

## PARENTAL OVER-INDEBTEDNESS AND YOUTH CRIME IN SWEDEN: A NATIONWIDE REGISTER-BASED STUDY

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**Abstract:** Very little is known about whether a child's delinquency can be related to a parent's economic problems in terms of financial indebtedness. This would seem to be an important research gap, not least at a time when the repercussions of the 2008 global financial crisis are still being felt by many people. This study concerned boys and girls born in 2002 who had a parent with a registration date for a debt in the Swedish Enforcement Authority register between 2016 and 2017 ( $n = 3,284$ ). We determined whether the adolescents had been convicted of a crime during the 3-year period when they were 15 to 17 years old, and compared their records with a sample from the general Swedish population ( $n = 16,435$ ). Results from logistic regressions show that children who, at age 15 to 17, had a parent with debt problems were approximately one and a half times more likely to be convicted of a crime than children who were unexposed to registered debts of parents ( $OR = 1.55$ ), irrespective of other well-established criminogenic risk factors observed prior to the parent's date of registration at the Enforcement Authority. The results provide support for the notion that financial challenges and problems with creditors may be an important proximate risk factor of delinquency.

**Keywords:** adolescent criminality, childhood antisocial behaviour, Sweden, parental risk factors, economic hardship, financial strain

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The efforts directed towards studying the impact of financial indebtedness in a family on children's behavioural outcomes do not seem to have included criminal behaviour (Agnew & Brezina, 2018; Hiilamo, 2021; Richardson et al., 2013; Turunen & Hiilamo, 2014), and this also holds true for Sweden (Swedish Government Official Reports [SOU], 2013:78). This would seem to be an important knowledge gap, not least when we are facing the fastest growing refugee crisis in Europe since World War II (UNHCR, 2022); when the largest contraction in economic activity since the Great Depression, caused by the COVID-19 pandemic, is still ongoing (United Nations Development Program, 2020); when the repercussions of the global financial crisis are still being felt by many people (Di Leo et al., 2018); and when debts are being described as foundational to social life (consumption, education, work, etc.; Lazzarato, 2012).

There are two particularly remarkable aspects of this dearth of research. Theoretically, the notion that parental economic problems may be directly related to a young child's delinquent behaviour is rather ordinary within the criminological literature (Agnew et al., 2008). Secondly, although it is a fact that debt problems have until recently been overlooked as a risk factor in its own right for criminality — especially if one searches for studies based on nationwide data including so-called direct (“objective”) measures of indebtedness, such as registration at an enforcement authority's register for an unpaid debt (see Aaltonen et al., 2016; Alm & Bäckman, 2020; DeMarco et al., 2021) — self-reported parental assessments of being unable to fulfil one's economic responsibilities adequately have been correlated in previous research with children's delinquency (Agnew et al., 2008). In fact, even parents' transitory perceptions of financial stress have been shown to have an adverse impact on children's antisocial behaviour (Takeuchi et al., 1991).

To help pin down the role of financial indebtedness in the relationship between parental economic problems and youth crime, this study sets out to examine the extent to which a child's enhanced risk for delinquency can be located to a parent's registration date for a debt at the Swedish Enforcement Authority (SEA). There are at least three important advantages for studying the relationship in this way: (a) theoretically, debt issues involving demands of payment from creditors are a key dimension of an economic problem that may lead to delinquency (Agnew et al., 2008); (b) examining all cases in which a non-payment of debt has officially been registered falls well within the administrative model of studying indebtedness (Turunen & Hiilamo, 2014) and is also what official governmental reports have described as the most reliable measure of over-indebtedness available in Sweden (SOU, 2013:78); and (c) other countries, such as the Nordic countries, Great Britain, and The Netherlands, have been found to have a similar legal system for dealing with financial indebtedness (SOU, 2013:78), suggesting that the results from following this specific group of debtors may be of value beyond the boundaries of Sweden.

By making use of unique personal identity numbers and the service offered by the Microdata Online Access (MONA) system at Statistics Sweden to link and analyse data from different

nationwide registers, this study has been able to follow criminal cases of the penal code (including narcotics<sup>1</sup>) among 15 to 17-year-old girls and boys who had a parent with a registration date for an unpaid debt in the SEA register during 2016 to 2017. The study also employed a comparison group from the general Swedish population.

