Stavovi javnosti o nadzoru i privatnosti u Hrvatskoj

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Public Attitudes Towards Surveillance and Privacy in Croatia

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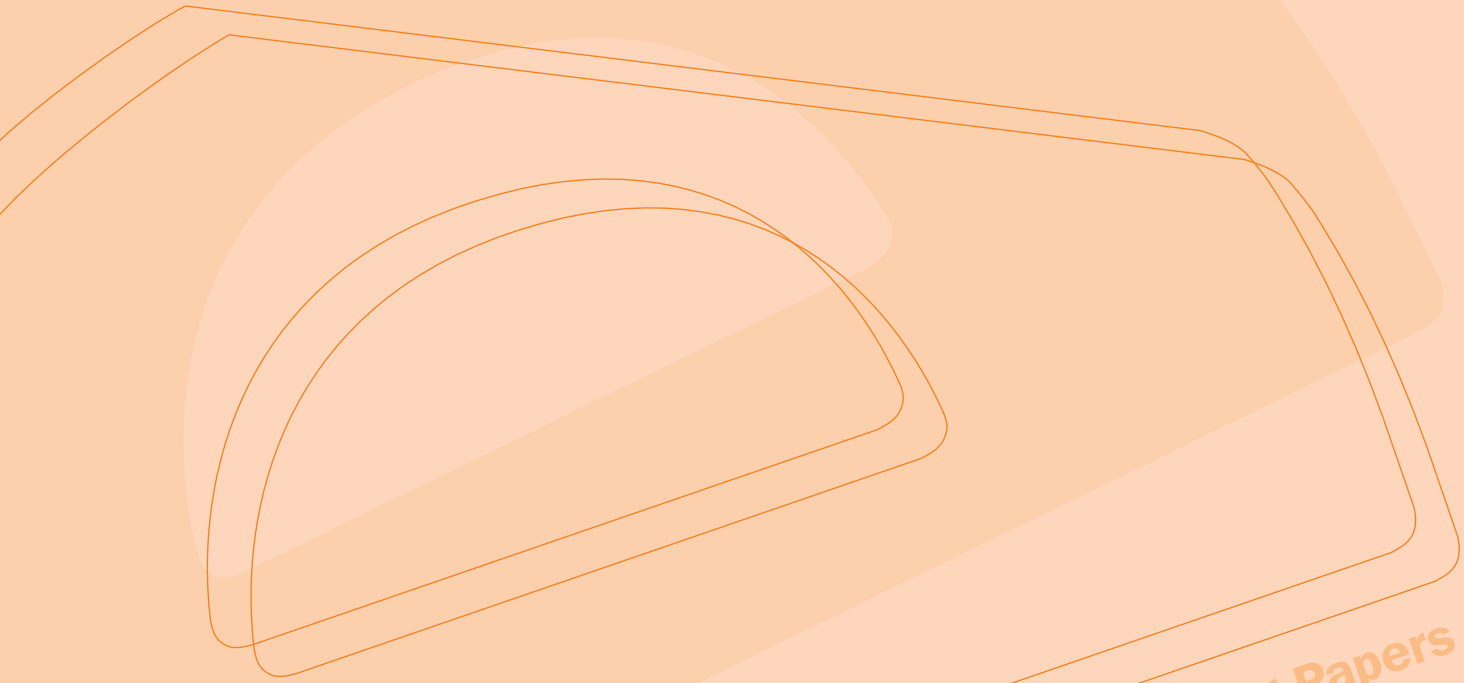

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Contents

Public Attitudes Towards Surveillance and Privacy in Croatia

Abstract:
This paper investigates public attitudes towards surveillance and privacy in Croatia. It segments the respondents based on their views on surveillance and privacy, and examines differences between them with regard to their demographic characteristics. The empirical analysis is based on data obtained from a public opinion survey. The data were analyzed using descriptive statistics, exploratory and confirmatory factor analysis, Cronbach alpha calculation, chi-square test, and cluster analysis. The factor analysis showed six distinct factors: (1) perceived surveillance effectiveness, (2) concern about being surveilled, (3) trust in privacy protection procedures, (4) concern about CCTV privacy intrusion, (5) concern about personal data manipulation, and (6) a need for surveillance enforcement. K-means cluster analysis indicated the following three groups of citizens: "pro-surveillance" oriented citizens, citizens concerned about being surveilled, and citizens concerned about data and privacy protection. Significant differences between the groups were found in age and education, while no significant differences exist in gender, employment status, and household income. The findings of this study support the existence of different groups of citizens regarding their attitudes towards surveillance and privacy.

