

Clash of norms

Judicial leniency on defendant birthdays¹

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Abstract

We document judicial leniency on defendant birthdays across 5 million decisions. French sentences are 1% fewer and 3% shorter. U.S. federal sentences are 33% shorter in the day component of sentences (the month component remains unaffected). New Orleans sentences are 15% shorter overall. No leniency appears on the days before or after a defendant's birthday. Federal judges using deterrence language in opinions, are unaffected, isolating the judicial as opposed to defendant channel. The effect is doubled when judge and defendant share the same race. Our courtroom setting rules out many models of social preferences with reciprocity motives.

1. Introduction

Individuals frequently have to evaluate others' productions, acts or personhood. In professional settings, those evaluations usually have to be done in an impartial way. Professors marking exams, loan officers evaluating demands, judges deciding cases are supposed to follow precise rules and to only evaluate some defined material. While they are supposed to be independent, surrounding norms could affect those evaluations. National or religious holidays, birthday of the evaluated person, birth or death of one of the person's relatives could change the evaluators' judgment.

In this paper we examine the effect of defendant's birthday on judicial decisions. This event is interesting for at least three reasons. First, birthdays are associated with a strong societal norm. Indeed, birthdays elicit expectations of favorable treatment for the individual whose birthday it is (Greene et al. 1987). For example, patients expect celebration on their birthday (Phillips et al. 1973), teachers use birthday parties to integrate refugees (Windzio 2015), and unmet expectations on birthdays are associated with suicide (Williams et al. 2011). Second, judicial decisions are associated with a very strong professional norm of independence from extrajudicial factors. Across different societies, various norms and institutional mechanisms are designed to limit the influence of extrajudicial factors: oaths to uphold duty to be impartial,

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disclosure of conflicts of interest, recusal from cases, random assignment to prevent judge shopping, ethics committees, appeals, transparency and accountability, tenure, and prohibitions on honoraria, political speeches, or campaign donations. These professional norms are supposed to mute personal and general societal norms. Third, as judicial decisions dates are usually set in advance and follow precise rules (for organizational purposes), birthdays are orthogonal to cases characteristics, as the statistical tests confirm. Then, defendant's birthdays present a good setting for measuring if and how professional norms mute social norms.

Using two different countries, France and the U.S., we show that deciding cases on defendant birthdays is likely to be effectively random. The two countries provide independent evidence across a very large sample size of decisions. Each country offers unique advantages in terms of data analysis that taken together portray a compelling picture of judicial leniency on defendant birthdays.

First, we test whether French judges are more lenient on defendant birthdays. The French court setting offers administrative data on 4.6 million decisions where proceedings begin with opening statements by the judge stating the identity and birthday of the defendant.² The setting is also convenient because there are no sentencing guidelines (only a maximum far above the pronounced sentences) and they are usually decided through trial (there is a limited plea bargaining mechanism). We estimate that judges are 1% less likely to assign any prison sentence to defendants on their birthday if they appear in court. This effect appears throughout the distribution, except at the very top. Having a decision on one's birthday reduces the sentence by 4 days out of an average total sentence length of 127 days (a 3% shorter sentence). The effect seems at least partly driven by the fact that the birthday defendants are convicted of a less severe crime, a proxy for partial acquittal or re-qualification in court, effectively amounting to a shorter maximum sentence length of 27 days out of 1,283 (a 2% reduction).

Second, we test whether U.S. judges are also more lenient on defendant birthdays. The federal district courts offer controlled conditions on 600,000 decisions in which cases are randomly assigned to a single judge. In addition, sentences of more than a year are eligible for sentencing reduction, so we can observe whether judges assign birthday sentences to exceed the one-year threshold. We find that the day component of federal sentences is reduced by 33% (0.13 days out of an average 0.36 days) on birthdays except when the month component is 12.

Third, the characteristics of the samples allow us to dig into the mechanisms. We find that the effect of defendant's birthday is probably intentional rather than due to behavioral biases as it is more present when judges have more time to take decisions. We also find that it seems to increase with judges' discretion. Simple cases that are routinely decided are less affected than more complex cases.

Lastly, we find that the effect varies with judges' characteristics and experience. First, in U.S. federal district courts, where we observe race, we find significant birthday leniency only if the judge and defendant share the same race. Second, using a small sample of 90,000 decisions in New Orleans courts, where judges are deemed to be less professional (elected) than the federal district court judges (appointed by the U.S. President and confirmed by the Senate), we find that the birthday effect can be large, representing up to 15% of the sentence, consistent with professionalization reducing some of the societal norm. On the contrary, highly professional and independent French appeal court judges are not affected by defendant's birthday. Third, in

² Article 406 of the criminal code says that the judge starts the trial by verifying the identity of the defendant, which basically means first name, last name and date of birth.

U.S. federal district courts, where we observe judicial writing in unrelated cases, we can see that economics thinking eliminates the birthday effect, as reflected in their opinions in civil cases, which highlights the judicial channel for these effects.

Altogether, we show that birthday leniency in two different countries is unrelated to the quality or merits of the case considered. We exploit high-frequency variation from birthdays, which are defendant-specific. Consequently, the decision-maker has no other reason to be affected by the current day. We test whether coordination (a societal signal), like birthdays, can bias high-stakes decision-making in real-world or field settings such as those involving judges making decisions in their primary occupations. Our analysis also differs from the existing literature on coordination in that most of the existing literature does not have random assignment or large samples (Greene et al. 1987, Phillips et al. 1973, Windzio 2015, Williams et al. 2011).

Our setting with life-tenured judges not likely to interact again with the defendant rules out many models of social preferences with direct reciprocity motives (Sugden 1984) and psychological games involving preferences over the beliefs of recipients (Battigalli et al. 2007). For example, the judge is neither expecting a gift from the defendant in return, nor is the defendant forming beliefs about the judge to make an action that affects the judge. Societal norms to generate benefits for society at large has been linked to indirect reciprocity norms that overcome the prisoner's dilemma and individual-level cost-benefit analysis. Our setting involves two very distinct groups, as the probability a judge lives in the same neighborhood as the defendant is small. Our finding that judicial in-group favoritism increases with defendant birthdays echoes Shayo and Zussman (2011)'s finding that judicial in-group bias increases after terrorism.

Our research also contributes to the sizable psychology literature using vignette studies of small samples of judges that suggest unconscious heuristics (e.g., anchoring, status quo bias, availability) play a role in decision-making (e.g., Guthrie et al., 2007). In addition, our results contribute to the theoretical literature on decision-making, e.g., Bordalo, et al. (2014), which models how judges can be biased by legally irrelevant information.³ Our analysis differs from the existing literature on extraneous factors in legal outcomes in that our setting offers greater control over omitted case characteristics (Danziger et al. 2011; Weinshall-Margel et al., 2011), isolates mechanisms via the judicial decision-maker making rather than the lawyers or litigants (Eren and Mocan. 2016) or jurors (Anwar et al. 2012; Philippe et al. 2017), and does so with a sample size far larger than previous studies of behavioral judging.⁴ All three features also are missing in a study of police stops of drivers (Moore et al. 2016).

These effects are very significant for the affected defendants, which raises questions about other margins of behavioral change not observed by the econometrician and whether professional norms are enough to mute social norms. Whether society wants judges to be lenient on defendant birthdays is an open question, though gift giving to defendants who share the same race is arguably already prohibited. The rest of the paper is organized as follows. Section 2 presents the data and setting. Section 3 presents the identification strategy. Section 4 presents the results. Section 5 presents mechanisms. Section 6 concludes.

