ARTICLE

CCTV and Crime Prevention Effectiveness: Experience of Hungary

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Abstract. This article examines the influence of CCTV on the realization of the person`s intention to commit a crime. The authors present the results of their own research which was conducted among Hungarian prison population (172 respondents) using a questionnaire method. The questionnaires were of a survey-type with a closed set of questions. The research sought to determine how offenders relate to CCTV, its role in crime prevention, and whether any differences in attitudes towards CCTV can be observed in terms of age and time spent in prison. In the course of the research, it was found that a significant negative correlation can be found between the time spent in a penitentiary institution and the fear of CCTV among those who spent more time

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in prison. Furthermore, it was also determined that the deterrent power of cameras is comparable to that of uniformed police officers. Research showed that CCTV's effectiveness depends on factors such as camera placement, real-time monitoring, and integration with police patrols. While studies confirm reductions in certain crime types – particularly property crime and offenses in urban areas – other findings suggest CCTV primarily displaces crime geographically rather than preventing it. Offenders perceive cameras as deterrents in visible, well-monitored spaces, but this effect diminishes with sporadic deployment or inadequate implementation. This finding has significant criminological and national economic significance.

Keywords: safety; cameras; security; closed circuit television; video surveillance; predictive control; public transport; crime prevention; policing.

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Introduction

CCTV can prevent crime by making a significant contribution to the detection of potential perpetrators by the authorities. Besides, CCTV can encourage potential victims to take safety precautions, also potentially deter police and security personnel from committing crimes.[1] CCTV is playing an increasingly important role in crime prevention and detection both in Hungary and in other countries worldwide. It is characteristic of their development speed that in 4-5 years, we can talk about a change of generation for certain camera types, their technical development is so fast. The question may arise as to whether technological development is followed by scientific surveys examining camera use. Unfortunately, we find that the number of law enforcement publications related to camera use in Hungary is negligible.

[1] Armitage, R., Smyth, G., & Pease, K. (1999). Burnley CCTV evaluation. In K. Painter & N. Tilley (Eds), *Surveillance of public space: CCTV, street lighting and crime prevention* (pp. 226–227). Criminal Justice Press.

However, the number of foreign sources is also quite small if we compare it with the number of studies presenting technical development.[2]

It is no exaggeration to say that the use of CCTV in larger numbers is essential for the efficient operation of the police. In many areas, the increasing cost of human labor means surveillance cameras can not only replace but, in many cases, more effectively perform the work of human personnel.[3] Many studies have that cameras significantly increase the population's sense of subjective security, which is also an important factor.[4] Ethically and professionally impeccable work also contributes greatly to law enforcement's efficiency, which is one of the means of (internal) control of the operation of space surveillance and other camera systems. The present study is the second step in a series of research. First, Gyula Csege and Szabolcs Mátyás conducted a population-based questionnaire survey to determine how the "average" citizen relates to CCTV. In the course of the research, it was established, among other things, that the role of CCTV in increasing the subjective sense of security has increasingly significant potential among the population.[5]

In the present research, a questionnaire survey conduct among the Hungarian prison population. The primary aim was to determine the persons convicted of the crime about the crime surveillance camera and their crime prevention effect.

Before the start of the research, several research questions and hypotheses set up. The authors hypothesized that age, education, marital status, and time spent in a penitentiary institution affect CCTV' attitudes.

1. The Legal Background to the Use of CCTV

In recent years, CCTV proliferation has increased, mainly to prevent crimes in public places. According to some, e.g., the UK is already at the level where it can be declared an effective "supervisory society" because it monitors citizens' lives and activities to such an extent.[6] It is estimated that the number of public CCTV cameras in the UK is

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[2] Csege, G., & Mátyás, S. (2018). Térfigyelő rendszerek hazai szabályozása empirikus kutatások és a biztonsági kihívások tükrében. *Jog Állam Politika: Jog-és politikatudományi folyóirat, 3*, 163–172.