Keywords: surveillance, privacy concern, public opinion, segmentation, demographic characteristics, Croatia
JEL classification: M38, D18, K49

Stavovi javnosti o nadzoru i privatnosti u Hrvatskoj

Sažetak:
U radu se ispituju stavovi javnosti o nadzoru, praćenju i zaštiti privatnosti u Hrvatskoj. Temeljem mišljenja građana o nadzoru i privatnosti, u istraživanju je provedena segmentacija ispitanika, s ciljem utvrđivanja razlika između segmenata, ovisno o demografskim obilježjima ispitanika. Empirijska je analiza provedena na podacima prikupljenim anketnim ispitivanjem građana. Podaci su analizirani primjenom metoda deskriptivne statistike, eksplorativnom i konfirmativnom faktorskom analizom, izračunom Cronbach alfa koeficijenata, hi-kvadrat testom i klaster analizom. Rezultati faktorske analize ukazuju na postojanje šest različitih faktora: (1) percipirana učinkovitost nadzora, (2) zabrinutost zbog nadzora i praćenja, (3) povjerenje u postupke zaštite privatnosti, (4) zabrinutost zbog narušavanja privatnosti uporabom nadzornih kamera, (5) zabrinutost zbog manipulacije osobnim podacima i (6) potreba za pojačanim nadzorom. K-means klaster analiza je pokazala da postoje tri različita segmenta ispitanika: građani koji zagovaraju nadzor, građani zabrinuti da se nad njima provodi nadzor i građani zabrinuti za zaštitu podataka i privatnosti. Između tih segmenata utvrđene su statistički značajne razlike u dobi i obrazovanju, a razlike u spolu, zaposlenju i dohotku kućanstva nisu bile statistički značajne. Rezultati istraživanja ukazuju da u Hrvatskoj postoje različite skupine građana s obzirom na njihove stavove o nadzoru i privatnosti.

Ključne riječi: nadzor, privatnost, javno mišljenje, segmentacija, demografska obilježja, Hrvatska
JEL klasifikacija: M38, D18, K49

1 Introduction[1]

This paper provides an overview of public attitudes towards surveillance and privacy in Croatia. From a historical perspective, Croatia was one of the republics of the former Yugoslavia that gained independence in 1991.[2] At the time, Yugoslavia was a socialist country with a rather unique political system that was quite different from authoritarian communist regimes prevalent in other East European countries. Yugoslavia had an open trade and well-balanced, good political relations with both Western and Eastern Blocs and was one of the leaders of the group of developing countries of the so-called Third World. However, to ensure political and social stability and discipline some mechanisms of social control were put in place. In the new era of independent Croatia, the entire social set-up radically changed. The process of transition seemed to have raised questions about government openness and transparency rather than about privacy protection, and political control in democracy became rather irrelevant.

There is a growing literature on surveillance and privacy issues from various perspectives.[3] Researchers and practitioners show an increasing interest in the research of public opinion on surveillance and privacy issues (Haggerty and Gazso, 2005; Ball and Murakami Wood, 2006; Okazaki, Li and Hirose, 2009). As surveillance practices grow (Lyon, 2001; Neyland, 2006), citizens are more and more concerned about negative aspects of surveillance, while some individuals routinely interpret surveillance as a privacy invasion. Privacy concern is global and rising with the spread of new technologies (Solove, 2008). Issues relating to privacy and surveillance have also become a political issue and a part of commercial information initiatives (Haggerty and Gazso, 2005; Haggerty and Ericson, 2006). However, there is no empirical study of public attitudes towards surveillance and privacy issues in contemporary Croatia, and this research provides unique evidence.

This paper explores whether Croatian citizens are concerned about privacy and data protection, whether they are concerned about being surveilled, or whether some population groups would opt for a more enforced surveillance, for example to prevent crime. This study aims to answer two main research questions: (1) What is the public opinion on surveillance and privacy intrusion? (2) Which segments of population have similar attitudes towards surveillance and privacy; and if so, can those groups be differentiated by demographic characteristics?

In order to conduct a survey-based empirical research on the topic of surveillance and privacy, a survey was created based on the existing literature, and further customized in line with the findings of exploratory research, including qualitative research in the form of semi-structured interviews with Croatian experts in this field. Adding to the empirical

[1] The research was conducted as part of an internal project of the Institute of Economics, Zagreb.

[2] Croatia declared independence from Yugoslavia in 1991, and was internationally recognized on 15 January 1992.

[3] See, for example, Lyon (2007) for an overview of surveillance studies.

studies on surveillance and privacy, we used a segmentation approach to identify the distinct groups of individuals.

The next section elaborates the situation in Croatia and the rationale for this research. The methodology used is presented in Section 3, and the results of empirical analysis are provided in Section 4. The concluding section provides preliminary policy recommendations and indicates the lines of future research.

