

The relationship between debt and crime: A systematic and scoping review

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Abstract

Compared to macroeconomic factors, the financial situation of the individual may provide better insight into the relationship between debt and crime. However, the relationship between debt and crime is still unclear and little is known about the causality of this relationship and the factors that influence it. To obtain more insight into this relationship, a systematic and scoping literature review was conducted. Five articles were analyzed in the systematic review, and 24 articles in the scoping review. The results of the systematic review show a strong association between debt and crime whereby debt is a risk factor for crime, especially for recidivism and regardless of the type of crime, and crime is a risk factor for debt. The scoping review provided additional and in-depth insight, and placed the results of the systematic review in a broader perspective. Moreover, it emphasized the prevalence of debt among offenders, regardless of age, and identified the factors that influence the relationship between debt and crime.

Keywords

Crime, criminal behavior, debt, debts, financial problems

Introduction

The relationship between socioeconomic factors and crime is a classic theme in criminological literature (Dunaway et al., 2000; Ellis and McDonald, 2000; Tittle et al., 1978). In exploring this theme, criminological research has mainly focused on the environmental

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characteristics of individuals from a macroeconomic perspective. Studies were conducted on factors such as the economic situation of families (e.g. poverty and parental income; Comanor and Phillips, 2002; Galloway and Skardhamar, 2010; Hsieh and Pugh, 1993), neighborhoods (Leventhal and Brooks-Gunn, 2001), and household economic resources and unemployment (Bjerk, 2007; Phillips and Land, 2012). Of these different macroeconomic factors, the mutual relationship between employment and crime has received the most empirical attention (e.g. Skardhamar and Savolainen, 2014). Although these studies have yielded valuable knowledge for the field of forensics, much less is known about the economic situation of the individual on a micro level (i.e. debt of individuals). Insight into debt at the individual level is important, as it enables professionals, such as probation officers, to help clients with their finances to prevent recidivism. These professionals often supervise clients with debt and this debt is considered a serious problem in supervision (Jungmann et al., 2014).

Several studies have demonstrated that debt at the individual level may be a better indicator of worsening financial situations than employment status or low income at societal level (see Aaltonen et al., 2013). These scholars have stated that macroeconomic measures have two shortcomings. The first shortcoming is that many measures of unemployment pertain to those who are officially registered as unemployed. Therefore, these measures often fail to reach those completely outside the labor force, for instance, homeless and addicted people, who may be the true high-risk group. The second shortcoming of macroeconomic measures is that low income does not necessarily indicate poverty. It is possible to have a low income but no financial debt (Aaltonen et al., 2016; Oksanen et al., 2015). Furthermore, debt might mediate the relationship between unemployment and crime. Debt may make people more vulnerable to life events, such as losing a job, due to high stress levels and loss of concentration. Conversely, the risk of debt increases when unemployed because of loss of income (e.g. McCloud and Dwyer, 2011). Therefore, the financial situation of the individual may provide important insight into the relationship between debt and crime.

Research on debt shows that it may have severe consequences for an individual and may increase the likelihood of criminal behavior, for example, because it can lead to committing property offenses to gain income and to pay for the basic needs (Hoeve et al., 2014). In addition, debt may cause high stress levels for an individual, as a result of which they may commit crimes. Debt is also likely to worsen as a consequence of crime, for example, as a result of monetary sanctions or due to the lack of income during incarceration. In addition, debt may hinder resocialization and desistance from crime, for example, by making it more difficult to find housing after incarceration. This may be reinforced by difficulties finding a job after incarceration to obtain more income (Harris et al., 2010). Debt and crime thus reinforce each other in a negative way, and this relationship might increase the risk of future crime and lead to a series of cumulative problems for the individual.

Insight into the directionality of the relationship between debt and crime can be derived from three theories on criminal behavior: (1) the strain theory, (2) the developmental taxonomic theory, and (3) self-control theories. These theories look at criminal behavior from a broader perspective. Some factors associated with debt are also included in several theories of criminal behavior. All of these theories can thus help to explain the

relationship between debt and crime. First, the strain theory poses that the strain between needs and the abilities to satisfy these needs might lead to criminal behavior (Agnew, 1985, 2006; Merton, 1938). Applying this theoretical notion to debt, it can be assumed that people who have debt have less access to material goods. This could result in income-generating crime, crime aimed at satisfying material needs (Becker, 1968), or in crime as a response to the stress that debt causes (Drentea, 2000; Felson et al., 2012). The second theory of criminal behavior—the developmental taxonomic theory—is posed by Moffitt (1993) and distinguishes two types of offenders on the basis of their criminal trajectory over life-course. The first type of offenders are adolescence-limited offenders whose antisocial behavior is restricted to the teenage years and who often have relatively unproblematic backgrounds and are mainly influenced by antisocial peers. The second type of offenders are life-course persistent offenders, whose antisocial behavior continues throughout their life. Moffitt explains the difference between the two groups by the concept of snares, factors that may make it more difficult for people to stop committing crimes. Snares, such as drug addiction, interrupted education, and teenage parenthood, are difficult to escape from and thus may cause an adolescent to persist in their antisocial behavior (Franken et al., 2015; McGee et al., 2015; Moffitt, 1993). Life-course persistent offenders often have problems in various domains and also experience relatively more problems later in life as well, including debt. These problems are suggested to be due to underlying neuropsychological deficits causing problems with reading, writing, problem solving, self-control, impulsivity, and attention. Applying this theoretical notion to debt, debt could be seen as a direct risk factor for criminal behavior, but it can also be seen as being interrelated with crime. Debt is associated with problems in other domains for persistent offenders, which are also factors that may increase the risk of crime and may cause young delinquents to persist in crime. Conversely, crime may also increase debt, particularly among life-course persistent offenders. Third, self-control theories explain criminal behavior by a lack of self-control which is shaped in childhood by various factors (Gottfredson and Hirschi, 1990; Jessor, 1991). From this theory, it could be derived that debt and crime are correlated by the same underlying latent traits of low self-control, impulsivity, and risk taking.