³ See also research on the effect of football games and weather (Chen 2017; Chen and Loecher 2018), on the effect of political orientation of the judges (Anwar et al 2015), examining the effect of presidential elections (Berdejo and Chen 2017), examining the effect of the gambler's fallacy (Chen et al. 2016).

⁴ Our sample of 5 million exceeds the next largest sample of 1.5 million (Chen 2017).

2. Data and setting

2.1. France

We focus on crimes that can be punished by prison sentences of up to ten years.⁵ This criminal category – called “délits” in French – contains the vast majority of what is commonly perceived as crimes: theft, violence, drug consumption or drug dealing, and road-related offenses. Our time frame from 2002–2014 covers 320,000 and 500,000 convictions per year in the 186 courts of first instance (non-appeals).⁶

What is called “prison” in the French criminal code is the sum of real prison sentence, prison following probation sentence if probation is given, and suspended prison i.e. the maximum amount of time a person could spend in prison because of the crime). Suspended prison is time that is added to the next sentence if the same crime is committed within five years. Maximum sentences are generally substantially longer than actual sentences.⁷ ⁸ Probation sentences will be defined by the prison sentence people get in case of violation of their probation⁹. In this paper we will mainly analyze the sum of those sentences.¹⁰ These sentences are decided after a trial.¹¹

The correctional courts (for misdemeanor) are composed of three professional judges: one “president” that leads the hearing and two assistants.¹² Judges have no control over their schedule. For each case, when the investigations are finished, the prosecutor in charge of it chooses the type of procedure (accelerate/normal) and, based on this, picks the next session of the relevant type. The head of the court decides, in the beginning of the year, the number and type of audiences per week.

The original dataset is a compilation of criminal records from the statistics service of the French Ministry of Justice (Sous Direction de la Statistique et des Etudes). It contains a detailed description of every criminal case judged each year, including the date, place, and procedural detail of the trials, the date the defendant is notified of the sentencing decision (frequently identical to the trial date if the defendant is present), the date of the crime (if known), and its

⁵ There are two additional categories: minor infractions that cannot be punished by prison (e.g., parking infractions) and the most severe crimes (“felonies”) – e.g., murder and rape – that can be punished by up to life imprisonment and are judged by specific courts.

⁶ Juveniles are judged by specific courts. They are dropped in the analysis.

⁷ For example, in 2003, among offenders convicted for a crime that could be punished by up to ten years, 49% actually received no prison sentence and 95% of the remainder received a sentence less than or equal to 4 years.

⁸ Sentences are supposed to be chosen “according to the circumstances of the crime and the offenders’ personality (...) in order to protect society, to punish the offender, to protect victims’ interests and in order to promote offender’s rehabilitation and to avoid new crimes” (art. 132-24 of the criminal code, change into art. 130-1).

⁹ Probation lengths are not recorded in the database.

¹⁰ They are not unrelated as the sum of the three should not exceed the maximum defined in the penal code. However, as mentioned previously, this not a strong limitation in reality.

¹¹ An exception is for plea-bargaining, which was introduced in France in March 2004. It could only be used for a subset of crimes – those with a maximum prison sentence below or equal to five years – and sentences could not exceed one year. Plea-bargaining has never exceeded 12.5% of case resolutions in a year since its introduction.

¹² For minor crimes, the French criminal code allows an accelerated procedure that is similar to the normal one except that the investigation term is extremely short (less than a week). The prosecutor conducts the investigations – and eventually imposes pre-trial detention (another judge controls this decision) – chooses the charges and goes for an accelerated procedure if it seems appropriate.

exact category based on the criminal code, the sentence decided (e.g., prison, probation, and suspended prison), and, finally, sex, nationality and birth date of the defendant.

We use the years 2002-2014 and our final dataset is composed of 4,608,209 observations.¹³ The descriptive statistics of this data set are presented in the first two columns of table 1. Defendants are mainly male (90%), French (81%), and relatively young (33 years old on average). Plea-bargaining is rare (only 11% of the cases) and defendants are usually present at trial (78% of the cases). Road-related infractions are the most frequent crimes (32%) followed by property crimes (26%), violence (20%), and drug offenses (9%). Lastly, sentences are short compared to those in the United States. It is on average equal to 127.2 days (57.9 prison days, 36.7 probation days, 32.6 suspended prison days). The first number that is mentioned by the judge is the maximum amount of time the defendant could spend incarcerated following the decision, i.e., the sum of the prison, probation, and suspended prison sentence.¹⁴ 72% get sentences that could lead to prison. Lastly, people have trials on their birthday 0.27% (1 out of 365) of the time, which is what we would expect with an even distribution of trial days across birthdays.

2.2. USA.

The United States District Courts (USDC) are the judicial backbone for hearing and sentencing federal crimes in the United States. Federal crimes include illegal activity committed on federal land, crimes committed by or against federal employees in particular roles, matters involving federal government regulations (e.g., illegal immigration, federal tax fraud, counterfeiting), or crimes against the U.S. that occur outside of the United States, such as terrorism. Federal crimes comprise 8% of the US prison population and constitute the most serious crimes. Among federal crimes, the most frequently heard cases involve immigration, drug trafficking, firearms, and fraud.

In almost every case, the defendant enters a plea agreement with the prosecutor, which is then approved of, or denied, by the judge. Otherwise, a sentencing trial is held, and the judge determines the sentence for the criminal to serve: probation, federal prison, or both. In either situation, the judge has final say on the criminal sentence. However, as an agreement is frequently settled before the decision, we expect the effect of birthday to be more limited than in France where judges have more discretion.

Judges have some control over their schedule. They mainly determine the days when they want to hear cases or discuss plea agreements. Once the schedule is determined, their courtroom deputies fill the calendar with cases.¹⁵ Then, if selection based on birthday is, in theory, possible, the schedule is strongly constrained – postponing a case means a delay of several weeks – and the concrete allocation of the case is not done by the judge himself. This organization makes the selection on birthday unlikely.

¹³ 1.5 million cases are excluded from the analysis as they could not lead to any prison time (“compositions pénales” and “procédures simplifiées”)

¹⁴ For example, “3 years of imprisonment, of which 2 suspended” would mean a sentence equal to one year of prison and two years of suspended prison.

¹⁵ According to a judge we talked with: “Most judges will set a bunch of things back to back on a given day – guilty plea, sentencing, supervised release or probation violations, etc. One judge hears criminal matters only 1-2 days a month. Others have criminal calendars much more regularly. The judges set things according to their own calendars and then their courtroom deputies notify us of the dates. (If we have a conflict, we have to file a motion to continue.)”

Importantly for our study, offenders are eligible to get good time credit if they are sentenced to more than a year, i.e., to at least one year and one day. Then, one-year plus one day sentences could be considered as less severe than one-year sentences, as the maximum amount of good time earned can reduce a one year and one day long sentence by 54 days.

There are 94 district courts in the United States. At least one district court is located in each state or U.S. territory. States that are large or have a large population have sub-state regional courts. Cases are randomly assigned to a single judge. The United States Sentencing Commission (USSC) produces the sentencing guidelines for federal judges to use when they make their sentencing decisions. The judges are given a guideline range for the criminal sentence that is based upon the severity of the crime and the defendant's criminal history. Due to these guidelines, the largest factor determining sentence range is the criminal charges brought to the judge by the prosecutor.

