

An Empirical Test of Hirschi's Control Theory of Delinquency: Cypriot Criminal Youths in Nicosia

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Abstract

Cypriot youth crime, as most types of crime on the island, has thus far evaded thorough examination. Hirschi's theorisation that delinquency occurs only after an individual's connection to society attenuates is examined within a Cypriot context. The analysis of data collected from 53 Cypriot male criminal youths, points out that Hirschi's theory does not satisfactorily explain the reasons behind their criminal acts. However, given the small size of our sample and its non-probabilistic selection, shortcomings for robustness become inherent. Nonetheless, incumbent findings open the way to further pertinent exploration.

Keywords: social control theory, juvenile delinquency, Cypriot criminal youths

Theoretical Framework

In the late 1960s, Hirschi introduced a rather converse approach to explaining criminality. Contrary to contemporary theories that often sought to explain why certain individuals resorted to crime, he attempted to explore why most people refrained from breaking the law. His reason for doing so was adopted from the Hobbesian conception that all humans are by virtue non-conformist (Wiatrowski *et al.*, 1981). In line with this approach, his research assumes that individuals are naturally prone to criminality, and thus, social control becomes a key function in deterring them from falling into crime. Hirschi argues that youth in particular, whose bonds with conventional social institutions and individuals are fragmented and diffracted, are more likely to deviate. Social control theory prescribes that criminogenic conduct is distinctly possible in cases where attachment and commitment to, and involvement with, conventional activities (i.e. school, occupation) and individuals (i.e. teachers, parents), are anaemic or inimical. Attachment, on the other hand, embraces the quality of relationships between juveniles and conventional others – parents as well as institutions, school, and work. Commitment to conventional activities requires both quality and quantity of effort, time, emotions, and aspirations invested in them. Besides, involvement with such pursuits necessitates time, which preoccupies youth and as a consequence they refrain from criminality. These elements, together with individual beliefs regarding lawfulness and discipline in general, are considered to be crime deterrents. In fact, the locus of control is not

placed within the juvenile, but on his/her social environment. Yet, this does not imply that individual judgement/agency concerning crime is insignificant. On the contrary, social control theory is based on the assumption of rational choice, which to be exact, is a person who invests time, energy, and effort in conventional activities or plans, and abstains from committing a crime so that his stake in conformity is not jeopardised if apprehended (Hirschi, 1969). Notwithstanding the prominence of Hirschi's social control theory, its assumption that it could determine criminal behaviour across divergent races, genders, cultures, and socioeconomic statuses, spawned a mosaic of responses.

Prior Theory Testing

One such response stemmed from Hindelang (1973), who claimed that social bond variables could only partially explain crime, and he doubted the theory's credibility as it lacked impartial testing. Moreover, pertinent to the assumption that all people have an equal penchant for crime, Schinkel (2002) argued that it is erroneous to assume that all individuals are the same, and therefore they share a static view of conventionality. He affirmed that much like unconventional activities, conventional institutions and activities can also be criminative, and he used white collar crime as an example in which wrongdoing is often carried out within conventional institutions. Aside from shortfalls concerning the nature and type of the conventionality of social elements that exerted control on juveniles, Hirschi's theory was also criticised for hosting tautological arguments. Akers, for instance (2009, p. 125), castigated social control theory for being conflicting. He notes, in detail, that even if Hirschi attributed the formation of criminal peer associations to individual pathways into crime, he did not accept that such associations could also play a role in the manifestation of criminal behaviour.

Indeed, social control theory's variables have never ceased to be tested vigorously by numerous studies that have frequently drawn variant and conflicting conclusions. For instance, in a study undertaken by Matsueda and Heimer (1987) the attachment to social institutions – family in particular – among different cultural groups and crime was not found to be correlated, whereas in another critique involving youths of different descent in the Netherlands (Turkish, Moroccan, Surinamese, and Dutch) it was argued that social control theory had a cross-cultural application (Junger and Marshall, 1997). Additionally, findings from an Asian review illustrated that delinquency levels of Chinese and Vietnamese youth, as opposed to Cambodian and Laotian, were inversely related with school attachment (Le *et al.*, 2005). Similarly, while school commitment, involvement, and attachment were found to be associated with crime (Rankin, 1980) affecting both genders (Burton *et al.*, 1995), such traits had variant effects on males and females in another analysis (Sarri, 1983). Other studies illustrated that parental control was negatively related to delinquency (Gove and Crutchfield, 1982; Wiatrowski *et al.*, 1981), and that social control was altogether inversely connected to drug use (Adlaf and Ivis, 1996; Hoffmann, 1995; Rosenbaum, 1987). Notably, such studies shared a remarkable limitation; they were all cross-sectional. Agnew

(1985) ventured to test the theory using longitudinal research and claimed that the variables in Hirschi's theory could only determine future crime at a trivial and insignificant level. Nonetheless, other longitudinal studies that followed later gave credence to control theory (Dornbusch *et al.*, 2001; Smith and Krohn, 1995). In brief, despite the shortfalls and flaws found in the application of social control theory, the theory has received wide recognition among many researchers and it is one of the leading social theories in classic criminology.

