

# Prisons and Homophobia\*

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## Abstract

We evaluate whether prisons contribute to anti-gay sentiments in the population. One of the most important features of prison communities in many nations is self-governance with inmate code. This code is often homophobic mandating that persons perceived as “passive” homosexuals occupy the lowest positions in the social hierarchy. Once the inmates leave prisons, these attitudes are spread to the population. We explore this proposition using several sources of data. First, using, Australian longitudinal survey data, we establish that prison experience prompts a higher level of anti-gay sentiments among males and members of their families, even though no discernible difference exists before the incarceration. Second, to explore the transmission of anti-gay sentiments from ex-prisoners to the general population, we use the Soviet amnesty of 1953, which, after the death of Joseph Stalin, released 1.3 million prisoners. We find that the municipalities in Russia more exposed to the influx of released individuals have more incidences of anti-LGBTQ+ hate crimes, higher levels of homophobic slurs on social media, and higher levels of discriminatory attitudes expressed in representative surveys. We offer suggestive evidence of the potential mechanism by demonstrating that (i) in the aftermath of the amnesty more exposed locations had a higher number of thieves-in-law, a specific class of individuals inside the criminal community responsible for upholding the inmate code, (ii) persons whose ancestors went through the Gulag system have higher levels of anti-gay attitudes. Our results demonstrate a previously under-emphasized cost of mass incarceration: a higher level of homophobia.

**Keywords:** Tolerance, Homosexuals, Incarceration, Prison Culture, Russia, Australia

**JEL codes:** J15, N34, Z13.

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# 1 Introduction

According to the latest available data, there are more than 11 million prisoners worldwide, most in the United States (more than two million).<sup>1</sup> One of the well-documented facts about male prisons is the prevalence of a unique behavioral code adopted by inmates that guides potential social interactions and punishments for transgressions (Clemmer, 1940, Sykes and Messinger, 1960, Skarbek, 2014). Serving as a subculture, this code also creates hierarchies based on inmates’ sexual behaviour with persons perceived as “passive” homosexuals often having low status (Sykes, 1958, Einat and Einat, 2000). We argue that men (but not women) who go through the prison system end up more homophobic than before the incarceration, and such attitudes get transmitted to their family members and to the wider society. In short, prisons produce homophobia.

In this paper, we investigate how prisons can influence changes in attitudes toward gay persons. First, using longitudinal data from Australia we find that (i) males who went to prison became more intolerant toward homosexual individuals, and (ii) that the intolerance further spreads to the members of their households. Second, we use the largest amnesty in human history — Soviet amnesty of summer 1953 — on the nationwide change in attitudes toward homosexuals in Russia. Caused by the unexpected death of Soviet dictator Joseph Stalin, the amnesty resulted in 1.3 million people convicted for general criminal offenses being released and settled in the proximity of Gulag<sup>2</sup> labor camps. We estimate the exposure of each Russian city to the amnesty of 1953 as the sum of released persons weighted by the distance to Gulag camps. Then, we first show that the amnesty spread the prison culture to nearby areas, measured as the number of coronations of thieves-in-law allotted to supervise prison norms. Second, we show that more affected areas exhibit a larger probability of hate crimes against LGBTQ+ people, greater intensity of homophobic slurs on social media, and more homophobic attitudes of the individuals measured by representative surveys.

The question on the impact of prisons on homophobia is extremely difficult to study. First, the longitudinal survey data that tracks the incarceration status of individuals as well as their attitudes towards gay persons is scarce — this complicates the study of the impact of incarceration of individual anti-gay attitudes and on the anti-gay attitudes of their family members. Second, the places where former inmates live after they leave prisons are decidedly non-exogenous for they are likely to return to their previous place of living. Third, it is hard to study cultural change when the flow of ex-prisoners is relatively small and it may be difficult to identify cultural change from the accumulation of ex-prisoners that can be confounded by other factors.

We make advances on all these fronts. First, we use the Household, Income and Labour Dynamics in Australia (hereafter, HILDA) survey to explore whether people who return from prisons end up with a higher level of anti-gay attitudes than before the incarceration. The longitudinal survey with a large sample

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<sup>1</sup>World Prison Population List (Walmsley, 2019) is available here: [www.prisonstudies.org/sites/default/files/resources/downloads/wppl\\_12.pdf](http://www.prisonstudies.org/sites/default/files/resources/downloads/wppl_12.pdf).

<sup>2</sup>Russian acronym for the “main administration of the camps.”

of Australians conducted every year since 2001 allows us to observe a non-trivial number of individuals who were incarcerated during this period. Within-person variation allows us to infer if people who have been incarcerated end up having higher levels of anti-gay sentiments than before the incarceration. It also allows testing if the family members of incarcerated individuals change their attitudes towards gay persons. The survey is rich enough to allow controlling for age-, cohort-, and time-specific trends in a variety of socio-demographic and heritage characteristics as well as testing for pre-incarceration differences in anti-gay attitudes.

We find that prison treatment decreases the probability that male respondents think that gay people should have equal rights by a 0.28-standard-deviation. At the same time, the effect on female ex-prisoners is smaller in magnitude and insignificant. We also document the spread of the attitudes to the family members: having a close-family member returning from a prison decreases the probability of wanting equal rights for gay people by a 0.14-standard deviation. These results are not driven by a particular subgroup of population (age, education, religion, or state of residency), possible social desirability bias in survey, or pre-trends in homophobic attitudes. Additionally, our results hold if, instead of within-person variation, we use between-person variation in propensity score matching estimation.

Next, we investigate the transmission of anti-gay attitudes to the general public. To study this issue, one needs to find an episode of an exogenously determined influx of people with prison experience into the population. One of such episodes is the Soviet amnesty of 1953, when, after the death of Joseph Stalin, around 60 percent of Gulag prisoners were released putting an end to Stalin’s Gulag system. Many of the released prisoners stayed in nearby cities and towns contributing to the criminal activity there (Dobson, 2009).<sup>3</sup> We hypothesize that a rapid increase in the number of people with prison experience must have a long-lasting effect on anti-gay attitudes in the locations most exposed to the amnesty.

We start by documenting the first-order effect of the release of people with prison experience on the appearance of prison culture in more affected areas. For this we constructed a panel dataset of the year and location of the coronations of Russian thieves-in-law (*vory v zakone*) from 1922 to 2010 using textual data on their biographies from Prime Crime News Agency, an online resource on Russian criminal community widely used in crime research and followed by criminals themselves (Varese, Lonsky and Podvysotskiy, 2021). The primary purpose a thief-in-law is to supervise the following of the inmate code by the criminal community and thus represents the intensity of prison culture in the area (Galeotti, 2018). Using the event-study design, we show that locations more affected by the amnesty had a higher number of thieves-in-law coronations after 1953 but not before the amnesty.

To measure the impact of the 1953 amnesty on modern-day homophobia we use a set of outcomes. First, we use data on crimes against LGBTQ+ persons from Kondakov (2017), who meticulously collected the data on cases in 2010–2015 in which the motive of hate against LGBTQ+ persons was established by a court. Second, we have scraped the most popular social network in Russia, *vk.com*, for the geo-referenced public

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<sup>3</sup>Importantly, political prisoners, who were convicted for “counter-revolutionary activity” were not eligible for the amnesty.

postings containing common Russian homophobic slurs. Third, we use three geo-referenced public opinion surveys — Life in Transition Survey, World Values Survey, and the Courier Survey by Levada Center — that contain questions about respondents’ attitudes towards homosexual individuals. All our outcome variables in this part of the analysis are either location-level (anti-LGBTQ+ hate crimes and homophobic slurs in vk.com) or individual-level with information about the respondent’s location (survey data).

