

Polarizing Politics

The Effect of Policy Conflict Amongst Branches of Government upon Public Opinion

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Abstract:

The interplay between policy-makers and public opinion is one of the defining features of politics. However, disentangling whether mass public policy preferences influence the design and adoption of policies, or is in fact shaped by the policy process, is plagued with endogeneity concerns. We exploit an unexpected clash between the executive and judiciary in New Delhi over road usage exemptions for women, occurring between waves of original surveys fielded in late 2017. Combined with concurrent original surveys in Beijing, where no such clash occurred, we identify the effect of conflict between branches of government upon mass preferences using a difference-in-differences design. We find that public support for the contested policy measure is not undermined by the executive-judiciary clash. However, the clash induces an increase in polarization of public opinion, based upon the exemptions granted. Our results have implications for the study of the relationship between policy makers and the public.

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1 Introduction

Research in political science has generated a wealth of insights into the behavior of policy-makers and political institutions, and the policies resulting from governmental decision-making processes. One part of this research effort has focused on understanding the determinants of citizens' policy preferences and how these preferences enable or constrain the design, adoption, and implementation of policies in a wide range of areas. The presumption underpinning this literature is that public opinion should and does, de facto, matter for policy choices (Brooks and Manza 2007) – even though influence by parochial interest groups at times tends to result in policies that deviate to varying degrees from median voter preferences (Winter and May, 2001).

Yet, dating back to Schattschneider (1935), scholars have also been concerned about how policy can impact the public's preferences. Research in this vein has typically examined welfare policies, particularly in the United States, with reference to whether the implementation of these policies lead to positive *policy feedback*. In a variety of studies, researchers often find that the beneficiaries of policies become even more supportive over time, reinforcing the policies themselves (e.g. Pierson 2000, Weaver 2010, Busemeyer 2013).²

However, as indicated by the term *policy feedback*, the highly endogenous relationship between policy and public opinion generates a significant empirical challenge in estimating the effect of one upon the other. When witnessing popular support of policies,

² Although see Busemeyer et. al (2019) for a recent example of research that provides a more nuanced version of policy feedback.

are we witnessing policies fostering support amongst their beneficiaries? Or are we instead seeing that popular policies are more likely to be adopted?

To overcome this endogeneity, we utilize an unexpected policy conflict over air pollution policy in New Delhi, where the judicial branch prevented the policy from being implemented if women were exempted. Using surveys fielded shortly before and after this conflict, we estimate the effect of this conflict between branches of government upon support for various forms of the policy. Combining these surveys with surveys fielded simultaneously in Beijing, a city with similar experience of the policy and air pollution but without this conflict, we are able to estimate the effect of this policy conflict with the use of a Difference-in-Differences design.

We find that the policy conflict increased overall support for the policy in New Delhi. However, this increase in support is a result of a polarization in support for the policy. Females, those who would be exempted from the policy, increase support for the policy only if it includes these exemptions. Men, however, only increase support for the policy if it does *not* include these exemptions. Thus, *“a new policy creates new politics”* Schattschneider (1935), with conflict between branches of government over policy design further reinforcing differences between genders in terms of policy support.

In doing so this paper contributes to a variety of literatures seeking to understand the fundamental link between policy, politicians, and the public.

First, we contribute to a long literature on understanding the relationship between policies and public opinion (e.g. Wlezien 1995, Pierson 2000, Campbell 2012, Busemeyer

et. al 2019). Our results do in fact find that public opinion is responsive to policy, with a research design that limits the issues of endogeneity faced by previous research. Furthermore, we highlight how overall feedback can mask a polarization of support, contributing to recent efforts that seek to examine under which conditions groups of individuals respond favorably to policy actions (e.g. Branham 2018).

Second, our paper speaks to a literature on the role of political actors' positions, also known as elite cues, upon public opinion. This research typically contrasts theories where political actors are responsive to the positions of the (Downs 1957; Brody and Page 1972; Loewen and Rubenson 2011), against those where elites are able to shape public opinion (Abramowitz 1978; Gabel and Scheve 2007; Lenz 2009, 2012; Minozzi et al. 2015; Broockman and Butler 2017). Our results provide evidence for the latter, the positions of policy actors do indeed shape public opinion. However, we add further context to this literature by finding that support systematically varies along gendered lines, suggesting that responses to the specific positions adopted match individuals' existing interests.

Third, we add to a burgeoning literature on how policy feedback results from the burdens they impose, and not just the benefits they offer. Traditionally research has focused on how the implementation of policies increases support amongst the public due to the benefits offered (Jacobs and Mettler 2018). Yet, citizens will also experience the burden of the policy, which can lead to negative policy feedback (Burch 2013, Lerman and Weaver 2014). Our results highlight how policy feedback can be polarized as a result of differing policy burdens. In this way, support for policies that offer benefits for all can nevertheless be stalled, due to support polarizing over differing policy designs providing different distributions of the burden.

Fourth and finally, this paper speaks to literature that examines the effect of public clashes between branches of government. Such conflict between branches of government occur frequently in a variety of contexts. In the European Union, the European Parliament has often collided with the European Commission on a wide range of policies (Hayward, 2012; Hix, 2013). In the United States, there are many instances of conflict between the judiciary and state and federal governments (Moe and Gilmour, 1995; Lewis, 2005; Chesney, 2006). In *Brown v Board of Education* (1954), for example, the U.S. Supreme Court struck down race-based segregation in public schools, a policy supported by the state and local governments. This led to massive public protests in the Southern US states. And in *Swann vs Charlotte-Mecklenburg Board of Education* (1971), the U.S. Supreme Court recognized that forced busing may be required to achieve racial desegregation. Our results suggest that such clashes between branches of government grant legitimacy to opposing policy views, leading to a polarization of policy support.

In the remainder of the paper, we start by outlining the empirical issue on which we focus, including the policy shock (clash between the executive and the judiciary) we exploit in our causal identification strategy. We then outline the theoretical mechanisms behind how conflict between different branches of government can affect public opinion. Following that, we describe the study design, present the empirical findings, and offer some concluding thoughts.

2 The Odd-Even Policy in New Delhi and Beijing

Air pollution is one of the leading causes of death worldwide, with approximately 4 million people dying prematurely from it each year (Cohen et. al 2017). Nowhere is this more so than in large urban centers of developing or emerging economies, including New Delhi and Beijing. Both cities have severe problems with air pollution, particularly in the late Autumn and Winter seasons, as illustrated in Figure 1.