We use the period from October 1991 to September 2003 and our final dataset is composed of 602,908 observations. Descriptive statistics are presented in the last two columns of table 1. Offenders are 35 years old on average and they are mainly male (85%) and US citizens (70%). Black and white offenders are equally numerous – around 34% – while Hispanic are slightly less numerous (29%). Only 7% of defendants go to trial. Prison sentences are divided into a month component, on average equal to 45 months, and a day component, on average equal to .36 (6% of cases have sentencing days exceeding 0). 56% of the day components that are not equal to zero are equal to one. 80% of those “one-day parts” are associated with 12 months sentences leading to one year plus one day sentences, the minimum sentences that make offenders eligible to good time credits. Lastly, offenders are sentenced on their birthday 0.28% of the time, again roughly 1 in 365.

We also examine a small sample of 87,319 decisions in New Orleans courts. New Orleans is the largest city and metropolitan area in the state of Louisiana. The Orleans Parish District Attorney’s Office and the New Orleans District Attorney (NODA), and their attorneys, are responsible for enforcing state criminal laws in New Orleans and surrounding areas. In January 1988, the Orleans Parish District Attorney established and instituted an office-wide computerized system to collect data on every case that was processed through the office. The data collection system was designed as an internal office management tool. Our data spans from 1989 to 1999. The dataset includes detailed information regarding each individual offender and the judge that handled his or her case. Once the cases went to the court, they were randomly assigned to a court section by the clerk’s office.¹⁶ Each section is composed of a single judge.

3. Identification strategy

In order to measure the effect of defendants’ birthday we use regressions of the form:

$$Sent_{i,t} = \beta_0 + \beta_1 \mathbb{1}_{bday=t} + \beta_2 \mathbb{1}_{|Bday-t|=1} + \beta_3 \mathbb{1}_{|Bday-t|=2} + \beta_4 \mathbb{1}_{WeekBday} + X_i + \epsilon_{i,t}$$

¹⁶ The Orleans Parish rule was written as follows: “All cases pending in the criminal district court shall be allotted equally among Sections A, B, C, D, E, F, G, H, I, and J of the court. Except on Sundays, legal holidays, and legal half-holidays, the allotment of cases shall be made publicly by classes daily at noon by the clerk or a deputy clerk selected by him, in the presence of the district attorney. The fact the accused was committed for trial at a preliminary examination shall not be grounds for the recusal of the trial judge who held the preliminary examination.” 1991 La. R.S. 13:1343.

where:

- $Sent_{i,t}$ is the sentence pronounced against i at t . It is measured as the total sentence (in days, day winsorized¹⁷, or with threshold dummies) in France; the number of months, number of days, or departure from guidelines in the U.S. federal district courts; or the number of days in New Orleans courts
- $\mathbb{1}_{bday=t}$ is a dummy equal to one if the decision is taken on defendant's birthday
- $\mathbb{1}_{|Bday-t|=1}$ and $\mathbb{1}_{|Bday-t|=2}$ are dummies equal to one if the decision is taken on one (respectively, two) days before or after defendant's birthday
- $\mathbb{1}_{WeekBday}$ is a dummy equal to one if the decision is taken in the week of defendant's birthday
- X_i is a set of control variables (used in the robustness checks): crime category, gender, citizenship, plea, recidivist. In the French data and the U.S. federal district data, we can add day-of-year fixed effects. In the latter, we can also add education, age, race, judge as dummy indicators.

In this regression, β_1 is the parameter of interest. β_2 , β_3 and β_4 are expected to be 0.

This strategy is valid only if birthdays are orthogonal to decisions. We have argued that it is most likely true for procedural reasons. Moreover, the proportion of decisions taken on defendant's birthday represents exactly 1/365. In order to further investigate this question, we also run balancing checks, i.e., regressions of the form presented in equation 1 with socio-demographic characteristics or procedural variables as outcomes. Those exercises are presented for both France and the U.S. in Table 2. They confirm that birthday is not correlated with observable characteristics. Panel A shows that 1 out of 8 tests are significant at the 10% level for France and Panel B shows that none of the 7 tests are significant at conventional levels.

4. Main results

4.1. France

Figure 1.a. shows that the average sentence length declines for birthday sentences, but not for trial days on days other than the defendant's birthday. Table 2 presents our baseline specification. Column 1 indicates on defendant birthdays, the likelihood of receiving any sentence falls by 1%. Column 2 shows that sentences of longer than 6 months are also 1% less likely. Column 3 shows that the birthday effect becomes insignificant for sentences longer than 12 months. This means that sentences are shorter throughout the distribution except at the very top, since the average sentence length is 127 days. Column 4 shows that the number of days is reduced by roughly 4. Column 5 presents similar estimates where the sentence length is winsorized at the 5% level. No significant impact appears for the placebos. The standard errors indicate that these coefficients are similarly precisely estimated, but the point estimates are a magnitude smaller than the birthday effect.

We then explore the mechanisms. Column 6 of Table 2 shows that defendants are 1% more likely to be present or represented by their lawyers on their birthday. If we restrict to the defendants who are present or represented (as obliged), the birthday gift increases to 6.4 days in Column 7, but there is no gift for defendants who did not answer to the court's summon in

¹⁷ We winsorize at the 5% level, meaning we replace the outliers exceeding the top 5% with the 5% threshold value.

Column 8. The point estimate is in the opposite sign, and the sample size is large. This distinction suggests that it is not the scheduler who selects cases more deserving of shorter sentences for trial dates coinciding with the defendant's birthday, because the absent defendants do not receive shorter sentences.

Column 9 shows that part of the mechanism appears to be that judges convict defendants of a less severe charge, finding them guilty for a crime that has on average 27 day-shorter maximum sentence length¹⁸, a proxy for partial acquittal or the court requalifying the defendant's crime. The average maximum sentence length is 1,283 days. In the appendix, we show that the results are robust to perturbations of the main specification - removing controls, adding controls for case and defendant characteristics, dropping crimes conducted on defendant birthdays, or adding day fixed effects in Table A1. In Table A2, we show that drug offenses—but not violent offenses—benefit from the judicial leniency. In Table A3, we report larger effects for male defendants and non-citizens.

4.2. USA

Figure 1.b. shows that the number of days in a federal sentence declines on the defendants' birthday, but not the days before or after the birthday. In Table 3, Column 3, we present results for the baseline specification and find that judges are assigning 0.13 fewer days if the decision occurs on the defendant's birthday, all else equal. The effect of 0.13 is about one-third the average number of days (0.36). Columns 1 and 2 show that there is no impact on downward departures from the guideline nor on the month component of the sentence. We also see no impact on the days before or after the birthday. In the appendix, we show the results are robust perturbations of the main specification, removing controls or adding controls for case and defendant characteristics, judge fixed effects, or day fixed effects in Table B1.

However, as we previously mentioned, the meaning of the days component of the sentence differs depending on the month component it is associated with. While having some days in addition to the months is usually harsher, it is not the case if the month part is equal to one year, when having one day instead of zero make offenders eligible to get good time credit. In order to further investigate the effect of birthday on the day component of the sentences we split our sample into offenders sentenced to 12 months and other offenders. The probabilities to get at least one day around birthday for those two subsamples are presented in Columns 5 and 6. A clearer pattern emerges. While the probability to get any days is smaller (by 33% of the average likelihood to receive any amount of days) when the month component is not equal to 12, it is higher when the month part is equal to twelve. Then, in both cases, sentences seem more lenient on birthday. Column 7 shows an insignificant decrease in the day component of sentence lengths when the month component is equal to 12.¹⁹ The placebo coefficients are again far smaller and also insignificant. In Table B2, we show that property offenses—but not drug offenses—benefit from the judicial leniency. We also report larger effects for those who do the

¹⁸ As mentioned in the introduction, this maximum is defined, for each crime, in the criminal code.