2 Theoretical Background

In the process of accession to the European Union (EU), Croatia has harmonized its legislation to the *acquis communautaire*. The legal framework defining personal data protection and supervision over collecting, processing and use of personal data in the Republic of Croatia is accordingly regulated by the Act on Personal Data Protection[4] and Amendments to the Act on Personal Data Protection.[5] Croatian Personal Data Protection Agency has been established by the Act as an independent and autonomous body for the purpose of supervising the work of personal data processing in the Republic of Croatia. Personal data protection is guaranteed by the Constitution to every person in order to protect the privacy of individuals and other human rights and fundamental freedoms in the process of collecting, processing and use of personal data. Personal data protection guaranteed by the law comprises information on an individual's health data, personal identification number, data on earnings, school grades, bank accounts, tax refunds, biometrical data, passport or ID card number, etc.[6]

Despite the existing legislation, privacy protection is often seen as insufficient due to the poor implementation of the law and weak control mechanisms. As one of the interviewees pointed out, Croatian citizens witnessed a situation where banks would not allow them to open a bank account without providing a valid personal ID number (the so-called JMBG) even after the JMBG had become a legally protected confidential personal ID number. Interestingly, most citizens were willing to provide it without reporting such misbehavior of private companies. There may be various reasons for this kind of practice, including pragmatic ones (e.g., speeding up the bank procedure). Probably due to lack of knowledge, it seems that Croatian citizens do not quite understand why they should protect their own privacy. As privacy is a vague concept of personal space under the control of the individual (Stalder, 2002), the notion of privacy and privacy protection is ambiguous: some people would voluntarily provide personal information and data to literally anyone, but would become very sensitive if disturbed in their "private time" (e.g., official calls on private cell phones over the weekends are often seen as privacy intrusion). A vague understanding of privacy and surveillance may arise

[4] Official Gazette, No. 103/03.

[5] Official Gazette, Nos.118/06 and 41/08.

[6] Detailed information provided by Croatian Personal Data Protection Agency, www.azop.hr.

from the Croatian language characteristics (e.g., terms safety and security are translated with the same term in Croatian, while surveillance can be interpreted as control[7]), but it can also be attributed to the public mindset inherited from the past regime. Croatian citizens are still used to being asked to identify themselves by any person in uniform: security personnel, public transport inspectors, phone services provider clerks, etc. On the other hand, during the past regime, citizens were more aware of the necessity to hide some things from others. However, since it was all happening in an environment of institutional repression, this should not be attributed to better awareness but rather to the survival instinct.

As the civil sector and democracy developed in Croatia, the role of state and government services changed. Regarding the collection and exchange of information among state/government services, there are some services which take the issue of accessing data very seriously (e.g. Ministry of the Interior), yet there are other services whose employees are not even aware that some data they work with are of a private nature. Although keeping records and procedures for the storage of personal data are also regulated by legal acts,[8] there is a problem of access to data, because many data are sensitive but not perceived as such. Generally speaking, public employees are not educated about the privacy of data and data protection. Adding to the poor control of data collection and storage, in these conditions information leakage is quite possible, intentionally or not. One could suppose the same stands for private companies and employers in general: some (large) companies have implemented corporate procedures to keep personal data and information about employees as personal and confidential, while small private firms probably would not invest resources to enforce privacy protection practices.

Finally, the new era of reality shows, personalized marketing campaigns and CCTV cameras has spread so fast in Croatia that it remains unclear if and how public attitudes towards them have been formed. The concept of our research was initially shaped upon these intriguing questions. The definitions of key research topics - surveillance, privacy and data protection - are used according to those provided by Flaherty (1989) and Haggerty and Ericson (2006). Public attitudes towards surveillance refer to citizens' opinion on the supervision of individual behaviour through the collection and use of personal information to take control over their activity. Privacy concern is a broad concept encompassing various kinds of intrusive behavior, where data protection is just one aspect of privacy protection relating to the collection and manipulation of personal information.

Some empirical studies on public attitudes towards the use of CCTV in public spaces (Philips, 1999; Slobogin, 2002), as well as public attitudes to providing personal data to

[7] There is an initiative raised by some researchers within the international research network COST Action LiSS (Living in Surveillance Societies) to explore the semantic issues of "surveillance".

[8] Regulation on the manner of keeping the records of personal data filing systems and the pertinent records form (Official Gazette, No. 105/04) and Regulation on the procedure for storage and special measures relating to the technical protection of special categories of personal data (Official Gazzette, No. 139/04).

the government (Singer, Van Hoewyk and Neugebauer, 2003) or to businesses (Taylor, 2003; Nam et al., 2006), perceived importance of privacy (Katz and Tassone, 1990) and privacy concerns (Okazaki, Li and Hirose, 2009) gave us useful guidelines for this study. Survey questions found in the available literature are all specifically designed to explore particular issues and could not be used as a standard survey tool for similar exploratory research. After consulting the literature, we developed a survey questionnaire based on the qualitative exploratory research that was conducted in Croatia and seen as an added value to this research, as explained in detail in the methodology section below. Furthermore, the assessment of construct validity and reliability of developed scales, and the identification of distinctive groups of citizens with similar attitudes towards surveillance and privacy make further contributions to the literature on surveillance and privacy.