One prominent policy response to urban air pollution is the odd-even rule. Under this rule, private cars with odd and even registration numbers are allowed on roads only on alternate days (Goyal and Gandhi, 2016; Mohan et al., 2017). The odd-even rule, has been used previously in New Delhi and Beijing. However, in New Delhi the rule has exempted women. Thus, the odd-even rule imposes very tangible private costs on male car owners while creating health and other benefits from reduced air pollution and congestion that can be enjoyed by all, a classic challenge for many regulatory policies (Lowi, 1964; Wilson, 1980).

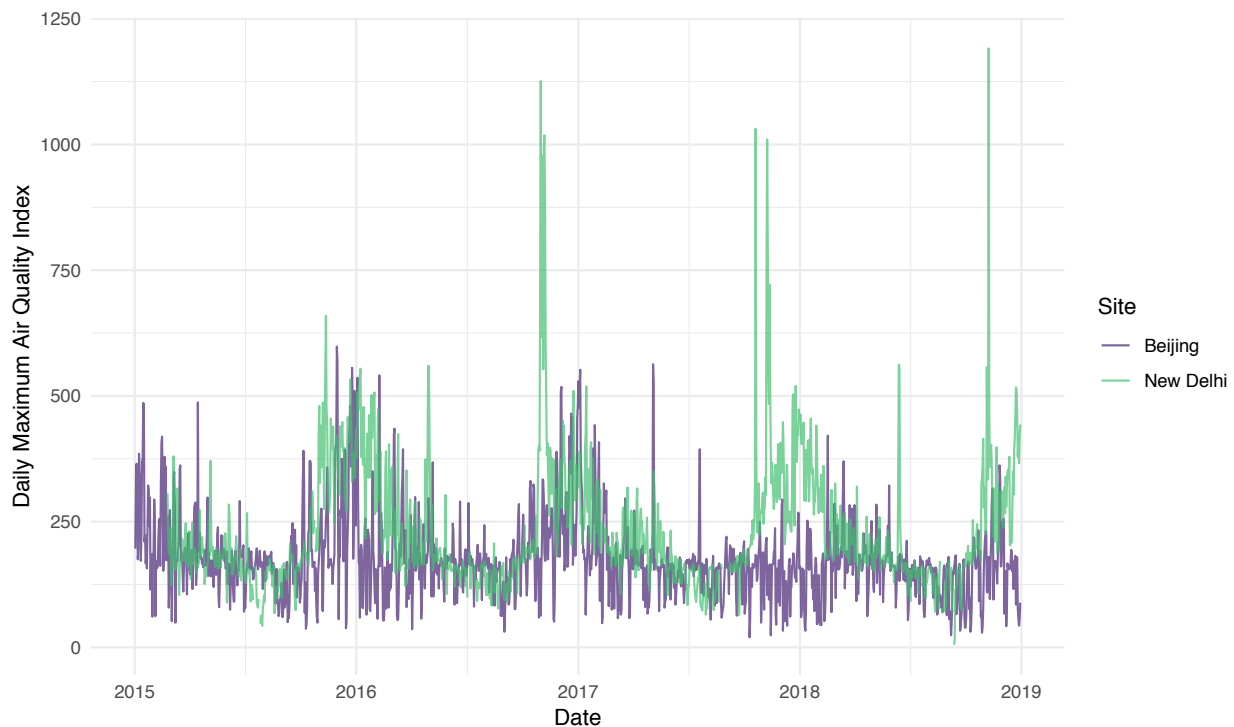


Figure 1: Maximum daily measurements of the Air Quality Index in Beijing and New Delhi. Higher values indicate higher levels of air pollution. Notably both cities see significant seasonality in the level of air pollution. Source: <https://waqi.info>

One key difference between New Delhi and Beijing is the issue of exemptions from the rule. Most controversially in New Delhi, women were exempted from this policy in the 2016 trial phase. This exemption has generated considerable public debate, and became the focus of the subsequent clash between the executive and the judiciary when the Delhi government sought to introduce the odd-even rule on a permanent basis from 2017.

The main implication of this rule in Delhi would be that male car owners could use their car on three out of six days of the working week and would need to find alternative means of transportation on the other three days to get to office, drive children to school, visit

friends and relatives, and go to the market. Thus, the odd-even rule imposes very tangible private costs on male car owners while creating health and other benefits from reduced air pollution and congestion that can be enjoyed by all, a classic challenge for many regulatory policies (Lowi, 1964; Wilson, 1980).

A follow-up attempt to implement this rule in Delhi occurred in November 2017. In response to persisting severe air quality problems, the Delhi Government announced in October 2017 that it would reintroduce the odd-even rule starting November 13-17, 2017. However, during an initial hearing on November 10, 2017, the National Green Tribunal, NGT (India's environmental court: <http://www.greentribunal.gov.in>) unexpectedly struck down the policy. In a special hearing on November 11, following the revised petition of the government, it allowed the policy to be implemented but disallowed exemptions for women and two-wheelers. Rather than introducing the odd-even rule without exemptions, the Delhi government responded by withdrawing the policy altogether. We investigate how this clash in Delhi, which most observers and the public did not expect, influenced public opinion on the odd-even rule in general, and gender-based exemptions in particular. We also examine how the results for Delhi compare to a control case, Beijing, in which there was no executive-judiciary clash.

3 Theoretical Mechanisms

Enacting policies and regulations is among the foremost governmental function. But what areas or issues ought to be regulated, and how, and whether regulations will serve the intended purpose is often contested. Governments can seldom secure perfect

compliance by relying on coercion alone (North, 1990). The costs of enforcing regulations are lowered when those subject to regulation deem the latter to be appropriate, fair, and effective. Hence, along with designing and enacting regulations, governments invest much time and effort in securing normative compliance with their policies.

The study of public opinion on regulatory issues is therefore critical for governments to effectively perform their regulatory functions. As most policy problems can be addressed via different policy instruments, how the legitimacy and effectiveness of policy instruments is understood by those regulated therefore become an important area of enquiry. These instruments differ along several substantive dimensions. Take the case of debate over the effectiveness of command and control versus market-based approaches in environmental policy (Cole and Grossman, 1999). These instruments are likely to differ in levels of effectiveness and asymmetrically impose costs and create benefits across actors. It is, therefore, not always clear which instrument will be acceptable to the plurality of regulated actors (in our case, citizens). After all, the smartest policy approaches that result in maximum net policy benefits can fail if they are deemed to be unfair and do not garner public support.

