

**Recidivism and *Saiban-ins*:**  
**Examining the Influence of the Introduction of Lay Judges on the**  
**Rates of Repeat Criminals in Japan**



by  
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## I. Introduction

How does the incorporation of lay people in trial proceedings affect recidivism? The implementation of the *saiban-in* (“lay judge”) system in Japan has catalyzed a newfound inclusion of citizens into its justice system. Recidivism is highly relevant to determining the validity of this transition. Retributive and restorative justice, the two most popular theories regarding the role of a justice system, share the reduction of recidivism as an objective. It can be subsequently concluded that rates of recidivism can be used as one measurement of a justice system’s success. The retributive theory of justice prioritizes “incapacitation, deterrence, or rehabilitation” (Wenzel 2008, et al., 376), while the restorative justice movement is characterized by an “emphasis on healing rather than punishing” (Wenzel 2008, et al., 377) and reconciliation of criminals with the victims of their crimes. Both of these theories overlap in their goals to diminish recidivism despite their contrasting methodology. Moreover, given the significant portion of crimes committed are by repeat offenders, it would be beneficial to analyze factors that might affect these recidivism rates in order to mitigate overall crime rates.

Existing literature tends to focus on the success of the lay judge system in terms of its propagation of democracy and whether it is the “best” way to achieve justice. However, significant research on reported crime rates following its implementation fails to exist, and there is very rarely a connection of recidivism to the *saiban-in* system. Therefore, existing research fails to help understanding the answer to my question, which is an inquiry into how the lay judge system influences recidivism.

This paper will argue that the inclusion of lay people in trial induces a decrease in recidivism because of the harsher sentences resulting from their influence in criminal trials. I test this argument utilizing the difference-in-differences statistical model to compare the two types of

trials. This paper will provide additional means to assess the reformed justice system as a whole, since recidivism is a valid and widely accepted measurement of its success.

Before 2009, there was little lay participation in the Japanese justice system. The Western-style jury system was foregone since World War II in exchange for the implementation of judge panels that primarily consisted of “professional judges.” Professional judges in Japan differ greatly from judges in the United States, where American judges ordinarily practice as an attorney for many years before their tenure as a judge. Comparatively, after their graduation from law school, Japanese judges typically spend approximately ten years as an apprentice to another judge before becoming a full-fledged professional judge themselves, granting them little experience outside of being a judge. However, as of 2009, the *saiban-in* system was implemented, introducing *saiban-in*—or lay judges—into criminal trials. *Saiban-in* panels typically consist of six lay judges and three professional judges. The two types of judges deliberate together, but only the professional judges have the ability to render the final verdict.

This paper will assess the effect of provisions in the Japanese judicial reform in 2004 through evaluating trends of the crimes rates and recidivism in Japan between the years 1999 and 2018. I will test if the incorporation of lay judges and the democratization of the justice system influences rates of recidivism. I expect that recidivism will decrease as a result of lay participation in the Japanese system due to increasing trends in the severity of sentences issued by *saiban-in* panels. This theory will be supported if the percentage of people who committed the specific crimes tried under lay judges that are recidivists decreases more than the percentage of people who committed crimes tried under professional judges who are recidivists.

My findings contribute to the debate surrounding the *saiban-in* system since its conception and their attempts to assess its legitimacy. Proponents of the system argue that it

enhances the transparency and fairness of the legal process through bringing societal attitudes and democratic values into judicial decision-making, particularly in serious criminal cases (Anderson and Nolan 2004). Conversely, criticism has utilized Japanese culture as evidence that “ordinary Japanese simply are not suited to expressing their own views in front of others” (Foote, 757) and therefore the incorporation of lay judges is futile when pursuing improvement to the justice system.

I leverage data from the Japanese Ministry of Justice to test the connection between the lay judge system and rates of recidivism between 1999 and 2022. The Ministry of Justice, a governmental body, previously had powers extending to supervision of the courts, judicial administration, and a range of other judicial responsibilities—however, following World War II, the Ministry of the Justice was abolished then reinstated, replacing the Attorney General’s Office and thus consisting of six bureaus (Civil Affairs, Criminal Affairs, Correction, Rehabilitation, Litigation, Human Rights, Immigration, and the Minister’s Secretariat) and began legislative work and research regarding the Japanese justice system (Ministry of Justice, History of the Ministry of Justice, para. 1-5). The data set, from the aforesaid timeframe, includes the total crimes committed, the overall crimes prosecuted, the overall number of recidivists, the number of recidivists who committed crimes that would be tried under the lay judge system, and the number of recidivists who committed crimes that would be tried outside of the lay judge system. I will use the difference-in-differences approach to assess variation between crimes tried under a *saiban-in* panel against those tried by the traditional professional judges. Additionally, I test the variation in the severity of sentences before and after 2009 to assess the difference between lay judge panels and professional judges in their rates of death penalties and life sentences as one possible explanation for the trends in recidivism. Crimes that qualify to be tried under a

*saiban-in* panel tend to have a violent nature, so I will be primarily comparing these crimes against assault, which is a violent crime that is not tried under a *saiban-in* panel. This way, confounding variables will be minimized in that I will compare crimes of a similar nature and differences between crime rates will be better attributed to the reform rather than an overall trend in violent crimes. It should be taken into consideration that only some crimes are treated under the reform by the *saiban-in* system, while other crimes (e.g. assault) remain untouched by the lay judge panels. Furthermore, I will use the data to form percentages of the number of recidivists out of the total number of any specific crime. This is done in order to be able to compare the rates of recidivism specifically, rather than overall crime rates.

Furthermore, my findings suggest that there is ample support for my argument. The extensive data to be found in the White Papers of the Ministry of Justice and other resources have proved to be adequate for the purposes of testing my thesis. I believe that due to this fact, the number of recidivists that would be tried under the *saiban-in* system will decrease and indicate that the implementation of the lay judge system correlates negatively with recidivism found in Japan. This might be explained by a rise in harsher sentences dealt by lay judges beginning in 2009. My argument that the *saiban-in* system has improved the Japanese justice system is supported because I have found statistically significant results using the difference-in-differences approach. This is because we have established that rates of recidivism can be utilized as a standard of success for any justice system, so its reduction must be a positive consequence of the reform.

Beyond its empirical scope, my paper will have implications regarding civic participation in the judicial system and might elucidate how lay citizens can influence a justice system's overall success in its objectives. It might also provide insight on the efficacy of professional

judges, particularly in Japan. Lay people participating in these panels have an impact on the justice system as a whole and a citizen's role in Japanese society. The lay judge system as an attempt to incorporate democratic values seems to be successful in this respect. Moreover, because the findings were statistically significant, this paper may have implications regarding the scope of the lay judge system and potentially provide incentive for the Japanese government to broaden said scope to try more crimes using *saiban-in* panels in order to reduce recidivism. In future research, it might be worth asking if the increasingly greater proportion of abolitionists in the Japanese population influence data regarding recidivism?

The remainder of this thesis is organized as follows: I will review and analyze pre-existing literature that is relevant to my argument, delineate the research design and data, provide comprehensive analysis of the results from the statistical model, and explicate the implications of my findings.

## **II. The Japanese Justice System and Existing Literature**

### **2.1 The *Saiban-in* System**

Originally, trials were conducted by professional judges—a three judge panel for the most serious crimes and a one-judge court for all else (Hamai 2015, et al., 6). The introduction of the lay judge system created a panel of six lay judges, whose role is to “‘advise’ up to three presiding judges” (Hamai 2015, et al., 8). However, lay judges do not have power to modify or make decisions. The *saiban-in* panels are responsible for the judgment of “‘all major offenses that the public has a great interest’” (Ministry of Justice White Paper on Crime 2009), including crimes subject to extreme punishment (e.g. life imprisonment or the death penalty) or that resulted in a death (e.g. homicide or armed robbery). Including crimes that are of great public

interest was a choice made with the purpose of reinforcing the Japanese Judicial Reform Council's goals to further incorporate democratic principles in the Japanese justice system through incentivizing the education and motivation of the public to increase their involvement in said system.

