An Exploration of the Relationship between Social Bonding Theory and Deviance across Rural-Urban Contexts in Türkiye

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Abstract: Although there have been many tests of Social Bonding Theory since its first appearance in 1969, there have been very few tests on the relationships between social bonding variables and deviance across rural-urban contexts in the Unites States as well as in the world. The present study explores this issue by using a sample of university students (1.472) in Türkiye. The findings reveal that although social bonding variables are not consistently significant across types of deviance and across types of places (rural-urban contexts), they also indicate that social bonding variables have stronger effects on deviance in the context of rural than urban context.

Keywords: Deviance/Crime; Social Bonding Theory; Rural-Urban; Türkiye.

INTRODUCTION

Past studies have shown that rural places produce lesser amount of deviance/crime or delinquency than urban places (e.g., Brown, Esbensen, & Geis, 2010; Elliott, Huizinga, & Menard, 1989; Fischer, 1995; Tittle, 1989; Tittle & Patternoster, 2000). The present research tries to account for this rural-urban difference in deviance/crime by utilizing on social bonding theory. Although there have been a great number of studies on deviance/crime or delinquency in urban places, there have relatively been few studies on deviance/crime or delinquency in rural places (for the same argument, see also Lyerly & Skipper, 1981). We think that this is an important limitation in criminological knowledge.

Likewise, although there has been a great number of tests of Hirschi's social bonding theory since its publication in 1969 in and out of the United States (Cohn & Farrington, 1999; Costello, 2013; Costello & Laub, 2020; Gottfredson, 2009; Kempf, 1993; Morrison, 2010), there have been very few and old tests of the theory under the context of rural-urban continuum (for exceptions, Krohn, Lanza-Kaduce, & Akers, 1984; Lyerly & Skipper, 1981; Shoemaker, 1989). The findings of most of these studies showed that social bonding theory are stronger predictors of rural than urban contexts.

Given that the extant literature is limited to both old data and the United States, covers very few studies, we try to explore whether social bonding theory has different influence on deviance across rural and urban contexts by using a sample of youth gathered from a public university in 2020 in Türkiye. More specifically, in line with the existing research, we expect that social bonding variables will have stronger effects on deviance in a rural context than a urban context.

SOCIAL BONDING THEORY

The central thesis of Hirschi's (1969) social bonding theory is that when a person's ties to society is weakened or broken (e.g., social bond), the person will be more likely to engage in deviance/crime or delinquency. Social bond has four major dimensions: Attachment to significant others (e.g., parents, teachers or peers), commitment to conventional activities (e.g., educational goals like getting high grades), involvement in conventional activities (e.g., club membership), and belief in societal norms (e.g., ethics, law etc.).

Most tests of social bonding theory have been received support for such dimensions as attachment, commitment, and belief. Also, the theory has obtained empirical supports across the world regarding attachment, commitment, and belief (e.g., Antonaccio & Botchkovar, 2016; Costello & Laub, 2020; Hoeve *et al.*, 2012). Nevertheless, the test of the theory across non-Western societies indicated that some dimensions of social bonds (particularly family control and school commitment) played more stronger roles on delinquency, and this is viewed as an indication of

importance of educational and familial institutions in the Asian societies (Antonaccio & Botchkovar, 2016).

Although social bonding theory has been tested in relation to some "contexts" like gender (Hartjen & Priyadarsini, 2003; Huebner & Betts, 2002; Liu & Kaplan, 1999; Nofziger, 2019; Rosenbaum, 1987; Smith & Paternoster, 1987), age (Agnew, 1985; Friedman & Rosenbaum, 1988; Le Blanc, 1992; LaGrange & White, 1985; Menard, Elliott, & Wofford, 1993; Seydlitz, 1990) or, albeit few, race/ethnicity (Cernkovich & Giordano, 1992; Jang, 2002; Peguero, Popp, Latimore, Shekarkhar, & Koo, 2011; Unnever, Cullen, Mathers, McClure, & Allison, 2009), there have been very few studies on the contexts of rural-urban (or place of residence), for exceptions, Krohn *et al.*, 1984; Lyerly & Skipper, 1981; Shoemaker, 1989). We believe that this is a very crucial knowledge gap in the criminology literature.

From an Asian criminological perspective, it is argued that while most Western deviance/crime theories incline to concentrate on individual-level deviance and individualistic accounts of cause of deviance/crime, Asian understanding of deviance/crime underlines "relationalism," for example, attachment, honor, and harmony (Carrington *et al.*, 2019; Liu, 2016). Inspired by post-modern/post-structural theoretical perspectives, we believe that an explanation of criminological issues only through the lenses of the strict binary west-east theoretical perspectives may miss or limit some middle positions (like Türkiye) or diversities of social realities in and across a rapidly changing current societies. We think that both social bonding theory and the Asian criminological paradigm are in harmony with the cultural context of Türkiye (for example, see Dilmac, 2016; Ozbay & Ozcan, 2006; Ozbay & Ozcan, 2008; Ozbay, 2016, also, see below).

Rural-Urban Context, Deviance and Social Bonding Theory

Pursuing Durkheim, social scholars have argued that social integration (e.g., social bonds, interdependence, and social network) explain for conforming behavior. This integration has been assumed to influence confirming behavior in two ways. First one is the possible costs socially bonded people encounter if they break social rules. Second one is integration influence conforming behavior by reducing opportunities for rule-breaking (Welch, Tittle, Yonkoski, Meidinger, & Grasmick, 2008).

