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BENEFICIAL EFFECT OF ADJUSTED SENTENCES ON RECIDIVISM IN FRANCE: INVESTIGATING THE HIDDEN ROLE OF THE JUDGE

Aline Désesquelles (INED), Annie Kensey (French Ministry of Justice), Laurent Toulemon (INED)

Abstract

Adjusted sentences may be considered as detrimental or favorable to former offenders' re-entry. According to the "labelling theory", alternative-to-incarceration sentences reduce recidivism because they are less stigmatizing than prison. The defenders of the "deterrence theory" consider that they are too soft to prevent people from reoffending. Results from the most recent study conducted in France, show that, after controlling for several characteristics of the former inmates, recidivism is significantly higher among those who had fully served a prison sentence than among those who benefited from an adjusted sentence. However, this does not prove a direct effect of these measures. Beneficiaries may be selected among offenders with lower risks of recidivism. Judges in charge of sentences execution also take into account the socio-economic environment the inmates will find upon release. In this study, we use a cohort built by the French Ministry of Justice (6,869 inmates followed over 5 years after release) to further investigate this issue. The database includes the information on the court in charge of the inmate's execution of sentence. We use the inter-court disparity in granting adjusted sentences to capture part of the unobserved heterogeneity between inmates and examine how it impacts on the link with recidivism.

Key words: Prison population; Recidivism; Adjusted sentences; Justice sentencing system; Unobserved heterogeneity; France

Résumé

Les aménagements de peine sont tantôt considérés comme favorables ou défavorables à la réinsertion. Selon la « théorie de l'étiquetage », les peines alternatives à la prison réduisent le risque de récidive parce qu'elles sont moins stigmatisantes. Les défenseurs de la « théorie de la dissuasion » estiment en revanche qu'elles ne sont pas assez dures pour dissuader de commettre une nouvelle infraction. L'étude la plus récente menée en France sur le sujet montre qu'une fois contrôlées plusieurs caractéristiques des anciens détenus, la récidive est significativement plus élevée chez ceux ayant effectué l'intégralité de leur peine en prison que chez ceux ayant bénéficié d'aménagements de peine. Ceci ne fait toutefois pas la preuve d'un effet direct de ces mesures. Ceux qui en bénéficient sont potentiellement sélectionnés parmi ceux ayant les meilleures chances de réinsertion. Les juges en charge de l'exécution des peines prennent aussi en compte l'environnement socio-économique que le détenu trouvera à sa sortie. Nous utilisons les données d'une cohorte constituée par le Ministère de la justice français (6 869 détenus suivis dans les 5 ans suivant leur libération) pour approfondir ces questions. Nous nous appuyons sur la disparité entre tribunaux de grande instance en termes de nombre d'aménagements de peine octroyés pour capter une partie de l'hétérogénéité non-observée entre individus et examiner comment cela modifie le lien avec la récidive.

Mots clés : Population carcérale; Récidive; Aménagements de peine; Système judiciaire; Hétérogénéité non-observée ; France

1. INTRODUCTION

1.1. Background

Between January 2002 and January 2018, the number of prison inmates in France increased by 42%, from 48 594 to 68 974. This dramatic inflation resulted in prison overcrowding: in the same time period, the prison population density increased from 101 to 115 per 100 places with the highest density in remand prisons (139 per 100). In order to alleviate prison overcrowding, alternatives to traditional custodial sentence that used to be exceptional (Tournier et Kensey 2000) have been developed. In this context, the debate about the penalties that are more effective to prevent recidivism – and as consequence, to avoid return to prison – has received growing interest. After a long phase of consultation, a law on “recidivism and individualization of sentences” that includes the inception of a new alternative sentence to prison (called “contrainte pénale”) was finally adopted in July 2014.

The theoretical framework behind this debate relies on three main lines of argument. According to the “deterrence theory” (Andenaes 1968), it is assumed that offenders’ behavior is driven by a rational calculation of the costs and benefits of criminal activity. As a consequence, sentences have to be harsh enough to divert them from reoffending. In contrast, the “labelling theory” (Schur 1971) highlights the potential adverse effects of imprisonment (criminogenic effects). Prisons are places where detainees are exposed to criminal subcultures: “*jails and prisons can be “schools for crime,” where offenders can learn more about their possible profession*” (Dejong 1997). In addition, spending time in prison provokes both a break in the people’s life and a stigmatization that have destructive consequences for reintegration release. Lastly, the “rehabilitation theory” (McGuire and Priestley 1995) emphasizes the necessity that sentences should not be punitive only, but help the ex-offenders in the transformation of self and life-style and prepare them to the adoption of law-abiding activities. In this light, alternative-to-incarceration sentences may be considered either as detrimental or favorable to former offenders’ sustainable reentry. For the defenders of the labelling theory, alternate sentences may reduce recidivism because they are less stigmatizing than prison, and they do not induce a break in the people’s life. For those who believe in the deterrence theory, alternate sentencing and rehabilitation is too soft to prevent people from reoffending.