Aims of the Study

As mentioned above, social control theory has been tested on particular youth populations in America, Europe, and Asia (Junger and Marshall, 1997; Le *et al.*, 2005; Matsueda and Heimer, 1987; Smith and Krohn, 1995), yet, it has never been tested on Cypriot youths. As such, our testing of the theory carries a twofold function: one, to bring to the fore knowledge in relation to criminological theory testing in the Cypriot context; and two, to establish a stepping-stone for further research on the matter. While some research has focused on juvenile delinquency on the island (Hatzivasilis, 2003; Kapardis, 2010; Papacosta, 2009; Steketee *et al.*, 2008; Stylianou 2007), the empirical examination of youth crime and its causes is still deficient. In view of this we attempted to test social control theory, and to facilitate this venture we studied convicted young offenders¹ currently serving an alternative to prison sentence, namely community service. The application of restorative justice in Cyprus is embryonic and it was only put into effect in 2008. So far about 450 cases have been involved. Delinquents, once sentenced by the courts to community service are then monitored by the local Social Welfare Services.² It was at this point in time (while under the aegis of the Social Welfare Services) that young offenders were contacted and asked to participate in our research. We did not seek to examine the reasons behind youths' refrainment from crime, as Hirschi's theory endeavoured to explain, because the subjects in our sample had all been convicted already. In the main, the basic hypothesis for our research was that participants had not established strong social bonds with any of the conventional elements stressed by Hirschi's theory, and therefore did not refrain from engaging in criminal activities. Notably, criminal activity (CA) was measured by the frequency of committing particular crimes (see appendix 1), which in turn was contrasted to social control variables introduced by Hirschi.

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- 1 Hirschi tested his theory on student population and wanted to verify why juveniles did not commit crime. Naturally he had to compare criminal with non-criminal youths so as to draw certain conclusions. We studied only criminal youths to attest whether or not their criminality could be attributed to their attenuated social bonds with conventional (non-criminogenic) persons and institutions.
 - 2 Guardianship and Alternative Treatment of Transgressors Law, L.46(1)/96.

Method

Sample

Research participants in this study were non-probabilistically selected using the method of criterion sampling (Patton, 2002). Specifically, all young offenders under the community service programme in Nicosia who had committed offences other than traffic violations, graffiti, and public nuisance acts, were asked to partake in the study. At the time, Social Welfare Services in Nicosia were contemporaneously monitoring 80 offenders. Fifty-seven youths³ between the ages of 16 and 23 eventually consented to take part in our research but four of them did not complete their questionnaires adequately. The four incomplete forms were discounted and the research ultimately comprised a total of 53 valid responses from male subjects aged 19.23 years on average.

Procedure

In total, 53 Cypriot criminal youths from Nicosia – the island’s capital – completed a 39-item, self-completed questionnaire. The original questionnaire was composed of 50 items but during a pilot test with five subjects, three of them expressed agitation due to its length and found the procedure to be a rather copious task. As a result, the questions were reduced from 50 to 39 which could be answered within eight minutes. The questionnaire was administered by a trained non-governmental employee who was assigned to supervise delinquents during their community service. He briefed them on the purpose and the non-obligatory nature of the study. Likewise, he reassured them on issues of confidentiality and anonymity. Completion of the questionnaire took place between June and August 2008, and was scheduled early in the morning during weekdays, when juveniles gathered to be briefed on their daily community service tasks. The questionnaire was self-completed anonymously by subjects *en masse*, and when finished each form was placed in an envelope and sealed. Subsequently, the responses were translated from Greek to English, coded, and then analysed.

Measures

The questionnaire was constructed by the authors based on the model of social control theory of delinquency. A number of variables, affirmed by Hirschi to be reliable determinants of crime, were incorporated into questions that were later formulated to test the following variables.

3 Due to the small number of our target population the term ‘youth’ was applied in its broader context, including subjects from 16 up to 23 years of age (N=53, 16yrs=2, 17-9, 18-10, 19-14, 20-4, 21-5, 22-4, 23-5).

Dependent Variable:

Criminal activity,⁴ (a ratio variable), was calculated by the number of offences subjects were reported to have committed up to the point when the questionnaire was administered (appendix 2). In addition, study subjects were also asked to declare on a 34-item list, what types of offences they had committed. This helped us to verify whether the subjects under review had committed felonies and/or misdemeanours, and not minor transgressions such as traffic violations, public nuisance acts, or graffiti. This variable was based on a simplified form of the Cypriot Penal Code which was tailored to suit the participants (appendix 1).

Independent Variables:

Parent attachment was measured by two variables; family relations and expression of emotions of shame. The former was measured on a nominal scale with six values, whereas the latter was evaluated on an ordinal scale comprised of four values.

Attachment to (un)conventional others was determined via the use of two items; the co-offending and duration of peer relations. Co-offending was a binary variable consisting of yes/no values. The peer relations among delinquents variable was ordinal, and involved four items.

School attachment and commitment were also measured by two items, namely the grades and educational level. Both were calculated on ordinal scales of six and four values respectively.

(Un)Conventional activities involvement was indicated through three items: alcohol consumption, drug use, and employment status. The three variables were measured on an ordinal, a binary, and a nominal scale respectively.

Beliefs were assessed by using responses towards the legal system and law enforcement. The law variable was measured on an ordinal scale with four values, whereas police were valued on a three-item nominal scale.

Notably, the variable in which respondents were asked to state the reason for resorting to criminal behaviour was employed to juxtapose findings across all variables.

Analysis

For the most part our factor variables were measured on ordinal scales apart from our dependent variable, which was measured by a ratio scale. For data analysis we used SPSS 14.0. Particularly, we utilised three statistical tests to determine possible correlations between variables, namely the

4 We acknowledge that the number of criminal acts an individual undertakes does not accurately define criminal activity/behaviour, as different types of crime underscore different gradations of criminal behaviour.

Kruskal-Wallis test for independent samples, the Jonckheere-Terpstra test, and the Mann-Whitney test. These statistical tests would be the only options available as our data was not normally distributed, hence non-parametric. Also, apart from the criminal activity (CA) variable, which was measured on a ratio scale, and the binary variables of co-offending and drug use, the remainder were all ordinal and nominal variables. Beyond exploratory analysis, bar charts were also utilised to illustrate the differences between the groups within the predictor variable while contrasted to the dependent variable. Since Hirschi argued that his elements had a unique and individual impact on crime deterrence, we applied a bi-variate analysis to attest each element's influence on criminal activities.