Present study

In the literature, there is consensus that a reciprocal relationship between debt and crime can be assumed. However, these theories describe criminal behavior from a broad perspective, not specifically with regard to debt. In addition, these theories are not sufficiently empirically tested and are criticized by other scholars. For example, with regard to the theory of Moffitt, it has been stated that differences between adolescence-limited and life-course persistent offenders may be quantitative rather than qualitative and that adolescence-limited antisocial behavior may also be a neurodevelopmental disorder (e.g. Assink et al., 2015; Fairchild et al., 2013). A thorough understanding of the prevalence and determinants of debt among offenders and the reciprocal relationship between debt and crime is thus still lacking in criminological literature and empirical studies are scarce. Due to the fact that debt may enhance criminal behavior and lead to a series of cumulative problems, more insight is needed

into the prevalence and determinants of debt among offenders and (the directionality of) the relationship between debt and crime. Therefore, the aim of this review is to systematically investigate the relationship between debt and crime and the directionality of this relationship as well as the factors that influence this relationship. This insight will help forensic professionals, such as probation officers, support their clients with regard to debt to prevent recidivism.

Method

Data sources and search strategy

As the first step in a larger research project on the relationship between debt and crime, a systematic literature search was conducted to study the link between financial debt and crime among both adolescents and adults. In this step, we followed the guidelines and standards of the PRISMA statement and the AMSTAR 2 tool for systematic reviews (see Higgins and Thomas, 2019; Liberati et al., 2009; Shea et al., 2017). For this systematic review, the electronic databases Academic Search Premier, Boom Criminological Journals (Dutch), NARCIS (both Dutch and English), Picarta (both Dutch and English), PsycINFO, SAGE Premier, Social Care Online, Web of Science, and Academic Research and Documentation Center (WODC-publications; Dutch) were used. This search included articles, books, chapters, reports, theses, and reviews. Key terms related to crime (delinquency/delinquent(s), probation, offending/offender(s), crime(s) and criminogenic/criminal(s)) and debt (debt(s), (over-)indebtedness, financial problem(s), financial stress, financial strain and debt stress) were combined. No restrictions on language or date were imposed.

Data selection

In total, 2002 articles that matched the key terms were found in the databases. After removing duplications, 1637 articles remained. The review was performed in two phases. In the first phase, all 1637 articles were screened by two independent reviewers based on titles and abstracts. Of these articles, 1608 were excluded because they were case studies or because they focused on non-financial debt (e.g. moral debt), debt and crime but not the relationship between them, financial crime (e.g. fraud or white-collar crime), or because they used a macroeconomic perspective (e.g. government debt). Articles were included when they explicitly focused on the relationship between debt and crime.

Interrater reliability was very high (99.9% agreement, Cohen's kappa 0.99). Two articles were only included by the first reviewer and one article was only included by the second reviewer. The reviewers then agreed to include the three articles in the review. In total, 29 full-text manuscripts were screened by two independent reviewers in the second phase of the review (see Figure 1). Of the 29 articles in the review, five focused on the relationship between debt and crime. These five articles were included in the systematic literature review (see Table 1). Of the 24 additional articles, 12 did not focus on this relationship but described the prevalence of debt among offenders. The other 12 articles

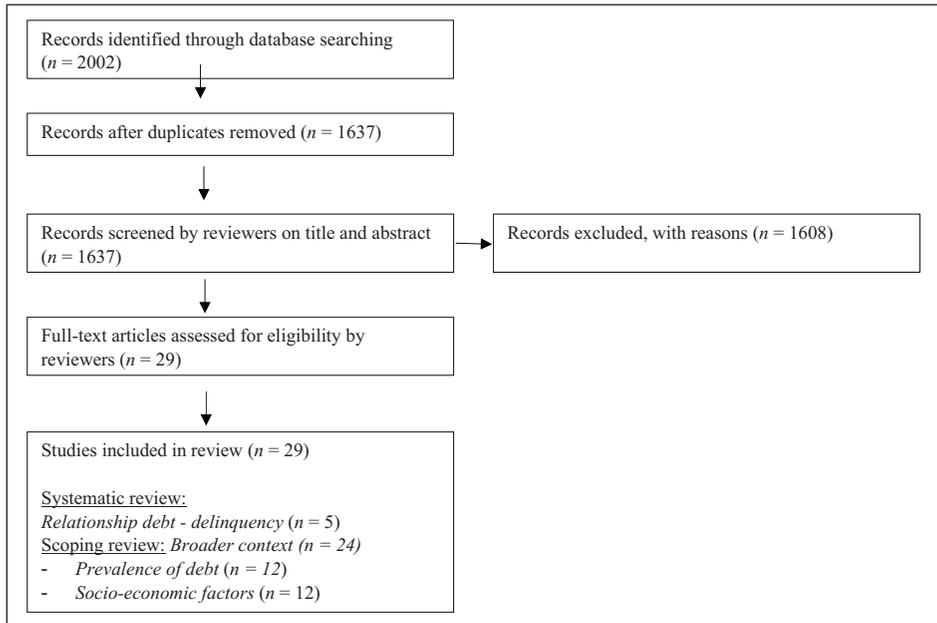


Figure 1. Flow chart literature research.

described the relationship between debt and crime from a broader perspective, focusing on the socio-economic factors that influence crime.

As we only found five published studies on the relationship between debt and crime in the systematic review, we broadened our search to a scoping review. We found that several articles did not specifically focus on this relationship still provided important insight into debt among offenders and thus into the relationship between debt and crime from a broader perspective. In addition, unlike most studies in the systematic review, these studies usually focused on adults more often and not only on youth, which added valuable information.

Therefore, to be able to place the results of the systematic review into a broader perspective, we decided to conduct a scoping review on the other 24 articles that were not included in the systematic review. The aim of a scoping review is to explore the existing literature in a certain field on a certain topic. Therefore, a scoping review is more explorative and less specific and focused than a systematic literature review. In the current study, the systematic review focused specifically on literature on the relationship between debt and crime and the scoping review explored from a broader perspective the literature on debt among offenders at the individual level. We analyzed the results regarding the prevalence of debt and the socio-economic factors, such as work and income, that influence crime at the individual level (see Table 2). We do not pretend to give a comprehensive overview of the literature on the relationship between socioeconomic factors and crime at the macroeconomic level, but focus on the individual level in both the systematic and scoping review.