Through the incorporation of the public in the most serious crimes, the Japanese government expects the public's "understanding and trust in justice will deepen" (Ministry of Justice, "Please cooperate with the Saiban-in (Lay Judge) System, par. 2). The lay judges are randomly selected from a list of candidates compiled chosen from lists of voters and must be twenty are older, though a reform has been approved to reduce the voting age to eighteen (Ministry of Justice, "Please cooperate with the Saiban-in (Lay Judge) System, par. 2).

## **2.2 The Japanese Justice System**

Japan's first attempt at modernizing its justice system began in 1890, taking inspiration from Germany's traditional civil law system that included lay participation in trials. While Japanese juries, first implemented in 1923, were primarily of an "advisory character" (Ito 2013, . 1246), they still had influence on verdicts. The democratic movement during the Taishou Era highly influenced this reform, and explains the magnified public support of increasing civic participation and public influence on the justice system. However, since World War II, the Japanese jury system had been suspended and effectively bureaucratized, leading to a longstanding negative reputation of its justice system as a whole (Ito 2013, . 1245).

The former Japanese jury system, enacted in the year 1923, allowed defendants to decide if they would be tried by a jury or a bench trial, and the vast majority typically elected the option for a bench trial. This occurred allegedly because decisions by juries were non-binding and the judge could overturn them. Furthermore, these juries were primarily assigned to preside over

“death or life imprisonment trials unless the accused chose otherwise” (Ambler, . 13). This impeded the reach of the jury system due to its avoidance by defendants that had the ability to choose the mode of their trial. However, “the lynchpin of the structural arguments against the jury law—that defendants were not better off in jury trials—is undermined by the data” (Anderson, 2004, et al., 964) in that 16.7% of jury trials that were performed during the 1923 justice system resulted in acquittal—significantly higher than the modern justice system that achieves a nearly 100% conviction rate. Therefore, “juries mattered and they benefited defendants” (Anderson, et al., 2004, 964). Contrasting the modern lay judge system, only men over thirty years of age were able to serve on a jury panel. Data during this period of time “suggests that lay people are more lenient” than professional judges (Ambler, 14).

However, this variant of the Japanese justice system culminated into its abrupt cessation during the period of World War II, due to its exclusive utilization of male jurors and a subsequent shortage of men who were not participating in the war (Ito 2013, 1246). Following their defeat in the war, Japan implemented the New Constitution which emphasized principles of human rights and an independent judiciary. The constitution articulated newfound legal rights for Japanese citizens (e.g. access to competent counsel, due process, protection against coerced confession, etc.), signaling a transition into a new era for the Japanese judiciary and criminal procedure (The Constitution of Japan 1946). To avoid conflicting with the newly published constitution, the Code of Criminal Procedure was revised in 1949, recognizing “the purpose of criminal justice as both finding truth and guaranteeing human rights” (Ito 2013, 1246) and incorporating rights inspired from the American justice system.

The Court Act, made official shortly after World War II, ordered that “the tasks of professional judges include presiding, fact-finding, sentencing, and applying and interpreting

statutes in criminal proceedings” (Ito 2013, 1248), and judgment was henceforth relegated to these “career judges.” Japanese judges, most frequently referred to as “career” or “professional” judges”, differ from those of western origin, in that they have no prior experience as attorneys, but study to become a judge for the entirety of their education. Research performed in 1967 demonstrated that all judges who had graduated from college and participated in this particular study (which surveyed 208 judges, 80 of whom responded in a way able to be analyzed and with information regarding their biographical data) except 3 had majored in law during their undergraduate education (Dator 1969, 414).

The prevalent opinion of judges regarding criminal rehabilitationism during 1960’s Japan is demonstrated further in two questions within the aforementioned survey pertaining to criminal punishment. Firstly, “50 percent agreed that ‘our treatment of criminals is too harsh; we should try to cure, not to punish them,’ and 50 percent disagreed,” and secondly, “only 40 percent of the judges are found in favor abolishing the death penalty” (Dator, 427). This indicates that prior to the implementation of the *saiban-in* system, judges were evenly split regarding their opinions of the validity of certain facets of the justice system, including existing methods to address the problem of recidivism (i.e. whether to attempt to “cure” or to “punish”).

Despite the aforementioned revisions to the Code of Criminal Procedure, critics of the criminal justice system deemed it to be “hopeless.” Despite Japan’s low crime rate that seemed to be steadily decreasing following World War II, from 1996 the number of reported “penal code offenses” continued to increase until 2002, when it began to decrease again instead until 2012 (Hamai 2015, et al., 1-2). Crimes of homicide, both attempted and executed, had steadily decreased since 1955, “and the four years from 2009 to 2012 constituted a period of reduction to

an all-time low of 1,030 in 2012” and “was lower than in nearly any other advanced democracy” (Hamai 2015, et al. 1-2).

In 1999, Japan initiated its first steps towards reform of their long-criticized justice system and moved to democratize its judiciary for the second time. Japan’s Judicial Reform Council was created, and then submitted its recommendations for the broad reform of the judicial system to Japanese Prime Minister Junichiro Koizumi, who adopted it when it was submitted in 2001. The responsibility for the actual implementation of the lay judge system was delegated to the Lay Assessor/Penal Matters Study Investigation Committee (Investigation Committee), a subdivision of the new Office for Promotion of Justice System Reform (Reform Office), to complete by December 2004 (Anderson 2004, 940).

The execution of the reform in the creation of the lay judge system came amidst complaints of Japan’s “low level of citizen involvement with the legal system” (Anderson 2004, 941), accusations of detached professional judges, and notoriously high conviction rates. Japanese professional judges are very much removed from the Japanese public, purportedly to reduce bias in their decisions. They are sequestered into “judge-only housing residences” and frequently move around the country, leaving little opportunity to strengthen their bonds with the public. This disconnect with the populace subsequently prompted discontent with their power to drastically alter an individual’s life without much room for empathy or “commonsense” (Anderson 2004, 943). This might be one explanation for extraordinarily high conviction rates in Japan.

### **2.3 Perceptions Before and After its Implementation**

Proponents of the lay judge system claim that the reform introduced “better” justice and reaffirmed the pre-existing movements towards democracy in Japan that followed World War II

(Anderson 2004, et al., 935). The incorporation of citizens into the judicial process was thought to increase civic participation as a whole. The Judicial Reform Council (1999) has propounded that the system promotes a more democratic society and claimed that the reform was proposed in order to promote every individual “as an autonomous governing subject with social responsibility in hand” (The Judicial Reform Council). Others perceive its implementation as the keystone to other judicial reforms that Japan has been and will continue to realize (Foote, 773). As the subject of criticism for so long, the drastic alterations of the judicial system have been anticipated for some time. The reform in 1999 was viewed to have finally responded to the disapproval from the Japanese populace’s collective disapproval.

In advocating for the implementation of the *saiban-in* system, The Judicial Reform Council asserted that professional judges lack certain life experiences that disconnect them from society, that they “over-represent certain segments of society, and either have or develop an institutional bias in favor of the prosecution or the state” (Anderson 2004, 942). It has been noted that professional judges tend to favor prosecutors and law enforcement when hearing cases. Proponents believe that the lay judge system might act as a check against malpractice in courts by these two groups. In practice, however, before the lay judges are able to hear cases, the prosecution and defense decide in advance what evidence and arguments can be presented (Obara-Minnitt, 19) and thus are still able to exert influence over the outcome of the trial in this way.

While assertions of the bias of professional judges are more popular, there are also arguments that claim ordinary people to be biased instead. However, this is refuted by the idea that because there are more people on a *saiban-in* panel, there is less likely to be bias due to the fact that they must all share differing biases and “in the group deliberation process, biases can

cancel out” (Lempert, 3). Conversely, professional judges are more similar to each other in background and lived experiences, and might therefore be more likely to share biases. In this case, they will confirm each other’s biases rather than negating them, and thus make decisions with these ideas as the foundation.