¹⁹ We check if this is due to judges shifting sentences in the region between 10 months and 8 days (sentences equal to 12 months plus one day are eligible to 54 days reductions i.e. could be equal to 10 months plus 8 days) to 12 months to the region above 12 months. We find that 0.22% of sentences have a birthday in the region, while 0.31% of sentences in the region above 12 and 13 months have a birthday.

normal procedure and plea guilty and for those who are male (Table B3).

5. Mechanisms

5.1. Thinking fast or thinking slow

We first want to understand if the effect of the norm is a behavioral bias – close to what could be observed with events affecting a judge’s mood – that could be eliminated with nudges or longer deliberation, or if it could be intentionally taken into account. In order to discriminate between those two hypotheses, we measure the effect of birthday depending on the time taken by the court to decide the case. If birthdays affect decisions taken in a very short time it will support the idea of a behavioral bias. On the contrary, if birthdays mainly affect decisions taken when judges have time to decide, it will be in line with a more intentional mechanism.

We use two instruments to measure the time judges take to decide the case. First, we use the caseload at the individual level (USDC) or at the court level (France). Second, in France, we compare decisions taken under an accelerated procedure or under a normal procedure. Accelerated procedure is a legal mechanism to ensure only a short delay between the crime and trial and is used for reasonably simple cases. This procedure is well known for inducing overcrowded sessions and very short hearing of the cases (Christin 2008).

The results are presented in Table 5. Columns 1 and 2 present the effect of birthdays when caseloads are above or below the median (respectively). In both France (Panel A) and the USDC (Panel B) the effect is only significant when the caseload is smaller than the median. Columns 3 and 4 present the results for accelerated and normal procedure (respectively) in France. The effect of birthdays in accelerated procedure is not significant even if the coefficient is in negative and sizable.²⁰ Taken together those results support the idea of an intentional effect.

5.2. Judicial discretion

The second exercise we run aims at identifying the types of cases that are affected by birthday norms. Different hypotheses could be made here. First, it is possible that all types of case benefit from the birthday effect. Second, the effect could be restricted to common cases that are quite simple to determine – and for which judges simply cut part of the sentence – while for more complex cases the birthday effect is swamped by other considerations. Lastly, the effect could be restricted to complex cases for which the discretion of the judge is higher, while simple cases are strongly restricted by courts’ regular practices.

In order to address this question, we regress sentences on the observables (socio-demographic characteristics and types of crime), extract the coefficients and create a predicted value of the sentence. We then measure the absolute value of the distance between a decision and the predicted decision for the same case. Finally, we measure the effect of birthday on decisions above or below the median in term of distance to the predicted sentence. Our hypothesis is that

²⁰ If we use a dummy equal to one if the defendant gets at least one day (instead of the number of days) the coefficient of birthday under accelerated procedure is positive and not significant. The coefficient for normal procedure remains negative and significant (result not shown).

cases that are further to the predicted sentence are more complex, ambiguous cases that could not be simply understood with the observable variables.

The effect of birthday on those two types of case is presented in Table 5, Columns 5 and 6. In France (Panel A), the effect of birthday is twice as large for cases that are further from the predictions. In The US, the effect of birthday is only significant for cases further from the prediction. Taken together, those results are consistent with the idea that birthday have more effect when judges' discretion is higher.

5.3. In-group bias

In the US district court data, we have the judicial identity, which allows further exploration of the effect depending on judges' and defendants' characteristics. Table 6 Columns 1 and 2 examine the role of in-group bias. Column 1 shows that individuals who share the same race as the judge receive fewer sentencing days. However, the effect is multiplied by 4 when it is the defendant's birthday. The level term of the birthday effect indicates that it is largely driven by same-race gift-giving.²¹ Column 2 finds no in-group effects when it comes to gender with or without the birthday sentences.

5.4. Judges' experience and deterrence thinking

Lastly, we measure how experience and training affect how birthday is taken into account. We first measure the effect in two types of court composed of either extremely selected judges or less professional ones. In Table 6, column 3, we measure the effect of birthday in French appeal courts. Judges sitting in those courts are strongly selected and their promotion should be validated by a national independent commission (the "Conseil Supérieur de la Magistrature"). We do not observe any birthday effect in those courts. This null result could be explained by several mechanisms – especially the fact that an anchor has been settled at the first trial – but it is consistent with the idea that more professional judges are not affected by birthday. However, we suspect anchoring is less likely the explanation since U.S. district judges have sentencing guidelines as anchor their decisions, yet are still affected by defendant birthdays.

For contrast, in Column 4, we use data from criminal courts in New Orleans Parish. Those courts are characterized by less professional judges who run for election in comparison to U.S. federal district court judges, who are appointed with life tenure by the U.S. President and confirmed by the Senate. The effect of birthday appears to be very large, decreasing the sentences by 86 days (-14.6%). No significant impact appears for the placebos.²²

Lastly, in Column 5, we measure how judicial thinking changes the effect of birthday. We investigate this question by using the presence of deterrence language in civil cases, a proxy for economic thinking. Judges below-median in economics thinking are affected by birthdays, decreasing the days component by 0.17, while those above-median in economics thinking are

²¹ The sample size is reduced in this Table because we do not have the judge identity in every case.

²² Robustness checks of this result are presented in Appendix D table D2, where we perturb the specification.

essentially unaffected by birthdays.²³ This result highlights the judicial channel as any behavioral change by the litigant would be present in both sets of judges.

6. Conclusion

We document strong birthday effects on decision-makers, unrelated to the quality of cases in French and U.S. courts. We find consistent evidence with many common links across the two countries. The judges find ways to be more lenient on defendant birthdays. We show that the birthday effect is more consistent with gift giving. We can rule out general mood effects and reciprocity concerns that motivate typical models of gift giving. Beyond the three court settings we study, our findings could have broader implications. Almost all individuals make decisions embedded in everyday life. Our results suggest that social norms transmitted through rituals can perversely lead to unfair or incorrect decisions in important situations even when professional norms have been designed to mute them.

²³ Data on deterrence language comes from Ash et al. (2017), which documents the spread of the concept of deterrence in the federal judiciary. A description of how the measure is constructed is in the appendix.