Results

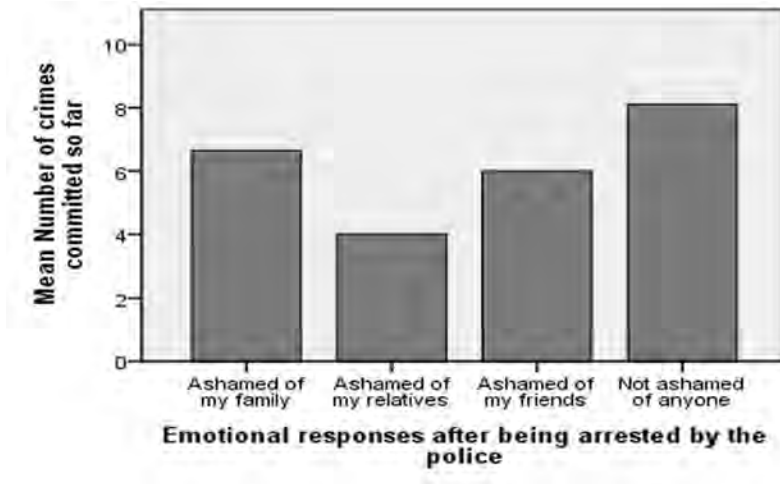
Overall, Hirschi was not much concerned with direct control as parental supervision, but focused more on indirect forces like the morals that juveniles developed while being nurtured in conventional families. He specifically claimed that: 'the closer the child's relations with his parents, the more he is attached to and identifies with them, the lower his chances of delinquency' (1969, p. 94).

In relation to the two principal assumptions above, meaning the juveniles' perceptions of their parents, and the family conditions in which they were nurtured, relevant variables were incorporated in the questionnaire. The respondents were requested to state whether they felt ashamed of their social environment after being arrested for a crime. Moreover, they were asked to reflect on their family relations. The purpose was to verify how juveniles perceived their parents with regard to control and discipline, and also to evaluate what sort of family conditions they were raised in. Although 49% stated that they did not experience feelings of anyone being ashamed of them after they were arrested, 38% admitted feeling ashamed because of the effect their arrest had on their family. Furthermore, after comparing shame emotions expressed upon arrest, together with the number of committed crimes, no significant differences were found across the groups: crime commission was not reported to vary across juveniles who had, or had not, experienced feelings of shame from particular factions/individuals: $H(3) = .514, p > .05$ (see figure 1). The assumption that juveniles who did not experience feelings of shame would have a positive relation with crime commission or that those who express feelings of shame for the disgrace brought on their parents or other conventional figures have a negative association with crime, could not be substantiated.

Similarly, in testing the other part of the hypothesis, i.e. that good familial relationships deterred crime, data analysis demonstrated that although there was some positive relationship between bad familial relationships and CA, it was non-significant: $H(3) = .183, p > .05$. The same levels of CA were found for those who reported to be on moderate and very good terms with their parents. Elevated CA was paradoxically connected to those who claimed both excellent and bad family relations,⁵ with the latter having a stronger relation (see figure 2). In both instances, social control theory was not supported, yet some tendency between CA and bad familial relationships

was reported. Notably, the two variables used in the study to measure parent-child attachment are far from offering insightful information in this respect. It may well be that family institutions in Cyprus are relatively cohesive and the value of 'bad family relations' could not possibly reflect family dysfunction or ineptness as documented in corresponding Western studies.

Figure 1



Unlike today's educational institutions, schools in the past were seen as didactic centres whose crime deterrent capacity was much accentuated. However, schooling itself could not have brought about any effect had juveniles not been receptive towards it. This is what Hirschi (1969) called 'attachment to school' and he found it to be an important crime determinant in criminal youth. He believed that 'a favourable attitude toward school protects the child from delinquency' (p. 132). He also affirmed that academic ability, school performance, and educational success were reducing the likelihood of crime occurrence. Parallel to existing studies by Dornbusch *et al.* (2001) and Zhang and Messner (1996) that found school attachment and academic performance (Marguin and Loeber, 1996) to have a negative relation to crime, this current study assumed that school performance and achievement could somewhat reflect the above findings. Thus, attachment and commitment to education and crime were contrasted to CA. In accordance with social control theory, academic performance of Cypriot juveniles was found to have a significant influence on CA: $H(3) = .017, p < .05$. Mann-Whitney tests revealed that the subjects who reported mean grades

5 None of the subjects has reported to have delinquent parents, thus parental acceptance/reinforcement of crime is an unlikely event.

of B ($U=5$, $z=-2.74$, $p<.0125$, $r=-.37$) and D ($U=20.5$, $z=-2.77$, $p<.0125$, $r=-.38$), differed significantly from subjects with only primary education (see figure 3). However, the educational performance variable only distinguished those students who have, and have not, been graded by an institution, and while primary school graduates do not receive official grades, the results did not provide a clear picture. Although there was a positive relation between low grades and crime, the prospect of whether academic inability could push subjects not to pursue further education and instead become more involved with crime, remained unanswered.

