Media Reports and Judicial Convictions of Sex Crimes in India

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Abstract

Does media coverage of sexual crimes affect judicial decision-making? I answer this question using rich administrative data on the universe of cases filed in lower courts in India. I combine these court data with high-frequency daily district-level media coverage of sexual crime events that are unrelated to the case on trial. Using a generalized difference-in-difference model, I find that judges are more likely to convict individuals charged with sexual crimes that carry low punishments, when they are exposed to more media reported events in their jurisdiction. I find suggestive evidence that a central mechanism behind this result is heightened judicial scrutiny of these cases in response to greater media coverage. I do not find an impact on the more serious sexual crimes that may involve forensic evidence. These findings highlight the role of media as an extra-legal factor impacting judicial decision-making processes.

Keywords: Sexual Crimes, Media, Judicial Decision-Making
JEL Classification: J16, K14, L82

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1 Introduction

Globally, one in three women has experienced physical or sexual violence in their lifetime [Ferrari et al., 2022].[1] Not only does this infringe on women's basic human rights and also restrict women's mobility, but this has far-reaching implications for women's mental and physical health. Fear of such crimes poses substantial economic costs for women in terms of their human capital accumulation [Borker et al., 2021], labor market participation [Siddique, 2022, Chakraborty et al., 2018, Adams-Prassl et al., 2022, Batut et al., 2021], and earnings [Folke and Rickne, 2020]. Given these psychological and economic costs of sexual crimes on women, and the fact that many offenders go unpunished, understanding the judicial system's role in tackling sexual crimes is imperative - both for providing justice and deterring future crimes.

The nature of sexual crimes is such that they often lack concrete facts or evidence, leaving some scope for the discretion of the agents in the legal system for the resolution of these cases. This may allow for extraneous influences in decision-making. Media coverage of sexual crimes may contribute to society's knowledge, attitude, and perception of these crimes. For example, the #MeToo movement brought the issue of these sexual crimes to center stage [Levy and Mattsson, 2021]. However, we do not know if such media coverage changes judicial outcomes and systematically increases the costs of sexual crimes for the perpetrators, or affects the punishments meted out to them. In the absence of granular data on case-specific judicial outcomes and media coverage, it is difficult to rigorously study the role media plays in influencing judicial outcomes.

In this paper, I examine if judges are more likely to convict individuals charged with sexual crimes when those judges are exposed to broader media coverage of such crimes. I take advantage of rich administrative data on the universe of all sexual crimes filed in the lower courts of India between 2014 and 2018, that have also had a final decision within this time frame. These include rape and sexual assault cases.[2] I combine these individual case-level data with novel data on daily district-level media coverage of sexual crime events that are unrelated to the case on trial.

[1] The spectrum of behaviors that encompass sexual assault is far and wide. Research by Stop Street Harassment found that in the United States, 65% of all women surveyed had experienced street harassment and research by ActionAid in 2016 found that 44% of women surveyed in India had been groped in public.

[2] As per the Indian Penal Code, sexual assault includes the following offences: assault of criminal force on a woman with intent to outrage her modesty, sexual harassment, assault or use of criminal force on a woman with intent to disrobe, voyeurism, and stalking. Rape includes any penetrative or non-penetrative non-consensual act.

Using a generalized difference-in-difference model, I exploit substantial spatial and temporal variation in this media exposure prior to the final verdict and ask if judges who are exposed to more media coverage before making the final decision in the case are more likely to convict those charged with sexual crimes than judges who are exposed to less media coverage. I control for judge and court-level unobserved heterogeneity in decision-making and evaluate the impact conditional on overall trends in the probability of conviction at the time of case filing. I find that an increase in media coverage prior to the final verdict increases the probability of conviction for sexual assault cases. A one standard deviation increase in media reports increases the probability of conviction in sexual assault cases by 1.5 percentage points. This is an economically meaningful impact given the baseline level of conviction rate of 12% for sexual assault cases. I find no impact of media exposure on conviction in rape cases. This may be explained by the reliance of prosecution in rape cases on forensic and physical evidence in such cases, leaving less room for judicial discretion. Cases filed as sexual assault, on the other hand, may include sparse and ambiguous physical evidence, therefore may be more difficult to interpret. Moreover, a conviction in a rape case carries harsher punishments making it costly for the perpetrator, thus leaving less scope for local extraneous factors like media exposure to sway the decision-making in courts. To test if these effects are driven by some underlying trends in changes to the criminal justice system that might impact conviction rates in other crimes as well, I check if media coverage of events related to sexual crimes impacts conviction rates for non-sexual crimes like non violent property crimes that are handled by the same judges who handle sexual crimes as a placebo test. I find that there is no impact on these crimes, as one would expect. These results are robust to varying definitions of case outcome and media exposure.

Media coverage of events related to sexual crimes may change the probability of conviction by making these crimes more salient in the minds of all agents involved and altering their decision-making. I consider the impact of media coverage on reporting behaviour of victims, police' behaviour on filling cases and explore higher court-level judicial scrutiny as the three plausible mechanisms. I find that an increase in media reports does not change the supply of cases in the courts, or the composition of the courts. I also find descriptive evidence of no impact on police behaviour in filing the cases as measured by the time taken by the police to file a chargesheet with their investigative evidence in response to the media coverage before case came to the police. Considering these, I find suggestive evidence of higher

judicial effort, and the effects on conviction are likely to be driven by the behaviour of the judges, and the cases being subjected to greater scrutiny by the judges. To test that this is coming from the judicial behavior, I find that the impact on conviction is strongest, when there is a high media coverage one or two months before the case decision, and the effect plateaus as I include more months in the exposure time period. This is crucial since the exact timing of trial and hearing is plausibly decided months ahead of timing, making the change in decision making solely about judicial decision making, after the lawyers and the role of police in court, other statements from defendants is over. To argue that there is higher judicial effort conditional on the supply of cases, I find that a one standard deviation increase in media exposure increases the time taken by judges to reach a final verdict in sexual assault cases by 1.5 months, and increases the number of hearings as well.

These results have important implications for judicial efficiency. For a judicial system that is already strained with a high case-load, this increased scrutiny in sexual crimes comes at cost. I find that there is a correspondent increase in the time taken by these same judges to take a final decision for non-violent property cases as well. Not only is the spillover on these non-sexual crimes of the same magnitude, the spillover is higher for the judges who have a higher case-load of sexual crimes.