### ***Parental Financial Indebtedness and Children's Criminal Behaviour: Articulating the Relation***

Economic problems — understood as considerable changes in lifestyle due to lack of money and the inability to buy needed goods and services, measured through aspects such as trouble paying bills and problems with creditors — are put forward within the general strain theory framework as a potentially important proximate risk factor of delinquency (Agnew et al., 2008). Although it has not specifically addressed financial indebtedness and youth criminality, research has tended to support the argument that monetary strain can lead to criminal behaviour: it has been shown that those who express monetary dissatisfaction are more likely to engage in property offences, violent offences, drug distribution, and drug use (Agnew et al., 1996; Baron, 2014).

The social structure in which adolescents operate generally sets limits on the range of resources available for them to use in manipulating their environment and achieving their goals. Adolescents' power of agency works to an important extent through their parents, where being able to command money, in particular, is an important source of not being as powerless (Agnew & Brezina, 2018; Marwell, 1966). From a general strain theory framework, it is ultimately being prevented from achieving much-desired privileges of adulthood through legitimate means (such as money) that makes adolescents more likely to cope by criminal means. In short, within this framework, delinquency is seen as a means of adolescents asserting or achieving a desired privilege (e.g. autonomy, social status), or venting frustration against those who deny them these privileges (Agnew, 2006).

The general strain literature includes a variety of ways of measuring economic problems (Agnew, 2006; Agnew & Brezina, 2018; Agnew et al., 2008; Baron, 2014). However, from a conceptual point of view, it is essential to consider that economic problems are not only about the inability to achieve economic goals, but also involve the actual or threatened loss of valued services and goods as well as the actual or threatened presentation of negative stimuli that are a direct result of lacking money (Agnew, 1992, 1994; Agnew et al., 2008). Parental financial indebtedness may encompass all these aspects. When there are financial problems in the household, adolescents will most likely have to make unwelcome adjustments; moreover, when parents cannot freely give them money to engage in activities, purchase goods, achieve popularity amongst peers, and so forth, adolescents may perceive it to be difficult to legally obtain the money they require to satisfy their needs (see Agnew et al., 2008; Greenberg, 1977). In Sweden, the consequences of a record

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<sup>1</sup> In Sweden, narcotics crimes are not included in the penal code but are instead regulated through the Narcotics Crimes Act.

of non-payment are far-reaching, making it difficult to sign such legally binding documents as a lease, an insurance application, or a mobile subscription (SOU, 2013:78).

### ***Parental Financial Indebtedness: A Risk Factor in Its Own Right***

Economic problems should not, as has sometimes been the case, be confused with, or reduced to, a question of socioeconomic status (e.g., education, welfare reciprocity; Agnew et al., 2008) or to economically stressful life events like unemployment (Baron, 2014). In fact, scholars working within the general strain tradition have put it forward as a theoretically distinct construct and a risk factor in its own right (Agnew et al., 2008). After all, although economic problems are more common among individuals with lower socioeconomic status, it is not the case that those individuals routinely experience economic problems or that individuals with higher socioeconomic status never do (Agnew et al., 2008). In Sweden, at least, this is also true of financial indebtedness (Swedish Enforcement Authority [SEA], 2008). Furthermore, the little that is known on the topic suggests that the detrimental effect on well-being of financial strain that comes with over-indebtedness exists above and beyond other economically stressful life events, including unemployment (Selenko & Batinic, 2011; Taylor et al., 2007; Turunen & Hiilamo, 2014).

Not being able to repay a debt puts one in a vulnerable position (Rojas, 2022), and is associated with strong individual stigma (Graeber, 2014). Being in debt has, throughout history, incurred varying degrees of punishment, even including imprisonment (Di Leo et al., 2018). Furthermore, in today's debt-based economies, this vulnerable position is thought to extend throughout society; that is, in comparison with other predominant power relations that may be restricted to a given space (e.g., the capital–labour relationship pertains within a factory), the creditor–debtor relationship permeates all types of social relationships — consumption, education, training, and so on (Lazzarato, 2012).