There is widespread recognition that policy-framing and policy comprehension play an important role in influencing public support (Terkildsen and Schnell, 1997; Jacoby, 2000). However, the dominant focus of existing studies tends to be on how policy adoption and implementation is influenced by public opinion (e.g. Anderson et al. 2017). Typically, focusing on democratic countries, this line of research often finds that

policies tend to match the public's preferences and attitudes, or at least certain segments of society, such as high-income groups (Gilens and Page 2014).

Yet, public opinion itself is susceptible to actions of the government, broadly defined. Sometimes, enacting a policy can, per se, enhance the policy's legitimacy among the public (Ewick and Slbey 2003). For example, some research suggests that legalization of gay marriage has increased acceptance of LGBT individuals within society (Stoddard 1997; Bishin et al., 2016). Yet, much of this research assumes that all actors that comprise "the government" speak with one voice, providing an unambiguous message to citizens. Of course, government actors may have major differences that they debate internally, as Allison (1971) described in his classic work on the Cuban missile crisis. But for the outside world, and in this stylized view, various units of the government speak with one voice with the expectation that this show of unity enhances the legitimacy of governmental action.

But what if various branches of government show open conflict about a policy, or a specific dimension of the policy (Flores and Barclay 2016)? How will citizens, whose support is essential to the viability of many policies government is envisaging or actually implementing, respond? We identify two mechanisms behind how the public responds to conflict in the policy process, and that lead to polarization in public opinion.

3.1 Intra-Governmental Conflict and the Legitimacy of Dissent

The first mechanism is that by disallowing this exemption, the judiciary (NGT) legitimized objections to exemptions, thereby increasing opposition to the in this form. Exemptions for women were put in place to address a visible and salient problem of gender violence. A slew of sexual assaults in Delhi³ brought the issue of gender violence to the forefront and highlighted the risk women face when they use public transportation. The Delhi government was thus faced with demands for addressing the concerns of an important and vocal constituency: urban women. The odd-even rule, if applied to all, would force women to use public transportation, which might increase the risk of further sexual crimes. Hence, the decision to exempt women from this rule.

Various scholars note that in the United States, for instance, the Supreme Court rulings enshrine policies with legitimacy (Scheingold 1974, Marhsall 1987), given citizens' overall respect for the rule of law. While there is no systematic data, it seems that the judiciary in India enjoys substantial prestige and it often takes on the executive if the latter is not willing to implement unpopular policies (Iyengar et al., 2018). Therefore, the NGT's dismissal of the odd-even rule, on the ground of exemptions, may provide legitimacy to those who wish to express opposition to the exemptions but did not dare to do so before their views were legitimated by the NGT ruling.

As a result, policy conflict legitimizes those who oppose the design of policies with

³ One of the highest profile cases was a gang rape case occurring in 2012 that garnered international media attention (e.g. <https://india.blogs.nytimes.com/2012/12/18/outrage-in-delhi-after-latest-gang-rape-case>)

exemptions. This leads those who would oppose such a policy being able to support alternate policy designs without this feature, under the guise that their opposition is legitimated by the positions taken by other elite actors.

The preceding discussion leads to the following testable hypothesis:

H1: Males do not support the odd-even policy if women are exempt, and increase support for the odd-even policy if it does not contain exemptions for females.

3.2 Intra-Governmental Conflict and the Mobilization of Support for Existing Exemptions

While intra-governmental conflict can legitimize the views of those who are burdened by the policy, this force is likely to be recognized by those who were the initial beneficiaries. The second mechanism suggests that conflict between branches of government can embolden the views of those who are beneficiaries of the policy. Individuals benefitting from the exemption, females, will also respond to the conflict between branches of government by increasing support for that particular policy design. Doing so can act as a countervailing force against the increasing support for alternative, less beneficial, versions of the policy.

Previous research argues that this often occurs in response to the actions of courts, particularly the Supreme Court (Price and Keck 2015). For example, Price and Keck (2015) cite Judge Ginsberg's statement that *Roe v. Wade* reversed the trend of increasing

acceptance of abortion, and instead generated backlash by mobilizing “right to life” groups, as a result of “heavy-handed judicial intervention” that “was difficult to justify and appears to have provoked, not resolved, conflict”. Indeed, the movement against the “activist judiciary” claims that unelected judges are making laws, as opposed to elected legislatures. Indeed, this sort of backlash has support even within the judiciary. US Supreme Court justice Scalia (2018) was the leader of the originalist movement that insisted that justices must faithfully adhere to the constitution. If the law has to be changed, it must be done either through legislative action or through a process of constitutional amendment.

Therefore, a judicial body intervening against specific exemptions will embolden those who would benefit from these exemptions to further increase support. In the context of the odd-even policy in New Delhi, this means that women will further increase their support of the policy with exemptions as a counterbalance against the increased governmental opposition.

H2: Females increase support for the odd-even policy if it contains exemptions for females.

4 Research Design

As noted previously, any empirical estimation of the effect of policy-maker behavior, including clashes between the executive and the judiciary, on the public’s policy preferences faces an endogeneity challenge. That is, there is the possibility of an endogenous relationship between the public’s policy preferences and policy action (in our specific case either by the court (NGT) or the Delhi government). We need to rule out

that branches of government do not take their respective policy positions in anticipation of prevailing public opinion. To address this challenge, we exploit the unexpected ruling against the odd-even rule by the NGT, and the subsequent withdrawal of the policy by the Delhi government. As outlined below, the unexpected nature of this ruling allows us to conceptualize it as a quasi-experimental treatment. It is this “shock” that we use to better estimate the causal impact of intra-governmental conflict over policy upon individuals’ policy support. We do so by using original surveys that we fielded before and after the NGT ruling, and subsequent withdrawal of the policy by the Delhi government – without knowing that we would be able to scientifically benefit later on from the court decision.

The baseline survey (pre-NGT ruling) with 500 respondents was fielded in October 10-20, 2017. The 1st wave of the survey, with 750 respondents, was fielded from the 16th to the 23rd of November 2017, shortly after the NGT ruling and the Delhi government’s withdrawal of the odd-even rule plan. We then fielded a final wave with 750 respondents two weeks later, from the 4th to the 9th of December 2017. These surveys were designed by the authors and fielded online by IPSOS. We used quota sampling in order for the sample to be broadly representative in terms of gender, occupation, age, and education. Given our sample sizes this approach reduces the potential for imbalance on these observables.