Table 1. Findings literature review.

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Aaltonen et al. (2016)	Debt problems and crime	Journal article (peer reviewed)	Finland	Longitudinal register data-analysis on Risk Factors of Crime in Finland	Young adults (general 20–30 years)	N = 150,010	– Reciprocal relationship between debt problems and crime.	– Crime rates were found to be higher when debt is present. – Debt and crime seem to reinforce each other reciprocally.
Blom et al. (2011)	Financial problems and delinquency in adolescents	Report	The Netherlands	Secondary data- analysis on Monitor Self-reported Youth Crime	Adolescents (general 10–17 years)	N = 2,116	– Extent to which young adults report to have debt. – Relationship between debt and self-reported delinquency. – Extent to which the relationship between debt and delinquency differs by gender, age and origin.	– Evidence was found for a strong association between debt and (self-reported) delinquency: As young adults experience more debt, they show more delinquent behavior. This association is stronger for adolescents and particularly applies to property crime. – Evidence was found for a clear relationship between self-reported delinquency and debt, especially among adolescent males, which can be explained by an underlying risky lifestyle which is more prominent among adolescents and adolescent males.

(Continued)

Table I. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Hoeve et al. (2011)	Financial problems and delinquency in adolescents and young adults	Report	The Netherlands	<ul style="list-style-type: none"> - Systematic literature review - Secondary data-analysis • Qualitative • Quantitative 	<ul style="list-style-type: none"> - Adolescents and young adults - General population sample • Adolescents (age range unknown) and professionals • Adolescents (10-17 years) • Adolescents (10-21 years) • Adolescents (age range unknown) and 1,656 parents 	<ul style="list-style-type: none"> - 75 manuscripts (N range unknown) • N=66 • Adolescents + 31 professionals • N=3,030 • N=2,230 • N=1,584 • adolescents + 1,656 parents 	<ul style="list-style-type: none"> - Reciprocal association between debt and delinquency among young adults. - Debt as a risk factor for (the development of) delinquency among young adults. 	<ul style="list-style-type: none"> - Both adolescents and young adults with more or higher debt show more delinquent behavior. - Debt seems to be especially a risk factor for delinquent behavior later in life among persistent offenders. - Delinquency increases the risk of the development of debt later in life.
Hoeve et al. (2014)	A systematic review of financial debt in adolescents and young adults: Prevalence, correlates and associations with crime	Journal article (peer reviewed)	The Netherlands	Systematic literature review	<ul style="list-style-type: none"> Adolescents and young adults (general population and student samples, ranging from 7 to 68^a years) 	<ul style="list-style-type: none"> 36 manuscripts (N ranging from 57 to 14,322) 	<ul style="list-style-type: none"> - Prevalence of debt and risk factors among adolescents and young adults. - Relationship between debt and delinquency among adolescents and young adults. 	<ul style="list-style-type: none"> - A strong association was found between severe and persistent crime among adolescents and debt later in life.

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Table I. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Hoeve et al. (2016)	Financial problems and delinquency in adolescents and young adults: A 6-year three- wave study	Journal article (peer reviewed)	The Netherlands	Cross-lagged analyses on three waves of panel data	Adolescents and young adults (general population sample, 12–24 years)	N = 1,258	– Relationship between debt and delinquency in young adults and adolescents and the directionality of this relationship.	– Evidence was found that debt increases the risk of delinquency and the other way around; effects of delinquency on debt were higher than the other way around. A longer term effect (six years) of delinquency on debt was found, whereas this effect was not found the other way around. Evidence was found that indirect effects become stronger over time.

*This age was the maximum age in a study among students. The mean age of participants in that study was 22. Therefore, this can be considered as an outlier.

Table 2. Findings scoping review.

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Beerthuizen et al. (2015)	Fourth measure of the monitor on aftercare ex-prisoners	Report	The Netherlands	Data-analysis on monitor on aftercare ex-prisoners	(Ex-)prisoners	N = 11,988 (2011)/N = 11,565 (2012)	Status of life domains before, during and after incarceration.	<ul style="list-style-type: none"> - 80-95% of the ex-prisoners had an income and/or housing before incarceration, 90-95% of the ex-prisoners had an income and/or housing after incarceration. Most ex-prisoners had an income from work or received social assistance benefits. - About 57% of the ex-prisoners had debt before and directly after incarceration. 14-18% of them had debt counseling before incarceration. - 24-28% of the ex-prisoners got into debt during incarceration. - Debt among adolescents is highly prevalent because many adolescents struggle with their own financial responsibility when they become 18 years. - Financial behavior plays an important role in developing debt and is influenced by underlying personality traits. - It is hard for adolescents to solve their debt because of the social system.
De Jong (2017)	Think tank 9: Debt	Report	The Netherlands	Focus groups	Professionals, experts, and adolescents	N = 10 professionals and experts + 3 adolescents	The role of debt problems in the approach of adolescents at risk and youth crime.	

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Table 2. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Den Bak et al. (2018)	Psychosocial criminogenic factors en neurobiological characteristics of male prisoners	Report	The Netherlands	Data-analysis on risk assessments Cognitive tests	Male prisoners	N=2,079 N=283	Psychosocial criminogenic factors and neurobiological characteristics of male prisoners.	Male prisoners often have a long history of criminal behavior and antisocial behavior is highly prevalent. Problems in one life domain are often related to problems in other domains. Alcohol and drug abuse are often indicators of other psychosocial problems. Male prisoners have a lower ability to concentrate and have a lower cognitive flexibility than the general population.
Dirkzwager et al. (2015)	Effects of incarceration on finding a job and a house: Two field experiments	Journal article (peer reviewed)	The Netherlands	Randomized experiments	General population sample	N=615	Effects of incarceration on finding a job and a house.	Male prisoners have relatively few internalizing problems, but psychopathic traits are present. Incarceration does not have a significant effect on the chance of ex-prisoners to find a job. Incarceration does have a significant effect on the chance of ex-prisoners to find a house.