Agnew et al. (2008) published one of the first studies that used nationally representative data to address the issue of parental economic problems and youth criminality while adjusting for socioeconomic status. This means that the process of evidence accumulation for the relationship in question, using large-scale data, started relatively recently, and although economic problems have been distinguished, using self-rated data, as a risk factor that is separate from socioeconomic status, the question of whether this also holds true using direct (objective) measures is still an open question, at least when it comes to financial indebtedness. This is not a minor issue: the strength of the evidence for a direct link between problem debt and mental health has recently been shown to depend on whether an objective or self-reported measure of indebtedness was used (Bridges & Disney, 2010).

To advance this research direction, it is important to not stop at confirming that financial indebtedness of a parent is related to a child's criminality above and beyond socioeconomic status and financially stressful life events as measured through education, social welfare reciprocity, unemployment, and the like (see Agnew et al., 2008; Baron, 2014). That relation also needs to be

tested against the traditional behavioural and sociodemographic parental, individual, and background factors that are usually adjusted for in the study of juvenile delinquency (Agnew & Brezina, 2018). Those factors include parent's criminality, place of residence, gender, age, place of birth, and household position (e.g., single parent) as well as the youth's own gender and place of birth, and their history of maltreatment and serious antisocial behaviour (Agnew & Brezina, 2018; Bäckman & Nilsson, 2011).

### ***Aim***

The objective of the present study was to determine if parental financial indebtedness is related to criminality in adolescence (15–17 years) in Sweden during the period 2017 to 2019, above and beyond other well-established parental and individual risk factors.

## **Method**

### ***Study Base: The Enforcement Authority's Register and Other Nationwide Registers***

This is a quantitative matched prospective cohort study using secondary data retrieved from nationwide registers.

The Swedish Enforcement Authority (SEA) is a government agency with a range of responsibilities, including debt collection, enforcement, and injunctions to pay, among others. Anyone with a legitimate payment claim can use its services, for example, private individuals, the government, municipalities, and companies (see Government Offices of Sweden, 2021; SEA, 2020). The authority registers all debts, once confirmed through a simplified payment procedure or a court order, when enforcement has been unsuccessful (Jørgensen, 2016). Individuals who have been registered at the SEA may be kept in the register for 5 years but can be removed earlier. In practice, a debtor is kept in the register for a minimum of 3 years, whereupon his or her latest matter is closed by the SEA (SOU, 2013:78).

On the basis of information extracted from the SEA database on January 11, 2018, this study focuses on children who, during 2016, cohabited with a parent aged 30 to 60 who appeared with a registration date for a debt in the SEA register dated between January 1, 2016 and December 31, 2017 (the exposed group). For each of the individuals registered at the SEA, a set of up to five controls was drawn from the general Swedish population and matched by age, gender, and region of residence on December 31, 2014. Those controls who had a registered linkage to a cohabiting child form the basis for the comparison group in this study.

The data also include information from several other national registers. In this study, we make use of the linkages made with (1) the longitudinal integration database for health insurance and labour market studies, the total population statistics register, the geography database, and the multigeneration register; (2) the child welfare register; and (3) the criminal convictions register.

These registers are administered by Statistics Sweden, the National Board of Health and Welfare, and the National Council for Crime Prevention, respectively.

This research project was approved by the Swedish Ethical Review Authority. The large-scale nature of this register study made the question of informed consent non-applicable. All the data are stored at Statistics Sweden and have been made available to the authors via its micro-data online access system.

### *Analytical Strategy*

In Sweden, the age of criminal responsibility is 15 years. Hence, for children born in 2002 with a parent registered for a debt at the SEA in 2016 or 2017, the available information on convictions is limited to the years 2017, 2018, and 2019; that is, to a follow-up period of 3 years (crime at age 15–17). The comparison with the matched sample of the Swedish population was restricted to the same 3-year follow-up period. Many of the control variables were measured at baseline in 2015 (1 to 2 years preceding the parent's registration) for both the exposed and the comparison group. The exceptions were the matching variables, the parent's household position, and the youth's history of maltreatment and/or serious antisocial behaviour (measured in 2014, 2016, and 2002–2016, respectively).