[3] Sallai, J., et al. (2016). A „jó rendészet" közpolitikai kapcsolódási lehetőségei. In K. Tamás (Ed.), *A jó állam nagyító alatt: speciális jelentések A-tól V-ig (az adóbürokráciától a versenyképességig)* (p. 89). Dialóg Campus Kiadó. (In Hungarian); Horgos, L., et al. (2018). The importance of data compilation in criminalistics. *Journal of the National University "Ostroh Academy". Series "Law", 1*(17), 3. (In Ukranian).

[4] Dávid, L., et al. (2007). Biztonság, terrorizmus, turizmus. *Gazdálkodás, 51* (különkiadás), 161–166. (In Hungarian); Mátyás, S. (2015). Szubjektív biztonságérzet – lakossági vélemény a közbiztonságról és a rendőrségről. *Magyar Rendészet, 5*, 159–170. (In Hungarian).

[5] Csege & Mátyás, 2018.

[6] Goold, B.J. (2004). *CCTV and policing: Public area surveillance and police practices in Britain*. Oxford University Press; Norris, C. (2007). The intensification and bifurcation of surveillance in British criminal justice policy. *European Journal on Criminal Policy and Research, 13*, 139–158; Norris, C., & Armstrong, G. (1999). *The maximum surveillance society: The rise of CCTV*. Berg.

4.2 million, or one for every 14 citizens,[7] accounting for nearly one-fifth of all CCTV cameras worldwide. The legal regulation of public space surveillance is at the crossroads of two social interests. Therefore, it is the respective state's primary responsibility to strike a balance in home affairs policy between security and the interests of the private sphere. The more extensive the legal possibility of space surveillance, the greater the public safety potential in applying this tool. Simultaneously, the integrity of the individual against the state's need to know decreases in direct proportion; that is the possibility of protecting personal data against the state decreases. The balance between these two interests is the (self-) restriction of use and the guarantee standards of data protection systems. The latter aspects have come to the fore extraordinarily, with technological development and globalization allowing unprecedented levels of data collection. Accordingly, both EU and national legislation impose strict rules on the processing of personal data, including, of course, the operation of surveillance systems. There is no doubt that CCTV deployment in public places such as city centers, public housing estates, and transport facilities provokes greater resistance to restrictions on privacy and other civil liberties and promises major social disadvantages. Including the increasing impact of a police state-minded society and social exclusion of the marginalized population.[8]

The European Union's general data protection regulation states that the right to the protection personal data is not absolute; it must be considered in accordance with the principle of proportionality, taking into account its role in society and balancing it with, in balance with other fundamental rights. Due to the specific legal nature of the separate EU law enforcement data protection directive, it requires the Member States to take steps to harmonize their legislation in order to achieve the set goals. Therefore, it is important to examine harmonization of internal and EU law, given the lack of direct effect and applicability of the latter.

Since 2004, the Hungarian data protection regulations have specifically included taking photographs, sound, or images as data management. If based on the location or technical properties of the device, natural persons cannot be identified in the recorded image, and this is not technologically possible (e.g., by enlarging a portion of the recording). Then the observation or recording is not covered by the Data Protection Act. This might include low-resolution webcams mounted on main squares, which monitor highways and junctions in traffic policing, so in this case, it is not regulate how long such recordings can be store; in what form each type can be used.

Act CXII of 2011 concerns the right to information self-determination and freedom of information. According to the provisions of this Act, given that the current legislation only allows a minimal number of people to monitor public space. The legal

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[7] Norris, C., & McCahill, M. (2006). CCTV: Beyond penal modernism? *British Journal of Criminology, 46*, 97–118.

[8] Clarke, R.V. (2000). Situational prevention, criminology, and social values. In A. von Hirsch, D. Garland & A. Wakefield (Eds.), *Ethical and social perspectives on situational crime prevention* (pp. 97–112). Hart.

basis for data processing related to CCTV is, in all cases, mandatory data processing based on legal authorization and not the data subject's consent.