Concerning the relationships between rural-urban context and deviance/crime or delinquency, in general, dwellers of smaller places are less likely to have tendency toward deviance/crime or delinquency than dwellers of bigger places (Brown, Esbensen, & Geis, 2010; Elliott, Huizinga, & Menard, 1989; Fischer, 1995; Tittle, 1989; Tittle & Patternoster, 2000, for diverse types of deviant acts on the basis of rural-urban differences, see Tittle & Patternoster, 2000). According to the Turkish studies, official deviant/criminal or delinquent acts are more prevalent in the urban places than rural places (e.g., Aksoy & Ogel, 2004; Cosar, 2005). Among others, one of the oldest explanations for the spatial differences in deviance/crime was offered by Thomas and Znaniecki (1920): Industrialization and modernization led to decreasing neighborhood and kinship bonds and hence higher social disorganization. The weaking external social control created more leeway to get individuals involved in non-conventional acts like deviance/crime or delinquency (cited in Rogers & Pridermore, 2016).

Although there have been many tests of the relationships between size/type of settlement in relation to various theories (e.g., Ingram, 1993; Tittle, 1989; Tittle and Grasmick, 2001), unfortunately, there have been very few and old studies on the link between social bonding theory and deviance/crime or delinquency (e.g., Hindelang, 1973; Krohn *et al.*, 1984; Lyerly & Skipper, 1981; Shoemaker, 1989). In contrast to the general expectation that social bonding variables play more important role in the explanation of deviance/crime or delinquency, the findings of these studies appear to be mixed at best. For example, although some studies reported that social bonding factors are a stronger explanation of delinquency among rural youth (Lyerly & Skipper, 1981; Shoemaker, 1989), other studies either did not find any systematic pattern (Krohn et. al., 1984) or find similiar findings with Hirschi's (1969) original study (Hindelang, 1973). Although the present study will not overcome the mixed finding, it will add an additional study/finding to the related literature.

In addition to mixed findings by a very limited number of the above studies, the extant literature are deficient in many other ways. First of all, data of all the aforementioned studies were much older (e.g., the closest one is more than 30 years old). Second, these research all were conducted in some section of the Unites States. Hence, we really do not know how social bonding variables account for rural-urban differences somewhere else in the world (like Türkiye). Third, whereas all the relevant studies used delinquency as dependent variable, however, the present study is on (young) adults. Some studies either used only one social bonding variable (Lyerly & Skipper, 1981), or only rural side (Hindelang, 1973), or very small sample sizes, for example, 100 white, male individuals in total (Lyerly & Skipper, 1981) or limited to substance use as a dependent variable (Krohn *et al.*, 1984). In short, the existing studies on the relationship between social bonding and deviance across rural-urban continuum are very limited in important ways.

Although there have been few studies on social bonding theory and deviance/crime or delinquency in Türkiye (e.g., Ozbay & Ozcan, 2006; Ozbay & Ozcan, 2008; Pals & Engin, 2019; Topcuoglu, 2021; Unal & Cukur, 2011; Yuksek & Solakoglu, 2016), nevertheless, there have not been any study testing the link between social bonding theory across rural-urban contexts in the socio-cultural context of Türkiye (a secular, collectivistic, and Islamic culture although it has continously been affectted by (global) capitalistic values since the 1980s).

In order to test social bonding theory and various deviant acts on the contexts of rural-urban places (e.g., village, town/small city and city), the present study goes beyond the above limitations of the extant literature by using current data (the year of 2020), utilizing data from elsewhere in the world, Türkiye, employing deviance carried out by young/emerging adult, covering almost all the dimensions of social bonding theory, having relatively greater sample sizes, and including eight deviant (or substance use) acts (life-time deviance, cheating on exams, skipping school, cigarette use, alcohol use, carrying gun, beating someone, and Internet deviance). Although our study may not resolve the above mixed finding, at least it may add one more evidence to the existing cumulative knowledge on the issue in question. Therefore, we think that the persent study has the potential for very important contributions to the criminological literature on social bonding theory and deviance in relation to rural-urban contexts.

METHOD

Data came from a sample of state university students (1.472) at a Turkish public university in 2020. An online survey was carried out via e-mails obtained from the university officials. The university students were informed the voluntary, confidential, and anonymous nature of the survey on the cover page of the survey. Moreover, an ethical permission was gathered from the ethical comittee of the university.

MEASUREMENTS OF VARIABLES

Dependent Variables

Life-time deviance index (Cronbach's alpha= .71) covered such eleven survey items as Internet deviance (e.g., not legally downloading music, films from the Internet), stealing (e.g., department store, shop), carrying a weapon (e.g., gun, stick, knife or chain), group fight (e.g., street, stadium or else), beating up/hurting someone seriously, skipping school, cheating on exams, grafitti (e.g., subway, wall, train or bus), alcohol use, cigarette use, use of illicit drugs (e.g., heroin, cocaine, and marijuana). The response items were "no" (1), "yes" (2). Although an attempt was made to create a frequency measure of recent deviant act index, it was not possible to either less or no reportage of various deviant acts in the survey. So, we had to use only for a life-time deviance index. Due to the nature of the dependent variable, a linear regression analysis was used to analyze the proposed relationships between social bonding theory and deviance across the types of rural and urban contexts.

Some other dependent variables were life-time alcohol use, life-time cigarette use, life-time beating, life-time carrying gun, life-time skipping school, life-time cheating on exams, and life-time Internet deviance. They were measured by asking "Have you ever done…?" The response options were "yes" (1) and "no" (0, the reference category). Most of the deviant measures were received from Enzmann *et al.*'s study (2017). Owing to the quality of the dependent variables, binary logistic regression analyses were used.

Independent Variables

Social Bonding Theory includes four dimensions or aspects: Attachment to family, school, and peers; commitment to conventional lines of action; involvement in conventional activities; and beliefs. The data used in the present study allowed us to use most of these dimensions (the present study did not include only attachment to school or peers).

Commitment to conventional lines of action is measured by how much time a student has spent on school work per day in an average week outside of the school. The response items were recoded as not studied (coded as 0, the reference category), at least one hour studied (coded as 1).

Involvement in conventional activities included two separate questions: Working status of the students and membership in a civic association. The participants were asked whether or not they worked or not during their education, and those who do not work treated as the base category (coded as 2, those who worked coded as 1). Likewise, the respondents were asked to report whether or not they were a member of civic associations, those who were not a member of any associations were treated as the reference category (coded as 2, those who were a member coded as 1).

