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Do psychopathic traits predict criminal activity?

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ABSTRACT

Psychopathy evidence is frequently used for court decisions involving young criminals, claiming that is it an important predictor of crime. We investigate the effect of psychopathy on crime using a unique panel dataset of young offenders, which allows to analyze several dimensions of psychopathy, controlling for a wide range of usually unobservable characteristics. We find that psychopathy is an important predictor of crime. We show that the effect is two times larger (and closer to usual estimates) when measures of cognitive and non-cognitive skills are not accounted for, highlighting the importance of having comprehensive data on individual heterogeneity to isolate the effect of psychopathy on crime from the effect of confounding factors. Our results are robust to alternative measures of psychopathy and criminal participation. The findings suggest that court decisions should focus both on psychopathic characteristics and skills when deciding about an adolescenc's sentence.

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1. Introduction

Young individuals are disproportionately engaged in crime. In 2018, youth between 15 and 19 years old accounted for 13.0% and 15.0% of violent and property crime arrests in the United States, respectively, despite representing only 6.4% of the total population.¹ When caught and convicted of a crime, young individuals can receive several type of dispositions including incarceration, probation, non-incarcerated residential placements, fines, among others. Whether a young criminal ends up in prison has important effects on future criminal activity. For instance, incarceration has been positively associated with recidivism, as well as the intensity and severity of future crime (Aizer & Doyle Jr, 2013; Eren & Mocan, 2021). Different mechanisms have been considered, including the accumulation of criminal human capital and peer effects (Bayer, Hjalmarsson, & Pozen, 2009; Drago & Galbiati, 2012). Furthermore, incarceration has been found to worsen future labor market outcomes (Grogger, 1998; Mueller-Smith, 2015).

Court decisions about the future of young criminals are often based on predictors of future criminal participation, where psychopathy plays a key role (Edens & Truong, 2022; Viljoen, MacDougall, Gagnon, & Douglas, 2010). There are several reasons why psychopathy may be an important determinant of crime. Psychopathy can alter

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¹These percentages are own calculations based on data from the UCR Crime Reports and the US Census Bureau.

individuals' preferences, for example by reducing patience or risk aversion (Hare, 2003; Swogger, Walsh, Lejuez, & Kosson, 2010). Psychopathy can also affect perceptions about the certainty and severity of punishment (Augustyn & Ray, 2016). Some dimensions of psychopathy may also be related to professional outcomes, such as criminal profits (Baskin-Sommers et al., 2015; Eisenbarth, Hart, & Sedikides, 2018; LaLiberte & Grekin, 2015).

Despite psychopathy evidence being increasingly used for court decisions involving young individuals, the literature is not yet conclusive about the effect of youth psychopathy on recidivism. Most studies have used the Psychopathy Checklist Youth Version (PCL-YV) to explore the relationship (Hare, 2003). Using official records (e.g., records and/or convictions) as the measure of crime, several studies find that higher psychopathy traits increase recidivism in early adulthood (Gretton, McBride, Hare, O'Shaughnessy, & Kumka, 2001; Salekin, 2008). There are also studies that find no relationship between psychopathy and recidivism (Edens, Campbell, & Weir, 2007; Gretton, Hare, & Catchpole, 2004). More recently, the literature has explored the relationship between youth psychopathy and crime using self-reported measures of psychopathy, as well as self-reported measures of crime, finding mixed results as well (Cauffman, Kimonis, Dmitrieva, & Monahan, 2009; Spain, Douglas, Poythress, & Epstein, 2004). There is also little consensus about the dimensions of psychopathy driving recidivism. Two recent meta-analysis find that the impulsive dimension of psychopathy is most strongly associated with crime, and that the relationship is weakly explained by the callous-unemotional dimension (Asscher et al., 2011; Geerlings, Asscher, Stams, & Assink, 2020). Other studies find that callous-unemotional traits are the main drivers of the relationship instead (Corrado, DeLisi, Hart, & McCuish et al., 2015; Frick, 2012; McCuish, Corrado, Hart, & DeLisi, 2015). Furthermore, while most studies focus on the association between psychopathy and general recidivism, only few studies distinguish between different type of crimes (Geerlings et al., 2020).

Understanding the effect of psychopathy on recidivism has important policy implications. First, if psychopathy is not an important predictor of recidivism, court decisions should put a small weight on psychopathic characteristics when deciding about an adolescence's sentence. Second, disentangling the association between the, often malleable, psychopathic characteristics and crime provides additional instruments to policy makers interested in reducing recidivism through behavior-targeted programs or programs targeting mental health. Namely, psychopathy could be further treated in prison with the aim of reducing future criminal activity. Furthermore, if a particular dimension of psychopathy is highly predictable of future criminal activity relative to other underlying dimensions of psychopathy, behavioral programs could be further modified to target a specific dimension of psychopathy instead of psychopathy traits as a whole.

This paper seeks to explore the effect of psychopathy on recidivism using a unique panel dataset of young offenders, which allows to analyze several dimensions of psychopathy, controlling for a wide range of observable and usually unobservable characteristics. Data for this study comes from the Pathways to Desistance study (PDS), a multisite longitudinal study of young offenders as they transition from youth into early adulthood.² The study was designed specifically to study questions related to the evolution of criminal behavior, taking special care to also measure several dimensions of individual heterogeneity like psychopathy, and cognitive and non-cognitive skills. The survey covers young individuals who were found guilty of a serious criminal offense committed between the ages of 14 and 18. Each participant was followed for a period of seven years.

The PDS is especially well-suited for analyzing the effect of psychopathy on recidivism, which allows us to make important contributions to the literature. First, there are multiple measures of psychopathy available in the data, together with comprehensive information on criminal activity. The PDS contains the results from the widely used PCL-YV, as well as a self-reported measure of psychopathy, the Youth Psychopathic Traits Inventory (YPI). The survey also contains exhaustive information on criminal participation and arrests, which allows to study the relationship between psychopathy and different types of crime, as well as the link between psychopathy and arrests, which is the most common measure of crime used in the literature. Having multiple measures of crime and psychopathy allows us to establish the robustness of our results. Furthermore, different from most of the literature, we can explore both extensive and intensive margin effects, as well as the effects on several types of crime.

Another reason why we use the PDS is because it provides detailed information on individual heterogeneity including several measures of cognitive and non-cognitive skills, a measure of how much individuals care about the future, family involvement in crime, and certainty of punishment. We show that observing these, usually unobserved, individual characteristics is key to be able to isolate the effect of psychopathy on crime. For instance, the rich set of individual characteristics in the PDS allows us to separate the effect of psychopathy on crime from that of cognitive and non-cognitive skills, which are not usually accounted for in the literature examining the effect of psychopathy on crime, and which have been found to be relevant determinants of crime (Agnew, Brezina, Wright, & Cullen, 2002; Caspi et al., 1994; Chiteji, 2010; Hill, Roberts, Grogger, Guryan, & Sixkiller, 2011; Mancino, Navarro, & Rivers, 2016). Lastly, as opposed to focusing on the population at large, this study concentrates on a population group that contributes significantly to aggregate crime rates. Thus, understanding what the effect of psychopathy on crime is for this population group can have important policy implications.

We find that psychopathy is an important predictor of violent, property, and drugrelated crimes. The effects are mostly driven by impulsiveness and irresponsible behavior dimensions of psychopathy. We find that the effect of psychopathy on crime is three times larger when the usually unobserved measures of individual heterogeneity are not accounted for, highlighting the importance of having comprehensive data on individual heterogeneity to isolate the effect of psychopathy on crime from the effect of other confounding factors. Our results are robust to alternative measures of psychopathy and

²A few papers have used the same dataset to explore the association between youth psychopathy and crime, including Jones, Cauffman, Miller, and Mulvey (2006); Cauffman et al. (2009); Hampton, Drabick, and Steinberg (2014); Lee and Kim (2020). Our approach differs from the existing literature by estimating the association between psychopathy and distinct crime categories, controlling for a wide range of characteristics which are usually not accounted for. We further use alternative measures of crime to check the robustness of the results (e.g., arrests). Lastly, we explore the effect of psychopathy on the extensive and intensive margin of crime.

criminal participation. Lastly, we find that psychopathy is also associated with the frequency of property and drug-related criminal acts.

The rest of the paper is organized as follows. In Section 2, we describe the data used for the analysis. In Section 3, we present the empirical model and the estimation results. Finally, in Section 4 we discuss some policy implications of our results and conclude.

2. Data

Data for this research comes from the Pathways to Desistance Study (PDS). PDS is a longitudinal study of 1,354 serious juvenile offenders from Maricopa County, Arizona and Philadelphia County, Pennsylvania. All respondents were found guilty of at least one criminal offense between 2000 and 2003. Individuals in the sample were between 14 and 18 years old at the time they committed the offense that made them part of the survey. The PDS comprises eleven series of surveys that were administered as follows: a baseline survey at the time of the initial disposition, followed by six semi-annual follow-ups, and four annual follow-ups. Individuals are thus followed for seven years, at most.³

The baseline survey contains basic demographic information including location, age, gender, ethnicity, and years of education. In addition, the baseline survey collects information on the perceived risk of offending (i.e., the individual-specific perceived probability of getting caught and arrested conditional on engaging in crime) and an indicator for criminal activity by family members (FCH). The baseline survey also contains a variable measuring how much individuals care about the future, Future Outlook Inventory (FOI), which is constructed based on questions about the evaluation and implications of future outcomes. Higher scores indicate a greater degree of future consideration and planning. All three constructs are collected again in each follow-up survey.

The survey also contains the results from a large number of tests designed to measure cognitive and non-cognitive skills. The cognitive tests are administered only in the baseline survey, while the non-cognitive tests are repeated in the follow-up surveys as well. The cognitive measures include the Wechsler Abbreviated Scale of Intelligence (WASI), which produces an estimate of general intellectual ability based on vocabulary and matrix reasoning. In addition, the survey contains the results from two tests designed to measure cognitive dysfunction related to the frontal cortex of the brain: the Trail-Making Test and the Stroop Color and Word Test. The Trail-Making test has two parts: Part A involves a series of numbers and the participant is required to connect the numbers in sequential order, and Part B involves a series of numbers and letters and the participant is required to alternately connect letters and numbers in sequential order. The Stroop test contains three parts which relate to interference from colors, words, and both words and colors together. Non-cognitive skills are assessed using the Weinberger Adjustment Inventory (WAI) and the Psychosocial Maturity Inventory (PSMI). The WAI test is divided into three areas: impulse control, suppression of aggression, and consideration of others. The PSMI provides measures of self-reliance, identity (i.e., self-esteem and consideration of life goals), and work orientation (i.e., pride in the successful completion of tasks).

³In order to minimize attrition in the sample, Individuals were paid \$50 to participate in the initial survey, with compensation increasing for the follow-up surveys (Monahan, Steinberg, Cauffman, & Mulvey, 2009). The retention rate, measured as the share of participants completing a particular interview wave, is above 90% for the first three years and no less than 83% for the last four years.

Besides the comprehensive information on observable characteristics of each individual, the PDS also contains the results from the well-known Psychopathy Checklist Youth Version (PCL-YV), which assesses psychopathic characteristics among youth via a semi structured interview.⁴ Both a total score and two underlving factor scores are reported: interpersonal/affective and socially/deviant lifestyle.⁵ In addition, the survey includes a self-reported measure of psychopathy, the Youth Psychopathic Traits Inventory (YPI), as well as its three underlying Grandiose/Manipulative, Callous/Unemotional, factors: and Impulsive/ Irresponsible.⁶ While the results from the PCL-YV test are only observed at the baseline, responses from the YPI are collected at each follow-up survey. While the PCL-YV is the preferred measure of psychopathy used in the literature, some studies argue that using this measure to assess the relationship between crime and psychopathy is not desirable, given that some items of the PCL-YV assess criminal behaviors characteristics directly, favoring the use of alternative measures like the YPI (Asscher et al., 2011).

Furthermore, the survey contains self-reported information on criminal activity. In order to encourage accurate self-reporting, responses are kept confidential, and participants were given a certificate of confidentiality from the U.S. Department of Justice. The self-reported offenses consist of 24 components, each related to participation in a specific type of crime, e.g., destroying or damaging property, beating up someone, or selling drugs. For each of the 24 items, the survey collects information on whether the individual participated in that particular type of crime in the recall period (last six or twelve months), as well as the frequency of participation. The data on criminal activity is collected at the baseline and follow up interviews.

For the analysis, we focus on three distinct crime categories: violent crime, property crime, and drug-related crime.⁷ We also construct an aggregate category, overall crime,

⁴The PCL-YVYV largely matches the PCL-R in item composition, but was specifically designed to better account for adolescent life experiences by concentrating more on peer, family, and school adjustment (Edens, Skeem, Cruise, & Cauffman, 2001; Forth & Kosson, 2003). Related to this, there is a debate in the literature arguing that the PCL-R does not necessarily equate the theoretical construct of psychopathy (Hare & Neumann, 2010; Skeem & Cooke, 2010). We address this issue by using two distinct measures of psychopathy to evaluate its effect on crime.