According to Cornish and Clarke's classification of situational crime prevention, CCTV is a "surveillance by official agencies" technique.[9] In this regard, CCTV is improving upon or replacing security personnel. The Hungarian legislature allows camera surveillance of public areas for two types of bodies: one is the police, and the other is public area inspectorates operating within the municipal police framework. These rules determine the purpose for which the images are taken, the areas in which the images are used, the storage time, and the data management organization. A person employed by a municipal body or company, or employed by an external company, may not be involved in the surveillance of the camera images, nor may an external company be employed for this purpose. As EU law entitles law enforcement agencies and other authorities to monitor public spaces, the Hungarian solution is sufficiently aligned with EU law. The only critical point may be that civilian guards can also carry out surveillance using municipal police or the police cameras; that is, thet may act as civilian helpers of the police. As a non-governmental organization, citizenship cannot operate a public space surveillance system on its own under EU law. Therefore, the Hungarian legislator chose the solution that a civil guard can only observe live recordings; they cannot handle the recordings themselves. Accordingly, they perform data processing, not data management. It's as if the cameras are the remote eyes of the civil guards.

One of the important principles of regulation is the transparency. Accordingly, the surveillance of public spaces can only be perceived as legitimate by others, using cameras that indicate spatial surveillance. Hidden or camouflaged devices cannot be used for this purpose. In areas monitored by cameras, a notice informing individuals of the surveillance must be published. Furthermore, the locations where the cameras have been installed must be posted on the organization's website operating the space surveillance system (municipality or police). The purpose of this transparency is to ensure that a person entering the area is aware that they may be photographed and can make an informed decision about whether or not to enter that area. Although, with the increasing proliferation of cameras, it is becoming increasingly difficult to avoid surveillance. More important to this research is that public observation provides an opportunity for a person in the observed area to decide to commit or abstain from a particular behavior.

Purposefulness is also of fundamental importance. In this sense, camera installation should be a means to an end. Cameras should be only placed where a genuine public security interest justifies it. In many cases, police camera systems are operated and financed by the municipalities. Therefore, it is natural that the municipality's needs also arise, and these needs may not always align with genuine public safety needs.

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[9] Cornish, D.B., & Clarke, R.V. (2003). Opportunities, precipitators and criminal decisions: A reply to Wortley's critique of situational crime prevention. In M.J. Smith & D.B. Cornish (Eds.), *Theory for practice in situational crime prevention* (pp. 41–96). Criminal Justice Press.

On the other hand, it is common for residents to request cameras be placed in locations where they offer little benefit to objective public security interests and their subjective sense of security. At the same time, if public safety interpreted sufficiently broadly, the latter interest can also be considered part of the field of public safety.[10] The purpose limitation also applies during data management, as the recordings can only be used in criminal, infringement, or administrative proceedings specified by law.

2. CCTV and Crime Prevention

International research on CCTV primarily examines its effectiveness of CCTV based on the application's purpose and location.[11] It should be noted that despite the creation of police forces at the supranational level (Interpol, Europol), bi- and multilateral cooperation between individual countries remains limited, with "each country using only its own countermeasures to combat traditional and high-tech crime."[12] Unfortunately, little research has analyzed the deployment of CCTV from the offender's perspective, considering the psychological processes and moral roots it triggers.[13] The use of CCTV focuses primarily on crime prevention, reducing criminal opportunities, and increasing the perceived risk of crime by modifying the physical environment.[14] Situational crime prevention is rooted mainly in the rational choice perspective, which views crime as "purposeful behavior to meet the everyday needs of the perpetrator."[15] As a result, an important consideration is how potential perpetrators perceive the risk of being caught if they detect the deployed cameras before or during the formation of their intent to commit an offense. The fact that potential perpetrators consider whether cameras are detected is evident from the fact that when passive and real-time surveillance, and multilateral intervention systems are deployed, significantly more effective crime prevention can be achieved.[16] Video surveillance effectively reduces crime when cameras monitor in real-time and on-duty police patrols are kept

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[10] Tihanyi, M. (2017). Közrend, közbiztonság, rendészet a keresztény közgondolkodásban. In *Államtudományi Műhelytanulmányok*. (In Hungarian).

[11] Krasnova, K. (2024). Using CCTV for law enforcement operations and public safety. *Criminal Geographical Journal, 1-2*, 9–14.

[12] Dmitrieva, A., Alshdaifat, Sh., & Pastukhov, P. (2023). The Features of the Use of Information Technologies in Criminal Proceedings in the BRICS Countries. *BRICS Law Journal, 10*(1), 88–108.