We regress all of our three intolerance outcomes on the exposure to 1953 amnesty measured as the sum of the number of released individuals from all Gulag camps weighted by the distance from each camp to a location. These regressions can be interpreted as regressions in changes, because the amnesty is, by definition, a change in the number of released individuals, and — as documented by qualitative literature on the matter — Russia had no systematic homophobia until 1935 and even after male homosexuality was criminalized by Stalin’s government, there was no enforcement or public shaming until the 1950s.<sup>4</sup> In the estimations, we control for population, municipality type, and geographic controls including coordinates and minimum distance to nearest Gulag camps to address endogeneity in the location of camps. Our identification assumption is that conditional on geographic proximity to Gulag labor camps, the exposure of each location to the amnesty of 1953 is exogenous because the identifying variation is driven by the variation in the number of released prisoners in each labor camp.

We find that exposure to 1953 amnesty is positively associated with all measures of present-day homophobia. Comparing two towns, one at the 25th percentile and the other at the 75th percentile of exposure to the amnesty of 1953, the more exposed location would be expected to experience an 8.2-percentage-point increase (12 percent of the mean) in the probability of a respondent being intolerant toward gay persons, 0.6-percentage-point increase (39 percent of the mean) in the probability of a hate crime in 2010–2015, and a 2-percent increase (80 percent of the mean) in the number of homophobic slur in social media. Overall, while from 1922 to 1991 more than 60 million Russian men went through prisons (Luneev, 1997) and affected public attitudes toward gays, the amnesty of 1953 still explains a sizeable amount of variation in current levels of homophobia.

We argue that the most plausible channel of the effect of amnesty on homophobic attitudes is exposure to prison culture. We provide suggestive evidence using the Life in Transition survey that contains a question of whether the respondent’s ancestors went through the Gulag. We show these respondents have higher levels of anti-gay attitudes even conditionally on a set of socio-economic and demographic controls. We find no evidence that our results are driven by the proximity to Gulag camps or possible economic underdevelopment due to exposure to amnesty.

Most immediately, we contribute to the quantitative studies on the determinants of homophobia. Studies in this literature have identified such factors as sex ratios (Baranov, De Haas and Grosjean, 2018; Chang, 2020; Brodeur and Haddad, 2021), historical religious missions (Ananyev and Poyker, 2021), modern Renewalist Christian denominations (Grossman, 2015), lack of legal recognition of same-sex marriage (Aksoy

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<sup>4</sup>Section 2 explores this issue in more detail.

et al., 2020). We propose a new potential source of homophobic attitudes — prisons and penitentiary policies — and offer several quantitative tests for this hypothesis.

More generally, we contribute to the literature on cultural change and persistence (summarized in [Giuliano and Nunn, 2021](#)). The relatively high level of anti-gay sentiments in Russia might seem puzzling given that, in general, Russia did not suffer from male-biased gender ratios. In fact, after World War II, in many regions, the sex ratios were female-biased due to the war casualties ([Brainerd, 2017](#)).<sup>5</sup> The high level of anti-gay sentiments in Russia therefore cannot be explained by the male-biased sex ratios in the society (the effect demonstrated by [Baranov, De Haas and Grosjean, 2018](#) and [Grosjean and Khattar, 2019](#)). The male prisons, however, with their norms that had emerged as instruments of self-governance, served as an essential conduit for anti-gay attitudes due to the high number of people who went through the penitentiary system in the Soviet Union. The factors of cultural changes explored in the literature include religion ([Bergeron, 2020](#); [Henrich, 2020](#)), slavery ([Nunn, 2008](#); [Nunn and Wantchekon, 2011](#)), and historical stability of the environment ([Giuliano and Nunn, 2021](#)). We provide an argument that mass imprisonment is also a significant determinant of norms and beliefs.

Additionally, we contribute to the literature on the effects of prisons on the convicted individuals ([Pager, 2003](#); [Kling, 2006](#); [Agan and Starr, 2018](#) on employment, [Mueller-Smith, 2015](#); [Dobbie, Goldin and Yang, 2018](#) on employment and recidivism, [Aizer and Doyle Jr, 2015](#) on high school completion) as well as on their household members ([Dobbie et al., 2018](#); [Norris, Pecenco and Weaver, 2021](#) on outcomes of their children) and the larger society ([Rose and Shem-Tov, 2019](#) on crime rates). Here we show the effect of incarceration on changes in cultural norms of prisoners, their families, and larger societies.

This paper also contributes to the literature on the long-run effects of Stalin’s repressions in Russia (summarized in [Zhuravskaya, Guriev and Markevich, 2021](#)). Here, [Nikolova, Popova and Otrachshenko \(2019\)](#) showed the effects of the Gulag system on trust, [Kapelko and Markevich \(2014\)](#) demonstrated that the individuals located closer to a Gulag camp were more likely to vote against a communist candidate in 1996 presidential elections.<sup>6</sup> [Toews and Vezina \(2020\)](#) show that areas near Gulag camps with higher share of political prisoners are more prosperous today than areas with Gulag camps with smaller shares of political prisoners. Here, we make an argument that the current level of homophobia in Russia is at least partly a Gulag legacy.<sup>7</sup>

This paper proceeds as follows. Section 2 describes sociological theories on the relationship between homophobia and prison culture, introduces background information about homophobia in Russia and the Amnesty of 1953. Section 3 describes our data. Section 4 introduces our individual longitudinal data specification and studies the first-order effects of prisons on ex-prisoners and their household family members. Section 5 introduces our empirical specification, identifying assumptions, and results of the effects of Amnesty

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<sup>5</sup>And before that male population either disproportionately died during World War I and the Civil War or migrated-out as the soldiers of the White Army who fled country after their defeat in the Civil War.

<sup>6</sup>Although, our identification strategy is different: instead of using the distance to the camps as a “treatment,” we use exposure to the 1953 amnesty conditional on the distance to the camps.

<sup>7</sup>Additionally, we contribute to the historical literature on the economics of Gulag system ([Gregory and Lazarev, 2013](#); [Gallen, 2019](#) by showing the effect of the aftermath of Beria amnesty on the spread of prison culture.

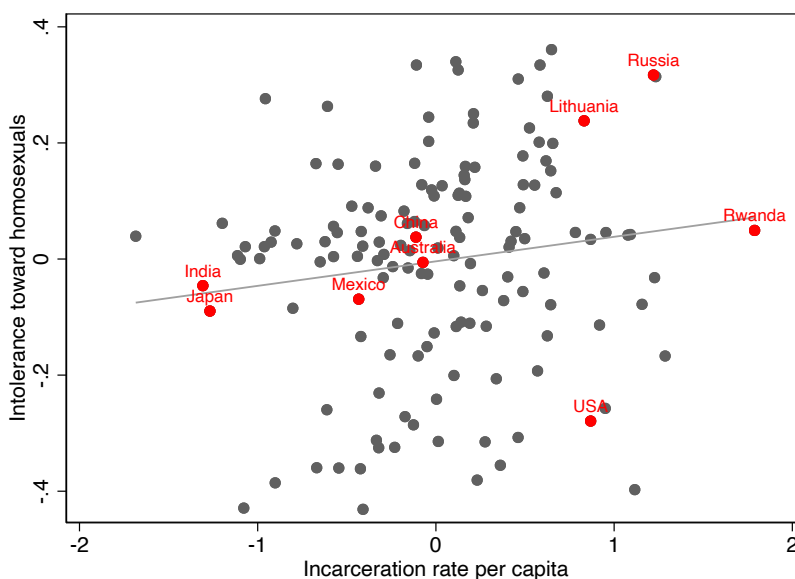
of 1953 on homophobia in Russia. Section 6 concludes.

