Expanding the scope of sentencing research: Determinants of juvenile and adult punishment in the Netherlands

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Abstract
Research on legal and extralegal disparity in criminal sentencing has been conducted primarily in the United States, and, to a lesser extent, in select European nations. Largely separate research literatures have developed around juvenile and adult sentencing decisions, and few studies examine both prosecutorial and judicial punishment outcomes. This study examines the effects of diverse legal and socio-demographic characteristics on both prosecutorial and judicial punishments, for both juveniles and adults. It assesses the broad generalizability of prior research and theorizing, analyzing punishment outcomes for all criminal suspects registered by the Public Prosecutor's Office in the Netherlands in 2007. Results indicate that offense, case-processing and criminal history characteristics weigh heavily in prosecutorial and judicial decision-making. There are also direct effects of age, gender and nationality on both prosecutorial and sentencing decisions, for both juvenile and adult offenders, in the Dutch justice system. These findings are discussed in relation to the broad discretion exercised by Dutch court actors and the paper concludes with recommendations for future sentencing research in international contexts.

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Empirical investigation of criminal sentencing represents a vast research enterprise. Much of this work focuses on unwarranted disparities in the United States (Ulmer, 2012). In Europe and other sentencing contexts too there has been growing interest in sentencing research, as evidenced by recent publications on criminal sentencing and the existence of the European group on Sentencing and Penal Decision-making (see, for example, De Castro-Rodrigues and Sacau, 2014; Cid, 2009; Doob and Sprott, 2007; Einat, 2008; Fishman et al., 2006; Gelb, 2010; Hedderman and Gelsthorpe, 1997; Holmberg and Kyvsgaard, 2003; Hood, 1992; Jeffries and Bond, 2009, 2010; Johnson et al., 2010; Kruttschnitt and Savolainen, 2009; Little and Karp, 2012; Pina-Sánchez and Linacre, 2013, 2014; Plesničar, 2013; Roberts, 2008; Snowball and Weatherburn, 2007; Tata et al., 2008; Tonry and Frase, 2001; Tonry and Hatlestad, 1997; Van Wingerden et al., 2014; Weenink, 2009; Wermink et al., 2015). Conducting (quantitative) sentencing research in diverse sentencing contexts is of major importance given the recent arguments that most progress is expected from an international, comparative approach to crime and justice (Ulmer, 2012). Within the context of the Netherlands, the current study examines legal and (unwarranted) socio-demographic disparities in the disposition of both juvenile and adult criminal cases at the pivotal stages of prosecution as well as judges' sentencing decisions.

Contemporary critiques of sentencing disparity research highlight its narrow focus on the final sentencing decision of the judge, arguing for more attention to the role of the prosecutor in criminal punishment (Baumer, 2013; Ulmer, 2012). The fact that prosecutorial decision-making remains understudied in the sentencing literature is largely the result of data limitations that preclude examination of pretrial outcomes. In the Netherlands, public prosecutors maintain the ability to impose criminal sanctions prior to trial. Of all cases prosecuted, approximately half are disposed by public prosecutors. The sentences available to prosecutors are typically less severe than the sentences available to judges, so it is important to incorporate them into extant sentencing research to provide a more complete understanding of the locus and magnitude of legal and offender-based disparities in criminal processing (Baumer, 2013). In the Netherlands, approximately 200,000 criminal cases are registered at the Prosecutor's Office each year (Statistics Netherlands, 2013), yet little is known about the prevalence or extent of legal and unwarranted disparities in criminal processing outcomes by prosecutors and subsequently by criminal courts (Schuyt, 2009).

The majority of research on sentencing disparities focuses on adult courts, although a smaller body of literature argues for studying juvenile justice as well (for example, Zimring, 2005). Very few studies, however, provide comparative analyses of legal and extralegal disparities for juvenile *and* adult offenders. This is particularly true in European jurisdictions, where research on the influence of socio-demographic offender characteristics on sentencing is particularly scarce for juvenile offenders (but see, for example, Weenink, 2009).

Currently, unique data are available on prosecutorial dispositions and court processing of both juvenile and adult offenders in the Dutch justice system. This study analyzes

these unique, nationwide data on all criminal processing decisions at different stages for a large, diverse group of Dutch offenders registered at the Public Prosecutor's Office in 2007. These data have important strengths. First, they provide an opportunity to study discernible ethnic groups in the sentencing process, including Turks, Moroccans, Surinamese, Antilleans and other non-Dutch[1] suspects. Although research on racial and ethnic disparities is expansive, very little work examines groups other than white, black and Hispanic offenders (Johnson and Betsinger, 2009). Second, the current data include information on cases disposed of by public prosecutors, providing a unique opportunity to study prosecutorial discretion in sentencing. Third, they provide a rare chance to compare juvenile and adult punishments, whereas very little research exists on juvenile punishments in international context. And, finally, this study expands the scope of contemporary sentencing research to a European context, that is, the Netherlands, providing an important opportunity to assess the generality of courtroom research and theorizing that to date have been largely focused on the US.

Criminal justice in the Netherlands

The Dutch legal context is characterized by unique sentencing processes that make it a particularly instructive context for studying legal and extralegal disparities in criminal sentencing. Plea bargaining does not exist in the Dutch criminal justice system. Prosecutors do have considerable discretion to dispose of cases otherwise (Böhler, 2004). Prosecutors can dispose of cases for several reasons, including convictability and evidentiary concerns, technical considerations or other reasons of public interest or prosecutorial policy (Enschedé, 2013). Sentencing options available to public prosecutors for adults and juveniles are typically less severe than those available to judges; for instance, prosecutors are not authorized to impose prison sentences. Prosecutors can impose community service orders or financial penalties known as 'transactions'. Since 2008, the prosecutor has legally received the autonomous discretion to mete out punishments. Before that date, prosecutorial decisions resembling punishments were mostly imposed as diversionary measures and as conditions for dismissing a case. As a result most cases that were previously diverted from the courts by means of a transaction are now formally sentenced by the prosecutor to fines. These sentencing options are available for juveniles as well as for adults. If the defendant appeals against the penalty imposed by the prosecutor, the case will be brought before court. In the Netherlands, every defendant can obtain the assistance of a lawyer at the stage of prosecutorial and judicial decision-making.

In 2007, of all cases disposed of by a prosecutor, 61 percent were settled with a transaction, 25 percent included waivers (for policy reasons, technical or procedural) and 14 percent were disposed of otherwise (Statistics Netherlands, 2008).[2] If the prosecutor feels the case calls for more severe punishment, it is typically sent to court where a judge decides the sentence (Weenink, 2009). This decision by the prosecutor is directed by the principle of opportunity or expediency (*opportuniteitsbeginsel*). As a safeguard against a public trial on insufficient grounds, the defendant is allowed to submit a notice of objection against a writ of summons (*bezwaarschrift tegen dagvaarding*). In total, nearly half of all cases are settled out of court by the prosecution service (Statistics Netherlands, 2013). The discretionary decision to summon a case to court is therefore highly

consequential. Prosecutors often rely on case files rather than face-to-face interaction with suspects before deciding a case. The Dutch system is administered by professional career judges and prosecutors and there is no jury system.

In the Netherlands, a single national system governs criminal punishment. It is characterized by the absence of mandatory minimum sentencing rules, with only statutory sentencing minimums and maximums by type of offense. Consequently, Dutch judges enjoy broad discretionary power to choose both the type and severity of criminal punishments. Orientation points have been developed for some offense types and offer only an indication of the appropriate sentence. These orientation points are comparable with non-mandatory starting points and are aimed at improving consistency in sentencing. Judges in the Netherlands are allowed to impose sentences without using this instrument and may deviate from the suggested sentence in the orientation points. Moreover, there are no statutory sentencing objectives or principles, and no rules about which factors to take into account as either mitigating or aggravating circumstances. The broad discretionary powers of Dutch judges may allow for larger ethnic, gender and age disparities in criminal sentencing in the Netherlands compared with other national contexts. In the Netherlands, crimes can be tried by a panel of three judges or by a single sitting judge. Cases adjudicated by a panel of judges are typically more serious.

Offenders aged 18 and older have reached the statutory age of adulthood and, although there are no special statutes for juvenile offenders, they are typically sentenced in separate juvenile courts. The criminal code does provide special provisions for juveniles regarding the sentences that can be imposed. For adult offenders, the most severe penalty is life imprisonment, which in practice is rarely imposed. If not sentenced for life, the maximum term of imprisonment for adult offenders is 30 years. This contrasts starkly with the maximum term of confinement for juvenile offenders, which is limited to two years. Other differences between the sanction options available for juveniles and adults include that training orders can be imposed only on juveniles, that the maximum term for community service is lower for juveniles compared with adults and that the maximum fine is lower for juveniles. Regarding detention, juvenile detention is implemented in special juvenile penitentiary institutions and adult detention is implemented in adult penitentiary institutions. Whereas adult Dutch offenders can be released early, juvenile detention is implemented without early release options.[3] The guiding principle in the juvenile justice system is rehabilitation, whereas rehabilitation is only one among other goals in the adult justice system.