One of the primary concerns regarding the lay judge system was if “lay people could decide cases rationally and logically without being driven by their feelings and innate emotions” (Hirayama, 3). This is supported by data, in that public sentiments are extremely likely to influence the sentencing of specific crimes. *Saiban-in* panels tend to deal far more severe punishments to rape and sex-related crimes than do professional judges, while typically dealing sentences comparable to those of career judges on crimes such as murder (Foote, 766). The disparity in sentencing for sex-related crimes might be at least partly a result of the newfound introduction of women into court. Professional judges are typically men, so it is unsurprising that women are likely more sympathetic towards the victims of these crimes and thus advocate for a harsher punishment for the perpetrator.

After a trial, where the sentence made by a lay judge panel against a sex offender was harsher than the one proposed by the prosecutor, a female lay judge said “if it weren’t a lay judge trial, this [harsh] sentence would not have been possible” (Hirayama, 7). This illustrates an instance where one objective in implementing lay participation is achieved, in that lay people are more interested and invested in the judicial system in Japan. Furthermore, in this example, decisions made by *saiban-in* panels might be considered to be more representative of Japanese societal ethics rather than strictly following the law. Thus, this is demonstrated to have advanced the goals of democratization in Japan through enabling citizens to represent their morals in court. Furthermore, some of the initial objectives in the creation of the lay judge system was to allow

for lay people to transform the justice system into a system that is more “responsive and reflective of the needs of general society” (Anderson 2004, 943). In this way, the *saiban-ins* are shaping a justice system that better reflects Japanese society. Situations like these elucidate the idea that Japan is meeting at least some of its purported goals in including lay people in the court of law.

One consideration when considering the types of crimes that fall under the jurisdiction of a *saiban-in* panel is that victims might feel less inclined to report offenses due to a lack of privacy for the victims (Obara-Minnitt, 19). This has led to victims reportedly asking to reduce charges for the offender or to simply not report what happened in order to avoid a trial before *saiban-ins*. Mika Obara-Minnitt, in her article “The Sacrifices behind the ‘Success’ of Saiban-in Seido (Quasi Jury System),” asserts that this calls for a review of the types of crimes tried under this system “to achieve fair trials for both defendants and victims” (Obara-Minnitt, 19).

Following the end of World War II, international opinion on the death penalty soured and there seemed to be a majority in abolitionist countries. However, along with other parts of Asia, Japan has been stubbornly retentionist. Before the *saiban-in* system, professional judges tended to favor the death penalty when it was put forth by a prosecutor, due the weight that judges gave to the “exercise of prosecutorial discretion” and how judges “[relied] heavily on evidence of confessions extracted by prosecutors for convictions” (Ambler 8). This created a close relationship between judges and prosecutors, leading to what appeared to be judges favoring the evidence and arguments produced by prosecutors rather than defenders. However, the introduction of the lay judge system is said to impede this “favoritism” and instead allows the opportunity for a more western-influenced defense. Despite an increasingly larger number of Japanese citizens becoming abolitionists against the death penalty, as long as the judiciary is

retentionist and fails to legalize it, prosecutors are responsible for initiating the charge and pursuing it (Ambler, 19).

After Japan's Judicial Reform Council submitted its proposal for judicial reform to Japanese Prime Minister Junichiro Koizumi in 2001, Japanese media and other commentators "heralded the Reform Council's recommended reforms as necessary and long overdue" (Kodner 2003, 233). Public opinion of the Japanese justice system had been deteriorating for some time, and "a cursory review of newspaper articles within the last five years evidences a growing public mistrust and sense of detachment from the judicial system and its participants" (Kodner 2003, . 233). In the JRC's proposal, they advocate that public participation in trials will "make the administration of justice more open and familiar to the public and to adopt plural values and professional knowledge for people in the administration of justice" (The Judicial Reform Council).

In May 2004, the Saiban-In Act was promulgated, and in May 2009, the first trials deliberated by a *saiban-in* panel were held. Before its official implementation, surveys in 2006 demonstrated public resistance to participating in the judicial system as a *saiban-in* as more than half of respondents stated that they "would rather not" and "do not want to" participate in trials. This survey was coupled with a survey asking for explanations, the most popular being a lack of time or psychological discomfort (Ministry of Justice, White Paper on Crime 2006). This demonstrates a widely-shared resistance to changes to the justice system held by the public. However, the Supreme Court reported in 2016 that 95.6% of *saiban-ins* found their experience as lay judge to be positive and had evoked satisfaction in accomplishing their civil duty (Obara-Minnitt, 17).

Conversely, the lay judge system has been widely criticized. Written in 2004, when it was confirmed that the lay judge system was confirmed to be implemented in 2009, this paper argues against its purported benefits. The introduction of the system has intrinsic effects to the trial of certain cases as a whole, including new procedures for consecutive trials, “possible modification of the rules of evidence” to “encourage speed and easy comprehension” but the JRC in their proposal “does not address the fact that jury-based systems have developed highly refined evidentiary rules to prevent lay participants from being unduly prejudiced and Japan’s rules have not evolved in this manner because of the country’s historical custom of bench trials” (Anderson 2004, et al., 956). Therefore, the Japanese justice system as a whole might not have been ready to support such a system and ensure its fairness, and would have to be deeply augmented in order to fit. The costs of the system are also considered in this argument, including the training of professional judges and other court officials, as well as informing attorneys and the public. They must overcome their reputation of being “out of touch” and instead work to develop relationships with lay judges to “facilitate the participation of each lay assessor” (Ambler, 20), otherwise it would be easy for a lay participant to struggle to understand legalese or follow complex legal arguments. In addition to the inherent costs of changing an entrenched infrastructure like the Japanese justice system, juries themselves are expensive since most *saiban-ins* must take time from work to participate.

There is also literature propounding the idea that lay juries are simply less capable of understanding the nuances and applications of different laws. It has been demonstrated that lay juries are prone to the misapplication of law, where professional judges did so successfully—however, studies seemed to indicate that the grammatical structure in legal language and jargon contributed to juries’ confusion rather than the content, and thus signals a need for change in the

presentation of instructions to lay judges by attorneys and professional judges (Charrow 1979). To its proponents, it does not indicate that the lay people are unqualified as jurors—rather, that the justice system must be further transformed to accommodate them. Professionals have already taken efforts to make the language far more accessible to the average system, diagrams and pictures are utilized frequently, and “most saiban-in take part in the hearings with earnest” (Takesaki, 2). There are consistent efforts made by judicial officials to ensure the participation of *saiban-ins* in order to uphold the integrity of the lay judge system.

Another attack that has been made against the lay judge system is that is akin to “conscripting” Japanese citizens and that the government, rather than assuage the issues in the justice system itself, burdens citizens instead. Shunkichi Takayama goes on to speculate that it is an indication of the government’s intentions to “militarize Japanese society” (Dobrovolskaia, 61).

It is also argued that because of mandated privacy for the trial, there are issues of transparency due to the fact that jurors would not be able to divulge any details of the case. Additional literature has been written arguing that there are also concerns that the goal of propagating democracy through this system might actually be hindered by its implementation, including the aforementioned privacy issues arising from the confidentiality provision, which could “have severe repercussions the system’s ability to transform the Japanese people into the ‘governing subjects’ that the JRC initially envisioned” and that the dissemination of a juror’s experience “is an important component in strengthening the ties between judicial service and later democratic enhancement (Bryan 2012, para. 11-13). Instead, the traditional professional judges are more likely to be held accountable for poor decisions, as the government is able to (and often does) reassign judges to less favorable assignments in times when it disapproves of

decisions made by the aforementioned judges (Lempert, 4). However, it seems that many lay-judges are unopposed to attending “post-verdict press conferences and respond to questions” and “agreed to participate in post-trial press interviews in 95 percent of Saiban-in trials” (Hirayama, 2). This data conflicts with the concerns that *saiban-ins* would largely remain immune to accountability and fail to share their judgments and experiences with the public.

There is another subset of literature that does not advocate for either the benefits of the lay judge system or for the retention of the traditional system of professional judges. Instead, they propose a different judicial system to implement. For instance, a Japanese non-governmental organization submitted a letter Office for Promotion of Justice System Reform claiming the *saiban-in* system to be unconstitutional due to its infringement “on the right of an individual to a fair trial by a professional judge” (Dobrovolskaia, 60) and restricts other constitutional rights through placing such enormous responsibility on the *saiban-ins*. Since they do not believe Japanese society is prepared for the lay judge system, they suggest to “strengthen” the existing system of conciliation commissioners, where lay people might advise professional judges on the sentencing of many different types of criminals rather than solely those who commit serious offenses (Dobrovolskaia, 61).