## 2 Background: Homophobia, Prison Culture, and Amnesty of 1953

### 2.1 Homophobia and Prison Culture

The impact of prisons on anti-gay sentiments of inmates can operate through several interconnected mechanisms. Since most of the inmates are men, as Dolovich (2012) document, a set of masculinity norms emerge that privilege aggression, hierarchies, and competition. Such norms have been also documented for Soviet underworld (Galeotti, 2018).<sup>8</sup> In such environments, qualities that are stereotyped as “feminine” are despised, and “passive” homosexuals are perceived as woman-like.<sup>9</sup> It has also been documented that in many cases, homosexual acts involve violence and coercion (O’Donnell, 2004). Thus, a person who goes through such a system is more likely to be primed to ascribe low status to “passive” homosexuals and express anti-gay attitudes.

**Figure 1:** Countries With Larger Prison Population Are More Homophobic



*Notes:* This Figure shows a residual plot from the country-level regression of incarceration per capita on intolerance toward homosexuals. The regression coefficient is 0.053, robust standard errors are 0.026, and p-value is 0.035. The prison population for the latest available year is from World Prison Brief (accessible at [PrisonStudies.org](http://PrisonStudies.org)). Intolerance toward homosexuals is from the Gallup World Poll. The question used in the Gallup survey is as follows: “Is the city or area where you live a good place or not a good place to live for gay or lesbian people?” The variable is constructed as the share of people that answered “Not a good place.” Russia (together with Belarus) is in the upper-right corner. Australia is on the linear fit line in the center.

<sup>8</sup>Galeotti (2018) documents that an aspiring member of a criminal organization had to undergo a set of highly risky, but largely performative acts, such as stealing a coat from a Chechen restaurant.

<sup>9</sup>Varlam Shalamov writes in *Swindler’s Blood*: “The criminals [blatari] are all pederasts. Each of them in the camp is surrounded by young people with swollen and muddy eyes ‘Zoikas,’ ‘Man’kas,’ ‘Verkas,’ whom the criminal is feeding and with whom he sleeps” (Kuntsman, 2009).

To demonstrate suggestive evidence that mass incarceration might be linked to homosexual attitudes, in Figure 1, we show a cross-country correlation between the incarceration rates per capita from World Prison Brief and the respondents’ evaluation of how welcoming their locations are for gay and lesbian individuals from Gallup World Poll data. We find that in the countries with higher incarceration rates, Gallup respondents are more likely to say that their locations are “not a good place” for gay persons. While such a graph, presented here for the illustrative purposes, can suffer from a number of sources of endogeneity (such as economic development, history, and other aspects of culture), in the following sections we present a set of tests — with Australian and Russian data — that arguably permit more definitive causal conclusions.

## 2.2 Attitudes Toward Gays in Russia

According to representative surveys, the level of anti-gay attitudes in Russia is one of the highest in the world: 67 percent of World Values Survey respondents of 2017–2020 wave in Russia stated that they would not like to have homosexual individuals as neighbors, only 12 percent agree that homosexual parents are as good as the heterosexual ones, and 58 percent of individuals say that homosexuality is never justifiable.<sup>10</sup> According to the human rights watchdog “SOVA Center,” 16 people were beaten in 2020 for the reasons of anti-LGBT hate, while in 2019, 7 people were beaten and one person was killed. The LGBTQ+ persons are routinely publicly insulted by politicians and celebrities.

How deep are the roots of such attitudes? Recent historical research suggests that, even though Orthodox Christianity considers homosexuality sinful, before Stalin’s time it was not particularly stigmatized and Gulags’ prison culture become one of the main sources of homophobia in post-Stalin Russia (Healey, 2001, 2017). According to Healey (2001), Russia imposed anti-sodomy laws later than Western European countries. Peter I forbade “sodomy” in 1716 but only in the army and navy. Civil anti-sodomy laws were first introduced in 1835 during the rule of Nicholas I; however, the punishment for it was only introduced in 1866.<sup>11</sup> Female same-sex relationships had never been criminalized. The criminalization of “sodomy,” however did not change much in the culture and such offenses were almost never enforced. Russian society in that period was quite tolerant to the expressions of homosexuality. Criminal charges of “sodomy” in cases involving voluntary same-sex relationships were usually dropped without a trial. When such cases did reach a trial, judges were inclined to acquit the accused or to appoint relatively lenient punishment without a jail sentence. If the homosexual acts were found to be involuntary, then the accused was charged with both “sodomy” and sexual assault.

After the revolution of 1905, with the surge of *all* criminal convictions by 35% the number of people convicted for sodomy also increased. In total, in 1905–1913, 96 people were convicted for voluntary “sodomy” and 408 for involuntary “sodomy.” Most of such cases, however, came outside the territory of modern Russia.

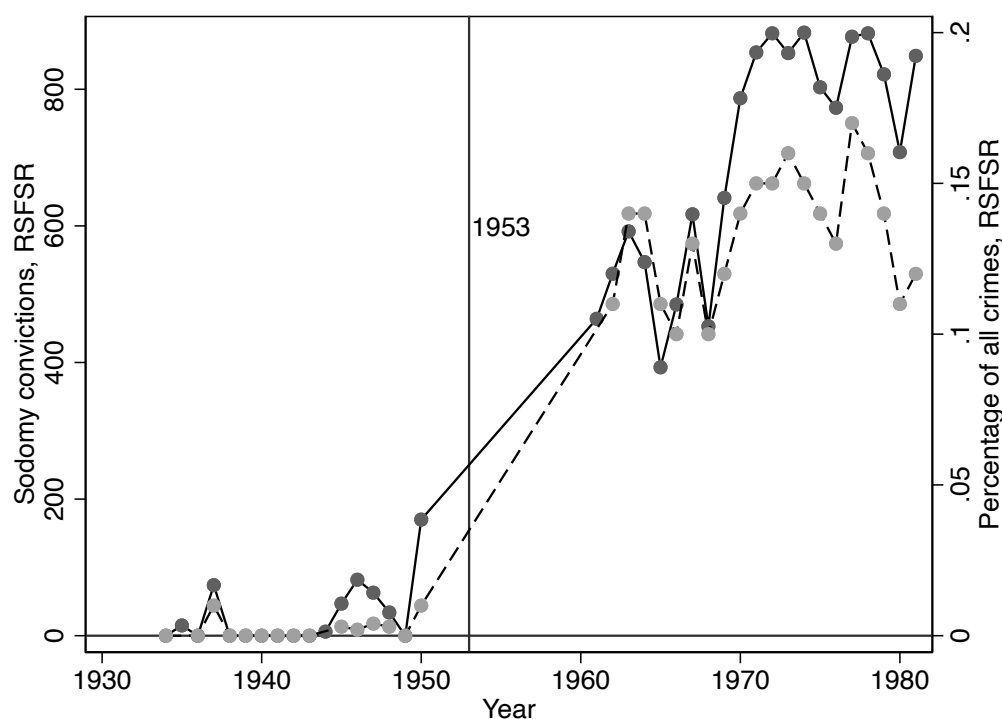
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<sup>10</sup>Such a high level is not explained by the recent legislation prohibiting “homosexual propaganda,” since as early as 2006 (WVS, 5th wave) it was on the same level: 66 percent of Russian respondents said that would not like to have homosexual persons as neighbors then.

<sup>11</sup>The punishment was retracting of the titles (i.e., estates) and exile in Siberia. In 1900, the exile was replaced with 4–5 years in prison.

Instead, they came from the territory of modern Ukraine and the territory of modern republics of the Caucasus and Central Asia. One of the suggested explanations was that such cases were fabricated by the police to arrest political dissidents, especially the pro-independence campaigners. The Bolshevik revolution of 1917 was followed by the Golden Age of Russian queer culture with gay weddings (although not officially recognized) and regular cross-dressing parties. Homosexuality was entirely legal during this period. Stalin criminalize homosexuality in 1935, but the enforcement, as in the pre-revolutionary period was rare. Figure 2 shows the number of “sodomy” convictions in the Soviet Union: they surged in the 1950s, strongly hinting at the role of the Gulag system in promoting homophobic attitudes.