[13] Tihanyi, M., Vári, V. & Krasnova, K.A. (2024). Ethics of Sin and Punishment. *Kutafin Law Review, 11*(4), 741–760.

[14] Clarke, R.V. (1995). Situational crime prevention: Its theoretical basis and practical scope. In M. Tonry & N. Morris (Eds.), *Crime and justice: A review of research. Vol. 4* (p. 225–255). University of Chicago Press; Krasnova, 2024.

[15] Clarke, R.V. (1997). Introduction. In R.V. Clarke (Ed.), *Situational crime prevention: Successful case studies* (2nd ed.) (pp. 9–10). Harrow and Heston.

[16] Piza, E., et al. (2019). CCTV surveillance for crime prevention: A 40-year systematic review with meta analysis. *Criminology & Public Policy, 18*, 135–159.

informed.[17] Consequently, the deployment and use of CCTV can be more rationally considered in its design and implementation. Of particular note is the continuing need to focus CCTV on vehicle and property crime rather than as a "stand-alone" crime prevention measure. Scientists view CCTV's primary goal as triggering a detection mechanism that influences certain elements of a perpetrator's decision-making process by persuading them to refrain from committing crimes. Because crime can be considered a rational action, CCTV's role in intelligence and investigative work, as well as its use as evidence, also increases crime's deterrent effect. The most commonly cited mechanism by which video surveillance can deter crime is its potential impact on punishment's perceived certainty.[18] Coupe and Kaur found that CCTV in a fixed location within buildings doubles the chances of identifying the perpetrator instead of a location where the building is not equipped with it.[19] Consequently, how often CCTV provides useful evidence and how it is affected by circumstances are important factors in its effectiveness for detection and as evidence. An analysis 251,195 crimes on the British rail network between 2011 and 2015, which were recorded by the British Transport Police, provides further insight. Camera footage provided by CCTV was available to investigators in 45% of cases, and proved useful in 29% of those cases. With the operation of CCTV, the chances of solving crimes have increased significantly for almost all types of crimes. Images of the offense were more likely to be available for more serious crimes and demonstrably less likely to be available for crimes occurring at an unknown time or in certain types of locations.[20] It is then clear that increased fear of being caught among offenders, reduced crime rates, and more conscious behavior by law-abiding citizens are among the potential outcomes of using CCTV. Although CCTV has many potential public security applications – including preventing crime, detecting crime, and improving emergency response – it is mostly used to help manage certain crime-prone sites more effectively and to reduce public fear of crime. Nonetheless, CCTV's contradictory nature needs to be pointed out, as surprisingly little is known about its use and effectiveness in achieving different public safety goals. A systematic review of 41 studies by Welsh and Farrington concluded that CCTV effectively prevents certain types of crime in certain circumstances. Still, the evidence suggests that it has a more limited impact than previously thought.[21]

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[17] Piza, E.L., et al. (2015). The effects of merging proactive CCTV monitoring with directed police patrol: A randomized controlled trial. *Journal of Experimental Criminology, 11*, 43–69; Gerell, M. (2016). Hot spot policing with actively monitored CCTV cameras. *International Criminal Justice Review, 26*(2), 187–201.

[18] Piza, E. L., Caplan, J. M., Kennedy, L. W., & Gilchrist, A. M. (2015). The effects of merging proactive CCTV monitoring with directed police patrol: A randomized control trial. *Journal of Experimental Criminology*, 11, 43–69.

[19] Coupe, T., & Kaur, S. (2005). The Role of Alarms and CCTV in Detecting Non-residential Burglary. *Security Journal, 18*(2), 53–72.

[20] Ashby, M.P.J. (2017). The Value of CCTV CCTV as an Investigative Tool: An Empirical Analysis. *European Journal of Criminal Policy and Research, 23*, 441–459.

[21] Welsh, B.C., & Farrington, D.P. (2008). Effects of closed circuit television surveillance on crime. *Campbell Systematic Reviews, 4*(1), 1–73.