3 Methodology

This research is primarily based on the quantitative survey; yet the exploratory research qualitative methodology was employed as well. The qualitative research as an exploratory study consisted of interviewing two Croatian experts in the area of data protection, internet security and privacy perceptions. Semi-structured interviews were conducted according to the guidelines developed to assess six research topics: the estimated level of privacy protection in Croatia, efficiency of legal framework, companies' attitudes towards and practices in data protection, surveillance mechanisms employed, Internet security and education on security standards. From the methodological perspective, this approach contributes to the quality of the survey and methodological rigor. It is quite common to employ qualitative research as an exploratory study in order to design a quantitative survey (Silverman, 2006). Interviews other than face-to-face are adequate in cases of semi-structured interviews (Berg, 1995). One expert preferred to answer in written form and the other one in a face-to-face interview. The insights generated by the exploratory research were used for the country-specific survey design and for the interpretation of quantitative research results. As the thorough knowledge of the phenomenon in question is a necessary prerequisite for a survey design, we also relied on academic literature and other research reports to develop a theoretical background and deeper understanding required for the design of survey instruments. A review of relevant literature (Katz and Tassone, 1990; Shaw et al., 1998), including borrowing from the marketing consumer research relevant literature (Dolnicar and Jordaan, 2007; Okazaki, Li and Hirose, 2009), was used to develop measures for variables applied in this study. The final questionnaire was then supplemented and adapted to the context of this study.

After developing the questionnaire, the pilot survey was conducted to test the questionnaire structure and question formulation as well as the interview length. The pilot testing was conducted in the City of Zagreb area and the pilot sample size was 3 percent of the survey sample size. The printed versions of the questionnaire were distributed to adult respondents classified by gender, age and education. After making slight changes in the wording and structure, the final questionnaire was created.

The survey covered the territory of the Republic of Croatia. The target sample includes 500 respondents, which gives the standard error of around 2.2 percent. The nationally representative sample is based on a two-way stratification in terms of regions (counties) and the population size by gender and age. The sample allocated to each stratum is proportional to the population living in each stratum (Census 2001, total population of 4.4 million). The sample characteristics by counties - administrative regions in Croatia - are shown in Table 1.

Table 1 **Survey Sample by Croatian Counties, n=506**

	County	n	%
1	County of Zagreb	35	6.92
2	County of Krapina-Zagorje	17	3.36
3	County of Sisak-Moslavina	22	4.35
4	County of Karlovac	16	3.16
5	County of Varaždin	21	4.15
6	County of Koprivnica-Križevci	14	2.77
7	County of Bjelovar-Bilogora	15	2.96
8	County of Primorje-Gorski Kotar	34	6.72
9	County of Lika-Senj	6	1.19
10	County of Virovitica-Podravina	11	2.17
11	County of Požega-Slavonia	10	1.98
12	County of Slavonski Brod-Posavina	20	3.95
13	County of Zadar	18	3.56
14	County of Osijek-Baranja	37	7.31
15	County of Šibenik-Knin	13	2.57
16	County of Vukovar-Sirmium	24	4.74
17	County of Split-Dalmatia	53	10.47
18	County of Istria	24	4.74
19	County of Dubrovnik-Neretva	14	2.77
20	County of Međimurje	14	2.77
21	City of Zagreb	88	17.39

Data were collected using a telephone survey in February and March 2011. A multistage design was used in developing the sample. Pages in the telephone book containing names and addresses of potential respondents were selected using a systematic sampling procedure, while a simple random sampling technique was employed to choose potential respondents within the selected telephone book pages. The required time to complete an interview was less than 20 minutes. The net sample size contained 506 respondents of age 18 to 70. The summary statistics on sampled respondents is presented in Table 2.

The respondents were 50.4 percent male and 49.6 percent female. The average age of the respondents was 46. The respondents reported an average household net monthly income of 7,508 HRK (approximately 1,000 EUR). The majority of the respondents completed secondary school (62 percent). The sample is to a large extent representative for the population in the Republic of Croatia on all demographic characteristics, except for education.

Table 2 **Summary Statistics of Sampled Respondents, n=506**		
Respondent profile	Sample	Population*
1 Gender (in %)		
1.1 Male	50.4	48.2
1.2 Female	49.6	51.8
2 Average age (in years)	46.4	42.9
3 Average number of people in a household	3.2	3.0
4 Educational level (%)		
4.1 Primary school	6.9	38.9
4.2 Secondary school	61.5	48.8
4.3 University and higher education	31.4	12.3
5 Average household net monthly income (in HRK**)	7508	7951
6 Employment status (%)		
6.1 Employed	49.4	49.2
6.2 Unemployed	50.6	50.8

Notes: * Population includes citizens ranging from 18 to 70 years of age; ** 1 EUR=7.4 HRK.
Sources: Croatian Bureau of Statistics; Croatian National Bank, www.hnb.hr .

The measurement instrument included 43 questions (Appendix 1). The survey included questions about the public opinion on data collection conducted by private companies and institutions, data storage and security, data usage, data disclosure and dissemination done by private companies and institutions, privacy protection policies, legislation and government protection, citizens' privacy concerns, effectiveness of CCTVs and other methods of surveillance, as well as citizens' patterns of behavior. Each item in the questionnaire was measured by Likert-scaled items, ranging from 1 (strongly disagree) to 5 (strongly agree).