**Figure 2:** Number of Sodomy Conviction and Their Share in the Total Number of Crimes in Russia (RSFSR), 1934–1981



*Notes:* This Figure shows with a black line the number of convicted individuals under the sodomy laws in the Russian Soviet Federative Socialist Republic (RSFSR). The gray dashed line shows their share in the total number of convictions in RSFSR in that year. Data for 1950–1960 are not available. Share of sodomy convictions in the total number of convictions in 1961 is also not available, but for the whole USSR the total number of sodomy convictions was 705 and their share was 0.09. Source: Table 1 and Table 2 of [Healey, 2001](#), Appendix, pp. 261–262.

In the Gulag camps, a hierarchical system emerged which consisted of several groups or castes ([Abramkin and Chizov, 1992](#)). On the top were “blatnye,” professional criminals with a high level of authority in charge of dispute resolution and overall management of the informal economy inside the camp. The biggest part of the prison population were “muzhiki” (“commoners”) who had no voice in the dealings of the “blatnye.” The lowest caste were “petuhi” (“roosters”), the untouchables with the reputation of being “passive” homosexuals.



Many individuals in this category ended up there because they were “punished” for transgressions either by a sexual assault from another inmate, often informally sanctioned by the camp’s administration). According to historian Irina Roldugina, “Homosexuality ... was closely related to humiliation, subordination, and violence. This system of violence and fear was beneficial for the camps’ administration because it cemented their power.”<sup>12</sup>

### 2.3 Amnesty of 1953 and Its Aftermath

To investigate the impact of prison experiences on homophobia among the population, we use the Soviet amnesty of 1953 that dramatically downsized the system of the labor camps in the Soviet Union. This system had emerged right after the Bolshevik revolution and started expanding dramatically after Stalin had taken power in 1929 and its peak had grown to comprise 475 labor camps. By 1953, approximately 18 million people had passed through the system (Applebaum, 2003). Gulag was officially dismantled in January 1960.

After the death of Stalin in 1953, a power struggle within the Soviet elite ensued. Soviet minister of Internal Affairs, Lavrentiy Beria, launched a campaign of reforms to Soviet law enforcement and the Gulag system. A part of Beria’s proposed reform package was a sweeping amnesty. Beria’s argument was that the Ministry of Internal Affairs should be free of its “economic responsibilities” (Elie, 2013). Some suspect that Beria advocated for the amnesty for political reasons (Solzhenitsyn, 1974), while others point out that the Gulag system became bloated and unmanageable (Galeotti, 2018). While Beria himself did not survive the post-Stalin power struggle (he was arrested and executed), his idea was implemented: 1,201,738 were freed from convict labor camps in 1953.<sup>13</sup>

Despite the amnesty’s ambition, its execution was poor. Uncertainty in the rules about who is supposed to be free lead to many career criminals being released. The released individuals were not offered any transportation options to their pre-conviction places of residence so they stayed in the nearby areas prompting the surge in criminality in those places. For example, by June 1, 1953, 5,500 released individuals arrived to the Siberian city of Omsk. In the weeks after that, the wave of assaults followed (70 people were admitted to hospitals with knife wounds). Similar events were happening throughout the country, and the government largely lacked the capacity to intervene (Mamin, 2018).

However, the first-order effect of amnesty was not only the crime (that also happened in other locations) but on the rise in prominence of a specific stratum inside the criminal community — thieves-in-law — who were in charge of maintaining the inmate code. The inmate code had crystallized earlier and can be traced to the aftermath of the Russian Civil War and even earlier times (Galeotti, 2018), but the Gulag system changed it significantly. One of the most important factors was the so-called “bitch war” (*suchya voina*): a series of violent clashes between two groups of criminals: one of the groups (*vory*) saw itself as upholders of the old inmate code, while the other was accused of collaborating with the Soviet government

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<sup>12</sup>Wonderzine.com: “From Stalin to “Petuhi”: Why Russian Men Fear Anything Gay.” URL: [www.wonderzine.com/wonderzine/life/life/233347-homophobia](http://www.wonderzine.com/wonderzine/life/life/233347-homophobia).

<sup>13</sup>[https://urokiistorii.ru/history\\_days/berievskaja-amnistija](https://urokiistorii.ru/history_days/berievskaja-amnistija).

and prison administration (*suki*). The war ended in 1953 with the *suki* prevailing. Nevertheless, they largely adopted the old *vory's* code but made it more stringent when it comes to the perceived “passive” homosexuality. Specifically, elaborate rules of “cleanliness” were adopted: perceived “passive” homosexuals had to be segregated, use separate cutlery and dishes and their belongings were never to be touched by others. The violators of this rule ran the risk of being shunned themselves (Mironova, 2022).<sup>14</sup> In the aftermath of the process, the thieves-in-law solidified as a class of individuals in the criminal community whose role was to uphold the rules and resolve informal disputes.

In this paper, we use the location-level exposure to amnesty as an exogenous shock. We hypothesize that the released individual bring their networks and norms, including the anti-gay attitudes, with them. As they settle in their new homes, they gradually start to influence the attitudes of the local population due to the high visibility of their activity, immersion in economic and social life, and general weakness of the state.

### 3 Data

#### 3.1 Household, Income and Labour Dynamics in Australia (HILDA) Survey

To investigate the impact of prisons on incarcerated individuals, we use the Australian Household, Income, and Labour Dynamics in Australia (HILDA) survey. It offers a nationally representative sample of individuals that it follows since 2001. Overall, HILDA data cover 29,695 respondents from 2001 to 2019. Our primary reason for using this survey is that unlike other longitudinal surveys from other countries (such as RLMS in Russia, GSOEP in Germany, and BHPS in the UK) it offers questions on whether the respondent had been incarcerated (as well as the respondent’s family members), and also the question about the attitudes towards homosexual individuals. Thus it allows us to observe the LGBTQ+ related attitudes before and after incarceration.

The question that we use for the measure of intolerance is as follows: “Please, on a scale from 1 (strongly disagree) to 7 (strongly agree), to which extent do you agree with the statement that homosexuals should have equal rights?” As a result, we use an ordinal variable varying from 1 to 7. We further normalize it to have zero mean and standard deviation of one for the sake of interpretation. The question was asked not in all years from 2001 to 2019; it was only asked in 2005, 2008, 2011, 2015, and 2019. Hence, in the baseline specification, we restrict our data to only these years.

The question about incarceration asks whether a person “was in prison/jail during the last year.” We assume that being in prison is an absorbing state because that person already experienced life in prison. Thus for each of the five periods, we create dummy variable Ever Was in Prison $_{i,t}$  equal to 1 if the person has answered that he/she was in prison in any year prior to year  $t$  (including years for which we don’t have data on gay attitudes). Similarly, we construct a dummy for individuals whose family members served a

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<sup>14</sup>We are yet to read the book once it comes out. This paragraph is based on a phone conversation with Dr. Vera Mironova in June 2021. We thank Dr. Vera Mironova for sharing her expertise with us.