In a 1974 paper, Tullock claimed that “*we have an unpleasant method -deterrence- that works, and a pleasant method -rehabilitation- that (at least so far) never has worked.*” Since then, a quite large body of literature has developed with the aim to assess these alternate methods. It is however difficult to draw general conclusions because studies differ in their definition of recidivism, in their setting (e.g. different countries) and in the type of measures (home confinement, probation, supervised bonds, community service, diversion, suspended sentences, etc.) that are compared with incarceration, not to speak about methodological problems that are not negligible. In fact, the literature review provides conflicting results, and no compelling evidence of neither a deterrent nor a criminogenic effect of imprisonment on future criminal behavior (Villetaz et al 2006, Cid 2009, Nagin, Cullen and Jonson 2009, Drago and Galbiati 2012).

Studies that provide some support to the deterrence theory usually show that things are more complicated than it sounds. Referring to previous works that contend that deterrence is a conditional phenomenon (Claster, 1967; Toby, 1957), Dejong (1997) tests the hypothesis that “*the effect of punishment may be contingent on the strength of ties to conventional society or*

experience in criminal behavior [...]. Those more strongly bonded to conventional society may be more easily deterred than experienced criminals". Results of this study provide partial support to a "short-term deterrent effect" for offenders incarcerated for long periods: longer incarceration predicts longer time until rearrest. But for arrestees with few ties and for first-time arrestees, incarceration increases the probability of reoffending. Along this line of criticism of the deterrence theory, Pogarsky (2007) distinguishes between present-oriented individuals that "highly discount future events and consequences" and future-oriented individuals: "future-oriented individuals should be more deterred by the delayed costs from crime than their present-oriented, and hence more criminally prone, counterparts". In a more recent study that takes advantage of quasi-experiments from the state of Georgia (US), Kuziemko (2013) estimates that "an extra month in prison reduces the probability that an inmate returns to prison within three years of his release by 1.3 percentage points". At the same time, this study provides support to the rehabilitative theory: "the hope of an early parole release incentivizes inmates to invest in their own rehabilitation and when such incentives are removed investment falls and recidivism rises".

Parallel to this, a number of studies have found that prison increases recidivism. Nirel et al (1997) compare recidivism over a period of 14 months among 407 offenders sentenced to service work to that of 950 comparable offenders sentenced to imprisonment in Israel. Their findings indicate that after adjustment for the differences between the two sanctions, "odds for recidivism among prisoners were to 1.7 times higher than the odds for service workers". Spohn and Holleran (2002) compare offenders sentenced to prison with offenders placed on probation in Jackson County (Missouri). They find that offenders sentenced to prison have higher rates of recidivism and recidivate more quickly than do offenders placed on probation. Interestingly, drug offenders sentenced to prison had the highest likelihood of recidivism. The authors suggest that "this might reflect the fact that for drug offenders imprisonment does not meet the central tenet of deterrence theory-that is, that the costs of punishment outweigh the benefits of the crime. The risk of being apprehended and sent back to prison, in other words, may not outweigh the benefits that offenders receive from using or selling drugs." In his study on recidivism in Spain, Cid (2009) finds that "offenders given suspended sentences had a lower risk of reconviction than those given custodial sentences." Drago and Galbiati (2012) examine the impact of prison conditions evaluated by prison overcrowding, number of deaths in prison, and degree of isolation, on future criminal behavior in Italy. They do not find evidence of deterrent effects of experienced prison severity. Instead, their analysis suggests that "harsh prison conditions increase post-release criminal activity, though they are not always precisely estimated". Similarly, Chen and Shapiro (2007), exploiting a discontinuity in the mechanism that assigns prisoners to security levels (and hence to prison conditions) in the US, concluded "that, if anything, harsher prison conditions lead to slightly higher recidivism rates". Lastly, in contrast with two literature reviews (Renzema and Mayo-Wilson 2005, Aos et al 2006) that concluded for no significant effect of electronic monitoring (EM) on recidivism, several studies find that this alternate measure to incarceration reduces recidivism. Marklund and Holmberg (2009) evaluate a Swedish program that allows prisoners to apply to electronic monitoring as long as they have an occupation and they accept regular sobriety controls. The authors find that participation in the program is associated with lower recidivism but they admit they cannot disentangle between the effect of EM *per se* and other elements included in the program. Di Tella (2009), using data for Argentina, compares the re-arrest rates of individuals in prison and individuals under electronic monitoring before trial. He finds "that the recidivism rate of former prisoners is 22% while that for those 'treated' with electronic monitoring is 13%." A local experiment in four French courts shows that

converting prison sentences into EM would result in a significant reduction in the probability of reconviction after 5 years (Henneguelle, Monnery and Kensey, A, 2016).

