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Impatience and crime. Evidence from the NLSY97

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Abstract

We empirically test the relationship between crime and impatience at the individual level exploiting data from the National Longitudinal Survey of Youth 1997 (NLSY97). Besides providing information on both violent and property crimes, NLSY97 allows to observe different behaviors sharing impatience as a common latent factor. We use factor analysis to extract this common factor as a measure for impatience. Estimates from a Logit model suggest a positive association between impatience and crime. This relationship differs across genders: impatience matters for both violent and property crimes for women, while it affects only violent crimes for men. The result is robust to different specifications of the factor analysis and to controls for risk preferences. Our results bring support to policies aimed at influencing individual time preferences as an indirect way to combat crime.

JEL Codes: D99, K42, Z13

Keywords: Time preferences, Impatience, Property crime, Violent crime, NLSY97, factor analysis

1 Introduction

Crime is costly to societies and societies make efforts to reduce crime. The standard economic approach to the analysis of crime deterrence dates back to Becker (1968). According to the traditional analysis, there are different policies available for governments. First, to curb criminal activities governments can raise the amount of resources devoted to detection and punishment, like public spending for police and courts. In recent years the US spent approximately 2.5% of GDP only for criminal justice (e.g., Chalfin (2015)). Spending more increases the probability that a crime is detected and sentenced, and the offender effectively punished, decreasing benefits from crime. Second, governments can influence the form and size of punishment: a fine is different from imprisonment; a larger fine (or a longer jail sentence) is different from a smaller fine (or a shorter jail sentence). Increasing the size of punishment, and using more severe forms of punishment increases the cost of crime.

While the theoretical case on how different policies affect cost and benefit related to crime is clear, less so are the results from the empirical literature. A recent review provided by Chalfin and McCrary (2017) provides three main conclusions. First, there is robust evidence that crime is sensitive to increases in police work force and to police relocation. Second, the link between crime and sanctions generally provides small deterrence effects. Third, there is strong evidence in favor

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of a reducing effect on crime generated by alternative opportunities provided by local labor market. Chalfin and McCrary (2017) concludes by observing that, overall, individuals seem to respond more to incentives that are *immediate and salient*. Police and forgone job opportunities are costs that are borne immediately, while prison sentences, if experienced at all, will be experienced sometime in the future.

One way to reconcile the empirical results with the Beckerian approach is to consider dynamic stochastic models accounting for individual time preferences (e.g., Davis (1988) and Lee and McCrary (2017)). Intuitively, as long as the fruits of criminal activities are enjoyed immediately, while the costs are delayed in an uncertain future, people who discount the future more heavily will be more likely to commit crimes. One main problem with an empirical analysis of this proposition is that time preferences are not easily observable, if not observable at all, especially using individual surveys. This explains why empirical evidence is basically nonexistent. Åkerlund et al. (2016) is the only exception. The authors measure time preferences through a survey question asking Swedish children to rate over a five-point scale whether they prefer 900 Swedish Krona today or 9,000 SEK in five years. They then show that this measure of time discounting significantly predicts criminal activity, both considering violent and property crime.

In this paper we add to Åkerlund et al. (2016) by also empirically testing the relationship between impatience and criminal behaviors at the individual level, but following a different approach. The basic idea is that many behaviors observed in surveys are correlated with individual impatience, including, for instance, saving and health-related behaviors. Following Della Vigna and Paserman (2005) and Tasoff and Zhang (2021), we use factor analysis to extract a latent common factor from these behaviors as a measure of individual impatience. To this end, we exploit data from the *National Longitudinal Survey of Youth 1997* (NLSY97). The NLSY97 is well-suited for our analysis: it includes individual level information on violent and property crimes, as well as several questions on behaviors that, according to the literature, are correlated with individual time preferences.

Our findings are largely in line with results in Åkerlund et al. (2016): we show that more impatient individuals are also those more likely to commit both property and violent crimes. The role of time preferences is stronger for violent than for property crime, a result which emphasize the importance of behavioral models of crime based on the lack of self-control and impulsivity (e.g., van Winden and Ash (2012). We also provide an heterogeneity analysis studying separately the sub-samples of men and women, as well as the sub-samples of individuals with and without at least one parent with a college degree. As for gender, our findings show a clear difference between men and women. Women seems to be driven solely by impulsivity, since impatience affects both violent and property crime in the same way. On the contrary, impatience impact more on violent crime than on property crime for men, suggesting that men behavior might follow a more rational approach, at least for property crime. As for parental background, in line with this interpretation, we find that impatience impact in the same way across the two groups for violent crime, while it affects property crime only for those individuals whose parents do not hold a college degree.

We also implement a number of robustness checks. Firstly, we add additional factors derived from the factor analysis, one of which we interpret as a measure of self-control. We find that our results still hold, and self-control reduce violent crime but not property crime. Secondly, we also control for variables proxying individual risk-attitudes to separate time preferences from risk preferences. We find that both time and risk preferences impact on violent crimes, while they do not display a statistically significant effect on property crimes.

Our paper contributes to the scant empirical literature about the relationship between time preferences and criminal behaviors. The closest work is Åkerlund et al. (2016), based on Swedish survey data at individual level. The authors show that time discounting is a good predictor for the involvement in criminal activity. Another example is Beraldo et al. (2013), which, however, is based on aggregate data. The authors use Italian regional level panel data from 2003 to 2007,

and exploit different proxies for time preferences, such as the consumer credit share out of the total amount of loans to households, the share of obese individuals out of the total population and the share of teenage pregnancies. They provide evidence of the Davis (1988) model in the case of property crimes, while results are less clear for violent crimes.

Finally, other scholars focus on the relationship between the individual discount factor and deterrence. For instance, Mastrobuoni and Rivers (2016) investigate the impact of time discounting on recidivism. The authors exploit variation in sentence length produced by a large collective pardon in Italy to estimate the individual discount factor. They conclude that the majority of deterrence is produced by the first few years in prison.

The remainder of this work is structured as follows. In Section 2, we define a conceptual framework linking impatience to crime, and we discuss how different behaviors usually observed in surveys are related to impatience. In Section 3 we present the data, while in Section 4 we describe the empirical strategy. Results are discussed in Section 5. We provide concluding remarks in 6.

2 The conceptual framework

2.1 Linking impatience to crime

To frame the link between impatience and crime, we exploit the model by Davis (1988). We consider the individual choice to engage in illegal activities. If a crime is committed, the future consequences of this choice depend on detection: either the crime is undetected and the individual enjoys the profits of the illegal activity; or detection takes place. As long as the crime is undetected, the individual obtain an income of $U(\sigma)$, where σ represents the rate of the committed offences. But, as soon as detection takes place, the individual must pay a fine F and the only possible future income is Y, earned from legal activities. The expected value of the stream of future incomes, both legal and illegal, can then be written as:

$$V(\sigma) = \int_0^\infty \{U(\sigma)[1 - G(t)] + YG(t) - Fg(t)\}e^{-rt}dt \tag{1}$$

where $g(\cdot)$ is the probability density function of the time of detection, $G(\cdot)$ is the cumulative density function, and r is the individual discount rate, which represents the key parameter describing individual preferences toward the future.

Following Davis (1988), we assume that the probability $P(\cdot)$ of being detected in a small neighbourhood of t, after having committed illegal activities up to t, depends only on the offence rate at time t and on E, the level of enforcement:

$$P(\sigma, E) = \frac{g(t)}{1 - G(t)} \tag{2}$$

The individual rational choice of committing crimes stems from the maximization of the future stream of profits (Equation (1)) subject to the probability of being caught (Equation (2)).

Since $P(\sigma, E)$ is independent of time and σ is constant, assuming an infinite time horizon Equation (2) can be rewritten as a linear differential equation that could be substituted in Equation (1). This brings us to the following individual decision problem:

$$V(\sigma, E) = \frac{U(\sigma) - Y - P(\sigma, E)F}{r + P(\sigma, E)} + \frac{Y}{r} \tag{3}$$

The first term in the utility function $V(\sigma, E)$ represents the ratio between expected gains from crime (as in the standard Beckerian approach, see, e.g., Becker (1968)) and the rate at which these gains are discounted, which is related to individual time preferences and the probability of being detected. The second term represent the perpetual rent from legal activities Y, independent of

crime σ. The first order condition for determining the optimal choice of σ, $(\partial V(\sigma, E)/\partial\sigma = 0)$ imposes the usual condition of equating marginal cost and benefit:

$$U_\sigma = P_\sigma F + P_\sigma \left(\frac{U - Y - PF}{r + P} \right) \tag{4}$$

The LHS of Equation (4) represents marginal benefit from criminal activities, while the RHS represents the marginal cost of crime. Equation (4) implicitly defines the optimal σ^*.