These results could suffer from several identification threats. First, the main identification relies on the randomness in timing of the media coverage of sexual crime events in the Indian districts and the randomness in the date of the case decision. Primarily, the case decision date is set depending on the next available date as per the court-schedule, after the investigative proceedings are over and all statements have been recorded, leaving little to no room for manipulation. The likely randomness in media coverage on sexual crime events in the country depends on the limited media space available for coverage of any types of crimes and political events. Given that sexual crimes are pervasive across the country, the variation in media reported events that I exploit for the analysis are a measure of media's decision to report the event, rather than the incidence of such events[3]. The identification strategy, therefore, depends on the variation in media coverage of sexual crime events within each judge, over time. Second, to test the identifying assumption that local media coverage of unrelated sexual crimes before the decision is orthogonal to the characteristics of the cases on trial, I regress case

[3]I find a sharp increase in media coverage of sexual crimes after the Nirbhaya incident in 2012, which remains high thereafter. It is unlikely that the number of incidents changed. Infact, Sahay [2021] finds that the number of incidents did not change after the Nirbhaya incident, but reporting went up.

level characteristics on media coverage controlling for the location and time specific controls. I find no association between the case characteristics and media coverage. I also regress the case outcomes on all case characteristics and location and time specific controls and check for the correlation between the residuals and the lagged media coverage, and yet again there is no correlation between the two. Third, the results would be biased if there is reverse causality, i.e. if there is more discussion by the media of cases that are on trial, that are high-profile, and likely to see a conviction. I conduct text analysis on a random subset of media articles and find that the media articles are unrelated to the cases on trial in lower courts, and most of them are about cases that are happening on any given day and they would reach the court only months later. Fourth, since I consider only completed cases, the results could suffer from a selection bias, as I might not be able to capture the cases where the judges are scrutinizing more owing to the increased media exposure. Further, the same selection would affect the result on timings of the cases. I find in my data, that the convicted cases see a slightly longer duration. This type of selection of would not allow me to include cases that are currently ongoing, likely to see a conviction, but are going on longer due to greater scrutiny with the restriction on completed cases. This implies that the estimated effect on convictions and time taken is underestimated. I check the robustness of the results on scrutiny with a subset of cases that have been going on for longer than a year, looking at the probability of case taking longer than a year to get at a decision, rather than the number of months, and by leaving out a couple of months before the case decision. The results are robust in all cases. For the last case, since most of the impact comes from media exposure a few months before the case decision, I lose out on the statistical significance of this result, but the direction of the coefficient is still in the expected direction. I also test the robustness of these results using inverse probability weights based on the likelihood of selecting into the sample, and find that the results are robust.

I explore heterogeneity in the impacts of media coverage on judicial decisions regarding sexual crimes by judge gender, judge experience, and the local political environment. I find that judges who are female and junior judges are more likely to convict in response to media reports as compared to male judges and senior judges respectively. Moreover, judges are less likely to convict in response to these media reports in the presence of a higher share of criminally accused politicians in their jurisdiction. However, these differences are not significantly different from zero.

This work makes three main contributions to the literature. First, this paper contributes to the

growing literature on the impact of local media on economic outcomes and behaviors. A large number of papers have focused on outcomes like political participation [Gentzkow et al., 2011] and voting [DellaVigna and Kaplan, 2007], sentiment around immigration [Fryberg et al., 2012, Farris and Silber Mohamed, 2018], vaccine compliance [Archibong and Annan, 2021] and women's status [Jensen and Oster, 2009]. A smaller set of papers have looked at the impact of media on judicial outcomes. Prior work in the literature is based in the United States [Lim et al., 2015, Ash and Poyker, 2019], where researchers have looked at the impact of local and national news coverage on criminal sentencing in contexts where the electorate can hold the judges accountable by electing them. Philippe and Ouss [2018] find that television broadcasting of unrelated criminal justice events affects sentencing. To the best of my knowledge, this is the first paper that looks at this question in the context of India, where judges are not elected by the citizens but are rather appointed, and accountability may not be the main channel of operation [4]. I show that the variation in events covered by media may have a significant impact on judicial decision-making, possibly by making the topic salient in minds of decision-makers at least in the short run.

Second, I contribute to the broad literature on the impact of extra-legal factors on judicial outcomes by specifically looking at sexual crimes. The extra-legal factors that have received attention in the literature include racial bias in judicial decision making including the harshness of judges toward specific racial identities [Abrams et al., 2012, Alesina and La Ferrara, 2014], physiological deprivation that makes judicial decisions harsher [Danziger et al., 2011, Mehmood et al., 2020], and emotional shocks that affect the sentencing length [Eren and Mocan, 2018], environmental factors like the temperature [Heyes and Saberian, 2019] and air pollution [Hou and Wang, 2020], workplace disruption causing heavy workload [Shumway and Wilson, 2022]. Specific to India, in-group bias in judicial decision-making [Ash et al., 2021] and early childhood exposure to riots by the judges [Bharti and Roy, 2020] are the two extra-legal factors that have been studied. This paper extends the knowledge about the role of media as an extraneous factor, that may play a role in judicial processes specific to sexual crimes.

Third, using granular case-level data, the paper contributes to the evidence on the response of state-appointed officials in convicting defendants in crimes against women cases. Cross-country evidence suggests that governments around the world are more concerted to protect women from male violence

[4] Ash and Poyker [2019] find no impact of exposure to conservative news coverage in the United States on sentencing harshness for appointed judges

when they are under pressure from strong feminist movements Htun and Weldon [2012][5]. Specific to India, several studies have investigated policies or events that could change an individual's reporting behavior, like women's engagement in the legal offices or police stations [Amaral et al., 2021], training police officers [Sukhtankar et al., 2022][6] and public activism following the gruesome infamous Nirbhaya gang rape case that happened in Delhi in 2012 [Sahay, 2021, Mathur et al., 2019, McDougal et al., 2021]. The impact on conviction rates and judicial involvement is, however, not explored as much[7].

In contexts where the criminal justice system and law enforcement personnel continue to be biased against women[8], understanding the judicial response to sexual crimes is key because if the criminal justice system turns a blind eye to sexual harassment and assault, violence continues with impunity. In terms of policy relevance, this work helps in acknowledging the presence of extra-legal factors in judicial decision-making in India. My results show that in a context where victimization is stigmatized and costly, the legal enforcement system is biased, to begin with, and is understaffed and strained, and the rates of convictions for sexual crimes are depressed, factors like media coverage of events about sexual crimes can loom large on the criminal justice system.

The paper is structured as follows: in the second section, I discuss the institutional context of the Indian judicial system and the landscape of dealing with sexual crimes in the country and explain the data used in this study. Next, I discuss the empirical strategy and thereafter discuss the results and possible channels that explain the results in section 4. I conclude in section 5.

2 Institutional Context and Data

2.1 Criminal Justice System in India

The Indian judicial system has a jurisdictional hierarchy and follows the common law system. At the top is the Supreme Court, then there are 25 state High Courts, 672 district courts below them, and

[5] [Htun and Weldon, 2012] curate data on historical feminist movements in countries that include coverage of ideas and feminist initiatives; and the strength of these movements as measured by media presence and coverage of the same.

[6] They find that training and assigning female officers across police stations in India increases police registration of cases of violence against women.