The PCL-YV score is calculated by adding a total of 20 underlying items. The first factor, interpersonal/affective, involves interpersonal and affective characteristics, and is constructed by summing eight items measuring: impression management, grandiose sense of self worth, stimulation seeking, pathological lying, manipulation for personal gain, lack of remorse/guilt, shallow affect, and callous/lack of empathy. The second factor, socially/deviant lifestyle, is characterized by behaviors associated with a socially deviant lifestyle, and is constructed by summing nine items measuring: parasitic orientation, poor anger control, impersonal sexual behavior, early problem behavior, lack of goals, impulsiveness, irresponsibility, failure to accept responsibility, and unstable interpersonal relationships. A third residual factor is constructed by summing items measuring: release, and criminal versatility.

⁶The YPI score is calculated by adding a total of 50 underlying items. The first factor, grandiose/manipulative, is constructed by summing twenty underlying items measuring dishonest charm, grandiosity, lying behavior, and manipulation. The second factor, callous/unemotional, is constructed by summing fifteen underlying items measuring remorselessness, unemotionality, and callousness. The last factor, impulsive/irresponsible, is constructed by summing fifteen underlying items measuring fifteen underlying items measuring thrill seeking, impulsiveness, and irresponsibility.

⁷We focus on these three distinct crime categories since they usually respond differently to public policies aimed at reducing crime (Doleac, 2022). Furthermore, the few papers that have distinguished between different types of crime when studying the effect of psychopathy, have focused primarily on violent and property crime separately. Drug-related crimes are usually not analyzed separately when using official measures of crime, like arrests, since these are largely under-represented given that only a few drug-related crimes end up in an arrest. Having self-reported data on criminal activity allows us to explore the effect of psychopathy on drug-related crime more convincingly. In addition, in Table 5 in the appendix, we show that the results are robust to an alternative grouping of criminal activities (e.g., felonies against misdemeanors.)

which combines all three crime types. Violent crime comprises crimes where the victim is harmed or threatened with violence, including being involved in a fight, beating up someone, robbing someone with or without a weapon, and shooting someone. Property crime consists of offenses where the victim's property is stolen or destroyed without the use of force against the victim, including destroying property, setting fire, entering a building to steal, shoplifting, buying, selling or receiving stolen property, using a credit card illegally, stealing a car or motorcycle, and carjacking. Lastly, drug-related crime includes selling marijuana or other illegal drugs.

Lastly, the survey also contains self-reported information on arrest and court appearance. In each survey, individuals are asked whether they were picked up by the police and accused of something and whether they appeared in a court for something illegal they were accused of during the recall period. We use these questions to construct an alternative measure of criminal activity, which is closer to the measure of crime usually used in the literature.

The final panel is constructed using annual data. Individual/year pairs are included in the final panel until at least one key variable is missing. The final panel includes 1,187 individuals and 7,055 observations. Table 1 reports descriptive statistics. The sample is divided almost evenly across locations, with 48.7% of the individuals living in Phoenix at the time of the baseline interview. Most individuals in the sample are men (86.4%). Blacks and Hispanics represent 40.5% and 33.9% of the sample, respectively. Not surprisingly, the crimes rate are fairly high. The overall crime rate in the sample is 46.3%, with crime rates for drug-related, violent, and property crime of 17.9%, 37.0%, and 21.8%, respectively.⁸

Table 1 also reports descriptive statistics for the YPI and the PCL-YV, which assess psychopathic characteristics. The mean for the PCL-YV is slightly lower than what was reported in a meta-analysis for juvenile offenders, but within the usual range of 9 to 28 (Edens et al., 2007). The mean of the self-reported YPI is also comparable with previous studies of incarcerated youth (Boonmann et al., 2015; Colins et al., 2017; Wang et al., 2021).

Figure 1 illustrates the key relationship in the data that we seek to explain: in particular, the correlation between psychopathy and crime. The figure shows how the probability of engaging in criminal activities depends on psychopathy, as measured through the YPI and PCL-YV. Regardless of the psychopathy measure we use, individuals with higher levels of psychopathy are much more likely to commit crime.

3. Empirical methodology

3.1. Baseline model

To understand whether higher levels of psychopathy predict future criminal activity, we consider the following binary choice model,

$$P(c_{i,t}) = \Phi(\beta_0 + \beta_1 \text{psychopathy}_{i,t} + X'_{i,t}\beta_2)$$
(1)

⁸In Table A1 in the appendix, we report descriptive statistics for each of the underlying crime categories. Destroying property and buying/selling stolen property are the property crimes with the higher rates, and engaging in a fight is the most prevalent violent crime. Furthermore, Table A2 in the appendix shows correlations across crime categories as well as correlations within crime categories.

Table 1. Pathw	ays to Desistanc	e – Descriptive	e Statistics
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Variables	Mean	Standard Deviation	Min	Max
Demographics				
Black*	0.405	0.491	0.000	1.000
Hispanic*	0.339	0.473	0.000	1.000
Other*	0.047	0.212	0.000	1.000
Female*	0.136	0.343	0.000	1.000
Phoenix*	0.487	0.500	0.000	1.000
Age at Baseline*	16.014	1.146	14.000	19.000
Years of Education at Baseline*	8.899	1.112	6.000	12.000
Crime				
Overall Crime Rate	0.463	0.499	0.000	1.000
Drug-Related Crime Rate	0.179	0.383	0.000	1.000
Property Crime Rate	0.370	0.483	0.000	1.000
Violent Crime Rate	0.218	0.413	0.000	1.000
Number of Crimes	53.330	232.602	0.000	3987.000
Number of Drug-Related Crimes	42.677	207.852	0.000	3980.000
Number of Property Crimes	3.380	33.239	0.000	2001.000
Number of Violent Crimes	7.273	65.276	0.000	2344.000
Arrest Rate	0.449	0.497	0.000	1.000
Psychopathy Measures				
YPI Score	101,565	22,263	52,500	195,500
YPI – GD	31 465	6 484	15 000	58 500
YPI – CU	36 986	10 605	15.000	80,000
YPI – II	33 114	8 21 2	15.000	60.000
PCI-YV - Score*	15 766	7 684	0.000	37 000
$PCI_VV = IA*$	4 973	3 4 3 3	0.000	19,000
PCL - VV = SD*	8 264	3 861	0.000	21 000
$PCL_VV = PES*$	2 5 2 0	1 604	0.000	21.000
	2.527	1.654	0.000	2.000
Eamily Crime (ECH)	0 221	0.415	0.000	1 000
Future Outlook Inventory (FOI)	2.642	0.415	1,000	1.000
Parceived Rick of Offending	5 720	2 812	0.000	10 000
Linemployment Pate	J.720	1 112	2 2 2 2 2	0.542
Vears of Education	4.905	1.115	7 000	9.542
	11.135	1.362	7.000	18.000
WALIMPUICO	דדר כ	0.010	1 000	5 000
WAI Impulse	2.277	0.919	1.000	5.000
WAI Suppression Aggression	5.040	0.925	1.000	5.000
DEMI Solf Polianco	2.001	0.705	1.000	5.000
	3.290	0.480	1.000	4.000
PSMI Identity	3.351	0.479	1.000	4.000
	3.015	0.481	1.000	4.000
Stroop Word*	43.383	10.817	15.000	85.000
Stroop Color*	39.812	9.993	13.000	77.000
Stroop Word-Color*	46.575	8.507	17.000	/6.000
Irail Making A*	1.856	0.908	1.000	4.000
Irail Making B*	2.132	1.023	1.000	4.000
WASI Vocabulary*	37.382	9.880	20.000	75.000
WASI Reasoning*	42.427	11.055	20.000	66.000
Observations	7055			

Notes: * Indicates variables that do not vary over time. Summary statistics for these variables are calculated using only the baseline survey.

where $c_{i,t}$ is an indicator variable that takes the value of one if the individual *i* in year *t* participates in crime and Φ is the cumulative distribution function of the standard logistic distribution. The main independent variable, psychopathy, corresponds to a standardized measure of psychopathy (i.e., YPI or PCL-YV). $X_{i,t}$ is a vector of individual-specific characteristics, including basic demographic characteristics, lagged criminal activity, years of education, and several measures of cognitive and non-cognitive skills. Standard errors are clustered at the individual level.



Figure 1. Probability of Crime by Psychopathy Percentiles. 1. The figures are based on the overall crime category. We run a logit model of crime on the standardized psychopathy measure and age. We then predict the probability of engaging in crime for different psychopathy percentiles at median age. The figure also displays the 95% confidence intervals for the prediction.

Having detailed information on individual characteristics, including those which are usually unobserved like cognitive and non-cognitive skills, allows us to pull components out of the error term that would otherwise bias the estimate of the effect of psychopathy on crime. This result is further explored in Section 3.4.

3.2. Baseline results

The results from the baseline model are presented in Table 2, where we report average marginal effects for each covariate.⁹ We focus mainly on the results for overall crime, unless the results vary considerably across crime categories.

The results indicate that women are less likely to engage in criminal activities. With regards to ethnicity, we find that Hispanics are less likely to participate in crime, relative to Whites. There are no significant differences between Blacks and Whites. Consistent with the literature on the life-cycle of crime, we find that age is negatively associated with crime (Farrington, 1986; Hirschi & Gottfredson, 1983). The individual's family back-ground matters for criminal activity. In particular, having a family member involved in crime increases the probability of crime by 12.9%-points. Not surprisingly, the individual's perception about the risk of punishment is negatively associated with crime. We estimate that a 10% increase in the perceived probability of being caught decreases the probability of participating in crime by 1.0%-points. We find no significant effects of the

⁹In order to address issues of collinearity, given the extensive list of cognitive and non-cognitive skills included as covariates, we perform a variance inflation factor (VIF) test and find that all covariates in the regression analysis have a tolerance value larger than 0.25. The usual cut-off value used in the literature is 0.1, below which one would worry about collinearity.

Table	2. Average	Marginal	Effects	from	Logit	Model	for	Crime.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Drug-	Drug-				
	Overall	Overall	Related	Related	Property	Property	Violent	Violent
Variables	Crime	Crime	Crime	Crime	Crime	Crime	Crime	Crime
YPI	0.033***		0.026***		0.026***		0.028***	
	(0.008)		(0.006)		(0.006)		(0.008)	
PCL-YV		0.036***		0.023***		0.023***		0.028***
		(0.006)		(0.005)		(0.005)		(0.006)
Lagged Crime	0.209***	0.202***	0.156***	0.152***	0.165***	0.162***	0.177***	0.172***
N 1	(0.011)	(0.011)	(0.009)	(0.009)	(0.009)	(0.009)	(0.011)	(0.011)
Black	-0.031	-0.031	-0.023	-0.023	-0.041*	-0.040*	-0.036	-0.036
Hispanis	(0.019)	(0.019)	(0.015)	(0.015)	(0.017)	(0.017)	(0.019)	(0.019)
пізрапіс	-0.039"	-0.041 ^a (0.017)	-0.028	-0.028°	-0.029	-0.052	-0.051	-0.055**
Other	-0.025	-0.029	(0.014) -0.023	(0.014)	-0.022	-0.023	-0.003	-0.006
other	(0.035)	(0.035)	(0.030)	(0.031)	(0.029)	(0.029)	(0.035)	(0.035)
Female	-0.101***	-0.107***	-0.084***	-0.090***	-0.011	-0.016	-0.098***	-0.103***
	(0.017)	(0.017)	(0.018)	(0.018)	(0.016)	(0.016)	(0.017)	(0.017)
Phoenix	0.015	0.015	-0.022	-0.021	0.042**	0.044**	0.021	0.021
	(0.016)	(0.016)	(0.012)	(0.012)	(0.015)	(0.015)	(0.016)	(0.017)
Age	-0.019***	-0.022***	0.002	0.001	-0.008***	-0.009***	-0.027***	-0.029***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Unemployment	0.008	0.009	0.000	0.000	0.005	0.005	0.005	0.005
Rate	(0.00.4)	(0.00.4)	(0.00.4)	(0.00.4)	(0.00.4)	(0.00.4)	(0.005)	(0.005)
Veens of Education	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
rears of Education	-0.005	-0.003	-0.008^	-0.006	-0.002	-0.000	0.000	0.002
ECH	(0.004) 0.132***	(0.004)	(0.003)	(0.005)	(0.004) 0.088***	(0.004) 0.086***	(0.004) 0.117***	(0.004)
T CH	(0.013)	(0.013)	(0,009)	(0,009)	(0.000	(0.000	(0.012)	(0.012)
FOI	0.001	-0.002	-0.017	-0.017	-0.012	-0.012	0.003	0.001
	(0.012)	(0.012)	(0.010)	(0.010)	(0.010)	(0.010)	(0.012)	(0.012)
Perceived Risk of	-0.011***	-0.010***	-0.009***	-0.009***	-0.008***	-0.008***	-0.008***	-0.008***
Offending								
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Stroop Word	-0.004	-0.003	-0.003	-0.001	0.002	0.003	0.003	0.004
6	(0.008)	(0.008)	(0.006)	(0.006)	(0.007)	(0.007)	(0.008)	(0.008)
Stroop Color	0.002	0.001	0.010	0.009	-0.001	-0.001	-0.003	-0.004
Stroop Word	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)
Stroop word-	-0.006	-0.004	-0.010	-0.009	-0.009	-0.009	0.002	0.004
COIOI	(0.008)	(0.008)	(0.006)	(0.006)	(0.007)	(0.007)	(0.008)	(0.008)
Trail Making A	-0.004	-0.004	0.001	0.002	-0.000	-0.000	-0.002	-0.002
fran frianing / t	(0.007)	(0.007)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)
Trail Making B	-0.004	-0.003	0.001	0.001	-0.002	-0.002	-0.006	-0.006
5	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
WASI Vocabulary	0.008	0.009	0.010	0.012	0.015*	0.016*	-0.006	-0.004
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
WASI Reasoning	-0.001	0.002	0.003	0.005	0.007	0.009	-0.005	-0.002
	(0.007)	(0.007)	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)
WAI Impulse	-0.025**	-0.031***	-0.008	-0.012*	-0.033***	-0.037***	-0.016*	-0.021**
	(0.008)	(0.008)	(0.007)	(0.006)	(0.007)	(0.006)	(0.008)	(0.007)
WAI Suppression	-0.069^^^	-0.074***	-0.042^^^	-0.048^^^	-0.038^^^	-0.043^^^	-0.081^^^	-0.086^^^
Aggression	(0.008)	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)	(0.008)	(0.007)
WAI	-0.021**	-0.021**	(0.000)	-0.009	-0.019**	-0.019***	-0.021**	-0.021**
Consideration	0.021	0.021	0.000	0.007	0.017	0.017	0.021	0.021
consideration	(0.007)	(0.007)	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)
PSMI Self Reliance	0.029**	0.024*	0.026***	0.022**	0.018*	0.015	0.027**	0.023*
	(0.010)	(0.010)	(0.008)	(0.008)	(0.009)	(0.009)	(0.010)	(0.010)
PSMI Identity	-0.026*	-0.024*	-0.034***	-0.032***	-0.024**	-0.022**	-0.015	-0.013
•	(0.011)	(0.011)	(0.008)	(0.008)	(0.009)	(0.009)	(0.010)	(0.010)
							()	Continued)
							· · · · · ·	