1.2. Adjusted sentences in the French judicial system

In the French judicial system, adjusted sentences include alternate measures to prison such as electronic monitoring, day parole, outside placement as well as conditional release. Since the law passed in November 2009, those eligible for an alternate measure to prison are those sentenced to one or several terms of detention totaling not more than two years or those who have less than two years of penalty remaining. This duration is reduced to one year in case of legal re-offending. Conditional release can be granted when the length of the completed sentence is at least equal to the sentence remaining to be executed. Alternate measures to prison may be pronounced by the judge in charge of the execution of the sentence (“Juge d’application des peines” or JAP) as a probationary measure for conditional release. With these adjustments, the judicial authority take account of guarantees of good behavior of the convicted person in order to shorten the length of imprisonment and to facilitate his reintegration upon release.

Electronic monitoring (EM) was adopted in 1997 and implemented in 2000. It involves fitting offenders with an electronic device, typically on the ankle, that is monitored remotely by prison officers who check that the individual is not violating a set of pre-established conditions. The most common of these conditions is to stay at home during certain pre-established periods. Still marginal in 2002 (235 between October 2000 and May 2002 according to Levy et al. 2003), around 10,000 people were under EM as of January 1st, 2016.

Day parole allows a sentenced person to leave the penal institution in which (s)he is hosted at arranged times allowing him/her to exercise a professional activity or training, to seek work, to undergo medical treatment, to participate in the life of the family or any other project of entry or re-entry into society. People receiving day parole must return the prison to the timetables set by the judge. 1,602 people were on day parole as of January 1st, 2016.

Outside placement may be implemented with or without the supervision of the prison administration. Placement outdoors without supervision allows the person to carry out activities outside the prison (employment, training, medical treatment, involvement to the family life or other proposed plan of integration or reintegration) under the control of the administration. The convicted person may, where applicable, be supported by an association affiliated to the prison administration. Judges determine the conditions of implementation of the measure on the basis of the offenders’ project (nature of the activity, schedule, support conditions, wage conditions). Placement outdoors under supervision of the prison administration allows also a detainee to perform work outside the prison. Work may be performed on behalf of an administration, a public body or possibly a physical or legal person. 847 people were on an outside placement as of January 1st, 2018. Among them, 570 were placed outside and not hosted.

In addition to these measures, inmates also benefit from automatic reduction of sentences that however can be withdrawn. The reductions of sentence allow inmates definitely sentenced to see their sentence reduced if they satisfied certain conditions, in particular a good behavior in custody. These sentence reductions are granted as part of a "credit of reduction", with the possibility of withdrawals if the inmate is misbehaving. For sentences longer than one year,

during the first year of incarceration, sentence reduction credit is three months, and then it is two months during the following years. For sentences of less than a year, it is seven days per month. Additional reduction of sentences can be granted for sentence longer than one year imprisonment. Additional reductions of sentences are three months per year and 7 days per month. For repeat offenders, they are only of two months per year and 4 days per month. All decisions concerning the reduction/withdrawal of sentences are made by the JAP.

Lastly, amnesties may be applied. It is a legislative measure described in articles 133-9 to 11 of the Criminal Code, and there is no limit to the acts potentially amnestied by the legislator. As opposed to pardons, amnesties expunge the sentences pronounced and put an end to all (not yet served) sentences. The last amnesty law occurred in 2007.

1.3. Most recent studies on recidivism in France

Several studies have been conducted in France in order to analyse the risk of recidivism of former inmates (Kensey&Tournier 1994, Kensey 2007, Kensey et al. 2011). They are based on a linkage between two sources. Firstly, a random sample of all inmates released during a given timespan is drawn from the “Fichier national des détenus” or FND (national file of inmates) where all persons in custody¹ at a given time are registered. This file contains basic socio-demographic and penal characteristics of the inmates at entrance as well as all the judicial decisions that occur during their detention. This file is merged with the “Casier Judiciaire National” or CJN (criminal history record) where all the sentences concerning a given person are kept during at least 40 years for prison sentences.

The most recent study concerns a cohort of 8,419 inmates released between June 1st, 2002 and December 31st, 2002 (Kensey and Benaouda 2011). New sentences registered in the “Casier Judiciaire National” in 2007/2008 have been searched, allowing studying recidivism within five years after release. The overall percentage of recidivism defined as receiving another custodial sentence was 46%. Recidivism was significantly higher among those who had fully served a prison sentence (56%) than among those who benefited from conditional release (30%) or from an alternative sentence to prison (47%). Kensey and Benaouda showed that recidivism within five years after release depends on gender, age, marital status, employment status, nationality, as well as on penal characteristics (offence type, number of previous convictions, sentence length, and way the sentence has been served). In their study, all these covariates had a significant effect on recidivism when considered altogether within a logistic regression. The results were insensitive on whether recidivism was defined as the occurrence of a new offence or as a new incarceration within five years after release. After controlling for these characteristics, the correlation between adjusted sentences and lower recidivism remained significant.