Using comparative statics, Davis (1988) shows that $\partial\sigma^*/\partial r > 0$: more impatient individuals - those with a higher discount rate - will be more likely to commit crimes. The crucial issue to test this proposition is how do we measure individual impatience.

2.2 Impatience and behavior

Measures of individual impatience are not easily observable, especially using simple surveys. However, according to economic theory, there are several individual choices that (i) are clearly correlated with impatience and (ii) are usually observed in surveys. A first important example is saving behavior. Simple economic models usually predict that more patient individuals are more likely to save more money. A recent work linking impatience and saving is Meier and Sprenger (2010), who show that present-biased individuals are more likely to accumulate credit card debt.

A second prominent example is represented by unhealthy behaviors. There is a growing literature about the relationship between health and time preferences. An early example is the study by Fuchs (1982), where the author suggests that the large correlation between health outcomes and schooling can be explained by the patience of different individuals. Relatively patient individuals are more likely to engage in both healthy behaviors and human capital investments, because both activities include a present-future trade-off.
The author empirically finds that the implicit interest rates, computed from hypothetical questions on immediate or delayed acceptance of lottery prizes, are correlated with smoking behavior. Along this line, Scharff and Viscusi (2011) assess that worker who do not smoke show lower rates of time preference than smokers.
Another relevant health problem is obesity. For instance, Borghans and Golsteyn (2006) find, only for men, both a marginally significant association between delay discounting and the Body Mass Index (BMI) and a significant negative association between BMI and the ability to manage finances and control expenditure. Another example is Weller et al. (2008), who find evidence of higher levels of discounting in obese women compared to healthy-weight age-matched women, but not for men.

A third behavior related to impatience is sexual behavior. For instance, Chesson et al. (2006) find that higher discount rates are significantly associated with a range of risky sexual behaviors in teenagers and young adults, such as having more than one sexual partner in a given time frame (the previous six months). Related to this, using NLSY data Compton (2009) finds that more patient individuals tend to remain engaged in their marriage after a marital shock, while more impatient individuals tend to find a "way out". Analogous results can be found in De Paola and Gioia (2017), where the authors consider marriage as the result of spouses' willingness to invest in the long term viability of the marriage and to accept short term disadvantages. Therefore, more patient individuals have a higher propensity to invest more in the relationship, to support the cost of marital shocks, and to wait for an improvement of the situation.

If we observe saving, unhealthy and sexual behaviors, we can then use these information to build a proxy for impatience distilling the latent factor common to all these behaviors.

3 Data

We use data from the National Longitudinal Survey, a group of surveys organized by the U.S. Bureau of Labor Statistics. In particular, we choose the National Longitudinal Survey of Youth 1997 (NLSY97), which is a longitudinal survey on 8,984 U.S. male and female residents born between 1980-84. The interviewees were between 12 to 16 years in 1997, when the first round of the survey took place. Given the high number of missing answers, we focus our analysis only on the 2008-2011 surveys, yielding a final sample of 3,800 observations (950 individuals for 4 years).

NLSY97 includes a wide range of questions about personal characteristics, family background, education, work status, and behaviors. In particular, NLSY reports information on both *property crimes* and *violent crimes* committed in the year. Property crimes are those classified as property damages and thefts greater or equal to 50$, including car-jacking, while violent crimes are those which involve the force to get something, attacking with intent to injure or kill, and drug selling. As for behaviors and habits, NLSY97 includes several variables describing saving behavior, unhealthy behaviors, sexual behaviors, which are useful to build our proxy for impatience, like the number of cigarettes smoked and the number of drinks consumed, the Body Mass Index (BMI), the number of sexual partners and the marital status.

As controls to study the role of impatience, NLSY97 provides a number of variables that the literature on crime deems to be important. First, we consider personal characteristics like age and the ethnic group to which the individual belongs. As for age, although results are not entirely conclusive, previous works suggest a positive relationship between young males and violent crimes, as suggested by McCall et al. (2013). With regard to ethnicity, Castillo et al. (2011) suggest possible differences between ethnic groups in preferences. In detail, they find that black children are more impatient than white children. Moreover, as suggested by Donohue III and Levitt (2001), race has an impact on policing and arrests. For example, the report of Mauer et al. (1995) suggests that one-third of Afro-American males in the age group 20-29 years old are under criminal justice supervision. As a consequence, minorities are suspicious and distrustful towards the criminal justice system and police as suggested by, for example, Holmes (2000) and Ogletree et al. (1995).

Second, we control for the role of education. Previous literature underlines a negative correlation between crime and education, due to the increase in the returns of legitimate works and, consequently, in the opportunity cost of committing crimes following the investment in education (e.g., Groot and van den Brink (2010), Dills et al. (2008), Lochner and Moretti (2004), Soares (2004), Gould et al. (2002), Miron (2001), and Grogger (1998)). Furthermore, some works suggest that education impacts on crime also indirectly, via time preferences (e.g., Borghans et al. (2008)).

In addition, along the lines of education, we consider current economic opportunities taking into account the occupation and the individual income. Indeed, Fleisher (1966) suggests that there is a strong negative relationship between income and crime.

We also distinguish between subjects living in urban areas and subjects living in rural areas. As discussed in Weisheit and Donnermeyer (2000), individuals living in rural contexts are less likely to commit crimes. Finally, we include in the specification a full set of year and regional dummies[1] to capture common unobserved factors across individuals, such as crime regulation, varying across time and space.

Descriptive statistics for all the variables used in the analysis are in Table 1. Dummy for violent and property crimes is equal to one for 3% and 1% of the observations, respectively. Our results seem comparable to those obtained at national level by OJJDP Statistical Briefing Book 2012[2].

[1] Regional dummies are defined as follows: *North East* (states such as Maine, New York, New Jersey, Rhode Island, Vermont, etc.), *North Central* (states such as Illinois, Minnesota, North and South Dakota, Wisconsin, etc.), *South* (states such as Alabama, Arkansas, Florida, Kentucky, Louisiana, Maryland, Mississippi, Oklahoma, Texas, Tennessee, etc.), *West* (states such as Alaska, California, Nevada, Washington, Wyoming, etc.). We include in our analysis the Southern regions in order to take into account the higher level of crime present there, according to the Uniform Crime report (2015).

[2] Available online: http://ojjdp.gov/ojstatbb/crime/qa05305.asp. Their results for the violent crimes index, which

Individuals included in the sample have an average age of 27.45 years (minimum is 24, maximum is 31), 54% are males, 36% hold a college degree and 47% have a white collar occupation.

Table 1: Descriptive Statistics

	Mean	SD	Max	Min
Violent crimes	0.03	0.16	1.00	0.00
Property crimes	0.01	0.11	1.00	0.00
Male	0.54	0.50	1.00	0.00
Female	0.46	0.50	1.00	0.00
Obesity	0.55	0.50	1.00	0.00
Saving rate	0.01	0.03	0.59	0.00
Smoking	7.80	8.29	60.00	0.00
Drinking	4.07	4.95	99.00	0.00
Married	0.29	0.45	1.00	0.00
Sex Partners	3.00	15.42	365.00	0.00
Age	27.45	1.81	31.00	24.00
College Edu.	0.36	0.48	1.00	0.00
White Collar	0.47	0.50	1.00	0.00
Black	0.14	0.35	1.00	0.00
Hispanic	0.18	0.38	1.00	0.00
Non-Black/Non-Hispanic	0.68	0.47	1.00	0.00
North-East	0.18	0.39	1.00	0.00
West	0.20	0.40	1.00	0.00
North-Central	0.27	0.44	1.00	0.00
South	0.34	0.47	1.00	0.00
income	60734.63	58987.90	316618	0.00
Urban	0.80	0.40	1.00	0.00
Observations	3800			

Notes: *Violent crimes* and *Property crimes* are dummies equal to 1 if there is at least a violent/property crime reported by the individual in the analysed period; *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is a dummy equal to 1 if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months. *College Edu.* is a dummy equal to 1 if the subject has at least one year of college education; *White Collar* is a dummy equal to 1 if the individual is in a white collar position; *Income* is the average annual income and *Urban* is a dummy equal to 1 if the individual lives in an urban area.

Average income is more than 60,000 USD, that is close to the median income in the U.S., which was, in the analyzed period, between around 49,300 USD and 50,303 USD according to the U.S. Census Bureau[3]. As for ethnicity, most of the sampled individuals are "Non-Black/Non-Hispanic" (68%); "Black" represents the 14% of the sample, while "Hispanic" are the remaining 18%. Most are living in urban areas (80%). 34% are from a Southern state, 20% from the West, 18% from the North-East, and 20% from the North-Central.