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	Overall Crime	Overall Crime	Drug- Related Crime	Drug- Related Crime	Property Crime	Property Crime	Violent Crime	Violent Crime
PSMI Work Orientation	-0.008	-0.014	0.011	0.005	-0.006	-0.011	-0.002	-0.007
Observations	(0.009) 7,055	(0.009) 7,055	(0.007) 7,055	(0.007) 7,055	(0.007) 7,055	(0.007) 7,055	(0.009) 7,055	(0.009) 7,055

Table 2. (Continued).

Notes: 1. Standard errors are reported below the point estimates in parentheses; *** p < 0.001, ** p < 0.01, * p < 0.05. Standard errors are clustered at the individual level.

2. In columns (1) and (2) we estimate the baseline specification for overall crime, using standardized YPI scores and PCL-YV scores, respectively, as the psychopathy measure. In columns (3) and (4) we estimate similar specifications for drugrelated crime. Columns (5) and (6) show the results for property crime. Columns (7) and (8) show the results for violent crime.

degree of future consideration, as measured through FOI, or the local unemployment rate. Consistent with the literature, higher non-cognitive skills lead to a reduction in criminal activity. The effects are mainly driven by the WAI measures capturing impulsive behavior, suppression of aggression, and consideration for others. On the other hand, we find no significant effect of cognitive skills on crime. Perhaps a bit surprisingly, we find that years of education is not associated with criminal activity.¹⁰

Turning to our main question, we find that higher levels of psychopathy are positively associated with crime.¹¹ The results are consistent and significant across the two measures of psychopathy we use. We find that a one-standard deviation increase in psychopathy, as measured through the YPI, leads to an increase in the probability of crime of 3.3%-points. Similarly, a one standard deviation increase in the PCL-YV leads to an increase in the probability of crime of 3.6%-points.¹² Furthermore, the results suggest that higher levels of psychopathy lead to an increase in all types of crime. In particular, an increase of one standard deviation in the YPI, increases drug-related, property, and violent crime by 2.6%-points, 2.6%-points, and 2.8%-points, respectively. We find similar results when using the PCL-YV.

Our estimates imply that a one standard deviation increase in psychopathy is associated with an increase in crime of 7.1%. This estimate is much smaller than the usual estimates found in the literature for similar population groups, by a factor of three, on average (Asscher et al., 2011; Geerlings et al., 2020). In section 3.4, we show that the estimated relationship between psychopathy and crime is closer to usual estimates in the literature once we do not account for the effect of cognitive and non-cognitive skills, emphasizing the importance of controlling for individual heterogeneity.

¹⁰This result is consistent with the results in Mancino et al. (2016), who use the same data to estimate the effect of contemporaneous education and years of education on crime. One explanation for this result is that we are able to control for a rich set of observables including the perceived probability of getting caught, cognitive and non-cognitive skills, which are usually not available in other datasets, attenuating the effect of years of education on crime. This result is confirmed in columns 3 and 4 of Table 4, where the estimate of the effect of education on crime is larger in absolute terms and precisely estimated when including basic demographics only.

¹¹Our results are consistent with the unified theory of crime, which argues that psychopathy is an important explanation of antisocial behavior (DeLisi, 2009, 2016).

¹²While the PCL-YV is measured at the baseline survey only, the literature suggests that the PCL-YV is relatively stable over time for young offenders (Hemphälä, Kosson, Westerman, & Hodgins, 2015). Hence, we interpret our estimates as the effect of psychopathy on crime, as opposed to simply the effect of lagged psychopathy.

3.3. Factors

In this section, we explore which dimensions of psychopathy drive the effect on criminal activity. For PCL-YV, we decompose the total score into three factors: interpersonal-affective (IA), socially-deviant lifestyle (SD), and a third residual factor. For the YPI, we consider three factors: grandiose-manipulative (GD), callous-unemotional (CU), and impulsive-irresponsible (II). The results are reported in Table 3.

We find that the effect of psychopathy on recidivism is mainly explained by the impulsive-irresponsible dimension of the YPI. On the other hand, when using the factors of the PCL-YV, we find that the socially-deviant lifestyle factor drives the effect on criminal activity. These two results are consistent with each other, suggesting that behaviors associated with a socially deviant lifestyle, thrill seeking, impulsiveness, and irresponsibility, are important determinants of criminal activity.

Moreover, for drug-related and violent crimes, the effect of psychopathy on crime is driven by the same factors. However, for property crime, we find a smaller and marginally significant effect of the impulsive-irresponsible factor, and no significant effect for any of the factors of the PCL-YV.

In all, our results are largely consistent with the findings in Asscher et al. (2011) and Geerlings et al. (2020) who document that the impulsive dimension of psychopathy is most strongly associated with crime. These results have important implications for the design of behavioral programs, which can more directly treat this particular dimension of psychopathy with the aim of reducing recidivism. The results also suggest that treating other dimensions of psychopathy, like the interpersonal-affective, may not be as effective in reducing future criminal behavior.

3.4. Alternative specifications

In this section, we discuss the results from four alternative specifications to our baseline model, which are designed to test the robustness of our results. First, we estimate versions of the model in which we exclude the measures of cognitive and non-cognitive skills, and/ or the rich set of observable characteristics that are not usually present in other datasets (e.g., perceived risk of punishment). Second, we consider an alternative measure of crime, which is closer to the measures of criminal activity used in the literature to estimate the relationship between psychopathy and crime. Third, we address potential omitted variable bias by taking advantage of the fact that the YPI is measured at each follow-up survey and estimate a specification with individual fixed-effects. Lastly, we contemplate an alternative grouping for criminal activities (e.g., felonies and misdemeanors).

A key advantage of the PDS is that we are able to control for a rich set of observables and usually unobservable characteristics which, if not accounted for, would bias the estimate for the effect of psychopathy on crime. To explore this possibility, we estimate two alternative specifications with a smaller set of control variables each. The results are presented in columns 1 and 2 of Table 4. We find that when we exclude the measures of cognitive and non-cognitive skills, the effect of psychopathy on crime is approximately two times larger than the baseline, both when using the PCL-YV and the YPI. If we further exclude control variables which are usually not available to the researcher (i.e., perceived risk of punishment, degree of future consideration, and a measure of family

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Overall	Overall	Drug- Related	Drug- Related	Property	Property	Violent	Violent
Variables	Crime	Crime	Crime	Crime	Crime	Crime	Crime	Crime
YPI – GD	0.008		0.004		0.003		0.010	
YPI – CU	-0.004		0.004		0.009		-0.010	
YPI – II	(0.009) 0.042***		(0.007) 0.026***		(0.007)		(0.009)	
	(0.009)		(0.008)		(0.008)		(0.009)	
PCL-YV – IA		-0.002 (0.008)		-0.011 (0.007)		0.007		-0.010 (0.007)
PCL-YV – SD		0.032***		0.024***		0.012		0.032***
		(0.009)		(0.007)		(0.007)		(0.009)
PCL-YV - RES		(0.008)		(0.006)		(0.007)		(0.007)
Lagged Crime	0.207***	0.199***	0.156***	0.147***	0.165***	0.162***	0.175***	0.169***
Dia da	(0.011)	(0.011)	(0.009)	(0.010)	(0.009)	(0.009)	(0.011)	(0.011)
ВІАСК	-0.029 (0.019)	-0.03 I (0.019)	-0.022	-0.026 (0.014)	-0.040^ (0.017)	-0.041^ (0.017)	-0.034 (0.019)	-0.035 (0.019)
Hispanic	-0.040*	-0.044**	-0.026	-0.034*	-0.029*	-0.033*	-0.032	-0.036*
	(0.017)	(0.017)	(0.014)	(0.014)	(0.013)	(0.013)	(0.017)	(0.017)
Other	-0.025	-0.030	-0.021	-0.028	-0.021	-0.024	-0.003	-0.007
Fomalo	(0.035)	(0.035) _0.105***	(0.031) _0.087***	(0.030) 0.088***	(0.029)	(0.030)	(0.035)	(0.035) _0.102***
Temale	(0.018)	(0.017)	(0.019)	(0.018)	(0.014)	(0.016)	(0.017)	(0.017)
Phoenix	0.011	0.019	-0.025*	-0.017	0.041**	0.044**	0.016	0.025
	(0.016)	(0.016)	(0.012)	(0.013)	(0.015)	(0.015)	(0.016)	(0.017)
Age	-0.020***	-0.023***	0.002	-0.001	-0.008***	-0.010***	-0.028***	-0.031***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Unemployment Rate	0.009*	0.009*	0.001	0.001	0.005	0.005	0.006	0.006
Veene of Education	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
rears of Education	-0.005	-0.002	-0.007**	-0.004	-0.002	-0.000	(0.001	(0.004)
FCH	0.131***	0.126***	0.080***	0.075***	0.088***	0.086***	0.116***	0.111***
	(0.013)	(0.013)	(0.009)	(0.009)	(0.010)	(0.010)	(0.012)	(0.012)
FOI	0.008	-0.000	-0.013	-0.015	-0.010	-0.012	0.011	0.004
	(0.012)	(0.012)	(0.010)	(0.010)	(0.010)	(0.010)	(0.012)	(0.012)
Perceived Risk of Offending	-0.011***	-0.010***	-0.009***	-0.009***	-0.009***	-0.008***	-0.008***	-0.007***
Churchen Manual	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Stroop word	-0.004	-0.003	-0.003	-0.002	0.002	0.003	0.003	0.004
Stroop Color	0.003	0.001	0.010	0.009	-0.001	-0.001	-0.003	-0.004
	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)
Stroop Word- Color	-0.007	-0.005	-0.011	-0.010	-0.009	-0.009	0.002	0.003
	(0.008)	(0.008)	(0.006)	(0.006)	(0.007)	(0.007)	(0.008)	(0.008)
Trail Making A	-0.004	-0.004	0.002	0.002	-0.000	-0.000	-0.002	-0.002
Trail Making P	(0.007)	(0.007)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)
ITAII MAKING D	-0.005	-0.005	(0.001	-0.000	-0.002	-0.002	-0.007	-0.007
WASI Vocabulary	0.007	0.009	0.010	0.012	0.014*	0.016*	-0.006	-0.004
,	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
WASI Reasoning	-0.001	0.001	0.003	0.004	0.007	0.008	-0.005	-0.004
	(0.007)	(0.007)	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)
WAI Impulse	-0.018*	-0.030***	-0.004	-0.011	-0.030***	-0.037***	-0.009	-0.020**
WAL Suppression	(0.008)	(0.008)	(0.007)	(0.006)	(0.00/)	(0.006)	(0.008)	(0.007)
Addression	-0.009	-0.074***	-0.045***	-0.048	-0.039*	-0.043 ****	-0.081	-0.06/ ****
	(0.008)	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)	(0.008)	(0.007)
							(Continued)

Table 3. Average Marginal Effects from Logit Model for Crime – Dimensions of Psychopathy.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Drua-	Drua-				
	Overall	Overall	Related	Related	Property	Property	Violent	Violent
Variables	Crime	Crime	Crime	Crime	Crime	Crime	Crime	Crime
WAI	-0.023**	-0.021**	-0.009	-0.010	-0.020***	-0.019***	-0.022**	-0.022**
Consideration								
	(0.007)	(0.007)	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)
PSMI Self Reliance	0.027**	0.024*	0.024**	0.023**	0.017*	0.015	0.025*	0.024*
	(0.010)	(0.010)	(0.008)	(0.008)	(0.009)	(0.009)	(0.010)	(0.010)
PSMI Identity	-0.029**	-0.025*	-0.036***	-0.034***	-0.025**	-0.023**	-0.018	-0.014
	(0.011)	(0.011)	(0.008)	(0.008)	(0.009)	(0.009)	(0.010)	(0.010)
PSMI Work	-0.001	-0.013	0.015*	0.007	-0.003	-0.011	0.006	-0.006
Orientation								
	(0.010)	(0.009)	(0.007)	(0.007)	(0.008)	(0.007)	(0.009)	(0.009)
Observations	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055

Table 3. (Continued).