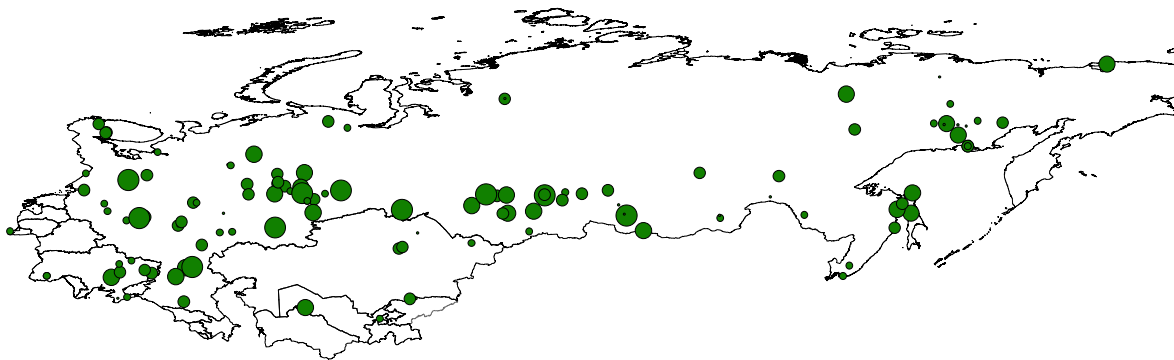
term in prison and returned.<sup>15</sup>

### 3.2 Data on Gulag and the Spread of Prison Culture

**Gulag** The data on the locations of Gulag camps come from [Mikhailova \(2012\)](#), who uses the data collected by Russian non-government organization “Memorial.” Researchers of “Memorial” had compiled the locations and yearly estimates of numbers of prisoners for 460 out of 475 Gulag camps located in the Soviet Union.<sup>16</sup> For every camp, we take the difference between its population between 1954 and 1952 to estimate the number of pardoned prisoners from each labor camp.

To grasp the scope of the gulag system [Figure A.1](#) shows the map with location and the total number of people that pass through each camp between 1923 and 1960. During that period of time, more than 20.8 million people went through Gulag; of them, 1.7 million of them died. By 1953 only 153 camps were operational (see map in [Figure A.2](#)). Most of these camps were located on the territory of the Russian Soviet Republic with a few on the territory of the Ukrainian and Kazakhsthanian Republics, with an average camp containing 10,500 thousand prisoners.

**Figure 3:** Number of Amnestied Prisoners in 1953 by Gulag Camp



*Notes:* This map shows the location of 153 Gulag camps on the territory of the former Soviet Union that were operational in 1953. The size of the ball corresponds to the total number of prisoners that were released during the amnesty of 1953. 18 camps did not release any prisoners or slightly increased the number of prisoners. We set the number of amnestied prisoners from these camps to be equal to zero.

<sup>15</sup>In our data, 3% of men and 1% of women at some point were incarcerated. Hence, the identifying variation comes only from these respondents. The rest (even if they don't contribute to the identifying variation in prison experience) provide us with more variation that can help us better capture age- and cohort-specific fixed effects.

<sup>16</sup>Gulag system had five types of labor camps. For this paper only two types of camps are applicable: (i) correctional labor camps — the largest group of Gulag camps, and (ii) special camps — 12 camps with more harsh work and living conditions. We do not use data on People's Commissariat for Internal Affairs (NKVD) special camps that were established in the Soviet-occupied Eastern part of Germany in 1945 for internment of the local population. These special camps were arranged in the former Nazi camps and were liquidated in 1950. We also do not use screening and filtration camps that were established in the USSR in December 1941 for temporary confinement of Soviet soldiers and the civil population from the Soviet territories occupied by Nazi Germany. These camps were also liquidated in 1950. Finally, we do not count prisoners-of-war (POW) camps. While captive German, Japanese, and their allied soldiers were working in labor camps, those who did not die were sent back to their home countries. The first POW extradition happened after 1955's Konrad Adenauer visit to Moscow and was not related to the amnesty of 1953.

The amnesty released approximately 1.2 million ex-prisoners; as a result 93 out of 153 camps existing by 1953 were permanently closed. The average camp released 1,800 prisoners; however, the standard deviation was large — 5,000 released prisoners. 18 camps did not decrease the number of prisoners. The larger release was from the Correctional Labor Camp 16 near Bratsk, Irkutskaya Oblast’ — more than 47,000 prisoners were released. The map in Figure 3 shows the magnitude of the releases from each existing Gulag camp and Figure A.3 shows the histogram of all amnesties by labor camp.

**“Coronations” of thieves-in-law** If our intuition on the effects on the effects of prison culture on the locations exposed to the amnesty is correct, we should expect the increase in the presence of thieves-in-law (*vory-v-zakone*): a stratum of criminals responsible for resolving disputes and upholding informal “understandings” of Russian inmate code (Galeotti, 2018). To test this hypothesis, we use data on the dates and places of the ascendance of individual criminals to the status of a thief-in-law (so-called, “coronations”). Such coronation signifies a presence of an underworld community as well as the importance of upholding “understandings.”

Biographies of thieves-in-law come from the criminal news website <http://primecrime.ru>. It contains textual biographies of Soviet and Russian thieves-in-law.<sup>17</sup> We extracted the year and location of the coronation of each thief-in-law and removed those that happened outside of Russia (mostly, in Georgia). In total, between 1922 and 2010 there were 452 coronations on Russian territory.

Before constructing a panel dataset, we first note that for the 273 (60%) coronations we only observe the rayon of the coronation (the Russian equivalent of a county/*municipio*). For the rest of 179 coronations, we observe the exact location/city of coronation. Hence, we chose rayon as the location for specification with thieves-in-law and assigned population-weighted coordinate of rayon’s centroid to each observation.<sup>18</sup> Because some years have zero coronations, we bunch together 10 years bins, eventually creating rayon-decade-level panel.<sup>19</sup>

### 3.3 Data on Attitude Toward Homosexual individuals in Russia

We use three measures to capture attitudes toward homosexuals in Russia. All three measures are computed using recent (2006–2021) years. These measures capture different aspects of homophobia and estimating the effect of amnesty of 1953 on all three of them is important for measuring anti-gay attitudes.

**Hate crimes** First, we use locations of hate crimes against LGBTQ+ persons collected by Kondakov (2017, 2021) in which the motive of hate against LGBTQ+ persons was established by a court. These data

<sup>17</sup>According to Galeotti (2018), thieves-in-law are visible members of the criminal underworld. As a validity check, we have found that all thieves-in-law mentioned in Galeotti (2018) are also present on primecrime.ru. Thus we are unlikely to have consequential measurement error.

<sup>18</sup>There are 2,395 rayons in the Russia and some of them are quite large, thus running a city-level specification with rayon’s coordinate for 60% of the observation may lead to measurement error. We do report results with it in Appendix C; however, they also hold.

<sup>19</sup>Following best practice, we bin the end-points, so that 1922 is included in the 1923–1933 bin and 2003–2010 are included in the 1993–2003 bin (Borusyak and Jaravel, 2016; Schmidheiny and Siegloch, 2019).

contain all locations that had a hate crime gay persons in 2010–2015. We were able to uniquely match these locations to our sample of Russian municipalities.

The limitation of this data is that it does not include the number of hate crimes, just the incidence, thus we can only construct a dummy for a hate crime. In addition, it may have a non-classical measurement error. In more homophobic areas, the court can be more homophobic and not count crime as a hate crime, or police may not register crime at all. In this case, we may underestimate the number of hate crimes in are more affected by the amnesty of 1953 and would work against us finding a positive effect of amnesty on the incidence of hate crimes.

**Homophobic slurs on social media** Another way to measure the geography of homophobia is to look at social media. The most popular social media website in Russia is vk.com (also known as “vkontakte”). It has more than 38 million users (more than 1/3 of the Russian internet audience). It is the fourth most popular website in Russia after Yandex (local search engine), Google, and Youtube.<sup>20</sup> Vk.com’s application programming interface allows scraping 1,000 latest public posts by the coordinates of the places of their authors. Thus, we have scraped those and calculated the prevalence of the three most common derogatory terms used against homosexual persons.