Focal concerns, stereotypical attributions and criminal punishment

Sentencing outcomes are the result of complex and multifaceted legal decision-making processes. The 'focal concerns' theoretical perspective identifies offender blameworthiness/culpability, dangerousness and community protection, and practical constraints/consequences as important sentencing factors (for example, Steffensmeier et al., 1998). Although the focal concerns framework has primarily been applied to understand the influence of offender characteristics on judicial sentencing decisions in diverse sentencing contexts, it is increasingly applied to prosecutorial decision-making (for example,

Johnson et al., 2010). Although prosecutors and judges differ in the specific goals they seek to achieve, decision-making processes are guided by similar attribution processes that draw upon decision-making shortcuts and cognitive heuristics, or stereotypical attributions, that tie certain characteristics, such as offender's age, gender and race/ethnicity, to court actor assessments of the three fundamental 'focal concerns' (Albonetti, 1991).[4]

In the complex decision-making process of punishment, offense and criminal history characteristics are generally perceived to be the main determinants of sentence severity (Steffensmeier et al., 1998). Offenders with more extensive criminal histories might receive more severe punishment, because such histories generally coincide with higher odds of future harm and suggest greater culpability for the current offense (Roberts, 2008; Steffensmeier et al., 1998). From a utilitarian perspective, it can be justified to incapacitate these high-risk offenders in order to protect the community from crime. From a deterrence perspective, harsher punishment can also be justified because a repeated offense indicates that the previous sentence was insufficiently severe (Roberts, 2008). The type and severity of the offense are generally related to the blameworthiness of the offender; that is, the punishment should fit the crime. One of the robust findings in the US sentencing literature is that offense severity and criminal history are related to sentence severity (see, for example, Ulmer, 2012). A growing number of studies conducted in various international contexts have come to a similar conclusion. Much of this work has focused on sentencing outcomes in English-speaking countries such as the United Kingdom, Canada or Australia (for example, Doob and Sprott, 2007; Jeffries and Bond, 2009, 2010; Roberts, 2008; Roberts and Doob, 1990; Snowball and Weatherburn, 2007). Only rarely has (empirical) sentencing work examined other European or non-European contexts (Weenink, 2009).[5] Given the limited prior work on the legal determinants of punishment in the Netherlands, the current study begins by investigating the influence of crime severity and criminal history in Dutch sentencing. Our first hypothesis is:

> **H1:** Criminal court processing outcomes will be more severe if the case is more severe and if the criminal history is more extensive.

Because Dutch prosecutors and judges are typically constrained by limited time and information, their assessments of offender culpability, dangerousness and future criminality are likely to be influenced by stereotypes tied to ascribed socio-demographic offender characteristics as well. The use of stereotypes in sentencing might be less prevalent in the Dutch criminal justice system compared with other sentencing contexts, because the Dutch system is composed exclusively of professional career prosecutors and judges. In contrast, though, the relatively broad discretionary freedom that legal actors in the Netherlands enjoy also leaves legal decision-making open to irrelevant extralegal influences even after taking into account legal characteristics. By definition, a greater level of discretion means more opportunity for stereotypes and extralegal disparities in criminal sentencing to be considered. The use of stereotypes may contribute to inequities in criminal processing decisions among offenders of different social strata. Stereotypes can be defined as 'cognitive structures that contain the perceiver's knowledge, beliefs, and expectations about human groups' (Hamilton and Trolier, 1986: 133). They are assumed to be useful for those who want to form quick assessments about

people based upon their external characteristics and the observer's experience with members of that group (Schuck, 2004). In this way, then, subtle influences of prior experiences, prejudices and stereotypes, as well as idiosyncratic interpretations of focal concerns by different court actors, may enter into the courtroom decision-making process. Even when extensive information is available, the risk and seriousness of recidivism are never fully predictable, and the character of the offender is never fully knowable. The 'focal concerns' perspective acknowledges that legal actors have to deal with this inherent uncertainty (Albonetti, 1991; Steffensmeier et al., 1998). The idea that prosecutors and judges have to deal with levels of uncertainty when deciding over punishment has also been applied in previous Dutch sentencing studies (Van Wingerden et al., 2014; Weenink, 2009).

Previous sentencing work highlights the importance of the age, gender and racial or ethnic minority status of the defendant. The age of the offender is likely to affect attributions of culpability, dangerousness and community risk. Penal welfarism typically offers younger offenders treatment and rehabilitation rather than harsh punishment, such as juvenile detention, and emphasizes diverting (young) juveniles from the criminal justice system (Little and Karp, 2012). This may occur because juvenile offenders are often viewed as less emotionally and psychologically well developed, which should serve to mitigate their culpability at sentencing and as such result in more leniency for the youngest juveniles (Kurlychek and Johnson, 2004). Little and Karp (2012) indeed found that overall punishment for the majority of young offenders was not very harsh. In the Netherlands, Weenink (2009) found that younger youth typically have a lower chance of being summoned to court, but the age effect for juveniles in judicial decision-making remains largely unknown. Similar processes may hold for very young adult offenders who are still viewed as emotionally underdeveloped and therefore less blameworthy. In particular, research suggests that offenders in their twenties and thirties are likely to be singled out for the harshest punishments (Steffensmeier et al., 1998), in part because incapacitation during this stage may be seen as serving an elevated public safety function. Older offenders, though, should increasingly be viewed as less of a risk for recidivism as they begin aging out of crime (Blokland et al., 2005). Given these theoretical considerations, along with prior research that argues for a curvilinear relationship between age and sentencing, we expect the following:

> **H2:** Criminal court processing outcomes will be less severe for younger juvenile offenders than for older juvenile offenders.

> **H3:** Criminal court processing outcomes will be less severe for adult offenders under the age of 21 and for adult offenders over the age of 50 than for offenders between the ages of 21 and 50.

Regarding gender, female offenders are likely to be viewed as less blameworthy and less of a risk for future violence (Daly, 1994; Steffensmeier et al., 1993). This may occur for several reasons, including chivalry or paternalism, gender-specific concerns over the social costs of imprisonment, women's informal social controls and the disproportionate involvement in crime of male offenders (Gelb, 2010; Kruttschnitt and Savolainen, 2009; Steffensmeier et al., 1993). Chivalry connotes male protection of females, whereas paternalism implies status and power differences between men and women, with the status of

women being defenseless and propertyless. Social control arguments include that women have closer ties to others than men, for instance with family members, and that these ties enhance informal social control (Gelb, 2010). Levels of formal social control are thus less needed for women, because it is assumed that their social network can play an important role in restraining them from future involvement in crime. There may also be important practical considerations that contribute to gender disparity in punishment, such as the elevated costs of healthcare for female inmates, their perceived inability to 'do time' (Steffensmeier et al., 1993) or the fact that dependants are also punished when women with a family are sent to prison (Daly, 1987). These attribution processes are as likely to affect the Dutch justice system as they are other jurisdictions. Although gender disparity has not been researched extensively in sentencing contexts outside the US, previous studies quite consistently show that adult female offenders typically receive less severe punishments in various national sentencing contexts even when legal factors are taken into account (for example, Gelb, 2010; Hedderman and Gelsthorpe, 1997; Jeffries and Bond, 2010; Van Wingerden et al., 2014; but see Kruttschnitt and Savolainen, 2009). Considerably less is known about gender disparities in sentencing for juvenile offenders. Much empirical research addressing this issue is somewhat dated and has produced inconsistent findings (Little and Karp, 2012). On the whole, no previous work in the Dutch system examines gender disparity in prosecution and sentencing using a large, general dataset of offenders that includes both juvenile and adult offenders. Given all theoretical considerations, along with previous research, we predict the following for both juvenile and adult offenders:

H4: Criminal court processing outcomes will be less severe for female offenders than for male offenders.