1. Standard errors are reported below the point estimates in parentheses; *** p < 0.001, ** p < 0.01, * p < 0.05. Standard errors are clustered at the individual level.

2. In columns (1) and (2) we estimate the baseline specification for overall crime, using standardized YPI factor scores and PCL-YV factor scores, respectively, as the psychopathy measures. The three YPI factors are grandiose-manipulative (GD), callous-unemotional (CU), and impulsive-irresponsible (II). The three PCL-YV factors are interpersonal-affective (IA), socially-deviant lifestyle (SD), and a third residual factor (RES). In columns (3) and (4) we estimate similar specifications for drug-related crime. Columns (5) and (6) show the results for property crime. Columns (7) and (8) show the results for violent crime.

crime), we find that the effect of psychopathy on crime is even larger (see columns 3 and 4 of Table 4). For instance, the effect of the YPI on crime increases from 3.3%-points in the baseline to 8.5%-points and 10.3%-points in the first and second alternative models, respectively. Overall, these results suggest that failing to account for individual heterogeneity, and in particular non-cognitive skills, largely biases upward the effect of psychopathy on crime.¹³

Most of the literature studying the effect of relationship between crime and psychopathy is based on measures of arrests or convictions, while our results are based of self-reported measures of crime. Using arrests or convictions as the measure of crime may yield a different estimate of the effect of psychopathy on crime for several reasons. On the one hand, measures of arrests and convictions presumably contain a smaller proportion of minor offenses which are less likely to end up in an arrest, and a larger fraction of more severe crimes like assault, relative to self-reported criminal activity. On the other hand, arrests and convictions likely contain crimes not included in our definition of overall crime, like illegally carrying a gun or driving drunk. To evaluate the robustness of our results, we estimate the model using an alternative measure of crime; we define criminal participation as having been picked up by the police or appeared in a court for something illegal they were accused of in the previous year.¹⁴ The results are reported in columns 5 and 6 of Table 4. Our main conclusion remains largely unchanged, although the

¹³We find similar results for drug-related, property, and violent crimes. These results are shown in Tables A3, A4, and A5 in the appendix.

¹⁴Our alternative measure of crime is highly and positively correlated with selling drugs, entering a car to steal, engaging in a fight, and buying/selling stolen property. Furthermore, 36.1% of the individuals arrested in a given year participated in property, violent, or drug crimes, and 31.9% of the individuals that participated in crime are not arrested in that same year. Altogether, these figures suggest that our alternative measure of crime contains both more severe forms of crime and crimes that are not included in our definition of overall crime.

Table 4. Averag	le margina	I Ellects II	om Logit	model 101	Chine – Kor	Justness Che	CKS.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Basic Dem.	Basic Dem.	Alternative Measure of	Alternative Measure of		
Variables	No Skills	No Skills	Only	Only	Crime	Crime	OLS	FE
YPI	0.085*** (0.006)		0.103*** (0.006)		0.014 (0.008)		0.035*** (0.008)	0.032*** (0.010)
PCL-YV		0.056***		0.071***		0.035***		
		(0.006)		(0.006)		(0.006)		
Lagged Crime	0.233***	0.241***	0.255***	0.269***	0.223***	0.217***	0.241***	-0.051***
Dia ak	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.014)	(0.014)
BIACK	-0.029	-0.038 [^]	-0.014	-0.025	0.055^^	0.056^^	-0.03 I	
Hispanic	(0.018) _0.037*	(0.018) _0.052**	(0.019) _0.019	(0.020)	(0.018)	(0.018)	_0.019) _0.039*	
mspanic	(0.016)	(0.032	(0.017)	(0.033)	(0.016)	(0.016)	(0.055)	
Other	-0.033	-0.046	-0.024	-0.041	-0.020	-0.022	-0.024	
other	(0.035)	(0.037)	(0.037)	(0.038)	(0.029)	(0.029)	(0.034)	
Female	-0.083***	-0.097***	-0.102***	-0.126***	-0.164***	-0.164***	-0.092***	
	(0.017)	(0.018)	(0.018)	(0.019)	(0.017)	(0.017)	(0.016)	
Phoenix	0.003	0.019	-0.006	0.014	-0.072***	-0.074***	0.018	
	(0.015)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	
Age	-0.017***	-0.022***	-0.021***	-0.026***	-0.017***	-0.019***	-0.019***	-0.035***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.005)
Unemployment Rate	0.006	0.008	0.007	0.009*	0.007	0.007	0.009*	0.017***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)
Education	-0.006	-0.004	-0.010*	-0.009	-0.019***	-0.01/***	-0.006	-0.030***
ЕСЦ	(0.004)	(0.004) 0.142***	(0.004)	(0.004)	(0.004)	(0.004)	(0.004) 0.120***	(0.009)
гсп	(0.013)	(0.014)			(0.036	(0.052°)	(0.014)	(0.016)
FOI	(0.013) _0.035**	-0.062***			(0.014)	(0.014)	0.014)	(0.010)
101	(0.035	(0.002			(0.012)	(0.012)	(0.012)	(0.024
Certainty of	-0.014***	-0.017***			-0.003	-0.002	-0.011***	-0.010***
Punishment	(0.002)	(0.002)			(0.002)	(0.002)	(0.002)	(0.003)
Stroop Word	(0.002)	(0.002)			0.001	0.002	-0.006	(0.003)
Stroop Hold					(0.008)	(0.008)	(0.008)	
Stroop Color					0.001	-0.001	0.003	
·					(0.008)	(0.008)	(0.008)	
Stroop Word- Color					-0.007	-0.005	-0.005	
					(0.007)	(0.007)	(0.008)	
Trail Making A					-0.004	-0.003	-0.005	
-					(0.007)	(0.006)	(0.007)	
Trail Making B					-0.003	-0.002	-0.003	
\M/A CI					(0.007)	(0.007)	(0.007)	
Vocabularly					-0.010	-0.011	(0.007)	
WASI Reasoning					0.003	0.006	-0.001	
WAI Impulse					-0.032***	-0.032***	-0.025**	-0.038***
					(0.008)	(0.008)	(0.008)	(0.011)
WAI Suppression Aggresion					-0.004	-0.004	-0.070***	-0.066***
					(0.007)	(0.007)	(0.008)	(0.011)
WAI Consideration					-0.001	0.002	-0.020**	-0.017
PSMI Self Reliance					(0.006) 0.002	(0.006) 0.002	(0.007) 0.030**	(0.009) 0.022

 Table 4. Average Marginal Effects from Logit Model for Crime – Robustness Checks.

(Continued)

Table 4.	(Continued	I).
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	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	Alternative Measure of Crime	Alternative Measure of Crime	OLS	FE
					(0.010)	(0.010)	(0.010)	(0.012)
PSMI Identity					-0.008	-0.005	-0.026*	-0.022
					(0.010)	(0.010)	(0.011)	(0.013)
PSMI Work Orientation					-0.015	-0.017	-0.007	-0.019
					(0.010)	(0.010)	(0.009)	(0.011)
Observations	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055

1. Standard errors are reported below the point estimates in parentheses; *** p < 0.001, ** p < 0.01, * p < 0.05. Standard errors are clustered at the individual level.

2. In columns (1) and (2) we report the results from a specification which excludes the measures of cognitive and noncognitive skills. In columns (3) and (4) we further exclude variables like family crime history, future outlook inventory, and certainty of punishment. In columns (5) and (6) we estimate the baseline specification with a full set of controls, but using an alternative measure of criminal activity based on arrests and court appearance. In columns (7) and (8) we estimate the baseline specification using an OLS model with and without individual fixed effects, respectively.

effect of the YPI on crime is smaller and no longer significant.¹⁵ This result is consistent with the literature, which often estimates a stronger association between psychopathy and criminal activity when the PCL-YV is used (Asscher et al., 2011; Geerlings et al., 2020). Nevertheless, we estimate similar effects of psychopathy across the two measures, YPI and PCL-YV, when using self-reported measures of crime. One possible explanation for observing differential effects across psychopathy measures when using arrests and court appearance as opposed to self-reported criminal activity, is that the types of crimes that are left out of our definition of crime but end up in an arrest (e.g., drive drunk), are more strongly associated with dimensions of psychopathy captured by the PCL-YV and not by the YPI. A similar argument can be used to understand the weaker effects estimated in the literature when using self-reported measures of psychopathy.¹⁶

In the next exercise, we address potential omitted variable bias by estimating a specification with individual fixed-effects. To that end, we estimate an OLS version of equation 1, with and without individual fixed effects. For these two specifications, we only use the YPI measure, since the PCL-YV is only recorded at the baseline survey. The results are presented in columns 7 and 8 of Table 4. The results from the OLS model without fixed effects are, not surprisingly, very similar to the baseline logit results. The results are largely unchanged once we include individual fixed effects, with the exception of the effect of psychopathy on property crime which is about half of the original estimate.¹⁷ In all, these results suggest that the rich set of covariates in the PDS do, in general, a good job at controlling for possible sources of omitted variable bias.

¹⁵We also find that, when we use an alternative measure of crime, the effect of education is larger and precisely estimated, relative to the estimated effect in the baseline specification. One explanation for this result is that the more educated individuals are the better they are at avoiding arrests. It could also mean that education is more strongly associated with crimes not accounted for in our self-reported measure of crime.

¹⁶Alternative explanations include measurement error in self-reported measures of psychopathy, or that the PCL-YV is better at capturing true psychopathy. Nevertheless, none of these explanations are supported by our results based on self-reported measures of crime.

¹⁷The results for drug, property, and violent crimes are shown in columns 5 and 6 of Tables A3, A4, and A5, respectively, in the appendix.

In our baseline model we group crime in three different categories. We consider an alternative grouping, felonies and misdemeanors, which allows us to explore the effect of psychopathy on the severity of crime. Felonies include more severe crimes: beat up someone, arson, sell drugs, shot someone, robbery with and without weapon, and carjack. The remaining criminal activities are defined as misdemeanors. We also consider a reduced set of misdemeanor activities which only include: shoplift, enter a car to steal, engage in a fight, and buy or sell stolen property. The results are presented in Table 5. We find that the effect of psychopathy on crime is similar for felonies and misdemeanors.¹⁸

3.5. Intensive margin of crime

Besides the effect of psychopathy on whether individuals recidivate, it is important to understand whether psychopathy has an effect on the frequency of criminal activity. For instance, do higher psychopathy traits increase the number of crimes an individual engages in? Answering this question has relevant consequences for estimating the social benefit/cost of reducing crime via affecting psychopathy, since not only the number of individuals engaged in crime may change due to psychopathy, but also the average number of crimes committed by each criminal can change as well.