Obese people represent 55% of the sample, a larger percentage with respect to data provided by the U.S. Centre for Disease Control in the age group between 20-39 years for 2015-2016 Hales et al. (2017).

The average saving is 1% of income. Sampled individuals smoked only 7.8 cigarettes and had 4.07

excludes drug related crimes, in the age group between 24-29 years is around 0.8% while drug abuse violations are around 2.6%. The property crimes index for the same age group is around 2%.

[3]Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements.

drinks last month on average. The average number of sexual partners in the last year is 3; 29% are married.

4 Empirical strategy

To test the link between impatience and crime we describe the probability P of committing crimes using a standard Logit specification:

$$P(y_{i,t} = 1|I_{i,t}, C_{i,t}) = \frac{exp(\beta_0 + \beta_1 \times I_{i,t} + \sum_k \omega_k \times C_{i,t})}{1 + exp(\beta_0 + \beta_1 \times I_{i,t} + \sum_k \omega_k \times C_{i,t})} \tag{5}$$

where $y_{i,t}$ is a binary variable taking value 1 if individual i in year t committed (either violent or property) crimes, $I_{i,t}$ is a proxy for impatience, while $C_{i,t}$ is the set of additional controls.

To define a proxy for individual impatience, we follow the approach by Della Vigna and Paserman (2005) and use factor analysis to generate a measure of impatience.[4] The factor analysis is a statistical tool identifying the correlations between a group of observed variables $(X_1, X_2, ..., X_P)$. It allows describing these variables as a linear combination of a group of common factors $(F_1, ..., F_Q$, with Q much smaller than P) and a unique factor Y_p for each variable. Common factors account for the correlations among proxies and the unique factor accounts for the remaining variance of each proxy. In our case, we assume impatience I to be one of the factors correlated with observed variables and estimate the following factor model via maximum likelihood:

$$X_P = a_{p1}I + a_{p2}F_2 + ... + a_{pQ}F_p + u_pY_p, (p = 1, 2, 3, .., P) \tag{6}$$

The coefficients a_p of the common factors F_Q are usually referred to as Factor Loadings, while the Scoring Coefficients summarize the observed variables in a Factor Score for each individual in a sample.

Della Vigna and Paserman (2005) use for instance the availability of a bank account or a life insurance, smoking, heavy drinking, the use of contraceptives as variables related to impatience. Holding a bank account or a life insurance is related to individual saving behavior. As for smoking and drinking, both activities provide immediate pleasure in the present, but they have negative effects on health in the future. As for the use of contraceptives, the higher the level of patience, the higher the value attached to reducing the risk of sexually transmitted diseases and unwanted pregnancies.

In this paper, we consider several observed variables X which represent individual choices for which impatience clearly plays a role: the saving rate X_1 is defined as the ratio between total savings and income; smoking X_2 and drinking X_3 are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month, respectively; obesity X_4 is defined by a dummy which is equal to one if the Body Mass Index is equal or higher than 30; risky sexual behavior X_5 is measured by the number of sexual partners that the individual had in the previous 12 months; finally, we define a dummy about marital status X_6, which takes value one if the individual is married.

As for the set of controls C, besides age and age squared, we consider three dummies for ethnic groups "Black", "Hispanic", and "Non Black/Non Hispanic"[5]. The level of education is controlled for by including a dummy which assumes value one for individuals holding a college degree, while occupational differences are accounted by a dummy for white collar occupations[6]. The (log of) self-reported income is also added to all models. Additionally, in order to consider

[4] A more recent work about the relationship between time preferences and factor analysis is Tasoff and Zhang (2021). The authors suggest that time preferences can be explained with a single factor, which is similar with our results.

[5] In the NLSY survey there is also a fourth group, "Mixed race/Non Hispanic", which in our sample was referred to 17 individuals. Given the very small size of this group, we decided to drop these individuals from the final sample.

[6] Categories are defined according to U.S. Census Bureau (2002).

the different economic and social structures present in the U.S. society, we also include different regional dummies to control for fixed effects characterizing the region of residence of the individuals and a dummy indicating whether the individual is living in an urban area[7]. Finally, all models include year fixed effects.

5 Results

5.1 Descriptive evidence

We begin our analysis by studying simple cross-correlations between property and violent crimes and our proxies for impatience. Results are reported in Table 2. First, violent and property crimes are positively associated. Second, some of the proxies are also positively associated with crime indicators: smoking, drinking, and the number of sexual partners show positive and statistically significant associations with both crime indicators. Third, positive and negative associations emerge between the proxies themselves suggesting that simple (unconditional) correlations are unable to inform about the link between crime and impatience.

Table 2: Pearson Bivariate Correlation between Crime Variables and Proxies for Impatience

	Violent crimes	Property crimes	Obesity	Saving rate	Smoking	Married	Drinking	Sex Partners
Violent crimes	1.000	0.237***	-0.036*	-0.020	0.113***	-0.018	0.147***	0.030
Property crimes	0.237***	1.000	0.006	-0.008	0.060***	-0.008	0.091***	0.047**
Obesity	-0.036*	0.006	1.000	-0.027	-0.040*	0.035*	0.043**	0.029
Saving rate	-0.020	-0.008	-0.027	1.000	-0.032*	-0.030	-0.002	-0.013
Smoking	0.113***	0.060***	-0.040*	-0.032*	1.000	0.037*	0.090***	0.000
Married	-0.018	-0.008	0.035*	-0.030	0.037*	1.000	-0.053**	-0.015
Drinking	0.147***	0.091***	0.043**	-0.002	0.090***	-0.053**	1.000	0.083***
Sex Partners	0.030	0.047**	0.029	-0.013	0.000	-0.015	0.083***	1.000

Notes: *Violent crimes* and *Property crimes* are dummies equal to 1 if there is at least a violent/property crime reported by the individual in the analysed period; *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is a dummy equal to 1 if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Starting from these correlations, we then consider factor analysis to generate a measure of impatience. As discussed in Section 4, factor analysis reproduces the correlation between our proxies $X_1, X_2, ...$ describing them as a linear combination of a group of common factors $F_1, ..., F_Q$ and a unique factor Y_p. We obtain three factors with positive eigenvalues, but consider the first one, which captures the largest share of variance (around 2.5% of the total variance), as our proxy for impatience (see Table A.1). In particular, starting from these results, we constrain the factor analysis to produce just one factor. Factor loadings, uniqueness, and scoring coefficients from this exercise are reported in Table 3.

[7] We follow the classification of rural and urban areas proposed by the U.S. Census Bureau.

Table 3: Factor Loadings and Uniqueness from Factor Analysis on the Whole Sample

	Factor Loadings	Uniqueness	Scoring Coefficients
Drinking	0.277	0.923	0.246
Sex Partners	0.188	0.965	0.164
Married	-0.051	0.997	-0.045
Smoking	0.161	0.974	0.141
Obesity	0.075	0.994	0.065
Saving rate	-0.060	0.996	-0.052

Notes: Factor analysis is used to create a summary measure of impatience starting from proxies for impatience. Entries in the table represent maximum likelihood estimates from a factor analysis model with the constraint of just one factor.As for proxies, *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is a dummy equal to 1 if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months.

Factor loadings take up the expected signs: we find a negative correlation between being married and the saving rate and the extracted common factor F_1, while we find a positive association for all the other proxies. The strongest linkages are with drinking (0.277), sexual partners (0.188), and smoking (0.161). Unexplained variance for all the variables is large, a result consistent with findings by Della Vigna and Paserman (2005) and Drago (2006). The last column in Table 3 reports the scoring coefficients, which are used to build our baseline proxy for impatience I: consistently with factor loadings, our impatience proxy summarizes information about unhealthy, sexual, and saving behaviors.

We also conduct a number of heterogeneity checks with respect to factor analysis. First, we run two separate factor analyses for males and females to define proxies I, as we expect different behaviors between genders according to the literature. Details on factor loadings are reported in Online Appendix A.2 and confirm the different behaviors across genders. Being married is much more (negatively) related to impatience for men than for women, while smoking is more (positively) correlated with I for women than for men. The result on obesity is also important, as obesity is correlated positively with impatience for women while it takes up a negative sign for men.