Perhaps the most widely studied issue in criminal punishment to date is racial and ethnic disparity in sentencing. The majority of research on racial disparity, though, has been limited to white, black and Hispanic offenders in the US (Johnson and Betsinger, 2009). Extant research in diverse sentencing contexts and theorizing on race/ethnicity, social disadvantage and punishment outcomes suggests that racial and ethnic minorities may experience more coercive treatment by legal agents in the justice system (for example, Albrecht, 1997; Fishman et al., 2006; Mitchell, 2005; Roberts and Doob, 1997; Smith, 1997; Snowball and Weatherburn, 2007; but see Jeffries and Bond, 2009). Racial and/or cultural dissimilarities may translate into increased levels of fear of crime as well as heightened assessments of the dangerousness and unpredictability of minority offender groups (Liska et al., 1998). Immigrants in the Netherlands typically have a weak labor market position related to lower educational levels and poorer native language skills (Van Ours and Veenman, 2003), and they are overrepresented in the Dutch registered crime statistics[6] and prison population (Linckens and De Looff, 2010; Statistics Netherlands, 2013). The Dutch prison population is characterized by important variations in ethnic origin. In 2009, for instance, only 53 percent of people in Dutch prisons were native Dutch. Almost half of the prison population is comprised of non-Dutch offenders, the largest groups being people born in Suriname (8 percent), the Netherlands Antilles (7 percent) and Morocco (6 percent) (Linckens and De Looff, 2010). Owing to these statistics and research outcomes, legal actors might perceive

ethnic minorities to be more dangerous than Dutch suspects, and as such punish them more harshly. The ethnic differences in crime and prison statistics mirror racial disparities in US sentencing as well as in other jurisdictions. As a result, it seems plausible that disparities along the lines of ethnic origin may vary in type and intensity, but nevertheless characterize sentencing in the Netherlands as well.

Historically in the Netherlands, Surinamese have been viewed most positively, followed by Turks, whereas attitudes toward Antilleans and especially Moroccans have long been quite negative (Gijsberts and Vervoort, 2007; Hagendoorn, 1995). This rank order in attitudes toward different ethnic groups is sometimes explained in terms of cultural and socioeconomic differences between them. Surinamese immigrants generally have the highest socioeconomic status and are perceived as being culturally similar to native Dutch residents (Dagevos, 2007; Uunk, 2003). Moroccans, on the other hand, hold the lowest socioeconomic position in the Netherlands and are viewed as least similar. For example, many Moroccan immigrants are Muslim and hold strong traditional views toward religion and conservative family values (Dagevos, 2007; Uunk, 2003). Given the historically stark differences in cultural assimilation among major immigrant groups in the Netherlands, we expect the following for both juvenile and adult offenders:

H5: Criminal court processing outcomes will be more severe for non-Dutch offenders than for Dutch offenders.

H6: Criminal court processing outcomes will be more severe for Moroccans compared with other non-Dutch offenders.

Data and method

To investigate the hypotheses above, we analyze data that were made available by the Research and Documentation Centre of the Netherlands Ministry of Justice. The data come from the General Documentation Files (GDF) of the Criminal Record Office ('rap sheets') and contain information on every criminal case registered by the police at the Public Prosecutor's Office for all offenders prosecuted in 2007. The data include the entire officially recorded criminal history, reflecting the number of registered convictions beginning at age 12. In addition, the GDF data contain information on other important variables, such as age, gender, country of birth, type of the most serious conviction offense, number of crimes, pretrial detention, the type of court, and the severity of the current offense.[7] The GDF also contain information on the type and duration of the final sentence. The dataset analyzed consists of 202,704 offenders, of which 102,842 were settled by the public prosecutor and 99,862 settled by a judge.[8] A total of 17,441 received a prison sentence. A summary of variable coding is reported in Appendix A and descriptive statistics are shown in Appendices B and C.[9] Supplemental analysis revealed that multicollinearity was not a problem.[10]

The prosecutorial disposition and incarceration outcomes are modeled with logistic regression. For those incarcerated, sentence length is transformed logarithmically and modeled with OLS regression. Because sentence length data are positively skewed, the error terms in a linear regression tend to be curvilinear, leading to misestimated standard errors and potential estimation bias (Kurlychek and Johnson, 2004). The log

transformation addresses this issue by normalizing the skewed distribution. It also addresses the fact that additional days of incarceration become less consequential for longer sentences, and it provides for the convenient interpretation of sentence lengths in terms of their proportional increase associated with a unit increase in each explanatory variable.

Because not all offenders received incarceration, analyses of sentence length risk introducing selection bias (Bushway et al., 2007). We therefore performed additional analyses using the Heckman command in Stata 8.0 to calculate the inverse Mills ratio, which was then included in the model for sentence length. Supplemental investigation, however, demonstrated high degrees of collinearity between the correction factor and other covariates, making its inclusion problematic. We therefore report the uncorrected estimates, which is consistent with much prior work (for example, Johnson and Betsinger, 2009).[11]

Findings

Descriptive statistics for the total dataset and for the sub-datasets of cases disposed of by prosecutors and by judges are reported in Appendix B.[12] Just over half of all cases were disposed of by a prosecutor rather than being sentenced by a judge. This highlights the importance of examining this early case-processing decision. Among the total dataset, only 8 percent are incarcerated, though judges imprison 17 percent of all of the offenders that they sentence. Of the 99,862 offenders sentenced by a judge, a total of 17,441 offenders were sentenced to prison, with a mean term of imprisonment of approximately 205 days. Overall, the modal offender is a Dutch male between 22 and 30 years of age. The majority of cases are less serious crimes handled by a single sitting judge and most offenders are not detained prior to trial in the Netherlands. Overall, similar demographic patterns characterize the sub-datasets of cases settled by both prosecutors and judges, though the judge dataset has slightly higher percentages of 22–30-year-old offenders, male offenders and non-Dutch offenders.

Prosecutorial decision to send a case to court

Table 1 reports the findings of the logistics regression analyses examining the impact of legal and socio-demographic characteristics on the prosecutorial decision to send a case to court instead of prosecutorial disposition. The analysis is conducted on the total dataset as well as separately for juvenile and adult offenders. The results show that criminal history, offense and case characteristics weigh heavily in prosecutorial decision-making, with mild cases and less serious offenders substantially more likely to receive prosecutorial dispositions and the more serious cases with more extensive criminal histories more likely to be send to court for a judicial decision.

Even after taking into account these offense, case-processing and criminal history variables, all socio-demographic indicators are significantly related to the probability of sending a case to court. Examining the juvenile model, there is evidence that the odds for older juveniles (aged 15–17) having their cases sent to court are 33 percent (Exp(*B*)=1.33) higher than for younger juveniles (aged 12–14).[13] The results of the adult model show a

Table 1. Logistic regression models predicting the prosecutorial decision to send a case to court.

	Total (N = 201,438)		Adults (N = 176,577)		Juveniles (N = 24,861)	
	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.
Offense type						
Sex	1.29**	.12	1.06	.12	2.84***	.51
Threatening	0.75***	.02	0.73***	.03	1.13	.10
Other violent	2.60***	.39	2.03***	.35	4.71***	.55
Assault	0.67***	.02	0.64***	.02	1.04	.06
Violent theft	3.56***	.46	1.82***	.29	10.17***	.14
Fraud	0.71***	.03	0.73***	.03	0.20***	.05
Theft	0.53***	.02	0.55***	.02	0.44***	.03
Aggravated theft (*ref.*)						
Other property	0.52***	.02	0.50***	.02	0.57***	.05
Public order	0.93*	.03	0.94	.04	1.05	.05
Destruction	0.46***	.01	0.47***	.02	0.46***	.04
Other crimes	2.42***	.07	2.48***	.10	0.87	.10
Drug	0.94	.03	0.92*	.04	1.00	.15
Weapons act	0.74***	.04	0.73***	.04	0.89	.14
Case characteristics						
No. of crimes	2.28***	.02	2.07***	.02	3.86***	.12
Mild case	0.08***	.00	0.06***	.00	0.17***	.02
Severe case	0.26***	.01	0.19***	.01	0.48***	.05
Very severe case (*ref.*)						
Criminal history						
No. of convictions for property crimes	1.68***	.02	1.58***	.02	3.15***	.16
No. of convictions for violent crimes	1.77***	.04	1.68***	.03	3.26***	.20
No. of convictions for other crimes	1.46***	.01	1.43***	.01	2.38***	.10
Prior prison sentence	1.74***	.05	1.83***	.05	2.07***	.29
Social demographics (offender)						
Aged 12 to 14	0.36***	.01	–	–	*ref.*	*ref.*
Aged 15 to 17	0.50***	.01	–	–	1.33***	.05
Aged 18 to 21	0.77***	.02	0.77***	.02	–	–
Aged 22 to 30 (*ref.*)						
Aged 31 to 40	1.10***	.02	1.10***	.02	–	–
Aged 41 to 50	1.05**	.02	1.05*	.02	–	–
Older than 50	0.81***	.02	0.80***	.02	–	–
Female	0.80***	.01	0.80***	.02	0.80***	.03
Dutch (*ref.*)						
Moroccan	1.38***	.06	1.41***	.06	1.15	.20
Dutch Antilles	1.71***	.07	1.70***	.07	1.97***	.26
Surinamese	1.46***	.04	1.48***	.04	1.63**	.28

Table 1. (Continued)

	Total (N = 201,438)		Adults (N = 176,577)		Juveniles (N = 24,861)	
	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.
Turkish	1.12**	.03	1.12**	.04	1.54*	.31
Other Western ethnicity	1.12***	.02	1.11***	.02	1.37***	.12
Other non-Western ethnicity	1.29***	.03	1.31***	.03	1.10	.08
Constant	2.07***	.12	3.03***	.21	0.23***	.03
Pseudo R² (Nagelkerke)	.430		.431		.467	

