really missing or the datum was not entered because its value was zero. Fortunately, examination of missing cases in the ILEMOD data showed that provinces were missing data at random except for some smaller provinces – percentage of missing cases was relatively higher for smaller provinces. For example, the number of terror incidents was missing for five years for Gumushane, which is a relatively small province. The median number of terror incidents per year in Gumushane was two. It is highly probable that there was not any terror incident in Gumushane in these five years, but there was not a way to know that this was the case. Nevertheless, this study opted to exclude province years with missing data from further analyses.

The form of data on the dependent variable (i.e., crime clearance rates) and the main independent variable (i.e., terrorism threat) are cross-sectional time-series (Jang et al., 2008). At least two options are available to analyze such data. First, it is possible to use a two-way fixed effects regression model to control for heterogeneity among provinces (Keel et al., 2009) (using province dummies) and for the serial autocorrelation (using time dummies) (Jang et al., 2008). Second, it is possible to use the hierarchical multivariate linear modelling (HMLM) technique (Jang et al., 2008; Raudenbush et al., 2004). In the HMLM technique, multiple observations of crime clearance rates and terrorism threat can be considered as cases nested within provinces. Thus, it is possible to examine the within-province effect of terrorism threat on crime clearance rate. It is easier to examine cross-level interactions between variables at two different levels of analyses using the HMLM technique. Since this study is interested in examining the effect of such an inter-action (see below), it utilises the HMLM technique rather than the two-way fixed effects regression. The levels of analyses consist of years at level one and provinces at level two.

The dependent variable of the present study is crime clearance rate. The main independent variable is terrorism threat. There are two control variables at level one. These are number of crimes and the previous year's crime clearance rate. There are three control variables at level two. These are two (dummy) measures of socio-economic development, logged population size, and percentage of votes cast for DEHAP in the general elections in 2002.

3.3 Measures

In the ILEMOD Project, crime statistics are presented in aggregated form (i.e., yearly totals) in various groupings. A group of crimes is presented under the heading 'crimes against the public order'. These include homicide, rape, robbery, illegal possession of firearms, bank robbery, arson, kidnapping, assault against police, and assault against residence. For this group of crimes, the numbers of incidents, cleared incidents, arrested suspects, and non-arrested suspects are presented. A second group of crimes is presented under the heading "the other crimes that the police should deal with." These include theft of farm animals, other thefts, auto thefts, swindling, and assault. For this group of crimes, only the numbers of incidents and arrested suspects are reported. A third group of crimes are presented under the heading "the ideological crimes that the police should deal with." These include assaults, clashes, bombings, and demonstrations. For this group of crimes, numbers of incidents, deaths, injuries, injured persons, and arrested suspects are reported. The counter-terrorism units of the TNP deal with crimes in this group.

3.3.1 Crime clearance rate

It was possible to construct a crime clearance rate variable using data only on crimes presented under the heading 'crimes against the public order' in the ILEMOD Project, because the numbers of cleared incidents were reported for only these crimes. The numbers of cleared incidents were not reported for "the other crimes that the police should deal with." Therefore, only the crimes under the former heading were included in the analyses. For the present study, crime clearance rate was defined as the number of crimes with a known suspects divided by the total number of crimes.

3.3.2 Terrorism threat

The terrorism threat variable was created by using the data under "the ideological crimes that the police should deal with" in the ILEMOD Project. Types of crimes under this heading were not defined in the ILEMOD Project. Therefore, it was a weak measure of terrorism threat. Nevertheless, all incidents in this group are incidents that were dealt by counter-terrorism units of the TNP. The terrorism threat variable was created in three steps. First, the rates of clashes, assaults, deaths, injured persons, and arrested suspects were calculated. Second, in order to deal with skewness of the data, these rates were logged. Third, the logged rates were factor analysed, and factor scores (principle components) were saved as the terrorism threat variable. Factor loadings of the variables ranged from 0.68 to 0.89 (Cronbach's alpha = 0.86).

3.3.3 *Socio-economic development*

The measures of crime clearance rate and terrorism threat were available for a time-span of 18 years (i.e., from 1991 to 2008). The SPO published three reports on socio-economic development around 1996, 2003, and 2011. However, only one value can be assigned as an indicator of socio-economic development for each province in level two in HMLM. Therefore, two dummy variables were created using the SPO reports as follows.

First, the socio-economic development indices of provinces in the 1996 and 2003 reports were converted to ordered measures. Thus, there was the socio-economic development order of provinces in 1996, 2003, and 2011. Then, more restricted orders of socio-economic development were created via recoding these measures into three categories:

- 1 least developed
- 2 somewhat developed
- 3 most developed.

Finally, two dummy variables:

- 1 'always among the least developed'
- 2 'always among the most developed' were created.