In each survey, we embedded a series of vignette experiments dealing with the odd-even rule and its policy design, including the gender exemption. These vignettes are used to ensure that respondents across contexts have comparable conceptions of the odd-even policy they are rating. The vignette experiments consist of two parts. First, we randomly

assigned the time frame of the proposed odd-even rule, either being temporary (from November to February; the high pollution months) or permanent (year around). Second, we then added information about gender exemptions. That is, we randomly assigned study participants to any of the six vignettes that reflect three manipulations: duration (odd-even rule enforced during November-February versus permanently), (2); exemptions for women; (3) such exemptions for women undermine policy effectiveness. This assignment was fully randomized. The exact wording was:

To what extent would you support or oppose the odd-even rule for cars *[RANDOMLY ASSIGN: 1. “on a permanent basis” or 2. “during the months of November to February”]* *[RANDOMLY ASSIGN: 1. “?” (control group) or 2. “, if women were exempted from this rule and could drive their car on any day of the week?” or 3. “, if women were exempted from this rule and could drive their car on any day of the week? This would result in more air pollution and congestion than if women were not exempted.”]*

Table 1 summarizes the treatment conditions.

Table 1: Treatment Design

<i>Application of the odd-even rule:</i>	Nov-Feb	Permanent
-	V1	V2
Women Exempted	V3	V4
Exemptions undermine effectiveness	V5	V6

The response scale (support for the odd-even rule) ranged from strongly support (4) to strongly oppose (1). For covariate adjustment, we include a number of variables that may also impact policy preferences in general and preferences concerning the odd-even rule specifically, to increase the efficiency of our estimation, and adjust for any imbalances resulting from allocation to treatment conditions. These include socio-demographic variables such as age, education, gender, and income, as well as items directly related to air pollution and the odd-even policy, such as car ownership, perceptions of air pollution, whether any member of their family has a health problem, and perceptions of government performance.⁴

We use a Difference-in-Differences (DiD) specification in order to estimate the effect of the policy conflict upon individuals' policy support. This design explicitly uses the change in support for the odd-even policy in Beijing before and after the policy conflict in New Delhi to be the counterfactual change in support for the policy in New Delhi, i.e. how much support would have changed if the policy conflict did not occur.

Our estimating equation is

$$y = \beta_0 + \beta_1 \text{New Delhi} + \beta_2 \text{Wave 1} + \beta_3 \text{Wave 2} + \beta_4 \text{New Delhi} \times \text{Wave 1} \\ + \beta_5 \text{New Delhi} \times \text{Wave 2} + Z\gamma + \epsilon$$

y is support for the odd-even policy and Z is the matrix of covariates discussed previously. The estimated effects of the executive-judiciary class and policy dismissal are

⁴ In the appendix we provide item wordings and show that these variables are balanced across treatment conditions.

β_4 and β_5 , which are the differences between support for the odd-even policy in the 1st and 2nd waves in New Delhi post-policy dismissal and what support would be expected to be in these period if it followed the same trend as in Beijing after the baseline survey. The coefficient for New Delhi, β_1 , is the average support for the odd-even policy in New Delhi before the policy conflict occurred. The coefficients for the post-conflict waves conflict, β_2 and β_3 , is the average support for the odd-even policy in Beijing in the waves after the policy conflict occurred. We estimate this equation using Ordinary Least Squares, with robust standard errors. To estimate how this effect varies by respondents' sex, we conduct sub-group analyses where we restrict the sample by sex (female and male).

5 Results

Table 2: Average Support for the Odd-Even Policy Increased in New Delhi and Decreased in Beijing

	India	China	India	China
Survey Wave 1	0.02 (0.05)	-0.07 (0.05)	0.07 (0.05)	-0.06 (0.05)
Survey Wave 2	0.16*** (0.05)	-0.04 (0.05)	0.11** (0.05)	-0.04 (0.05)
Intercept	3.04*** (0.04)	2.80*** (0.04)	3.04*** (0.04)	2.79*** (0.04)
R2	0.01	0.00	0.11	0.10
Num. obs.	2001	2000	1995	2000
RMSE	0.91	0.90	0.86	0.86

Robust standard errors in parentheses $p < 0.01$, $p < 0.05$, $p < 0.1$. Covariates included in models 3-4 and 7-8.

Before turning to our DiD estimates of the effect of the policy conflict, we first show how the average level of support for the policy changed over time in both cities. Table 2 shows that in New Delhi there was some increase in support for the odd-even policy. However, this mostly occurred in the 2nd wave of the survey, approximately 3 weeks after the

policy conflict, rather than the 1st wave. In contrast, there was a slight decline on average for the odd-even policy in Beijing over this time period.

Table 3: Difference in Differences Estimates Distinguishing Between Policy Types

	No Exemptions	Exemptions Only	Exemptions + Effect	No Exemptions	Exemptions Only	Exemptions + Effect
New Delhi	0.17* (0.09)	0.13 (0.10)	0.49*** (0.10)	0.15* (0.09)	0.11 (0.10)	0.39*** (0.09)
Survey Wave 1	-0.12 (0.08)	-0.03 (0.09)	-0.02 (0.10)	-0.10 (0.08)	-0.03 (0.08)	-0.03 (0.09)
Survey Wave 2	0.00 (0.08)	-0.11 (0.09)	0.09 (0.09)	0.02 (0.08)	-0.10 (0.08)	0.07 (0.09)
Wave 1 × New Delhi	0.25** (0.12)	0.09 (0.13)	-0.05 (0.13)	0.25** (0.12)	0.13 (0.12)	0.04 (0.12)
Wave 2 × New Delhi	0.20* (0.12)	0.34*** (0.13)	-0.05 (0.13)	0.10 (0.11)	0.24** (0.12)	-0.05 (0.12)
Intercept	2.99*** (0.06)	2.77*** (0.07)	2.59*** (0.07)	3.01*** (0.06)	2.78*** (0.06)	2.63*** (0.07)
R2	0.05	0.03	0.06	0.12	0.16	0.16
Num. obs.	1186	1585	1230	1184	1581	1230
RMSE	0.81	0.94	0.92	0.78	0.88	0.87

Robust standard errors in parentheses $p < 0.01$, $p < 0.05$, $p < 0.1$. Covariates included in models 4-6.

Table 3 displays the DiD estimates of the average effect of the policy conflict in Delhi upon support for the odd-even policy, by exemption type. We can see that increased support for the odd-even policy in Delhi is driven by the odd-even policy not including exemptions for women. This is in line with the version of the odd-even policy that the NGT would have permitted. Distinguishing between the two types of exemption we included in our treatment design, we can examine versions of the policy that simply state that women would be exempt, and whether this was accompanied by information about how this would reduce the effectiveness of the policy to reduce air pollution. The results show there is no significant effect for exemptions when including information

about policy effectiveness with the exemptions. However, there is a statistically significant increase in support for the odd-even policy, when examining a policy design that only mentions exemptions for women.