Most recently, Alexandrie (2017) reviewed seven randomized and natural experiments on use CCTV and found that the number of crimes on public roads and urban subway stations decreased by 24% to 28%, but that CCTV had no significant effect in car parks or suburban subway stations. Perhaps the most significant finding is that the coordination of policing and CCTV can significantly increase CCTV's effectiveness.[22]

Thus, when video surveillance is combined with the presence of existing police patrols, it may have greatly contributed to maintaining more efficient public order on the streets or subway stations.[23] According to Priks, the ability to respond quickly to nearby security guards and police officers may explain why CCTV have caused crime reduction at city metro stations, but not at suburban stations.

Comprehensive research on CCTV's effectiveness in Cincinnati has shown rather limited and highly conditional results regarding a declining trend in crime within residential environments. The cameras did not perform to the extent that they were theoretically intended. This was due to the cameras' poor deterrence, as well as the unplanned or poor implementation of CCTV deployment (e.g., the inadequate density of cameras or inadequate signals indicating the presence of CCTV). It may also have been related to the fact that Cincinnati police did not use the cameras for proactive activities, but rather preferred them for investigative purposes. Essentially, certain crime categories (burglary, robbery, etc.) were displaced from camera-covered areas, and this did not significantly affect the overall crime situation at the study site.[24] Cerezo found that overall crime did not decrease significantly even after the introduction of 17 open-street CCTVs in Malaga, Spain.[25] Other studies on the effects of CCTVs on general crime show mixed results. For example, La Vigne et al. examined the effects of open-street CCTVs in Baltimore, Chicago, and Washington, D.C.[26] They found differences; in Baltimore, overall crime declined at most CCTV deployment sites. In Chicago, however, the overall effects of crime reduction appeared in only half of the deployment locations. Nor did the introduction of CCTVs in Washington, D.C., lead to an overall reduction in crime. Some research on CCTV's effects has focused on certain categories or types of crime, as mentioned earlier. The majority of such

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22 La Vigne, N.G., & Lowry, S.S. (2011). *Evaluation of camera use to prevent crimes in commuter parking facilities: A randomized control trial.* URBAN Institute; Piza, E. L., Caplan, J. M., Kennedy, L. W., & Gilchrist, A. M. (2015). The effects of merging proactive CCTV monitoring with directed police patrol: A randomized control trial. *Journal of Experimental Criminology*, 11, 43–69; Analyzing the influence of micro-level factors on CCTV camera effect. *Journal of Quantitative Criminology, 30*, 237–264.

23 Gómez, S., Mejía, D., & Tabón, S. (2017). *The deterrent effect of public CCTV on crime* (Working paper No. 9); Munyo, I. & Rossi, M. (2016). *Is it displacement? Evidence on the impact of police monitoring on crime* (Working Paper No. 126).

24 Lim, H., & Wilcox, P. (2017). Crime-reduction effects of open-street CCTV: Conditionality considerations. *Justice Quarterly, 34*, 597–626.

25 Cerezo, A. (2013). CCTV and crime displacement: A quasi-experimental evaluation. *European Journal of Criminology, 10*, 222–236.

26 La Vigne & Lowry, 2011.

crime-specific studies have examined the categories of crimes against property and violent crimes.[27] Despite these differences, most previous studies on property crime have largely supported the effectiveness of CCTV. Thus, we can conclude that the deployment of CCTV can reduce the number of crimes in certain circumstances (e.g., at night or on weekends in residential environments) or for certain types of crime (e.g., against property or robberies). However, it is not appropriate to attribute an exclusive crime prevention role to it.

Accordingly, some studies emphasize the importance of selecting appropriate locations for CCTV installation and provide guidelines on how to select these locations.[28]

3. Research Methodology

Obtaining the large number of samples required for the survey from police forces at different levels would have taken an extremely long time. Therefore, the most viable solution was to interview individuals detained in penal institutions. Inmates at the Hajdú-Bihar County Penitentiary Institute (after this: HBMBVI) and the Tököl National Penitentiary Institute (after this: TOBVI) provided the sample for the questionnaire survey. The questionnaire was completed by individuals serving erving their final sentences or those in pre-trial detention. Survey-type questionnaires with a closed set of questions are advantageous from a research methodology perspective because they can be quantified and easily replicated. Allowing for the collection of representative data. The questionnaires were administered voluntarily to the staff of the penal institutions. In May 2019 by 73 people at the Hajdú-Bihar County Penitentiary Institute and 100 people at the Tököl National Penitentiary Institute completed the questionnaires. Based on the completed questionnaires, 1 person (TOBVI) misunderstood the questionnaire's completion; therefore, his answer was not considered.