Provinces which were among the least developed category in all three of the reports ($n = 18$) had a value of 1 for 'among the least developed' variable; and provinces which were among the most developed category in all three of the reports ($n = 16$) had a value of 1 for 'among the most developed' category. For each dummy variable, the other provinces had a value of 0.

3.3.4 *Population size*

The population sizes of provinces were retrieved from the Turkish Statistics Institute's website online for the 1990 and 2000 censuses. The population sizes in these two censuses were highly correlated with each other ($r = 0.98$). Again, since only one value can be assigned for each province at level two, and the 2000 census was closer to the midpoint of the data on crime clearance rates, the population size measure from the 2000 census was used. The distribution of population sizes of provinces was highly skewed. Therefore, this variable was logged.

3.3.5 *Percentage of votes cast for DEHAP*

This variable consisted of the percentage of votes cast for DEHAP in the general elections in 2002 in each province. The number of votes cast for DEHAP was divided with the total number of valid votes. Note that this variable was a proxy measure of the Kurdish population who were likely to sympathise with the PKK's goal in each province. An alternative would be to use the proportion of Kurds in each province. However, the measure that was used for the present study is superior to that alternative, because not all Kurds sympathise with the PKK's cause. Those who voted for the DEHAP are more likely to do so.

4 Analyses and results

The data were analysed by means of descriptive statistics, bivariate correlations, and hierarchical multilevel regression analyses. The results are presented in Tables 1 to 3. Descriptive statistics are presented in Table 1.

Table 1 Descriptive statistics

	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Crime clearance rate	0.85	0.13	0.20	1.00
Terrorism threat	0.00	1.00	-3.22	4.67
Number of crimes	158	395	0	5,605
Urban population	543,287	1,101,175	39,725	9,085,599
Always among the least developed provinces	0.22	0.42	0	1
Always among the most developed provinces	0.20	0.40	0	1
% votes cast for DEHAP	8.90	13.90	1.00	56.00

Table 1 shows that, at level one, crime clearance rates vary from a low of 0.2 to 1, with a mean of 0.85. Note that the mean value of this variable is rather high, and its distribution is skewed to the left. This is normal, because ‘crimes against the public order’ in the ILEMOD Project include homicide, rape, robbery, and illegal possession of firearms, and clearance rates for these crimes are high in general. Most studies on crime clearance rates include both ‘crimes against the public order’ and “the other crimes that the police should deal with.” Therefore, mean crime clearance rate in most studies is lower than the mean crime clearance rate in the present study (e.g., Weisburd et al., 2010). Since it is a factor score, terrorism threat has a mean of 0 and a standard deviation of 1. There is substantial variation on this variable. The lowest value is three standard deviations below the mean, and the highest value is four standard deviations above the mean. The number of crimes has a skewed distribution, with a minimum of 0 and a maximum of 5,605. The mean number of crimes is 158, and its standard deviation is two and a half times its mean.

Table 1 shows that, at level two, urban population has a skewed distribution. Its standard deviation is two times its mean. This variable was logged in the multivariate analyses. Twenty percent of the provinces ($n = 16$) ranked in the highest level of socio-economic development and 22% of the provinces ($n = 18$) ranked in the lowest level of socio-economic development from 1996 to 2011. The other provinces (58%, $n = 47$) moved up and down on the three categories of socio-economic development. Lastly, percentage of votes cast for the DEHAP in the general elections in 2002 has a skewed distribution with a mean of 8.9 and a standard deviation of 13.9. The percentage of votes cast for the DEHAP range from almost none to 56%.

Next, bivariate correlations among the variables were examined. These are presented in Table 2. There are two panes in Table 2. Correlations among the variables at level one are presented in the upper panel, and correlations among the variables at level two are presented in the lower panel. All coefficients above 0.07 in Table 2 are statistically significant. Table 2 shows that crime clearance rate has a negative correlation with terrorism threat. As it is expected, crime clearance rate is positively correlated with the previous year’s crime clearance rate. Terrorism threat has negative correlations with number of crimes, crime clearance rate, and the previous year’s crime clearance rate. At

level one, bivariate correlations among the variables are not large, except the correlation between crime clearance rate and the previous year's crime clearance rate. Therefore, collinearity is not a concern at level one.

Table 2 Bivariate correlations

		<i>X1</i>	<i>X2</i>	<i>X3</i>		
Number of crimes	X1					
Crime clearance rate	X2	-0.20				
Crime clearance rate (<i>t</i> - 1)	X3	-0.17	0.50			
Terrorism threat	X4	-0.12	-0.29	-0.26		
		<i>X5</i>	<i>X6</i>	<i>X7</i>	<i>X8</i>	
Socioeconomic Development (1996)	X5					
Socioeconomic Development (2003)	X6	0.69				
Socioeconomic Development (2011)	X7	0.60	0.87			
Population	X8	0.32	0.23	0.16		
% of votes cast for DEHAP	X9	-0.57	-0.40	-0.50	-0.07	

Note: Ital: $p > 0.05$.