Demographic variables include gender, age, household size, household income, education, and employment status. The gender of the respondent was coded as 1 for male and 2 for female. The respondents reported their age in years, number of persons in the household (household size), household income (in HRK), and the county of residence. Education was coded as follows: (1) primary school or less, (2) secondary school, and (3) university or higher degree of education. Regarding employment, the respondents were asked whether they were employed or not.

The collected data were first analyzed in a descriptive manner to determine the public opinion on surveillance and privacy in Croatia. Cronbach alpha coefficients were calculated to quantify scale reliabilities. For the second step, the exploratory factor analysis was used to identify the factors of surveillance/privacy concern. Then, K-means cluster analysis was employed to determine the segments of population with similar attitudes, while differences in respondents' attitudes towards surveillance and privacy between the groups were analyzed using chi-square test.

4 Results

The first step in the analysis was the assessment of construct validity and reliability of scales. The initial measurement instrument of 43 questions was tested by using exploratory factor analysis. Principal components analysis was employed to extract the factors. This method was used because data reduction was a primary concern in our research. The Kaiser-Guttman rule was used to determine the number of factors to extract. The first run of exploratory factor analysis indicated that there were 21 items with a low factor loading on the respective factor, low factor loadings on all factors and a high factor loading on some other factor (i1, i2, i4, i8, i9, i11, i12, i13, i15, i17, i18, i20, i22, i26, i27, i30, i31, i33, i40, i42 and i43). These items were excluded from further analysis. In the second run, the exploratory factor analysis indicated six distinct factors, explaining 63.8 percent of the total variance. The factor loadings were greater than 0.50, which is considered sufficient (Bagozzi and Yi, 1988). Factors were labelled according to dominant variables in the factor as follows: Factor 1 (i32, i34, i35): Perceived surveillance effectiveness; Factor 2 (i36, i37, i38, i39): Concern about being surveilled; Factor 3 (i3, i5, i6, i7, i10): Trust in privacy protection procedures; Factor 4 (i14, i16, i19, i21): Concern about CCTV privacy intrusion; Factor 5 (i28, i29, i41): Concern about personal data manipulation; Factor 6 (i23, i24, i25): Need for surveillance enforcement (Table 3).

Table 3 **Factor Analysis Results, Factor Loadings**

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
	Perceived surveillance effectiveness	Concern about being surveilled	Trust in privacy protection procedures	Concern about CCTV privacy intrusion	Concern about personal data manipulation	Need for surveillance enforcement
i3			0.51			
i5			0.73			
i6			0.84			
i7			0.78			
i10			0.64			
i14				0.73		
i16				0.79		
i19				0.74		
i21				0.63		
i23						0.59
i24						0.81
i25						0.75
i28					0.71	
i29					0.60	
i32	0.78					
i34	0.84					
i35	0.77					
i36		0.98				
i37		0.98				
i38		0.96				
i39		0.64				
i41					0.68	

Reliability of scales was assessed using Cronbach alpha coefficients (Table 4). Values of Cronbach alpha, if deleted, were calculated for each item. Following the standard procedure recommended by Churchill (1979), the items that decreased the Cronbach alpha coefficients of respective scales were deleted from further analysis (i3, i23, i29) in order to improve the Cronbach alpha coefficients.

Table 4 **Reliability Assessment**

Items	Cronbach alphas if deleted
Factor 1: Perceived surveillance effectiveness/Cronbach alpha for subscale: 0.80	
i32	0.74
i34	0.62
i35	0.79
Factor 2: Concern about being surveilled/Cronbach alpha for subscale: 0.92	
i36	0.85
i37	0.85
i38	0.86
i39	0.99
Factor 3: Trust in privacy protection procedures/Cronbach alpha for subscale: 0.77	
i3	0.78
i5	0.72
i6	0.68
i7	0.70
i10	0.73
Factor 4: Concern about CCTV privacy intrusion/Cronbach alpha for subscale: 0.74	
i14	0.67
i16	0.66
i19	0.68
i21	0.72
Factor 5: Concern about personal data manipulation/Cronbach alpha for subscale: 0.52	
i28	0.39
i29	0.43
i41	0.43
Factor 6: Need for surveillance enforcement/Cronbach alpha for subscale: 0.67	
i23	0.70
i24	0.46
i25	0.53

Confirmatory factor analysis (CFA) was performed to test the convergent and discriminant validity of measures and to detect the unidimensionality of each construct. Unidimensionality is evidence that a single trait or construct underlies a set of measures (Gerbing and Anderson, 1988). The specified measurement model included six uncorrelated factors with uncorrelated measurement errors. The goodness-of-fit index (GFI) and adjusted goodness-of-fit index (AGFI) were 0.904 and 0.881, respectively. The normed fit index (NFI), non-normed fit index (NNFI), comparative fit index (CFI) and RMSEA were 0.923, 0.939, 0.946 and 0.066, respectively. Although chi-square test was significant, it is important to note that it is sensitive to the sample size. Other model fit indices indicated a reasonable level of fit of the model (Hu and Bentler, 1999). The values

of fit indices obtained from the six-factor model represent a substantial improvement over the values obtained from the one-factor model. The results of confirmatory factor analysis indicate an acceptable level of convergent and discriminant validity as well as unidimensionality (Table 5).