To explore this channel, we use data on the frequency of criminal activity and estimate the following Poisson model,

$$P(\text{ncrimes}_{i,t} = k | X, \text{psychopathy}) = \frac{\exp(-\lambda_{i,t})\lambda_{i,t}^{\kappa}}{k!}, \text{ where } k = 0, 1, 2, \dots$$
(2)
$$\lambda_{i,t} = \exp(\beta_0 + \beta_1 \text{psychopathy}_{i,t} + X'_{i,t}\beta_2)$$

where $\lambda_{i,t} > 0$ and normes_{*i*,*t*} measures the number of crimes individual *i* engages in during year *t*. The results from this specification are presented in Table 6, where we report average marginal effects for each covariate.

The estimates in columns 1 and 2 suggest a much larger effect on overall crime, relative to the results at the extensive margin of crime. We find that an increase of one-standard deviation in the YPI increases the average number of crimes by 12.6, which represents a 23.5% increase. We find similar results for the intensive margin of property and drug-related crimes. Nevertheless, the effect on violent crime is smaller, likely because most individuals commit few violent crimes, suggesting that psychopathy mainly influences the extensive margin of violent crime.¹⁹ We find slightly smaller effects on crime when we use the PCL-YV as the measure of psychopathy.

Mirroring the results at the extensive margin of crime, the effects of psychopathy on the intensive margin of crime are much larger when we do not account for the effect of cognitive and non-cognitive skills, or when we only use a reduced set of controls (see columns 3 to 6 in Table 6). For example, in the latter specification, increasing the YPI by one standard deviation increases the average number of crimes by 26.9, relative to 12.6 in

¹⁸These findings, together with the significant effects estimated using alternative crime categories (i.e., drug, property, and violent), provide evidence for versatility in offending (Farrington, 1986; Gottfredson & Hirschi, 1990; Piquero, 2000). Namely, offenders commit a diverse range of offenses.

¹⁹The results for the intensive margin of drug-related, property, and violent crimes are presented in Tables A6, A7, and A8 in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Felonies	Felonies	Misd. (1)	Misd. (1)	Misd. (2)	Misd. (2)
YPI	0.032***		0.030***		0.031***	
PCL-YV	(0.007)	0.030***	(0.007)	0.030***	(0.000)	0.029***
Lagged Crime	0.172***	0.166***	0.199***	0.194***	0.194***	0.189***
	(0.010)	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)
Black	-0.024	-0.024	-0.039*	-0.039*	-0.044*	-0.043*
	(0.016)	(0.016)	(0.019)	(0.019)	(0.019)	(0.019)
Hispanic	-0.038*	-0.040**	-0.039*	-0.041*	-0.036*	-0.038*
Oth an	(0.016)	(0.015)	(0.017)	(0.016)	(0.017)	(0.017)
Other	0.012	0.009	-0.022	-0.025	-0.028	-0.031
Fomalo	(0.030)	(0.030)	(0.034)	(0.034)	(0.035)	(0.036)
Feilidie	-0.103	-0.109	-0.073	-0.080	-0.072	-0.077
Phoenix	-0.012	-0.011	0.038*	0.039*	0.034*	0.034*
- Hoenix	(0.014)	(0.014)	(0.016)	(0.016)	(0.016)	(0.016)
Age	-0.004	-0.006*	-0.023***	-0.025***	-0.023***	-0.025***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Unemployment Rate	0.001	0.001	0.009*	0.010*	0.008	0.009
	(0.004)	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)
Years of Education	-0.006	-0.004	-0.002	0.001	-0.002	0.000
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
FCH	0.098***	0.096***	0.130***	0.127***	0.128***	0.126***
	(0.010)	(0.010)	(0.013)	(0.013)	(0.013)	(0.013)
FOI	-0.014	-0.014	-0.002	-0.004	-0.001	-0.002
	(0.011)	(0.011)	(0.012)	(0.012)	(0.012)	(0.012)
Certainty of Punishment	-0.011***	-0.011***	-0.009***	-0.009***	-0.010***	-0.010***
Churchen Manual	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Stroop word	-0.005	-0.004	0.003	0.004	0.002	0.004
Stroop Color	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
50000 0000	(0.014	(0.007)	(0.002	(0.003)	(0.002	(0.003)
Stroon Word-Color	-0.009	-0.008	-0.004	-0.003	-0.002	-0.001
	(0.006)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
Trail Making A	0.002	0.002	-0.004	-0.004	-0.000	-0.001
5	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)
Trail Making B	0.004	0.004	-0.007	-0.006	-0.008	-0.007
	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)
WASI Vocabularly	0.005	0.006	0.004	0.005	0.001	0.002
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
WASI Reasoning	0.002	0.005	-0.001	0.002	-0.002	0.000
	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)
WAI Impulse	-0.016*	-0.022**	-0.025**	-0.030***	-0.019*	-0.024**
	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
wai suppression aggresion	-0.059^^^	-0.065^^^	-0.074^^^	-0.079***	-0.076***	-0.081^^^
WAL Consideration	(0.007)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)
WAI Consideration	-0.010	-0.010	-0.021	-0.021	-0.021	-0.021
PSMI Self Reliance	0.000)	0.027**	0.025*	0.007)	0.007)	0.007)
i sini sen nenance	(0.009)	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)
PSMI Identity	-0.028**	-0.026**	-0.022*	-0.020	-0.017	-0.015
· · · · · · · · · · · · · · · · · · ·	(0.009)	(0.009)	(0.011)	(0.011)	(0.011)	(0.011)
PSMI Work Orientation	0.005	-0.002	-0.006	-0.011	-0.003	-0.009
	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)
Observations	7,055	7,055	7,055	7,055	7,055	7,055

Table 5. Average Marginal Effects from Logit Model for Crime by Severity – Robustness Checks.

1. Standard errors are reported below the point estimates in parentheses; *** p < 0.001, ** p < 0.01, * p < 0.05. Standard errors are clustered at the individual level.

2. In columns (1) and (2) we estimate the baseline specification for felonies, using standardized YPI scores and PCL-YV scores, respectively, as the psychopathy measure. In columns (2) and (3) we estimate similar specifications for misdemeanors. Columns (5) and (6) show the results using a more strict definition of misdemeanors, which includes a smaller set of crimes than the previous definition.

I able 0. Average Ivial gilla			מבו ומו וווב ווו	עומוש שעונושו						
	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)	(6)	(10)
Variables	Baseline	Baseline	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	Factors	Factors	OLS	끮
ЧРI	12.567** (4.271)		21.731*** (3.192)		26.949*** (3.247)				15.918** (5.375)	5.029 (5.287)
PCL-YV		8.872* (3.791)		14.001*** (3.698)		19.339*** (3.698)				
YPI – GD							4.900 (4.279)			
YPI – CU							-0.541 (4.811)			
YPI – II							13.263* (5.626)			
PCL-YV – IA								-9.013* (4.223)		
PCL-YV – SD								11.201** (4.315)		
PCL-YV – RES								(C1 C1 C1 9.828* (4 1 90)		
Lagged Crime	49.704***	48.756***	55.716***	59.214***	63.713***	68.065***	49.437***	46.711***	34.852***	-4.399
	(8.919)	(9.156)	(9.005)	(9.477)	(9.489)	(10.054)	(8.895)	(9.117)	(5.825)	(5.543)
Black	-4.762 (9.015)	-4.041 (8 981)	-5.422 (8 356)	-7.125 (8.470)	3.245 (8 304)	0.866	-3.930 (8 020)	5.483 (8 810)	-6.333	
Hispanic	-10.069	-10.582	-12.573	-15.362	-4.698	-7.516	-10.506	-13.265	-9.106	
	(809.6)	(9.626)	(9.106)	(9.310)	(9.036)	(9.228)	(9.686)	(9.440)	(8.707)	
Uther	14./32 (15.681)	13.643 (16.491)	12.090 (16.936)	د ا <i>د</i> .9 (17.789)	(17.130)	(18.401)	14.986 (16.367)	14.214 (17.136)	18.879 (19.138)	
Female	-37.485**	-39.001**	-35.927**	-37.974**	-45.671** (10,226)	-49.290*** (1 / ECT)	-37.693**	-37.006**	-14.466*	
Phoenix	-29.774***	(100.c1) -29.498***	-34.365***	-30.384***	-35.463***	-32.200***	-31.529***	-26.682**	-30.342**	
	(8.516)	(8.505)	(8.183)	(8.267)	(8.002)	(8.209)	(8.658)	(8.579)	(909.6)	
Age	1.696	1.185	2.331	1.619	1.591	0.503	1.550	0.375	2.387	-3.013
Unemployment Rate	(3.285) -0.816	(1.339) -0.943	(cc2.1) – 1.164	(322.1) -1.321	(1.258) -0.227	(1.314) 0.519	(1.298) -0.513	(1.341) -0.982	(1.351) 0.441	(2.119) 0.891
	(2.654)	(2.660)	(2.647)	(2.656)	(2.550)	(2.552)	(2.686)	(2.688)	(1.756)	(1.904)
Years of Education	-2.462	-1.816	-2.057	-1.806	-3.727	-3.708	-2.356	-0.938	-2.620	2.592
FCH	(2.322) 29.535***	(2.427) 29.155***	(2.320) 32.249***	(2.492) 32.723***	(2.411)	(2.549)	(2.346) 29.667***	(2.343) 26.897***	(2.049) 41.829***	(4.157) 19.202*
										Continued)

Table 6. Average Marginal Effects from Poisson Model for the Intensive Margin of Crime

Table 6. (Continued).										
	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)	(6)	(10)
Variables	Baseline	Baseline	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	Factors	Factors	OLS	ΕE
č	(5.839)	(2:993)	(6.115)	(6.319)			(5.861)	(5.818)	(8.940)	(8.958)
FUI	-12.814 (7.716)	-11.300 (7.558)	-19.04/* (7.608)	-22.863** (7.334)			- 10.569 (8.013)	-10.158 (7.460)	-9.163 (7.723)	-16.157 (9.308)
Certainty of Punishment	-6.308***	-6.143***	-7.379***	-7.636***			-6.390***	-6.173***	-5.179***	-4.108**
	(1.267)	(1.296)	(1.260)	(1.317)			(1.256)	(1.281)	(1.140)	(1.401)
Stroop Word	-8.697	-8.001					-8.581	-8.291	-9.247	
Stroon Color	(4.819) 7 918	(5.008) 7.412					(4./65) 8 218	(4:954) 7 2 1 0	(4./8/) 9.688	
	(4.914)	(5.110)					(5.062)	(5.122)	(5.879)	
Stroop Word-Color	-2.015	-1.575					-2.193	-1.997	-2.085	
	(4.054)	(4.120)					(4.131)	(4.242)	(4.493)	
Trail Making A	-1.221	-1.380					-1.300	-1.294	-0.546	
	(3.553)	(3.559)					(3.500)	(3.469)	(3.773)	
Trail Making B	2.225	2.561					2.020	1.556	1.025	
	(4.099)	(4.187)					(4.089)	(4.078)	(4.745)	
WASI Vocabularly	2.060	3.082					1.831	3.101	3.281	
	(4.330)	(4.417)					(4.264)	(4.363)	(4.223)	
WASI Reasoning	2.276	3.057					2.168	2.298	1.662	
	(4.267)	(4.332)					(4.285)	(4.391)	(4.485)	
WAI Impulse	-3.230	-5.757					-1.095	-5.509	-2.862	-2.218
	(4.244)	(4.094)					(4.149)	(4.095)	(4.560)	(6.325)
WAI Suppression Aggresion	-18.708^{***}	-21.792***					-18.822***	-22.006***	-15.452***	-16.506**
	(4.556)	(4.357)					(4.541)	(4.442)	(4.263)	(5.646)
WAI Consideration	-5.293	-6.192					-5.420	-7.025*	-6.982	-0.345
	(3.300)	(3.463)					(3.286)	(3.508)	(4.052)	(4.639)
PSMI Self Reliance	8.310	6.830					7.836	7.760	11.105	-3.514
	(5.296)	(5.506)					(5.321)	(5.486)	(6.257)	(6.845)
PSMI Identity	-8.847	-8.120					-9.873	-9.358	-10.563	-11.346
	(5.463)	(5.409)					(5.494)	(5.458)	(6.450)	(6.632)
PSMI Work Orientation	4.545	2.264					6.923	3.112	8.037	14.083*
	(4.813)	(4.793)					(4.813)	(4.755)	(6.189)	(6.865)
Observations	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055
Notes: 1. Standard errors are re 2. In columns (1) and (2) we estii	ported below t mate the baseli	he point estima ne Poisson mod	ates in parenthe lel for overall cri	eses; *** p < 0 ime, using stan	.001, ** p < 0.01, * dardized YPI scores a	p < 0.05. Ind PCL-YV scores, re	spectivelv, as th	ie psychopathy	measure. In col	umns (3) and

(4) We exclude the measures of cognitive and non-cognitive skills. In columns (5) and (6) we further exclude variables like family crime history, future outlook inventory, certainty of punishment, and years of education. In columns (7) and (8) we estimate the baseline Poisson model for overall crime, using standardized YPI factor scores and PCL-YV factor scores, respectively, as the psychopathy measures. In columns (9) and (10), we estimate the baseline model for overall crime, using standardized YPI factor scores and PCL-YV factor scores, respectively, as the psychopathy measures. In columns (9) and (10), we estimate the baseline model for overall crime, using standardized YPI factor scores and PCL-YV factor scores, respectively, as the psychopathy measures. In columns (9) and (10), we estimate the baseline model using an OLS specification with and without individual fixed effects, respectively, for overall crime, using standardized YPI scores as the psychopathy measure. the baseline specification with a full set of controls. Consistent with the results in section 3.4, the effects of psychopathy at the intensive margin are mostly explained by the impulsive-irresponsible of the YPI and the socially-deviant lifestyle factor of the PCL-YV (see columns 7 and 8 in Table 6). However, we find that the interpersonal-affective dimension of the PCL-YV has a negative effect on the intensive margin of overall crime. Lastly, in columns 9 and 10 of Table 6 we estimate an OLS version of equation 2, with and without individual fixed effects. The results from the OLS specification are somewhat larger than the results from the Poisson model. This is not necessarily surprising given that the OLS model ignores the fact that the dependent variable, *ncrimes_{it}*, is not continuous and larger than zero. The results from the OLS model with individual fixedeffects uncover an effect on crime that is smaller, and closer to the findings for the extensive margin of crime. This last result suggests that, while the wide range of observable characteristics in the PDS do a good job at addressing omitted variable bias when studying the decision to engage in crime (extensive margin), there are still unobserved variables that are likely related to both psychopathy and the frequency of crime.