Belief was measured by two different questions: Ethics and respect for police. Ethics was measured by asking how important is it to show ethical behavior for you in your daily life? The responses varied from 0 (none) to 100 (very much). Likewise, the respondents were asked to indicate how respectful they are toward police and gendarmerie (rural police). The responses ranged from 0 (none) to 100 (completely).

Attachment to family included four sub-dimensions: Maternal and paternal (virtual) control or supervision indices and maternal and paternal relational control indices (the below survey items were obtained from Grasmick, Hagan, Blackwell, & Arneklev, 1996; McCarthy, Hagan, & Woodward, 1999). Maternal (virtual) control involved agreements to the two statements: "My mother or the person in her role generally knew where I was when I was away from home" and "My mother or the person in her role generally knew whom I was with when I was away from home." The responses were strongly disagree (1), somewhat disagree (2), somewhat agree (3), and strongly agree (4). A maternal control index (Cronbach's alpha= .89) was created adding up the two items. Likewise, paternal (virtual) control included agreements to the two statements: "My father or the person in his role generally knew where I was when I was away from home" and "My father or the person in his role generally knew whom I was with when I was away from home." The responses were strongly disagree (1), somewhat disagree (2), somewhat agree (3), and strongly agree (4). A paternal control index (Cronbach's alpha= .91) was developed summing up the two items. Also, regarding both maternal (Cronbach's alpha= .65) and paternal relational control (Cronbach's alpha= .66) indices, for each sub-dimensions, it was asked: "How often do you talk about thoughts and feelings with your mather/father?" and "How much would you like to be like your mather/father?" The response options for the first statement were never (1), sometimes (2), usually (3), always (4). The response options for the second statement were not at all (1), in just a few ways (2), in some ways (3), in most ways (4), in every way (5). In all four indices, higher scores indicated greater parental controls. Relatedly, a family control index (composed of the above paternal and maternal control items, Cronbachs' alpha= .89) and a family relational control index (composed of the above paternal and maternal relational control items, Cronbachs' alpha= .75) were created to see united effects of family controls.

The present study involved some important demographic and theoretical control variables: Age, gender, social class (e.g., house property index), size of household, criminal family (learning theory), risk taking (self control theory), certainty of punishment (detterence theory), course failure, and economic dissatisfaction (strain theory). Age refers to biological age in years, gender refers to being female (1) and male (2, the base category). Family income was measured by asking the respondents about how much total incomes earned by the family members per month in the year of 2020. Criminal family (learning theory) was measured by asking whether or not any member of the respondent's family members was under custody, arrested or in prison in the last three years. The response items were "no" (1, the reference category) and "yes" (2). Risk taking (self-control theory) was composed of agreements to four

statements: "I like to test myself every now and then by doing something a little risky;" "Sometimes I will take a risk just for the fun of it;" "I sometimes find it exciting to do things that might get me into trouble;" "Excitement and adventure are more important to me than security." The responses were originally coded as strongly disagree (1), disagree somewhat (2), agree somewhat (3), and strongly agree (4). An index of risk taking was developed and afterwards divided into "low" (median and below median values, coded as 1, the reference category) and "high risk taking" (above median values, coded as 2) groups (the question was obtained from Grasmick *et al.*, 1996). Certainty of punishment (deterrence theory) included only one item: "If you commit any crimes, what would be the possibility of getting arrested and detained?" The responses varied from 0-100, and later recoded as "low" (coded as 1, the reference category) and "high certainty of punishment" (coded as 2). Course failure (strain theory) measured the number of courses failed. The reponses were originally interval variable, later it was recoded as no course failure (coded as 0, the base category), one or two course failures (coded as 1), and three or more course failures (coded as 2).

As a contextual variable, a rural-urban continuum was used and measured by asking the participants "where their family live?" The response categories were village (covering 0-2,000 individuals, coded as 1), town and small city (including about 3,000-9,000 and 10,000-50,000 individuals respectively, coded as 2), and city (involving above 50,000 individuals, coded as 3, see Avcı, 2004; Yologlu & Zorlu, 2020 more on the sizes of the place in Türkiye. There have been no concise agreement on these numerical classifications among the scholars or official institutions in Türkiye). Although, as a additional contextual variable, we wanted to include the location of the schools (e.g., rural side) where the research participants received their education; however, there were not enough participation by the university students in the related locations (e.g., some small cities). Therefore, we had to limit our study according to the location of the students's family (see Table 1 for the variables and related descriptive statistics).

Table 1: Descriptive Statistics for the Variables in the Analysis

Variables	**Minim.**	**Maxim.**	**Std. dev.**	**Mean**	**Cronb.alpha**
Dependent variable					
Life-time[a] deviance index	1	2	.185	1.26	.71
Cheating on exams	0	1			
Skipping school	0	1			
Cigarette use	0	1			
Alcohol use	0	1			
Carrying gun Beating	0	1			
Internet deviance	0	1			
Core independent variables					
Time spent for classes	0	1			
Not studied (ref.)[b]					
At least one hour studied					
Working status of student	1	2			
Yes					
No (ref.)					

Member. in a civic assoc.	1	2			
Yes					
No (ref.)					
Respect for police	0	100	17.37	93.09	
Ethics	0	100	18.48	88.90	
Paternal control index[a]	1	4	0.86	2.87	.92
Maternal control index[a]	1	4	0.72	3.26	.89
Paternal relational control index[a]	1	4	0.76	2.07	.66
Maternal relational control index[a]	1	4	0.78	2.53	.65
Family control index	1	4	0.72	3.06	.89
Family relational control index	1	4	0.67	2.30	.75
Control variables					
Age	18	53	3.65	22.24	
Gender	1	2			
Female	1	2			
Male (ref.)					
Family income[c] index[a]	200	67.000	4304.63	4184.40	
Criminal family	1	2			
Yes					
No (ref.)					
Risk taking	1	2			
Low (ref.)					
High					
Certainty of punish.	1	2			
Low (ref.)					
High					
Course failure	0	2			
No (ref.)					
One or two					
Three or more					
Contextual variable	1	3			
Village	19.7 (556)				
Town and small city	19.8 (560)				
City	59.8(1.691)				

a Mean of the scales were used.
b "ref." refers to reference category.
c Median income was 3.000 TL. During the administration of the survey, 1 Turkish lira (TL) = ~$7.02, 1 TL= ~7.71 Euro.