Table 5 **Confirmatory Factor Analysis Results**

Fit indices	Six-factor model	One-factor model
Goodness-of-fit index (GFI)	0.904	0.590
Adjusted goodness-of-fit index (AGFI)	0.881	0.503
Normed fit index (NFI)	0.923	0.627
Non-normed fit index (NNFI)	0.939	0.608
Comparative fit index (CFI)	0.946	0.646
RMSEA	0.066	0.186
Chi-square (df), p-level	641.61 (209), 0.000	2509.78 (209), 0.000

K-means cluster analysis was employed to classify citizens according to their attitudes towards surveillance and privacy issues. The Hartigan index was used as a criterion for determining the number of clusters in a data set. Mean values were calculated for each factor using only the items that remained after the reliability and construct validity assessment. These mean values were used as an input in the K-means cluster analysis. The K-means cluster analysis indicated three homogeneous segments of citizens (Table 6).

Table 6 **K-means Cluster Results (Means)**

Factor	Sample average (n=506)	Segment 1 (n=172)	Segment 2 (n=156)	Segment 3 (n=178)	ANOVA
Perceived surveillance effectiveness	3.0	3.5	3.1	2.4	F=62.19 df=503 p=0.000
Concern about being surveilled	2.2	1.4	4.1	1.2	F=1073.03 df=503 p=0.000
Trust in privacy protection procedures	2.9	3.2	3.1	2.6	F=20.45 df=503 p=0.000
Concern about CCTV privacy intrusion	2.3	1.9	2.6	2.4	F=23.86 df=503 p=0.000
Concern about personal data manipulation	3.9	3.6	4.0	4.0	F=16.72 df=503 p=0.000
Need for surveillance enforcement	2.5	3.6	2.5	1.6	F=207.34 df=503 p=0.000

Note: Items were measured on a scale ranging from 1 (strongly disagree) to 5 (strongly agree).

On average, citizens in Croatia show the highest concern about personal data manipulation (mean=3.9). They seem to be more cautious regarding the effectiveness of surveillance (mean=3.0), privacy concern procedures (mean=2.9) and the need for surveillance enforcement (mean=2.5). The respondents were not concerned about CCTV

privacy intrusion (mean=2.3) and about being surveilled (mean=2.2). A rather low rating of their concern about CCTV privacy intrusion and about being surveilled can be explained by the fact that citizens are often not fully aware of the risk associated with growing surveillance. However, the data support the notion that citizens are more aware of the risk associated with private data manipulation.

K-means cluster analysis indicated three groups of citizens. The differences between the groups in the analyzed factors were significant at a 0.01 level. The groups were labelled according to the cluster means, as follows: Segment 1: "Pro-surveillance" oriented citizens; Segment 2: Citizens concerned about being surveilled; Segment 3: Citizens concerned about data and privacy protection. "Pro-surveillance" oriented individuals think that surveillance should be enforced, since it prevents terrorism, crime and corruption effectively. They trust privacy protection procedures more than the other groups of citizens. At the same time, they are not concerned about being surveilled or about CCTV privacy intrusion. Segments 2 and 3 include individuals who are more "anti-surveillance" oriented than the citizens in Segment 1, since they disagree with the enforcement of surveillance in schools, by the police and national security services. Segment 2 contains citizens who are concerned about being surveilled, and Segment 3 is comprised of individuals who are concerned the most about data and privacy protection. The identification of "pro-surveillance" and "anti-surveillance" oriented citizens is in line with the existing literature (Haggerty and Gazso, 2005).

Cross tabulation analysis (chi-square test) was used to determine differences between the groups of citizens in gender, age, education, employment status and household income. Chi-square test results are presented in Table 7.

Table 7 **Demographic Differences and Pearson Chi-Square Test**

Demographics	Segment 1: Pro-surveillance oriented citizens (n=172)	Segment 2: Citizens concerned about being surveilled (n=156)	Segment 3: Citizens concerned about data and privacy protection (n=178)
Gender (Pearson chi-square: 1.14, df=2, p=0.565) (in %)			
Male	47.1	51.9	52.3
Female	52.9	48.1	47.7
Age (Pearson chi-square: 6.96, df=2, p=0.031) (in %)			
18-46	40.1	53.2	51.7
47-70	59.9	46.8	48.3
Education (Pearson chi-square: 21.25, df=4, p=0.000) (in %)			
Primary school or less	7.6	12.2	1.7
Secondary school	67.3	59.0	58.4
Higher education	25.2	28.9	39.9
Employment status (Pearson chi-square: 0.91, df=2, p=0.635) (in %)			
Employed	48.3	47.4	52.3
Unemployed	51.7	52.6	47.8
Household income (Pearson chi-square: 3.74, df=2, p=0.154) (in %)			
7,000 HRK or less	52.4	56.2	45.7
More than 7,000 HRK	47.6	43.8	54.3

Chi-square test results show significant differences in age ($p<0.05$) and education ($p<0.01$) between the groups of citizens. There are no significant differences between the groups in gender, employment status and household income.