[7] Sahay [2021], Mathur et al. [2019], McDougal et al. [2021] look at aggregate conviction rates and case pendency of crimes against women cases in India using district level aggregated information.

[8] Roychowdhury [2020] sheds light on this in the Indian context by discussing how women claim rights against violence in India when law enforcement personnel are unwilling to enforce the law.

about 7000 subordinate courts below the district courts. The judges in India have high authority as there are no juries. The judges are recruited after a written examination and oral interview by a panel of higher-court judges, and they are appointed by the governor after consulting with the state high court's chief justice.

The focus of this paper is on sexual crimes against women. These cases are filed as criminal cases in India. Ash et al. [2021] find that the assignment of a criminal case to a judge is exogenous and follows the following procedure: First, a crime is reported at a local police station where is crime took place. The police station is associated with a district courthouse, which received the case. The courthouse could have a single or multiple judges. If it is a single judge, then the case gets assigned to them. If there are multiple judges, a rule-based process is followed to determine the judge assignment. There is a court assigned for every police station and every charge.

In December 2012 in New Delhi, India, six men tortured and gang-raped a 23-year-old girl in a moving private bus in which she was traveling with her friend - which lead to her murder. The incident was followed by a widespread public uproar in Delhi and elsewhere in the country where people took to the streets demanding swift justice for the deceased victim, and urgent action to guarantee the safety of women in the city. The incident was covered extensively in the national and international media and was widely condemned worldwide. Following these protests, in 2013, the Criminal Law (Amendment) Ordinance was promulgated, in which several new laws were passed, more sexual crimes were included as criminal offenses, and new fast-track courts were set up to hear rape cases. This case is analogous to the #MeToo in the developed world, which changed the public discourse on sexual crimes and lead to an uptick in the discussion about sexual crimes in India Mathur et al. [2019]. For the context of this paper, I use this variation in public sentiment on sexual assaults in the post *Nirbhaya* world.

2.2 Judicial Data

To measure case level outcomes, I use the case records filed between 2010-2018, from the Indian eCourts platform that has been made available by Ash et al. [2021]. This data source has the case filing date, hearing date, and the decision date for the universe of cases filed in India's lower judiciary - consisting of all courts including and under the jurisdiction of the District and Sessions court. Along with these life cycle details of the court case, Ash et al. [2021] have provided the judge identifier in each court, and

their gender for the criminal cases. Using the sections under which each case has been filed, I identify sections related to crimes against women - which include rape, sexual harassment, dowry-related death, and outrage of modesty amongst others. Cases can be filed under multiple crimes, but I only observe the section for the crime which has the highest punishment in terms of the years in jail. I can identify these individual cases at the district level. Based on the final outcome description, I categorize case outcomes as conviction, acquittal, and those where the defendant is free, for those cases where the outcome is final and unambiguous. The various categories are shown in Table A1.

2.3 Media Reports

To measure the daily media coverage of sexual crime events in a district, I use data from the Global Data on Event, Language, and Tone (GDELT). This large open-source database collects information on political conflicts in the world based on news reports from a variety of international news sources[9] from 1979 to the present. An open-source text analysis algorithm (TABARI or the Text Analysis by Augmented Replacement Instructions) is run on these news reports to identify events by searching the articles for actions carried out by one actor on another. These actions are then coded into approximately 15,000 actions using the Conflict and Mediation Coding System (CAMEO), and are geotagged to the location of the action. Some examples include **"make public statement"**, **"threat"**, **"protest"**, and **"assault"** among others. On the intensive margin, the database counts the number of articles associated with each event and post 2015, the average tone across all articles published in the first 15 minutes for that event.

I extract events coded as **"sexual assault"** that consist of any actions pertaining to sexual abuse or an assault on the sexual integrity of individuals, in India. I map these events to district boundaries in India using the 2011 Census administrative boundaries and calculate the number of daily events per 10,000 individuals in each district in the country.

[9]The sources relevant to the Indian context include national and international news from Google News. The list of other international news sources can be found at http://data.gdeltproject.org/documentation/ISA.2013.GDELT.pdf. A list of digital news portals in India picked up by Google News for a random date is shown in Table A5 in the Appendix.

2.3.1 What do these media reports measure?

The average tone of each event is calculated as the average difference in the percentage share of positive words and negative words in the article. While this difference could range between -100 and 100, most common values range between -10 and 10. Between 2015 and 2018, the average tone associated with an event related to sexual crime is -6.576 indicating that these events may instigate a negative sentiment in the reader's mind.

Only 4% of the media-reported events include a mention of any word related to the judiciary as an actor. The majority of these are about a High Court or the Supreme Court. This helps us rule out the concerns of reverse causality - the possibility that the media was also covering news about the specific case on trial. A high fraction of these reports - about 36% cumulatively are mediated by the police forces, officers, criminal investigative units, government, or criminals.

To understand these data better, I conduct a descriptive analysis of the contents of the news covered by the media. Post-April 2013, the database provides a random article's URL associated with the event that occurred on a particular date. I selected 10 reports at random for each of the years between 2013 and 2018 and read the reports. Out of these 60, I could get the URL to work for only 53 reports. 62% of these reports contain factual details about the incident and public reaction or the police statements about the incidents. 18% of the reports are political statements where a local politician comments about the situation of crimes against women in the country - including both positive and negative statements. 7% of the reports are op-ed articles and 5% of them are about the case outcome for cases in the High Court or Supreme Court - which is made public after the judge has passed their verdict. 3% of the reports seem erroneously coded as sexual assault incidents and slightly over 1% of the reports are about movies that have mentions of sexual assaults which may have been released on those dates. The newswires could be reporting the local news about sexual crimes at both the state as well as national levels. Amongst these 53 reports, 23 are published or are reported from the major city of the same state as the incident, 22 are published in or reported from a different state and 8 reports do not mention any publication or reporting city name.

These news stories on sexual crimes may thus capture information that judges may have access to regarding the local sentiment about these crimes. As opposed to actual crime record - that is published

annually, information is a non-rival good [Galbiati et al., 2021] and the media reports provide as good as real-time access to local news or sentiment about sexual crimes. Regardless of the size of the district, or the number of cases officially filed, all judges posted in a particular district can have equal access to this local information.

There is a considerable variation in media reports per capita in the districts before any decision month. On average, a district has 0.1 media reports per 10,000 individuals with a standard deviation of 0.34. This is better visualized in the district x year graphs in Figure A1 where we can see the media-reported events of sexual assault not just vary across districts in a particular year, but also vary considerably over time.

2.4 Sample and Summary Statistics

Sample: The first restriction I make is to consider cases filed after the Criminal Law (Amendment) Ordinance, 2013 was promulgated, i.e. I look at cases filed in the courts between 2014 and 2018. Given that the Ordinance included several new sexual assault crimes - some that were not part of the Criminal Law before and some that were redefined and had different punishments, the sexual crime cases filed before 2014 are not comparable to the ones filed after 2013. The second restriction is that I do not include Delhi in the sample. Given the time period, most of the media reports in Delhi were about the Nirbhaya case and cases in other parts of the country were also getting artificially geotagged to Delhi if they mentioned the Delhi case.