1.4. Aim of the study

This correlation at the individual level may result from a direct “causal” effect of the sentence adjustment that would be positive *per se* for former inmates’ re-entry in the society. But they

¹ People sentenced to a suspended prison term, to community service work or to judicial supervision are not included in this database.

may be due to heterogeneity between inmates that is only partially taken into account by the studies. In other words, the observed relation between penal treatment and recidivism may not be causal but reflect a “common cause”: beneficiaries of adjusted sentences are likely to be selected among offenders with the best odds for reinsertion. Here it is important to stress the important role played by the judges in charge of the execution of the sentences. These judges have access to detailed information on the inmates (e.g. behaviour while in prison). Their ability to successfully re-enter the society is taken into account for any decision of release, while the withdrawal of a sentence reduction is related to misconduct in prison, a proxy for more difficult reintegration. Judges’ decisions are discretionary, and it is worth mentioning that they may be more or less lenient or voluntarist regarding sentence adjustments.

Independently from the inmates’ profile, judges’ decision is also shaped by their knowledge of the context at large the inmates will find upon release. By context, we mean for instance the job and housing opportunities of the place where the inmates will be released, or the social workers and associations that will help them re-entering the society. This context may be more or less propitious to reinsertion, which, in turn, may impact on the judge’s practice: if, the judge has positive feedback on the context, (s)he will be more prone to give sentence adjustments, and at the same time, this favourable context should result in reduced risks of recidivism.

Given the importance of the judge in the decision making, authors (Kling 2006 ; Di Tella 2009) have proposed to take into account the information on the judge in charge of the execution of the sentence, or more precisely to use the inter-judge disparity in sentencing in the analysis of the link between penal treatment and recidivism. This disparity captures altogether unobserved individual heterogeneity, severity and attitude of the judge regarding adjustments, and effect of the context at large. The database built by Kensey et al. does not include the precise information about the judge in charge of the inmate’s execution of sentence but it includes the court (“Tribunal de grande instance” or TGI) (s)he is affiliated to.

The aim of the present article is to contribute to the debate on the effectiveness of adjusted sentences in order to reduce recidivism. We use the inter-court disparity in terms of penal treatment, once controlled for the observed individual characteristics of the former inmates, to capture part of the unobserved heterogeneity between inmates and examine how it impacts on the link between adjusted sentences and recidivism.

2. Data and method

2.1. Data

We use the same data as Kensey and Benaouda (2011). After eliminating missing records either in the FND or the CJN, this leaves a sample of 6,869 inmates released between June 1st, 2002 and December 31st, 2002. Weights have been computed to make this population representative of the all inmates released during the study period. Upon release, 1,995 inmates were benefiting from conditional release. In the cohorts under study, 1,011 inmates had been benefiting from another alternate sentence to prison. The rest of the study population (4,927 inmates) was released after executing the sentence in prison. Inmates incarcerated in a given prison fall under a specific court. We excluded from the analysis 32 courts where there were no more than 12 inmates in the sample (totalling 246 inmates) in order to limit random variations. The analysis is thus conducted on 6,623 inmates spread over 100 courts.

We define recidivism as any new custodial sentence within five years following release, no matter if the new offence is the same as the first one. Explanatory variables include offenders' background characteristics such as gender, age (deciles or 10-year age groups), and citizenship (France, Other European country, Northern Africa, Other African country and Other citizenship). We have access to several indicators of social bond (Dejong 1997) at entry such as marital status (Married couple, Non-married couple, Divorced or separated or widowed and Other never married), level of education (Illiterate, Elementary school, Lower secondary, Vocational, Upper secondary, Upper, Other level of education and Unknown), and employment status at entry (Employed, Unemployed and Inactive). The characterization of the individual criminal record includes the principal offence type (Homicide, Sexual crime and misdemeanour, Other violent crime, Crime against property, Voluntary violence (misdemeanour), Other violence/Public order, Other property offence, Swindle, Traffic offence, Violation of legislation on foreigners, Drug traffic and Drug use) and the number of previous convictions (5 classes). Other variables deriving from the data are sentence length (deciles) and pre-trial status (On custody vs. Not on custody) that may depend on both the presumed dangerousness of the person and the guarantees (s)he offers in terms of integration in the society. Lastly, we created five dichotomous variables (Yes vs. No) that characterize the penal treatment during the last imprisonment episode: 1- Presidential amnesty, 2- Automatic reduction of prison sentence, 3- Additional reduction of prison sentence, 4- Withdrawal/rejection of a reduction of prison sentence and 5- Conditional release/Alternate measure to prison. Table A1 in the appendix displays the distribution of the sample according to these variables.