Second, we also build proxy I running two separate factor analyses for individuals with at least one college educated parents and individuals with no college educated parents. Factor loadings for these two additional exercises are reported in Tables A.11 in the Online Appendix. Also in this case, correlations between proxies and the latent factor measuring impatience differ across the two groups. We observe different magnitudes (especially for drinking and being married, much more correlated with impatience for individuals with college educated parents, with positive and negative signs respectively), but also different signs for smoking (positive for those with college educated parents, negative and close to zero for those with no college educated parents).

Finally, as an additional robustness exercise (see Section 5.3.1), we consider all the three factors with positive eigenvalues in regression models to test whether results are robust to considering also additional factors extracted from our proxies. Details on how the three factors F_1, F_2, F_3 correlate with proxies X are provided in Table Online A.1 in the Online Appendix.

We use our baseline (standardized) measure of impatience I to divide our sample in "patient" ($I < 0$) and "impatient" ($I > 0$) individuals to show how impatience correlates with crime across different ages, as in Åkerlund et al. (2016). For the two groups of "patient" and "impatient", we compute the average probability of committing at least one crime, and then we distinguish also between violent crimes and property crimes at a given age. Results are reported in Figures 1, 2, and 3, respectively.

In line with Åkerlund et al. (2016), the probability to be involved in illegal activities decreases

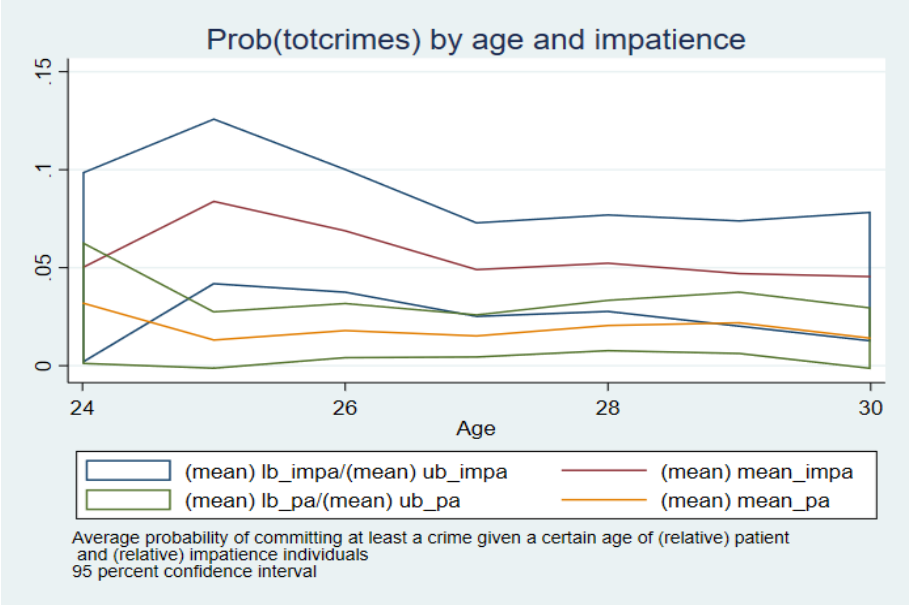

Figure 1: Probability of committing crimes and age: all crimes

with age, and – more important – it is usually higher for impatient individuals. Interestingly, the difference between the two types of individuals is more marked for violent crimes than for property crimes.

5.2 Regression results

In this section, we discuss the estimates of model 5 considering different specifications of our proxy for impatience I. Table 4 presents our main results. We consider marginal effects to ease the interpretation of the Logit non-linear specification.

Table 4: The role of impatience

	violent crimes		property crimes	
	(1)	(2)	(3)	(4)
Impatience	0.0272***		0.0078**	
	(0.01)		(0.00)	
Impatience x Non-Black/Non-Hispanic		0.0384***		0.0110**
		(0.01)		(0.00)
Impatience x Black		0.0039		-0.0042
		(0.01)		(0.01)
Impatience x Hispanic		0.0110		0.0068
		(0.01)		(0.00)
Observations	3800	3800	3800	3800
YEAR FE	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES

Notes: Logit estimates, marginal effects reported. *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience* represents the score obtained from a Factor Analysis on the whole sample considering the variables *Drinking*, *Sexpartners*, *Married*, *Smoking*, *Obesity*, *SavingRate*. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

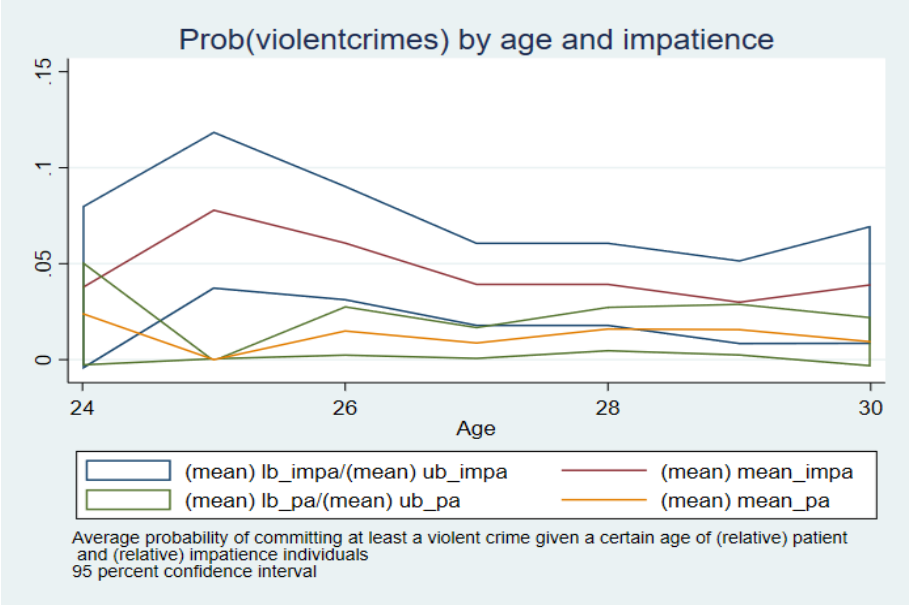

Figure 2: Probability of committing crimes and age: violent crimes

The marginal effect for impatience is positive and significant, both for violent and property crimes, supporting Davis (1988) hypothesis. The result suggests that a more patient individual is less likely to commit both violent and property crimes. The impact of impatience is stronger for violent crimes than for property crimes. As different ethnic groups might be characterized by different time preferences, we re-estimate model 5 by interacting our proxy for impatience with dummies for ethnicity. Almost all of these interactions reported in Table 4, col. (2) and (4), show positive marginal effects, which are however statistically significant only for the group of "Non-Black/Non-Hispanic" (68% of individuals in our sample).

Starting from these baseline estimates, we consider the potential heterogeneity of our results along different dimensions. First, previous literature suggests that women and men have different preferences. For instance, Croson and Gneezy (2009) review the experimental literature on gender differences, focusing their analysis on three factors: risk taking, social preferences and reaction to competition. Their findings suggest that women are more risk-averse and less competitive than men. Another example is Byrnes et al. (1999): the authors review 150 studies conducted between 1967 and 1997, comparing risk-taking between men and women. They categorize the studies by the type of task (e.g., self-reported behaviors versus observed behaviors), task content (e.g., smoking versus sex), and age. According to this review, in 14 out of 16 tasks, men takes more risk than women, especially when considering intellectual and physical risks. More important, previous works suggest also strong differences between men and women with respect to crime (e.g., Steffensmeier and Allan (1996)), although some other papers, such as Heimer (2000) based on Uniform Crime Reports, suggest a narrowing of this difference in the recent decades.

We generate first the measure of impatience for men and women running factor analysis on separate sub-samples (details are shown in Online Appendix A.2), and then use this measure to re-estimate model 5. Results for this exercise are presented in Table 5.