Note: We also controlled for court district and unknown offense type. These effects are omitted from this table in the interests of space.
*p < .05; **p < .01; ***p < .001

curvilinear age effect. Having a case sent to court by the prosecutor is the least likely outcome for the youngest and oldest adult suspects. The results of the adult model show that the odds of having a case sent to court are 23 percent (Exp(B) = 0.77) lower for suspects aged 18–21 and 20 percent (Exp(B) = 0.80) lower for suspects of 50 and older compared with the reference group, 22 to 30 year olds.[14]

Sending a case to court is also significantly less likely for female than for male defendants. This effect is consistent across juveniles and adults. Overall, the odds of having a case sent to court are 20 percent (Exp(B) = 0.80) lower for women. The results further show that the odds of having a case sent to court are significantly higher for all non-Dutch suspects compared with suspects born in the Netherlands. The only exceptions are for the Moroccan and other non-Western coefficients in the juvenile model, which were in the expected direction but failed to reach statistical significance. Contrary to expectations, though, Moroccan defendants were not the most likely group to have their cases sent to court; instead, referral to court is most likely for suspects born in the Dutch Antilles.

The decision to incarcerate

Table 2 shows the results for the decision of whether or not to incarcerate for cases sentenced by judges. The results first show that criminal history, offense type and severity, and other case-processing characteristics such as pretrial detention are all strongly associated with the use of incarceration in the Netherlands. Offenders with more extensive criminal histories, with more serious offense conduct, who were pretrial detained, and who were convicted by a panel of judges or the court of appeal are more likely to receive a prison sentence.

To determine the influence of socio-demographic characteristics on the decision to incarcerate we account for the above-mentioned characteristics, such as criminal record and offense type. Examining the juvenile model, there was no statistical evidence that younger juveniles were significantly less likely to be incarcerated compared with older juveniles. There was evidence, though, for a curvilinear effect of age on adult

punishment. In line with our prediction, incarceration was least likely for the youngest and oldest adult offenders. The results of the adult model show that the odds of incarceration for offenders between18 and 21 and for offenders over 50 are 28 percent (Exp(B) = 0.72) lower than the odds for those aged 22–30.

Overall, the odds of incarceration are 27 percent (Exp(B) = 0.73) lower for females compared with males, but this effect is driven by the adult model. In the juvenile model, gender was not a statistically significant predictor of incarceration. Similarly, non-Dutch offenders are significantly more likely to be incarcerated than Dutch offenders. The overall odds of incarceration for Moroccan offenders, for instance, are 61 percent higher than the odds for Dutch offenders. In the juvenile model, though, only Dutch Antilleans, other Western and other non-Western offenders are more likely to be incarcerated than Dutch juveniles. We predicted that, among all ethnic groups, sentences would be the most severe for Moroccan offenders, but this is not supported by the results.[15]

Table 2. Logistic regression models predicting incarceration by Dutch judges.

	Total (N = 99,213)		Adults (N = 89,189)		Juveniles (N = 10,024)	
	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.
Offense type						
Sex	0.45***	.05	0.42***	.05	0.76	.26
Threatening	0.48***	.03	0.45***	.03	1.08	.26
Other violent	0.96	.12	0.87	.11	2.65**	.93
Assault	0.38***	.02	0.36***	.02	0.72	.12
Violent theft	0.78*	.08	0.80	.10	1.44	.35
Fraud	3.04***	.18	2.93***	.18	1.22	.82
Theft	0.99	.05	0.98	.06	0.87	.22
Aggravated theft (*ref.*)						
Other property	0.68***	.05	0.66***	.05	0.86	.21
Public order	0.43***	.03	0.38***	.03	0.83	.12
Destruction	0.26***	.02	0.25***	.03	0.40*	.17
Other crimes	0.22***	.02	0.21***	.02	0.49	.28
Drug	1.06	.06	0.99	.06	1.34	.42
Weapons act	0.43***	.06	0.40***	.06	0.67	.84
Case characteristics						
Single sitting judge (*ref.*)						
Panel of judges	1.76***	.11	2.05***	.12	–	–
Court of appeal	4.58***	.18	4.43***	.18	–	–
Other court	0.77***	.06	0.42***	.05	–	–
Pretrial detention	48.33***	1.93	44.73***	1.79	64.84***	6.48
No. of crimes	1.19***	.01	1.21***	.01	1.15***	.03
Mild case	0.33***	.03	0.32***	.03	0.14***	.07
Severe case	0.35***	.02	0.32***	.02	0.68	.14
Very severe case (*ref.*)						
Criminal history						

Table 2. (Continued)

	Total (N = 99,213)		Adults (N = 89,189)		Juveniles (N = 10,024)	
	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.
No. of convictions for property crimes	1.22***	.01	1.21***	.01	1.53***	.11
No. of convictions for violent crimes	1.14***	.02	1.14***	.02	1.43***	.16
No. of convictions for other crimes	1.20***	.01	1.19***	.01	1.24**	.10
Prior prison sentence	3.99***	.16	4.22***	.17	1.55*	.26
Social demographics (offender)						
Aged 12 to 14	0.44***	.06	–	–	ref.	ref.
Aged 15 to 17	0.47***	.04	–	–	1.17	.14
Aged 18 to 21	0.71***	.03	0.72***	.04	–	–
Aged 22 to 30 (*ref.*)					–	–
Aged 31 to 40	1.02	.04	1.02	.04	–	–
Aged 41 to 50	0.95	.04	0.96	.04	–	–
Older than 50	0.71***	.04	0.72***	.04	–	–
Female	0.73***	.03	0.70***	.03	0.94	.15
Dutch (*ref.*)						
Moroccan	1.61***	.11	1.68***	.12	0.95	.30
Dutch Antilles	1.40***	.08	1.39***	.10	1.88*	.53
Surinamese	1.63***	.10	1.70***	.10	1.22	.46
Turkish	1.40***	.11	1.46***	.12	0.94	.44
Other Western ethnicity	3.44***	.14	3.54***	.18	2.32***	.53
Other non-Western ethnicity	3.38***	.14	3.64***	.15	1.45*	.26
Constant	0.12***	.01	0.13***	.01	0.03***	.01
Pseudo R^2 (Nagelkerke)	.656		.659		.658	

Note: We also controlled for court district and unknown offense type. These effects are omitted from tables in the interests of space.
* $p < .05$; ** $p < .01$; *** $p < .001$

The sentence length decision

For offenders who were incarcerated, we employed ordinary linear regression to analyze the relationship between the independent variables and the logged length of a prison sentence. The regression coefficients are exponentiated to provide for proportional increases in sentence lengths for each unit change in the independent variable of interest. The results are displayed in Table 3.

As with prior analyses, criminal history, offense and case characteristics weigh heavily in judicial decision-making in Dutch courts. For instance, those offenders with a previous prison spell in the past five years receive prison sentences that are on average 24 percent (Exp(B) = 1.24) longer than for offenders without previous incarceration. Pretrial detention is also a very strong predictor of sentence length, with detained offenders receiving prison terms that are 69 percent longer on average. The

overall results also show that prison sentences are approximately 31–40 percent shorter for less severe cases than for very severe cases, but these effects are driven by the adult model.

Among juvenile offenders, those aged 15–17 receive prison sentences that are 28 percent longer than for offenders aged 12–14. For adult offenders, those aged 18–21 receive sentences that are about 12 percent shorter than for offenders aged 22–30. Offenders aged 31–50 receive the longest sentences. In line with expectations, sentencing of female offenders is about 17 percent shorter than for male offenders. The gender effect is similar for both juvenile and adult offenders. Moreover, all non-Dutch offender groups, except Surinamese offenders, receive sentence lengths that are significantly longer than those for Dutch offenders. Turkish offenders, for instance, receive prison sentences that are approximately 13 percent longer than for Dutch offenders. For juvenile offenders, no significant differences in sentence length were found based on offender's origin, though, as we discuss below, relatively few juveniles are sentenced to incarceration so the size of the dataset becomes small and statistical power may be an issue. Although Moroccan offenders received significantly longer sentences than native Dutch offenders, they did not receive the longest prison sentences among all ethnic groups.[16]

Table 3. OLS regression models predicting logged sentence length.