Another judicial system that has been proposed is a jury consisting of all laymen, analogous to the jury system utilized in the United States. According to Chihiro Isa, the lay judge system is not enough to resolve issues found in the judicial system, and only a jury consisting of solely laymen will be able to make inevitable the change that is needed for the Japanese judicial system (Dobrovolskaia, 65). The literature uses data from the United States military occupation of Okinawa, where American-style jury trials were held in order to preserve the rights of the Americans who lived there. While the paper concluded that the applicability of information from

Okinawa was limited (Dobrovolskaia, 75), other publications have argued for its legitimacy as evidence for promoting a jury consisting solely of laymen, due to the fact that it was technically effective in Japan previously.

## **2.4 Japan and Recidivism**

The importance in addressing recidivism is characterized by the large proportion of recidivists that comprise overall crime rates. In Japan, the recidivism rate reached 47.9% in 2022 (see Appendix A). The “Act for the Prevention of Recidivism” (hereinafter “APR”) was finally implemented in December 2016, and the “Recidivism Prevention Promotion Plan” (hereinafter “RPP Plan”) was implemented the same time in the following year. The APR was created as a movement towards rehabilitation and to improve the sense of security for victims of crimes (Act for the Prevention of Recidivism (Act No.104 of 2016)). This included the instatement of the Recidivism Prevention Awareness Month, the aforementioned RPP Plan, and a commitment to the reduction of recidivism. The APR signifies Japan’s newfound attention to the reduction of recidivism, thus emphasizing the importance of the subject of this paper.

While the subject of correlation between recidivism and criminal sentencing has been well-researched, this research might not be as broadly applicable as we hoped. It is important to note that much of the existing studies acknowledge “disturbing correlations” between race and sentencing in the United States. Japan is generally homogeneous, so many of these existing conclusions cannot be completely explicatory for Japanese sentencing and recidivism.

## **III. Research Design and Data**

### **3.1 The Japan Case**

In pursuit of an answer to the original question of this paper (i.e. “How does the incorporation of lay people in trial proceedings affect recidivism?”) Japan is a useful case study

to test the argument that the induction of lay people in a given trial system causes for there to be a reduction in recidivism rates. By having one defined moment in time where we see a change in the operations of the Japanese justice system in regards to its inclusion of lay people, I am able to use the difference-in-differences statistical model to test my argument. Another requisite for using this model is that there must be an intervention at a moment in time that causes at least one variable to be treated and one other variable to be able to be used as a control. This is enabled by the reform's specification of only certain crimes able to be tried by the system, therefore leaving crimes which are not tried using *saiban-ins* to be used as controls. The longstanding history of Japan's trial system allows me to isolate the effect of the lay judge system through comparing crime rates before and after its implementation.

### **3.2 Data Collection**

The data used for the difference-in-differences model has been compiled from the Japanese Ministry of Justice, where crime statistics are published annually in the "White Papers on Crime." Every White Paper includes a table titled "Number of prosecuted persons by type of main offense, existence of previous conviction and status at the time of offense." Out of the numerous other statistical tables regarding crime rates, this table suited the purposes of this thesis the closest. Japanese prosecutors are reputed for typically only prosecuting those whom they believe will likely result in a conviction and will thus most likely result in a trial. This explains the value of selecting tables that represent the statistics of those who have been prosecuted, because they have most likely proceeded to trial. Thus, I have calculated the percentages of the relevant crimes that are committed by recidivists and, after converting them to decimal points, utilized these percentages to inform my paper. Furthermore, this is one of the only tables that

specifically differentiates recidivists in every type of crime and is limited to “major” offenses and excludes traffic offenses, and therefore only includes relevant statistics.

## **IV. Data Analysis**

### **4.1 Statistical Model**

I use the difference-in-differences model to test this thesis. This is the appropriate model for my research question because the difference-in-differences technique is designed to capture “longitudinal data from treatment and control groups to obtain an appropriate counterfactual to estimate a causal effect” (Columbia University Irving Medical Center, 2013). This model is best suited for the objectives of this paper because of its express purpose of examining the relationship between control and treatment groups, before and after a point in time. In attempting to test for a significant difference between the trends of crimes affected and not affected by a specific facet (i.e. the implementation of the *saiban-in* panel) of the reform in 2009, the difference-in-differences model is ideal for this purpose. Furthermore, “matching estimators” helps in accounting for confounding factors, so when using the difference-in-differences statistical model, it is best to utilize variables that are as similar as possible to the treated variables. I will be selecting crimes that are similar in nature to each other as a result of this idea.

### **4.2 Variables**

**Dependent Variables** The dependent variable is the number of persons prosecuted in a given year. From the White Papers, it is possible to determine the total number of people prosecuted for any given crime and the number of those who are prosecuted as recidivists in the same year. These statistics are taken to produce graphs of the proportion of recidivists to the total number of those prosecuted (i.e. recidivists and first-time criminals). This was the preferred way of comparing the rates of each crime, so that we might differentiate between fluctuations in overall

crimes committed and the rates of recidivism for these crimes. Predictably, using raw data is less effective because the number prosecuted varies vastly between different crimes. Using proportions allows for a better and less diluted picture of what we will measure, which is the effect of the treatment on recidivism.

According to the Japanese Ministry of Justice, the treatment (i.e. the *saiban-in* reform) applies to the crimes of:

- Homicide
- Robbery causing death
- Rape at the scene of a robbery
- Injury causing death
- Forcible indecency causing death or injury
- Dangerous driving causing death
- Arson of inhabited buildings
- Counterfeit of currency
- Violation of the Firearms and Swords Control Act
- Violation of the Act on Special Provisions of Narcotics
- and others (e.g. abandonment by a person responsible for protection causing death, unlawful capture and confinement causing death, acquisition of ransom for kidnapped persons, destruction by explosives, violation of the Explosive Control Act, violation of the Anti-Organized Crime Act, violation of the Narcotics and Psychotropic Control Act, etc.) (Ministry of Justice, White Paper 2010, Part 6)

and crimes outside of this list will be treated as controls. Due to their large sample size, homicide and rape will be the primary variables tested using the difference-in-differences method.

The crimes that fall under the control group and that will not be tried using the *saiban-in* system include crimes of:

- Assault
- Intimidation
- Theft
- Fraud
- Extortion
- Embezzlement
- Offer/Acceptance of bribe
- Breaking into a residence
- Physical Violence Act
- and others (Ministry of Justice, White Paper 2010, Part 3)

I use the rate of recidivism for assault as primary control variable because of the violence inherent to the crime that is shared with homicide and rape. A secondary control was the overall crime rate (i.e. “total crime rate”) subtracting the rates of homicide and rape, and is also tested against homicide and rape. Finally, extortion will be used as a control to test the treated variables against a white collar crime to further corroborate the validity of these tests.

**Independent Variables** Each White Paper published by the Ministry of Justice is labelled according to the year it was released, while the actual statistics are from the year before. For clarity, the independent variable for time will be the year that the reported crimes occurred, not the year that they were published. When using the difference-in-differences model, it is important to note that the treatment occurs in 2009 when the *saiban-in* system was finally implemented. Thus, the years 2000 through 2008 will be considered as pre-intervention, while

2009 through 2019 will be post-intervention. The treatment only applies to certain crimes (e.g. homicide, rape, etc.) and is tested against crimes to which the treatment does not apply (e.g. assault, extortion, etc.).

### **4.3 Parallel Trend Assumption**

The difference-in-differences model requires that the pre-treatment trendlines must be parallel. In this study, this would require both trend lines that measure the rates of treated and untreated crimes to be parallel until 2008. However, when graphing the data used in this paper, it is clear that the trendlines are not perfectly parallel. For the sake of this model, we will necessarily operate as if the trendlines are, in fact, parallel. Thus, while the results based on the model will not be perfect, there are still conclusions we are able to draw from its results.