Summary Statistics: In Table 1, I show the basic summary statistics about the judicial capacity in the country, the number of cases filed in a district in a year, the average conviction rates for rape and sexual assault cases filed in a district in a particular year, and the average media reports in a district per 10,000 individuals.

There are around 4 courts per district, with 18 judges per district on average. While there does not seem to be a considerable variation in the number of courts per district, there is a large variation in the number of judges per district. The strained judicial capacity of the country is further highlighted by understanding the mean number of cases dealt with by a judge in a number which is 1355. There are 5 rape cases filed in a district in a year, and 7 sexual assault cases filed in a district in a year on

average. The probability of conviction does not seem very different across them - 13% for rape cases and 9% for sexual assault cases.

3 Empirical Strategy

The objective is to estimate if the individuals charged with sexual crimes are more likely to be convicted after the judges are exposed to more related events covered by the media. To estimate the causal impact of such media coverage on conviction, the ideal experiment would take two cases being handled by the same judge, but one of them is assigned with higher exposure to media-reported events about sexual crimes in the district before the final decision is made, and the other case gets assigned with lower exposure. These media reports could signal the changing norms around tolerance of sexual crimes in society, which may nudge the judges to make different decisions for the cases on trial.

In absence of such data, I rely on district-by-month variations in media coverage of events about sexual crimes. Descriptive analysis of over 50 randomly selected news articles suggests that these are predominantly stories covering factual details about the incident that took place on a particular date and location and the public reaction to those including outrage by people, police statements about those incidents, statements by local politicians tailored around crimes against women in the locality - including both positive and negative statements, and opinion led articles.

I conduct the analysis in a generalized difference-in-difference framework, comparing individual case outcomes in districts with more media coverage of events about sexual crimes to those with fewer events, conditional on the month in which the case was filed, the court location, and the judge's identity. I model the case outcome - $Y_{i,j,c,t}$ for an individual case i, handled by judge j, filed in court c in the month x year t as:

$$Y_{i,j,c,t} = \alpha + \beta(LagMediaExposure_i) + \eta_j + \delta_c + \gamma_t + \epsilon_{i,j,c,t} \tag{1}$$

where

$$LagMediaExposure_i = \sum_{m=k-12}^{m=k-1} MediaReports_{d,m} \tag{2}$$

$Y_{i,j,c,t}$ takes the value 1 if the defendant is convicted and 0 if the decision was in favor of the

defendant. $LagMediaExposure_i$ is a case-specific measure which is the number of media-reported events about sexual crimes per 10,000 people in district d in 12 months before the case was disposed of in month $\times$ year k. The estimate of interest is β which describes the effect of one additional media-reported event per capita in the 12 months before the judge decided the final outcome, on the probability of conviction. I use monthly variations in media reporting, so my identification hypothesis is that conditional on the fixed court and judge heterogeneity, and common monthly shocks, variations for this measure are not correlated with case-level heterogeneity and other court jurisdiction-level confounding factors that may be correlated with crime conditions.

To account for these time-invariant unobservable characteristics, I control for court and judge fixed effects denoted by δ_c and η_j respectively. The court fixed effect allows us to control for differences in districts in their tolerance for sexual crimes. The judge fixed effect[10] takes care of the differences in specific-judge level stringency in dealing with sexual crimes. I also control for the month in which the case is filed, γ_s to account for factors such as changes in the criminal justice system or local sentiment that may be correlated with both media reporting about these crimes and conviction rates. Standard errors are clustered at the district level since the level of treatment is the district. Intuitively, I compare conviction outcomes of observably similar cases that are handled by the same judge but are shocked by different media coverage before the final decision.

If the timing, court, and judge assignment of the case are uncorrelated with unobservable characteristics of offenders, the estimates capture the causal effect of media reports on conviction. Since the exact date or month in which the final decision is taken is 'as good as random' given trial-specific timing, the identification hypothesis concerning individual case-level confounding factors seems plausible. To formally test for the assumption that media coverage is orthogonal to determinants of conviction, ideally, I would need to check the correlation between the case-level characteristics and media reports. I sparingly observe any case-level characteristics in the data. The only other case-level characteristics that are available in the data are the religion and gender of the defendant *which are important predictors of conviction.* I run a regression of these case characteristics individually on media reports per capita before a decision date, conditional on case filing month, court, and judge fixed effects. Columns (1) and

[10]In 64% of the sexual harassment cases, the judge who is hearing the case at the time of filing and the judge who is giving the decision is different. I use the deciding judge and check for robustness by limiting to cases where the cases are assigned to the same judge who also decides the final outcome. Owing to small samples, I do not consider a specification limited to cases with the same judge at the time of filing and decision.

(2) in Table 4 show that there is no significant relationship between these observable characteristics and media reports. To check for the overall balance, I predict the probability of conviction by regression conviction on the religion and gender of the defendant, and the filing month, court ID, and judge ID. I then check for a correlation between predicted conviction and media reports conditional on the filing month, court ID, and judge ID. Table 4 shows that the predicted conviction is not meaningfully correlated with measures on media reports, overall suggesting that within the month, court jurisdiction, and judge ID, case characteristics are not correlated with local sentiment captured by media reports.

Another concern is that of reverse causality - where the more serious trials may be covered by the media. First, the media database identifies just 4 percent of events that concerned an actor in the judiciary. A vast majority of these events include mentions of the High Court and the Supreme Court - that are not the courts being considered for this analysis. I corroborate this with a detailed reading of over 50 randomly selected articles and find that only a small fraction (5 percent) of the media-reported events are about the outcomes of cases on trial. These are typically published after the judge has passed the decision on the case, and again concern cases being tried in the High Court or the Supreme Court. Furthermore, several years could go between reporting of the crime and the date of the final decision while the case is on trial[11]. Therefore, the events related to sexual crimes being covered by the media on any given date may not be those that are on trial or awaiting a final decision.

I also check for the parallel trends assumption to argue that the pre-treatment outcomes of cases with different dosages of treatment should be the same. In the generalized difference in difference setup similar to the one studied in this paper, it is hard to graphically test for these parallel trends. I attempt to validate this assumption by regressing the current case outcome on future reporting of sexual crimes in media in the district. In Table 5, I recursively add leads for media reports per capita in time period t+1, t+2 and t+3. To test for lack of pre-trends, I expect no relationship between the probability of conviction for a case that is disposed in time t on media reports in future time periods. Since it is likely that media reports about the case outcome immediately after the final verdict, the coefficients on t+2 and t+3 leads are of interest. I show that, indeed, there is no relationship between the conviction of a case in time period t and media reports in periods t+2 and t+3. Adding these future leads, however, changes the sample size. For the sake of comparison, I also check for the main results for these

[11]Before the cases reach the court, in principle, the police investigation lasts 90-120 days. For sexual crimes cases that did reach a final decision, last for an average of 12-16 months in the lower court itself.

subsamples and show these results in the Appendix in Table A2.