There are almost 18,000 prisoners in Hungarian penal institutions. Thus, based on the number of respondents, almost 1% of the Hungarian prison population participated in the survey.

The authors closely monitored criminal incidents and news that affected detainees to ensure no action could negatively impact participants. However, no extraordinary events occurred during the study period that would have affected the respondents in any way. In compiling the questionnaire, the authors drew upon the experience of previous surveys conducted in penal institutions, taking into account that the proportion of prisoners with a lower level of education is higher than in the general Hungarian population. The questions were short and concise,

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[27] Sivarajasingam, V., & Shepherd, J.P. (1999). Effect of closed circuit television on urban violence. *Journal of Accident & Emergency Medicine, 16*, 255–257.

[28] Yun, W. (2021). A study on the selection of the CCTV location for crime prevention. *J-Institute, 6*, 14–25.

the vast majority of questions were closed (with only one scale question), and the overall number of questions was relatively small. For ease of understanding, the questions did not contain any foreign terms or jargon. In developing the questions, the authors considered both the staff's suggestions from the Measurement and Methodology Office of the National Civil Service University and the comments of specialist staff at the ORFK (National Police Headquarters). The primary goal of the survey was to understand the criminals' perceptions of surveillance cameras, their prior experiences, and the perceived crime prevention effect of cameras from the criminals' perspective. This information could be used later during the installation of CCTV. The collected results were analyzed using the IBM SPSS statistical program.

4. Research Results

The age group distribution shows that all age groups of the Hungarian adult prison population were represented. The respondents' average age was practically identical between the two groups (HBMBVI: 37 years, TOBVI: 38 years), with a mean age of 37.5 years.

Regarding age, it might be assumed that younger offenders, due to their age and lack of previous experience, are less cautious and consider the presence of cameras less threatening. Not confirmed during the research, no such correlation could be established. The next question in the questionnaire concerned marital status. 15% of respondents were divorced, 28% were married, 32% were unmarried, and 25% were in other categories.

The relationship between marital status and precaution was also among the areas studied. However, no correlation could be established between marital status and attitudes towards CCTV.

37% of respondents had 8 primary or lower education degrees, 32% had a vocational qualification, 6% had a formal vocational qualification, 16% had a baccalaureate degree, and 9% had a tertiary degree (There was no significant difference in the educational attainment between the two groups).

The research sought a link between educational attainment and the deterrent effect of CCTV. However, we found that the surveillance cameras have a deterrent effect regardless of education level; therefore, so there is no correlation between higher education and CCTV deterrence.

Participants in the questionnaire survey spent an average of 18.5 months in a penitentiary institution (HBMBVI: 14.9 months; TOBVI: 22.1 months). In the research, we found a significant negative correlation observed between the time spent in a penitentiary institution and CCTV's fear, i.e., who spent more time in prison. That shows if the prisoners spend more time in prison Institute, were less affected by the presence of CCTV when considering committing a crime.

34% of the detainees had committed crimes against property, 19% violent crimes, and 47% other crimes. Crimes against property and violent crimes were

specified because the largest number of offenses recorded by surveillance cameras can be best classified in these two groups, even with the perpetrator's knowledge. (There was no significant difference in the criminal profiles of detainees between the two groups). Some empirical evidence suggests that one explanation for the discrepancy between property and violent crime in police statistics is that violent crimes elicit a significantly higher rate of police response, thus making detection more effective.[29]

Randomized and natural experiments have shown that CCTV can reduce the number of crimes, particularly property crimes, under various conditions. Thus, we hypothesized that CCTV has a greater deterrent effect on perpetrators of property crimes, as these are the individuals who typically commit crimes in a planned manner. In contrast, violent crimes are often impulsive acts, and perpetrators are less sensitive to detection and punishment. Given that these two explanations have very different implications for how CCTV is used in curbing violent and property crimes, it is more common for perpetrators of violent crime to commit crimes occasionally and be guided by momentary anger. The present research did not confirm this assumption. Based on the respondents' answers, there is no correlation between the deterrent effect of CCTV and the type of crime committed.