2.2. Method

We use a two-step modelling strategy. First, we run five linear regressions to estimate the probability for each inmate to receive a given penal treatment. In these models, the dependent variables are the five above-mentioned dummies, and the covariates are the inmates' characteristics listed in the previous section. We estimate two series of indicators at the court level: 1- the mean of each penal treatment dummy and 2- the mean residuals of the five regressions, i.e. the mean difference between the observed and the predicted proportion of inmates receiving a specific treatment in a given court. Mean residuals indicate whether the treatment under study is more or less frequent than expected when controlling for inmates' observed characteristics. In order to estimate the heterogeneity between courts, we estimate the inter-court variance of these two sets of indicators. We standardize these variances by the overall binomial variance in order to compare the different penal treatments.

In the second step, we run a multilevel model estimating the risk of recidivism controlling for the inmates' observed characteristics (level: inmates) and the mean residuals of the five previous regression (level: courts) (see formulas in the appendix).

We expect withdrawal/rejection of a sentence reduction to be positively² related to recidivism at the individual level, with no major impact of at the court level. We expect conditional release/alternate measures to prison to be negatively related to recidivism both at the individual and at the court level, because of contextual effects that may facilitate both release and reintegration. Similarly we expect additional reductions to be negatively related to recidivism at the individual level. We do not have clear assumptions about the relation at the

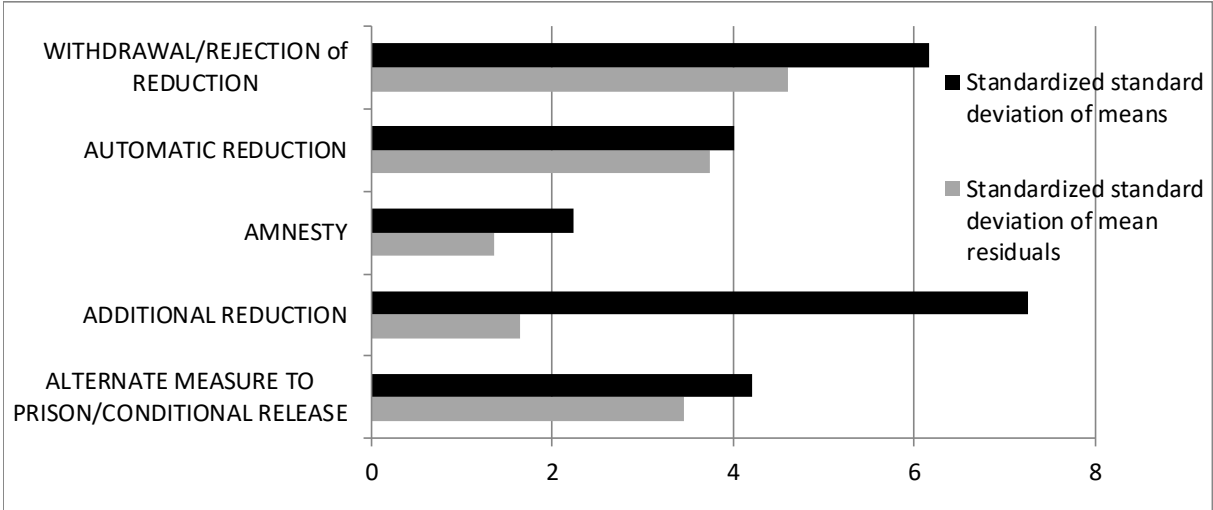
² By "positively" we mean that inmates who were withdrawn/rejected a reduction have higher risks of recidivism.

court level. On the one hand, additional reductions may be given more easily where prisons' overcrowding is especially high, which could be associated with less selection of the beneficiaries; on the other hand, they may be more frequently given where the environment is favourable for reintegration. Finally, we expect presidential amnesty and automatic reductions of prison sentence to have no impact on recidivism, both at the individual as well as at the court level.

3. RESULTS

From one court to the next, the frequency of withdrawals/rejections of reductions and additional reductions are the more varying (Figure 1, black bars). Controlling for individual heterogeneity (grey bars), the variance between courts is dramatically decreasing for additional reductions. Inter-court variations in terms of automatic reductions and conditional release/alternate measures to prison are the least dependent on individual features: residuals are very close to raw estimates. When controlling for the inter-court heterogeneity in terms of inmates' characteristics, the variance between courts is at lowest for amnesty and for additional reductions and at highest for withdrawals/rejections of reductions.