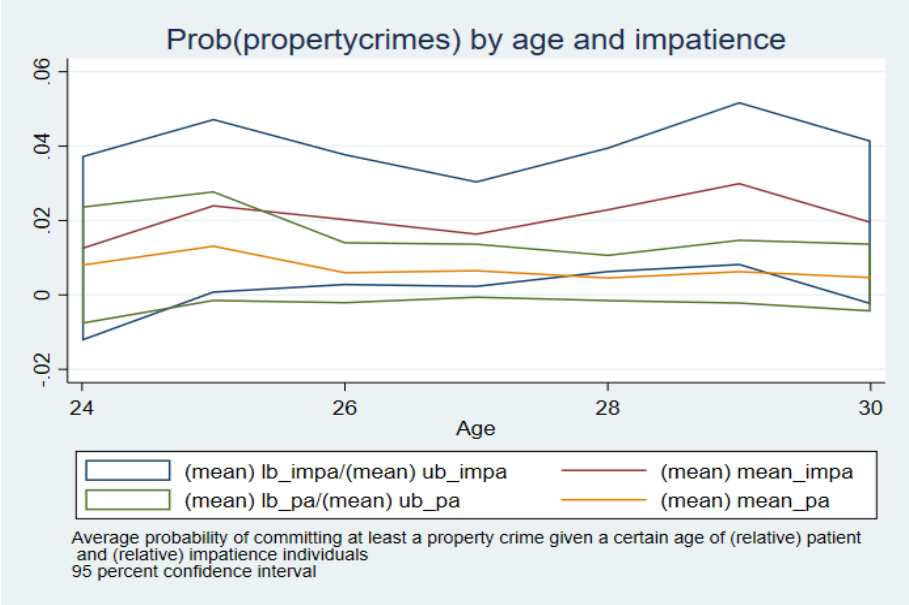

Figure 3: Probability of committing crimes and age: property crimes

Table 5: The role of impatience across genders

	violent crimes				property crimes			
	Women		Men		Women		Men	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience	0.0118***		0.0285**		0.0124***		0.0058*	
	(0.00)		(0.01)		(0.00)		(0.00)	
Impatience x Non-Black/Non-Hispanic		0.0208*		0.0522***		0.0146**		0.0100*
		(0.01)		(0.01)		(0.01)		(0.00)
Impatience x Black		-0.0126		0.0175		0.0051		-0.0162
		(0.02)		(0.02)		(0.01)		(0.01)
Impatience x Hispanic		-0.0101		0.0119		0.0115		0.0077
		(0.03)		(0.02)		(0.01)		(0.01)
Observations	1740	1740	2060	2060	1740	1740	2060	2060
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Logit estimates, marginal effects reported. *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience* represents the scores from a Factor Analysis computed separately for the sub-samples of men and women considering the variables *Drinking*, *Sexpartners*, *Married*, *Smoking*, *Obesity*, *SavingRate*. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Marginal effects of impatience are positive and significant for both men and women, in the case of property and violent crimes. However, the magnitude of the effect is different between the two types of crime only for men. In particular, in the case of men the impact of impatience for violent crimes is about five times larger than for property crimes. On the contrary, in the case of women marginal effects are substantially similar. These results are confirmed when interacting the impatience proxy with the dummies identifying ethnic groups. Also in this case, only the interaction relative to "Non-Black/Non-Hispanic" is significant.

A second dimension of heterogeneity can be related to parents' education. According to previous literature, intertemporal choices can be affected by parents' education. For example, Webley and Nyhus (2006) suggest the presence of a small but clear impact of parental behaviors and parental orientations, such as future orientation, on their children economic behaviors. Furthermore, Brim and Forer (1956) find a weak relationship between students' planning horizon and their fathers' occupation and education level. The literature also suggests that the level of parents' education can be an indicator not only of the familiar economic background and of the social and cultural

environment in which individuals were raised, but also that parents might represent a role model of impatience/patience for their children (e.g. Borghans and Golsteyn (2006)).
In order to consider this possible source of heterogeneity, we run factor analysis separately on the sub-samples of individuals based on their parents' education, distinguishing between individuals with at least one parents with college education, and individuals with both parents with no college education[8]. We then re-estimate model 5 using this measure for impatience. Results are presented in Table 6. The marginal effects of impatience are very similar across the two sub-groups for violent crimes[9]. On the contrary, for property crimes the effect of impatience is significant only for the sub-group of individuals with parents having no college education. These results support the view that impatience is likely influenced both by nature and nurture (for instance, Heckman (2007); Becker and Mulligan (1997) and Andreoni et al. (2019)).

Table 6: The role of impatience considering parents' educational background

	violent crimes				property crimes			
	College		No College		College		No College	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience	0.0276***		0.0249*		0.0073		0.0118*	
	(0.01)		(0.01)		(0.00)		(0.01)	
Impatience x Non-Black/Non-Hispanic		0.0227**		0.0561**		0.0082		0.0172
		(0.01)		(0.02)		(0.01)		(0.01)
Impatience x Black		0.0396		-0.0510		-0.0038		-0.0181
		(0.02)		(0.04)		(0.01)		(0.02)
Impatience x Hispanic		0.0423		0.0124		0.0094		0.0088
		(0.03)		(0.01)		(0.01)		(0.01)
Observations	2068	2068	1548	1548	2068	2068	1548	1548
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Logit estimates, marginal effects reported. *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. Impatience is computed separately for individuals with at least one parents with college education (*College*) and individuals with both parents with no college education (*No College*). YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.3 Robustness Checks

5.3.1 All Factors

One might argue that previous findings are driven by our definition of the measure of impatience based on factor analysis and the extraction of a single factor, a latent variable which we interpret as a proxy for impatience. In this section, we test the robustness of our results in two directions: first, we augment baseline model 5 including all the three factors identified by the factor analysis; second, we augment baseline model 5 by including proxies for risk-taking behavior which might mix up with time preferences. The latter is connected with Andreoni and Sprenger (2012), who suggest that risk and time preferences are intertwined but not the same.

As shown in Table A.1 in the Online Appendix, the factor analysis identified three factors with positive eigenvalues. We dubbed the first one impatience, since correlations with all the observed behaviors take up the expected signs according to economic reasoning. Looking across factors, we observe that the first factor is mostly related to drinking, smoking and the number of partners, which makes for a measure of impatience close to addictive behaviors and the lack of self-control. Factor (2) and Factor (3), which account for 1% of the variance of our proxies each, are more difficult to interpret. Factor (2) is positively correlated with the involvement in a stable relationship, but negatively correlated with the saving rate. It might take up the role of impatience

[8] A detailed description of the Factor Analysis on these sub-samples can be found in the Online Appendix A.3, where we also provide additional robustness checks on the role of parental education. In particular, we consider separately mother and father education. Logit estimates largely confirm results presented in this section

[9] Due to missing values, the total number of observations is lower with respect to table 4

for those that attribute a cultural meaning to the institution of marriage. Factor (3) is negatively correlated with smoking but positively correlated with obesity. Since there is scientific evidence that quitting smoking can cause excessive weight gain (e.g., Bush et al. (2016)), this factor might be interpreted as a proxy for self-control. We then specify our Logit model 5 first including each factor alone and second including all the three factors together. Results are presented in Table 7.

Table 7: The role of impatience considering additional latent factors

	violent crimes				property crimes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience	0.0208***			0.0226***	0.0079**			0.0087**
	(0.01)			(0.01)	(0.00)			(0.00)
Factor2		0.0095		0.0090		0.0026		0.0066
		(0.01)		(0.01)		(0.01)		(0.01)
Factor3			-0.0489***	-0.0380***			-0.0105	-0.0067
			(0.01)	(0.01)			(0.01)	(0.01)
Observations	3800	3800	3800	3800	3800	3800	3800	3800
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Logit estimates, marginal effects reported. *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience*, *Factor2*, *Factor3* are all the factors obtained from the factor analysis on the whole sample with positive eigenvalues. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Several interesting findings emerge from Table 7. First, results for *Impatience* are substantially unaltered by considering a factor analysis producing one factor or producing three factors. Marginal effects are very close to those in Table 4 and confirm that time preferences are more important for violent crimes than for property crimes. Second, this conclusion is unaffected by considering other factors which might catch some aspects of impatience, either separately or all at the same time. Third, while correlation with Factor (2) is positive but not statistically significant, correlation with Factor (3) is negative and statistically significant in the case of violent crimes, both considering the factor in isolation and considering the factor together with *Impatience* and Factor (2). This result is consistent with the interpretation of Factor (3) as a proxy for self-control.

5.3.2 Accounting for risk preferences

Future is intrinsically risky. However, as shown by Andreoni and Sprenger (2012), time preferences are not risk preferences. Our measure for impatience might then be biased, and we are confounding criminal behaviors driven by risk attitudes as dictated by preferences for present time. In order to test the robustness of our model in this direction, we consider two proxies for risk preferences. The first one is based on self-employment, on the idea that self-employed individuals are those with better attitudes toward risk. In particular, we exploit information in NLSY97 and define the variable $self - employment$ as the number of weeks out of one year in which an individual is self-employed. The second variable, still drawing from the NLSY97 Survey, is based on the individuals' perceptions of their own risk propensity. More specifically, we define the variable *risk* on the following question: "Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks? Rate yourself from 0 to 10, where 0 means "unwilling to take any risks" and 10 means "fully prepared to take risks". Unfortunately, both the question on self-employment and the question on risk are available only for the years 2010 and 2011, reducing the sample to about 2,700 observations. Additional information are provided in Online Appendix A.4.