Secondly, we must assume the parallel trends both the treatment and control groups will have parallel trends following the treatment (Columbia University Irving Medical Center, 2013). This is important because we are testing the difference between the projected trends and the actual trends of the data resulting from the treatment. Thus, when utilizing this statistical model, we will assume that the control slope remains the same before and after treatment, and base our conclusions on this assumption.

### **4.4 Limitations**

The data collection in this thesis has serious limitations regarding the conclusions that may be drawn from this paper. The White Papers did not provide data indicating the previous crime(s) of the persons prosecuted in the numbers used for this thesis. Not only did they fail to specify the type of crime previously committed, but they also do not provide details regarding the duration of time between the aforementioned previous crime and the crime specified in the

White Paper. Lacking specification of the type of previous crime introduces limitations to the conclusions we may draw from this paper.

Additionally, the White Papers have only been published since the year 2000, and the table used for this paper has only been included since 2001. Therefore, the range of years is smaller than ideal, but is large enough to provide a degree of insight. One of the control variables, assault, fails to have data preceding the 2002 White Paper, and we are therefore limited to the years 2001 to 2019.

Moreover, the reform by the 1999 Japanese Judicial Reform Council (when the *saiban-in* system was officially to be implemented in 2009) directly altered many facets of the justice system. This is important considering the breadth of the justice reform and its impacts not only in implementing the lay judge system, but also prosecutorial reforms that affect the selection of cases that are prosecuted overall, which may have an effect on the rates that we are testing. This introduces an additional limitation to the significance of this paper: because of the large scope of the reform, it introduces another consideration as to whether the true effect of the *saiban-in* system can be seen or we are seeing another effect of this broad reform as a whole. However, isolating the affected variables that are specifically impacted by the *saiban-in* system helps to obtain an understanding of its effects, enough so that we might draw conclusions from any correlation between the two.

Furthermore, the tables we have collected data from delineating the recidivists prosecuted from any given year are limited by nature of only including statistics regarding those who are *prosecuted*. This will not include people who have committed crimes and are not caught or those who were caught and simply were not considered worth prosecuting by the prosecution. This introduces another limitation because there may be a number of people are repeat criminals that

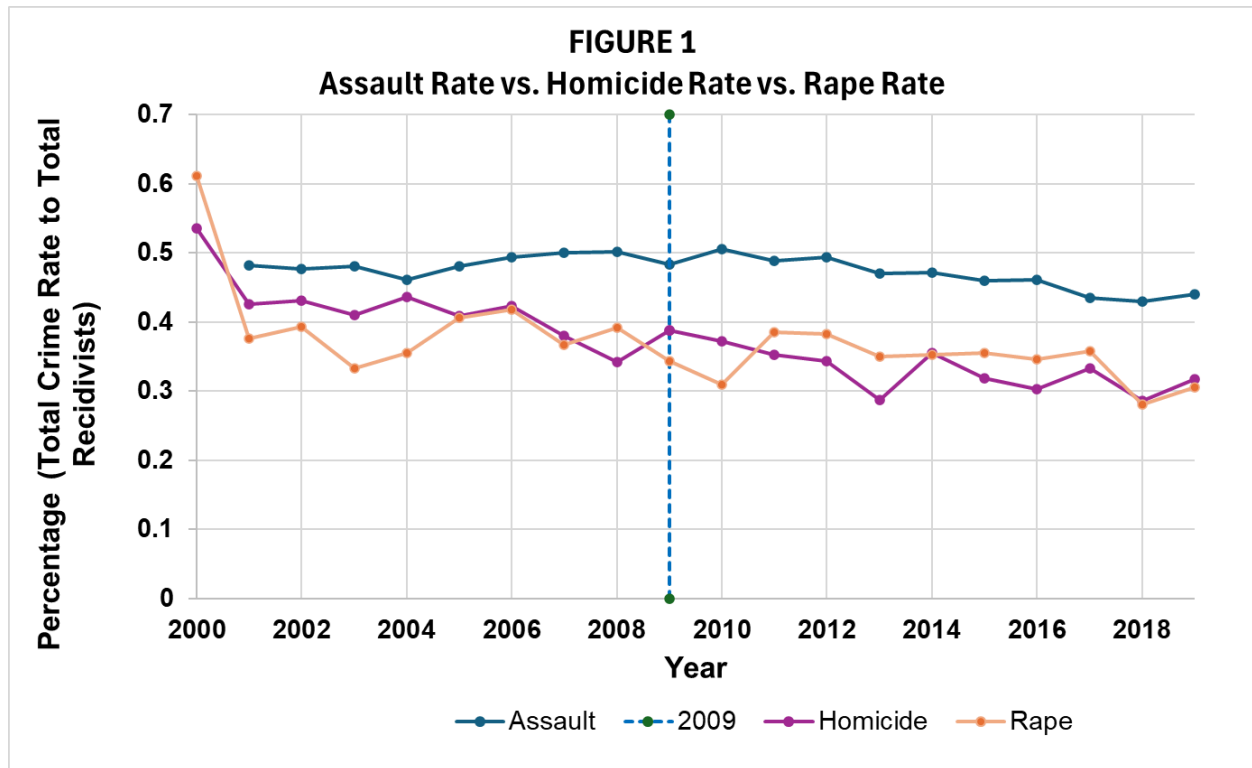
are not included in these statistics, and it is possible that these people who escape detection fall under any specific category of crime (e.g. people who escape detection might usually be those who commit crimes of homicide). Therefore, for the integrity of the study, we must assume that those who are not prosecuted despite having committed a crime are evenly dispersed among the different crimes listed in the White Papers.

## 4.5 Results

When analyzing the results of the difference-in-differences model, it is important to note that if the p-value is significant ( $p < .05$ ) then this will indicate that the rates which are tested have been significantly impacted by the treatment. Conversely, if the p-value is insignificant ( $p > .05$ ), then the treatment has had no significant impact. We expect that the crime rates affected by the reform will result in a statistically significant difference when tested against the untreated control variables and will prove that the reform had a significant effect on recidivism rates. We will also expect that when treated and control variables are tested against themselves, it will produce an statistically insignificant result.

In using RStudio to test my argument using the difference-in-differences model (using the function “didreg”), I found statistically significant results when comparing the treated and control variables. In testing homicide (treated) against assault (control) in the difference-in-differences model, I found the difference to be statistically significant at  $p < .05$  (see Appendix B). Similarly, when testing rape (treated) against assault (control) the result was also statistically significant at  $p < .05$  (see Appendix B). Figure 1 demonstrates the substantive impact that the reform had on crimes tried under the lay judge system (homicide and rape) compared to assault and is supported by the results of the difference-in-differences test. As to the test of homicide (treated) against assault (control), the coefficient of *did* was positive (.11) and

significant at  $p < .05$ , indicated that recidivism in relation to homicide (treated) actually increases compared to recidivism in relation to assault (control). When testing rape (treated) against



Source: Author made this figure using Excel with data from the Japanese Ministry of Justice’s White Papers on Crime.