RESULTS

LIFE-TIME DEVIANCE

Village

Time spent for classes (at least one hour studied, compared to not studied), maternal control, and family control have negative influences on life-time deviance independent of the control variables.

Town and small city

Membership in civic association (yes), ethics, paternal control, and family control have significant effects on the dependent variable. Although membership in civic association (yes) has unexpected positive impact on life-time deviance, ethics, paternal control, and family control have negative impacts on the dependent variable.

City

Membership in civic association (yes), respect for police, ethics, paternal control, and family control have significant relationships with the dependent variable. Whereas membership in civic association (yes) has unexpected positive influence on life-time deviance, respect for police, ethics, paternal control, and family control have negative influences on life-time deviance.

Table 2: Linear Regression Analysis of Social Bonding Variables and Life-Time Deviance

Independent variables	**Total sample (n=1.427)**		**Village (n= 249)**		**Town and small city (n= 266)**		**City (n= 905)**	
Social bonding variables	β	β	β	β	β	β	β	β
Time spent for classes								
Not studied (ref.)								
At least one hour studied	-.05*	-.05*	-.12*	-.12*	-.03	-.04	-.03	-.03
Working status of student								
Yes	.06**	.06**	.08	.07	-.02	-.03	.06	.06
No (ref.)								
Membership in civic assoc.								
Yes	.12***	.12***	.10	.08	.15**	.15*	.12***	.12***
No (ref.)								
Respect for police	-.10***	-.10***	-.07	-.07	-.02	-.02	-.11***	-.11***
Ethics	-.09***	-.09***	.05	.05	-.17**	-.17**	-.08**	-.08**
Paternal control index	-.16***		-.10		-.30***		-.13***	
Maternal control index	-.02		-.22**		.07		-.04	
Paternal relational control index	.00		-.07		.02		.01	
Maternal relational control index	-.01		.08		.01		-.04	
Family control index		-.17***		-.29***		-.22***		-16.***
Family relational control index		-.01		.01		.05		-.02
Control variables								
Age	.06*	.06*	.13*	.13*	-.05	-.06	.07*	.07*
Gender								
Female	-.22***	-.21***	-.23***	-.24***	-.22***	-.19***	-.23***	-.23***
Male (ref.)								
Family income	.03	.03	-.08	-.08	.03	.02	.04	.04

Criminal family								
Yes	.08***	.08***	.11*	.11*	.16**	.18***	.05	.05
No (ref.)								
Risk taking								
Low (ref.)								
High	.23***	.23***	.20***	.21***	.19***	.19***	.25***	.25***
Certainty of punishment								
Low (ref.)								
High	-.10***	-.09***	-.01	-.01	-.07	-.07	-.10***	-.10***
Course failure								
No (ref.)								
One or two	.02	.02	.06	.07	.02	.02	-.01	-.01
Three or more	.08**	.08**	.06	.07	.09	.10	.05	.05
Constant	1.515	1.527	1.325	1.311	1.574	1.610	1.538	1.547
R^2	.35***	.35***	.42***	.41***	.33***	.31***	.37***	.37***

* p ≤ .05, ** p ≤ .01, *** p ≤ .001. Significant predictors were bolded.

LIFE-TIME ALCOHOL USE

Village

Paternal control, maternal control, and family control have significant negative influences on life-time alcohol use.

Town and Small City

Ethics, paternal control, family control, and family relational control have significant impacts on the dependent variable. While family relational control has unexpected positive impact, ethics, paternal control, and family control have negative impacts on the dependent variable.

City

Time spent for classes (at least one hour studied, compared to not studied), working status of student (yes), respect for police, and ethics are significantly related to the dependent variable. Although working status of student (yes) has an unexpected positive relationship with life-time alcohol use, the rest of the other variables have negative relationships with it.

Table 3: Binary Logistic Regression Analysis of Social Bonding Variables and Life-Time Alcohol Use

Independent variables	Total sample (n=1.469)		Village (n= 257)		Town and small city (n= 276)		City (n= 929)	
Social bonding variables	Exp(B)	Exp (B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Time spent for classes								
Not studied (ref.)								
At least one hour studied	.684**	.683**	.575	.568	.723	.708	.690*	.692*
Working status of student								
Yes	1.669***	1.666***	2.149	2.091	.888	.879	1.666**	1.663**
No (ref.)								
Membership in civic assoc.								

Yes	1.417**	1.417**	2.261	2.232	1.824	1.783	1.331	1.335
No (ref.)								
Respect for police	.993**	.993**	.997	.998	.998	.997	.991*	.991*
Ethics	.980***	.980***	1.007	1.006	.981***	.981***	.975***	.975***
Paternal control index	.853		.538**		.640*		.971	
Maternal control index	.858		.525*		1.012		.861	
Paternal relational control index	1.002		.944		1.372		.915	
Maternal relational control index	1.053		1.262		1.156		.981	
Family control index		.730***		.286***		.613**		.850
Family relational control index		1.057		1.219		1.638*		.899
Control variables								
Age	1.075***	1.074***	1.100	1.099	1.001	1.002	1.096***	1.096***
Gender								
Female	.551***	.553***	.711	.718	.499**	.543*	.509***	.504***
Male (ref.)								
Family income	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Criminal family								
Yes	1.473**	1.477**	2.722**	2.724**	2,182*	2,280**	1.259	1.258
No (ref.)								
Risk taking								
Low (ref.)								
High	1.809***	1.807***	1.419	1.420	1.537	1.532	2.105***	2.111***
Certainty of punishment								
Low (ref.)								
High	.714**	.715**	.800	.813	.806	.795	.693**	.695**
Course failure								
No (ref.)								
One or two	.803	.802	1.435	1.479	.442**	.458**	.777	.777
Three or more	1.468**	1.468**	1.491	1.529	.815	.857	1.575**	1.579**
Constant	1.190	1.197	-.616	-.641	1.929	2.094	1.458	1.404
Cox and Snell R^2	.18***	.18***	.19***	.19***	.15***	.14***	.21***	.21***

* $p \leq .100$, ** $p \leq .05$, *** $p \leq .01$. Significant predictors were bolded.