Figure 2

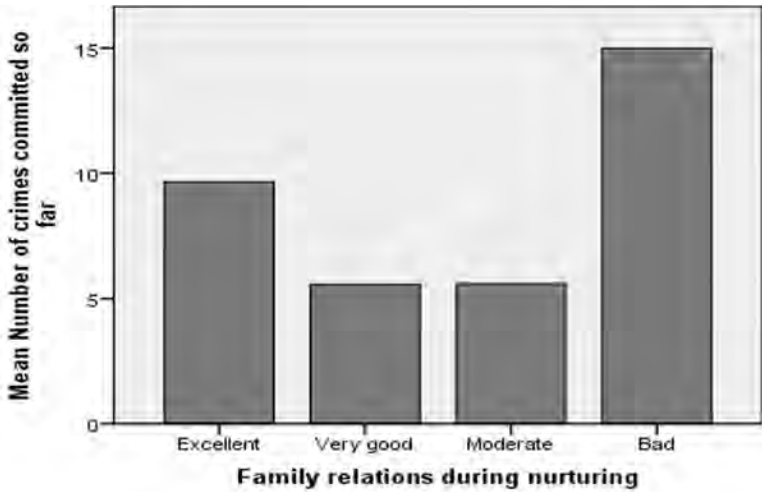
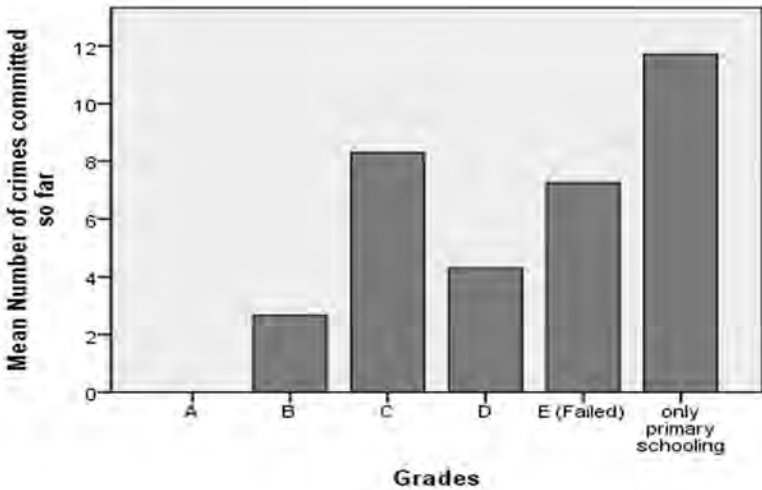
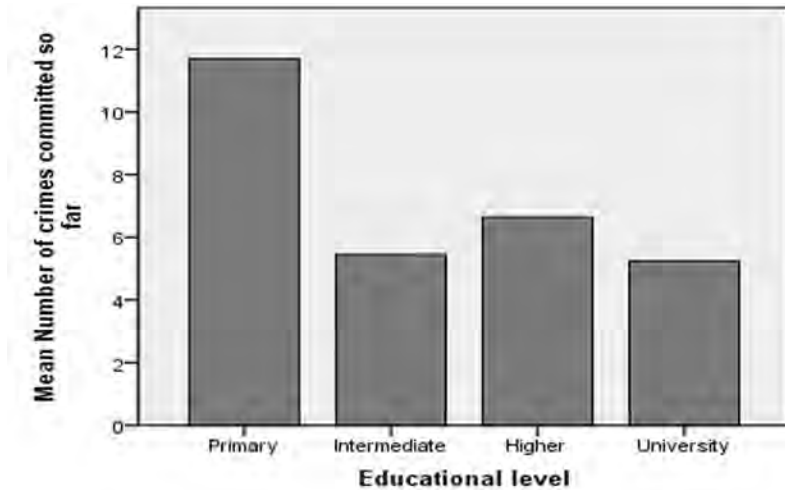


Figure 3



Hirschi (1969) made note of a causality process that 'runs from academic incompetence to poor performance to disliking school's authority to the commission of delinquent acts' (p. 132). As recorded above, the question arose as to whether Cypriot juveniles with limited academic capabilities were more prone to criminality. By analysing the results from the educational level variable, primary school graduates still appeared to report more crimes than their counterparts who achieved higher gradations of education. Conversely, the difference between the groups was non-significant: $H(3) = .093, p > .05$. Adolescents with university, high school, and primary school education, were compared in relation to crime prevalence and no statistically significant difference yielded. Yet, it must be borne in mind that the educational performance measured by the grades variable failed to determine whether low marks were a result of inaptitude or mere disinterest in education expressed by youths. Nonetheless, if we are to assume that educational achievement also reflects the capability to learn, then university students when compared to primary school graduates did not differ with respect to CA (see figure 4). Overall, educational performance was found to be a significant predictor of CA – although groups were unevenly distributed – but academic achievement did not reveal such a strong relationship, albeit with some tendency among low educational achievement and CA. Having said that, the assumption held by Hirschi that low educational performance leads to low educational achievement, which consequently meets crime, is not confirmed.

Figure 4

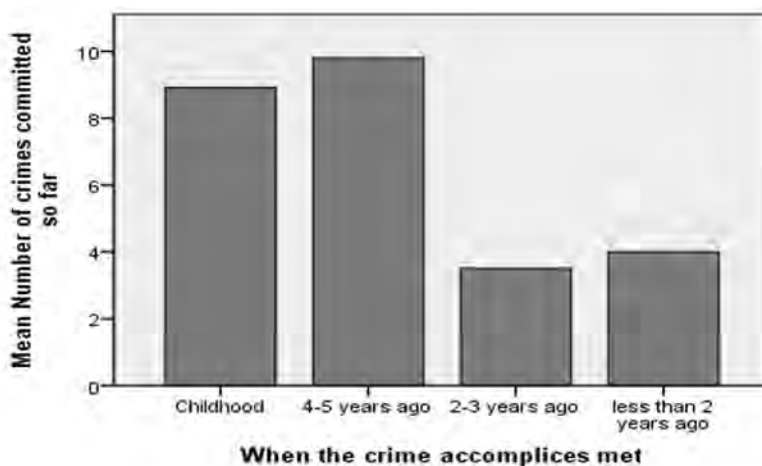


Juvenile co-offending is probably the least contested assumption in criminology as its prevalence has been confirmed time and again (Akers, 1973; Le *et al.*, 2005; Matthews and Agnew, 2008; Matsueda and Heimer, 1987; Matza, 1964; McGloin and Shermer, 2009; Sutherland, 1947; Weerman and Smeenk, 2005). Sutherland (1947), Matza (1964), and Akers (1973) claimed that