**Survey data** We use five representative surveys of the Russian population from 2006 to 2017 that has a question about attitudes toward homosexuals and the location of the respondent. Survey data comes from three different sources: 7th wave (2017) of the World Value Survey (WVS), 2nd (2010) and 3rd (2016) wave of Life in Transition Survey (LITS), and the Courier survey by Levada Center (the Courier) for 2013 and 2015.<sup>21</sup> While all three organizations that conducted the survey are different, the surveys are representative and have the same wording of the question about the attitudes toward homosexuals.

In WVS and LITS, the question we use is asked as follows: “On this list are various groups of people. Could you please mention any that you would not like to have as neighbours?” Homosexuals are one of the groups that is proposed by the questionnaire. We construct our main variable of interest — *Intolerance<sub>i</sub>* — as a dummy variable equal to one if the respondent mentions homosexuals, and zero otherwise. In the Courier the question is asked in a slightly different manner: “Would [you] like having people from this group [Homosexuals] as neighbours, dislike it, or not care?” If a respondent answered that they dislike having gay neighbours, we assign the value of 1 to the *Intolerance<sub>i</sub>* and 0 otherwise.

The survey-based question asks only about residential preferences and not, for example, about labor market discrimination (whether the respondent would hire a gay person) or political preferences (whether the respondent would vote for a gay person). It is quite unlikely, however, that the anti-gay sentiments that this question registers are confined solely to residential preferences and do not translate to other areas.

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<sup>20</sup><https://popsters.ru/blog/post/auditoriya-socsetey-v-rossii>.

<sup>21</sup>WVS and LITS have other waves with questions about attitudes toward homosexuals but they don’t have respondent’s coordinates or city name to assign the treatment. The courier has several other surveys with locations but with different questions such as we can’t combine them with other surveys.

Another potential problem is social desirability bias. Given that homosexuality is currently politicized in Russia in various ways, it is possible that people feel pressured to provide a particular answer; however, it is unlikely that this measurement error is also correlated with the exposure to the amnesty of 1953.

Overall our three measures capture three different aspects of the attitudes toward homosexuality and while each of them is limited in scope, together they show the big picture. And while each of them may have measurement error issues, they are of a different nature, thus robust results for all three measures would be indicative that these measurement errors are unlikely to be correlated with our treatment.

**Sample size** Because our treatment is computed on the location level, we also compute our outcomes at the location level. Russia has more than 144,000 designated municipalities. We restrict our sample of locations to those with at least 1,000 people in it.<sup>22</sup> The resulting sample of cities, towns, and villages is 10,137. Hence, we compute two of our outcomes — hate crimes against LGBTQ+ people and incidence of homophobic slur — for each of these locations. The third outcome — intolerance from the representative surveys — is estimated on the individual level, but the treatment is computed on the respondent’s location level, hence we use only 495 locations there.

## 4 Effect of Prisons on Individual Outcomes: Evidence from Australian Longitudinal Data

To establish the link between the prison experience and anti-gay attitudes, we first turn to an individual-level, longitudinal analysis. In this Section, we use the Australian longitudinal HILDA survey and identify the effect of prison from within-individual variation. This analysis allows us to estimate the effect of prison on anti-gay attitudes of men and women and the effect of prison on their household members. This specification also allows to directly test whether anti-gay individuals are more likely to end up in prison, thereby corroborating the absence of pre-existing trends in anti-gay attitudes.

### 4.1 Empirical Specification With The Longitudinal Survey Data

We construct a panel dataset of individuals for years: 2005, 2008, 2011, 2015, and 2019. We estimate the following equation:

$$\text{Equal rights}_{i,t} = \beta \cdot \mathbb{1}(\text{Ever was in prison})_{i,t} + \mu_i + \lambda_{s,t} + \eta X_{i,t} + \varepsilon_{i,t}, \quad (1)$$

where  $\text{Equal rights}_{i,t}$  is the dependent variable measuring the level of support for homosexuals having equal right (from 0 to 5) by respondent  $i$  in year  $t \in 2005, 2008, 2011, 2015, 2019$ . Because our main dependent variable is categorical and varies from 0 (strongly disagree) to 5 (strongly agree), for the sake of interpretability

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<sup>22</sup>We arbitrarily chose 1,000 population cut-off due to complications in scraping the racial slur in social media: it would introduce measurement errors when misidentifying users in very small Russian villages.

ity, we normalize it to have a mean 0 and standard deviation of 1. In Equation (1), we set up a model of the impact of being in prison, as measured by  $\beta$ , on outcomes for the individual  $i$  in year  $t$ , conditional on individual fixed-effects ( $\mu_i$ ) state-specific time trends ( $\lambda_{s,t}$ ), and individual controls ( $X_{i,t}$ ). The variable  $\mathbb{1}(\text{Ever was in prison})_{i,t}$  is equal to 1 if the respondent was ever in prison prior to time  $t$ . We cluster our standard errors on respondents' level.

## 4.2 Estimates from the Longitudinal Data

Table 1 shows the results of the estimation of Equation 1. Panel A estimates it for the sample of male respondents. In Column I, we only use respondent and year fixed effects. We show that being in prison is associated with a 0.23-standard deviation decrease in the probability of respondents thinking that gay people should have equal rights. In Columns II–VII, we sequentially add controls for demographic and socio-economic variables and time-specific trends. In Column II, we control for state-year fixed effects to address possible changes in states' legislation and public goods provision. We also control for age- and cohort- (year-of-birth) specific trends related to respondent's characteristics. Column III adds religion-age and religion-cohort fixed effect to address a concern that people belonging to different religions may become more homophobic and more likely to be sent to prison over time as they age or their cohort ages. Column IV similarly controls for ethnicity-age and ethnicity-cohort fixed effects. In Column V we control for possible differential age and cohort trends in education. Column VI adds occupation-specific trends; in addition, to age- and cohort-specific trends. Here we assume that certain occupations may become less profitable over time, thus causing people to commit crimes and be more intolerant to homosexuals. Hence, we also add occupation-year fixed effect to address possible economy-specific time trends in occupation. Finally, in Column VII, we control on lagged income to address possible changes in income that can make a person more likely to commit a crime and change his attitudes toward minorities.<sup>23</sup> The coefficient estimate for the prison-experience dummy is not statistically different from the one in Column I: being in prison is associated with a 0.28-standard deviation decrease in the probability of respondents thinking that gay people should have equal rights.<sup>24</sup>

Panel B estimates Equation 1 on the sample of female respondents. The resulting coefficient is almost twice as small relative to the coefficient for the male respondents and is not significant across all Columns. This suggests, that the prison experience only affects anti-gay sentiments of men while women released from prison do not become more intolerant. This result is consistent with the prison-specific masculinity mechanism described in Section 2.

Finally, Panel C estimates Equation 1 on the sample of male respondents, but instead of main explanatory

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<sup>23</sup>Here we use the inverse hyperbolic sin of income as it can be interpreted in the same way as a standard logarithmic variable but without needing to adjust for zero values (Burbidge, Magee and Robb, 1988).

<sup>24</sup>Results are qualitatively similar if instead of dummy for whether the respondent was in prison we use a cumulative number of times that the respondent was incarcerated or the total number of years that she spent there. See Tables B.1 and B.2. Because we do not observe longitudinal data on a close family members who returned from prison we cannot compute the number of years that they spent in prison; hence we can't replicate Panel C in Table 1.