The lower panel of Table 2 shows correlations among the variables at level two. It shows that the levels of socio-economic development of provinces in 1996, 2003, and 2011 are highly correlated with each other. These correlations are substantive. They indicate that the levels of socio-economic development in provinces are relatively stable over time. Thus, the use of only one measure for the socio-economic development for the entire time-span of the data is warranted. The two dummy measures were created as discussed above. Table 2 also shows that socio-economic development is positively correlated with population size and negatively correlated with the percentage of votes cast for the DEHAP in the general elections in 2002, indicating that more votes are cast for the DEHAP in less developed provinces.

Lastly, the data were analyzed in five steps using the HMLM technique. The results are presented in Table 3. Fixed effects (i.e., unstandardised coefficients and *t* values) are in the upper panel and random effects (i.e., variance components and reliability estimates) are in the lower panel of Table 3. There are five models in Table 3. The first model is an unconditional model with no independent variables. The variance component for level one intercepts (i.e., 0.004) is statistically significant. This means crime clearance rates vary across provinces. Reliability estimate for level one intercepts is high (i.e., 0.81).

In Model 2, two independent variables were introduced at level one: number of crimes and the previous year's crime clearance rate. Number of crimes has a negative effect on crime clearance rates. As it is expected, the previous year's crime clearance rate has a positive effect. The error term at level one (i.e., r) reduced from 0.014 in Model 1 to 0.012 in Model 2. Using the sizes of these error terms, we calculated a pseudo R^2 measure using the formula $(r_{\text{model 1}} - r_{\text{model 2}})/r_{\text{model 1}}$. It is 0.15. That is, 15% of the variance on crime clearance rates is explained by these two variables. Reliability estimate for level one intercepts is high (i.e., 0.81) in the second model, as well.

Table 3 Hierarchical multivariate linear regression analyses

Fixed effects	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	t	b	t	b	t	b	t	b	t
Intercept	0.85	106.5	0.86	107.9	0.86	107.6	1.29	12.53	1.28	12.12
Always among the least developed							-0.07	-3.30	-0.08	-3.41
Always among the most developed							0.01	0.62	0.01	0.78
Population size (logged)							-0.03	-4.01	-0.03	-3.82
Number of crimes			-0.00	-3.04	-0.00	-3.56	-0.00	-3.48	-0.00	-3.44
Crime clearance rates (t-1)			0.28	6.08	0.20	4.20	0.20	4.23	0.20	4.00
Terrorism threat (base)					-0.02	-2.44			-0.01	-1.29
% votes cast for DEHAP									-0.09	-2.10
Random effects		Variance		Reliability						
u0		0.004		0.81		0.004		0.84		0.003
u1						0.001		0.36		0.001
R		0.014		0.012		0.010		0.010		0.010

Notes: Regression equations:
 Level-one: $[\text{clearance rate}]_{ij} = \beta_{0j} + \beta_{1j} [\text{n of crimes}]_{ij} + \beta_{2j} [\text{clearance rate (t-1)}]_{ij} + \beta_{3j} [\text{terrorism threat}]_{ij} + r_{ij}$
 Level-two: $\beta_{0j} = \theta_0 + \theta_{01} [\text{always among the least developed}]_j + \theta_{02} [\text{always among the least developed}]_j + \theta_{03} [\text{population size}]_j$
 $+ u_0$, $\beta_{1j} = \theta_1 + \theta_{11} [\text{\% votes cast for DEHAP}]_j + u_1$
 i = level-one id, j = level-two id.

In Model 3, the main independent variable (i.e., terrorism threat) was introduced as a random coefficient. Table 3 shows that terrorism threat has a negative effect on crime clearance rates. The pseudo R² that was calculated using the formula above showed that the third model explains 25% of the variance on crime clearance rates. That is, introducing terrorism threat accounted for 10% increase on the explained variance from Model 2 to Model 3. The random component of the effect of terrorism threat is significant. This means, the effect of terrorism threat varies across provinces. However, the reliability estimate of the effects of terrorism threat is rather low (i.e., 0.36).

In Model 4, three independent variables were introduced at level two. These were

- 1 “always among the least developed provinces” dummy
- 2 “always among the most developed provinces” dummy
- 3 population size (logged).

Table 3 shows that crime clearance rates in provinces that remained in ‘the least developed provinces’ for all three of the SPO reports were significantly lower than crime clearance rates in the other provinces. It also shows that population size has a negative effect on crime clearance rates. A pseudo R² value was calculated using the formula: $(u_{0\text{model } 1} - u_{0\text{model } 4})/u_{0\text{model } 1}$. It is 0.34. That is, 34% of the variance at level two is explained by these three variables.