4. Discussion

In this article, we employ a logit model to estimate the effect of youth psychopathy scores on recidivism, taking advantage of a rich longitudinal dataset of serious young offenders. In our analysis, we use self-reported data on criminal activity and two measures of psychopathy: YPI and PCL-YV. We further exploit the richness of the dataset to control for typically unobservable measures of individual heterogeneity, such as cognitive and non-cognitive skills.

We find that higher levels of psychopathy are positively associated with crime regardless of the measures of psychopathy we use. The results from our preferred specification suggest that a one-standard deviation increase in psychopathy leads to an increase in the probability of crime of 3.3%-points and 3.6%-points when using the YPI and PCL-YV, respectively. We further find that psychopathy is significantly associated with violent, property, and drug-related crimes. Consistent with recent findings, we show that the effect of psychopathy on crime is mostly driven by the impulsiveness and irresponsible behavior dimensions of psychopathy. We also show that our results are robust to alternative measures of criminal activity. Lastly, we find significant associations between the frequency of property and drug-related crimes and psychopathy.

Our preferred estimates imply a much smaller effect of psychopathy on crime than what is usually estimated in the literature for similar population groups. We show that the estimated effect of psychopathy on overall crime is two times larger, and closer to usual estimates, when we do not account for individual heterogeneity, in particular noncognitive skills. These results highlight the importance of having comprehensive data on individual heterogeneity to isolate the effect of psychopathy on crime from the effect of other confounding factors.

The results in this paper have important implications. First, our results suggest that court decisions should consider measures of psychopathy together with measures of noncognitive skills when deciding about an adolescence's sentence. Second, the estimates suggest that behavioral programs for youth should continue to target psychopathy, as

well as non-cognitive skills, since they are significantly associated with future criminal activity. Furthermore, our results indicate that behavioral programs focusing on youth psychopathy, should aim at targeting the impulsive-irresponsible dimension, given its larger association with crime relative to other dimensions of psychopathy.

There are, as always, some necessary and relevant caveats to issue when interpreting the results and policy implications. It is important to emphasize that we study youths who have already committed somewhat serious criminal offenses. This is a particularly relevant group to study, as they represent a large proportion of youth crime, particularly serious crime. Furthermore, this is a group that has been studied relatively less intensively in the literature, largely due to data constraints. However, one implication of this is that the results in this paper do not necessarily generalize to the youth population at large. In this sense, the effect of psychopathy on crime may not be as strong for the probability of committing a first crime.

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Appendix

Variables	Mean	Standard Deviation	Min	Max
Overall Crime Rate	0.463	0.499	0.000	1.000
Drug Crime Rate	0.179	0.383	0.000	1.000
Sell Marijuana	0.138	0.345	0.000	1.000
Sell Other Drugs	0.120	0.325	0.000	1.000
Property Crime Rate	0.370	0.483	0.000	1.000
Destroy Property	0.106	0.308	0.000	1.000
Set Fire	0.009	0.093	0.000	1.000
Enter a Building to Steal	0.032	0.176	0.000	1.000
Enter a Car to Steal	0.041	0.199	0.000	1.000
Shoplifting	0.062	0.241	0.000	1.000
Buy, Sell or Receive Stolen Property	0.137	0.344	0.000	1.000
Use a Credit Card Illegally	0.021	0.145	0.000	1.000
Steal a Car or Motorcycle	0.030	0.170	0.000	1.000
Carjack	0.008	0.088	0.000	1.000
Violent Crime Rate	0.218	0.413	0.000	1.000
Shot someone (Where Bullet Hit)	0.010	0.097	0.000	1.000
Shot at Someone (Pulled Trigger)	0.035	0.185	0.000	1.000
Robbery with Weapon	0.036	0.187	0.000	1.000
Robbery Without Weapon	0.067	0.250	0.000	1.000
Beat Up Someone	0.089	0.285	0.000	1.000
Engaged in a Fight	0.349	0.477	0.000	1.000
Beat Up Someone as Part of Gang	0.045	0.206	0.000	1.000
Observations	7055			

 Table A1. Pathways to Desistance – Descriptive Statistics – Crime Categories.

Table A2. Pathways to Desistance – Ci	rime Categories – V	Vithin and Across	Correlations.					
Correlations Across Crime Categories								
	Drug Crime	Violent Crime	Property Crime					
Drug Crime	0.5025*							
Violent Crime	0.8263*	0.3299*						
Property Crime	0.5690*	0.3857*	0.4021*					
Correlations Within Crime Categories								
Drug Crime								
Ŋ	Sell Other Drugs							
Sell Marijuana Violent Crime	0.5594*							
	Shot someone (Where Bullet Hit)	Shot at Someone (Pulled Trigger)	Robbery with Weapon	Robbery Without	Beat Up Someone	Engaged in a Fight		
Chot at Comeone (Dulled Tringer)	*3A6*			weapoil				
Robberv with Weapon	0.2949*	0.4138*						
Robberv Without Weapon	0.1672*	0.2736*	0.4965*					
Beat Up Someone	0.2001*	0.2596*	0.3429*	0.3509*				
Engaged in a Fight	0.1092*	0.1935*	0.2078*	0.2823*	0.3957*			
Beat Up Someone as Part of Gang Property Crime	0.1989*	0.2821*	0.3257*	0.3187*	0.3394*	0.2702*		
	Destroy Property	Set Fire	Enter	Shoplifting	Buy, Sell or Receive	Use a Credit	Steal a Car or	Carjack
			a Building to Steal		Stolen Property	Card Illegally	Motorcycle	
Set Fire	0.2163*							
Enter a Building to Steal	0.3387*	0.2085*						
Shoplifting	0.3352*	0.1221*	0.3797*					
Buy, Sell or Receive Stolen Property	0.3767*	0.1810*	0.3503*	0.3407*				
Use a Credit Card Illegally	0.1843*	0.1554*	0.3116*	0.2749*	0.2744*			
Steal a Car or Motorcycle	0.2727*	0.2179*	0.3604*	0.2699*	0.3184*	0.3084*		
Carjack	0.1944*	0.1832*	0.2852*	0.1778*	0.1944*	0.1873*	0.4302*	
Enter a Car to Steal	0.3635*	0.2039*	0.4388*	0.3843*	0.4150*	0.3289*	0.5173*	0.3463*
Notes: * p < 0.05.								

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	(1)	(2)	(3)	(4)	(5)	(6)
Variables	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	OLS	FE
YPI	0.051***		0.063***		0.031***	0.029***
PCL-YV	(0.003)	0.035***	(0.004)	0.045***	(0.007)	(0.008)
Lagged Crime	0 167***	(0.005) 0.160***	0 185***	(0.005)	۸ <u>م</u>	_0.048**
Lagged Chine	(0.009)	(0.010)	(0.010)	(0.011)	(0.015)	(0.015)
Black	-0.021	-0.027	-0.007	-0.015	-0.019	(
	(0.014)	(0.014)	(0.014)	(0.015)	(0.016)	
Hispanic	-0.031*	-0.040**	-0.017	-0.026	-0.024	
Othor	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	
other	-0.031 (0.030)	-0.041 (0.031)	(0.020	(0.032	(0.075)	
Female	-0.074***	-0.085***	-0.089***	-0.107***	-0.054***	
	(0.018)	(0.018)	(0.019)	(0.019)	(0.011)	
Phoenix	-0.023	-0.012	-0.027*	-0.014	-0.017	
A	(0.012)	(0.012)	(0.012)	(0.013)	(0.013)	0.000*
Age	0.002	0.000	-0.000	-0.003	0.003	-0.009^ (0.004)
Unemployment Bate	(0.002)	0.002)	0.002)	0.002)	0.002)	0.004)
onemployment nate	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)
Years of Education	-0.007*	-0.006	-0.011**	-0.010**	-0.007*	-0.002
	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.007)
FCH	0.085***	0.087***			0.101***	0.054***
501	(0.009)	(0.009)			(0.012)	(0.013)
FOI	-0.029	-0.042			-0.013 (0.010)	-0.023
Certainty of Punishment	-0.011***	-0.013***			-0.008***	-0.008***
	(0.002)	(0.002)			(0.002)	(0.002)
Stroop Word					-0.004	
Studies Caller					(0.006)	
Stroop Color					0.012	
Stroop Word-Color					-0.009	
					(0.006)	
Trail Making A					0.002	
					(0.006)	
Trail Making B					0.002	
WASI Vocabularly					0.011	
					(0.006)	
WASI Reasoning					0.003	
					(0.005)	
WAI Impulse					-0.008	-0.016
WAL Suppression Aggresion					(0.007)	(0.009)
WAI Suppression Aggresion					(0.006)	(0.009)
WAI Consideration					-0.010	-0.003
					(0.005)	(0.007)
PSMI Self Reliance					0.031***	0.019*
PSMI Identity					(0.009)	(0.010)
i Sivil lucituty					(0.009)	(0.011)
PSMI Work Orientation					0.014	0.002
					(0.008)	(0.009)
Observations	7,055	7,055	7,055	7,055	7,055	7,055

 Table A3.
 Average Marginal Effects from Logit Model for Drug-Related Crime – Robustness Checks.

Notes: 1. Standard errors are reported below the point estimates in parentheses; *** p < 0.001, ** p < 0.01, * p < 0.05. Standard errors are clustered at the individual level.

2. In columns (1) and (2) we report the results from a specification which excludes the measures of cognitive and non-cognitive skills. In columns (3) and (4) we further exclude variables like family crime history, future outlook inventory, and certainty of punishment. In columns (5) and (6) we estimate the baseline specification using an OLS model with and without individual fixed effects, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	OLS	FE
YPI	0.067***		0.081***	· · ·	0.029***	0.014
	(0.005)	0 040***	(0.005)	0.050***	(0.007)	(0.008)
rel-iv		(0.005)		(0.005)		
Lagged Crime	0.182***	0.195***	0.201***	0.221***	0.240***	-0.021
Plack	(0.009)	(0.009)	(0.009)	(0.010)	(0.014)	(0.014)
DIdCK	(0.016)	(0.017)	(0.017)	(0.018)	-0.037* (0.018)	
Hispanic	-0.038**	-0.049***	-0.022	-0.033*	-0.031*	
	(0.013)	(0.013)	(0.013)	(0.013)	(0.015)	
Other	-0.033	-0.040	-0.023	-0.031	-0.018	
Female	0.029)	(0.031) -0.011	(0.030) -0.012	(0.031)	(0.029) 0.006	
i cinale	(0.016)	(0.016)	(0.016)	(0.017)	(0.014)	
Phoenix	0.049***	0.062***	0.042**	0.056***	0.052***	
٨	(0.014)	(0.015)	(0.014)	(0.015)	(0.015)	0 0 2 5 * * *
Age	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	-0.025
Unemployment Rate	0.004	0.005	0.004	0.006	0.006	0.014***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)
Years of Education	-0.002	-0.001	-0.006	-0.005	-0.003	-0.009
FCH	(0.004)	(0.004)	(0.004)	(0.004)	0.113***	(0.007)
	(0.010)	(0.010)			(0.013)	(0.015)
FOI	-0.044***	-0.064***			-0.006	-0.018
Cortainty of Dunichmont	(0.010)	(0.009)			(0.010)	(0.013)
Certainty of Punishment	(0.002)	-0.012			(0.002)	-0.003°
Stroop Word	()	(,			-0.000	()
					(0.007)	
Stroop Color					-0.001	
Stroop Word-Color					(0.007) -0.008	
					(0.006)	
Trail Making A					0.002	
Trail Making P					(0.006)	
ITali Making D					(0.002)	
WASI Vocabularly					0.014*	
					(0.006)	
WASI Reasoning					0.007	
WAI Impulse					-0.033***	-0.043***
					(0.007)	(0.009)
WAI Suppression Aggresion					-0.033***	-0.033***
WAI Consideration					(0.007) 0.022***	(0.009) -0.010
					(0.006)	(0.007)
PSMI Self Reliance					0.027**	0.008
DCMI Identity					(0.009)	(0.010)
r sivil luelluly					(0.010)	-0.018 (0.011)
PSMI Work Orientation					-0.008	-0.010
					(0.009)	(0.010)
Observations	7,055	7,055	7,055	7,055	7,055	7,055

	Table A4. Av	verage Margina	I Effects from L	ogit Model fo	r Propert	v Crime –	Robustness	Checks
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1. Standard errors are reported below the point estimates in parentheses; *** p < 0.001, ** p < 0.01, * p < 0.05. Standard errors are clustered at the individual level.