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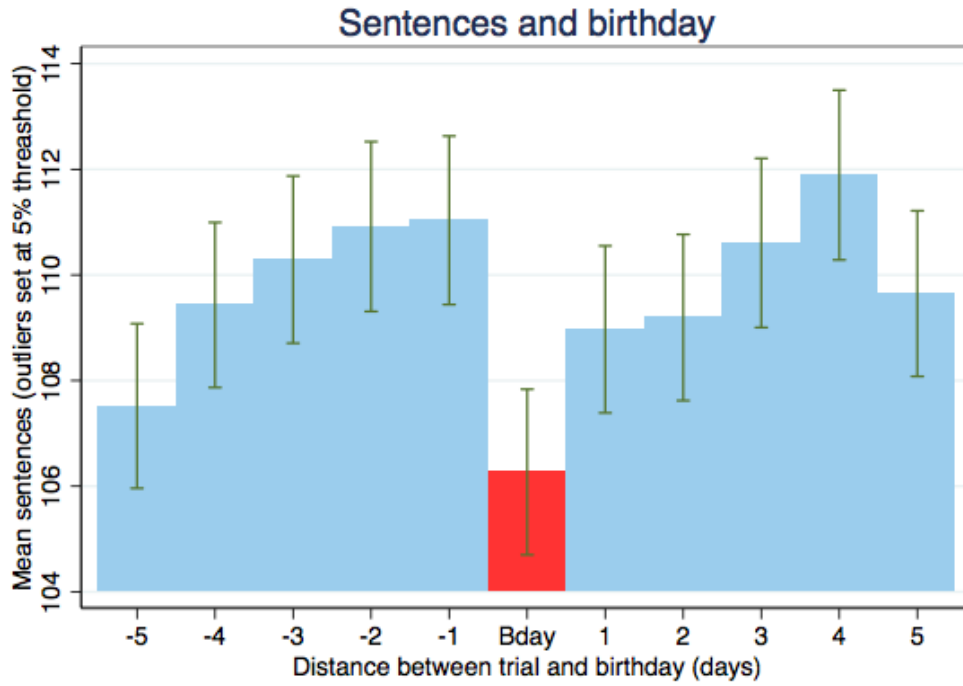
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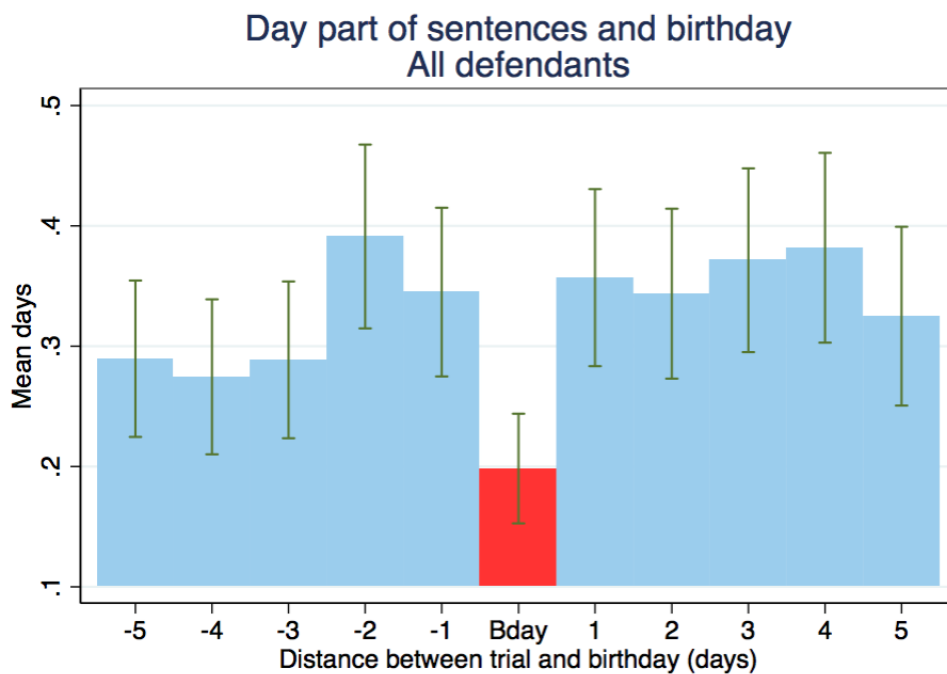
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Figures



(a : France)



(b : USA)

Figure 1: Main Results, Visual.

	France		USA	
	Mean	Sd	Mean	Sd
Male	.9	.29	.85	.36
Age	33.0	12.0	35.2	11.6
Citizen	.83	.37	.70	.46
White			.35	.48
Hispanic			.27	.44
Black			.35	.48
Plea bargaining	.11	.31	.93	.26
Present at trial	.78	.41		
Investigation length	353.3	519.43		
Time pre trial detention	7.49	52.8		
<hr/>				
Crime				
Property	.26	.44	.29	.45
Road	.32	.47		
Violence	.2	.4	.1	.30
Drug	.09	.28	.41	.49
Max. possible sentence	1283.3	883.49		
<hr/>				
Sentence				
Sentence (dummy)	.72	.45		
Sentence (day)	127.21	222.4		
Prison (USA month part)			45.9	64.4
Prison (USA day part)			.36	2.4
<hr/>				
Bday	.0027	.0517	.0028	.0528
<hr/>				
N	4,608,209		602,908	
<hr/>				

Table 1: Descriptive Statistics.

Columns 1 and 2 present the statistics for French criminal courts while columns 3 and 4 present statistics for US District courts.

	(1) Male	(2) Citizen	(3) Age	(4) Black	(5) Property crimes	(6) Road crimes	(7) Violence	(8) Drug crimes	(9) Invest. Length
Panel A: France									
Bday	0.0034 (0.0032)	0.0024 (0.0041)	0.22* (0.13)		-0.00045 (0.0048)	-0.0015 (0.0051)	-0.0010 (0.0044)	0.00079 (0.0031)	4.65 (5.76)
1 day before/after	-0.00023 (0.0027)	0.0075** (0.0033)	0.16 (0.11)		-0.0010 (0.0039)	0.00086 (0.0042)	0.0028 (0.0036)	0.0015 (0.0025)	5.08 (4.66)
2 days before/after	-0.00018 (0.0027)	0.0030 (0.0033)	0.18* (0.10)		0.0014 (0.0039)	0.0023 (0.0042)	0.00038 (0.0036)	-0.0034 (0.0025)	-0.72 (4.64)
Bday's week	-0.00074 (0.0019)	-0.0016 (0.0024)	-0.16** (0.074)		-0.0035 (0.0028)	0.0018 (0.0030)	0.0027 (0.0026)	-0.000043 (0.0018)	-0.83 (3.27)
Observations	4,608,209	4,608,209	4,608,209		4,608,209	4,608,209	4,608,209	4,608,209	4,608,209
Panel B: USDC									
Bday	-0.0098 (0.011)	0.0082 (0.014)	0.30 (0.33)	-0.0068 (0.014)	-0.0042 (0.013)		0.0038 (0.0090)	0.00077 (0.015)	
1 day before/after	-0.0076 (0.0087)	-0.00037 (0.011)	0.45* (0.27)	-0.014 (0.012)	0.012 (0.011)		-0.0029 (0.0073)	-0.013 (0.012)	
2 days before/after	-0.024*** (0.0088)	0.0095 (0.011)	0.28 (0.27)	-0.022* (0.012)	0.0072 (0.011)		0.0012 (0.0073)	-0.0038 (0.012)	
Bday's week	0.0077 (0.0061)	-0.0032 (0.0081)	-0.52*** (0.19)	0.010 (0.0084)	-0.0025 (0.0079)		-0.0019 (0.0052)	0.0013 (0.0086)	
Observations	602,113	585,199	602,790	593,238	602,804		602,804	602,804	

Table 2: Balancing checks.

All columns present the effect on the variable mentioned in the header. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. The second and third explanatory variables are dummies equal to one if the decision is taken one day (respectively, two days) before or after the defendant's birthday. The fourth dependent variable is a dummy equal to one if the decision is taken between three days before and three days after the defendant's birthday.

	(1)	(2)	(3)	(4)	(5)	(6)	(7) Sentences (prison+probation+suspended prison)		(9)
	Sentences (prison+probation+suspended prison)					Present	Present	Absent	Severity of charges
	All						Present	Absent	
	non 0	>6 months	>12 months	Quantum	Quantum winsorize		Quantum	Quantum	
Birthday	-0.011** (0.0050)	-0.0087** (0.0038)	-0.0028 (0.0026)	-4.13* (2.48)	-4.18*** (1.51)	0.013*** (0.0045)	-6.39** (2.97)	1.85 (3.75)	-26.8*** (9.62)
1 day before/after	-0.0025 (0.0040)	0.00078 (0.0032)	-0.0013 (0.0021)	0.78 (2.06)	-0.45 (1.24)	0.0023 (0.0037)	0.32 (2.48)	2.03 (3.01)	2.84 (7.96)
2 days before/after	0.0013 (0.0040)	0.0014 (0.0032)	-0.000049 (0.0021)	-2.32 (1.98)	-0.39 (1.24)	0.00020 (0.0037)	-2.00 (2.41)	-3.54 (2.68)	-8.24 (7.91)
Birthday week	0.0022 (0.0028)	0.0038* (0.0023)	0.0013 (0.0015)	2.60* (1.43)	1.67* (0.88)	0.0042 (0.0026)	2.82 (1.74)	1.00 (1.96)	1.66 (5.61)
Constant	0.72***	0.14***	0.058***	127***	109***	0.78***	136***	94.2***	1,283***
Observations	4,608,209						3,597,969	1,010,240	4,608,209

Table 3: Main results, France.