juvenile co-offenders shared common criminogenic values, interests, or just wanted peer recognition, and via their interaction with delinquent peers, criminal actions resulted. Studies on gang crime (Brezina *et al.*, 2004), crime against persons (Gottfredson and Soule, 2005), and drug use (Hoffmann, 1995) confirmed such findings. Hirschi, however, did not accept that youth crime resulted only because of the confluence of delinquent peers. Contradistinctively, he contended that criminal behaviour was an individual outcome, of which repetition and not initiation brought delinquents together. Moreover, Hirschi's control model illustrated that the conjunction of delinquent companions and low stakes in toeing the line led to criminality. He declared that criminality does not result solely from peer association but from a coming together of delinquent friendships and low individual stakes in conformity.

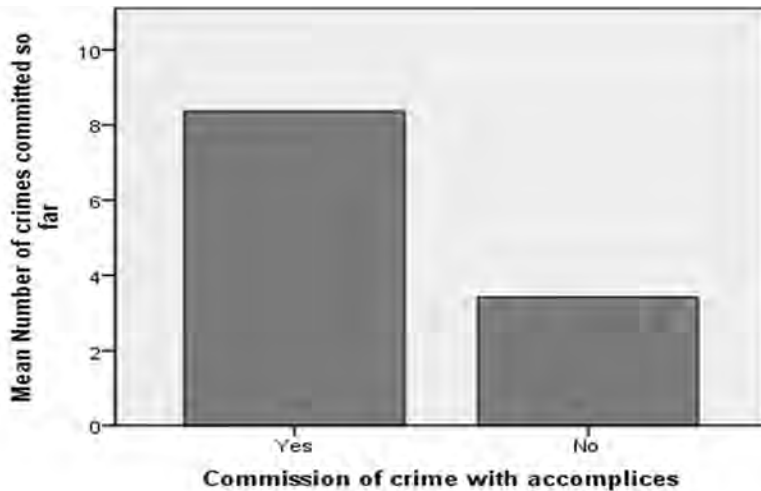
Hirschi did in fact accept the relationship between delinquent peers and criminality but he attributed it not as causal but incidental, since, as he acknowledged, delinquents bonded together just because they had many commonalities. Hirschi's argument that a 'boy's stake in conformity affects his choice of friends rather than the other way around', (Hirsch, 1969, p. 159) aligns with the notion that delinquent friendships are formulated much before delinquent acts due to common characteristics, such as low stakes in traditional values. This is supported by our findings which illustrate that 61% of the co-offending subjects knew their accomplices from childhood, supporting to some extent the idea that these friendships were not formulated because of criminal involvement. Shared spaces and interests could be plausible reasons for this, and possibly low stakes in conformity as Hirschi argued. Nonetheless, the duration of friendships variable was contrasted to CA and no significant relationship was revealed: $H(3) = .142, p > .05$ (see figure 5).

Figure 5



Although the friendships among co-offenders that were founded in childhood and established longer than four years before the administration of the questionnaire showed a positive correlation to higher CA – as opposed to the friendships that existed up to three years – no statistically significant differences were reported. Unlike peer relations, co-offending/solo offending was reported to have a significant influence on crime (see figure 6). When comparing the variable on companion offending to CA using the Mann-Whitney test it was found to be significantly associated with CA: $U=96$, $z=-3.20$, $p<.001$, $r=-.43$. Co-offenders opposed to solo-offenders were far more likely to report higher CA. Hirschi admitted that co-offending could not be adequately explained by his theory which assumed a natural deviation to delinquency. He explicitly affirmed that: 'if such natural motivation could legitimately be assumed, delinquent friends would be unnecessary, and involvement in conventional activities would curtail the commission of delinquent acts' (*ibid.*, p. 230). Likewise, this study's findings demonstrate a positive relation between co-offending and the frequency of offending, yet the exact reasons behind this correlation are far from clear. That is, to what extent, if at all, do Cypriot criminal youths influence each other's criminal behaviour? Would they still have become involved with crime had they not been affected by peer pressure? In fact, when our subjects were asked to explain why they had committed a crime they did not score high on the 'peer pressures' value (see figure 12).

Figure 6



Nevertheless, one of Hirschi's main arguments was that adolescents upon completing their education normally enter an occupational career, and henceforth continue to be attached to a conventional activity as before. In other words, the succession of schooling by employment is deemed to be a necessary sequence for adolescents' non-involvement in crime. According to

Hirschi, negative endeavours such as dropping out of school, leads to a detachment from educational aspirations, and also to an adaptation to adult conduct – drinking, smoking, dating, and driving – of which, without the familial and occupational responsibilities of adulthood, dispose youths to delinquency (*ibid.*, pp. 163–164).