	Total (N = 17,001)		Adults (N = 15,707)		Juveniles (N = 1,294)	
	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.
Offense type						
Sex	1.29***	.08	1.26***	.08	2.57	.51
Threatening	0.73***	.03	0.72***	.03	1.06	.16
Other violent	2.00***	.10	2.03***	.10	2.46	.42
Assault	0.78***	.02	0.77***	.02	1.04	.11
Violent theft	1.28***	.05	1.33***	.05	1.74	.23
Fraud	1.50***	.06	1.47***	.06	1.83	.68
Theft	0.57***	.02	0.56***	.02	0.83	.14
Aggravated theft (*ref.*)						
Other property	0.79***	.03	0.78***	.03	0.95	.14
Public order	0.89***	.04	0.89**	.04	0.99	.10
Destruction	0.48***	.03	0.47***	.03	0.61	.20
Other crimes	0.73***	.03	0.71***	.04	1.68	.67
Drug	1.42***	.04	1.40***	.04	1.50*	.24
Weapons act	0.87	.08	0.88	.08	1.00	1.01
Case characteristics						
Single sitting judge (*ref.*)						
Panel of judges	3.04***	.06	3.00***	.06	–	–
Court of appeal	3.64***	.11	3.49***	.10	–	–
Other court	1.66***	.08	1.29**	.12	–	–

Table 3. (Continued)

	Total (N = 17,001)		Adults (N = 15,707)		Juveniles (N = 1,294)	
	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.
Pretrial detention	1.69***	.03	1.62***	.03	2.28***	.16
No. of crimes	1.15***	.00	1.16***	.00	1.12***	.01
Mild case	0.69***	.03	0.67***	.03	0.89	.33
Severe case	0.60***	.02	0.57***	.02	0.80	.09
Very severe case (*ref.*)						
Criminal history						
No. of convictions for property crimes	0.99*	.00	0.99	.00	1.08*	.03
No. of convictions for violent crimes	1.00	.01	1.00	.01	1.13*	.06
No. of convictions for other crimes	0.98***	.01	0.97***	.01	1.14**	.05
Prior prison sentence	1.24***	.02	1.21***	.02	1.55***	.12
Social demographics (offender)						
Aged 12 to 14	0.23***	.02	–	–	*ref.*	*ref.*
Aged 15 to 17	0.32***	.01	–	–	1.28**	.09
Aged 18 to 21	0.88***	.02	0.88***	.02	–	–
Aged 22 to 30 (*ref.*)		.00			–	–
Aged 31 to 40	1.05**	.02	1.06**	.02	–	–
Aged 41 to 50	1.07**	.02	1.07**	.02	–	–
Older than 50	1.06	.03	1.07	.03	–	–
Female	0.83***	.02	0.82***	.02	0.80*	.08
Dutch (*ref.*)						
Moroccan	1.11**	.03	1.11**	.03	1.18	.19
Dutch Antilles	1.07*	.03	1.09**	.03	0.79	.12
Surinamese	0.96	.03	0.96	.03	1.06	.23
Turkish	1.13**	.06	1.16**	.06	1.13	.28
Other Western ethnicity	1.10***	.02	1.11***	.02	0.84	.11
Other non-Western ethnicity	1.24***	.02	1.26***	.03	1.11	.10
Constant	29.68***	1.48	31.29***	1.56	8.28***	1.41
Adjusted R^2	.566		.574		.325	

Note: We also controlled for court district and unknown offense type. These effects are omitted from tables in the interests of space.
*$p < .05$; **$p < .01$; ***$p < .001$

Conclusion

The current study assessed the impact of legal and socio-demographic offender characteristics on prosecutorial and judicial sentencing decisions using unique nationwide data from the Netherlands. Ulmer (2012) has argued that two of the most important limitations of extant research on criminal sentencing are a limited focus on the US and a failure to examine prosecutorial decisions that precede the final punishment decision of a judge.

The former restriction limits our capacity to assess the generalizability of contemporary theorizing and research findings, whereas the latter risks an overly restricted view of potential sources of inequality in sentencing.

The present study addresses Ulmer's call for additional research in other jurisdictions and for innovative work incorporating key decision-making outcomes of both prosecutors and judges. It contributes to a substantial and ongoing legacy of research on legal and extralegal sentencing disparities in three key ways. First it examines disparity in the prosecutorial decision to refer a case to court instead of disposing of the case him or herself. Researchers historically have had difficulty capturing prosecutorial discretion using large national datasets (Baumer, 2013). Second, it investigates disparity for both juvenile and adult offenders. This provides for broader tests of age-related disparities and it broadens the scope of generalizability for the current findings. The overwhelming majority of previous work has focused on *either* juveniles *or* adults. Finally, it expands the ken of contemporary punishment research to an understudied European context by examining these outcomes in Dutch criminal courts.

Overall, the current results provide some support for the generalizability of previous findings in other research contexts. Not surprisingly, offense, case-processing and criminal history characteristics weigh heavily in prosecutorial and judicial decision-making. Offenders with more extensive criminal histories, who committed more serious crimes, who were pretrial detained and who were sentenced by a panel of judges or court of appeal typically receive more severe sentencing decisions. In the current study, more severe decisions include (a) having a case sent to court in lieu of a prosecutorial disposition, (b) a prison sentence rather than a noncustodial sentence, and (c) longer prison sentences. These findings are generally consistent with previous research findings on the use of incarceration in other national contexts (for example, Albrecht, 1997; Doob and Sprott, 2007; Jeffries and Bond, 2010; Kruttschnitt and Savolainen, 2009; Pina-Sánchez and Linacre, 2013, 2014; Smith, 1997; Snowball and Weatherburn, 2007; Tonry and Frase, 2001; Van Wingerden et al., 2014; Weenink, 2009).

The results also provide some evidence of disparities associated with age, gender and ethnic origin, even after myriad legally relevant predictors of punishment are controlled. Criminal case-processing outcomes tended to be less severe for younger juvenile offenders than older juveniles. These results are consistent with theoretical perspectives that emphasize decreased perceptions of culpability for younger offenders and increased concerns with community protection and perceived dangerousness for middle-aged adults (Kurlychek and Johnson, 2004). The results further suggest that age has curvilinear effects on criminal case-processing outcomes for adult offenders, with outcomes least severe for the youngest and oldest adults. In addition, the results show that criminal court processing outcomes are typically less severe for female offenders compared with male offenders. These results comport with previous findings and provide some tentative though indirect support for the generalizability of theoretical arguments that support less serious punishment of female offenders. Although we are unable to directly measure judicial sentencing rationales, the findings are consistent with theories that suggest female offenders may be perceived as less blameworthy, less at risk for future crime, and/or less able to do time; they are also consistent with broader theoretical arguments that suggest gender-specific concerns associated with the social costs of imprisonment, such as family consequences

associated with female incarceration (for example, Daly, 1994; Gelb, 2010; Steffensmeier et al., 1993). Findings from this study also revealed notable ethnic disparities. Punishment outcomes for all non-Dutch offender groups are more severe than for Dutch offenders. These results are also consistent with prior theorizing that suggests foreign offenders may be perceived as more dangerous or crime prone than native offenders. It was not the case, though, that Moroccans consistently received the most severe criminal case-processing outcomes as suggested by the ethnic rank-order literature. In part, this might reflect the fact that our measure of ethnic origin is limited to first-generation immigrants. It may be that there are important ethnic differences among second- and third-generation immigrant populations that remain uncaptured here. Future research is needed that begins to examine the possibility of ethnic rank orders among subsequent generations of foreign-born offenders in criminal justice systems. Future research is also needed that begins to incorporate more direct measures of prosecutor and judge punishment rationales. Although our findings comport with theoretical expectations rooted in the literature on offender stereotypes and punishment, it is important for future work to find ways to more directly measure the direct role of sentencing rationales and stereotypical attributions in criminal punishment (see, for example, Bridges and Steen, 1998). Thus, future research would benefit from a more specific focus on the role of ethnicity in prosecution and sentencing to provide a deeper understanding of how racial and ethnic stereotypes affect decisions in the criminal justice process.

Discussion

Given the broad scholarly attention devoted to the importance of stratification in the criminal justice system, research on social inequality in diverse national contexts holds the promise to provide new insights into contemporary sentencing research. Shared notions of equal justice underlie the vast majority of Western legal systems and promise equal punishments for equal cases. Punishments that vary systematically with individually ascribed characteristics, such as age, gender and ethnicity, raise fundamental questions about fairness and equity in society. The current research contributes to contemporary debates on disparities in sentencing by systematically examining criminal processing decisions using unique data on a wide range of offender in the Netherlands.

Although our findings unveil evidence of disparities in sentencing outcomes, it is important to note that these results do not necessarily indicate discrimination on the part of Dutch prosecutors or judges. Alternative explanations may exist for the observed effects of ethnicity, gender and age. Although we employ relatively strong controls for offense, criminal history and case characteristics in the current study, other social background characteristics of the suspects, such as socioeconomic status and family background, should ideally be examined as well. To the extent that these types of unmeasured variables are associated with offender characteristics and with punishment decisions, part of the effects we observe may reflect the influence of these omitted variables. For example, disparity by gender may in part reflect uncaptured differences in informal social control influences or family care responsibilities of men and women (Daly, 1987; Gelb, 2010). Similarly, ethic effects may in part reflect unaccounted-for differences in socioeconomic or related factors across ethnic groups (Baumer, 2013). Dutch research

shows that ethnic minority offenders more often have lower educational levels and poorer labor market positions, which may translate into harsher punishment (Van Ours and Veenman, 2003). Unfortunately, these types of detailed information on offender histories are seldom available in sentencing studies. Future research is clearly needed, then, that collects detailed data on additional offender characteristics in order to further assess these possibilities.