4 Results and Discussion

4.1 Main Results

The results from the estimating equation are reported in Table 2. I look at the impact of cumulative media reports per capita in one year before the case is disposed on the case disposition.

I find that media reports per capita positively and significantly impact the probability of conviction for sexual assault cases. A one standard deviation increase in media reports increases the probability of conviction by 1.5 percentage points. The punishment for these offenses varies between 1 to 7 years and/or a fine. One could imagine the nature of these crimes lacking persuasive evidence at the outset and the direction the case takes in court may depend on the agents engaged - including the prosecutors and the judges. Interestingly, on the other hand, there is no impact on the probability of conviction in rape cases. Rape cases are more serious offenses and carry a punishment of a minimum of 10 years to life imprisonment. The investigation process and evaluation of rape cases also rely on forensic evidence. These may leave a little scope of discretion for the judges.

We expect that these media reports about sexual assaults only impact sexual crimes. As a placebo, we check if these reports impact non-violent property crimes that are being heard by the same judges who have also dealt with sexual crimes. I only consider non-violent property crimes since I observe the associated section which is the highest in punishment. For instances where violent property crimes may have occurred along with sexual harassment, I would not be able to observe them as sexual harassment in the data. As shown in columns 5 and 6 in Table 2, I find that as expected, there is no impact of media reports about sexual assaults on conviction rates of these property crime cases.

4.2 Robustness

These results are robust to several other specifications and measurements of media reports and restrictions on cases. First, I check the robustness of these results to the IHS transformation of the media reports about sexual assaults. Given that the distribution of media reports is skewed and has

a lot of zeros, using the IHS transformation is a better approximation as compared to the logarithmic transformation. In Table **??**, I find that results still hold when I change the measurement of media reports.

Second, I have information on the number of articles found by the software related to the same report. This can be seen as an indicator of the severity of the crime. For more severe crimes, we could expect more numbers of articles published that report the crime or discuss it. It is plausible that it is only the crimes that have more articles published to impact the judicial outcomes. As shown in Table **??**, I find that an increase in articles per capita also increases the probability of conviction in sexual assault cases - although the impact is at best modest. I also restrict to reports that have more than 3 articles published to get rid of the erroneously coded sexual assault reports and if the more severe incidents drive the impacts. I find that the results still hold true for those reports that are more widely published[12]

Third, I limit to just those cases that have an outcome as conviction or acquittal and get rid of all other outcomes that are not clearly either of these two in Table **??**. I find that the results are robust to this sample restriction, although the standard errors increase a little as compared to the main results due to the smaller sample.

4.3 Heterogeneity

4.3.1 Judge Identity

Across the world, the legal justice systems are enshrined with principles of impartiality. There are, however, concerns that this impartiality may be compromised during sensitive trials and may be driven by judge-level characteristics or other incentives offered to the judges by the system. The identity of the judges may matter if the issue is particularly salient to them [Mehmood et al., 2020]. Moreover, the more experienced judges may have a different response to these extra-legal factors.

I check the heterogeneity in the results by the gender and experience of the judges. To test this, I look at the interaction between media reports per capita and a dummy for the gender or position of the judge[13]. The results are shown in Table 6. I expect that the identity of the judge would be

[12]These results are available upon request.

[13]I also check the results by interacting the fixed effects with these dummies to account for differences in case filing

salient to these crimes and female judges may respond differently to media reports as compared to male judges. I find that while an increase in media reports increases the probability of conviction for females as compared to male judges, these differences are significantly different from zero.

Similarly, more experienced judges may be less persuaded by the media reports as compared to junior judges. Using the position of judges, I construct a measure to rank judges as per their experience. I construct a binary indicator for the seniority of the judges that takes the value 1 for the District and Sessions Judge or Additional District and Sessions Judge. The indicator takes the value 0 for the Chief Judicial Magistrate or Judicial Magistrate of 1st Class. I find that more senior judges are less likely to convict when they are exposed to higher media reports, but these differences are not significant.

4.3.2 Influence of criminally accused local politicians

Next, I look at the link between the local political economy in the district and the judicial outcomes. Aney et al. [2021] find that the judges of the Supreme Court of India pander to the government by ruling in its favor in return for receiving prestigious jobs after retiring from the Court. Local politicians make up a crucial part of the government in India. Criminality in politics impacts economic outcomes in important ways. Prakash et al. [2019a] and Prakash et al. [2021] find that electing criminally accused politicians in India impacts economic growth and the incidence of crime. Kim and Lee [2022] find that in places where criminally accused politicians are elected, senior police officers serve shorter terms. Moreover, politicians in power may also receive special treatment in courts when they face criminal accusations themselves. Poblete-Cazenave [2020] finds that politicians of the ruling party are more likely to be acquitted for their pending cases while they serving their term.

I check if the impact of media reports on conviction is more salient when more criminally accused politicians hold office when the decision is being made[14]. I use the affidavit data for Indian political candidates, listing their assets and the details of all pending criminal cases against them, published by the Association for Democratic Reforms and made available by Asher et al. [2021] and Prakash et al. [2019b]. In Table 6, I look at the share of politicians that are accused of a serious crime (murder, attempt to murder, and crime against women) in a district. I find that in the districts in which the

date, and courts by the gender or experience of judges in office. The result is qualitatively the same.

[14] I also check if taking the case decision in the year of a state legislative assembly election differently impacts the probability of conviction. However, I do not have enough within judge and filing month variation in elections in the sample. Moreover, the case filing month x year fixed effects would subsume the impact of election cycles to some extent.

share of criminally accused politicians is higher, the probability of conviction is lower. Moreover, the presence of these criminally accused politicians attenuates the impact of media reports on conviction. However, these results are not significantly different from zero.

4.4 Mechanisms

The media could influence the perception of all actors in society about topics that are relevant to the policy and political debate. In the context of this study, the judges are appointed through a rigorous process and are not elected by the citizens or government officials. First, the media reports could impact the reporting behavior of victims which could increase the convictions of sexual crimes without changing the incidence of the crimes. Second, the police may respond to these reports by filing the first information report swiftly and expediting the investigation process - making the case stronger for the victim and leading to higher chances of convicting the offender. Third, reading or being exposed to these reports may impact the opinions and perceptions of judges.

In the data, the first point of contact with the legal system of these cases, that I observe is the start of the trial. I do not observe the date of filing the case with the police which would help us understand if the reporting behavior has changed. Nevertheless, in principle, the pre-trial stage lasts between 90-120 days. If more selected cases were being reported that had a higher probability of conviction, we would see an increase in the cases reaching the trial stage in response to higher media reports. However, as shown in table 7, I do not find an impact on the supply of cases in courts.