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Table 2. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Edgar and Bath (2011)	Time is money: The role of personal finance in reducing re-offending	Journal article	United Kingdom	Interviews	Adult prisoners	N=47	Impact of imprisonment on financial status.	<ul style="list-style-type: none"> - A substantial proportion of people in prison were already experiencing extreme and persistent financial exclusion before being sentenced. - Imprisonment tends to increase financial exclusion and reduce personal responsibility, creating problems with housing, insurance, employment, and family relations; all of which can increase the risk of reoffending. - Changes within prisons to promote financial inclusion and responsibility would directly contribute to effective resettlement and a reduction in the rate of reoffending.
Felson et al. (2012)	Having a bad month: General versus specific effects of stress on crime	Journal article (peer reviewed)	United States	Data-analysis on Second Nebraska Inmate Study	Male offenders	N=695	Influence of different types of stress on crime.	<ul style="list-style-type: none"> - Assault is most strongly related to family stress, suggesting that conflicts between family members lead to assault. - Economic crimes are most clearly related to financial stress, suggesting that economic crimes are often committed to resolve debt. - Criminal behavior seems to be a focused response to specific types of problems rather than a general response to stress.

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Table 2. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Joosen and Slotboom (2015)	Looking back at the run-up: Dynamic predictors of times of incarceration over life-course among female prisoners in the Netherlands	Journal article (peer reviewed)	The Netherlands	Interviews	Female prisoners	N=397	Dynamic predictors of times of incarceration over life-course among female prisoners.	Female prisoners who have a job or receive social assistance benefits, have a child or have relationships with partners who use drugs or alcohol have a smaller risk of incarceration one year later. Female prisoners who have divorced parents, are addicted to hard drugs, work as a prostitute, have debt, are homeless, have a partner who commits crimes, get mental health care or have income from crime have a higher risk of incarceration.
Jungmann et al. (2014)	Caught in debt	Report	The Netherlands	- Data-analysis on risk assessments - Data-analysis on client files - Interviews professionals + clients	- Probation clients - Probation clients - Probation officers + probation clients	- N=47,773 - N=71 - N=29 + 11 clients	Supervision of clients with debt as a part of offender supervision.	Debt among probation clients is highly prevalent. Research on the relationship between debt and crime is limited. Probation officers do not have enough tools to adequately supervise clients.

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Table 2. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Kuppens and Ferwerda (2008)	Inside out: A needs assessment on the nature and scope of aftercare for prisoners	Report	The Netherlands	Data-analysis on client files	Prisoners	N=6.385	Aftercare for prisoners.	<ul style="list-style-type: none"> - 22% of the prisoners had a problem with the ID. - More than 40% of the prisoners had a problem with income. - 30% of the prisoners had a problem with housing. - 8% of the prisoners had a problem with health care. - More than 75% of the prisoners had a problem in only one life domain.
Martire (2010)	An examination of the implications of financial strain for forensic psychology	Journal article (peer reviewed)	International	Non-systematic literature review	-	-	Implications of financial strains for forensic psychologists.	<ul style="list-style-type: none"> - Financial strain and associated mental and general health problems pose a significant barrier to treatment seeking, compliance, and treatment success. - Financial strain has significant implications for the core business of forensic psychologists.
More and Weijters (2011a)	Second measure of the monitor on aftercare ex- prisoners: Results and comparison between two measures over time	Report	The Netherlands	Data-analysis on monitor on aftercare ex- prisoners	(Ex-)prisoners	N=10.838	Status of life domains before, during and after incarceration.	<ul style="list-style-type: none"> - 72.4% of the ex-prisoners had an income before incarceration, 61.6% of the ex-prisoners had an income after incarceration. Before incarceration, most ex-prisoners had income from work (43.2%) or received social assistance benefits (32.6%). - 73.2% of the ex-prisoners had debt before incarceration. 30% of them had debt of more than €10,000.

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Table 2. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
More and Weijters (2011b)	Debt among juvenile prisoners	Report	The Netherlands	Data-analysis on monitor on aftercare ex- prisoners	(Ex-)prisoners	N = 15.356	Debt among juvenile prisoners.	47.8% of the 18 and 19 years old adolescents have debt. This percentage is higher for each older age group: 75% of the 23 years old have debt. This percentage is equal for all older age groups until the age of 50. The average level of debt of 18 years old is €1,000, for 20 years old the average debt is €4,300, for 25 to 30 years old €10,000 and for 50 years and older €20,000. Delinquents between the age of 18 to 24 mainly have debt with providers and health insurers. Adult offenders have debt related to their housing more often. Of the adolescent delinquents 16.2% have no income, 13.2% have debt and contact with an organization for health care. Offenders without income or who receive social assistance benefits have debt more often than offenders who have a job. Offenders without housing have debt more often than offenders without housing.

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Table 2. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Noordhuizen and Weijters (2012)	Third measure of the monitor on aftercare ex-prisoners	Report	The Netherlands	Data-analysis on monitor on aftercare ex- prisoners	(Ex-)prisoners	N = 9,690	Status of life domains before, during and after incarceration.	– 71.0% of the ex-prisoners had an income before incarceration, 61.7% of the ex-prisoners had an income after incarceration. Before incarceration, most ex-prisoners had income from work (38.1%) or received social assistance benefits (33.4%). – 73.1% of the ex-prisoners had debt before incarceration.
Oksanen et al. (2015)	Social determinants of debt problems in a Nordic welfare state: A Finnish register- based study	Journal article (peer reviewed)	Finland	Data-analysis on register data	Adults (general population sample; age 19-65 years)	N = 91,931	Debt problems among adult population.	– Low socioeconomic status, male gender; age, marital status, number of children, and prior criminal convictions are associated with debt problems. Debt problems do not only boil down to social stratification and poverty. – The younger age group had a higher prevalence of debt problems. – Low levels of education predicted both higher prevalence of debt problems. – Social mechanisms of financial behavior play an important role in debt problems.