Figure 1: Standardized inter-court standard deviation of the means and the mean residuals of the five penal treatments under study

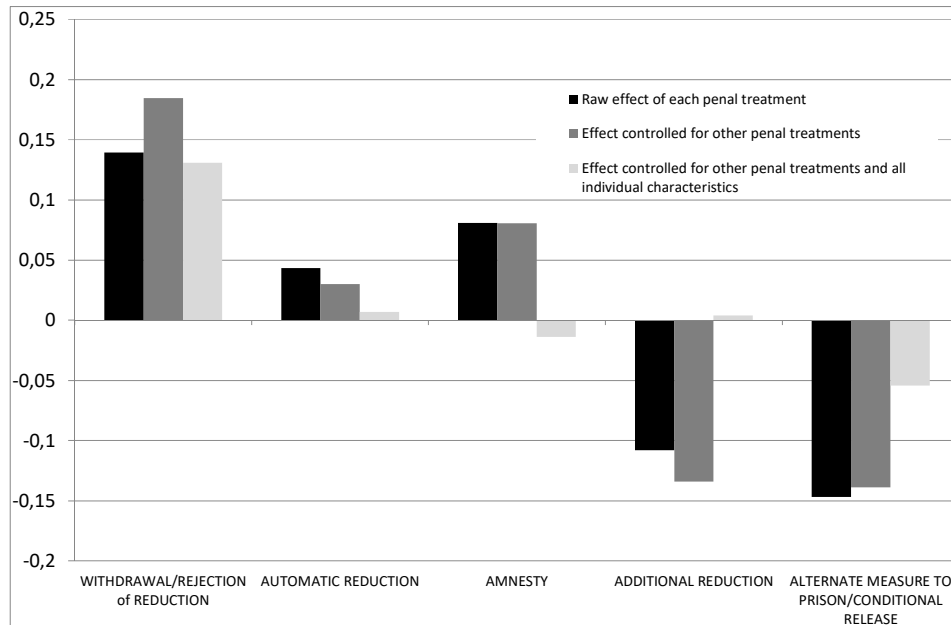


Source: French Ministry of Justice – 2002 cohort of released inmates

Before running the multilevel model, we evaluate the relation between the five penal measures under study and recidivism (Figure 2). For each treatment, the black bars present the raw difference between the inmates that received a given penal treatment and the others. Dark grey bars present the effect of each treatment when controlling for the fact that inmates may also have received another treatment. Light grey bars are based on linear regressions also including inmates' individual characteristics. Withdrawal/rejection of a reduction, automatic reduction and amnesty are associated with higher recidivism, contrary to additional reduction and conditional release/alternate measures to prison. Inmates who benefited from that measure have a 0.14 lower probability to reiterate than others. When controlling for other treatments, the direction of the effects does not change. Taking inmates' individual characteristics into account has however a major impact on the estimated relation between penal treatments and recidivism. The relation with automatic reduction, amnesty, and additional reduction vanishes. Only two penal treatments are significantly correlated with recidivism. On the one hand, inmates who benefited from a conditional release/alternate

measure to prison were less prone to reiterate, while those who were withdrawn or rejected a sentence reduction reiterated more often.

Figure 2: Impact of the five penal treatments on the probability to return to prison (results of the linear regressions)