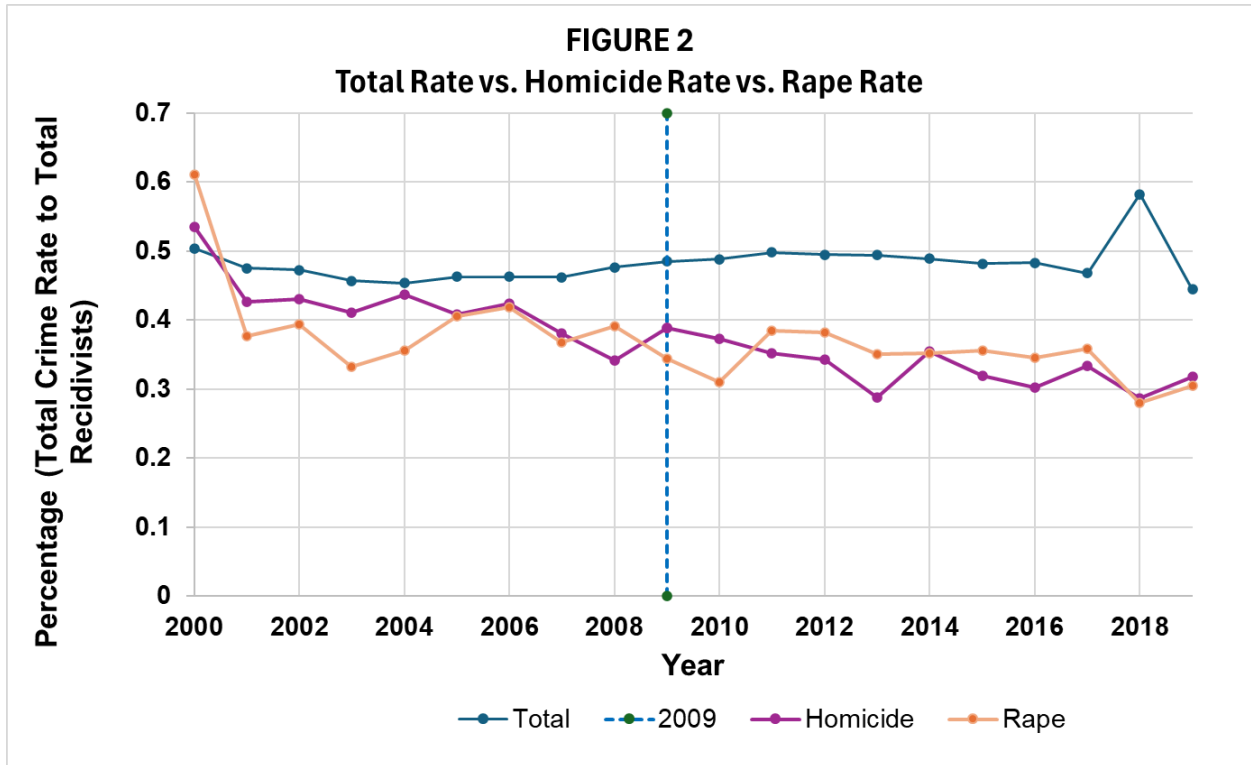
Note: This figure compares percentages of recidivists to total number of criminals from three types of crime (assault, homicide, and rape) before and after the year 2009, from 2000 to 2019.

(assault), the results also indicate a positive value in the coefficient of *did* (.12), similarly indicating that the trend line of rape (treated) actually increased in comparison the anticipated regression line in the difference-in-differences model. This regression model (see Appendix B) suggests a baseline of .47, supporting the idea that typically the severe crimes that are tried under the *saiban-in* system tend to have lower rates of recidivism compared to those that have been consistently tried under professional judges.

Figure 1’s *x-axis* describes the year in which the crimes were prosecuted and the *y-axis* describes the percentage in decimals of recidivists to total crime. It also provides a visual

representation of the difference that the regression line of assault (control) has with homicide (treated) and rape (treated). The significant results from this model indicate that the implementation of the *saiban-in* did, in fact, influence the recidivism on the crimes that it affected.

For a broader test, I used the difference-in-differences model comparing the percentage of total number of recidivists to the total number of crimes prosecuted (“total rate”) (control) (subtracting the rates of homicide and rape) against the percentage of recidivists who committed the crimes of homicide and recidivists who committed the crime of rape (see Appendix B). In testing the homicide rate (treated) against the total rate, I found the results to be statistically significant ( $p < .05$ ), indicating that the treatment did have an effect when compared to the control. Moreover, the difference-in-differences test produced a negative estimate for the *did* coefficient (-.11), indicating that the recidivism rate for homicide decreases in comparison to the total rate. This provides greater support to the argument that the *saiban-in* system was in fact responsible for the subsequent decrease in recidivism rates for the treated variables due the results being statistically significant ( $p < .05$ ) and the coefficient of *did* being negative (-.11).



Source: Author made this figure using Excel with data from the Japanese Ministry of Justice’s White Papers on Crime.

Note: This figure compares percentages of recidivists to total number of criminals from three types of crime (total subtracting homicide and rape, homicide, and rape) before and after the year 2009, from 2000 to 2019.

Figure 2 provides a visual representation of the trends that of the total rate of recidivism, the rate of recidivism for homicide, and the rate of recidivism for rape. The *y-axis* signifies the percentage in decimals of recidivists out of the total rate for each respective crime, and the *x-axis* signifies the years in which these crimes occurred.

According to the product of the difference-in-differences calculations made by the RStudio program, there is a statistically significant change that occurs after the treatment is administered. Therefore, because the p-value has been consistently less than .05 when comparing a treatment variable to a control variable and is thus a statistically significant result, our findings demonstrate that the implementation of the lay judge system has had a lasting impact on recidivism in the crimes that it affects.

Lastly, in order to test if every crime would differ significantly from one another, we will test both the controls and the treatment variables against themselves using the same method. Testing homicide rates (treated) and rape rates (treated) against each other produced statistically insignificant results ( $p > .05$ ) (see Appendix C) when using our statistical model, thereby demonstrating an insignificant difference in how the two crimes were affected by the treatment. In addition, when testing assault rates (control) against the total rates (control), this similarly produced an insignificant result ( $p > .05$ ) (see Appendix C). As a result of these two tests, we are able to determine that the treated and control variables in this paper do not differ significantly from themselves before and after 2009. This substantiates the previous results in that it verifies that when tested, each crime rate will differ from one another regardless of whether they are treated or a control, and I am subsequently able to verify the previous results.

## **V. Explanation and Analysis**

### **5.1 Relationship Between Sentencing and Recidivism**

Due to the fact that the treated (i.e. rape rates and assault rates) and control (i.e. assault rates and total rates) variables have been established to be different in a statistically way, we are able to draw predictions of why this is true. My original argument that harsher sentencing is directly correlated with mitigation of recidivism is substantiated by previous studies to this effect and by the results of the tests in this paper.

I argue that it is probable that harsher sentencing resulting from the influence of *saiban-ins* contributes to the statistically significant difference found through the difference-in-differences model. In an experiment performed to test the relationship between longer or harsher sentences and recidivism, researchers utilized data from the Washington State

Sentencing Guidelines to group judges and the sentences that they dealt to various offenders that were randomly assigned to their respective judges. From regressions produced from measuring the percentage of offenders who recidivate and the “average relative harshness” of the sentences imposed upon them, they were able to determine that “an additional month of imprisonment leads to a 1 to 1.5 percentage points decline in recidivism on a 12 percent average rate” (Roach, et al. 2015, 11) throughout the first year of release. While the crimes tested in this article are relatively short with the median at four months, it still provides insight on the direct impact of harsher sentencing on the probability that a criminal will recidivate.

Furthermore, while empirical research on the connection between the severity of sentences and recidivism is limited, there have been multiple studies performed on the federal offender population in the United States. Two studies noted in an article published by the Federal Sentencing Reporter indicate a relationship between the duration of sentences and recidivism. One study noted that the “likelihood of recidivism was reduced by approximately one percent for every 7-5-month increase in sentence length” and another stated that offenders “receiving sentences of more than 60 months had lower odds” (Cotter 2022).

Thus, there is prior literature and studies that substantiate the argument that higher and harsher sentences have a direct and negative relationship with subsequent recidivism.

## **5.2 Relationship Between Sentencing and *Saiban-ins***

One plausible explanation for the potentially causal relationship between the implementation of the *saiban-in* system and rates of recidivism is the newfound demographic of those deliberating the verdicts. For instance, the aforementioned inclusion of women in the *saiban-in* panel has been found to influence the sentence that results from the trial, especially in instances of rape. Previously, very few women, if any, were involved in Japanese trials.

However, with the instatement of the *saiban-in* system, women are now able to use their perspective and experiences to inform their decisions and deliberations on cases. In particular, sex crimes seem to have been especially impacted. Even in the past, previous leniency in sentencing sexual predators “has been often criticized both domestically and internationally” (Hirayama 2012, 15), demonstrating the professional judges’ inclinations when sentencing these types of crimes. When considering the tendencies of the *saiban-ins* in their sentencing, it is evident that “lay judges are more likely to render harsher punishment against sex offenders, even more so than professional judges” (Hirayama 2012, 13). This might also be applied to other cases tried under a *saiban-in* panel where certain circumstances of crimes might evoke more sympathy from a lay judge panel than a professional judge.