I also rule out the possibility of these results being driven by the changes in police behavior. First, the variable of interest in this analysis is the media exposure before the case decision, and not the beginning of the police investigation process. This means that I look at the media reports *after* the police investigation process might have begun and therefore unlikely to drive the evidence collection prior to the trial stage. Second, I distinguish between the media reports per capita during the length of the case hearing and before the case filing. As shown in table **??** and **??** in the Appendix, the effects of media reports on conviction are driven by processes held in courts, rather than outside of them.

While I cannot test for changes in judges' perceptions explicitly in this data, I provide suggestive evidence that the effects of media reports on conviction are driven by higher scrutiny by judges. I test

for this channel by looking into the time taken until the case is disposed of. It is plausible that the number of hearings and the time taken could increase if the judges are seeking more evidence. I run the same specification on the months taken to dispose of the case and I find that an increase in media reports increases the time taken to dispose of the case. 1 SD increase in media reports per capita is associated with a 1.87-month increase in the time taken for the judge to give their final verdict. I again do not find this relationship to be significant for rape cases.

There could, however, be spillover effects of this increased time taken on court efficiency and could impact the disposal of other cases in a timely manner. Indeed, if I look at the property crime cases that are heard by the same judges who also hear a sexual assault case, I find that there is a corresponding increase in time taken for disposing of the property crime cases as well.

5 Conclusion

Our goal to achieve gender equality remains far from being fulfilled as long as sexual crimes continue to be inflicted upon women. Sexual crimes are pervasive across the world and affects women's lives on several dimensions. Despite the psychological and economic impacts of these crimes, violence against women continues with little support from the state and low levels of punishment. In this paper, I ask if media reports about sexual assaults change judicial outcomes in the lower courts in India. I take advantage of the universe of sexual crimes filed in the Indian lower courts that had a final decision – which is the first point of legal trial for these cases, and I use a geo-referenced novel dataset on media reports about sexual assault in the country. I find that an increase in media reports about sexual assaults increases the probability of conviction of sexual harassment cases. I find no impact on rape cases that are more serious in nature and have higher punishments. I do a placebo test on property crimes and find no impact on those as well. Moreover, I find that judges also take longer to take a final decision, which could mean more evidence-based scrutiny, but this could also lead to negative externalities on the court's efficiency.

This work extends our understanding of the role of media as an extra-legal factor in affecting judicial outcomes in a developing country and the state functionary in dealing with these crimes and has several broad policy implications. A priori, this work sets out to establish that there are external

factors that judges may respond to in India - depending on the context and the situation. Media plays a very important role in the economy by being a watchdog for the changing sentiment in the country about important political issues. Especially in the context where the legal system is fractured, this study finds that the media outrage about sexual crime could be salient in affecting decision-makers' perceptions s in society. This not only underscores the importance of an unbiased media but also an independent one. The results about case duration also highlight the troubles of a constrained and understaffed legal system. Prioritizing a particular matter in court comes at the cost of delays in hearing of other types of cases that could have important economic implications. This highlights the role of well-functioning and efficient fast-track courts that are set up specifically for dealing with crimes against women.

6 Main Tables

Table 1: Summary Statistics

	N	Mean	Std. Dev.
Judicial Capacity			
Courts × District	544	4.50	3.18
Judges × District	544	18.49	17.04
No. of cases × Judge × Year	72,076	1,355.06	24,394.08
Number of cases filed in District × Year			
Rape	2,178	5.38	7.93
Sexual Assault	2,178	7.72	10.89
Probability of Conviction in District × Year			
Rape	1,738	0.13	0.23
Sexual Assault	1,949	0.09	0.17
Media Reports in District			
No. of media reports per 10,000 individuals in a district		0.11	0.34

Table 2: Effect of Media Reports on Probability of Conviction

	Sexual Assault	Rape	Property Crimes
Lag Media Exposure	0.040**	-0.009	-0.003
	(0.018)	(0.038)	(0.011)
Observations	16858	11791	108379
Mean Y	0.12	0.12	0.15

1. Regressions include filing month × year fixed effects, court fixed effects and decision judge fixed effect.
2. Standard errors are clustered at the district level.
3. Lag Media Exposure: Number of media reports in the district in one year before decision
4. Mean Lag Media Exposure: 0.11
5. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Robustness: Probability of Conviction in Sexual Crimes Cases

	Sexual Assault			Rape		
	(1)	(2)	(3)	(1)	(2)	(3)
IHS Lag Media Exposure	0.060**			-0.022		
	(0.028)			(0.063)		
Lag Media Exposure (articles)		0.002*			-0.001	
		(0.001)			(0.001)	
Lag Media Exposure			0.035*			-0.010
			(0.019)			(0.044)
Observations	16858	16858	15869	11791	11791	10655
Mean Y	0.12	0.12	0.12	0.12	0.12	0.12

1. Standard errors are clustered at the district level.

2. Specifications including filing month × year, court ID and judge ID.

3. IHS Lag Media Exposure: IHS of number of media reports per 10,000 individuals in the district in 1 year before decision.

4.Lag Media Exposure (Articles): Number of articles across all reports per 10,000 individuals in the district in 1 year before decision

5. Third specification is for a subsample of cases where the outcome was guilty or not guilty.

6. Mean IHS: 0.09; Mean Articles: 0.96; Mean Lag Media Exposure: 0.10

7. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Effect of Media Reports on Exogenous Case Characteristics and Predicted Conviction in Sexual Assault Cases

	Defendant Characteristics		Predicted Conviction	
	Muslim	Female	With Covariates	W/o Covariates
Lag Media Exposure	.0151	.0128	-2.0e-04	2.3e-10
	(.0206)	(.0228)	(3.2e-04)	(3.2e-10)
Observations	13245	12519	12376	16858
Mean Y	0.14	0.07	0.13	0.12

1. Specification includes filing month × year, court and judge fixed effect
2. Standard errors are clustered at the district level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Effect of Media Reports in Lead Years on Conviction in Sexual Assault Cases

	(1)	(2)	(3)
Media Exposure 1 year after decision	-0.021	-0.030*	-0.058
	(0.014)	(0.017)	(0.044)
Media Exposure 2 years after decision		-0.008	-0.021
		(0.028)	(0.040)
Media Exposure 3 years after decision			-0.041
			(0.032)
Observations	16771	14444	8246
Mean Y	0.12	0.12	0.12

1. Specification includes year of filing month × year, court and judge fixed effect
2. Standard errors are clustered at the district level.
3. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Heterogeneity in Effect of Media Reports on Probability of Conviction in Sexual Assault Cases - Influence of Judges' Gender, Senority and Criminal Background