With that caveat in mind, the current work finds considerable evidence for the importance of legal and socio-demographic offender characteristics in Dutch punishments. Given that our battery of control variables is at least comparable to previous sentencing research, this suggests support for the broad generalizability of contemporary theoretical perspectives on criminal punishment. The offender-based disparities found in the current study may draw into question the broad discretionary powers provided to prosecutors and judges in the Dutch justice system. The lack of formally structured sentencing procedures and formal rules precluding consideration of offender characteristics may facilitate the use of offender stereotypes that are tied to the observed disparities in this research. Previous work indicates that unwarranted differences tend to be less pronounced under sentencing guidelines systems in other countries (for example, Mitchell, 2005). More guidance and restrictions on the discretion of legal actors in the Netherlands may therefore reduce ethnic, gender and age disparities in sentencing and enhance transparency in the factors that determine criminal punishment. However, increasing the level of formal rationality is at odds with substantive rationality that allows legal actors to individualize sentences. What may be needed is an 'attempt to shape the discretion of the courts but not to remove it – to propose starting points, whilst leaving the court sufficient room to take account of the facts of the particular case' (Ashworth, 1994: 9).

The current study also highlights the importance of examining the stages that precede the final sentence as potential sources of post-arrest disparities in the criminal justice system. Our results suggest that similar patterns of social inequality may occur at earlier stages of the system and may result in cumulative and interactive effects across stages of criminal case-processing. Future research needs to develop more complex models of the consecutive decision-making stages of the justice system that allow for improved estimates of how decision-making processes at earlier stages of the justice system affect downstream case-processing and punishment outcomes. Further research is also needed to examine prosecutorial and judicial reasons for their punishment decisions. For instance, prosecutors may dispose of a case for several reasons that range from evidentiary concerns to consideration of the interests of justice. Examination of whether the prosecutor decides to dispose of a case or to take it to court for a judicial decision is an important first step, but future research is needed that begins to disentangle variations in the different reasons and different sentencing options utilized by prosecutors in these cases, especially where prosecutors have autonomous discretion to mete out punishments.

If the search for greater social equality in punishment is going to be informed and improved by social research, scholars of criminal punishment will need to continue to expand the study of social inequality and stratification in the justice system to additional punishment decisions in new and more diverse national contexts.

Funding

Notes

1. We use the term non-Dutch to refer to offenders who were not born in the Netherlands (The Research and Documentation Centre of the Netherlands Ministry of Justice can not be held responsible for completeness, correctness, and the use of these data).
2. We report these figures because our data involve cases registered in 2007, but more recent figures can be found (see Statistics Netherlands, 2013).
3. In July 2008 the early release system for adult offenders was modified to a conditional release system, but our data predate this change.
4. Although evidence remains decidedly mixed, many studies find that socio-demographic offender and victim characteristics affect prosecutorial decision-making (for example, Weenink, 2009). Unfortunately, though, this work relies on small samples of cases, involving specific offense types, typically drawn from local jurisdictions, which make it difficult to generalize across contexts.
5. Although a comprehensive discussion of sentencing research across all international contexts is precluded by space limitations, interested readers can investigate the following as useful European examples of this work: Albrecht (1997); Castro-Rodrigues and Sacau (2013); Cid (2009); Einat (2008); Fishman et al. (2006); Holmberg and Kyvsgaard (2003); Hood (1992); Johnson et al. (2010); Kruttschnitt and Savolainen (2009); Pina-Sánchez and Linacre (2013); Plesničar (2013); Roberts (2008); Roberts and Doob (1990); Tata et al. (2008); Van Wingerden et al. (2014); Wermink et al. (2015).
6. Because ethnic minority offenders are overrepresented in crime statistics, it is important to take criminal record characteristics into account when assessing the influence of ethnicity on criminal processing decisions. Differences in offending (criminal histories and offense seriousness) between ethnic minorities and native suspects are expected to (at least) partly explain why ethnic minorities are punished more severely (see, for instance, Engen et al., 2002).
7. In general, the data allow us to employ relatively strong controls for criminal history and for case and offense characteristics. It must be noted, though, that information on some background characteristics is not available in the current data. For instance, information on the location of the offense, the modus operandi, complicity (art. 47 Sr), attempted versus completed criminal acts (art. 45 Sr.), and the victim is not available to us. The absence of these (situational) characteristics is a common limitation characteristic of most research that examines sentencing outcomes (Johnson et al., 2010). Moreover, it has been argued in earlier sentencing research that 'it is practically impossible to control for all relevant legal factors that explain differences between cases' (Pina-Sánchez and Linacre, 2014: 738) .
8. Cases that resulted in acquittals, dismissals owing to insufficient evidence or unknown punishment outcomes are not recorded in the data. The analysis also excludes cases disposed of through special court 'measures' ($n = 347$) and misdemeanor offenses ($n = 53$). Because some offenders' final sentences are determined by the court of appeal in the Dutch system, these cases are included in the analyses. To test the robustness of our findings, we performed additional analyses excluding appellate cases and the results were substantially similar to the full models presented in the paper.
9. There were very few missing values among the variables. Variables with missing data had less than 0.6 percent of values that were missing and most variables had no missing data at all. Missing data were therefore deleted listwise. Due to missing data, 0.62 percent of the observations were dropped. After these exclusions, the resulting dataset consists of 102,225

defendants for which the case was disposed of by a prosecutor and 99,213 defendants for which the case was settled by a judge.

10. In eight of the nine models, all variance inflation factors (VIF) fell below 10, which is a common standard for identifying problematic collinearity. In the adult prosecutor model, the VIF for 'other offense' reached 10.6, but supplemental analysis omitting this variable produced equivalent substantive results for all variables of interest.

11. The only difference when the Heckman correction is included is that the effect of 'older than 50' becomes statistically significant in the adult sentence length model. The estimates for all other independent variables were substantively equivalent in the models in which the Heckman correction was included. As with nearly all previous studies, selection into conviction could not be investigated because the data do not contain any information on acquittals or dismissals owing to insufficient evidence.

12. There were very few missing values among the variables. Variables with missing data had less than 0.6 percent of values that were missing and most variables had no missing data at all. Missing data were therefore deleted listwise. Due to missing data, 0.62 percent of the observations were dropped. After these exclusions, the resulting dataset consists of 102,225 defendants for which the case was disposed of by a prosecutor and 99,213 defendants for which the case was settled by a judge.

13. Here, the prosecutorial decision to send a case to court for juveniles entails the decision whether or not to send a juvenile offender to juvenile court, and thereby excludes the decision whether or not to send a juvenile offender to adult court. In practice, only in extreme cases juveniles are sent to adult court. As described earlier in this article, sentencing options in juvenile court do differ from sentencing options in adult court.

14. For comparative purposes we also ran all models in which age was included as a continuous measure. The continuous age variable did not reach significance in all models predicting incarceration. In all other models the continuous age coefficient was positive and significant. Only in the adult prosecutorial model was the coefficient negative and significant.

15. The Heckman correction could not be used in the incarceration models, because the Heckman two-step estimator is specifically a probit model followed by a *linear* regression (Bushway et al., 2007). To address the issue of selectivity we performed alternative analyses in which the suspects whose case was disposed of by a prosecutor were included and we coded them as non-incarcerated. The direction and significance of the findings of this alternative analysis were substantively similar compared with the total model in Table 2. Complete results are available from the authors.

16. To provide a better understanding of the magnitude of the effects, we also performed additional regression analyses – not displayed in this paper – in which sentence length was not logged. These results show that sentences for older juveniles are 22 days longer than for younger juveniles. For offenders aged 18–21, prison sentences are approximately 46 days shorter than for the reference group (aged 22–30). Results further show a difference in sentence length between male and female offenders of approximately one month. Regarding ethnicity, the significant differences in sentence length between Dutch and non-Dutch offender groups are (almost) always more than one month. The results of the adult model, for instance, also show that prison sentences are 172–217 days shorter for less severe cases than for very severe cases, indicating that legal factors indeed weigh heavily in sentencing.

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Appendix A. Summary of variable coding.