The dependent variable in columns 1 to 3 is a dummy equal to one if sentences - i.e., the sum of prison quantum, probation quantum and suspended prison quantum - is greater than 0 (respectively, 6 months, 1 year). Column 4 presents the effect on the overall quantum while column 5 presents the same result when quantum is winsorized at the 5% level. Column 6 presents the effect on a dummy equal to one if the defendant appears for arraignment. Columns 7 and 8 present the effect on quantum for defendant who appear/do not appear for arraignment respectively. Lastly, the dependent variable in column 7 is the maximum possible sentence (in days) of the main charge convicted. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. The second and third explanatory variables are dummies equal to one if the decision is taken one day (respectively, two days) before or after the defendant's birthday. The fourth dependent variable is a dummy equal to one if the decision is taken between three days before and three days after defendant's birthday.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Downward departure from guideline	Month component	Day component	Day >0	Prison		Day component	Day >0
	All				Without 12m sentences		12m sentences only	
Birthday	-0.00096 (0.015)	-0.66 (1.86)	-0.13** (0.053)	-0.0049 (0.0066)	-0.13** (0.055)	-0.0093* (0.0048)	-0.12 (0.12)	0.030 (0.070)
1 day before/after	0.0073 (0.013)	-0.81 (1.58)	0.020 (0.056)	0.0033 (0.0057)	0.023 (0.058)	0.00075 (0.0044)	-0.12 (0.15)	-0.059 (0.058)
2 days before/after	-0.0033 (0.012)	-0.19 (1.62)	0.037 (0.056)	0.0039 (0.0057)	0.041 (0.058)	0.0053 (0.0045)	-0.097 (0.18)	-0.077 (0.059)
Birthday week	0.0049 (0.0089)	0.043 (1.10)	-0.036 (0.039)	-0.0032 (0.0040)	-0.041 (0.041)	-0.0020 (0.0031)	0.12 (0.10)	0.047 (0.043)
Constant	0.39***	45.9***	0.37***	0.058***	0.35***	0.033***	0.65***	0.57***
Observations	558,261	592,844	592,844	592,844	565,573	565,573	27,271	27,271

Table 4: Main results, U.S. District Courts

In column 1, the dependent variable is a dummy equal to one if the judge decides for a downward departure from sentencing guideline. In column 2, the outcome variable is the month part of the sentences. In column 3, 5 and 7, the outcome variable is the day part of the sentences. In column 4, 6 and 8, the dependent variable is a dummy equal to one if the day part of the sentence is greater than zero. In columns 5 and 6, the sample is restricted to defendants who get a sentence with a month part different from 12. In columns 7 and 8, the sample is restricted to defendants who get a sentence with a month part equal to 12. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. The second and third explanatory variables are dummies equal to one if the decision is taken one day (respectively, two days) before or after the defendant's birthday. The fourth dependent variable is a dummy equal to one if the decision is taken between three days before and three days after the defendant's birthday.

	(1)	(2)	(3)	(4)	(5)	(6)
	Case load		Accelerated procedure		residual	
	Above	Below	Yes	No	<median	>median
Panel A: France						
Bday	-2.94	-5.21**	-8.75	-3.78**	-2.46**	-5.39**
	(2.07)	(2.17)	(5.63)	(1.53)	(1.14)	(2.66)
1 day	-1.48	0.58	1.55	-0.47	1.08	-1.30
before/after	(1.69)	(1.80)	(4.63)	(1.26)	(0.95)	(2.19)
2 days	-0.23	-0.35	3.47	-1.76	-0.86	0.13
before/after	(1.69)	(1.80)	(4.57)	(1.26)	(0.95)	(2.18)
Bday's week	1.57	1.57	2.05	1.61*	0.34	2.61*
	(1.21)	(1.27)	(3.32)	(0.89)	(0.67)	(1.55)
Constant	101***	116***	192***	101***	71.6***	146***
Observations	2,251,051	2,357,158	397,988	4,210,221	2,304,332	2,303,877
Panel B: USDC						
Bday	-0.017	-0.12*			0.0011	-0.24**
	(0.13)	(0.064)			(0.0037)	(0.099)
1 day	0.021	0.11			0.00099	0.018
before/after	(0.12)	(0.093)			(0.0030)	(0.10)
2 days	0.099	0.081			0.000021	0.063
before/after	(0.12)	(0.088)			(0.0029)	(0.10)
Bday's week	-0.095	-0.074			-0.00097	-0.068
	(0.078)	(0.056)			(0.0021)	(0.073)
Constant	0.40***	0.26***			0.0075***	0.68***
Observations	119,230	154,600			279,114	316,969

Table 5: Mechanisms – cases’ characteristics

Panel A presents the results for France. In column 1-4, the outcome variable is the total prison sentence length (days) winsorized at the 5% level. Panel B presents the results for U.S. federal district courts. In column 1-4, the outcome variable is the day part of the sentences. In column 1 and 2, caseloads are defined as the number of decisions taken in a court in a day (France) or by a judge in a day (USDC). In column 1 (resp. 2), samples are restricted to caseloads below (resp. above) the median. In column 3 and 4, “accelerated procedure” is a specific procedure defined in the French criminal code. In column 5 and 6, the outcome variable is the absolute value of the residual from a regression of sentences (total prison sentence length in France, day part of the sentences in USDC) on socio-demographic variables, crime types and time fixed effects. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. The second and third explanatory variables are dummies equal to one if the decision is taken one day (respectively, two days) before or after the defendant's birthday. The fourth dependent variable is a dummy equal to one if the decision is taken between three days before and three days after the defendant's birthday.

	(1)	(2)	(3)	(4)	(5)
	USA		France, appeal courts	New Orleans	USDC
	Day component		Prison (day)	Prison (day)	Day component
Bday	-0.018 (0.057)	-0.12** (0.052)	8.05 (7.98)	-86.1* (50.8)	-0.17*** (0.053)
Bday*Same race	-0.061 (0.038)				
Same race	-0.017 (0.011)				
Black defendant	-0.050*** (0.011)				
Black Judge	0.021* (0.011)				
Bday*Same sex		0.047 (0.046)			
Same sex		0.0010 (0.015)			
Female judge		-0.0085 (0.015)			
Female defendant		0.024 (0.015)			
Bday*econ training					0.15** (0.065)
Econ training					-0.061*** (0.0082)
1 day before/after	0.014 (0.063)	0.049 (0.074)	6.36 (6.68)	-17.0 (44.1)	0.038 (0.075)
2 days before/after	0.021 (0.069)	0.12 (0.083)	-3.32 (6.61)	41.3 (44.8)	0.11 (0.084)
Bday's week	0.0011 (0.044)	-0.032 (0.051)	-0.84 (4.71)	-15.8 (31.5)	-0.022 (0.052)
Constant	0.11***	0.17***	206***	591***	0.20***
Observations	103,177	172,789	306,322	87,319	167,404

Table 6: Mechanisms – judges' characteristics

The first four columns present results for U.S. federal district courts. The outcome variable is the day part of the sentences. In column 1, the sample is restricted to black and white defendants. In columns 2 to 4, the sample is restricted to decisions for which, respectively, the gender, the tenure or the use of deterrence in civil cases is known. Column 5 presents results for decisions taken in the New Orleans Parish (Louisiana). The outcome is the total prison sentence length (days) winsorized at the 5% level. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. The second and third explanatory variables are dummies equal to one if the decision is taken one day (respectively, two days) before or after the defendant's birthday. The fourth dependent variable is a dummy equal to one if the decision is taken between three days before and three days after the defendant's birthday.