The second part of the questionnaire specifically asked questions about CCTV. When asked if "would you be deterred from committing a crime if you knew that a surveillance camera was installed in a public place near the location?", the vast majority of respondents answered yes (82%). On the other hand, there was a 10% difference between the two groups; the detainees in Debrecen were more deterred from committing the crime by the presence of a surveillance camera (88%) than the detainees Tököl.

The next question explored whether respondents had previously committed a crime knowing that a surveillance camera might record the act; this question was specifically directed at the two groups of prisoners. A significant difference of more than 20% was observed between the two institutions, with 84% of those surveyed in HBMBVI and 63% of those surveyed in TOBVI answered "no." Based on the aggregated responces, 72% of the respondents had not previously committed a crime while aware that their actions were being recorded by a surveillance camera, even when considering both prisons. Despite this significant difference between the institutions, we can state that the above percentages clearly demonstrate the deterrent and crime-preventing effect of CCTV, as nearly three-quarters of respondents answered no to the question.

Question 9 was only partially related to CCTV. This question aimed to determine if an offender, upon seeing a warning sign indicating the use of a surveillance camera (rather than an actual camera), would refrain from committing a crime.

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[29] Vollaard, B. & Hamed, J. (2012). Why the police have an effect on violent crime after all: Evidence from the British Crime Survey. *Journal of Law and Economics, 55*(4), 901–924.

81% of respondents stated that they would refrain from committing a crime if they saw such a warning sign (There was only a slight difference of a few percentage points between the two prisons). We are pleased to note this result, as this more cost-effective approach than installing cameras can still have a significant crime-preventing effect.

It is unfortunate to rank the questions in a research questionnaire; however, in the present case, one of the most serious questions was whether, according to the perpetrators, CCTV has a crime-preventing effect. Despite the relatively large difference between the two prisons' responses (HBMBVI: 92%, TOBVI: 76%), we can state that according to the offenders, the crime prevention effect of CCTV is also very significant. Based on the aggregated responses, 83% answered that CCTV has a crime prevention effect.

In any case, a surprising finding emerged regarding which has more deterrent power for an offender: a constantly monitored CCTV system or a uniformed police officer. Examining the entire sample, no significant difference was observed; the deterrent force of a uniformed police officer, according to the respondents, is almost the same as that of a surveillance camera. 76% of the respondents rated the deterrent effect of a uniformed police officer as five, and 74% rated the deterrent effect of CCTV as five (not 74%). In HBMBVI, the rating for a uniformed police officer was 8% higher than the average of the two prisons, while at the Tököl National Penitentiary, the proportion of those who evaluated the deterrent effect of the surveillance camera relatively high (13%) (Figures 1 and 2). Experimental results confirmed this finding by showing a decrease in certain types of crime, especially in residential areas, following the deployment of CCTV. The existing crime situation influenced the effectiveness of CCTV in an area. It is worth noting that the combination of CCTV with police forces has proven to be much more effective. In other words, the real-time involvement and intervention of the police force significantly increase the crime-reducing ability of CCTV.[30]

Based on the above, it can be concluded that a visible, attention-grabbing surveillance camera has almost the same crime prevention effect as a uniformed police officer.

The final question asked whether detainees had ever been in a situation where they chose not to commit a crime because they noticed a CCTV camera. 41% of the respondents stated that they had previously stopped committing a crime because of CCTV, indicating that CCTV's crime prevention effect is significant (There was a notable difference between the responses from the detainees at the two prisons; HBMBVI: 34%, TOBVI: 46%.). This finding partially confirmed the initial assumption, suggesting a weak, positive correlation.

[30] Lim & Wilcox, 2017.