	(1)	(2)	(3)
Lag Media Exposure	0.097	0.005	0.043**
	(0.083)	(0.036)	(0.020)
Lag Media Exposure × Senior	-0.065		
	(0.084)		
Lag Media Exposure in t-1 × Female		0.065	
		(0.053)	
Criminally Accused Politicians			-0.113
			(0.196)
Lag Media Exposure × Criminally Accused Politicians			-0.296
			(0.248)
Observations	16554	16858	13166

1. Standard errors are clustered at the district level.

2. Specification includes filing month × year, court and judge fixed effect

3. Senior = 1 for District Sessions Judge or Additional District and Sessions Judge.

4. Criminally Accused Politician is the share of politicians in district who are accused of a major crime that includes murder, attempt to murder, and crime against women

5. Share of Senior Judges: 0.62; Share of Female Judges: 0.38; Share of criminally accused politicians: 0.04

6. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Effect of Media Reports on Number of Cases Filed

	Sexual Assault	Rape	Property Crimes
Lag Media Exposure	-1.100	-0.729	2.717
	(1.259)	(0.749)	(5.432)
Observations	31487	31487	31487
Mean Y	11.54	8.72	138.86

1. Standard errors are clustered at the district level.
2. Regressions include filing month × year and district fixed effects
3. Lag Media Exposure in this specification is the cumulative media reports per capita in the 12 months before case filing.
4. Mean media exposure: 0.09
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Effect of Media Reports on Months Taken between Filing and First Hearing

	Sexual Assault	Rape
Media Reports in f-1	-0.105	-0.015
	(0.911)	(0.439)
Observations	16858	11791
Mean Y	2.69	1.31

1. Regressions include filing month × year fixed effects, court fixed effects and decision judge fixed effect.
2. Standard errors are clustered at the district level.
3. Mean X: 0.10
4. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Effect of Media Reports on Months till Disposition

	Sexual Assault	Rape	Property Crimes
Lag Media Exposure	5.165***	2.169	4.341***
	(0.741)	(2.337)	(0.817)
Observations	16838	11786	108042
Mean Y	13.58	11.21	10.13

1. Regressions include filing month × year fixed effects, court fixed effects and decision judge fixed effect.
2. Standard errors are clustered at the district level.
3. Lag Media Exposure: Number of media reports in the district in one year before decision
4. Mean Lag Media Exposure: 0.11
5. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

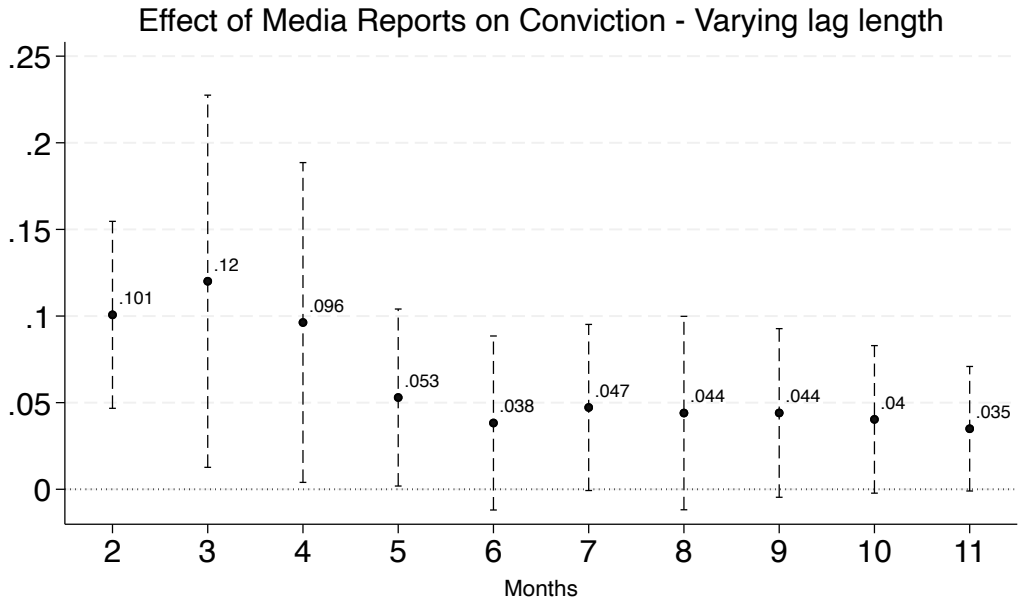
Table 10: Months Taken between First Hearing and Decision for Property Crimes Cases Conditional on Judicial Case Load

	High Case Load	Low Case Load
Lag Media Exposure	5.126***	4.156***
	(1.399)	(0.754)
Observations	43427	64615
Mean Y	9.77	10.37

1. Regressions include filing month × year fixed effects, court fixed effects and decision judge fixed effect.
2. Standard errors are clustered at the district level.
3. Lag Media Exposure: Number of media reports in the district in one year before decision
4. Mean Lag Media Exposure: 0.11
5. High Case Load is for judges that are handing higher than mean case load of sexual crimes cases.
6. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

7 Main Figures

Figure 1: Media Exposure: Shorter Lags



Appendix - Tables

Table A1: Case Outcomes

Disposition	Convicted	Acquitted	Defendant Free
258 crpc		x	x
acquitted		x	x
appeal accepted			x
award			x
cancelled			x
compounded			x
convicted	x		
dismissed		x	x
not press			x
plea bargaining	x		
plead guilty	x		
prison	x		
probation			x
quash			x
reject			x
stayed			x
withdrawn			x

Table A2: Validity Check: Effect of Media Reports on Conviction in Sexual Assault Cases in Subsamples

	(1)	(2)	(3)
Lag Media Exposure	0.040**	0.047*	0.047
	(0.017)	(0.025)	(0.061)
Observations	16771	14444	8246
Mean Y	0.12	0.12	0.12
Lead t+1	Yes	Yes	Yes
Lead t+2	No	Yes	Yes
Lead t+3	No	No	Yes

1. Specification includes filing month × year, court and judge fixed effect

2. Standard errors are clustered at the district level.

3. Considering subsamples where media reports in respective lead years are non-missing.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Effect of Media Reports on Probability of Conviction

	Sexual Assault	Rape
Media Reports during case life	0.018***	0.028
	(0.005)	(0.020)
Observations	15075	9466
Mean Y	0.12	0.12

1. Regressions include filing month × year fixed effects, court fixed effects and decision judge fixed effect.
2. Standard errors are clustered at the district level.
3. Mean X: 0.12
4. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Effect of Media Reports on Probability of Conviction

	Sexual Assault	Rape
Media Reports in f-1	-0.004	0.010
	(0.013)	(0.021)
Observations	16858	11791
Mean Y	0.12	0.12

1. Regressions include filing month × year fixed effects, court fixed effects and decision judge fixed effect.
2. Standard errors are clustered at the district level.
3. Mean X: 0.10
4. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: List of Sample News Sources