In effect, youths who have plenty of free time and are freed from the aforementioned responsibilities tend to engage in illegalities. In view of this, our subjects were tested on three variables, namely alcohol consumption, drug use, and employment status, all of which were subsequently found to be significantly correlated to CA. With respect to alcohol, parallel to prior studies (Ensor and Godfrey, 1993; Ireland and Thommeny, 1993; McClelland and Teplin, 2001; Zhang *et al.*, 1997), a positive relationship with crime was found. In particular, those who reported excessive consumption of alcohol to the degree of drunkenness every week far exceeded the rest of the groups in CA, followed by those who adhered to the same behaviour less frequently, meaning every month: $H(4) = .038, p < .05$. Excluding everyday drunkenness, the more frequently adolescents reported to being intoxicated the more median crime numbers ascended: $J = .53, z = -2.15, r = -.29$ (see figure 7). The low criminality rates attributed to daily drunkenness could be explained because of alcoholism too. In this case alcoholism could somewhat render adolescents incapable of actively seeking to commit crimes.

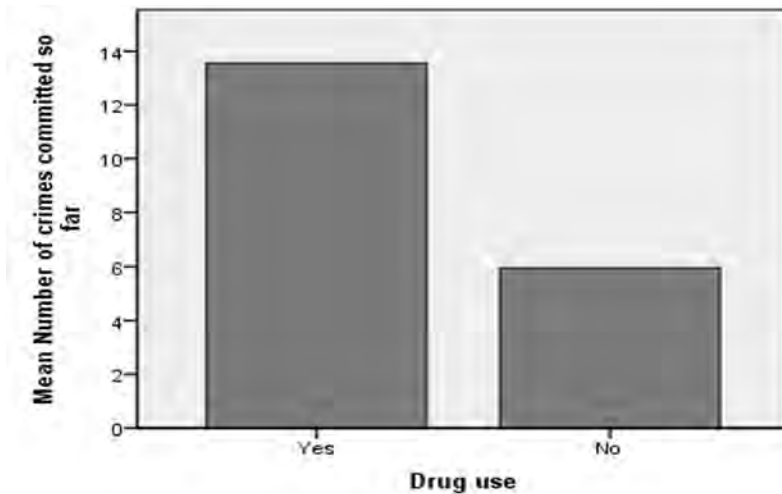
Figure 7



As shown by figure 8 and also analysed by Mann-Whitney tests, those individuals who have admitted using drugs committed more crimes than those who used no drugs to a statistically significant degree: $U = 75, z = -2.93, p < .05, r = .40$; a finding that is also supported by the reasons for crime commission variables, discussed at the end of this section. Variables from social control

theory such as the family attachment and involvement in conventional activities have explained drug use effectively (Adlaf and Ivis, 1996; Hoffmann, 1995; Rosenbaum, 1987); partially (Butters, 2002; Crawford and Novak, 2007); or even not at all (Ginsberg and Greenly, 1978). This study's findings partially emulate Hoffmann's results (1995); which is that association with drug-users increases drug use, which in turn perpetrates crime (Huizinga *et al.*, 1995; Menard *et al.*, 2001). This assumption is drawn from the data on co-offending, drug use, and the reasons for crime commission (see figure 12) variables, which were found to be positively related to CA.

Figure 8



As regards the employment factor, participants claiming not to be employed but receiving welfare benefits far outnumbered their counterparts on crime commission: $H(4) = .040, p < .05$. Although Hirschi mentions free time as a result of unemployment, the homonymous value was not found to be significant to CA but, one could easily argue that youths on welfare benefits have no less free time than those who are unemployed, therefore having free time on ones hands could possibly influence CA (see figure 9).

Social control theory recognised that 'the less a person believes he should obey the rules, the more likely he is to violate them' (Hirschi, 1969, p. 26). 'Respect for law' is closely related to criminality, irrespective of beliefs toward law enforcers. This is so because delinquents do not always act according to a fixed system of beliefs which is consistent with criminal behaviour, an assumption which has been adamantly opposed by theorists who claim that crime surfaces from the justification of criminal values (Akers, 1973; Matza, 1964; Sutherland, 1947). In other words, criminals may recognise the function of law and acknowledge its importance, yet, still violate legal codes (Hirschi, 1969, p. 204). Beliefs are important insofar as commitment, attachment, and

investment to conventional activities are not present. In the absence of the latter three elements the individual will most likely deviate, but if those elements are in place then deviant beliefs are not catalytic in determining deviancy (*ibid.*). When subjects were asked to give their opinion on law enforcers in comparison to reported CA, no notable variances were revealed: $H(2) = .268, p > .05$, although adolescents who reported that police have a protective role to fulfil scored lower on CA. On the other hand, respondents who claimed that police are composed of ordinary people – normalising police activity – compared to those who characterised police to be austere and unjust – opposing police activity – reported higher CA, yet with no remarkable variance (see figure 10).