2. In columns (1) and (2) we report the results from a specification which excludes the measures of cognitive and noncognitive skills. In columns (3) and (4) we further exclude variables like family crime history, future outlook inventory, and certainty of punishment. In columns (5) and (6) we estimate the baseline specification using an OLS model with and without individual fixed effects, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	OLS	FE
YPI	0.075***		0.091***		0.030***	0.028**
PCL-YV	(0.006)	0.047***	(0.006)	0.061***	(0.008)	(0.009)
		(0.006)		(0.006)		
Lagged Crime	0.203***	0.210***	0.221***	0.232***	0.206***	-0.074***
Black	(0.011) -0.031	(0.011) 0.039*	(0.011) 0.017	(0.011) 0.027	(0.014) 0.037	(0.013)
Didek	(0.018)	(0.019)	(0.019)	(0.019)	(0.019)	
Hispanic	-0.025	-0.038*	-0.008	-0.022	-0.031	
	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)	
Other	-0.009	-0.020	-0.001	-0.016	-0.001	
Fomalo	(0.036) 0.080***	(0.036) 0.002***	(0.036)	(0.037) _0.116***	(0.034) 0.083***	
Temale	(0.018)	(0.018)	(0.018)	(0.019)	(0.015)	
Phoenix	-0.001	0.013	-0.009	0.008	0.024	
	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)	
Age	-0.025***	-0.029***	-0.028***	-0.033***	-0.027***	-0.036***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Unemployment Rate	0.003	0.004	0.004	0.006	0.007	0.013**
Vears of Education	(0.003)	(0.005)	(0.005)	(0.003)	(0.004)	(0.005)
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.008)
FCH	0.124***	0.126***	(0.000)	(,	0.132***	0.078***
	(0.012)	(0.013)			(0.014)	(0.015)
FOI	-0.029**	-0.053***			0.005	-0.022
Cortainty of Dunichmont	(0.011)	(0.011)			(0.011)	(0.015)
Certainty of Punishment	-0.012****	-0.014""" (0.002)			-0.008"""" (0.002)	-0.008""
Stroop Word	(0.002)	(0.002)			0.002	(0.005)
					(0.008)	
Stroop Color					-0.003	
					(0.008)	
Stroop Word-Color					0.003	
Trail Making A					(0.008)	
					(0.002)	
Trail Making B					-0.006	
2					(0.007)	
WASI Vocabularly					-0.005	
MACL Deservices					(0.007)	
WASI Reasoning					-0.005	
WAI Impulse					-0.016*	-0.020
					(0.008)	(0.010)
WAI Suppression Aggresion					-0.080***	-0.084***
					(0.008)	(0.011)
WAI Consideration					-0.022**	-0.019*
PSMI Self Reliance					(0.007)	(0.009)
i Sim Sen henance					(0.010)	(0.012)
PSMI Identity					-0.014	-0.006
·					(0.011)	(0.013)
PSMI Work Orientation					-0.003	-0.018
Observations	7 055	7.055	7.055	7 055	(0.009)	(0.011)
ODSELVATIONS	7,000	7,000	ددں, /	7,055	7,000	ددں, /

Table A5. Average Marginal Effects from Logit Model for Violent Crime – Robustness Checks.

1. Standard errors are reported below the point estimates in parentheses; *** p < 0.001, ** p < 0.01, * p < 0.05. Standard errors are clustered at the individual level.

2. In columns (1) and (2) we report the results from a specification which excludes the measures of cognitive and noncognitive skills. In columns (3) and (4) we further exclude variables like family crime history, future outlook inventory, and certainty of punishment. In columns (5) and (6) we estimate the baseline specification using an OLS model with and without individual fixed effects, respectively.

Table A6. Average Margin.	al Effects fror	n Poisson M	odel for Drug	-Related Crir	ne.					
	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)	(6)	(10)
Variables	Baseline	Baseline	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	Factors	Factors	OLS	Ε
YPI	7.429* (3.253)		13.516*** (2.407)		17.141*** (2.414)				9.643* (4.352)	3.502 (4.596)
PCL-YV		3.664 (3.320)		7.183* (3.314)		10.841** (3.299)				
YPI – GD		(04.00)					3.981			
YPI – CU							(3.002) -1.552 (4.071)			
YPI – II							8.288 (4.751)			
PCL-YV – IA								-7.898* (3 493)		
PCL-YV – SD								7.580*		
PCL-YV – RES								(5.532 5.532 (3.570)		
Lagged Crime	50.917***	50.848***	54.070***	56.055***	60.342***	62.731***	50.730***	48.806***	75.255***	-9.201
	(6.886)	(7.262)	(7.192)	(7.863)	(7.580)	(8.522)	(6.825)	(7.190)	(6:639)	(8.365)
Black	7.842	8.462 (7.674)	6.322	4.638	11.512 (7 21 2)	9.455 77 177)	8.156 (7 578)	6.941 7 507)	8.324 (8.675)	
Hispanic	-0.341	-0.446	-2.490	-4.622	2.351	-0.249	-0.820	-2.965	-0.898	
	(8.441)	(8.382)	(8.021)	(7.847)	(7.945)	(7.740)	(8.454)	(8.203)	(6.351)	
Other	16.896 (13 736)	17.064 (14.651)	16.129 (15 353)	14.182 (16.335)	19.002 (14.823)	16.785 (16.463)	17.089 (14.476)	18.928	21.503 (16 564)	
Female	-35.831**	-37.233**	-34.841*	-37.170**	-41.110**	-45.198**	-35.423*	-36.123**	-14.104**	
	(13.651) 21 705***	(13.633)	(13.794) 25.103***	(13.745)	(14.136)	(14.175)	(13.832)	(13.387)	(4.818) 20.1 7r***	
rnoenix	-31./85 (7.855)			-32.008""" (7.474)		-32.189*** (7.255)	-33.174°°°° (7.970)			
Age	0.262	0.051	0.969	0.631	0.282	-0.280	0.219	-0.385	1.504	-3.204
	(1.046)	(1.058)	(1.032)	(1.057)	(1.037)	(1.057)	(1.052)	(1.076)	(1.065)	(1.889)
Unemployment Rate	– 1.813 (755 C)	-1.861	-2.153	-2.201	-1.320	-1.390	-1.663 (cac c)	-1.887 (555 c)	-1.270	0.779
Years of Education	(162.2) -0.562	(2.249) -0.260	-0.399	(2.240) -0.430	(2.194) -1.586	(2.17) -1.716	-0.515	0.281	-0.965	4.054
ECH	(2.004) 19.658***	(2.026) 19 489***	(2.054) 22.024***	(2.077) 22 710***	(2.113)	(2.135)	(2.029) 19 733 ***	(2.008) 17 809***	(1.729) 77733***	(3.735) 13 030
										Continued)

Table A6. (Continued).										
	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)	(6)	(10)
Variables	Baseline	Baseline	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	Factors	Factors	OLS	Ħ
G	(4.988) 12.488*	(5.079)	(5.227) 16.210**	(5.364) 10 575 **			(5.027) 10.025	(5.077) 10.750	(7.686) 10.040	(7.922)
2	-12.400 (6.149)	(220)	-10.210 (6.293)	-10.225 (6.116)			(1441) (6.441)	-10.700 (5.951)	-10.940 (6.567)	ecc.c1- (8.375)
Certainty of Punishment	-3.985***	-3.969***	-4.731***	-5.016***			-4.070***	-4.029***	-3.233***	-2.420*
	(1.017)	(1.022)	(1.005)	(1.026)			(1.007)	(1.021)	(0.968)	(1.186)
Stroop Word	-7.156	-6.764					-7.065	-7.029	-7.283	
	(4.264)	(4.373)					(4.170)	(4.295)	(4.256)	
Stroop Color	6.002	5.820					6.252	5.781	8.519	
Stroon Word-Color	(4.231) 0.831	(4.354) 1 263					(4.361) 0 742	(4.414) 0809	(5.412) 0.133	
	(3.399)	(3.433)					(3.450)	(3.545)	(3.986)	
Trail Making A	-2.716	-2.912					-2.745	-2.874	-1.672	
	(3.189)	(3.197)					(3.145)	(3.116)	(3.433)	
Trail Making B	2.205	2.385					2.189	1.585	1.069	
	(3.609)	(3.663)					(3.611)	(3.581)	(4.240)	
WASI Vocabularly	0.322	1.035					0.161	0.810	1.252	
	(3.815)	(3.799)					(3.764)	(3.768)	(3.731)	
WASI Reasoning	1.876	2.351					1.782	1.915	1.295	
	(3.655)	(3.727)					(3.694)	(3.804)	(3.963)	
WAI Impulse	-1.278	-2.937					0.060	-2.652	-0.953	0.744
	(3.399)	(3.200)					(3.272)	(3.209)	(3.806)	(5.356)
WAI Suppression Aggresion	-14.090***	-16.134***					-14.235***	-16.474***	-10.629**	-12.884**
	(3.694)	(3.600)					(3.669)	(3.697)	(3.494)	(4.693)
WAI Consideration	-3.299	-3.820					-3.327	-4.299	-3.877	1.237
	(2.656)	(2.769)					(2.654)	(2.820)	(3.481)	(4.058)
PSMI Self Reliance	7.941	6.910					7.536	7.676	9.205	-2.704
	(4.769)	(4.907)					(4.760)	(4.885)	(5.717)	(6.369)
PSMI Identity	-8.884	-8.487					-9.425	-9.476	-9.962	-9.116
	(4.900)	(4.849)					(4.892)	(4.877)	(5.711)	(5.972)
PSMI Work Orientation	4.400	3.115					5.888	3.877	6.722	11.047
	(4.430)	(4.422)					(4.399)	(4.417)		
Observations	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055
1. Standard errors are reported	below the poin	it estimates in	parentheses; **	* a < 0.001, **	* p < 0.01. * p < 0.	05.				

(4) we exclude the measures of cognitive and non-cognitive skills. In columns (5) and (6) we further exclude variables like family crime history, future outlook inventory, certainty of punishment, and years of education. In columns (7) and (8) we estimate the baseline Poisson model for overall crime, using standardized YPI factor scores and PCL-YV factor scores, respectively, as the psychopathy measures. In columns (9) and (10), we estimate the baseline model using an OLS specification with and without individual fixed effects, respectively, for overall 2. In columns (1) and (2) we estimate the baseline Poisson model for drug crime, using standardized YPI scores and PCL-YV scores, respectively, as the psychopathy measure. In columns (3) and crime, using standardized YPI scores as the psychopathy measure.