Both $self-employment$ and $risk$ are positively correlated, suggesting that self-employment is related to risk preferences (see Online Appendix Table A.20). However, both variables do not seem to be correlated neither with *Impatience* nor with the original variables we considered in the factor analysis. The only exceptions are given by smoking and the engagement in a stable relationship, which are negatively correlated with risk.

Estimates from our Logit model 5 augmented with proxies for risk preferences are reported in Table 8. We find that also risk preferences play a role in driving the probability of committing crimes. This is true for violent crimes and for the variable *risk*, whose coefficient is positive and statistically significant. Summing up coefficients for *Impatience* and *risk* we obtain a result very close to baseline coefficients in Table 4. This finding suggests that our variable *Impatience* was likely mixing up both intertemporal and risk preferences, with time preferences accounting for about 70 per cent of the magnitude.

Table 8: Impatience and risk preferences

	violent crimes		property crimes	
	(1)	(2)	(3)	(4)
Impatience	0.0171*	0.0173	0.0081	0.0081
	(0.01)	(0.01)	(0.01)	(0.01)
Self-employment	-0.0002		-0.0003	
	(0.00)		(0.00)	
Risk		0.0070**		0.0011
		(0.00)		(0.00)
Observations	1844	902	1844	902
YEAR FE	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES

Notes: Logit estimates, marginal effects reported. *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience* is the measure obtained from the factor analysis on the whole sample imposing just one factor. *Self-employed* is the number of weeks in which the individual was self-employed in the past year and *Risk* is a measure of individual risk-propensity. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

6 Final Remarks

According to the theoretical framework provided by Davis (1988), less forward looking individuals might be more willing to commit a crime. In this paper, we add to Åkerlund et al. (2016) by providing an empirical investigation of the link between individual's attitudes towards the future and individual's propensity to commit crimes, both violent and property crimes. Our empirical methodology is based on factor analysis as a tool able to extract a latent common factor from behaviors that, according to the existing literature, appear to be correlated with crime (like smoking, drinking, and saving). Controlling for a number of variables that the literature deems to be important in the analysis of criminal behavior, estimates from a Logit model using NLSY97 data show a positive and statistically significant association between our proxy for impatience and the probability to commit violent and property crimes. These findings are robust to the use of all the factors retrieved by the factor analysis (including a proxy for self-control), as well as by the inclusion in the model of proxies for risk preferences. Additionally, we study the heterogeneity of

our findings extracting our measure of impatience from separate sub-samples according to gender and parents' education. We find gender differences in the magnitude of the effect, with intertemporal preferences affecting men behavior more for violent crimes than for property crimes, while results for women are substantially similar across the two types of crime. When we look at parents' education, we find that it plays a role for property crime: impatience affects the probability to commit crime only for those individuals with less educated parents. On the contrary, impatience is important for violent crimes in both sub-samples according to parents' education.

These results carry important policy implications. The empirical evidence suggests that punishment does not seem to have the reducing effect on crime predicted by the standard Beckerian theory. According to the United States Sentencing Commission's study of recidivism of federal offenders[10], around 50% of the federal offenders released in 2005 were rearrested in the next eight years, because they committed a new crime or because of a violation of the supervision conditions.

One possible explanation for the inability of punishment alone to reduce crime rests on the importance of time preferences. Since the fruits of crime are enjoyed immediately, while the costs are uncertain and are deferred to the future, more impatient individuals are more likely to commit crime. Our evidence, confirming results in (Åkerlund et al., 2016), support this view. It then becomes crucial to understand how we can influence individual time preferences with appropriate policies. As discussed by (Heckman, 2007), early life years are critical in the formation of adult capabilities, both cognitive and non cognitive, such as time preferences. For instance, using a field experiment, Andreoni et al. (2019) study the evolution of children time preferences. Their findings show a significant evolution in time preferences in children between 3 and 12 years old, with an increase in patience with age. One way to influence time preferences might then be schooling. Some recent papers suggest that this is an avenue worth exploring. Alan and Ertac (2018) evaluate the impact of school curriculum aimed at encouraging a forward-looking behavior and to boost students' ability to imagine their future selves. The results suggest that the students subject to the treatment are more patient and this effect is persistent almost 3 years after the intervention. Another interesting work is Luhrmann et al. (2018), where the authors investigate the impact of a program about financial education on inter-temporal choice in adolescents. The findings suggest that the program affect the inter-temporal decision-making, by increasing the quality of inter-temporal decision-making. Finally, Hjalmarsson et al. (2015) evaluate the impact of schooling on incarceration and convictions in Sweden. The results suggest that one year of additional schooling decreases the likelihood of conviction and incarceration by, respectively, 6.7% and 15.5% for men. On the contrary, the findings for women are non significant.
According to this evidence, the best policy to reduce crime is to invest in education, especially for those children most at risk given their parental background. This will not only rise the opportunity cost of crime, since it will increase the returns of legitimate work; it will make people more patient and more interested in the legitimate fruits of their effort.

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Conflict of interest

The authors declare that they have no conflict of interest.

[10] https://www.ussc.gov/research/research-reports/recidivism-among-federal-offenders-comprehensive-overview

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A Online Appendix

A.1 Unconstrained Factor Analysis

As pointed out in Section 2.2, we run the factor analysis and we select all the factors that have positive eigenvalues. We obtain three factors, as shown in the Table A.1:

Table A.1: Factor Loadings and Uniqueness

	Impatience	Factor2	Factor3	Uniqueness
Drinking	0.277	-0.039	-0.015	0.921
Sex Partners	0.188	-0.042	0.075	0.957
Married	-0.051	0.191	0.020	0.960
Smoking	0.161	0.100	-0.146	0.943
Obesity	0.075	0.054	0.173	0.962
Saving rate	-0.060	-0.140	-0.028	0.976

Notes: Factor analysis is used to create an aggregate impatience measure derived from the individual standardized measures of impatience. Entries in the table represent maximum likelihood estimates for all the factors that have positive eigenvalues. *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is equal to one if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months.

As for Impatience, no significant differences are found between the factor loadings in Table 3 and Table A.1. The patterns of correlation for both Factor2 and Factor3 are different from impatience. We implement a robustness check using all these factors in Section 5.3.1.

A.2 Factor Analysis on gender sub-groups

Starting from the idea that using the same factor analysis for men and women can constrain our measure of impatience, potentially introducing some bias in our main regressor, we perform the factor analysis on the two sub-samples of men and women, following the same procedure shown in Section 2.2. Results for factor loadings and uniqueness are presented in Tables A.2, A.3, and A.4. Results are coherent with the idea that men and women have different preferences, as pointed out also in Section 5.2.

Table A.2: Factor Loadings and Uniqueness for the overall sample

	Impatience	Factor2	Factor3	Uniqueness
Drinking	0.277	-0.039	-0.015	0.921
Sex Partners	0.188	-0.042	0.075	0.957
Married	-0.051	0.191	0.020	0.960
Smoking	0.161	0.100	-0.146	0.943
Obesity	0.075	0.054	0.173	0.962
Saving rate	-0.060	-0.140	-0.028	0.976

Notes: Factor analysis is used to create an aggregate impatience measure derived from the individual standardized measures of impatience. Entries in the table represent maximum likelihood estimates for all the factors that have positive eigenvalues. *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is equal to one if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months.

Table A.3: Factor Loadings and Uniqueness for women

	Impatience	Factor2	Factor3	Uniqueness
Drinking	0.296	-0.095	0.006	0.903
Sex Partners	0.189	0.069	0.057	0.956
Married	-0.023	0.193	0.016	0.962
Smoking	0.227	-0.003	-0.041	0.947
Obesity	0.147	0.124	-0.011	0.963
Saving rate	-0.021	-0.096	0.056	0.987

Notes: Factor analysis is used to create an aggregate impatience measure derived from the individual standardized measures of impatience. Entries in the table represent maximum likelihood estimates for all the factors that have positive eigenvalues. In this case the factor analysis is computed only for women. *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is equal to one if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months.

Table A.4: Factor Loadings and Uniqueness for men

	Impatience	Factor2	Factor3	Uniqueness
Drinking	0.239	0.057	0.067	0.935
Sex Partners	0.197	0.123	0.042	0.944
Married	-0.156	-0.140	0.122	0.941
Smoking	0.151	-0.245	0.030	0.916
Obesity	-0.108	0.194	0.140	0.931
Saving rate	-0.028	0.062	-0.189	0.960

Notes: Factor analysis is used to create an aggregate impatience measure derived from the individual standardized measures of impatience. Entries in the table represent maximum likelihood estimates for all the factors that have positive eigenvalues. In this case the factor analysis is computed only for men. *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is equal to one if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months.