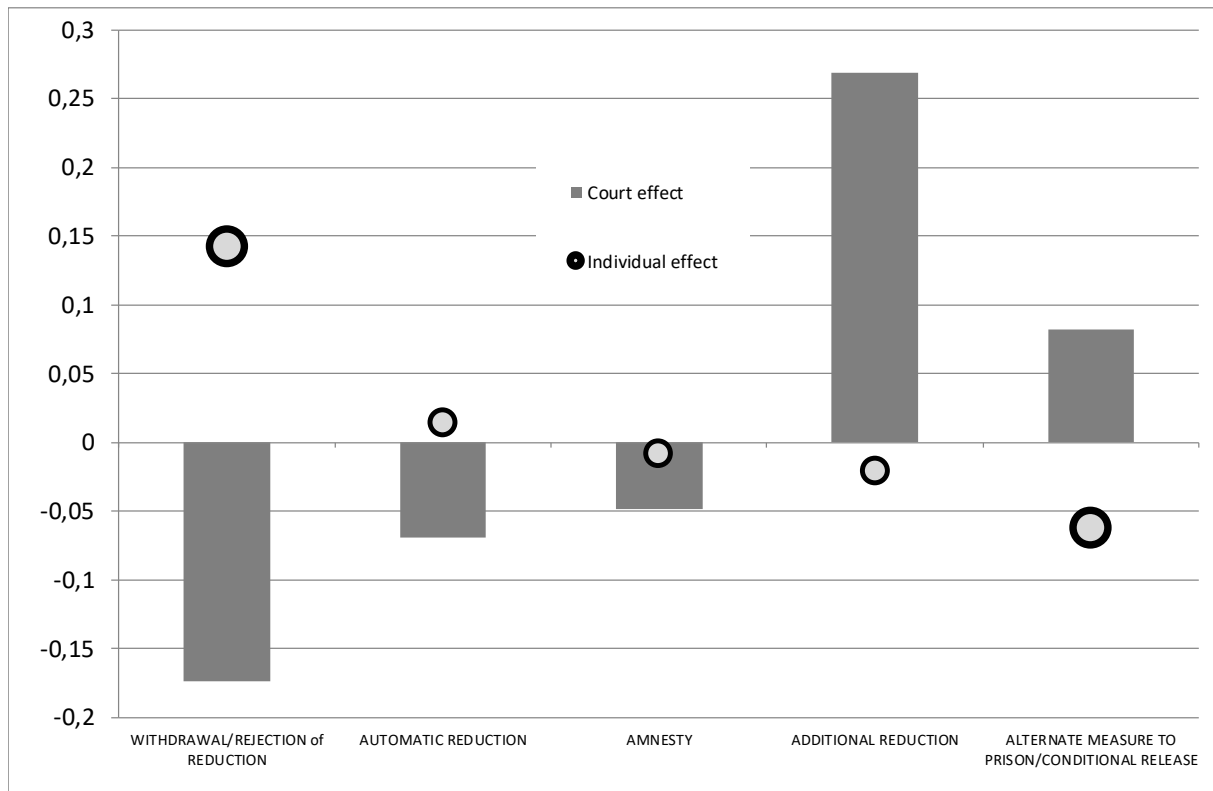


Reading: inmates who have experienced a withdrawal/rejection of a sentence reduction (first black bar) have a 14 percentage point increase in their probability to return to prison within five years; when all treatments are considered together in the same multivariate linear regression, the difference “controlled for other penal treatments” reaches 18% (dark grey bar); finally, when inmates’ individual characteristics are also taken into account, the difference is 13% (light grey bar)

Source: French Ministry of Justice – 2002 cohort of released inmates

Results of the multilevel model are shown on Figure 3. Dots correspond to the relation between each penal treatment and recidivism at the individual level. Compared to the results of the previous linear regressions, the impact of the five penal is unchanged. Inmates who were withdrawn/rejected a sentence reduction reiterated more often, while inmates who benefited from a conditional release/alternate measure to prison reiterated less frequently. The three other penal treatments do not have any significant effect at the individual level. The grey bars correspond to the court-level effects, and they are quite different from the individual-level effects. Courts where withdrawal/rejection of reduction is more frequent than expected, experience less recidivism than others. This effect is large and statistically significant (at the 5% level). Automatic reductions and amnesty are associated with less recidivism at the court level, but no contrast is significant. Regarding additional reductions, we find a large and significant effect at the court level: courts where additional reductions are more frequent than expected, experience more recidivism than others, while no contrast is visible at the individual level. Finally, courts where conditional release/alternate measures to prison are more frequent than expected experience more recidivism than others but the effect is not significant.

Figure 3: Individual and contextual impacts of the five penal treatments on the probability to return to prison



Reading: in a multi-level framework, when court effects are considered together with inmates' individual characteristics, inmates who have experienced a withdrawal/rejection of a sentence reduction (dots) have a 14 percentage point increase in their probability to return to prison within five years; at the court level, the contrast is reversed: inmates depending on a court where withdrawal/rejection of a sentence reduction are more frequent than expected have a lower probability to return to prison.

Source: French Ministry of Justice – 2002 cohort of released inmates

4. DISCUSSION

In this study we use a record linkage concerning a cohort of inmates released from French prisons in 2002 to investigate the relation between different penal treatments (conditional release/alternate measures to prison and sentence reductions) and recidivism within 5 years after release. Since the inmates' characteristics available in this database partially describe inter-individual disparity, we use the inter-court disparity in giving the aforementioned treatments to capture part of this unobserved heterogeneity and to evaluate a potential “contextual” effect in the judges' decision process.

Our assumptions about the relation between the different penal treatments and recidivism, both at the individual and at the court level are partially verified. As expected, we find no significant relation between presidential amnesty and automatic reductions of sentences on recidivism at both levels of investigation. Those who were withdrawn or rejected a sentence reduction significantly reiterated more often. Conversely, in line with the results obtained by

Kensey and Benaouda (2011), we find that, at the individual level, inmates who benefited from a conditional release/alternate measure to prison were less prone to reiterate.

For these two measures, and contrary to our assumptions, the relation with recidivism at the court level is opposite to that observed at the individual-level. As far as withdrawals/rejections of sentence reductions are concerned, the inverse relation at the court and at the individual level may reflect judges' selectivity: the more the number of withdrawals/rejections, the more they are refused to inmates who are not so "risky", and so the proportion of inmates who will return to prison will be lower. Similarly, the apparently "paradoxical" result observed for alternate-to-incarceration measures suggests that a higher number of alternate-to-incarceration measures reflects less selectivity of the judges rather than a more favourable context. So the more the number of conditional releases, the less selective the judge and so the highest the proportion of inmates who are likely to return to prison. A similar mechanism may be operating for additional reductions. However, our result may also reveal a contextual effect different from the one we anticipated. In a context of limited resources, more conditional releases may be associated with more difficulties for the social workers and the associations in charge of facilitating former inmates' reentry into the society, to work correctly and to find the appropriate resources. In the end, this could negatively impact on recidivism.