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Table 2. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Van Dam (2005)	Juvenile criminal recidivism: Relations with personality and post release environmental risk and protective factors	Thesis	The Netherlands	Data-analysis on different questionnaires	Young delinquents	N = 163/111/96	Personality and post release environmental risk and protective factors.	<ul style="list-style-type: none"> - 60%–75% of the adolescents have contact with justice again after leaving the institution for juvenile delinquents. - Especially use of alcohol and drugs and criminal attitude are important predictors for recidivism. - Treatments for juvenile delinquents should focus on both risk and protective factors.
Van Dijk (2003)	Debt problems of ex- prisoners	Thesis	The Netherlands	Interviews	<ul style="list-style-type: none"> - Ex-prisoners - Professionals 	N = 9 N = 6	Causes and consequences of problematic debt among ex-prisoners and debt counseling for ex-prisoners.	<ul style="list-style-type: none"> - Ex-prisoners who grew up in an unstable situation often got into debt in adolescence and young adulthood. Ex-prisoners who grew up in a stable situation most often got into debt somewhat later, in young and middle adulthood. - Debt is mainly caused by inability to manage own finances, lack of insight in the financial situation, lack of responsibility for debt, addiction, and fines as a result of the committed crimes.

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Table 2. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Van Koppen et al. (2017)	Persisters in crime: Criminal careers and background characteristics of young offenders in serious crime	Report	The Netherlands	Data-analysis on registrations Data-analysis on client files	– Young delinquents	N = 1,041 N = 99	Criminal careers and background characteristics of young offenders in serious crime.	– Only a small part of the young offenders in serious crime persists, most of the delinquents desist between the age of 20 and 30. – Both persisters and desisters often grew up with many different and serious problems in family and at school, such as debt, lack of structure, and parents who were physically and mentally unable to create a save environment for their children, which had a significant influence on their development.
Verbruggen et al. (2015)	Work, income support, and crime in the Dutch welfare state: A longitudinal study following vulnerable youth into adulthood	Journal article (peer reviewed)	The Netherlands	Longitudinal data- analysis	– Young delinquents	N = 540	Effects of employment and different types of income support on crime.	– For men, work and income support are associated with a reduction in the rate of offending. – For women, employment is also correlated with a lower offending rate, but receiving income support, especially disability benefits, is correlated with a higher offending rate. – Support was found for financial motivation for crime as well as for the importance of informal social control for reducing offending.

Table 2. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Vogelvang et al. (2003)	Prevalence of criminogenic factors among male prisoners in the Netherlands	Report	The Netherlands	Interviews based on OASys Two	Male prisoners	N = 355	Prevalence of criminogenic factors among male prisoners in the Netherlands.	<ul style="list-style-type: none"> - Static and dynamic criminogenic factors are both present among male prisoners. - Male prisoners most often have problems with mental health, employment, friends who commit criminal activities, and finances. - Most male prisoners use hard drugs on a daily basis and commit property crimes. The use of hard drugs is highly related to the property crimes. - 46% of the male prisoners are frequent offenders. - With regard to thoughts and behavior, male prisoners have both problems and strengths. - Young male prisoners (24 years and younger) are relatively less frequent sentenced and in general have better relationships with family and others in their social environment. Their housing is often more stable because a significant part of the group still lives with their parents.

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Table 2. (Continued)

Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Weijters and More (2010)	Monitor on aftercare ex-prisoners: Development and first results	Report	The Netherlands	Data-analysis on monitor on aftercare ex- prisoners	(Ex-)prisoners	N= 15,356	Status of life domains before, during and after incarceration.	75.8% of the ex-prisoners had an income before incarceration, 58.6% of the ex-prisoners had an income after incarceration. Before incarceration, most ex- prisoners had an income from work (46.3%) or received social assistance benefits (31.5%). - The life domain in which most ex- prisoners had problems was debt. 70.2% of the ex-prisoners had debt before incarceration. 33.6% of them had debt of more than €10,000.
Weijters et al. (2010)	Aftercare problems and recidivism among prisoners with a short-term sentence	Report	The Netherlands	Data-analysis on monitor on aftercare ex- prisoners	(Ex-)prisoners	N= 15,356	Problems in life domains and recidivism among prisoners with a short-term sentence.	- Prisoners who are sentenced for more than two weeks often not have an ID, income and/or housing before incarceration but have less debt and contacts with organizations for health care than prisoners who are sentenced for more than one month. - 45% of the prisoners with a short prison sentence are sentenced again within 2 years and 18.8% are sentenced to custody within two years.

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Author(s) (date of publication)	Title	Publication type	Country	Method	Population	Sample size	Focus	Conclusions
Weijters and Noordhuizen (2012)	Aftercare problems among 18 to 26 years old prisoners	Report	The Netherlands	Data-analysis on monitor on aftercare ex- prisoners	(Ex-)prisoners	N = 9,690	Problems with income among 18 to 26 years old prisoners.	<ul style="list-style-type: none"> - 13.1% of the 18 to 26 years old prisoners have no income and housing before incarceration. - 18.6% receive social assistance benefits before incarceration. - Adolescent prisoners who receive social assistance benefits have debt more often than adolescents who have a job before incarceration.
Weijters et al. (2018)	Monitor on aftercare (ex-) prisoners: measure 5: Description of the problems of ex-prisoners and the relationship with recidivism	Report	The Netherlands	Data-analysis on monitor on aftercare ex- prisoners	(Ex-)prisoners	N = 11,914 (2013)/N = 11,773 (2014)	Status of life domains before, during and after incarceration.	<ul style="list-style-type: none"> - Most of the ex-prisoners had an income before and after incarceration. - More than 75% of the ex-prisoners had debt before incarceration. About 13% of them had debt counseling before incarceration. About 0.4% were in a debt settlement before and after incarceration.
Wright et al. (1999)	Reconsidering the relationship between SES and delinquency: Causation but not correlation.	Journal article (peer reviewed)	New-Zealand	Longitudinal data-analysis on Dudenin Multidisciplinary Health and Development Study	Children and adolescents	N = 1,037	Relationship between socioeconomic status (SES) and crime.	<ul style="list-style-type: none"> - Low SES results in an increase of crime, by increasing individuals' alienation, financial strain, and aggression and by decreasing educational and occupational aspirations. - High SES also results in increase of crime, by increasing risk taking and social power and by decreasing conventional values.