Having found that support increased on average for the odd-even policy we now turn to examining the response by sex, as these average effects may mask variation in responses by sex.

Table 4: Difference in Difference Estimates - The Effect of Exemptions Conditional Upon Respondent Gender

	Males			Females		
	No Exemptions	Exemptions Only	Exemptions + Effect	No Exemptions	Exemptions Only	Exemptions + Effect
New Delhi	0.17 (0.12)	0.15 (0.15)	0.38*** (0.14)	0.13 (0.13)	0.01 (0.13)	0.42*** (0.13)
Survey Wave 1	-0.20* (0.12)	0.05 (0.13)	-0.08 (0.13)	-0.00 (0.11)	-0.12 (0.10)	0.06 (0.13)
Survey Wave 2	0.01 (0.12)	0.01 (0.12)	0.06 (0.13)	0.05 (0.10)	-0.22** (0.10)	0.08 (0.12)
Wave 1 × New Delhi	0.39** (0.16)	0.08 (0.18)	0.08 (0.18)	0.13 (0.17)	0.22 (0.16)	-0.04 (0.17)
Wave 2 × New Delhi	0.04 (0.17)	0.24 (0.18)	-0.09 (0.18)	0.15 (0.16)	0.33** (0.17)	-0.03 (0.17)
Intercept	3.04*** (0.09)	2.57*** (0.11)	2.62*** (0.10)	2.98*** (0.08)	3.00*** (0.08)	2.63*** (0.09)
R2	0.14	0.18	0.16	0.11	0.14	0.18
Num. obs.	602	794	645	582	787	585
RMSE	0.80	0.91	0.91	0.76	0.83	0.82

Robust standard errors in parentheses $p < 0.01$, $p < 0.05$, $p < 0.1$. Covariates included in all models.

Table 4 displays how the effect of the policy clash varies by sex. We find evidence of polarisation in the public's policy support. Male respondents become significantly more supportive of the odd-even policy without exemptions in response to the policy conflict. While women also become more supportive of the odd-even policy, they only do so if it

includes exemptions for women. Support both by female and male respondents does not increase if informed that the exemption for women would reduce policy effectiveness.

Taken together these results help resolve the finding that support for the odd-even policy both with and without exemptions for women increases after the executive-judiciary conflict. While, overall, individuals want the government to deal with the air pollution problem, preferences concerning the specific form of policy depend upon whether they are male or female, and the executive-judiciary conflict has contributed to polarization in this regard.

5.1 Robustness

Our main robustness test deals with a potentially important concern that our treatment, the policy conflict and subsequent dismissal, is confounded by differences in trends in pollution levels across cities. If, for example, air pollution systematically increased in New Delhi after the policy conflict, when compared to Beijing, then this would confound the effects we estimate for public opinion.

To assess this possibility, we again use a DiD design and employ data for the daily maximum in the Air Quality Index (AQI). The AQI is a measure of air pollution, comprising of a variety of pollutants and particulate matter considered dangerous. We use measurements of the AQI from monitoring facilities at the US Embassies in Beijing and New Delhi.

We estimate the DiD specification over a range of time windows before and after the policy conflict and dismissal. Specifically, we start with a window of two days, either side of the policy dismissal, up to 28 days, the date of the final survey response.

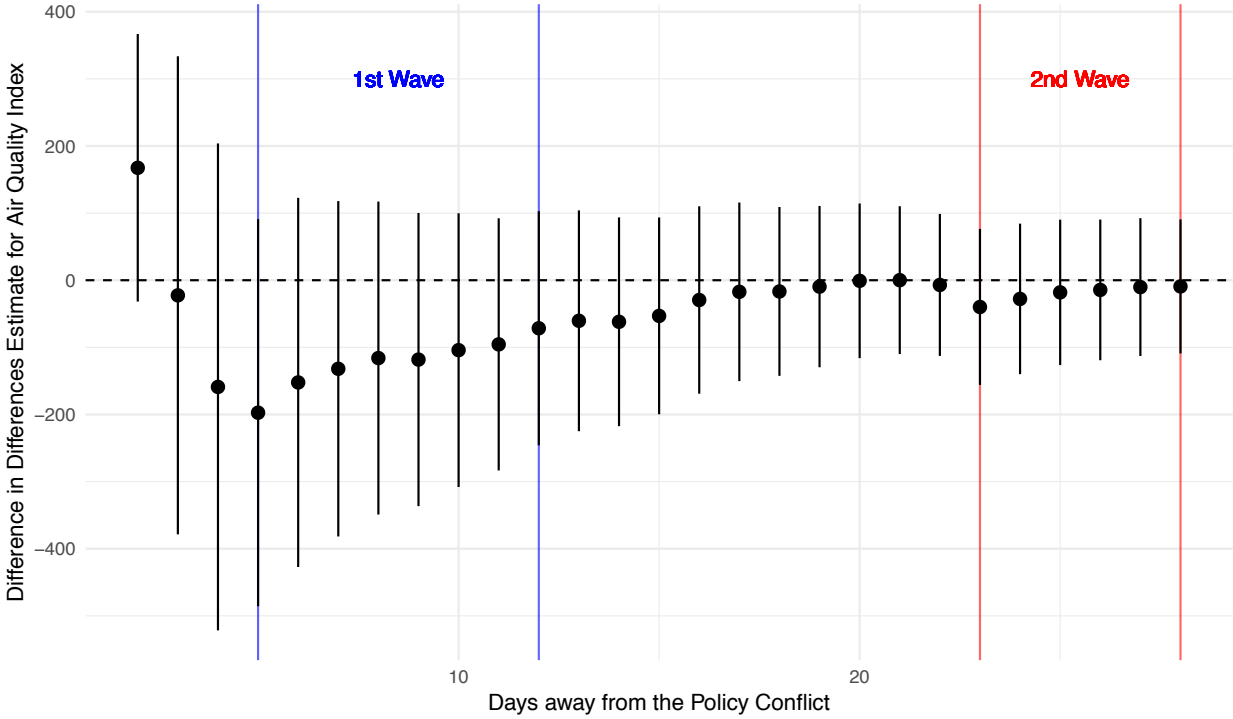


Figure 2: Changes in Policy Support are Not Confounded with Changes in Air Pollution.

Figure 2 displays these DiD estimates, where the maximum Air Quality Index (AQI) measure is the dependent variable. The results show that for the estimation windows covering both waves of the survey, there is no statistically significant effect for air quality. This lends credibility to our results, which appear to not be driven by differences in pollution between New Delhi and Beijing.