Furthermore, lay judges seemed to be less removed and more invested in the case than anticipated. In the year following the implementation of the *saiban-in* system, 2010, it was demonstrated that “people showed up with great enthusiasm and high percentages, ranging from 61 to 91% appearance rate in most court jurisdictions” and “lay judges agreed to participate in post-trial press interviews in 95 percent of *Saiban-in* trials” (Hirayama 2012, 2). These statistics demonstrate a high degree of investment in these cases by the randomly selected juries and it may be inferred that this results from the empathy of the lay juries that distinguish them from the professional judges. Furthermore, the novelty of these cases for the lay judges involved also differentiates them from professional judges. One possible explanation for their deep involvement in every case is that each lay judge has likely only participated in very few cases, while a professional judge may have sat on dozens of trials. It is likely that professional judges have both less time and are possibly more desensitized due to their degree of exposure to such crimes, whereas lay judges have a far more limited experience with these crimes and thus they

might evoke more sympathy and shock, instigating harsher sentences than would be typical of a professional judge.

Approximately 20% out of the more than two thousand trials tried by the *saiban-in* panels will be sex crimes (Hirayama 2012, 4). Mari Hirayama in her article “Lay Judge Decisions in Sex Crime Cases: The Most Controversial Area of Saiban-in Trials” discusses specifically both the public and legal opinions of lay judge panel’s sentencing in cases of sexual assault (i.e. rape at the scene of a robbery, rape causing death or injury, forcible indecency causing death or injury (White Paper on Crime 2013, Part 2, Chapter 3)). Hirayama’s research has indicated that, as of 2011, that while there appeared to be a disparity between the number of male and female lay judges in sex crimes cases specifically, female lay judges still managed to communicate and advocate their perspective despite being outnumbered and having different opinions than their male counterparts (Hirayama 2012, . 10). This is an especially controversial subject due to its sensitive nature, and this nature of crime has been said to have not received the punishment that popular opinion would generally agree that it would warrant. Thus, the popular opinion, even among professional judges, appears to be that the lay judge system implemented in crimes such as these is a positive change in the justice system that better represents the populace in their movement towards democracy. This substantiates the idea that lay judge panels are imposing harsher punishments on criminals that may have received lighter sentences in the past.

However, it is clear that the newfound emotional facet of trials has been restrained by the Supreme Court of Japan. This can be seen in their “landmark decision on the issue of relevancy” which allowed courts to limit provocative emotional appeals to *saiban-in* panels, including a particular case involving a small child that certain pictures were deemed inadmissible due their “obvious” appeal to the emotions of the lay judge panel (Wada 2020, . 362). It is not clear,

however, if these restrictions will truly have a significant impact on reducing the “emotional” part of the *saiban-ins*. Nonetheless, this type of limitation demonstrates the Japanese federal government’s acknowledgement and potential disapproval of the extent to which *saiban-ins* are impacted by the subjective and sensitive aspects of trials and their belief in the necessity to mitigate the impact on trials.

## **VI. Conclusion**

The *saiban-in* system is unique to Japan, but the principle of including citizens in deliberating criminal sentencing is not. These findings carry far-reaching implications regarding the impacts of a trial system that incorporates lay people, especially those with little experience with crime or the law. In Japan specifically, this paper supports the theory that the *saiban-in* system is directly correlated with trends of recidivism, and that it has likely reduced recidivist rates since it has been implemented. The statistical model yielded results that substantiated this hypothesis, in that the difference-in-differences model demonstrated a statistically significant difference between rates of crimes treated by the *saiban-in* system and rates of crimes that were used as a control. The correlation between jury trials and recidivism has been significantly understudied, particularly in the context of Japanese history and culture. While the lay judge system encountered notable resistance and criticism, its implementation proved to have its intended impact in its apparent reduction of recidivism and encouragement of citizens’ involvement in the justice system.

Moreover, studies such as this one might encourage other countries (e.g. Mexico, Chile, Netherlands, etc.) to adopt such a trial system in order to mitigate the overwhelming proportion of crimes that are committed by recidivists. Japan’s historically high conviction rate evidences

the portability of the results of this paper, as it demonstrates that even a justice system that one would expect to yield historically low recidivism rates is still capable of change and improvement through alterations to its long-established traditions of trials. However, in order for this to be a more substantiated claim, there should be a larger range of years tested in order to obtain a larger sample size and thus a more veritable conclusion. Further research should be ideally executed in several years in order to have an improved sense of the effects of the Japanese lay judge system reform.

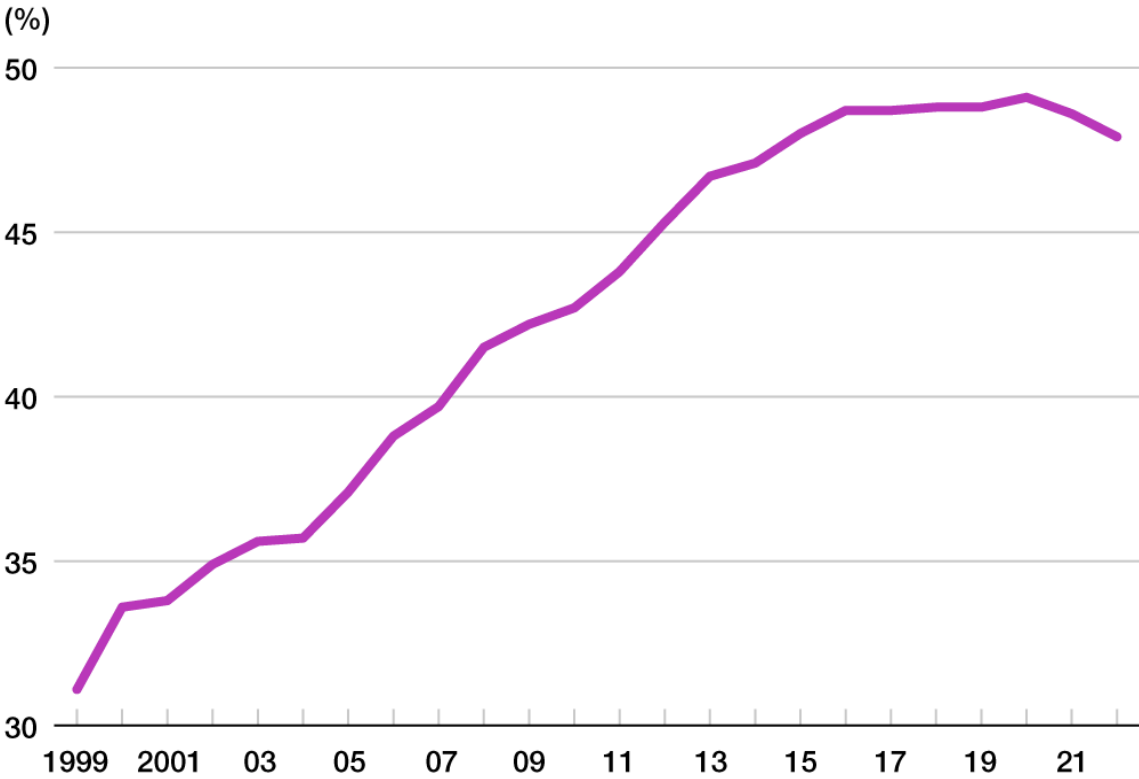
Additionally, attention should be paid to whether the outcomes of these trials are representative of the beliefs of the overall population. One primary incentive to include lay judges in the deliberation process is that societal perspectives should be factored into judicial processes in order to facilitate a more democratic system. Thus, additional research should be made in order to assess how representative the verdicts of these trials are of the general population, and if the professional judges' presence on the *saiban-in* panels has a larger influence than anticipated.

# Appendices

## Appendix A

Source: “Annual Crime Figures in Japan Rise for First Time in 20 Years.” *Nippon.Com*, 27 Dec. 2023. [www.nippon.com/en/japan-data/h01860/#:~:text=The%20total%20number%20of%20arrests,two%20consecutive%20years%20since%202021](http://www.nippon.com/en/japan-data/h01860/#:~:text=The%20total%20number%20of%20arrests,two%20consecutive%20years%20since%202021).