Results

The five studies included in the systematic review were relatively recent; the oldest study was published in 2011 and the most recent study in 2016. Sample sizes ranged from 1,258 to 150,010. Designs included both qualitative and quantitative studies. The majority of the studies concentrated on adolescents and young adults (both on students and on adolescents and young adults from the general population). Of the 24 studies in the scoping review, the oldest study was published in 1999 and the most recent study in 2018. In addition, systematic literature reviews were found and included in the present study because these studies showed that there is only limited knowledge about the relationship between debt and crime, and underlined the urgency of further research. These reviews also had a different focus than the current review, as they specifically focused on adolescents from the perspective of insight in to preventing financial problems among adolescents (not specifically delinquent adolescents). The first systematic review of Hoeve et al. (2011) not only focused on the relationship between financial problems and debt, but also on risk factors for debt and risk factors for crime apart from each other. The second systematic review of Hoeve et al. (2014) not only focused on the relationship between financial problems and crime, but also on the prevalence of debt and the risk factors that play a role. Therefore, not all the studies that were found in the reviews of Hoeve and colleagues are part of the current review.

Systematic review

Table 1 presents the results of the five studies that were included in the systematic review. Blom et al. (2011) conducted a secondary data-analysis on the Monitor Self-reported Youth Crime focusing on the relationship between debt and delinquency among adolescents. They found evidence of causality between debt and (self-reported) delinquency, regardless of the type of delinquency. As young adults experience more debt, they show more delinquent behavior. This association is stronger for adolescents and particularly applies to property crime. Furthermore, evidence was found of a clear relationship between self-reported vandalism and debt, especially among adolescent males.

Going more into depth on the relationship between debt and delinquency among adolescents and young adults, Hoeve et al. (2011) conducted a study consisting of a systematic review and secondary qualitative and quantitative analyses. They found that adolescents and young adults who have more debt show more delinquent behavior than adolescents without debt. The same group of scholars conducted a systematic review and meta-analysis to obtain more insight into the prevalence of financial debt, correlates and risk factors for debt, and associations between debts and criminal behavior in adolescents and young adults (Hoeve et al., 2014). These studies reported strong associations between debt and crime. Relatively stronger associations between debts and crime were found when crime was measured before debt than the other way around. Particularly, strong associations were found between serious and persistent crime in young people and later debt in young adulthood. Considering studies in which debt and crime were measured simultaneously, it was found that the association between debt and delinquency became stronger with age. Moreover, relatively strong associations were found between debt and recidivism, suggesting that those juvenile offenders who recidivated were more likely to have debts. Compared to non-offenders, Offenders were

found to be more likely to have all kinds of debt and debt involving rent and utility bills in particular (Moffitt et al., 2002; Siennick, 2009; Zara and Farrington, 2010). Furthermore, it was found that, compared to non-offenders, offenders were particularly more likely to have personal and informal debt (i.e. debt owed to family and peers).

Aaltonen et al. (2016) criticized the review of Hoeve et al. (2014), stating that it was limited by a selection bias because many of the studies that they included in their review focused on samples of university students. Therefore, in their own study, they used longitudinal register-based data from the national debt enforcement authorities and incorporated official data on debt defaults and types of debt that represented the general Finnish young adult population. They examined the reciprocal association between debt problems and crime by controlling for individual variation in debt and crime caused by factors such as education, income, employment, and parental debt problems to rule out the possibility that an association between the two reflects differences in socioeconomic status (SES). They found that the association between debt problems and crime is a result of reciprocal causation. Levels of all types of crime were consistently higher during periods of debt enforcement, the increase in levels of crime took place almost immediately after the start of the debt default period, and the mean number of crimes grew steadily as debt enforcement duration increased. The association between debt problems and crime remained strong after controlling for a variety of socioeconomic factors. Some indications of moderately increasing intensity of debt before a conviction were observed. The results were clearer for crime-related debt. Debt worsened as a consequence of crime, a large percentage of all crime-related debt entered enforcement, and once the debtors entered enforcement, they often stayed there for a long time.

Hoeve et al. (2016) used three measurement waves over a time span of six years in a study among a sample of 1,258 adolescents and young adults from the general population (ranging from 12 to 24 years). They found evidence that debt increases the risk of delinquency, and vice versa, and this was not moderated by gender or age. First, they found that debt and delinquency are related to each other reciprocally at the same time point. Looking at the same individuals three years later, the researchers did not find that those who previously had debt (or delinquency) were any more likely to have delinquency (or debt) three years later. Thus, though an individual's present debt and delinquency are directly related, neither is related to the other in the near future. However, the researchers found that debt at one time point had significant indirect effects on delinquency three years later when the model was adjusted for debt at the same time point three years later. Similar indirect effects of delinquency on debt were found. These effects became stronger over time. The effects of delinquency on debt seemed to be stronger than those of debt on delinquency. A longer term effect (six years) of delinquency on debt was also found, whereas this effect was not found for debt on delinquency.

Scoping review

The articles in the scoping review can be divided into two categories: articles with a focus on the prevalence of debt among offenders and articles that focus on socioeconomic factors that play a role in crime.

Prevalence of debt. Studies on the prevalence of debt among offenders provide important insight into (1) the sources of income of offenders, (2) debt among offenders, and (3) characteristics of offenders with a higher risk of debt.

First, with regard to sources of income of offenders, several studies found that about three quarters of the prisoners had a form of legal income before incarceration. After incarceration, significantly fewer offenders had an income. A small group of offenders did not have any income before incarceration, but had an income directly after incarceration.