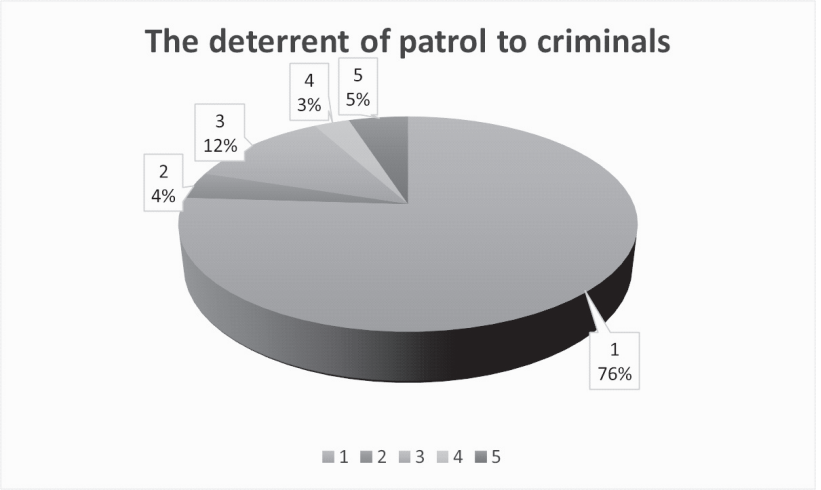

Figure 1: The deterrent force of a uniformed patrol from the perspective of offenders

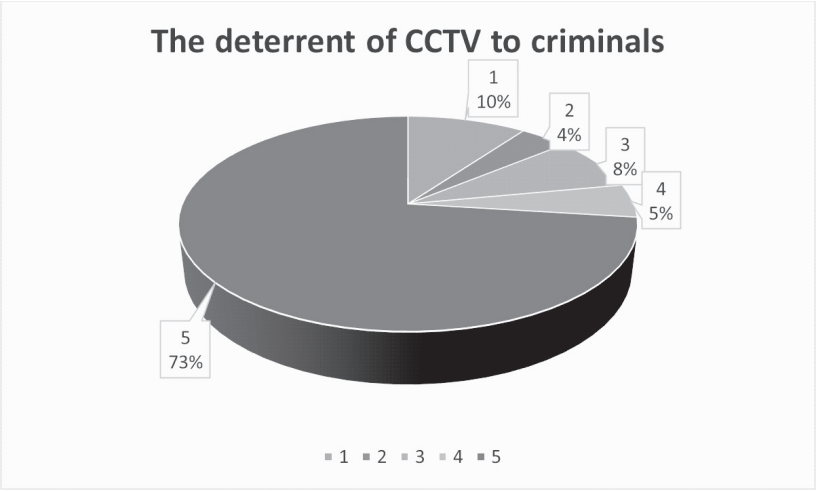

Figure 2: The deterrent force of the surveillance camera from the point of view of offenders

Conclusion

This study examined inmates' opinions about CCTV. The questionnaire survey based on the opinions of 172 detainees from two penitentiary institutions formulated its main findings. In terms of age and marital status, there is no relevant difference between inmate opinions regarding CCTV, nor is there a correlation between the deterrent effect of CCTV and the type of crime committed. On the other hand, there is a negative correlation between the time spent in a penitentiary institution and CCTV's fear. The longer time is observed in the prison in the institute, prisoners are less affected by the camera when the crime committed. The crime-preventing effect of CCTV evidenced by the fact that more than 80% of respondents stated that they would refrain from committing a crime if a camera placed in a public place or a CCTV warning sign seen. The above is also confirmed by the fact that the deterrent force of a uniformed policeman is almost the same as that of a space surveillance camera in the respondents' opinion. Based on the research results, the use of CCTV, which provides continuous surveillance or combined with the police service, deters offenders more, which in turn has the consequence that the offender commits his act in a place where no CCTV deployment took place. Therefore, the general crime prevention use of CCTV cannot justify because its sporadic deployment only results in the territorial relocation of crime. And its total or even more widespread use can be detrimental to civils integrity and envisions the nightmare of a dictatorial state. Consequently, CCTV can certainly be used as a good tool to "clean up" crime-frequented areas.

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