If both parents were registered at the SEA, the parent with the first registration date was included in the analysis; when they shared the same date of registration, the mother was prioritised. This was to ensure representation of both fathers and mothers in the study sample. The same principle was applied in the control group. In cases where there were siblings in the household of equal age (same birth year), the analysis included only the first one to appear in the register. Cases where the adolescent's conviction date was prior to the parent's registration date at the SEA were excluded, as were cases in the control group that appeared in the SEA register during the follow-up period. Cases of emigration during the study period were also excluded. Moreover, the analysis only considered people for whom complete data were available on all the variables included in the models.<sup>2</sup>

Logistic regression was used to estimate the relationship between the independent and control variables and criminality. The loose-matching nature of the data under study allows it to be analysed by means of unconditional logistic regressions (Kuo et al., 2018). The benefit of this form of analysis is that it is possible to obtain estimates for the matching variables by merely including them as regular control variables in the analysis.

Given the difficulty in relying solely on *p*-values (and significance tests based on them) for statistical inference when using large-sample data (Raftery, 1995), as is the case in this study, the

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<sup>2</sup> Youths in the study sample that were born abroad were exempted from this inclusion criterion when it came to the variable out-of-home care; that is, even though they could not have been registered in the Swedish Register of Children and Young Persons Subjected to Child Welfare while living abroad, they were kept in the analysis.



Bayesian information criterion (BIC) value was used as a complementary statistical tool for selecting the models. BIC is commonly used as a variable-selection criterion, partly because its penalty term is a product of the number of parameters in the model and the log of the sample (StataCorp, 2021). When comparing models, the one with the smallest BIC value is the preferred model. Having said that, it should be noted that there are suggested breakpoints for weak, positive, strong, and very strong evidence for preferring one model over the other, corresponding to a minimum BIC difference of 0, 2, 6, and 10, respectively (Raftery, 1995).

### ***Dependent Variable***

Criminality was defined as having been convicted of a crime according to the Swedish penal code (including narcotics) as a 15- to 17-year-old during the period 2017 to 2019 (*yes* = 1, *otherwise* = 0). Sweden does not have a separate juvenile court system: youth cases are handled by the same district courts that deal with adult offenders (Bäckman, 2017).

### ***Independent Variable***

Parental financial indebtedness was defined as having a parent with a registration date for a debt in the SEA register at any point between January 1, 2016 and December 31, 2017 (*yes* = 1, *otherwise* = 0).

### ***Control Variables***

The control variables have been measured according to the analytical strategy described above. For the parent, the control variables are: (a) gender: women/men; (b) age: year of birth; (c) region of residence: living in one of the three regions in Sweden that includes the country's largest cities (Stockholm, Gothenburg, and Malmö); (d) place of birth: Sweden/abroad; (e) household position: single parent/other (married [including civil unions], cohabiting); (f) education: pre-upper secondary/upper secondary/post-upper secondary; (g) criminal record: convicted of at least one criminal offence within the 1-year period; (h) social welfare reciprocity: received means-tested social assistance at least once in the year; (i) unemployment: registered as unemployed by the relevant authorities for at least 1 day in the year.

For the youth, the control variables of age, gender, and place of birth were also measured in terms of year of birth, sex (boys/girls), and country of birth (Sweden/abroad). The youth's history of serious antisocial behaviour or maltreatment in the home environment is defined as having been in out-of-home care (foster family or residential care), according to the Swedish Register of Children and Young Persons Subjected to Child Welfare (see Berg & Brännström, 2018). Furthermore, as there have been indications that the relationship between placement in out-of-home care and subsequent criminal behaviour may vary with the age at which the intervention took place, this control variable is categorised into two subgroups according to whether the first ever placement was before or during the teenage period: (a) placement during the period 2002 to 2014, and (b) placement during the period 2015 to 2016 (see Lindquist & Santavirta, 2014).

## Results

The study base consists of an exposed group and a comparison group (see Table 1). A total of 3,284 adolescents born in 2002 (1,612 girls and 1,672 boys) were identified as having been exposed to having a parent with a registration date for a debt at the SEA register dated between January 1, 2016 and December 31, 2017. The study's comparison group of adolescents born in 2002 whose cohabiting parents did not appear with a registration date for a debt at the SEA register dated between January 1, 2016 and December 31, 2017 consisted of 16,435 adolescents (8,009 girls and 8,426 boys).