Older individuals prevail in Segment 1, while younger citizens prevail in Segments 2 and 3. Accordingly, younger individuals tend to be more cautious and more concerned about being surveilled, as well as about data and privacy protection than older individuals. On the other hand, older citizens seem to be more "pro-surveillance" oriented.

The groups of citizens also differ significantly in education level. In the overall sample, the largest share of highly educated citizens is found in Segment 3. The highest percentage of citizens with secondary school is found in Segment 1, while the highest percentage of citizens with primary school or less is found in Segment 2. Accordingly, citizens with higher education are more concerned about data and privacy protection, while those with primary school or less are more concerned about being surveilled. Most of the respondents with secondary education are "pro-surveillance" oriented. With a higher level of education, individuals become more concerned about data and privacy protection. People with a higher education level have more knowledge about the potential risks of increasing surveillance and manipulation of the data.

5 Conclusions

The paper examined public attitudes towards surveillance and privacy in Croatia. It segmented the citizens based on their attitudes towards surveillance and privacy, and examined the differences between three homogeneous groups based on their demographic characteristics. "Pro-surveillance" oriented citizens, citizens concerned about being surveilled and those concerned about data and privacy protection differ significantly in age and education, but no significant differences between the groups were found in gender, employment status and household income.

Both "pro-surveillance" oriented citizens and citizens concerned about being surveilled believe that enforced surveillance prevents crime, terrorism and corruption quite effectively, However, the two groups will behave exactly in the opposite way when talking over the phone, when they are in public places or when sending e-mails. The citizens concerned about being surveilled are precautious because of their belief that they might be wiretapped and their mails intercepted. The "pro-surveillance" oriented citizens are not worried at all about being tapped, nor do they feel CCTVs are threatening their or anyone else's privacy. This is probably because the "pro-surveillance" oriented group sees enforced surveillance necessary but lacking in Croatia, in particular to control potential criminal activities. This cluster, unlike the other two, opts for empowering the police and other officials to search people, collect data and employ more surveillance instruments. The attributes of the "pro-surveillance" group are explained by its demographic characteristics. Namely, 60 percent of pro-surveillance oriented citizens are 47 and older,

while 75 percent of them have secondary or lower education. Furthermore, women, the unemployed and those with lower income slightly prevail in this cluster.

The citizens concerned about being surveilled share high concerns about personal data manipulation, but they would oppose enforced surveillance. Similar to the pro-surveillance cluster, this group consists of citizens with a low education level, lower income and the unemployed. On the other hand, younger population and men prevail in this group. Although all three groups exhibit low CCTV intrusiveness ratings, which is in line with the findings of Slobogin (2002), this cluster is the most concerned about it.

The "modern generation" of highly educated citizens, who are employed and have higher household income, regardless of gender, believe that surveillance methods are not efficient enough in preventing crime and would strongly oppose any empowerment of authorities in this sense. However, this group is concerned about privacy intrusion and personal information misuse, both by private and government agencies. In general, while Croatian citizens are not much concerned about CCTV monitoring in shops, banks and other business facilities, sharing and using their personal information for marketing purposes bothers them considerably.

The main findings of this study revealed interesting public attitudes towards surveillance and privacy. Croatian citizens strongly agree that protecting personal privacy is very important to them. However, they only partially agree that personal privacy is invaded and inadequately protected by the existing legislation. Citizens believe that, compared to a decade ago, their privacy is less respected and protected, which indicates a derogation of privacy protection. The citizens firmly stated that if they knew about the misuse of personal data, they would report it immediately, but they also claimed not to know whom to report it to. This calls for the re-consideration of the current government policy on privacy protection.

Several practical implications might derive from this study. Both government and private companies should not expect much public criticism if more CCTVs were introduced, especially in the areas potentially exposed to vandalism and crime. This is particularly true considering that, out of all items in the questionnaire, the citizens most strongly disagree with the statement "I feel uncomfortable in spaces under CCTV supervision." Also, they do not think that CCTV cameras in public spaces threaten civil rights and liberties.

Furthermore, the citizens mostly agree that introducing a stricter control in schools could contribute to the ongoing debate on student violence and drug prevention in schools, and encourage government authorities to change the related regulations. The risk awareness regarding the misuse of data and the risk related to the protection procedures of soft information is growing among the younger population, thus denoting the future directions of general public attitudes. The private sector is considered to be better in protecting information than government institutions. Therefore, the government should

pay more attention to establishing procedures that would reinforce the public trust in institutions and information security policies. Finally, the observed relation between information concerns and personal characteristics of the three groups could encourage the private sector to develop effective and responsible direct marketing strategies.