	Coding	Description
Dependent variables		
Case sent to court by prosecutor	0–1	Coded 1 if the case was sent to court by a prosecutor
Incarcerated	0–1	Coded 1 for cases incarcerated
Prison length (*N* = 17,441)	ln(days)	Natural log of number of days of imprisonment
Offense type		
Sex	0–1	Coded 1 if the most serious offense consists of a sex offense
Threatening	0–1	Coded 1 if the most serious offense consists of an offense against personal safety, such as stalking (Art. 285 Dutch Penal Code)
Other violent	0–1	Coded 1 if the most serious offense consists of another violent offense
Assault	0–1	Coded 1 if the most serious offense consists of assault
Violent theft	0–1	Coded 1 if the most serious offense consists of violent theft
Fraud	0–1	Coded 1 if the most serious offense consists of fraud, such as forgery of documents (e.g. Art. 208, 209, 210, 219, 225, 227, 231, 232 Dutch Penal Code)
Theft	0–1	Coded 1 if the most serious offense consists of theft
Aggravated theft	0–1	Coded 1 if the most serious offense consists of aggravated theft
Other property	0–1	Coded 1 if the most serious offense consists of another property offense
Public order	0–1	Coded 1 if the most serious offense consists of a public order offense
Destruction	0–1	Coded 1 if the most serious offense consists of destruction, such as damaging someone else's property (e.g. Art. 350, 351, 352, 354 Dutch Penal Code)
Other crimes	0–1	Coded 1 if the most serious offense consists of other crimes
Drug	0–1	Coded 1 if the most serious offense consists of a drug offense
Weapons act	0–1	Coded 1 if the most serious offense consists of a weapons act offense
Offense type unknown	0–1	Coded 1 if the most serious offense consists of an unknown offense type
Case characteristics		
Single sitting judge	0–1	Coded 1 for cases settled by a single sitting judge
Panel of judges	0–1	Coded 1 for cases settled by a panel of judges
Court of appeal	0–1	Coded 1 for cases settled in courts of appeal
Other court	0–1	Coded 1 for cases settled by other courts (e.g., single cantonal, economic and military division of the court)
Pretrial detention	0–1	Coded 1 for offenders detained prior to trial

Appendix A. (Continued)

	Coding	Description
No. of crimes	count	Number of crimes in case of conviction
Mild case	0–1	Coded 1 for cases with a statutory maximum of up to four years
Severe case	0–1	Coded 1 for cases with a statutory maximum between four and eight years
Very severe case	0–1	Coded 1 for cases with a statutory maximum of eight years and over
Criminal history		
No. of convictions for property crimes	count	Number of previous convictions for property crimes in the past five years
No. of convictions for violent crimes	count	Number of previous convictions for violent crimes in the past five years
No. of convictions for other crimes	count	Number of previous convictions for other crimes in the past five years
Prior prison sentence	0–1	Coded 1 for offenders with a previous prison sentence in the past five years
Social demographics (offender)		
Aged 12 to 14	0–1	Juvenile offender aged between 12 and 14 years at sentencing
Aged 15 to 17	0–1	Juvenile offender aged between 15 and 17 years at sentencing
Aged 18 to 21	0–1	Adult offender aged between 18 and 21 years at sentencing
Aged 22 to 30	0–1	Adult offender aged between 22 and 30 years at sentencing
Aged 31 to 40	0–1	Adult offender aged between 31 and 40 years at sentencing
Aged 41 to 50	0–1	Adult offender aged between 41 and 50 years at sentencing
Older than 50	0–1	Adult offender aged older than 50 at sentencing
Female	0–1	Coded 1 for female offenders
Dutch	0–1	Coded 1 for offenders born in the Netherlands
Moroccan	0–1	Coded 1 for offenders born in Morocco
Dutch Antilles	0–1	Coded 1 for offenders born in the Dutch Antilles
Surinamese	0–1	Coded 1 for offenders born in Suriname
Turkish	0–1	Coded 1 for offenders born in Turkey
Other Western ethnicity	0–1	Coded 1 for offenders born in other Western countries
Other non-Western ethnicity	0–1	Coded 1 for offenders born in other non-Western countries

Notes: We also coded dummy variables for the different Dutch district courts. These dummy variables are omitted from the table in the interests of space. The Dutch court districts are as follows: Alkmaar, Almelo, Amsterdam, Arnhem, Assen, Breda, Den Bosch, Den Haag, Dordrecht, Groningen, Haarlem, Leeuwarden, Maastricht, Middelburg, 'Other' court, Roermond, Rotterdam, Utrecht, Zutphen, and Zwolle/Lelystad.

Appendix B. Descriptive statistics for the total sample (N = 201,438), cases disposed of by public prosecutors (N = 102,225) and cases sentenced by judges (N = 99,213).

	Total sample		Prosecutor		Judge	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Dependent variables						
Settled by prosecutor	0.51	0.50	–	–	–	–
Incarcerated	0.08	0.28	–	–	0.17	0.38
Prison length (N = 17,441)	–	–	–	–	204.57	424.36
Offense type						
Sex	0.01	0.08	0.00	0.04	0.01	0.10
Threatening	0.04	0.19	0.03	0.16	0.05	0.21
Other violent	0.01	0.07	0.00	0.02	0.01	0.10
Assault	0.12	0.32	0.10	0.30	0.13	0.34
Violent theft	0.01	0.11	0.00	0.03	0.02	0.15
Fraud	0.03	0.17	0.03	0.16	0.03	0.18
Theft	0.07	0.26	0.08	0.27	0.07	0.26
Aggravated theft	0.07	0.25	0.04	0.20	0.10	0.30
Other property	0.05	0.21	0.05	0.22	0.04	0.20
Public order	0.09	0.29	0.09	0.29	0.09	0.29
Destruction	0.04	0.20	0.04	0.20	0.04	0.19
Other crimes	0.39	0.49	0.46	0.50	0.32	0.47
Drug	0.05	0.23	0.04	0.20	0.07	0.25
Weapons act	0.02	0.12	0.02	0.14	0.01	0.10
Case characteristics						
Single sitting judge	0.36	0.48	–	–	0.74	0.44
Panel of judges	0.03	0.18	–	–	0.07	0.25
Court of appeal	0.03	0.17	–	–	0.06	0.24
Other court	0.06	0.24	–	–	0.13	0.34
Pretrial detention	0.06	0.23	–	–	0.11	0.32
No. of crimes	1.30	0.82	1.09	0.35	1.51	1.08
Mild case	0.47	0.50	0.57	0.50	0.36	0.48
Severe case	0.49	0.50	0.43	0.49	0.56	0.50
Very severe case	0.04	0.20	0.01	0.08	0.08	0.27
Criminal history						
No. of convictions for property crimes	0.27	0.97	0.08	0.41	0.47	1.29
No. of convictions for violent crimes	0.15	0.47	0.06	0.27	0.24	0.60
No. of convictions for other crimes	0.40	0.87	0.21	0.58	0.60	1.06
Prior prison sentence	0.09	0.28	0.02	0.14	0.16	0.37
Social demographics (offender)						
Aged 12 to 14	0.03	0.18	0.04	0.20	0.02	0.15
Aged 15 to 17	0.09	0.29	0.10	0.30	0.08	0.27
Aged 18 to 21	0.15	0.35	0.15	0.35	0.15	0.35
Aged 22 to 30	0.24	0.43	0.22	0.41	0.26	0.44

Appendix B. (Continued)

	Total sample		Prosecutor		Judge	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Aged 31 to 40	0.21	0.41	0.18	0.39	0.23	0.42
Aged 41 to 50	0.16	0.37	0.16	0.36	0.17	0.37
Older than 50	0.12	0.33	0.15	0.36	0.10	0.29
Female	0.18	0.38	0.22	0.41	0.14	0.34
Dutch	0.74	0.44	0.77	0.42	0.71	0.46
Moroccan	0.02	0.15	0.02	0.13	0.03	0.17
Dutch Antilles	0.03	0.16	0.01	0.12	0.04	0.19
Surinamese	0.03	0.18	0.02	0.15	0.05	0.21
Turkish	0.03	0.16	0.02	0.15	0.03	0.16
Other Western ethnicity	0.08	0.27	0.08	0.27	0.08	0.27
Other non-Western ethnicity	0.07	0.25	0.06	0.24	0.07	0.26

Note: Dummy variables for court districts and unknown offense type are not presented in the interests of space.

Appendix C. Descriptive statistics for the total cases, cases sentenced by judges, and cases incarcerated: Total, adult, and juvenile samples.