A total of 335 cases of crimes from the penal code (including narcotics) are included in the analysis, of which 98 occurred in the exposed group and 237 in the comparison group. The proportion of adolescents who committed a crime in the exposed group is approximately double that in the comparison group. Apart from the matching variables of parental age, gender, and region of residence, the distributions of the control variables clearly differ between the exposed group and the comparison group, illustrating the adverse conditions experienced by the adolescents in the exposed group and their parents.

The results from the logistic regression analysis are presented in Table 2. In Model 1, we see that the financial indebtedness of a parent is significantly related to criminality among boys and girls aged 15 to 17, with a crude *OR* of 2.10<sup>3</sup>. In other words, adolescents in the exposed group were approximately twice as likely to commit a crime as were the unexposed adolescents (*OR* = 2.10). As can be seen in Model 2, this relationship remained statistically significant but was somewhat weakened when adjusted for the parent's place of birth, age, gender, and region of residence (*OR* = 1.88). The fact that the BIC value for model 2 (BIC = 3,369.4) was lower than the value for Model 1 (BIC = 3,381.1) suggests that the data support the inclusion of the control variables in the model; no such support was found for the inclusion of interaction terms between financial indebtedness and the control variables in relation to adolescent criminality (BIC values for the tested multiplicative models are not presented).

When five additional control variables are introduced into the analysis — the parent's criminality, household position, employment status, social welfare reciprocity, and education — the effect of a parent's financial indebtedness on adolescent criminality remains significant but decreases in strength, from an *OR* of 1.88 to one of 1.59 (see Model 3). Once again, the data did not support the inclusion of interaction effects between financial indebtedness and the statistically significant and newly introduced control variables in relation to criminality; none of the multiplicative models produced smaller BIC values than its additive counterpart (not shown in Table).

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<sup>3</sup> The odds ratios can be interpreted in this way because odds ratios approximate risk ratios when outcomes are rare (Cummings, 2009).



In the final model (Table 2, Model 4), the adolescents' own demographic characteristics (gender and place of birth) and history of maltreatment or serious antisocial behaviour (out-of-home care) are included in the analysis. The effect of financial indebtedness decreases once again ( $OR = 1.55$ ), but it continues to remain significant (95% CI [1.20, 1.99]). In this model too, there was no support for financial indebtedness varying with any of the statistically significant and newly introduced control variables in the data: none of the estimated multiplicative models produced smaller BIC values than its additive counterpart.<sup>4</sup>

## Discussion

Even though Sweden has a long tradition of studying how children are affected by social exclusion and poverty, there are no studies that have specifically focused on whether the detrimental impact of problem debt crossing over from an over-indebted parent to a cohabitating young child ultimately increases the risk of the youth's engagement in criminal behaviour (SOU, 2013:78). This dearth of studies is also seen in countries other than Sweden. In fact, the extent to which an individual's debt situation can be related at all to his or her own criminality is only now starting to unfold (Aaltonen et al., 2016; DeMarco et al., 2021), even though the idea of economic problems being criminogenic can be traced back to nearly century-old criminological literature (Agnew et al., 2008). This knowledge gap is remarkable not only from an academic point of view, but also because being in debt and lacking the capacity to pay back what is owed is an acknowledged social problem that has increased dramatically over the past four decades in many high-income countries (Krumer-Nevo et al., 2017). Furthermore, both violent and non-violent crimes at a young age have been related to multiple adverse outcomes and early death (Bäckman & Nilsson, 2011; Stenbacka et al., 2019). Identification of children at risk of antisocial behaviour is hence of paramount importance in reducing crime and additional disadvantageous outcomes, with social and economic benefits for society as a whole (Bäckman & Nilsson, 2011; Stenbacka et al., 2019).