Figure 9

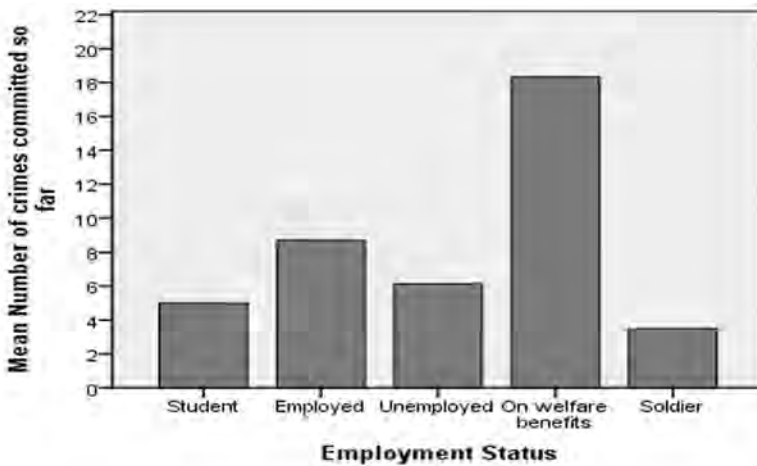
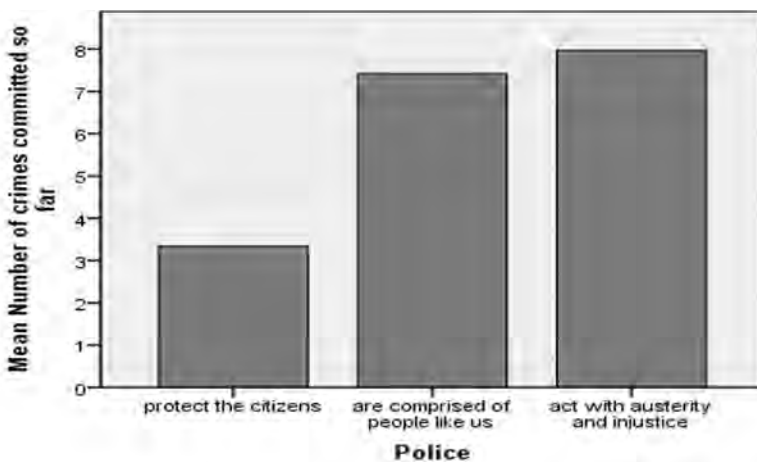
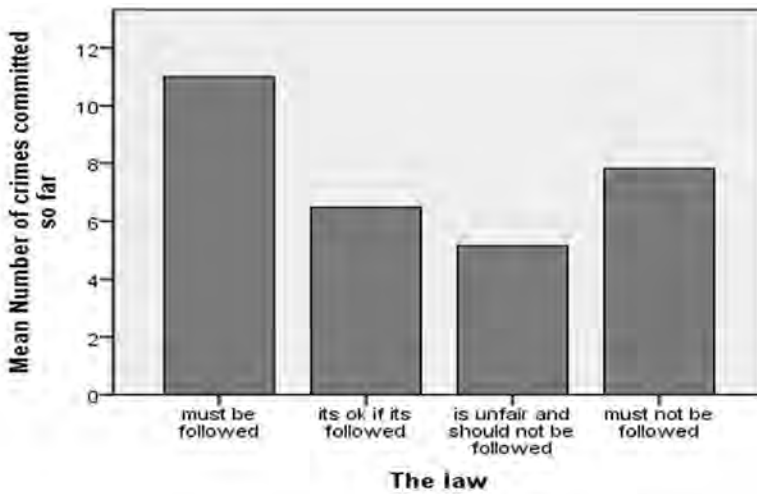


Figure 10



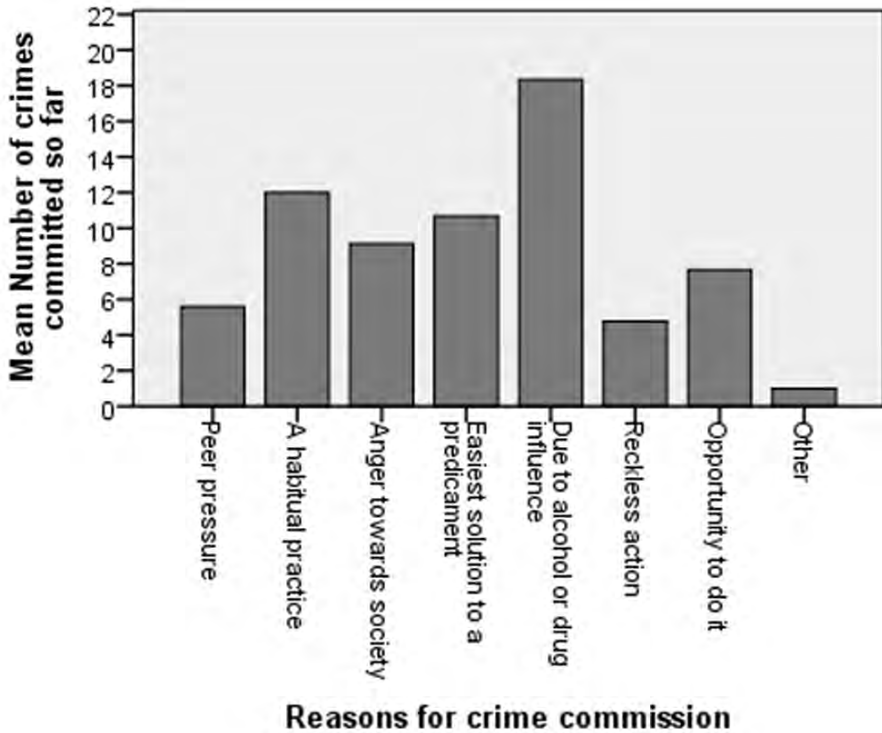
Apart from law enforcement responses, juveniles were asked to reflect on the local legal system too. Surprisingly, no significant difference with respect to the number of crimes committed was found between those who stated that the law must, and must not, be followed (see figure 11). These findings, puzzling as they seem to be, were congruent with Hirschi's original statement that juvenile delinquents recognise the importance of a justice system, regardless of whether they do or do not follow its stipulations. Overall, the adolescents' view of the Cypriot legal system did not significantly influence their CA: $H(3) = .219, p > .05$.

Figure 11



Last of all, an attempt was made to detect the real reasons behind crime commission, although a single variable to explain such motives has not proved to be enlightening. Nonetheless, drug and alcohol consumption were found to significantly increase CA: a correlation that was also demonstrated earlier on drug and alcohol use variables: $H(7) = .028, p < .05$ (see figure 12). This finding dovetails with the studies already mentioned during the discussion on drug and alcohol factors, but, whether the sole (ab)use of alcohol and drugs induces crime or not, remains unclear. All the same it is highly probable that alcohol and drugs, of which abuse is particularly high among adolescent populations, have a mutual causality effect; that is, crime and drugs are reciprocally connected (Menard *et al.*, 2001).