We can also assess whether the treatment was “received” by the public, by examining

how public interest in the odd-even rule varies over time, with reference to our survey waves and the policy conflict. Figure 3 shows that interest peaked at the time of the policy conflict, and was low beforehand. Therefore, we can be confident that our baseline surveys in New Delhi did not capture a general trend for increasing interest in the odd-even policy, with interest only occurring after the baseline when the policy conflict occurred.

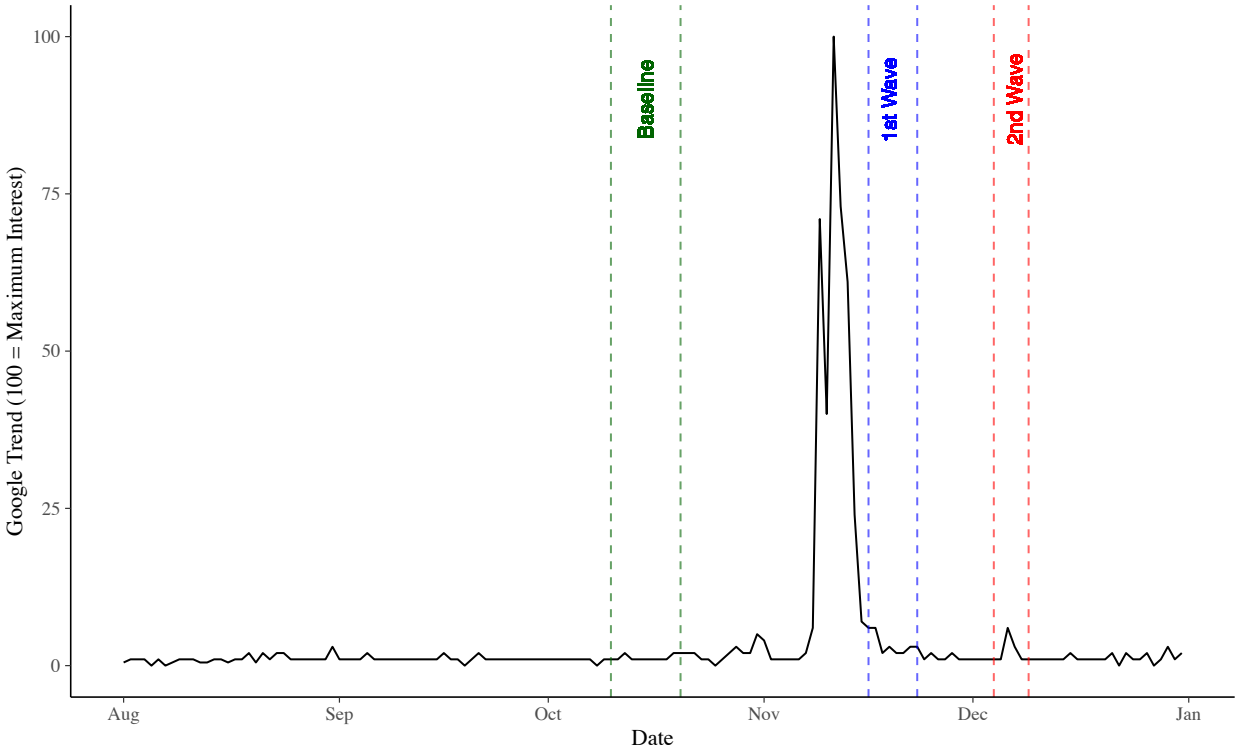


Figure 3: Google trends data on searches for the term "odd even" in New Delhi.

6 Conclusion

A substantial literature in political science focuses on how various individual and collective-level factors influence the public's policy preferences in a wide range of areas, and how those policy preferences (or public opinion in general) affect government behaviour. The research presented in this paper brings new evidence to a body of research that complements the aforementioned studies by examining the public opinion-politics relationship from the other end: it focuses on how the behaviour of policy-makers and public institutions influences the public's policy preferences. Specifically, we study how clashes between key institutions of government, in our case the executive and the judiciary, influence the public's policy preferences.

We outlined a set of theoretical arguments for how such clashes, which are common in most democratic countries, can impact on the public's policy preferences. Importantly, these clashes can polarize public opinion. By legitimising opposition and threatening beneficiaries, individuals become more supportive of the policy design that most favours them. Using the unexpected dismissal of a highly salient government policy (the odd-even rule) in Delhi by the judiciary, we find that policy conflict does indeed lead to a polarizing effect that, in our case, runs along gender lines. Specifically, the executive-judiciary conflict increased support by men for a version of the odd-even rule without exemptions for women, whereas it bolstered policy support among female citizens for a version of the odd-even rule with exemptions for women.

Our empirical analysis focuses on a particular policy issue (the odd-even rule and urban air pollution) in two major cities in India and China respectively. Systematic analysis of how such clashes between the executive and the judiciary affect public opinion requires high-quality public opinion data for the time-period before and after the clash, which is often not available. Moreover, even if such data is available (e.g. in the case of Brexit, or the U.S. racial policy issues mentioned previously) the endogeneity challenge remains. We thus focused on an empirical case for which we have original survey data covering a time-span before, during, and after an executive-judiciary clash, and where this clash occurred unexpectedly (for us, and for our survey participants) during data collection. The latter condition allows us to cope with the endogeneity problem by means of a difference-in-difference study design.

Nevertheless, the empirical evidence for the theoretical arguments and analytical approach could serve as a template for studying the broader question of how the behaviour of policy-makers and conflicts among different parts of government influence policy preferences among the mass public. Research along the lines presented here can also generate important case-specific policy insights. In our case, we find that gender-based exemptions – besides reducing policy effectiveness – are also likely to affect overall public support for the odd-even rule and increase gender-based polarization of policy-preferences. This suggests that exemptions that are not aligned with the policy goal, in this case reducing air pollution, can have significant costs upon political feasibility.

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Appendix

- A1. Full Regression Tables
- A2. Survey Information and Item Wording
- A3. Balance Statistics

A1. Full Regression Tables

Table A1: Average Support for the Odd-Even Policy in New Delhi Beijing (full version of table 2 in the main text)

	New Delhi	Beijing	New Delhi	Beijing
Survey Wave 1	0.02 (0.05)	-0.07 (0.05)	0.07 (0.05)	-0.06 (0.05)
Survey Wave 2	0.16*** (0.05)	-0.04 (0.05)	0.11** (0.05)	-0.04 (0.05)
Education			-0.04 (0.05)	-0.06 (0.05)
Female			0.05 (0.04)	0.13*** (0.04)
Age			0.03 (0.04)	-0.10** (0.04)
Own Car			0.15*** (0.05)	0.13** (0.05)
Car in Household			0.09* (0.05)	0.04 (0.04)
Air Quality Perception			-0.40*** (0.04)	-0.33*** (0.04)
Health Problems			0.27*** (0.04)	0.39*** (0.04)
Intercept	3.04*** (0.04)	2.80*** (0.04)	3.04*** (0.04)	2.79*** (0.04)
R ²	0.01	0.00	0.11	0.10
Num. obs.	2001	2000	1995	2000
RMSE	0.91	0.90	0.86	0.86

Robust standard errors in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1. Including covariates.