Second, regarding debt among offenders, Jungmann et al. (2014) showed that many probation clients have complex debt which hinders social reintegration and thereby increases the risk of recidivism. Moreover, studies showed that almost half of the prisoners have problems with regard to income and almost two thirds of them have debt, especially prisoners with a long sentence (More and Weijters, 2011a, 2011b; Weijters et al., 2010). Edgar and Bath (2011) demonstrated that a substantial proportion of prisoners were already experiencing extreme and persistent debt before being sentenced and that imprisonment tends to increase financial exclusion. After incarceration, much less ex-prisoners have debt counseling. Most debt is owed to the Dutch Central Judicial Collection Agency (CJIB) and health insurers. About a quarter of the prisoners who had no debt before incarceration have debt after incarceration (Beerthuisen et al., 2015; Kuppens and Ferwerda, 2008; More and Weijters, 2011a; Noordhuizen and Weijters, 2012; Weijters et al., 2018; Weijters and More, 2010; Weijters and Noordhuizen, 2012).

Third, concerning characteristics of offenders with a risk of debt, it was found that debt is a potential risk factor for almost half of all clients of the probation organization in the Netherlands that especially supervises addicted clients (Jungmann et al., 2014). Furthermore, the research demonstrated that, among male prisoners in the Netherlands, debt is one of the most common criminogenic factors (Den Bak et al., 2018; Vogelvang et al., 2003) and that debt is a potential risk factor for (persistent) criminal behavior (De Jong, 2017) and recidivism (Van Dam, 2005). When it comes to different types of offenders, violent offenders have income before incarceration more often than property offenders. Offenders of drug-related crimes have debt less often than those who are convicted for property offenses. Before incarceration, prisoners with a higher risk of recidivism have debt more often than prisoners with a lower risk of recidivism.

Socioeconomic factors. Many criminological theories suggest that a low socioeconomic status is related to a higher level of crime, but empirical studies consistently found weak or nonexistent correlations between socioeconomic status and self-reported criminal behavior. Going more into depth, Wright et al. (1999) found that a low socioeconomic status increases crime by increasing individuals alienation, financial strain, and aggression and by decreasing educational and occupational aspirations (negative effect), whereas a high socioeconomic status decreases crime by increasing risk taking and social power and by decreasing conventional values (positive effect). This was supported by findings of Oksanen et al. (2015) that low socioeconomic status and education level are associated with debt, highlighting the importance of understanding the social mechanisms of financial behavior. Martire (2010) also found evidence of an association between financial strain and crime. Van Koppen et al. (2017) found that persistent

offenders—frequent offenders whose criminal behavior starts early and continues throughout life—grew up in families with low income significantly more often than those who desist from crime.

Furthermore, criminological research has consistently suggested that employment can reduce criminal behavior. Verbruggen et al. (2015) found that (income from) work is correlated with a lower offending rate for both men and women. In addition, whereas for men income support is associated with a reduction in the rate of offending, for women income support—disability benefits in particular—is associated with an increase in the rate of offending. Moreover, Joosen and Slotboom (2015) showed that the risk of incarceration is higher for women who have debt or receive income from crime and lower for women who have work or receive social assistance benefits. These findings support theories that stress the financial motivation for crime. Going into specific motivations for crime, Felson et al. (2012) showed that economic crimes (e.g. property crimes and selling illicit drugs) are most clearly related to financial stress, suggesting that these crimes often reflect attempts to resolve debt and that criminal behavior is a focused response to specific types of problems rather than a general response to stress. Dirkzwager et al. (2015) demonstrated that the housing and income situation of ex-prisoners is often worse than that of non-offenders. They also found that lack of income made it difficult for ex-prisoners to find housing.

Conclusion and discussion

Although debt may increase the likelihood of crime and may be a better indicator for a worsening financial situation than employment status or low income very little research has been conducted on the relationship between debt and crime. The present systematic review focused on the relationship between debt and crime among the general population. The results show that forensic professionals, such as probation officers, should pay close attention to the clients' financial problems. We only found five studies that looked at the relationship between debt and crime and these studies mainly focused on youth in Western countries. As two systematic reviews regarding the relationship between debt and crime among young people have been published, there is some knowledge of this relationship. However, almost nothing is known with regard to this relationship among adults. Although the existing literature cannot empirically prove causal relationships, the results of the systematic review show strong evidence of a reciprocal relationship between debt and delinquency among adolescents. In addition, the studies in the scoping review underline the prevalence of debt among offenders, regardless of age, and the socioeconomic factors that play a role in the relationship between debt and crime. In this way, the results of the scoping review provide additional and in-depth insights and place the results of the systematic review in a broader perspective.

Main findings

The following are the most important conclusions from the present systematic and scoping review. Most studies in the systematic review focused on youth, possibly because debt among adolescents in Western countries has increased over time as a result of the

increasing costs of credit cards, student loans, and mobile phones (see Betti et al., 2007; Dwyer et al., 2011). As a result of this, the focus of these studies was mainly on ways to reduce debt among young people and to prevent adolescents from committing crime. These studies focused on debt as a risk factor for crime and not on the role of debt in crime and vice versa. Therefore, these studies were not aiming to provide knowledge for the assistance of offenders. Very little is known about the relationship between debt and crime in adults. Notwithstanding the relevance of the existing studies, firm conclusions about the direction of the link between debt and crime, especially among adults, cannot be drawn yet. The presence of problematic debt could be a risk factor for criminal behavior, as the strain theory would suggest, and criminal behavior might create a trajectory of debt, given that offenders are more likely to have debt later in life.