### Proportion of Arrests Involving Repeat Offenders



Created by *Nippon.com* based on the Japanese Ministry of Justice’s 2022 White Paper on Crime.



This graph provides a visual representation of the percentage of crimes (*y-axis*) which are committed by recidivists from the years 1999 to 2022 (*x-axis*).

## Appendix B

### Results from RStudio

Function: “didreg” function for comparing trend lines of the percentages of recidivists (i.e. total crime rate : recidivist crime rate).

Call: lm (formula = y ~ treated + time + did, data = recidivist\_data)

#### Homicide v. Assault

Residuals:

Min	1Q	Median	3Q	Max
-0.07405	-0.02292	0.00000	0.02338	0.07615

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	0.474485	0.009334	50.836	< 2e-16 ***
treated	-0.113789	0.013200	-8.620	3.55e-10 ***
time	0.008300	0.040685	0.204	0.8395
did	0.112143	0.050263	2.231	0.0322 *

---

Signif. codes:

0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.0396 on 35 degrees of freedom

#### Homicide v. Total Crime

Residuals:

Min	1Q	Median	3Q	Max
-0.079493	-0.013235	-0.003132	0.007419	0.113950

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	0.46965	0.01191	39.431	< 2e-16 ***
treated	-0.04793	0.01684	-2.845	0.00728 **
time	0.02214	0.01606	1.379	0.17646
did	-0.11120	0.02271	-4.896	2.06e-05 ***

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.03573 on 36 degrees of freedom

(99 observations deleted due to missingness)

Multiple R-squared: 0.7776, Adjusted R-squared: 0.759

F-statistic: 41.95 on 3 and 36 DF, p-value: 7.707e-12

### Rape v. Assault

Residuals:

Min	1Q	Median	3Q	Max
-0.11760	-0.01338	0.00000	0.02254	0.11760

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )	
(Intercept)	0.474485	0.009646	49.192	< 2e-16	***
treated	-0.116851	0.013641	-8.566	4.13e-10	***
time	0.008300	0.042044	0.197	0.8446	
did	0.127976	0.051943	2.464	0.0188	*

---

Signif. codes:

0 '\*\*\*' 0.001 '\*\*' 0.01 '.' 0.05 ' ' 0.1 ' ' 1

Residual standard error: 0.04092 on 35 degrees of freedom

(80 observations deleted due to missingness)

Multiple R-squared: 0.7022, Adjusted R-squared: 0.67

### Rape v. Total Crime

Residuals:

Min	1Q	Median	3Q	Max
-0.073305	-0.014816	-0.003132	0.007041	0.205461

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )	
(Intercept)	0.46965	0.01536	30.571	< 2e-16	***
treated	-0.06360	0.02173	-2.927	0.00589	**
time	0.02214	0.02071	1.069	0.29218	
did	-0.08539	0.02930	-2.915	0.00608	**

---

Signif. codes:

0 '\*\*\*' 0.001 '\*\*' 0.01 '.' 0.05 ' ' 0.1 ' ' 1

Residual standard error: 0.04609 on 36 degrees of freedom

(99 observations deleted due to missingness)

Multiple R-squared: 0.6539, Adjusted R-squared: 0.6251

F-statistic: 22.67 on 3 and 36 DF, p-value: 2.033e-08

## Appendix C

### Results from RStudio

Function: “didreg” function for comparing trend lines of the percentages of recidivists (i.e. total crime rate : recidivist crime rate) against themselves (i.e. treated v. treated, control v. control).

Call: lm (formula = y ~ treated + time + did, data = recidivist\_data)

### Rape v. Homicide

Residuals:

Min	1Q	Median	3Q	Max
-0.07949	-0.03054	0.00114	0.01325	0.20546

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	0.42172	0.01722	24.489	< 2e-16 ***
treated	-0.01567	0.02435	-0.644	0.523947
time	-0.08906	0.02322	-3.835	0.000486 ***
did	0.02581	0.03284	0.786	0.437076

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.05166 on 36 degrees of freedom

(79 observations deleted due to missingness)

Multiple R-squared: 0.3808, Adjusted R-squared: 0.3292

F-statistic: 7.379 on 3 and 36 DF, p-value: 0.0005624

### Assault v. Total Crime

Residuals:

Min	1Q	Median	3Q	Max
-0.044032	-0.014328	0.000948	0.013497	0.101745

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	0.4744851	0.0062254	76.217	<2e-16 ***
treated	0.0064877	0.0088041	0.737	0.466
time	0.0082999	0.0271361	0.306	0.762
did	0.0002447	0.0335250	0.007	0.994

---

Signif. codes:

0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.02641 on 35 degrees of freedom

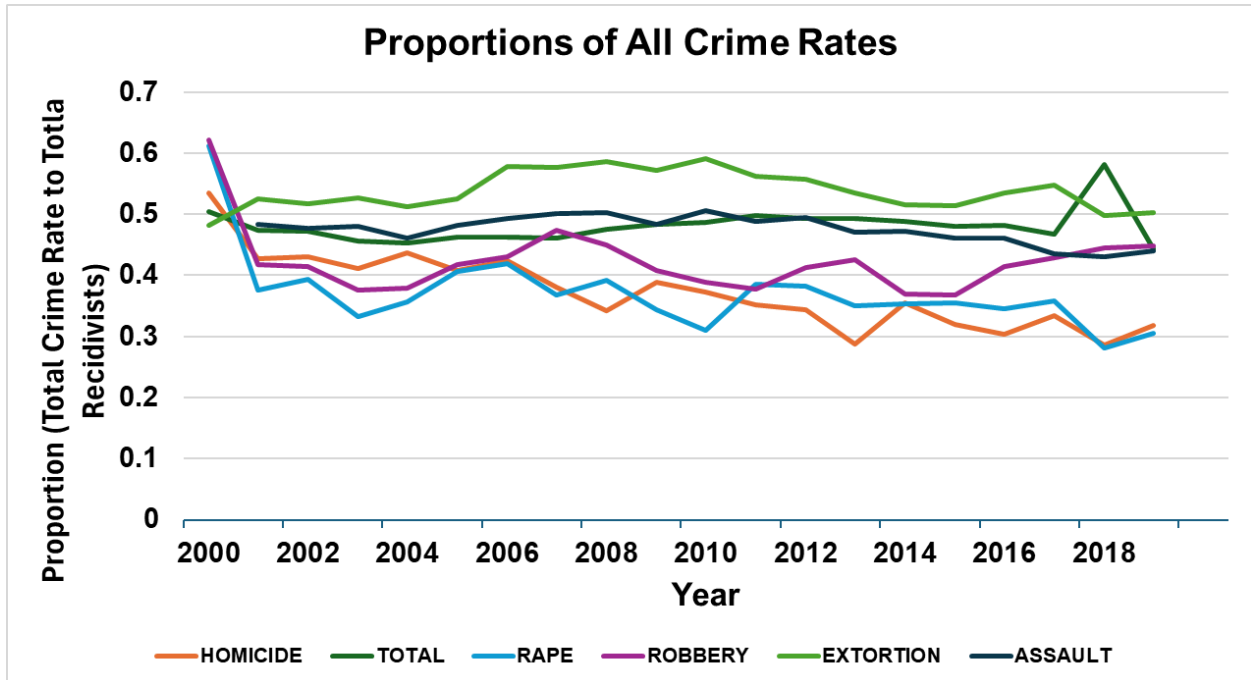
(100 observations deleted due to missingness)

Multiple R-squared: 0.02637, Adjusted R-squared: -0.05708

F-statistic: 0.316 on 3 and 35 DF, p-value: 0.8137

## Appendix D

Visual Representation of All Crime Rates Mentioned (Proportions of Recidivism Rates to Total Rates)



Source: Author made this figure using Excel with data from the Japanese Ministry of Justice’s White Papers on Crime.

Note: This figure compares percentages of recidivists to total number of criminals from six types of crime (total, assault, homicide, robbery, extortion and rape) before and after the year 2009.

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