Table A2: Difference in Differences Estimates Distinguishing Between Policy Types (full version of table 3 in the main text)

	No Exemptions	Exemptions Only	Exemptions + Effect	No Exemptions	Exemptions Only	Exemptions + Effect
New Delhi	0.17 [*] (0.09)	0.13 (0.10)	0.49 ^{***} (0.10)	0.15 [*] (0.09)	0.11 (0.10)	0.39 ^{***} (0.09)
Survey Wave 1	-0.12 (0.08)	-0.03 (0.09)	-0.02 (0.10)	-0.10 (0.08)	-0.03 (0.08)	-0.03 (0.09)
Survey Wave 2	0.00 (0.08)	-0.11 (0.09)	0.09 (0.09)	0.02 (0.08)	-0.10 (0.08)	0.07 (0.09)
Wave 1 × New Delhi	0.25 ^{**} (0.12)	0.09 (0.13)	-0.05 (0.13)	0.25 ^{**} (0.12)	0.13 (0.12)	0.04 (0.12)
Wave 2 × New Delhi	0.20 [*] (0.12)	0.34 ^{***} (0.13)	-0.05 (0.13)	0.10 (0.11)	0.24 ^{**} (0.12)	-0.05 (0.12)
Education				0.06 (0.07)	-0.09 (0.06)	-0.09 (0.06)
Female				-0.04 (0.05)	0.21 ^{***} (0.05)	0.07 (0.05)
Age				-0.07 (0.05)	-0.02 (0.05)	-0.04 (0.05)
Own Car				0.17 ^{***} (0.06)	0.16 ^{***} (0.06)	0.11 [*] (0.07)
Car in Household				0.05 (0.05)	-0.01 (0.05)	0.17 ^{***} (0.05)
Air Quality Perception				-0.13 ^{***} (0.05)	-0.47 ^{***} (0.05)	-0.42 ^{***} (0.05)
Health Problems				0.36 ^{***} (0.05)	0.34 ^{***} (0.05)	0.28 ^{***} (0.05)
Intercept	2.99 ^{***} (0.06)	2.77 ^{***} (0.07)	2.59 ^{***} (0.07)	3.01 ^{***} (0.06)	2.78 ^{***} (0.06)	2.63 ^{***} (0.07)
R ²	0.05	0.03	0.06	0.12	0.16	0.16
Num. obs.	1186	1585	1230	1184	1581	1230
RMSE	0.81	0.94	0.92	0.78	0.88	0.87

Robust standard errors in parentheses ***p < 0.01, **p < 0.05, *p < 0.1.

Table A3: Difference in Difference Estimates - The Effect of Exemptions Conditional Upon Respondent Gender (full version of Table 4 in the main text).

	Male Respondents:			Female Respondents:		
	No Exemptions	Exemptions Only	Exemptions + Effect	No Exemptions	Exemptions Only	Exemptions + Effect
New Delhi	0.17 (0.12)	0.15 (0.15)	0.38*** (0.14)	0.13 (0.13)	0.01 (0.13)	0.42*** (0.13)
Survey Wave 1	-0.20* (0.12)	0.05 (0.13)	-0.08 (0.13)	-0.00 (0.11)	-0.12 (0.10)	0.06 (0.13)
Survey Wave 2	0.01 (0.12)	0.01 (0.12)	0.06 (0.13)	0.05 (0.10)	-0.22** (0.10)	0.08 (0.12)
Wave 1 × New Delhi	0.39** (0.16)	0.08 (0.18)	0.08 (0.18)	0.13 (0.17)	0.22 (0.16)	-0.04 (0.17)
Wave 2 × New Delhi	0.04 (0.17)	0.24 (0.18)	-0.09 (0.18)	0.15 (0.16)	0.33** (0.17)	-0.03 (0.17)
Education	0.06 (0.10)	0.00 (0.08)	-0.10 (0.10)	0.02 (0.09)	-0.15* (0.09)	-0.07 (0.08)
Age	-0.05 (0.07)	-0.11 (0.07)	0.00 (0.07)	-0.07 (0.07)	0.08 (0.06)	-0.08 (0.07)
Own Car	0.18** (0.09)	0.03 (0.09)	-0.01 (0.10)	0.17* (0.09)	0.29*** (0.08)	0.26*** (0.09)
Car in Household	0.05 (0.07)	-0.08 (0.07)	0.16** (0.08)	0.05 (0.07)	0.07 (0.07)	0.20** (0.08)
Air Quality Perception	-0.09 (0.07)	-0.58*** (0.07)	-0.40*** (0.08)	-0.16** (0.07)	-0.35*** (0.07)	-0.43*** (0.07)
Health Problems	0.44*** (0.08)	0.49*** (0.07)	0.35*** (0.08)	0.29*** (0.07)	0.21*** (0.06)	0.20*** (0.07)
Intercept	3.04*** (0.09)	2.57*** (0.11)	2.62*** (0.10)	2.98*** (0.08)	3.00*** (0.08)	2.63*** (0.09)
R ²	0.14	0.18	0.16	0.11	0.14	0.18
Num. obs.	602	794	645	582	787	585
RMSE	0.80	0.91	0.91	0.76	0.83	0.82

Robust standard errors in parentheses ***p < 0.01, **p < 0.05, *p < 0.1.

A2. Survey Information and Item Wording

The baseline survey (pre-NGT ruling) with 500 respondents was fielded in October 10-20, 2017. The 1st wave of the survey, with 750 respondents, was fielded from the 16th to the 23rd of November 2017, shortly after the NGT ruling and the Delhi government's withdrawal of the odd-even rule plan. We then fielded a final wave with 750 respondents two weeks later, from the 4th to the 9th of December 2017. These surveys were designed by the authors and fielded online by IPSOS. We used quota sampling in order for the sample to be broadly representative in terms of gender, occupation, age, and education. Given our sample sizes this approach reduces the potential for imbalance on these observables.