**Table 1:** Effects of Prison Experience on Reductions in Tolerance Toward Homosexuals

	I	II	III	IV	V	VI	VII
	Dependent variable: Homosexuals should have equal rights						
<i>Panel A: Sample of men</i>							
1(Respondent was in prison)	-0.230*** (0.075)	-0.234*** (0.076)	-0.301*** (0.077)	-0.298*** (0.080)	-0.292*** (0.082)	-0.279*** (0.086)	-0.279*** (0.086)
R-squared	0.751	0.751	0.763	0.768	0.775	0.803	0.804
Observations	32,083	32,083	32,083	32,083	32,083	32,083	32,083
<i>Panel B: Sample of women</i>							
1(Respondent was in prison)	-0.147 (0.104)	-0.145 (0.104)	-0.115 (0.107)	-0.136 (0.110)	-0.153 (0.112)	-0.129 (0.126)	-0.129 (0.126)
R-squared	0.767	0.768	0.778	0.783	0.789	0.806	0.806
Observations	36,466	36,466	36,466	36,466	36,466	36,466	36,466
<i>Panel C: Sample of men</i>							
1(Respondent's close family member was in prison)	-0.119** (0.053)	-0.117** (0.053)	-0.140*** (0.054)	-0.136** (0.055)	-0.141** (0.055)	-0.135** (0.055)	-0.135** (0.055)
R-squared	0.764	0.764	0.770	0.775	0.779	0.792	0.792
Observations	32,083	32,083	32,083	32,083	32,083	32,083	32,083
Respondent FEs	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓
State-Year FEs		✓	✓	✓	✓	✓	✓
Religion x age & YoB FEs			✓	✓	✓	✓	✓
Ethnicity x age & YoB FEs				✓	✓	✓	✓
Education x age & YoB FEs					✓	✓	✓
Occupation x age & YoB & year FEs						✓	✓
Ihs Income							✓

*Notes:* Panel A estimates Equation 1 on the sample of male respondents. Panel B estimates Equation 1 on the sample of female respondents. Panel C estimates Equation 1 on the sample of male respondents but uses a different explanatory variable — dummy whether the respondent’s close family member ever was in prison. Panel C additionally controls for the respondent’s gender fixed effects. Ihs income is an inverse hyperbolic sin of the respondent’s last financial year disposable regular income. All Columns include respondent and year fixed effects. Standard errors clustered at the individual level, are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

variable  $\mathbb{1}(\text{Ever was in prison})_{i,t}$  we use variable  $\mathbb{1}(\text{Close family member in prison})_{i,t}$ . It is equal to one if a close family member of a respondent  $i$  was ever in prison before year  $t$ . We find, that men also become more anti-gay if their close family member returns from prison. Family members of ex-prisoner decrease their support for equal rights for gays by 0.14 percent of a standard deviation. This effect is smaller than the direct effect of the male experienced prison by himself but is still statistically significant, consistently across all specifications. We hypothesize that this happens not only because of not the first-hand experience but also because a returned-from-prison family member may be a woman. Because we do not observe the gender of that family member, including female ex-prisoners who do not contribute to the intolerance toward gays, we are attenuating our coefficient.<sup>25</sup> The effect of second-hand prison experience through close family members is driven exclusively by men. Results are still significant (but smaller in magnitude) when we re-estimate Panel C on the full sample in Panel A of Table B.5; however, the effect disappears if we use only the sample of female respondents (Panel B of Table B.5).

<sup>25</sup>The more precise way to estimate the spread of the anti-gay sentiments among the family members would be to use the dummy for only returned *male* ex-prisoner. Nevertheless, the true coefficient should be lower in its absolute magnitude than the one in Panel A but larger than in Panel C.



**Event-study specification** We can re-estimate Equation 1 as an event study to see how respondents’ anti-gay attitudes change over time after obtaining prison experience. Additionally, we can directly test for pre-trends in intolerance. Hence, we estimate the following equation:

$$\text{Equal rights}_{i,t} = \underbrace{\sum_{l=-3}^{-1} \gamma_l \cdot \mathbb{1}(\text{Ever was in prison})_i \cdot D(w=l)}_{\text{pre-prison period}} + \underbrace{\sum_{l=0}^3 \gamma_l \cdot \mathbb{1}(\text{Ever was in prison})_i \cdot D(w=l)}_{\text{post-prison period}} + \mu_i + \lambda_{s,t} + \eta X_{i,t} + \varepsilon_{i,t}, \quad (2)$$

where  $\text{Equal rights}_{i,t}$  is a measure of tolerance toward gays by respondent  $i$  in year  $t$ . Period  $w = 1$  is the first year when the respondent was asked about her/his attitudes toward gays after being in prison. Period indices run from  $-3$  to  $3$  and represent the position of time periods relative to prison treatment prior to year  $w = 1$ . The variable  $\mathbb{1}(\text{Ever was in prison})_i$  is cross-sectional in this specification and is equal to 1 if respondent  $i$  was ever incarcerated at some point in our dataset and zero otherwise. We interact it with the  $D(w = l)$  — a dummy equal to one if year  $w = l$ . Periods from  $l \in [-3; -1]$  represents pre-prison period and periods from  $l \in [0; 3]$  represents post-prison period. Coefficients  $\gamma_l$  with  $l \geq 0$  capture the prison culture experience effect in the post-prison period, and the ones with  $l < 0$  capture pre-trends.

Panel A of Figure 4 plots the resulting coefficients of Equation (2) estimated on the sample of males for the specification with the full set of controls (Table’s 1 Column VII of Panel A).<sup>26</sup> Similarly, Panels B and C of Figure 4 plot results for the female respondents and for men whose close family member has returned from prison. The first noteworthy feature is that neither specification exhibits pre-trends. We fail to reject the joint F-test that the pre-event  $\gamma_l$ s are zero in all three Panels. This suggests that the exact timing of the incarceration is not related to trends in homophobia and that respondents did not start to become more homophobic before their first incarceration.

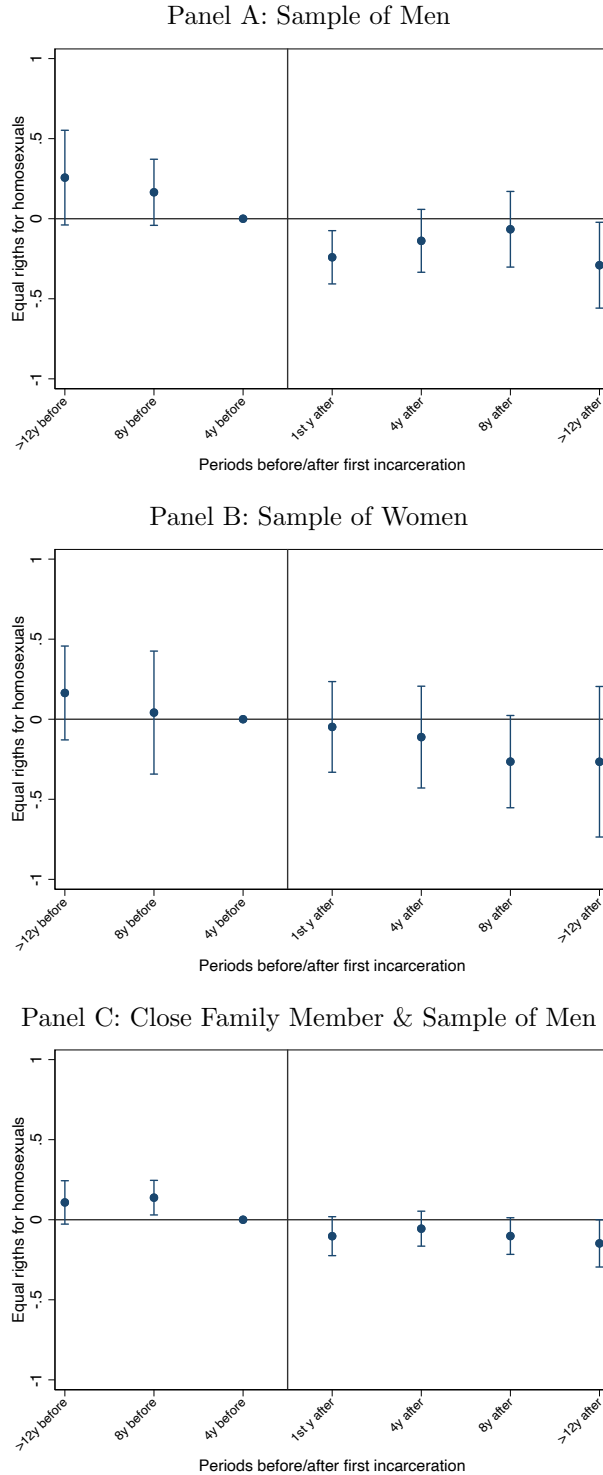
The second noteworthy feature is that while we do not observe any effect at the nearest period before going to prison zero ( $\gamma_{-1}$ ), four point-estimates for periods after incarceration experience have almost the same magnitude as the point estimate of  $\hat{\beta}$  from the baseline specification in Table 1. Thus the effect is constant across all years and our baseline specification (1) captures the full-time path of the effect.