Appendix A: France

	(1)	(2)	(3)	(4)
	Sentences (prison+probation+suspended prison)			
	non 0	>6 months	Quantum	Q winsorize
Panel A: Control for case and defendant characteristics (N=4,608,011)				
Bday	-0.0063 (0.0046)	-0.0044 (0.0033)	-0.68 (1.80)	-2.04* (1.16)
Panel B: Dropping crimes committed on Birthday (N=4,580,710)				
Bday	-0.0093* (0.0050)	-0.0064* (0.0038)	-2.83 (2.49)	-3.13** (1.51)
Panel C: Control for placebo only (N=4,608,209)				
Bday	-0.0087** (0.0041)	-0.0049 (0.0031)	-1.55 (2.03)	-2.21** (0.98)
Panel D: Control for birthday week only (N=4,608,209)				
Bday	-0.010** (0.0044)	-0.0095*** (0.0034)	-3.62* (2.19)	-3.42*** (1.06)
Panel E: No control (N=4,608,209)				
Bday	-0.010** (0.0044)	-0.0095*** (0.0034)	-3.62* (2.19)	-3.42*** (1.06)
Panel F: Including day fixed effects (N=4,608,209)				
Bday	-0.011** (0.0049)	-0.0087** (0.0038)	-4.14* (2.48)	-4.19*** (1.50)

Table A1: Robustness Checks

The dependent variable in columns 1 and 2 is a dummy equal to one if sentences - i.e., the sum of prison quantum, probation quantum and suspended prison quantum - is greater than 0 (respectively 6 months). Column 3 presents the effect on the overall quantum while column 4 presents the same result when quantum is winsorized at the 5% level. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. Results presented in the different panels are for separate regressions. Regressions in panel A include controls for case (crime type, plea bargaining, time between crime and trial, and criminal career) and defendant characteristics (age, sex, and French citizenship). Regressions in panel B exclude crimes committed on the defendant's birthday. Regressions in panel C include dummies equal to one if the decision is taken one day (respectively, two days) before or after the defendant's birthday but no dummy for decisions taken in the week of the defendant's birthday. Regressions in panel D include the week dummy but not the dummies for the days one or two days before or after the defendant's birthday. Regressions in panel E do not include any control variables. Regressions in panel F include day fixed effects (4,294 dummies).

	(1) Property	(2) Road related crime	(3) Violence	(4) Drug	(5) Immigration	(6) Verbal assault of a policeman
Birthday	-5.203 (3.610)	-0.464 (1.509)	-4.976 (4.541)	-17.92** (7.191)	-18.31 (14.68)	-5.779 (4.142)
1 day before/after	-1.419 (2.957)	0.125 (1.216)	1.768 (3.725)	-2.063 (5.910)	-7.440 (12.14)	-4.085 (3.581)
2 days before/after	-1.512 (2.968)	2.085* (1.228)	-0.788 (3.756)	4.828 (6.116)	-31.50*** (10.68)	-3.615 (3.478)
Birthday week	4.050* (2.095)	-0.248 (0.861)	1.610 (2.650)	4.389 (4.249)	20.34** (8.621)	5.271** (2.546)
Constant	130.8***	60.08***	146.1***	183.5***	105.0***	67.52***
Observations	925,573	1,451,745	543,508	388,751	55,487	262,002

Table A2: Heterogeneity, crime types.

All columns present the effect on the overall quantum winsorized at the 5% level. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. The second and third explanatory variables are dummies equal to one if the decision is taken one day (respectively, two days) before or after the defendant's birthday. The fourth dependent variable is a dummy equal to one if the decision is taken between three days before and three days after the defendant's birthday. Samples are restricted to the categories mentioned in the header.

	(1) Men	(2) Women	(3) French	(4) Non citizen	(5) Plea	(6) Trial
Birthday	-4.646*** (1.600)	-0.665 (4.242)	-3.318** (1.624)	-8.297** (3.944)	-0.535 (1.850)	-4.641*** (1.657)
1 day before/after	-1.252 (1.319)	7.132** (3.524)	-0.204 (1.332)	-0.907 (3.314)	1.479 (1.520)	-0.736 (1.364)
2 days before/after	-0.313 (1.321)	-1.092 (3.458)	0.741 (1.339)	-5.844* (3.255)	-0.549 (1.507)	-0.502 (1.364)
Birthday week	1.974** (0.937)	-0.934 (2.445)	0.856 (0.945)	5.630** (2.356)	-0.313 (1.079)	2.076** (0.968)
Constant	111.2***	86.18***	106.7***	119.3***	47.03***	116.3***
Observations	4,166,724	441,485	3,845,409	762,800	503,327	4,104,882

Table A3: Heterogeneity, socio-demographic characteristics and procedure.

All columns present the effect on the overall quantum winsorized at the 5% level. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. The second and third explanatory variables are dummies equal to one if the decision is taken one day (respectively,

two days) before or after the defendant's birthday. The fourth dependent variable is a dummy equal to one if the decision is taken between three days before and three days after the defendant's birthday. Samples are restricted to the categories mentioned in the header.

Appendix B: USA

	(1)	(2)	(3)	(4)	(5)	(6)
	Prison					
	Day component	Day component	Day component	Day >0	Day >0	Day >0
	All	Wo 12 m	12m only	All	Wo 12 m	12m only
Panel A: Control for case and defendant characteristics						
Bday	-0.13*** (0.036)	-0.13*** (0.037)	-0.018 (0.056)	-0.00537 (0.00540)	-0.0080** (0.0037)	0.050 (0.054)
Obs	558,228	532,158	26,069	558,228	532,158	26,069
Panel B: Control for judge fixed effects						
Bday	-0.11*** (0.033)	-0.11*** (0.034)	0.041 (0.10)	-0.0055 (0.0086)	-0.0038 (0.0052)	0.048 (0.10)
Obs	178,830	170,772	8,058	178,830	170,772	8,058
Panel C: Control for placebos only						
Bday	-0.17*** (0.036)	-0.18*** (0.037)	-0.0053 (0.056)	-0.0081 (0.0053)	-0.011*** (0.0036)	0.077 (0.056)
Obs	592,844	565,573	27,271	592,844	565,573	27,271
Panel D: Control for birthday week only						
Bday	-0.15*** (0.042)	-0.16*** (0.044)	-0.046 (0.088)	-0.0073 (0.0058)	-0.011*** (0.0041)	0.078 (0.060)
Obs	592,844	565,573	27,271	592,844	565,573	27,271
Panel E: No control						
Bday	-0.17*** (0.036)	-0.18*** (0.037)	-0.0054 (0.056)	-0.0081 (0.0053)	-0.011*** (0.0036)	0.078 (0.056)
Obs	592,844	565,573	27,271	592,844	565,573	27,271
Panel F: Including day fixed effects						
Bday	-0.15*** (0.053)	-0.15*** (0.055)	-0.14 (0.14)	-0.00515 (0.00660)	-0.010** (0.0048)	0.060 (0.072)
Obs	595,660	568,393	27,154	595,660	568,393	27,154

Table B1: Robustness Checks

In column 1, 2 and 3, the outcome variable is the day part of the sentences. In column 2, 3 and 4, the dependent variable is a dummy equal to one if the day part of the sentence is greater than zero. In columns 2 and 5, the sample is restricted to defendants who get a sentence with a month part different from 12. In columns 3 and 6, the sample is restricted to defendants who get a sentence with a month part equal to 12. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. Results presented in the different panels are for separate regressions. Regressions in panel A include controls for case (crime type and year and month of the decision) and defendant characteristics (age, sex, race, and education). Regressions in panel B include judge fixed effects (972 fixed effects). Regressions in panel C include dummies equal to one if the decision is taken one day (respectively, two days) before or after the defendant's birthday but not dummy for decision taken in the week of defendant's birthday. Regressions in panel D include the week dummy but not the dummies for the days one or two days before or after the defendant's birthday. Regressions in panel E do not include any control variables. Regressions in panel F include day fixed effects (3,875 dummies).