We use the following items for covariate adjustment:

Item: Female

What is your gender?

1. Male
2. Female

Item: Age

What is your age?

1. 18
2. 19
3. 20
4.
82. 81 years and more

Item: Education

What is the highest level of education you have completed?

1. Below Primary
2. Primary
3. Middle
4. Matric/Secondary
5. Higher secondary/Intermediate/ Pre-University/Senior secondary
6. Non-technical diploma or certificate not equal to degree
7. Technical diploma or certificate not equal to degree
8. Graduate & above
9. Other

Item: Own Car

Do you personally have a car?

1. Yes
2. No

Item: Car in Household

Does someone else in your household have a car?

1. Yes
2. No

Item: Air Quality Perception

Looking back over the past 12 months, how would you rate the air quality in <CITY>?

1. Very good
2. Good
3. Somewhat good
4. Neither good nor bad
5. Somewhat bad
6. Bad
7. Very bad

Item: Health Problems

Do you personally experience any health issues that you would attribute to air pollution in <CITY>?

1. Yes
2. To some extent
3. No

A3. Balance Statistics

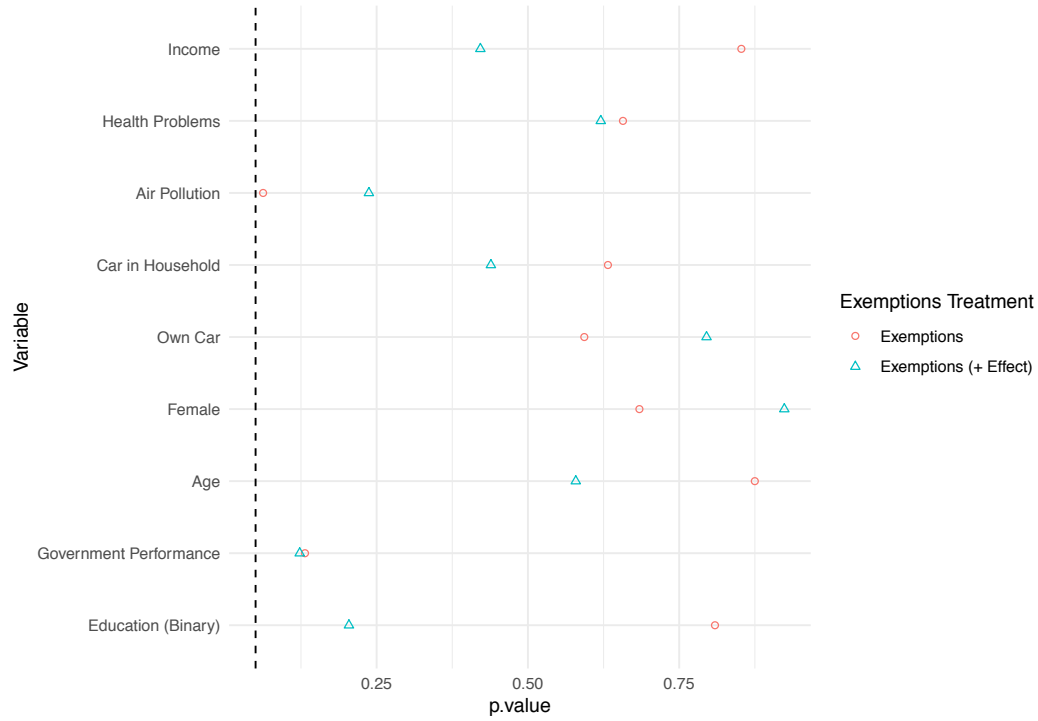


Figure iv Balance on observables conditional upon exemption treatment status in India. Points indicate the p-values from a difference in means test between the relevant treatment and the control group.

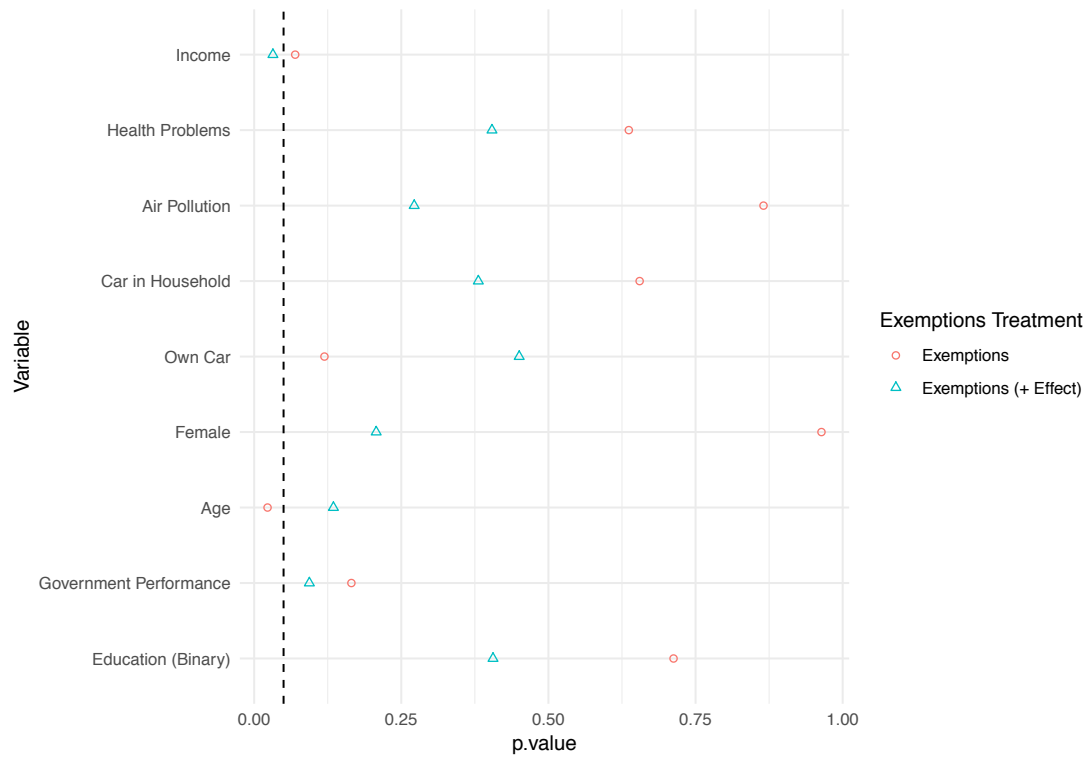


Figure v Balance on observables conditional upon exemption treatment status in China. Points indicate the p-values from a difference in means test between the relevant treatment and the control group