Our study has several limitations. First, the very different size of the courts may induce instability of the results. Secondly, we are not able to produce specific results for electronic monitoring because this measure was rare in the cohort of released inmates under study. Lastly, we did not have access to additional macro-level covariates at the court level. Information on associations helping former inmates after release or on prisons' overpopulation would help understanding what circumstances lead to lower recidivism.

In the end, we find some support for a positive effect of withdrawal/rejection of sentence reductions on recidivism, and a negative effect of conditional release/alternate measures to prison. Effects of the measures on recidivism at the court level tend to be opposite to that observed at the individual-level. We propose an explanation based on the assumption that inmates are heterogeneous, that judges know about this heterogeneity, and that they give the benefit of adjustments to the "best" inmates, those who have the best prospects for reintegration.

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Appendix

Formulas

Let

- i be the individual
- y_i be the probability of recidivism
- X_i be some individual characteristics
- Z_i the penal treatment (five dummies)

A first model, at the individual level, may be written as:

$$y_i = X_i\beta + Z_i\gamma + \varepsilon_i$$

We use a linear regression, in order to compare different regression models in a consistent way, based on the average marginal effects (as the grand mean of y_i is close to 0.5, a logistic regression gives very similar results).

We estimate court-level variables

- The mean value for each court of the dummies Z_i :

$$\bar{z}_j = \frac{1}{\text{Card}(J)} \sum_{i \in j} Z_i$$

- For each z_i we estimate the probability of each penal treatment from the individual characteristics X_i and the mean residuals at the court level:

$$z_i = X_i\beta + u_i$$

$$\check{z}_j = \frac{1}{\text{Card}(J)} \sum_{i \in j} u_i$$

- The vector of mean residuals is \check{Z}_j .

We run a multi-level model with court-level covariates (penal treatment residuals) assumed to have a linear effect on recidivism probabilities:

$$y_i = X_i\beta + Z_i\gamma + \check{Z}_j\delta + \varepsilon_i$$

Table A1: Characteristics of the sample (n= 6,869)

	Unweighed	Weighed
Female	12.1%	4.0%
Male	78.9%	96.0%
Average age at release (years)	32.1	30.8
CITIZENSHIP		
France	73.3%	72.9%
Other European country	9.1%	8.0%
Northern Africa	9.1%	11.3%
Other African country	5.1%	5.1%
Other	3.4%	2.8%
MARITAL STATUS		
Married couple	14.9%	11.4%
Non-married couple	15.0%	14.7%
Never married	60.7%	66.6%
Divorced/separated/widowed	9.4%	7.3%
EDUCATION		
Illiterate	4.4%	4.1%
Elementary school	22.6%	22.5%
Lower secondary	28.5%	28.4%
Vocational	23.2%	25.1%
Upper secondary	5.1%	4.4%
Upper	3.4%	2.3%
Other	3.6%	4.2%
Unknown	9.2%	8.9%
EMPLOYMENT STATUS		
Employed	33.4%	33.7%
Unemployed	21.0%	23.0%
Inactive	45.6%	43.3%

Source: French Ministry of Justice – 2002 cohort of released inmates

Table A1 (Continued): Characteristics of the sample (n= 6,869)

	Unweighed	Weighed
PRINCIPAL OFFENCE TYPE		
Homicide	4.4%	1.5%
Sexual crime and misdemeanour	14.3%	4.7%
Other violent crime	5.0%	1.7%
Crime against property	3.5%	3.3%
Voluntary violence (misdemeanour)	5.7%	8.2%
Other violence/Public order	3.3%	3.8%
Other property offence	28.5%	44.5%
Swindle	7.6%	3.4%
Traffic offence	6.5%	10.7%
Violation of legislation on foreigners	3.9%	5.7%
Drug traffic	8.5%	7.3%
Drug use	8.6%	5.1%
NUMBER OF PREVIOUS CONVICTIONS		
None	48.5%	37.8%
1	17.0%	17.0%
2	9.7%	11.6%
3 to 4	11.1%	13.5%
5 and over	13.7%	20.1%
Average sentence length (years)		
	2.5	1.4
PRETRIAL STATUS		
Not on custody	55.0%	63.4%
On custody	45.0%	36.4%
ALTERNATE MEASURE TO PRISON		
Daily release	10.6%	9.3%
Outside placement/electronic monitoring	4.1%	4.1%
None of these measures	85.3%	86.7%
CONDITIONAL RELEASE		
Yes	17.4%	6.1%
No	82.6%	93.9%

Source: French Ministry of Justice – 2002 cohort of released inmates