LIFE-TIME CIGARETTE USE

Village

Paternal control, family control, and family relational control have significant impacts on life-time cigarette use. Whereas family relational control has unexptected positive effect on the dependent variable, paternal control and family control has negative effects.

Town and Small City

Ethics, paternal control, and family control are significantly related to the dependent variable. They all have negative effects on the dependent variable.

City

Time spent for classes (at least one hour studied, compared to not studied), working status of student (yes), membership in civic association (yes), ethics, and family control have significant impacts on the dependent variable. While working status of student (yes) and membership in civic association (yes) have unexpected positive influences on life-time cigarette use, time spent for classes (at least one hour studied, compared to not studied), ethics, and family control have negative influences.

Table 4: Binary Logistic Regression Analysis of Social Bonding Variables and Life-Time Cigarette Use

Independent variables	Total sample (n= 1.469)		Village (n= 256)		Town and small city (n= 275)		City (n= 931)	
Social bonding variables	Exp(B)	Exp (B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Time spent for classes								
Not studied (ref.)								
At least one hour studied	.684**	.679**	.476	.491	1.070	1.007	.625**	.625**
Working status of student								
Yes	1.633**	1.632**	1.216	1.252	1.338	1.261	1.731**	1.727**
No (ref.)								
Membership in civic assoc.								
Yes	1.553**	1.553**	1.545	1.635	1.032	1.048	1.661**	1.657**
No (ref.)								
Respect for police	.999	.999	.996	.996	1.001	1.002	1.000	1.000
Ethics	.993**	.993*	1.010	1.009	.986*	.987	.992*	.992*
Paternal control index	.728***		.608**		.494***		.821	
Maternal control index	.870		.721		.898		.834	
Paternal relational control index	.979		1.502		.936		.898	
Maternal relational control index	1.023		1.018		1.389		.960	
Family control index		.616***		.431***		.405***		.681***
Family relational control index		1.006		1.489*		1.357		.863
Control variables								
Age	1.005	1.005	1.064	1.061	.974	.969	1.003	1.003

Gender								
Female	.561***	.576***	.431**	.433***	.552*	.607	.553***	.557***
Male (ref.)								
Family income	1.000	1.000	1.000	1.000	1.000*	1.000**	1.000*	1.000*
Criminal family								
Yes	1.190	1.198	.983	.977	1.966	2.068	1.111	1.117
No (ref.)								
Risk taking								
Low (ref.)								
High	1.571***	1.565***	1.277	1.265	1.684*	1.669*	1.685***	1.681***
Certainty of punishment								
Low (ref.)								
High	.821*	.823	1.043	1.035	1.135	1.143	.764*	.764*
Course failure								
No (ref.)								
One or two	1.083	1.081	.961	.921	.969	.941	1.179	1.176
Three or more	1.608***	1.606***	.978	.937	1.423	1.390	1.854***	1.853***
Constant	2.424	2.518	.894	1.035	3.117	3.472	2.716	2.734
Cox and Snell R^2	.12***	.12***	.14***	.14***	.16***	.15***	.14***	.14***

* p ≤ .100, ** p ≤ .05, *** p ≤ .01. Significant predictors were bolded.

LIFE-TIME BEATING

Village

Time spent for classes (at least one hour studied, compared to not studied) is the only variable which is related negatively to life-time beating. In other words, compared to those who did not study for classes, those who studied at least one hour are less likely to engage in a beating act.

Town and Small City

Membership in civic association (yes), ethics, and paternal control have significant influences on the dependent variable. Although membership in civic association (yes) has unexpected positive impact on life-time beating, ethics and paternal control have negative impacts.

City

Membership in civic association (yes), paternal control, family control, and family relational control are significantly related to life-time beating. Whereas membership in civic association (yes) and family relational control have unexpected positive impacts on the dependent variable, paternal control and family control have negative impacts.

Table 5: Binary Logistic Regression Analysis of Social Bonding Variables and Life-Time Beating

Independent variables	Total sample (n= 1.466)		Village (n= 255)		Town and small city (n= 275)		City (n= 929)	
Social bonding variables	Exp(B)	Exp (B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Time spent for classes								
Not studied (ref.)								
At least one hour studied	.781	.770	.226*	.258*	.854	.916	.794	.787
Working status of student								
Yes	1.240	1.236	.288	.334	1.034	1.021	1.098	1.094
No (ref.)								
Membership in civic assoc.								
Yes	1.629**	1.625**	.934	1.089	9.633***	7.608***	1.742*	1.734*
No (ref.)								
Respect for police	.997	.997	1.007	1.010	1.031	1.026	.993	.993
Ethics	.993	.993	1.025	1.018	.975*	.977*	.993	.993
Paternal control index	.660**		.442		.395*		.704*	
Maternal control index	1.006		1.295		2.503		.914	
Paternal relational control index	1.222		.521		1.303		1.366	
Maternal relational control index	1.088		1.555		.550		1.175	
Family control index		.639***		.531		.792		.628***
Family relational control index		1.336*		.842		.822		1.602**
Control variables								
Age	1.059**	1.059**	1.253**	1.250**	1.006	1.004	1.060*	1.060*
Gender								
Female	.340***	.360***	.144***	.201**	.462	.699	.340***	.349***
Male (ref.)								
Family income	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Criminal family								
Yes	1.872**	1.867**	1.301	1.336	5.122**	6.590***	1.412	1.399
No (ref.)								
Risk taking								