A.2.1 Logit estimates without interactions with ethnic sub-groups

The following Tables report estimates of Logit regression models considering the three factors retrieved from the Factor Analysis conducted separately on the sub-samples of women and men, without interactions with ethnic sub-groups.

Table A.5: Logit regressions on the whole sample

	violent crimes				property crimes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience	0.0208***			0.0226***	0.0079**			0.0087**
	(0.01)			(0.01)	(0.00)			(0.00)
Factor2		0.0095		0.0090		0.0026		0.0066
		(0.01)		(0.01)		(0.01)		(0.01)
Factor3			-0.0489***	-0.0380***			-0.0105	-0.0067
			(0.01)	(0.01)			(0.01)	(0.01)
Observations	3800	3800	3800	3800	3800	3800	3800	3800
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects reported. The value for *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience*, *Factor2*, *Factor3* are the factors obtained from the factor analysis with positive eigenvalues. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.6: Logit regressions using the women sub-sample only

	violent crimes				property crimes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience	0.0118***			0.0144**	0.0124***			0.0163***
	(0.00)			(0.00)	(0.00)			(0.00)
Factor2 women		-0.0103		0.0071		-0.0102		0.0097
		(0.02)		(0.01)		(0.02)		(0.01)
Factor3 women			0.0016	-0.0325			0.0123	-0.0390
			(0.03)	(0.02)			(0.02)	(0.02)
Observations	1740	1740	1740	1740	1740	1740	1740	1740
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects reported. The value for *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience*, *Factor2*, *Factor3* are the factors obtained from the factor analysis and the factor analysis is computed separately for men and women. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.7: Logit regressions using the men sub-sample only

	violent crimes				property crimes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience	0.0285**			0.0346***	0.0058*			0.0073*
	(0.01)			(0.01)	(0.00)			(0.00)
Factor2 men		-0.0265*		-0.0294**		-0.0067		-0.0057
		(0.01)		(0.01)		(0.01)		(0.01)
Factor3 men			0.0160	0.0044			-0.0041	-0.0057
			(0.02)	(0.02)			(0.01)	(0.01)
Observations	2060	2060	2060	2060	2060	2060	2060	2060
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects reported. The value for *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience*, *Factor2*, *Factor3* are the factors obtained from the factor analysis and the factor analysis is computed separately for men and women. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

A.2.2 Logit estimates including interactions with ethnic sub-groups

The following Tables report estimates of Logit regression models considering the three factors retrieved from the Factor Analysis conducted separately on the sub-samples of women and men, including also interactions with ethnic sub-groups.

Table A.8: Logit regressions using the whole sample

	violent crimes				property crimes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience								
Non-Black/Non-Hispanic	0.0384***			0.0344***	0.0110**			0.0116**
	(0.01)			(0.01)	(0.00)			(0.00)
Black	0.0039			-0.0128	-0.0042			-0.0072
	(0.01)			(0.02)	(0.01)			(0.01)
Hispanic	0.0110			0.0270	0.0068			0.0101
	(0.01)			(0.01)	(0.00)			(0.01)
Factor2								
Non-Black/Non-Hispanic		0.0055		-0.0007		0.0045		0.0100
		(0.01)		(0.01)		(0.01)		(0.01)
Black		0.0274		0.0069		-0.0037		-0.0021
		(0.04)		(0.03)		(0.01)		(0.01)
Hispanic		0.0287		0.0540		-0.0054		0.0046
		(0.03)		(0.03)		(0.02)		(0.03)
Factor3								
Non-Black/Non-Hispanic			-0.0470***	-0.0360***			-0.0091	-0.0039
			(0.01)	(0.01)			(0.01)	(0.01)
Black			-0.0765	-0.0925			-0.0059	-0.0138
			(0.04)	(0.05)			(0.02)	(0.03)
Hispanic			-0.0282	-0.0307			-0.0298	-0.0256
			(0.03)	(0.02)			(0.03)	(0.02)
Observations	3800	3800	3800	3800	3800	3800	3800	3800
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects reported. The value for *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience*, *Factor2*, *Factor3* are the factors obtained from the factor analysis with positive eigenvalues. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.9: Logit regressions using the women sub-sample only

	violent crimes				property crimes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience								
Non-Black/Non-Hispanic	0.0208*			0.0205**	0.0146**			0.0170**
	(0.01)			(0.01)	(0.01)			(0.01)
Black	-0.0126			-0.0716	0.0051			-0.0337
	(0.02)			(0.06)	(0.01)			(0.03)
Hispanic	-0.0101			-0.0095	0.0115			0.0353
	(0.03)			(0.02)	(0.01)			(0.02)
Factor2 women								
Non-Black/Non-Hispanic		-0.0142		0.0108		-0.0081		0.0164
		(0.02)		(0.01)		(0.02)		(0.01)
Black		0.0079		0.0058		-0.0082		-0.1277
		(0.03)		(0.05)		(0.01)		(0.12)
Hispanic		0.0065		0.0063		-0.0177		-0.0186
		(0.02)		(0.01)		(0.03)		(0.06)
Factor3 women								
Non-Black/Non-Hispanic			0.0075	-0.0464			0.0505	-0.0073
			(0.04)	(0.03)			(0.05)	(0.04)
Black			-0.0379	-0.3724			-0.0487	-0.2319
			(0.06)	(0.24)			(0.05)	(0.23)
Hispanic			0.0057	0.0129			-0.5329	-0.4428
			(0.02)	(0.05)			(0.46)	(0.36)
Observations	1740	1740	1740	1740	1740	1740	1740	1740
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects reported. The regressions include only the women in the sample. The value for *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience*, *Factor2*, *Factor3* are the factors obtained from the factor analysis with positive eigenvalues. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.10: Logit regressions using the men sub-sample only

	violent crimes				property crimes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience								
Non-Black/Non-Hispanic	0.0522***			0.0517***	0.0100*			0.0098*
	(0.01)			(0.01)	(0.00)			(0.00)
Black	0.0175			0.0315	-0.0162			-0.0208
	(0.02)			(0.03)	(0.01)			(0.02)
Hispanic	0.0119			0.0159	0.0077			0.0148
	(0.02)			(0.02)	(0.01)			(0.02)
Factor2 men								
Non-Black/Non-Hispanic		-0.0239		-0.0176		-0.0096		-0.0076
		(0.01)		(0.01)		(0.01)		(0.01)
Black		-0.0859		-0.0748		0.0138		0.0496
		(0.06)		(0.06)		(0.01)		(0.04)
Hispanic		-0.0172		-0.0458		-0.0193		-0.0234
		(0.02)		(0.03)		(0.02)		(0.02)
Factor3 men								
Non-Black/Non-Hispanic			0.0137	0.0037			-0.0030	-0.0040
			(0.02)	(0.02)			(0.01)	(0.01)
Black			-0.0779	-0.0785			-0.0422	-0.0613
			(0.06)	(0.07)			(0.04)	(0.04)
Hispanic			0.0615	0.0847			0.0074	0.0057
			(0.04)	(0.05)			(0.03)	(0.05)
Observations	2060	2060	2060	2060	2060	2060	2060	2060
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects reported. The regressions include only the men in the sample. The value for *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience*, *Factor2*, *Factor3* are the factors obtained from the factor analysis with positive eigenvalues. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

A.3 Factor Analysis on sub-groups defined by parents' education

Another difference in our sample that can influence time preference is parents' education. For this reason, we perform the factor analysis separately for the sub-samples of (i) individuals with at least one parent with college education and (ii) individuals with both parents without college education. Results for factor loadings and uniqueness are presented in Table A.11.

Table A.11: Factor Loadings and Uniqueness for parents with/without college education

	College		No College	
	Impatience	Uniqueness	Impatience	Uniqueness
Drinking	0.288	0.914	0.204	0.938
Sex Partners	0.185	0.963	0.164	0.973
Married	-0.145	0.933	-0.074	0.947
Smoking	0.260	0.929	-0.015	0.905
Obesity	0.092	0.946	0.127	0.949
Saving rate	-0.059	0.950	-0.082	0.972

Notes: Factor analysis separated for individuals with at least one parent with college education and for individuals with parents without college education. Entries in the table represent maximum likelihood estimates. *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is equal to one if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months.

Results in Table A.11 show that our measure of impatience are mostly in line with the theoretical correlation between impatience and the different proxies, although the weights are different.