In the final model, a cross-level interaction term--% of votes cast for the DEHAP in the general elections in 2002 – was introduced. Table 3 shows that this variable has a negative effect on crime clearance rates. Introducing the cross-level interaction term made the effect of terrorism threat non-significant. This means, the mean effect of terrorism threat on crime clearance rate is not statistically different from zero. Nevertheless, terrorism threat has a negative effect in provinces in which the percentage of votes cast for the DEHAP was higher in the general elections in 2002. The pseudo R² calculated using the formula above indicates that 23% of the variance with respect to the effect of terrorism threat on crime clearance rate is accounted for by the percentage of votes cast for the DEHAP.

5 Discussion and conclusions

At the outset, it was argued that terrorism threat might have an effect on crime clearance rates. However, the direction of this effect was not predicted. Furthermore, it was argued that its direction might vary depending on the social context. Indeed, in a prior study, Weisburd et al. (2010) found that terrorism threat has an effect on crime clearance rates. But this effect varies depending on the social context. This hypothesis was tested using data from Turkey.

It was argued that there are other factors that might be related to crime clearance rates, and it was necessary to control for their effects. Two of these factors are population size and socio-economic development. A time-series cross-sectional data structure was available. Therefore, it was also necessary to control for the previous year’s crime clearance rate. Lastly, it was argued that number of crimes, as an indicator of workload, might also have an effect on crime clearance rates. Therefore, crime rates of the provinces were also controlled.

In the end, it was found that terrorism threat has a negative effect on crime clearance rates. But this effect depends on the percentage votes cast for the DEHAP in the general elections in 2002, which is an indicator of the percentage of Kurds who have favourable attitudes about the PKK. In fact, it was found that the mean effect of terrorism threat on crime clearance rate is not statistically different from zero. However, it is negative in provinces with higher percentages of votes cast for the DEHAP, or the Kurdish minority population. Moreover, as expected, it was found that population size has a negative and socio-economic development has a positive effect on crime clearance rates. What do these mean for the theory?

The findings of this study identified that terrorism threat has a negative effect on crime clearance rates. Terrorism threat is also an indicator of the level of counter-terrorism measures. In provinces with higher levels of terrorism threat, counter-terrorism activities are likely to be higher, as well. These activities include surveillance tactics, interrogations, database searches, and so on, and might serve to alienate the local communities. If so, local communities will be less willing to cooperate with the police. Then, the police cannot solve crimes, and crime clearance rates decrease. Thus, terrorism threat has a negative effect on crime clearance rates.

Nonetheless, why does the effect of terrorism threat interact with the percentage of minority population? This study shows that in provinces with higher percentages of minorities, terrorism threat has a more detrimental effect on crime clearance rates. If the mechanism just discussed above is in effect, then the police alienate the communities in provinces with higher percentage of minorities more. Therefore, terrorism threat has a more negative effect in these provinces. For the other provinces, terrorism threat has a less negative effect. The other mechanism might be in effect for these provinces. That is, in these provinces, the extra efforts of the police to combat terrorism might also help solve the other crimes as well.

This study has several limitations. First, the dependent variable – i.e., crime clearance rate – involves only more serious crimes. In addition, all types of clearances, both cleared by arrest and cleared by exception, are included. Crime clearance rates are expected to be high for more serious crimes. Therefore, the variance of the dependent variable is also low.

Second, the situation in Turkey has changed a lot since the start of the study. A civil war has started in its southern neighbour, Syria, and more than two million refugees have migrated to Turkey. Many Syrian refugees have relationships to Kurds in Turkey. Many ISIS terrorists are also likely to have migrated to Turkey and from Turkey to Europe during the civil war. Moreover, a military coup attempt happened in Turkey in July 2016 and the country is under a state of emergency rule since the coup attempt. All these factors might have affected the relationships that are found in this study. Unfortunately, there is no data available to do the same study using contemporary data from Turkey.

Third, the type of terrorism – for example, left-wing, right-wing, separatists/ethno-nationalist, or sacred/religious – may be related to how police respond to threat of terrorism, and thus may moderate the relationship between terrorism threat and crime clearance rates. However, terrorism incidents in Turkey are overwhelmingly associated with the PKK (i.e., separatist/ethno-nationalist) terrorism. In addition, the data that were used for the study were aggregate level numbers, and they were not broken-down by types of terrorism. Therefore, it was not possible to examine such a moderating effect in the study.

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Notes

- 1 81 provinces multiplied by 18 years (i.e., 1991 to 2008) makes 1458 province years. However, there were only 67 provinces until 1989 – 14 more provinces were added between 1989 and 1999. Therefore, only 1,423 province years are available for analysis from 1991 to 2008.