Low (ref.)								
High	4.010***	3.962***	4.813**	4.495**	2.011	1.988	4.380***	4.331***
Certainty of punishment								
Low (ref.)								
High	.584**	.578**	.498	.548	.331	.316	.598**	.592**
Course failure								
No (ref.)								
One or two	1.547	1.535	22.108**	16.802**	1.059	1.130	1.235	1.230
Three or more	1.226	1.223	10.024*	6.491	1.421	1.757	.987	.975
Constant	-2.539	-2.377	-9.456	-8.452	-3.814	-3.180	-2.239	-2.117
Cox and Snell R^2	.12***	.12***	.18***	.17***	.12***	.11***	.13***	.13***

* p ≤ .100, ** p ≤ .05, *** p ≤ .01. Significant predictors were bolded.

LIFE-TIME CARRYING GUN

Village

Family control is the only significant social bonding variable which has negative effect on life-time carrying gun.

Town and Small City

Membership in civic association (yes), maternal control, family control, and family relational control have statistically significant relationships with the dependent variable. Whereas membership in civic association (yes) and family relational control have unexpected positive influences on life-time carrying gun, the rest have negative influences.

City

Membership in civic association (yes), maternal control, maternal relational control, and family control are statistically significant. Whereas membership in civic association (yes) has unexpected positive effect on the dependent variable, maternal control, maternal relational control, and family control have negative effects.

Table 6: Binary Logistic Regression Analysis of Social Bonding Variables and Life-Time Carrying Gun

Independent variables	**Total sample (n= 1.468)**		**Village (n= 255)**		**Town and small city (n= 276)**		**City (n= 930)**	
Social bonding variables	Exp(B)	Exp (B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Time spent for classes								
Not studied (ref.)								
At least one hour studied	1.085	1.073	.878	.889	1.306	1.345	1.119	1.084
Working status of student								
Yes	1.133	1.157	.703	.767	.793	.786	1.135	1.174
No (ref.)								

Membership in civic assoc.								
Yes	2.653***	2.619***	1.956	2.005	6.272***	6.496***	2.583***	2.536***
No (ref.)								
Respect for police	.999	.998	1.010	1.009	1.027	1.029	.993	.993
Ethics	1.002	1.001	1.001	1.002	.984	.984	1.005	1.004
Paternal control index	.891		.501		.715		1.024	
Maternal control index	.627***		.634		.320**		.666**	
Paternal relational control index	1.280		1.288		1.386		1.265	
Maternal relational control index	.769		.569		1.703		.709*	
Family control index		.583***		.311***		.248***		.729**
Family relational control index		.974		.700		2.209*		.886
Control variables								
Age	1.046**	1.046**	1.148*	1.149*	1.047	1.051	1.047	1.045
Gender								
Female	.258***	.243***	.144***	.148***	.432	.357**	.280***	.261***
Male (ref.)								
Family income	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Criminal family								
Yes	1.887***	1.811***	2.379	2.241	4.939**	4.180**	1.561	1.498
No (ref.)								
Risk taking								
Low (ref.)								
High	3.274***	3.245***	3.311**	3.242**	2.333	2.305	3.604***	3.587***
Certainty of punishment								
Low (ref.)								
High	.669**	.672**	.679	.648	.369*	.383*	.676*	.688*
Course failure								
No (ref.)								
One or two	1.077	1.102	1.764	1.584	.966	.923	.942	.974
Three or more	1.072	1.073	1.232	1.177	1.890	1.723	.828	.850
Constant	-1.138	-1.257	-1.798	-1.692	-2.458	-2.689	-1.159	-1.299
Cox and Snell R^2	.19***	.18***	.27***	.26***	.21***	.21***	.19***	.18***

* $p \leq .100$, ** $p \leq .05$, *** $p \leq .01$. Significant predictors were bolded.

LIFE-TIME SKIPPING SCHOOL

Village

None of the social bonding variables are statistically significant.

Town and Small City

Ethics, paternal control, and maternal control are statistically significant variables. Whereas maternal control has an unexpected positive impact on life-time skipping school, ethics and paternal control have negative impacts.

City

Membership in civic association (yes), paternal control, and family control have significant influences on life-time skipping school. While membership in civic association (yes) has unexpected positive impact on the dependent variable, paternal control and family control have negative influences.

Table 7: Binary Logistic Regression Analysis of Social Bonding Variables and Life-Time Skipping School

Independent variables	**Total sample (n= 1.472)**		**Village (n= 257)**		**Town and small city (n= 276)**		**City (n= 932)**	
Social bonding variables	Exp(B)	Exp (B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Time spent for classes								
Not studied (ref.)								
At least one hour studied	.803	.790	.999	.968	1.201	1.152	.693	.686
Working status of student								
Yes	1.085	1.092	.801	.764	.500	.502	1.220	1.228
No (ref.)								
Membership in civic assoc.								
Yes	1.506**	1.512**	1.007	.916	1.330	1.304	1.848**	1.831**
No (ref.)								
Respect for police	.994	.994	1.000	1.000	1.005	1.004	.992	.992
Ethics	.993**	.993*	.995	.995	.983*	.982*	.997	.997
Paternal control index	.692***		1.096		.538**		.639***	
Maternal control index	1.165		.684		1.726*		1.029	
Paternal relational control index	1.011		.733		1.092		1.076	
Maternal relational control index	.937		1.063		.762		.968	
Family control index		.747***		.792		.787		.608***