Table A7. Average Margina	l Effects fron	n Poisson Mc	odel for Prop	erty Crime.						
	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)	(6)	(10)
Variables	Baseline	Baseline	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	Factors	Factors	OLS	H
ΥPΙ	3.699* (1 562)		5.413*** 1 264)		6.165*** (1 22 A)				4.327	1.674
PCL-YV	(200.1)	2.437* (1 038)	(+0C.1)	3.329** (1 105)	(+cc.1)	4.205*** (1 181)			(01 C.7)	(660.1)
YPI – GD				(001.1)			0.691			
YPI – CU							(1.048) 1.307 (0.000)			
YPI – II							(2000) 2.654* (1.124)			
PCL-YV – IA								0.053		
PCL-YV – SD								1.888		
PCL-YV – RES								(c02.1) 1.113 (700.1)		
Lagged Crime	6.821***	6.310**	7.317***	7.932***	8.672***	9.922***	6.764***	6.217**	8.008***	-0.730
	(1.969)	(2.082)	(1.832)	(2.014)	(1.991)	(2.034)	(1.966)	(2.114)	(2.107)	(2.067)
Black	9.288** /2007/	-9.056** /21.00/	-9.848** /2 504/	-9.827* /2.057/	-8.154* (C24.C)	-8.056*	-9.115**	-8.985**	-9.271*	
Hispanic	(2.002) 4.425*	(001.c) -4.869*	(5.081*	-5.950*	(2.402) -3.946*	(520.C) -4.627*	(011.c) 4.343*	-5.057*	(c12.1) —6.405	
5	(2.135)	(2.284)	(2.013)	(2.421)	(1.926)	(2.265)	(2.211)	(2.290)	(3.352)	
Other	-6.365*	-6.921*	-7.663*	-8.545*	-6.385*	-6.804*	-6.230	-7.107*	-7.962*	
Female	(3.210) 2.725	(3.406) 1.869	(062.6) 2.327	(c10.c) 1.181	(ccu.c) 0.582	(1.208) –1.208	(3.201) 2.505	().782	(c/ł.c) 2.776	
	(2.734)	(2.929)	(2.457)	(2.669)	(2.446)	(2.675)	(2.720)	(3.044)	(2.100)	
Phoenix	2.270	2.371	1.958	2.683	1.765	2.184	2.111	2.663	1.568	
Age	(2.898) 0.364	(2.888) 0.290	(2./60) 0.328	(2.968) 0.203	(2.619) 0.243	(2.940) 0.050	(2.826) 0.334	(2.834) 0.218	(4.118) 0.441	-0.191
3	(0.334)	(0.354)	(0.308)	(0.324)	(0.280)	(0.307)	(0.341)	(0.354)	(0.336)	(0.611)
Unemployment Rate	-0.078	-0.154	-0.138	-0.231	-0.035	-0.152	-0.037	-0.166	-0.060	-0.030
	(0.608)	(0.639)	(0.613)	(0.683)	(0.569)	(0.638)	(0.626)	(0.652)	(0.568)	(0.588)
Years of Education	-0.594	-0.480	-0.429	-0.373	-0.696	-0.648	-0.570	-0.393	-0.626	-0.521
FCH	(0.498) 3.905*	(0.665) 4.024*	(0.440) 4.281*	(0.754) 4.660*	(0.487)	(0.758)	(0.499) 3.897*	(0.608) 3.874*	(0.665) 5.586*	(1.240) 3.700
)	Continued)

Table A7. (Continued).										
	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)	(6)	(10)
Variables	Baseline	Baseline	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	Factors	Factors	OLS	FE
	(1.765)	(1.865)	(1.773)	(1.934)			(1.772)	(1.813)	(2.708)	(2.975)
FOI	-2.042	-1.468	-2.884	-4.155*			-1.686	-1.413	-1.047	-3.926
	(2.059)	(1.998)	(1.766)	(1.804)			(2.033)	(1.967)	(2.020)	(2.712)
Certainty of Punishment	-1.3 /9*** (0 339)	-1.331*** (0376)	-1.532*** (0348)	-1.60/*** (0.416)			-1.3/9*** (0336)	-1.330*** (0 372)	-0.996*** (0.273)	-1.280** (0.481)
Stroop Word	-0.850	-0.296		(011-0)			-0.805	-0.281	-0.895	
	(1.187)	(1.367)					(1.207)	(1.365)	(1.272)	
Stroop Color	0.096	-0.399					0.037	-0.418 (1 152)	-0.443	
Stroop Word-Color	-1.106	-1.139					-1.088	(2011) -1.192	-1.032	
	(1.280)	(1.365)					(1.284)	(1.393)	(1.087)	
Trail Making A	0.262	0.476					0.265	0.552	0.557	
Trail Making B	(0.712) 0.502	(0.697) 0 256					(0.711)	(0.711) 0.358	(0.653) 0.083	
	(0.745)	(0.805)					(0.734)	(0.783)	(1.051)	
WASI Vocabularly	0.613	0.950					0.574	0.948	1.026	
	(1.169)	(1.253)					(1.130)	(1.262)	(1.065)	
WASI Reasoning	-0.192	0.222					-0.143	0.234	-0.010	
	(0.995)	(1.066)					(0.993)	(1.088)	(0960)	
WAI Impulse	-2.198	-2.976					-1.731	-2.973	-2.169	-2.965
	(1.352)	(1.629)					(1.388)	(1.629)	(1.320)	(1.754)
WAI Suppression Aggresion	-2.360	-3.495*					-2.522	-3.489*	-1.641	-1.647
	(1.551)	(1.432)					(1.581)	(1.438)	(1.193)	(1.673)
WAI Consideration	-0.638	-0.9/3					(1000)	-1.032	/97.1-	-0.802
DEMI Colf Doling	(404)) 0 666	(1.042)					(0.993) 0601	(1.U30) 1 066	(1.032)	(1.197.)
	(1,006)	(1.101)					(1,017)	(1.088)	(1,138)	(1,492)
PSMI Identity	1.067	1.138					0.897	1.095	0.512	-0.771
·	(1.272)	(1.258)					(1.260)	(1.271)	(1.498)	(1.878)
PSMI Work Orientation	1.190	0.833					1.557	0.850	2.123	3.173*
	(1.164)	(1.115)					(1.110)	(1.116)		
Observations	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055
1. Standard errors are reported	below the poir	nt estimates in	parentheses; *	** p < 0.001, *	* p < 0.01, * p < 0.0	J5.				

respectively, as the psychopathy measures. In columns (9) and (10), we estimate the baseline model using an OLS specification with and without individual fixed effects, respectively, for overall crime, using standardized YPI scores as the psychopathy measure. 2. In columns (1) and (2) we estimate the baseline Poisson model for property crime, using standardized YPI scores and PCL-YV scores, respectively, as the psychopathy measure. In columns (3) and (4) we exclude the measures of cognitive and non-cognitive skills. In columns (5) and (6) we further exclude variables like family crime history, future outlook inventory, certainty of punishment, and years of education. In columns (7) and (8) we estimate the baseline Poisson model for overall crime, using standardized YPI factor scores and PCL-YV factor scores,

Table A8. Average Marginal	Effects from	I Poisson Mc	odel for Viol	ent Crime.						
	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)	(6)	(10)
Variables	Baseline	Baseline	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	Factors	Factors	OLS	끤
۲PI	-0.176 (0 597)		1.330** (0 504)		1.592** (0 490)				-0.035 (0.720)	-0.013 (1 182)
PCL-YV		0.940** (0 357)		1.303*** (0 380)		1.629*** (0 410)				
YPI – GD				(000:0)		6	-0.407			
YPI – CU							(0.700) -0.728 (0.704)			
YPI – II							(0.932) (0.932)			
PCL-YV – IA								-0.445 (0 332)		
PCL-YV – SD								1.074		
PCL-YV – RES								0.541		
Lagged Crime	2.176*	1.968	2.818**	2.812**	3.382**	3.394**	2.058*	1.782	1.948*	-0.748
	(0.991)	(1.029)	(0.947)	(1.055)	(1.042)	(1.147)	(0.961)	(1.067)	(0.809)	(0.714)
Black	-3.789*	-3.743*	-3.343*	-3.355*	-2.671	-2.719*	-3.488*	-3.796*	-4.224	
Hispanic	-1.024	-1.059	(##C.1) -0.695	(c1 c.1) -0.814	(c14.1) -0.132	(coc.1) 722.0-	(620.1) -0.928	-1.166	(2.092) -1.285	
	(1.434)	(1.417)	(0.992)	(1.008)	(0.963)	(0.978)	(1.453)	(1.376)	(1.681)	
Other	2.578	2.575	2.784	2.704	3.492	3.477	2.636	2.590	5.794	
Female	(1.000) -1.529	(10C.1) -1.488	(1 c1 .2) -1.166	(c01.2) -1.422	(202.2) –1.719	(272) -1.951	(1.020) -1.745	(1.00.1) -1.456	(207.c) -0.927	
	(1.173)	(1.097)	(1.129)	(1.131)	(1.174)	(1.154)	(1.236)	(1.088)	(0.889)	
Phoenix	-0.575	-0.543	-1.143	-0.968	-1.424	-1.254	-0.734	-0.448	-0.887	
Age	(1.079) -0.093	(1.068) 0.131	(1.256) -0.087	(1.260) —0.154	(1.407) -0.154	(1.407) —0.264	(1.013) -0.128	(1.088) 0.220	(1.537) -0.050	0.308
'n	(0.218)	(0.224)	(0.200)	(0.212)	(0.209)	(0.221)	(0.222)	(0.236)	(0.220)	(0.386)
Unemployment Rate	0.493	0.457	0.509	0.491	0.524	0.512	0.552	0.466	0.407	0.242
	(0.411)	(0.402)	(0.413)	(0.406)	(0.399)	(0.384)	(0.416)	(0.404)	(0.410)	(0.442)
Years of Education	0.022	0.088	-0.068	-0.002	-0.190	-0.100	0.029	0.179	-0.053	-0.929
FCH	(0.292) 2.775**	(0.312) 2.714**	(0.301) 3.059**	(0.352) 3.031**	(0.323)	(0.362)	(0.286) 2.711***	(0.315) 2.514**	(0.292) 4.071**	(0.476) 2.574*
)	Continued)

Table A8. (Continued).										
	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)	(6)	(10)
Variables	Baseline	Baseline	No Skills	No Skills	Basic Dem. Only	Basic Dem. Only	Factors	Factors	OLS	FE
Ē	(0.899)	(0.866)	(1.091)	(1.058)			(0.812)	(0.783)	(1.555)	(1.107)
-10-	1.413 (0.939)	6/2.1 (0.958)	0.461	0.137 (0.835)			1./32 (0 959)	1.476 (0 949)	(1 594) (1202)	1.340 (0 996)
Certainty of Punishment	-0.379*	-0.329	-0.463*	-0.451*			-0.383*	-0.324	-0.320	-0.455
	(0.189)	(0.194)	(0.184)	(0.198)			(0.174)	(0.193)	(0.202)	(0.236)
Stroop Word	-0.547	-0.527					-0.586	-0.526	-0.545	
	(0.517)	(0.514)					(0.556)	(0.502)	(0.491)	
stroop color	0.180 (0.411)	0.170 (0.409)					0.212 (0.404)	0.208 (0.364)	0.140 (0.541)	
Stroop Word-Color	-0.006	0.017					0.024	-0.040	-0.053	
	(0.441)	(0.435)					(0.414)	(0.430)	(0.480)	
Trail Making A	0.094	0.157					0.087	0.196	0.012	
	(0.289)	(0.278)					(0.284)	(0.265)	(0.304)	
Trail Making B	0.286	0.357					0.270	0.283	0.426	
	(0.334)	(0.333)					(0.311)	(0.311)	(0.435)	
WASI Vocabularly	0.395	0.282					0.374	0.287	0.324	
	(0.569)	(0.636)					(0.520)	(0.657)	(0.523)	
WASI Reasoning	-0.067	0.035					0.011	0.005	-0.174	
	(0.321)	(0.341)					(0.272)	(0.334)	(0.524)	
WAI Impulse	0.382	0.515					0.724	0.568	0.401	0.010
	(0.623)	(0.670)					(0.626)	(0.694)	(0.892)	(0.951)
WAI Suppression Aggresion	-2.824**	-2.681**					-2.917**	-2.735**	-2.364**	-1.947**
	(9/6.0)	0.824)					(0.990)	(058.0)	(0.853) 0.702	(0.689) 0.605
	-0.0/4 (0.401)	(1410) (1410)					-0.740 (0375)	(0.433)	-0.792 (0.444)	(0 753)
PSMI Self Reliance	-0.004	-0.014					-0.115	0.096	0.346	0.013
	(0.442)	(0.470)					(0.441)	(0.468)	(0.623)	(0.654)
PSMI Identity	-0.370	-0.309					-0.519	-0.425	-0.590	-1.396
	(0.576)	(0.553)					(0.579)	(0.596)	(0.848)	(1.050)
PSMI Work Orientation	-0.597	-0.558					-0.125	-0.499	-0.530	-0.258
	(0.521)	(0.522)					(0.343)	(0.533)		
Observations	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055	7,055
1. Standard errors are reported l	below the poin	t estimates in	parentheses; *	** p < 0.001,	** p < 0.01, * p < 0.	05.	-	-		į

2. In columns (1) and (2) we estimate the baseline Poisson model for violent crime, using standardized YPI scores and PCL-YV scores, respectively, as the psychopathy measure. In columns (3) and (4) we exclude the measures of cognitive and non-cognitive skills. In columns (5) and (6) we further exclude variables like family crime history, future outlook inventory, certainty of punishment, and years of education. In columns (7) and (8) we estimate the baseline Poisson model for overall crime, using standardized YPI factor scores and PCL-YV factor scores, respectively, as the psychopathy measures. In columns (9) and (10), we estimate the baseline model using an OLS specification with and without individual fixed effects, respectively, for overall crime, using standardized YPI scores as the psychopathy measure.