Figure 12



Discussion

Admittedly, there are several limitations in this research that need to be discussed. The type of this research, the sample selection, and the data collection altogether, impede the generalisation of the incumbent findings. First, the cross-sectional data alone collected in this study do not effectively explain CA through the variables suggested by social control theory. A research with compared samples involving criminals and non-criminals might have been more insightful. In addition, a longitudinal approach or a combination of qualitative and quantitative research with a wider sample would have provided us with more precise information concerning cross gender, and other types of offenders too; for example the incarcerated or short-term criminals who have been 'lucky' enough not to see the light of justice yet. Second, the low number of participants and the single-sex sample, which was purposively selected, could not effectively represent the criminal population of the corresponding age group nationwide. Regardless, this was the only viable option in reaching criminal youth given the limited resources and access restrictions. Third, as regards our method of data collection, self-reporting studies are faced with certain shortfalls since participants might

misreport their involvement into criminal activities in their unwillingness to register socially disapproved actions (Stolzenberg and D'Alessio, 2008); yet, the criminal identity of our subjects was conspicuous, therefore, the likelihood of underreporting their criminal backgrounds could not be marked as a major data nuance. Fourth, issues of content validity and test reliability are also raised since both the once-tested sample and the rudimentary construction of variables included in the questionnaire, are issues of concern. It is very likely that the variables used for measuring social bond suffer from flaws for two reasons; first, most of them have not been tested in other research, and second, some variables were vaguely defined or inaccurately constructed to control confounding factors. For instance, criminal activity is measured by the number of crimes the subject reports to have committed up to the date he completes the questionnaire. Although the intention is to collect the most accurate responses, it is expected that some participants, especially those who have committed numerous crimes over a long period of time, would not be able to recall with accuracy the exact number of such crimes. Moreover, as we used two to three variables for measuring each social bond element, this is far from comprehensively encapsulating the real attitudes concerning each of these elements. However, when we originally administered the 50-item questionnaire as a pilot test, our subjects objected to cooperate because the task was too lengthy. As a consequence, certain variables were omitted in our attempt to truncate the questionnaire, and this may have altered the direction of our findings significantly. Although the wide age range must, to some degree at least, have impeded our findings, not comprising our sample with subjects up to the age of 23 years would have led to a much smaller sample. Notwithstanding, variables of social control theory, such as occupation, commitment, and family attachment, have been reported to be linked to adult criminal behaviour too (Sampson and Laub, 1990).

In line with other studies that only partially confirmed social control theory's predictions (Burton *et al.*, 1995; Hindelang, 1973; Matsueda and Heimer, 1987), the present research has given limited credence to Hirschi's crime determinant variables too. Significant correlations with respect to CA were found within the involvement and commitment to conventional activities spectrum. Respondents reporting drug and alcohol (ab)use, as well as being on welfare benefits scored high on CA. In Hirschi's terms these individuals were not committed or involved in conventional activities, but quite the opposite – unconventional ones – and therefore resorted to criminal behaviour. Those subjects who stated that they were receiving welfare benefits too – detached as they were from conventional institutions and whilst enjoying an abundance of leisure time – reported to have committed more crimes. As regards adolescents' beliefs toward justice and law enforcers, and their link to CA, Hirschi was somewhat justified in characterising the two as not being mutually exclusive. Negative beliefs toward the local legal system were not found to influence crime commission. This finding in a way contradicts the contention that juvenile delinquents bond together because of shared criminogenic values (Matza, 1964; Sutherland, 1947) and supports Hirschi's claim that shared interests among juvenile delinquents are not necessarily

criminal. Having said that, it should be noted that co-offending was not thoroughly problematised by Hirschi, therefore the statistically significant connection between co-offending and CA as illustrated in the paper cannot be vectored towards doubting social control theory's application in this respect.

For the most part, the findings of the study fail to support social control theory. The hypothesis that adolescents scoring high on criminal activity would report bad familial relationships, low respect towards conventional (law-abiding) persons, and low academic achievement was not confirmed. In a way, the strong relation between academic performance, alcohol, drug, and welfare subsidence and criminal activity cannot be explained by social control theory with much confidence as the preconditions to criminal behaviour mentioned above were not met. In acknowledging that the study was constricted in many ways, it is only fair to conclude that this research has been but a diminutive attempt to undertake criminological theory testing, and as such it could effectively serve as a stimulus to future research on the matter at hand. Relatedly, the prospect of further studying the positive connection of crime to co-offending and substance (ab)use among Cypriot adolescents, as indicated in the study, should not be left unattended.

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Appendix 1

1. Threat to attack a person
 2. Attempt to hit a person
 3. Attack on a person
 4. Attack and injury of a person
 5. Attempted rape
 6. Rape
 7. Theft
 8. Trespassing
 9. Burglary
 10. Attempt to use force against a person with the intention to commit a crime
 11. Use of force against a person or property and crime commission
 12. Resist arrest / Disobedience of police orders
 13. Handling stolen goods
 14. Graffiti
 15. Illegal possession of a knife(s)
 16. Produced or used counterfeit currency
 17. Illegal possession of explosives
 18. Identity theft
 19. Sexual assault
 20. Deception
 21. Forgery
 22. General harassment
 23. Recklessness
 24. Vandalism
 25. Illegal possession of weapon
 26. Indecent exposure
 27. Corruption of a minor
 28. Traffic violations
 29. Illegal drug use
 30. Illegal drug possession
 31. Distribution and sale of illegal drugs
 32. Public nuisance
 33. Issuance of unsubstantiated cheques
 34. Other(s) _____
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Appendix 2