Source	Num	Percent	Cum
timesofindia.indiatimes.com	493	7.32	7.32
www.business-standard.com	443	6.58	13.90
www.thehindu.com	313	4.65	18.55
www.newindianexpress.com	226	3.36	21.90
indianexpress.com	211	3.13	25.04
www.ptinews.com	167	2.48	27.52
www.newkerala.com	165	2.45	29.97
economictimes.indiatimes.com	161	2.39	32.36
www.hindustantimes.com	153	2.27	34.63
us.india.com	109	1.62	36.25
www.firstpost.com	109	1.62	37.87
www.deccanherald.com	101	1.50	39.37
www.dnaindia.com	91	1.35	40.72
www.telegraphindia.com	90	1.34	42.06
www.thehindubusinessline.com	79	1.17	43.23
www.freepressjournal.in	74	1.10	44.33
www.indiatvnews.com	74	1.10	45.43
www.thestatesman.com	71	1.05	46.48
www.ibnlive.com	66	0.98	47.46
www.tribuneindia.com	66	0.98	48.44
www.theindianpanorama.com	65	0.97	49.41
www.ndtv.com	53	0.79	50.19

Table A6: Impact of Media Coverage on Convictions weighted for Selection

	Sexual Assault	Rape	Property Crimes
reports_pclag1_d	0.052**	-0.000	-0.006
	(0.026)	(0.060)	(0.028)
Observations	14439	9498	82162

1. Regressions include filing month × year fixed effects, court fixed effects and decision judge fixed effect.

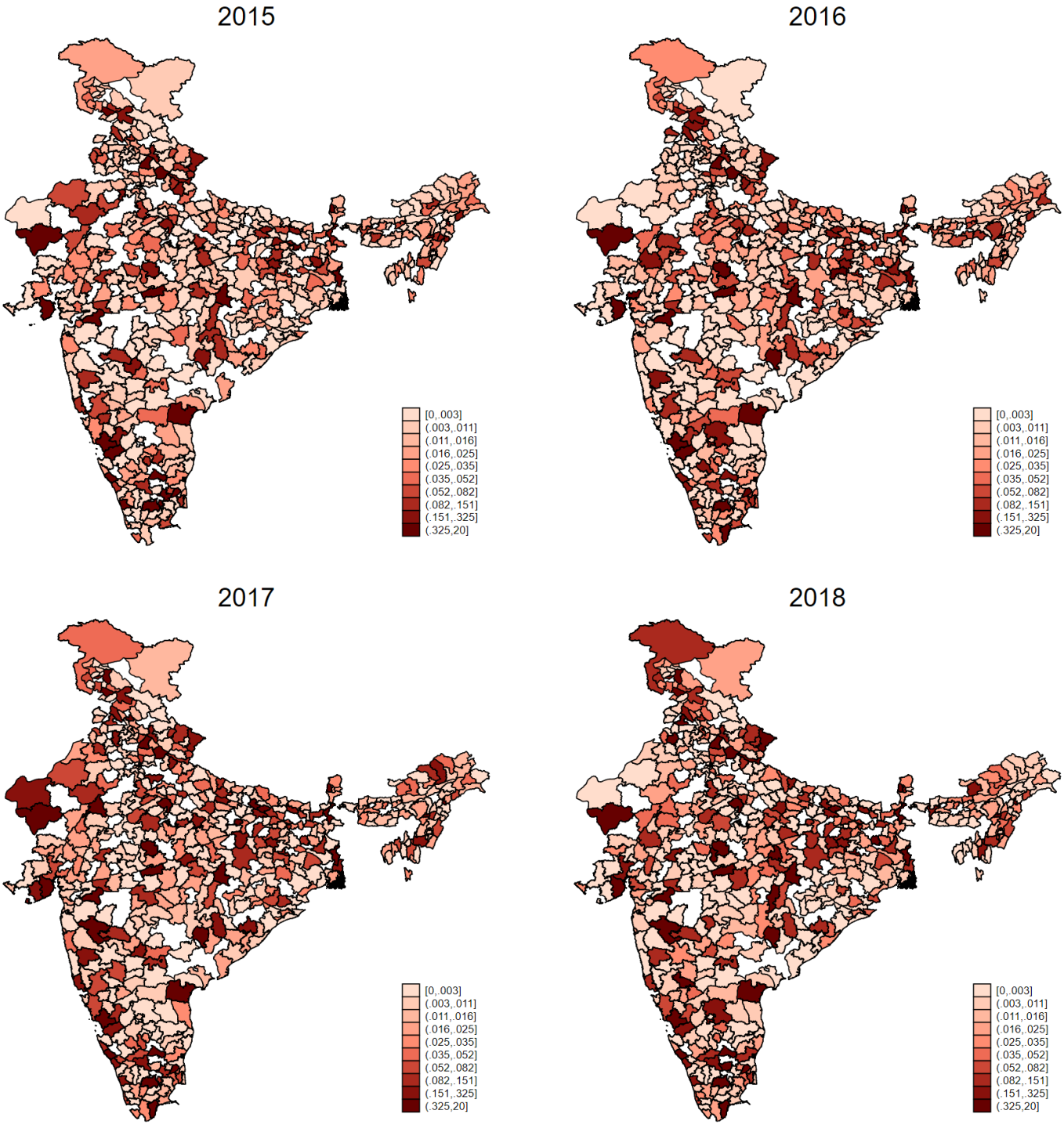
2. Standard errors are clustered at the district level.

3. The cases are weighted for being selected into the sample by virtue of being completed. The weights are calculated using inverse probability weighting.
Selection is considered a function of court-level case load, judge-level case load, female defendant, court fixed effect and month of filing fixed effect.

3. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix - Figures

Figure A1: Media reports per capita across districts over time



Appendix - Tables

Table A7: Probability of Taking More than 1 Year to Decide

	Sexual Assault	Rape	Property Crimes
Lag Media Exposure	0.133***	0.036	0.145***
	(0.026)	(0.095)	(0.023)
Observations	16838	11786	108042
Mean Y	0.44	0.37	0.32

1. Regressions include filing month × year fixed effects, court fixed effects and decision judge fixed effect.
2. Standard errors are clustered at the district level.
3. Lag Media Exposure: Number of media reports in the district in one year before decision
4. Mean Lag Media Exposure: 0.11
5. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: Months Taken between First Hearing and Decision Conditional on Cases that Took Longer than 1 Year

	Sexual Assault	Rape	Property Crimes
Lag Media Exposure	6.356***	3.672***	4.303***
	(0.810)	(1.150)	(1.451)
Observations	7478	4312	34330
Mean Y	24.58	23.61	24.82

1. Regressions include filing month × year fixed effects, court fixed effects and decision judge fixed effect.
2. Standard errors are clustered at the district level.
3. Lag Media Exposure: Number of media reports in the district in one year before decision
4. Mean Lag Media Exposure: 0.10
5. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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