A.3.1 Further analyses on the role of parents' education

We also checked for a possible different role of mother and father background, by running four separate Factor Analysis on the following sub-samples: individuals with a father with no college education, individuals with a father with college education, individuals with a mother with no college education, individuals with a mother with college education.

Results for these four Factor Analysis are in the following tables.

Table A.12: Factor Loadings and Uniqueness for individuals having a father with no college education

	Impatience	Factor2	Factor3	Uniqueness
Drinking	0.198	0.163	-0.025	0.934
Sex Partners	0.050	0.155	-0.018	0.973
Married	0.044	-0.109	0.127	0.970
Smoking	0.285	-0.061	0.011	0.915
Obesity	-0.140	0.160	0.083	0.948
Saving rate	-0.070	-0.065	-0.123	0.976

Notes: Factor analysis on the sub-sample of individuals with father without college education. Entries in the table represent maximum likelihood estimates with positive eigenvalues. *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is equal to one if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months.

Table A.13: Factor Loadings and Uniqueness for individuals having a father with college education

	Impatience	Factor2	Factor3	Uniqueness
Drinking	0.263	0.153	0.073	0.902
Sex Partners	0.169	0.125	-0.067	0.951
Married	0.012	-0.299	0.039	0.909
Smoking	0.273	0.026	-0.045	0.923
Obesity	0.263	-0.144	0.066	0.906
Saving rate	-0.136	0.197	0.099	0.933

Notes: Factor analysis on the sub-sample of individuals with father with college education. Entries in the table represent maximum likelihood estimates with positive eigenvalues. *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is equal to one if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months.

Table A.14: Factor Loadings and Uniqueness for individuals having a mother with no college education

	Impatience	Factor2	Factor3	Uniqueness
Drinking	0.155	0.123	-0.127	0.945
Sex Partners	0.053	0.145	-0.058	0.973
Married	0.110	-0.025	0.184	0.953
Smoking	0.252	-0.090	-0.004	0.928
Obesity	-0.061	0.187	0.103	0.951
Saving rate	-0.106	-0.094	-0.093	0.971

Notes: Factor analysis on the sub-sample of individuals with mother without college education. Entries in the table represent maximum likelihood estimates with positive eigenvalues. *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is equal to one if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months.

Table A.15: Factor Loadings and Uniqueness for individuals having a mother with college education

	Impatience	Factor2	Factor3	Factor4	Uniqueness
Drinking	0.334	-0.004	0.047	0.016	0.886
Sex Partners	0.193	-0.055	0.004	-0.033	0.959
Married	-0.170	0.191	0.011	0.011	0.934
Smoking	0.311	0.058	-0.062	0.015	0.896
Obesity	0.087	0.163	0.103	-0.009	0.955
Saving rate	-0.059	-0.212	0.070	0.015	0.946

Notes: Factor analysis on the sub-sample of individuals with mother with college education. Entries in the table represent maximum likelihood estimates with positive eigenvalues. *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is equal to one if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months.

We then estimate Logit models on the four different sub-samples. Results are in the following tables, and largely confirm findings discussed in the main text.

Table A.16: Logit regressions for the sub-sample of individuals having a father with no college education

	violent crimes				property crimes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience father no college	0.0346***			0.0351***	0.0141***			0.0132**
	(0.01)			(0.01)	(0.00)			(0.00)
Factor2 father no college		0.0130		0.0005		0.0094		0.0010
		(0.01)		(0.01)		(0.01)		(0.00)
Factor3 father no college			-0.0152	0.0086			-0.0140	-0.0058
			(0.02)	(0.02)			(0.01)	(0.01)
Observations	2304	2304	2304	2304	2304	2304	2304	2304
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects reported. The value for *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience*, *Factor2*, *Factor3* are the factors obtained from the factor analysis with positive eigenvalues and are computed separately for individuals having a father with or without college education. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.17: Logit regressions for the sub-sample of individuals having a father with college education

	violent crimes				property crimes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience father college	0.0332**			0.0240**	0.0102			0.0159
	(0.01)			(0.01)	(0.01)			(0.05)
Factor2 father college		0.0409**		0.0316*		-0.0061		-0.0198
		(0.02)		(0.01)		(0.01)		(0.09)
Factor3 father college			0.0035	0.0025			-0.0034	-0.0131
			(0.02)	(0.02)			(0.01)	(0.04)
Observations	1312	1312	1312	1312	1312	1312	1312	1312
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects reported. The value for *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience*, *Factor2*, *Factor3* are the factors obtained from the factor analysis with positive eigenvalues and are computed separately for individuals having a father with or without college education. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.18: Logit regressions for the sub-sample of individuals having a mother with no college education

	violent crimes				property crimes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Impatience mother no college	0.0441***			0.0402***	0.0170**			0.0139*
	(0.01)			(0.01)	(0.01)			(0.01)
Factor2 mother no college		0.0108		-0.0023		0.0066		-0.0035
		(0.01)		(0.01)		(0.01)		(0.00)
Factor3 mother no college			-0.0356*	-0.0138			-0.0171*	-0.0091
			(0.01)	(0.01)			(0.01)	(0.01)
Observations	1932	1932	1932	1932	1932	1932	1932	1932
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects reported. The value for *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience*, *Factor2*, *Factor3* are the factors obtained from the factor analysis with positive eigenvalues and are computed separately for individuals having a mother with or without college education. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.19: Logit regressions for the sub-sample of individuals having a mother with college education

	violent crimes					property crimes				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Impatience mother college	0.0250***				0.0264***	0.0075				0.0083
	(0.01)				(0.01)	(0.01)				(0.01)
Factor2 mother college		-0.0051			-0.0119		0.0131			0.0205
		(0.01)			(0.01)		(0.01)			(0.01)
Factor3 mother college			-0.0377		-0.0482			0.0023		-0.0078
			(0.03)		(0.03)			(0.02)		(0.03)
Factor4 mother college				0.0790	0.1091**				-0.0197	-0.0292
				(0.09)	(0.04)				(0.02)	(0.03)
Observations	1684	1684	1684	1684	1684	1684	1684	1684	1684	1684
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects reported. The value for *Violent crimes* and *Property crimes* are equal to one if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience*, *Factor2*, *Factor3* are the factors obtained from the factor analysis with positive eigenvalues and are computed separately for individuals having a mother with or without college education. YEAR FE includes the year dummies for year 2008, 2009, 2010. CONTROLS include age and age squared, dummies for ethnicity, dummies for white collar and college education, dummies for macro-areas and for living in an urban area and income (log). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

A.4 Pearson Bivariate Correlations between Impatience, Proxies for Impatience, and Proxies for Risk

Table A.20: Correlation matrix with risk and self-employment

	Impatience	Selfemployed	Risk	Obesity	Saving rate	Smoking	Married	Drinking	Sex Partners
Impatience	1.000	0.008	-0.034	0.224***	-0.177***	0.450***	-0.163***	0.677***	0.551***
Self-employment	0.008	1.000	0.104**	-0.007	-0.025	-0.005	0.014	-0.012	0.032
Risk	-0.034	0.104**	1.000	0.011	0.030	-0.064	-0.070*	0.030	-0.053
Obesity	0.224***	-0.007	0.011	1.000	-0.036	-0.037	0.034	0.057*	0.024
Saving rate	-0.177***	-0.025	0.030	-0.036	1.000	-0.047*	-0.008	-0.019	-0.017
Smoking	0.450***	-0.005	-0.064	-0.037	-0.047*	1.000	0.023	0.057*	-0.014
Married	-0.163***	0.014	-0.070*	0.034	-0.008	0.023	1.000	-0.072**	-0.001
Drinking	0.677***	-0.012	0.030	0.057*	-0.019	0.057*	-0.072**	1.000	0.014
Sex Partners	0.551***	0.032	-0.053	0.024	-0.017	-0.014	-0.001	0.014	1.000

Notes: *Violent crimes* and *Property crimes* are dummies equal to 1 if there is at least a violent/property crime reported by the individual in the analysed period. *Impatience* is the measure obtained from the factor analysis imposing just one factor. *Self-employed* is the number of weeks in which the individual was self-employed in the past year and *Risk* is a measure of how risk-taker is the individual in general. Robust standard errors in parentheses. *Obesity* is a dummy equal to 1 if the BMI is higher than 30; *Saving rate* is the ratio between total savings and income; *Smoking* and *Drinking* are measured by the average number of cigarettes smoked in the past month and the average number of drinks consumed in the past month; *Married* is equal to one if the subject is married; *Sex Partners* is the number of sexual partners that the individual had in the previous 12 months. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

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