Studies with strong causal, quasi-experimental designs focusing on the relationship between debt and crime are lacking. This review was the first to specifically explore the relationship between debt and crime among both adolescents and adults. The results of the present systematic and scoping review show a strong association between debt and (self-reported) crime, regardless of the type of crime, especially for young adults and adolescent males (see also Blom et al., 2011). This provides evidence of a correlation between debt and crime as a result of a risky lifestyle, which supports self-control theories, as it shows that debt and crime may share underlying individual traits, such as low self-control, impulsivity, and risk taking (Gottfredson and Hirschi, 1990; Jessor, 1991). Risky lifestyle factors, such as hanging out on the street, involvement in nightlife, and alcohol usage, are more common among adolescents and adolescent males than among older people and adolescent females. Moreover, a risky lifestyle was found to be a stronger risk factor for crime among young adults than among adolescents and may have a stronger effect on young adults who also have debt (Van der Laan and Blom, 2006; Van der Put et al., 2011). Adolescents who have debt might also be more vulnerable to the influence of others regarding criminal activities than adolescents without debt, for example, as a result of the fact that they are low educated, have limited parental and social control, want to be part of a peer group, and cannot fully grasp the consequences of their behavior and choices (Hoeve et al., 2011; Van Dijk, 2003). Although empirical research is scarce and results are contradictory, it might thus be the case that there are some common risk factors for debt and crime.

As the study of Blom et al. (2011) was cross-sectional, it could be concluded on the basis of the results that it provides evidence of a relationship between debt and crime. However, no conclusions could be drawn about the extent to which debt is a risk factor for criminal behavior. Other studies in both the systematic and scoping reviews found evidence that crime increases the risk of the development of debt in adolescents and young adults, possibly due to personal or informal debt (i.e. debt owed to family and peers; Noorda et al., 2009; Siennick, 2009) or financial penalties and that crime is a risk factor for debt, especially among persistent offenders (De Jong, 2017; Hoeve et al., 2011, 2016; Van Koppen et al., 2017). These findings provide some support for Moffitt's theory regarding the difference between adolescence-limited and life-course persistent crime. The present systematic and scoping review found that debt may potentially increase the risk of recidivism, which supports previous findings that debt is only indirectly related to crime and vice versa (Hoeve et al., 2016; Van Dam, 2005). These results suggest crime is a risk factor for

debt more than debt is a risk factor for crime and that the relationship between debt and crime mainly applies to recidivism.

Although crime may be a risk factor for debt more than debt is a risk factor for crime, the present systematic and scoping review provides evidence that debt increases the risk of crime (see Hoeve et al., 2016). Debt and crime were found to be related to each other reciprocally at the same time point. Moreover, debt increases with age and in turn increases the risk of recidivism and hinders resocialization (Hoeve et al., 2011, 2016). Research on debt among adult ex-prisoners also shows that offenders with debt are more likely to re-offend than those without debt (Baldry et al., 2003; May, 1999). These findings are in line with several studies in the scoping review (Martire, 2010; Oksanen et al., 2015; Wright et al., 1999), which supports the strain theory (Hoeve et al., 2016). These findings also emphasize the idea that debt could not only be a risk factor for criminal behavior, as the strain theory suggests, but that criminal behaviors may also lead to a trajectory of debt.

Limitations

Several limitations have to be taken into account when drawing conclusions from the systematic review. First of all, four of the five studies in the systematic review were conducted in the same country (i.e. the Netherlands) and the fifth study was European as well. With regard to the scoping review, a limitation is that a large percentage of the included studies were Dutch as well. Therefore, the national context of the debt enforcement and criminal justice system may make some results dependent on the country in which the studies were conducted. Since in our search only Dutch and English keywords were used, no studies in other languages on the topic were found. Although we included studies in other languages with an English abstract, it is very well possible that we did not find studies that were published about this topic in other languages, especially gray literature. Notwithstanding this limitation, because we hardly found any internationally published studies on this topic, the topic seems indeed to get less attention in other countries. This may be due to organizational aspects of the debt enforcement and criminal justice system. In addition to the way the review has been conducted, these differences might partially explain the overrepresentation of Dutch studies. Despite the fact that research is limited, the few existing studies provide strong evidence of a reciprocal relationship between debt and delinquency among adolescents. Although we primarily found studies in Dutch, we have no reasons to assume that this relationship would be different in other countries. However, more insight is needed into the causality in this relationship, especially among adults, and the factors that may play a role in this relationship. For example, researchers could conduct a systematic client file search and interviews with both professionals who supervise offenders and offenders themselves.

Implications

The present review has several implications for policy and practice and it provides useful knowledge for crime prevention and intervention. Offenders may have more difficulties adjusting to society after life in prison because of their debt and debt may thus hinder resocialization, which in turn increases the likelihood that they will re-offend. More

generally, during supervision and training attention should thus be paid to dealing with money and budgeting. Given that crime predicts later debt, targeting debt in resocialization programs, for instance, in the form of budgeting courses, could effectively reduce the risk of future offenses. Therefore, as Hoeve et al. (2014, 2016) have already suggested, interventions and aftercare programs for offenders should not see debt as a separate factor but focus on dealing with debt and treat it as a risk factor for recidivism. Moreover, the results underline the statement that Hoeve et al. (2014) made:

Given that studies of debt in the present systematic review have shown that various factors are related to debt, [debt prevention] programs should not only focus on financial knowledge and money management, but also on risk factors in other domains. (p. 15)

Therefore, in debt prevention programs attention should not only be paid to financial management, but also to debt as a potential risk factor for crime and recidivism as well as other underlying possibly related risk factors in other domains, such as housing, education, work or other structured daytime activities, relationships, behavioral problems, mental and physical health problems, and addiction.

At a more societal level, evidence was found that monetary sanctions play a crucial role in processes of cumulative disadvantage and pose significant problems for individuals living in poverty. Although monetary sanctions are often preferred over custodial sanctions, this study shows that the negative consequences of debt might thus be especially difficult for persistent offenders trying to desist from crime (Harris et al., 2010). Therefore, more insight is needed into the effects of the current debt enforcement system in different countries on crime as well as insight into how to adequately support offenders as they go through debt counseling. Taken together, the present review shows that debt and crime are strongly related. This thus underlines the importance of gaining more knowledge about the factors that influence this relationship to better support clients with regard to finances during supervision to prevent recidivism, especially among adults.

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