Although this study produced interesting and comprehensive findings, some limitations need to be pointed out. First, the survey provides a kind of a "snapshot" of public attitudes at one point in time, while new insights could be attained by regularly surveying public attitudes towards surveillance and privacy. It would also be interesting to identify the differences in the attitudes of citizens towards surveillance and privacy with respect to their usage of internet and experiences of data misuse in Croatia.

Appendix

Surveillance/Privacy Concern Survey - Questionnaire		
1	Protection of my personal privacy is very important to me.	1 2 3 4 5
2	My personal privacy is invaded in Croatia today.	1 2 3 4 5
3	The privacy of citizens in Croatia is more respected and protected today than ten years ago.	1 2 3 4 5
4	My employer safeguards my personal information.	1 2 3 4 5
5	Banks safeguard confident information about their clients.	1 2 3 4 5
6	Government institutions safeguard confidentiality and privacy of the data on citizens and firms they collect.	1 2 3 4 5
7	Government institutions take precautions to protect data against fraud and misuse.	1 2 3 4 5
8	Government institutions often ask for more personal data than they actually need.	1 2 3 4 5
9	Private companies and agencies often ask for more personal data than they actually need.	1 2 3 4 5
10	Privacy protection and the usage of personal data in Croatia are adequately ensured by the existing legislation.	1 2 3 4 5
11	I am well informed about the risks of misusing my personal data.	1 2 3 4 5
12	Identity theft might happen in Croatia.	1 2 3 4 5
13	Information I send over the Internet (e-mail, Facebook and other) could be misused.	1 2 3 4 5
14	CCTV cameras in public spaces (streets, squares, stadiums) threaten the privacy of citizens.	1 2 3 4 5
15	CCTV cameras in public spaces (streets, squares, stadiums) prevent crime.	1 2 3 4 5
16	CCTV cameras in public spaces should be prohibited because they threaten civil rights and liberties of citizens.	1 2 3 4 5
17	CCTV cameras prevent hooligans and vandalism (at stadiums and in public transport, graffiti drawing, etc).	1 2 3 4 5
18	CCTV cameras in shops, banks, post offices...are needed since they prevent theft.	1 2 3 4 5
19	CCTV cameras in shops, banks, post offices...threaten the privacy of shoppers and employees.	1 2 3 4 5
20	There is a well-established control of CCTV records regarding persons who have access to records and what happens with the records afterwards.	1 2 3 4 5
21	I feel uncomfortable in spaces under CCTV supervision.	1 2 3 4 5
22	I would feel safer if I worked and lived in a space under CCTV supervision.	1 2 3 4 5
23	School officials should be entitled to search students and their belongings for items not permitted in school.	1 2 3 4 5
24	The police should have unrestricted access to any data on every citizen.	1 2 3 4 5
25	The police and national security services should be entitled to surveil and tap all persons they rate as suspicious without any special warrant (e.g. permission of the court).	1 2 3 4 5
26	I never tell anybody my passwords, PINs, and codes.	1 2 3 4 5
27	The usage of computers and ICT increases the possibility of personal data manipulation.	1 2 3 4 5
28	I am concerned about the volume of personal information and data stored on computers that might be misused.	1 2 3 4 5
29	Personal medical records, psychological and IQ test results, etc. are not protected enough as private and confidential data.	1 2 3 4 5
30	Croatian citizens are educated enough and are well informed about the risks of unauthorized usage of data and about protecting personal data.	1 2 3 4 5
31	There is a lack of citizens' initiative to protect privacy in Croatia.	1 2 3 4 5
32	Enforced surveillance of people effectively prevents terrorism.	1 2 3 4 5
33	There is a need to enforce surveillance of people in Croatia to prevent terrorism and general hazards.	1 2 3 4 5
34	Enforced surveillance of people effectively prevents crime.	1 2 3 4 5
35	Enforced surveillance of people effectively prevents corruption.	1 2 3 4 5

36	I am careful when talking over the telephone because one can never know whether they are being wiretapped.	1 2 3 4 5
37	I am careful when talking over my cell phone because one can never know whether they are being wiretapped.	1 2 3 4 5
38	I am careful when talking in public places because one can never know whether they are being wiretapped.	1 2 3 4 5
39	I am careful when writing e-mails because I am not sure whether some third person could access my messages.	1 2 3 4 5
40	Private companies and agencies share my personal data and information with each other without my knowledge.	1 2 3 4 5
41	It bothers me when my personal information is shared and used for marketing purposes.	1 2 3 4 5
42	If I knew about the misuse of my personal data, I would report it immediately.	1 2 3 4 5
43	I know to whom to report the misuse of personal data.	1 2 3 4 5

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