In line with the theoretical assumptions outlined at the outset of this paper, the results of this study are supportive of the notion that having economic problems, here measured through financial indebtedness of a parent, needs to be considered as a risk factor in its own right for a young child's criminal behaviour. Hence, this factor is neither reducible to nor conditioned by the traditional risk factors used in youth crime research, such as parents' education, social welfare reciprocity, unemployment, criminality, gender, single parent status, and the child's history of maltreatment or serious antisocial behaviour (Agnew, 2006; Agnew & Brezina, 2018). Thus, from the point of view of general strain theory, the observed link between parental financial indebtedness and youth criminality comes as no surprise. That this link is independent of parents' socioeconomic status (as indicated by parental educational level) is also in line with theoretical expectations. Within this

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<sup>4</sup> As a sensitivity-test, all models presented in Table 2 were rerun using linear probability models. These analyses produce virtually identical results.

theoretical framework, one ultimately expects the risk of delinquency to be driven by strains that come with, for example: (a) not being able to achieve economic goals, (b) experiencing actual or threatened loss of valued goods or services, and (c) experiencing actual or threatened exposure to the immediate negative consequences of the lack of money. This further underscores the importance of including the type of measurement used in this study, which is able to capture the most relevant aspects of the socioeconomic risk factors of crime (Agnew et al., 2008).

Of particular importance, from a prevention perspective, is that we have found support for a risk factor — parental over-indebtedness — that we argue is much more proximate to delinquency than the indicators of socioeconomic status that we are used to dealing with when studying socioeconomic strain and crime (Agnew, 2006; Agnew et al., 2008). After all, crime prevention is best managed when proximate risk factors are known, understood, and acted upon as promptly and thoroughly as possible (Shane, 2022). Furthermore, as with other economically stressful life events like unemployment (Agnew, 2006), the criminogenic strain of parental over-indebtedness has the potential to be addressed with direct support from public assistance programmes.

Debt counselling has been put forward as a way to mitigate the unhealthy, stressful impact of being unable to meet one's financial commitments (Turunen & Hiilamo, 2014; WHO, 2011), and there is also research indicating that the work of debt management is primarily done by women, even when the debt is not their own (Callegari et al., 2019). Scholars have thus called for those providing social services to men with debt problems to be attentive to the life situation of any female partner (Callegari et al., 2019). In Sweden, municipal social services are expected to provide budgeting and debt advice to indebted people — both to prevent further financial indebtedness and to help them find a solution to their debt situation — in accordance with the Social Services Act (Swedish Code of Statutes, 2001:453, 5 chapter 12 §). The results of this study imply that current calls for the social services to be attentive of eventual crossover effects of indebtedness to a cohabiting spouse or partner should be extended to also encompass cohabiting children, as they show that a child's risk of engaging in criminal behaviour is related to a parent's financial indebtedness.

Although this study is grounded within a general strain theory framework, with the aim of establishing the extent to which a parent's financial indebtedness can in itself be considered a risk factor for a young child's criminal behaviour, we believe that the implications of these results go beyond this disciplinary tradition. For example, the family stress model, a widely used theory within family science (Masarik & Conger, 2017; Ponnet, 2014), assumes that economic pressure arising from various aspects, such as difficulty paying bills, is related to a wide variety of child outcomes, including externalising symptoms and conduct problems. It is believed that being exposed to this type of stress can affect a youth both directly — through, for example, difficulty in affording needed goods — and indirectly: for example, a parent's anger, frustration, irritability, or depression can disrupt important parenting functions such as control, supervision, and discipline (Agnew & Brezina, 2018; Agnew et al., 2008; Ponnet, 2014). Theoretically, economic strain and debt-related stress, which are often accompanied by anxiety, various forms of psychological

distress, shame, and fear of social stigma, are thought to be interlinked causal pathways connecting financial indebtedness with its individual consequences (Hiilamo, 2021). Having said that, the extent to which specific forms of emotional responses may mediate the relationship reported here between parental financial indebtedness and a child's risk of committing a crime remains for future studies to explore.

### ***Limitations***

Four main methodological considerations should be taken into account when interpreting the results of this study. First, because the study is based entirely on register data, we have not had access to self-reported information on confounders that might have influenced the results (Thygesen & Ersbøll, 2014), such as attitudes towards deviant behaviour in the family (Agnew & Brezina, 2018). However, using traditional surveys to capture representative and sizeable groups of individuals with problem debts, like those studied here, has to date proven to be very difficult (Aaltonen et al., 2016; Oksanen et al., 2016). This makes register-based studies of the kind presented here tremendously important (Thygesen & Ersbøll, 2014).