	(1)	(2)	(3)	(4)	(5)
	Day component without 12-month sentences				
	Property	Violence	Drug	Plea bargaining	Trial
Birthday	-0.18 (0.12)	-0.17 (0.14)	-0.042 (0.090)	-0.14* (0.080)	-0.0098 (0.16)
1 day before/after	-0.012 (0.096)	0.11 (0.12)	0.017 (0.074)	0.026 (0.066)	0.0099 (0.13)
2 days before/after	0.040 (0.096)	-0.11 (0.12)	0.026 (0.074)	0.045 (0.066)	0.025 (0.13)
Birthday week	0.0071 (0.069)	0.094 (0.086)	-0.052 (0.052)	-0.040 (0.046)	-0.095 (0.094)
Constant	0.26***	0.14***	0.20***	0.37***	0.10***
Observations	162,523	57,717	235,755	527,340	41,472

Table B2: Heterogeneity, crime types and procedure.

All columns present the effect on the day part of the sentences. 12 months sentences are excluded. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. The second and third explanatory variables are dummies equal to one if the decision is taken one day (respectively, two days) before or after the defendant's birthday. The fourth dependent variable is a dummy equal to one if the decision is taken between three days before and three days after the defendant's birthday. Samples are restricted to the categories mentioned in the header.

	(1)	(2)	(3)	(4)	(5)	(6)
	Day component without 12-month sentences					
	Men	Women	US citizen	Non citizen	No education	Some education
Birthday	-0.16* (0.081)	0.019 (0.20)	-0.067 (0.060)	-0.25 (0.21)	-0.097 (0.13)	-0.12 (0.081)
1 day before/after	0.028 (0.067)	0.010 (0.16)	0.00085 (0.049)	0.046 (0.17)	-0.0025 (0.11)	0.037 (0.067)
2 days before/after	-0.0045 (0.067)	0.29* (0.16)	0.015 (0.049)	0.15 (0.17)	0.15 (0.11)	-0.011 (0.066)
Birthday week	-0.020 (0.047)	-0.16 (0.12)	0.00026 (0.035)	-0.13 (0.12)	-0.075 (0.076)	0.0065 (0.047)
Constant	0.35***	0.38***	0.16***	0.78***	0.42***	0.22***
Observations	483,807	84,180	390,318	162,001	230,243	303,710

Table B3: Heterogeneity: socio-demographic characteristics.

All columns present the effect on the day part of the sentences. 12 months sentences are excluded. Birthday is a dummy equal to one if the decision is taken on defendant's birthday. The second and third explanatory variables are dummies equal to one if the decision is taken

one day (respectively, two days) before or after the defendant's birthday. The fourth dependent variable is a dummy equal to one if the decision is taken between three days before and three days after the defendant's birthday. Samples are restricted to the categories mentioned in the header.

Appendix C: Economics language in judicial opinions

To score judges, Ash et al. (2017) calculate the relative frequency of deterrence in each opinion of a judge. As normalization steps, they remove punctuation, capitalization, functional stopwords, numbers, and word endings. Then, for each opinion i , they have a frequency F_i . One potential concern is that the measure may simply pick up public discourse within year, so they normalize this by the relative word frequency of deterrence in Google Books. Then, they take the average deterrence score for judges in a year to get a deterrence style, which is then demeaned by the district-year average of that year to calculate the relative intensity of deterrence language relative to other judges. Finally, they take the average score across years of a judge's career.

Appendix D: New Orleans

	New Orleans parish	
	mean	sd
Male	.85	.36
Age	26.73	10.39
Black	.34	.47
Crime		
Property	.52	.5
Drug	.24	.43
Sentence		
Prison (day)	590.89	693.61
Bday	.0029	.054
N	87,319	

Table D1: Descriptive statistics.

	(1) Male	(2) Black	(3) Juvenile	(4) Age	(5) Drug crimes	(6) Property crimes	(7) Sexual assault
Bday	0.0090 (0.028)	0.031 (0.037)	0.016 (0.030)	0.46 (0.83)	-0.017 (0.039)	-0.023 (0.033)	0.0034 (0.017)
1 day before/after	-0.0066 (0.024)	0.023 (0.031)	0.0022 (0.024)	0.56 (0.67)	-0.016 (0.033)	-0.013 (0.028)	0.015 (0.015)
2 days before/after	0.00090 (0.024)	0.051 (0.031)	0.0011 (0.024)	-0.059 (0.66)	-0.014 (0.033)	0.017 (0.028)	-0.016 (0.013)
Bday's week	-0.0036 (0.017)	-0.0063 (0.022)	-0.016 (0.017)	-0.10 (0.48)	0.011 (0.023)	0.0043 (0.020)	-0.0071 (0.0099)
Constant	0.85***	0.34***	0.18***	26.7***	0.52***	0.24***	0.055***
Observations	87,319	87,319	87,319	87,319	87,319	87,319	87,319

Table D2: Balancing Checks

All columns present the effect on the variable mentioned in the header. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. The second and third explanatory variables are dummies equal to one if the decision is taken one day (respectively, two days) before or after the defendant's birthday. The fourth dependent variable is a dummy equal to one if the decision is taken between three days before and three days after the defendant's birthday.

	(1)	(2)	(3)	(4)	(5)
	Prison time (days)				
	Quantum winsorize			Quantum	
Bday	-98.9** (40.0)	-102** (40.0)	-94.1** (43.8)	-102** (40.0)	-575** (282)
1 day before/after	-3.01 (33.8)	-32.7 (31.0)			41.5 (387)
2 days before/after	15.8 (33.6)	25.6 (32.1)			177 (409)
Bday's week	-7.34 (23.2)		-7.81 (18.3)		35.4 (274)
Control	Yes	No	No	No	No
Constant	628***	591***	591***	591***	1,144***
Observations	87,319	87,319	87,319	87,319	87,319

Table D3: Robustness checks

In columns 1 through 4, the outcome variable is total sentence length winsorized at the 5% level. In column 5, the dependent variable is total sentence length. We usually winsorize this variable as it goes up to 321,120 days while the 95 percentile is only 2,700 days. In columns 1 controls for crime categories and socio-demographic characteristics are included. Birthday is a dummy equal to one if the decision is taken on the defendant's birthday. Regressions in columns 1, 2, and 5 include dummies equal to one if the decision is taken one day (respectively, two days) before or after the defendant's birthday. Regressions in columns 1, 3, and 5 include a dummy for the decision taken in the week of defendant's birthday.