	Total sample						Judge						Sentence length					
	Total		Adults		Juveniles		Total		Adults		Juveniles		Total		Adults		Juveniles	
	(N = 201,438)		(N = 176,577)		(N = 24,861)		(N = 99,213)		(N = 89,189)		(N = 10,024)		(N = 17,001)		(N = 15,707)		(N = 1,294)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Dependent variables																		
Settled by prosecutor	0.51	0.50	0.49	0.50	0.60	0.49	—		—		—		—		—		—	
Incarcerated	0.08	0.28	0.09	0.28	0.05	0.22	0.17	0.38	0.18	0.38	0.13	0.34	—		—		—	
Prison length	—		—		—		—		—		—		199	407	210	421	72	87
Offense type																		
Sex	0.01	0.08	0.01	0.07	0.01	0.10	0.01	0.10	0.01	0.10	0.02	0.14	0.02	0.15	0.02	0.15	0.03	0.16
Threatening	0.04	0.19	0.04	0.19	0.04	0.19	0.05	0.21	0.05	0.22	0.04	0.20	0.04	0.20	0.04	0.21	0.04	0.19
Other violent	0.01	0.07	0.01	0.07	0.01	0.07	0.01	0.10	0.01	0.10	0.01	0.11	0.04	0.19	0.04	0.19	0.04	0.20
Assault	0.12	0.32	0.11	0.32	0.14	0.35	0.13	0.34	0.13	0.33	0.14	0.35	0.08	0.28	0.08	0.28	0.09	0.28
Violent theft	0.01	0.11	0.01	0.09	0.03	0.18	0.02	0.15	0.02	0.13	0.08	0.28	0.09	0.29	0.07	0.26	0.30	0.46
Fraud	0.03	0.17	0.03	0.17	0.01	0.09	0.03	0.18	0.04	0.18	0.00	0.06	0.07	0.26	0.08	0.27	0.01	0.07
Theft	0.07	0.26	0.07	0.26	0.08	0.27	0.07	0.26	0.07	0.26	0.05	0.23	0.11	0.31	0.11	0.32	0.03	0.16
Aggravated theft	0.07	0.25	0.06	0.23	0.17	0.38	0.10	0.30	0.08	0.28	0.23	0.42	0.17	0.37	0.16	0.37	0.27	0.44
Other property	0.05	0.21	0.05	0.21	0.06	0.23	0.04	0.20	0.04	0.20	0.05	0.22	0.04	0.20	0.04	0.20	0.04	0.19
Public order	0.09	0.29	0.07	0.26	0.25	0.43	0.09	0.29	0.08	0.27	0.26	0.44	0.07	0.25	0.06	0.24	0.13	0.33
Destruction	0.04	0.20	0.04	0.19	0.06	0.24	0.04	0.19	0.04	0.19	0.04	0.19	0.01	0.12	0.01	0.12	0.01	0.08
Other crimes	0.39	0.49	0.43	0.49	0.11	0.32	0.32	0.47	0.35	0.48	0.04	0.21	0.06	0.24	0.06	0.24	0.00	0.07
Drug	0.05	0.23	0.06	0.24	0.02	0.13	0.07	0.25	0.07	0.26	0.02	0.13	0.18	0.39	0.19	0.40	0.04	0.19

Appendix C. (Continued)

	Total sample						Judge						Sentence length					
	Total		Adults		Juveniles		Total		Adults		Juveniles		Total		Adults		Juveniles	
	(N = 201,438)		(N = 176,577)		(N = 24,861)		(N = 99,213)		(N = 89,189)		(N = 10,024)		(N = 17,001)		(N = 15,707)		(N = 1,294)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Weapons act	0.02	0.12	0.01	0.12	0.02	0.14	0.01	0.10	0.01	0.10	0.01	0.09	0.01	0.09	0.01	0.09	0.00	0.03
Case characteristics																		
Single sitting judge	—	—	—	—	—	—	0.74	0.44	0.82	0.38	—	—	0.56	0.50	0.61	0.49	—	—
Panel of judges	—	—	—	—	—	—	0.07	0.25	0.07	0.25	—	—	0.27	0.44	0.26	0.44	—	—
Court of appeal	—	—	—	—	—	—	0.06	0.24	0.07	0.25	—	—	0.12	0.32	0.12	0.33	—	—
Other court	—	—	—	—	—	—	0.13	0.34	0.05	0.21	—	—	0.05	0.22	0.01	0.08	—	—
Pretrial detention	0.06	0.23	0.06	0.23	0.06	0.24	0.11	0.32	0.11	0.31	0.15	0.36	0.58	0.49	0.56	0.50	0.84	0.37
No. of crimes	1.30	0.82	1.28	0.80	1.40	1.00	1.51	1.08	1.47	1.03	1.85	1.40	2.06	1.70	2.01	1.64	2.77	2.18
Mild case	0.47	0.50	0.51	0.50	0.18	0.38	0.36	0.48	0.40	0.49	0.08	0.27	0.10	0.30	0.11	0.31	0.01	0.09
Severe case	0.49	0.50	0.46	0.50	0.75	0.43	0.56	0.50	0.54	0.50	0.77	0.42	0.61	0.49	0.62	0.49	0.57	0.50
Very severe case	0.04	0.20	0.04	0.19	0.07	0.26	0.08	0.27	0.07	0.25	0.15	0.36	0.29	0.45	0.28	0.45	0.43	0.49
Criminal history																		
No. of convictions for property crimes	0.27	0.97	0.29	1.02	0.15	0.47	0.47	1.29	0.49	1.34	0.29	0.63	1.26	2.25	1.32	2.32	0.56	0.92
No. of convictions for violent crimes	0.15	0.47	0.16	0.49	0.09	0.31	0.24	0.60	0.25	0.62	0.16	0.42	0.47	0.86	0.48	0.88	0.30	0.56
No. of convictions for other crimes	0.40	0.87	0.44	0.91	0.15	0.43	0.60	1.06	0.64	1.10	0.24	0.55	0.81	1.36	0.85	1.39	0.34	0.66
Prior prison sentence	0.09	0.28	0.10	0.30	0.03	0.17	0.16	0.37	0.17	0.38	0.06	0.24	0.44	0.50	0.46	0.50	0.18	0.38

(Continued)

Appendix C. (Continued)

	Total sample						Judge						Sentence length					
	Total (N = 201,438)		Adults (N = 176,577)		Juveniles (N = 24,861)		Total (N = 99,213)		Adults (N = 89,189)		Juveniles (N = 10,024)		Total (N = 17,001)		Adults (N = 15,707)		Juveniles (N = 1,294)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Social demographics (offender)																		
Aged 12 to 14	0.03	0.18	–	–	0.27	0.44	0.02	0.15	–	–	0.22	0.42	0.01	0.11	–	–	0.16	0.36
Aged 15 to 17	0.09	0.29	–	–	0.73	0.44	0.08	0.27	–	–	0.78	0.42	0.06	0.25	–	–	0.84	0.36
Aged 18 to 21	0.15	0.35	0.17	0.37	–	–	0.15	0.35	0.16	0.37	–	–	0.14	0.34	0.15	0.35	–	–
Aged 22 to 30	0.24	0.43	0.27	0.44	–	–	0.26	0.44	0.29	0.45	–	–	0.29	0.46	0.32	0.47	–	–
Aged 31 to 40	0.21	0.41	0.24	0.43	–	–	0.23	0.42	0.26	0.44	–	–	0.28	0.45	0.30	0.46	–	–
Aged 41 to 50	0.16	0.37	0.18	0.39	–	–	0.17	0.37	0.19	0.39	–	–	0.16	0.37	0.18	0.38	–	–
Older than 50	0.12	0.33	0.14	0.35	–	–	0.10	0.29	0.11	0.31	–	–	0.05	0.22	0.06	0.23	–	–
Female	0.18	0.38	0.17	0.38	0.20	0.40	0.14	0.34	0.13	0.34	0.15	0.36	0.10	0.30	0.10	0.30	0.08	0.27
Dutch	0.74	0.44	0.72	0.45	0.87	0.33	0.71	0.46	0.69	0.46	0.85	0.36	0.51	0.50	0.49	0.50	0.77	0.42
Moroccan	0.02	0.15	0.03	0.16	0.01	0.10	0.03	0.17	0.03	0.18	0.02	0.12	0.05	0.22	0.06	0.23	0.03	0.17
Dutch Antilles	0.03	0.16	0.03	0.16	0.02	0.12	0.04	0.19	0.04	0.19	0.02	0.15	0.06	0.23	0.06	0.23	0.03	0.18
Surinamese	0.03	0.18	0.04	0.19	0.01	0.09	0.05	0.21	0.05	0.22	0.01	0.11	0.08	0.28	0.09	0.29	0.02	0.12
Turkish	0.03	0.16	0.03	0.16	0.01	0.08	0.03	0.16	0.03	0.17	0.01	0.09	0.03	0.16	0.03	0.16	0.01	0.11
Other Western ethnicity	0.08	0.27	0.08	0.28	0.03	0.18	0.08	0.27	0.08	0.27	0.03	0.18	0.11	0.32	0.12	0.32	0.05	0.22
Other non-Western ethnicity	0.07	0.25	0.07	0.26	0.05	0.22	0.07	0.26	0.08	0.27	0.06	0.23	0.15	0.36	0.15	0.36	0.09	0.28