Second, the limited number of cases of crimes from the penal code (including narcotics) in the data made it impractical to examine how sensitive the final results were to specific types of crime. In other words, we have not been able to determine the extent to which a specific type of penal code crime might be driving the results. Nevertheless, the use of convictions for a crime according to the Swedish penal code is a standard measure that is used in official statistics, especially when it comes to crimes committed by adolescents (Brottsförebyggande rådet [Brå]<sup>5</sup>, 2022). Furthermore, monetary dissatisfaction, in general, is known to be related to a wide range of crimes (Agnew et al., 1996; Baron, 2014).

Third, the study was limited to criminal acts that were registered as such in the Swedish Criminal Convictions Register. In practice, this restricts the extent to which the results can be extrapolated beyond the confines of these specific types of registered acts. A great many criminal acts never come to the attention of authorities, and many that are reported to the police are never solved (Bäckman et al., 2020).

Finally, the design of the study is not experimental. This means that we cannot rule out problems of unobserved heterogeneity due to unmeasured characteristics (confounders). Nonetheless, observational study designs, such as the one used here — that is, a register-based case-cohort study — play an important role in investigating exposure outcomes. In fact, this type of study design can be positioned in the middle part of the hierarchy of the so-called evidence-based pyramid (Murad et al., 2016).

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<sup>5</sup> Brottsförebyggande rådet (or Brå for short), the Swedish National Council for Crime Prevention, describes itself as a knowledge centre for the criminal justice system.

### ***Conclusion***

Financial indebtedness of a parent increases an adolescent's risk of committing a crime. This effect is statistically independent of other common criminogenic risk factors that may be present prior to the parent's date of registration of a debt at the SEA. These include (but are not limited to) socioeconomic (e.g., unemployment), behavioural (e.g., criminality), and family (e.g., out-of-home care) risk factors. Although a few studies have recognised this connection, this is the first study to examine the relationship between the problem debts of parents and the criminality of their children using large-scale register data from multiple agencies for an entire country. The experience of having a parent registered for debt at an enforcement authority thus should be regarded as an important life event in its own right: it is neither reducible to nor conditioned by socioeconomic status or other stressful economic life events. However, further studies are needed in order to confirm these findings.

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Table 1. *Distribution of Dependent and Control Variables Included in the Models: Youths That Had a Parent With a Registration Date For a Debt at the Swedish Enforcement Authority (SEA) During 2016–2017 (Exposed Group) and the Matched Sample of the Swedish Population (Comparison Group).*

Variable	Respondents	
	Exposed group <sup>a</sup> ( <i>n</i> = 3,284)	Comparison group <sup>b</sup> ( <i>n</i> = 16,435)
Dependent variable – measured in 2017, 2018 and 2019		
Penal code (including narcotics) crime (%)	2.98	1.44
Control variables		
<i>Parental socio-demographic – measured in 2014</i>		
The parent's place of birth (%)		
Born in Sweden (reference group: born abroad)	66.99	78.28
The parent's age (mean)		
Year of birth	1971	1971
The parent's gender (%)		
Man (reference category: woman)	47.20	49.43
The parent's region of residence (%)		
Living in a big city (reference group: other)	55.63	56.31
<i>Parental behaviour and socio-economic context – measured in 2015 or 2016</i>		
The parent's criminality (%)		
Convicted of a criminal offence (reference category: other)	1.49	0.33
The parent's household position (%)		
Single parent (reference group: other)	23.08	11.63
The parent's employment status (%)		
Unemployed (reference group: other)	13.03	7.25
The parent's social welfare reciprocity (%)		
Received social assistance (reference category: other)	8.65	3.50
The parent's education (%)		
Pre-upper secondary (reference category: post-upper secondary education)	16.26	8.82
Upper secondary (reference category: post-Secondary education)	46.89	44.27

Variable	Respondents	
	Exposed group <sup>a</sup> (n = 3,284)	Comparison group <sup>b</sup> (n = 16,435)
<i>Individual demographic and history of maltreatment and/or serious antisocial behaviour – measured between 2002 and 2016</i>		
Gender (%)		
Girl ((reference category: boy)	49.09	48.73
Place of birth (%)		
Born in Sweden (reference group: born abroad)	85.63	92.49
Out-of-home care (%)		
First placement 2002–2014 (reference group: other)	1.74	0.51
First placement 2015–2016 (reference group: other)	1.00	0.19

<sup>a</sup> Youths with a parent registered for a debt at SEA between 2016 and 2017.