Family elational control index		.953		.801		.924		1.039
Control variables								
Age	.996	.995	1.030	1.032	.987	.987	.979	.977
Gender								
Female	.499***	.533***	.394***	.379***	.422**	.516*	.489***	.514***
Male (ref.)								
Family income	1.000	1.000	1.000*	1.000*	1.000	1.000	1.000	1.000
Criminal family								
Yes	1.591**	1.602**	2.301*	2.281*	1.507	1.575	1.397	1.411
No (ref.)								
Risk taking								
Low (ref.)								
High	2.152***	2.127***	2.931***	2.966***	2.139**	2.094**	2.135***	2.108***
Certainty of punishment								
Low (ref.)								
High	.861	.864	1.545	1.533	.974	.935	.763	.766
Course failure								
No (ref.)								
One or two	1.246	1.250	1.495	1.559	1.225	1.325	1.156	1.159
Three or more	1.664***	1.652***	1.749	1.849*	2.110**	2.258**	1.461*	1.443*
Constant	2.988	3.237	1.073	.815	2.664	3.028	4.149	4.417
Cox and Snell R^2	.11***	.10***	.17***	.16***	.12***	.10***	.11***	.11***

* p ≤ .100, ** p ≤ .05, *** p ≤ .01. Significant predictors were bolded.

LIFE-TIME CHEATING ON EXAMS

Village

Among the social bonding variables, respect for police and paternal relational control have significant negative effects on life-time cheating on exams.

Town and Small City

Paternal control and family control have significant negative impacts on the dependent variable.

City

Working status of student (yes), paternal control, and family relational control have significant effects on life-time cheating on exams. Although working status of student (yes) has a positive influence on the dependent variable, paternal control and family relational control have negative influences.

Table 8: Binary Logistic Regression Analysis of Social Bonding Variables and Life-Time Cheating on Exams

Independent variables	**Total sample (n= 1.466)**		**Village (n= 256)**		**Town and small city (n= 275)**		**City (n= 928)**	
Social bonding variables	Exp(B)	Exp (B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Time spent for classes								
Not studied (ref.)								
At least one hour studied	.861	.845	.657	.632	.998	.925	.941	.930
Working status of student								
Yes	1.689***	1.688***	1.783	1.708	1.552	1.488	1.656**	1.659**
No (ref.)								
Membership in civic assoc.								
Yes	1.331	1.331	1.574	1.502	1.370	1.278	1.304	1.295
No (ref.)								
Respect for police	1.000	1.000	.963**	.966**	1.000	.999	1.006	1.006
Ethics	.994*	.994*	.993	.993	.992	.991	.995	.996
Paternal control index	.715***		.853		.468***		.776*	
Maternal control index	1.263*		.850		1.570		1.179	
Paternal relational control index	.861		.594*		.973		.892	
Maternal relational control index	.910		1.305		.714		.890	
Family control index		.834*		.719		.624**		.857
Family relational control index		.793**		.815		.763		.794*
Control variables								
Age	.974	.973	1.041	1.044	.958	.960	.961*	.960*
Gender								
Female	.921	.997	.986	1.023	1.161	1.384	.783	.825
Male (ref.)								
Family income	1.000*	1.000*	1.000*	1.000*	1.000	1.000	1.000	1.000
Criminal family								
Yes	1.254	1.270	1.227	1.231	1.269	1.345	1.375	1.388
No (ref.)								
Risk taking								
Low (ref.)								
High	1.861***	1.832***	1.487	1.489	1.671*	1.666*	2.153***	2.119***

Certainty of punishment								
Low (ref.)								
High	.845	.845	1.167	1.218	.846	.812	.863	.861
Course failure								
No (ref.)								
One or two	1.396**	1.391**	.951	1.034	1.965*	2.079**	1.354	1.350
Three or more	1.192	1.190	1.045	1.124	1.356	1.467	1.038	1.031
Constant	2.378	2.641	5.394	5.043	3.224	3.609	2.121	2.357
Cox and Snell R^2	.07***	.07***	.14***	.13***	.12***	.10***	.07***	.07***

* p ≤ .100, ** p ≤ .05, *** p ≤ .01. Significant predictors were bolded.

LIFE-TIME INTERNET DEVIANCE

Village

Time spent for classes (at least one hour studied, compared to not studied) and working status of student (yes) are the only significant social bonding variables. While working status of student (yes) is positively related to life-time Internet deviance, time spent for classes is negatively related to it.

Town and Small City

Membership in civic association (yes) and respect for police are the only significant variables. Whereas membership in civic association (yes) has unexpected positive relationship with the dependent variable, respect for police has negative relationship with it.

City

Membership in civic association (yes), respect for police, paternal control, maternal control, and maternal relational control are statistically significant. Although membership in civic association (yes) and maternal control have unexpected positive influences on life-time internet deviance, paternal control and maternal relational control have negative influences on it.

Table 9: Binary Logistic Regression Analysis of Social Bonding Variables and Life-Time Internet Deviance

Independent variables	**Total sample (n= 1.468)**		**Village (n= 257)**		**Town and small city (n= 274)**		**City (n= 930)**	
Social bonding variables	Exp(B)	Exp (B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Time spent for classes								
Not studied (ref.)								
At least one hour studied	.768	.757	.211**	.201**	.769	.737	.927	.914
Working status of student								
Yes	1.308	1.310	3.441*	2.867	1.167	1.167	.975	.981
No (ref.)								
Membership in civic assoc.								
Yes	1.740***	1.740***	1.297	1.039	2.801**	2.722**	1.882**	1.857***
No (ref.)								
Respect for police	.985***	.985***	.992	.993	.977**	.976**	.985***	.985***