<sup>b</sup> Youths with a parent not registered for a debt at SEA between 2016 and 2017.

Table 2. *Logistic Regression of Parental Financial Indebtedness and Criminality Among Children Aged 15–17 in Sweden 2017–2019*

Variable	Model 1 Crude <i>OR</i> (95% CI)	Model 2 Adjusted <i>OR</i> (95% CI)	Model 3 Adjusted <i>OR</i> (95% CI)	Model 4 Adjusted <i>OR</i> (95% CI)
<b>Independent variable</b>				
<i>Financial indebtedness of a parent</i>				
Parent registered for a debt at SEA between 2016 and 2017 (reference group: parent not registered for a debt at SEA between 2016 and 2017)	2.10* (1.66-2.67)	1.88* (1.48-2.40)	1.59* (1.24-2.04)	1.55* (1.20-1.99)
<b>Control variables</b>				
<i>Parental socio-demographic – measured in 2014</i>				
The parent's place of birth				
Born in Sweden (reference group: born abroad)		0.49* (0.39-0.61)	0.65* (0.50-0.84)	0.75 (0.56-1.02)
The parent's age				
Year of birth		1.02 (1.00-1.04)	1.01 (0.99-1.03)	1.01 (0.98-1.03)
The parent's gender				
Man (reference category: woman)		0.81 (0.64-1.01)	0.88 (0.70-1.12)	0.88 (0.69-1.11)
The parent's region of residence				
Living in a big city (reference group: other)		0.99 (0.79-1.23)	1.06 (0.85-1.33)	1.09 (0.87-1.36)
<i>Parental behaviour and socio-economic context – measured in 2015 or 2016</i>				
The parent's criminality				
Convicted of a criminal offence (reference category: other)			1.57 (0.57-4.34)	1.21 (0.42-3.52)
The parent's household position				
Single parent (reference group: other)			1.78* (1.37-2.31)	1.68* (1.29-2.20)
The parent's employment status				
Unemployed (reference group: other)			1.22 (0.88-1.70)	1.11 (0.79-1.56)

Variable	Model 1 Crude <i>OR</i> (95% CI)	Model 2 Adjusted <i>OR</i> (95% CI)	Model 3 Adjusted <i>OR</i> (95% CI)	Model 4 Adjusted <i>OR</i> (95% CI)
The parent's social welfare reciprocity				
Received social assistance (reference category: other)			1.82* (1.25-2.67)	1.56* (1.04-2.34)
The parent's education				
Pre-upper secondary (reference category: post-upper secondary education)			1.79* (1.26-2.54)	1.76* (1.23-2.50)
Upper secondary (reference category: post-Secondary education)			1.61* (1.25-2.08)	1.63* (1.26-2.11)
<i>Individual demographic and history of maltreatment and/or serious antisocial behaviour – measured between 2002 and 2016</i>				
Gender				
Girl ((reference category: boy)				0.40* (0.31-0.51)
Place of birth				
Born in Sweden (reference group: born abroad)				0.64* (0.44-0.94)
Out-of-home care				
First placement 2002–2014 (reference group: other)				2.22* (1.12-4.41)
First placement 2015–2016 (reference group: other)				6.84* (3.45-13.55)
Penal code (including narcotics) crimes	335	335	335	335
The model's BIC value <sup>a</sup>	BIC = 3381.1	BIC = 3369.4	BIC = 3367.9	BIC = 3314.9
Total study population ( <i>n</i> )	<i>n</i> = 19,719	<i>n</i> = 19,719	<i>n</i> = 19,719	<i>n</i> = 19,719

<sup>a</sup>BIC is calculated using *N* = number of observations.

\*Statistically significant (at the 5% level).