Ethics	.993*	.994*	.999	1.001	.995	.996	.993	.994
Paternal control index	.778**		1.504		.733		.727**	
Maternal control index	1.304*		.503		1.100		1.418**	
Paternal relational control index	1.036		.479		1.117		1.093	
Maternal relational control index	.869		1.746		1.107		.764*	
Family control index		.956		.817		.766		.950
Family elational control index		.904		.860		1.258		.826
Control variables								
Age	1.046**	1.046**	1.111	1.111	.925	.922*	1.072***	1.070***
Gender								
Female	.368***	.394***	.184***	.182***	.293***	.318***	.377***	.405***
Male (ref.)								
Family income	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Criminal family								
Yes	1.450*	1.463*	1.952	2.051	2.812**	2.925**	1.194	1.196
No (ref.)								
Risk taking								
Low (ref.)								
High	1.307*	1.290*	.829	.838	.891	.890	1.462**	1.431**
Certainty of punishment								
Low (ref.)								
High	.626***	.622***	.333*	.366*	.880	.869	.616***	.611***
Course failure								
No (ref.)								
One or two	.955	.955	9.849**	11.154**	.617	.631	.787	.791
Three or more	1.267	1.264	7.804*	8.197*	.989	1.041	1.054	1.035
Constant	.357	.557	-2.302	-2.568	3.671	3.927	.095	.398
Cox and Snell R^2	.13***	.13***	.21***	.21***	.14***	.14***	.14***	.14***

* $p \leq .100$, ** $p \leq .05$, *** $p \leq .01$. Significant predictors were bolded.

COMPARISONS ACROSS TYPES OF DEVIANCE

When the relationships between the social bonding variables and various deviant acts across different rural-urban contexts are examined, although the number of the significant social bonding variables seems to be more prevalent among urban context (e.g., city), however we did not find any clear pattern in general. For example, time spent for classes and working status of student are the only significant predictors regarding Internet deviance for village; membership in civic association (yes), respect for police, paternal

control, maternal control, and maternal relational control are significant predictors for city. Nevertheless, when the life-time deviance index is closely examined (Table 2), the social bonding variables appear to have stronger effects in rural contexts (village, town and small city) than city context. For example, beta coefficient of family control index is -.29 in village, -.22 in town and small city, and -.16 in city. This underlines that social bonding theory is a better explanation for rural context than city context.

CONCLUSIONS

Although Hirschi's social bonding theory has been tested to a great extent in the United States, there has been a very limited number of studies which has tested it in relation to rural-urban continuum. The present study has tested various dimensions of social bonding theory across different types of deviant acts and across rural-urban continuum (e.g., village, town and small city, and city) among (young) adults/university students in Türkiye by using linear and logistic regression analyses.

The findings show that the link between the social bonding variables and various deviant acts on the context of rural-urban is not uniform. That is, the findings indicate that the impacts of such social bonding variables as time spent for classes, working status, membership in civic associations, respect for police, ethics, various paternal and maternal (relational) controls (or various family controls) on deviant acts do not consistently persist (see also Krohn *et al.*, 1984). Likewise, most social bonding variables are statistically significant more for city than village or town and small city even though directions of some social bonding variables are contrary (e.g., positive, not negative). However, according to the relevant literature, social bonding theory is theoretically supposed to explain for deviance in more rural than urban contexts (e.g., Hindelang, 1973; Gardner & Shoemaker, 1989; Lyerly & Skipper, 1981). When linear regression's beta coefficients in relation to life-time deviance index are examined, theye are greater in size in village and town and small city than city. This emphasizes the fact that social bonding variables are better indicators of rural than urban contexts (also see Gardner & Shoemaker, 1989; Lyerly and Skipper, 1981).

Concerning the predictions of social bonding theory, some social bonding variables are in the predicted directions: Compared to those who did not study for their classes, those who studid at least one hour is less likely to engage in deviance. Likewise, an increase in respect for police by the students is related to a decrease in deviant acts. Moreover, an increase in the importance of ethics given by the students has a negative effect on the dependent variables. Parental controls have generally negative influences on deviant behaviour. However, some of these social bonding variables are not in harmony with the predictions of social bonding theory. For example, working status of the students (yes), membership in civic associations (yes), family relational control are positively related to deviant acts. This finding questions involvement in conventional activities and attachment to family components of the theory in question.

According to the criminology literature, one possible reason for the positive relationships between working status of the students and deviant acts is that job stability, ties to work, and job commitment all heighten level of social control which results in less deviant act (Sampson & Laub, 1990). Likewise, employment in a low-quality secondary-sector job (e.g., unstable, poorly paid) tend not to decrease deviant act (Crutchfield & Pitchford, 1997; Crutchfield, 1995, cited in Savolainen, 2009). When working status of the students in the data used is further examined, only 6,4% (n= 180) of the working students worked part-time, and only 11.0% worked full-time (n= 312). Hence, it is highly probable that this quality of employment status of the students did not result in decrease in deviance.

Regarding the other "anomalous" finding, our futher examination of the data did not reveal why membership in civic associations has positive impact on deviant acts. This unexpected finding may be a result of the nature of civic associations (for example, being a member of a violent-oriented associations like a fighting club etc.). Finally, concerning the unexpected positive relationship between family relational control and deviant acts, we think that this relationship is mostly at a low significance level ($p \leq .100$). Thus, the existing relationships may exist as a result of only by chance.

The present study is limited in some ways. Among others, first, due to the nature of the responses to the survey, we are not able to include frequency of deviant acts or some other types of deviance, for example, property related deviant acts (e.g., property related deviance is much less common among the Turkish university students). Second, the continuum from rural-to-urban did not really reflect these places' effects. The reason for this is that some of the university students who came from different locations did not live their lives at those places about 8-9 months during their active educational terms. In this sense, types of locations may not show its real effects. Third, because the study is carried out during the Covid-19 pandemia, the study was done by using an online survey. However, we did not know how this type of survey really affected the nature of the data quality used here. Fourth, we were not able to include peer attachment as an additional social bonding variable in the study due to the lack of this variable in the data. Last but not least, the study contains such problems as having non-generalizability (e.g., not generalizable to Türkiye), being cross-sectional (e.g., no control for prior offending), having social desirability effect (a common problem in surveys in Türkiye due probably to collectivistic character of the society), being an online survey (e.g., questions may be answered superficially).

In spite of these deficiencies, given that there have been very few and old studies on the relationships between social bonding theory deviance in terms of rural-urban contexts in the United States and in the world, testing the theory with a new data and in a different society (Türkiye) is globally crucial to extend the scientific knowledge in criminology.

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