Overall, all event-study results are qualitatively similar to those obtained in Table 1. Although we see a marginally significant (on 10% level) negative effect of prison experience on female respondents at  $l = 2$ , the effect is not significant for other post-prison period coefficients and is not jointly significant.

**More homophobic people are not more likely to be incarcerated** Within-person variation and a rich set of controls allow us to address the most likely source of unobserved trends that can possibly correlate with the higher probability of ending up in prison and developing anti-gay attitudes. The biggest

<sup>26</sup>Time period  $w = 0$ , i.e., the year when the person is sent to prison, is specified as the baseline period.

**Figure 4:** Event Study Analysis: No Increase in Intolerance Toward Gays Before Year 0 and Large Increase Among Men Afterwards



*Notes:* This Figure graphs the results of estimating Equation 2 for specification in Column VII of Table 1. Panel A is corresponding to the specification in Panel A of Table 1. Panel B is corresponding to the specification in Panel B of Table 1. Panel C is corresponding to the specification in Panel C of Table 1. Point estimates are reported in Appendix Table B.4. P-values for the joint significance of the pre-trend's coefficients are equal to 0.577 for Panel A, 0.471 for Panel B, and 0.718 for Panel C. This figure reports 95th-percent confidence bands. Standard errors clustered at the individual level, are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

concern that can invalidate our result is that anti-gay persons are just more likely to be criminals and end up incarcerated. While we show the absence of pre-trends in homophobia using event-study specification in Equation 2, we can additionally address this alternative explanation by estimating the following specification that use (i) all years in which the question about incarceration was asked and (ii) using dummy for being in prison *last year* instead of *ever* being in prison. We estimate the following specification:

$$\mathbb{1}(\text{Was incarcerated last year})_{i,t} = \beta \cdot \text{Equal rights}_{i,t-1} + \mu_i + \lambda_{s,t} + \eta X_{i,t} + \epsilon_{i,t}. \quad (3)$$

Because the question, whether the respondent was in prison last year was asked every year, in comparison to specification in Equation 1, here we use all years from 2006 (when the first question about attitudes toward gays was asked) until 2019. Here, our dependent variable  $\mathbb{1}(\text{Was incarcerated last year})_{i,t}$  is equal to 1 if respondent  $i$  was incarcerated within a year prior to year  $t$ . The main explanatory variable  $\text{Equal rights}_{i,t-1}$  measures respondent’s  $i$  attitudes toward gay rights in the previously available period (i.e., first available period before the incarceration). Thus for the periods 2006–2008, it is measured as respondent’s gay rights attitude in the year 2005, for the period 2009–2011 — in 2008, for 2012–2015 — in 2011, and for 2016–2019 — in 2015. Essentially, this specification estimates how an individual’s homophobia at period  $t - 1$  affects the probability of her being sent to prison at period  $t$ .

Table B.7 presents the results. We find that men with anti-gay sentiments (Panel A) and women (Panel B) are not more likely to be incarcerated. Similarly, anti-gay households also are not likely to have a family member incarcerated (Panel C). Together with the absence of significant pre-trends in Figure 4, these results are reassuring of the absence of selection of homophobic trends in people admitted to prisons (conditional on individual fixed effects).

**Results are not driven by a measurement error** Our dummy for prison correctly measures respondent’s prison history from 2000 to 2018 because while the question about attitudes to gays is asked five times, other questions, including whether the respondent was in prison last year, are available for all years of the survey: 2001–2019. Nevertheless, we may have a measurement error if a respondent was incarcerated and released prior to enlisting in the survey. For example, if an individual  $j$  did not go to prison again in 2001–2019 but was in prison in, e.g. 1998,  $j$ ’s  $\mathbb{1}(\text{Ever Was in Prison})_{j,t}$  will be always equal to zero and she won’t contribute to the identification because of individual fixed effect and thus won’t bias our results. However, if respondent  $j$  is incarcerated again, she will be counted as switching from non-treated to the treated state while in reality she should be counted as always treated (and not contributing to the identifying variation). Such measurement error will work against us finding the effect of prison culture on intolerance toward gays among *men*, but at the same will help us to find zero effect among *women*. To address this concern, in Table B.6 we show that our baseline results hold on the sample of respondents who entered the survey at

the age 18 or younger.<sup>27</sup> Here, we assume that 18–16 years old had no time to go to prison yet and that our controls.<sup>28</sup> Additionally, Figure B.8 shows that our results are not driven by a particular subsample of respondents’ age-of-survey-entry. Dropping respondents that joined the survey at 19–45, 46–60, or after 60 barely moves the coefficient of interest.

Another source of measurement error bias is a non-classical measurement error in the dependent variable that correlates with prior incarceration. E.g., due to some characteristics, a respondent may pretend to be more homophobic if he was in prison. However, this concern is addressed by individual fixed effects or age- and cohort-characteristic specific fixed effects that we absorb in Columns III–VI. Additionally, if this measurement error is driven by social desirability bias we additionally control for a set of interviewer-specific controls.<sup>29</sup>

**Results are not driven by particular sub-sample of data** First, we demonstrate that our results are not driven by any specific state. Panel A of Figure B.9 estimates most conservative specification from Column VII of Table 1 Panel A dropping one state at a time. This may be potentially important because the Australian population is mainly concentrated in New South Wales (biggest city Sydney) and Victoria (biggest city Melbourne). The estimated coefficient always remains significantly different from zero. Dropping Queensland, decreases the coefficient the most, from -0.28 to -0.31. Dropping the Victoria, increases the coefficient the most, from -0.28 to -0.26. Dropping-a-state exercise also holds for Panels B and C of Table 1; these results are shown in Panels B and C of Figure B.9. Additionally, in Appendix Figures B.10 and Figures B.11, we show the robustness of our preferred estimate to dropping one religion or education group at a time.

**Results hold if we use matching instead of within-person variation** In this section, we relied on the identification from within-person variation in prison experience. This identification strategy uses only variation among respondents that switched their prison experience status to identify the coefficient of interest. In our data only 3% of men and 1% of women were incarcerated.<sup>30</sup> To show that our results are not driven by lack of variation we show that they are robust to using alternative identification strategy based on matching on observable characteristics. Luckily, HILDA contains a very comprehensive questionnaire. Following the approach proposed in Belloni, Chernozhukov and Hansen (2014), we choose a set of controls to estimate propensity score.<sup>31</sup> Table B.12 contain the result for different types of matching estimators. Reassuringly,

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<sup>27</sup>Because the number of individuals who entered the survey at the age of 18 or younger is small, adding all set of age- and cohort-specific fixed effects from our preferred specification kill all the identifying variation. Hence, here we use the most parsimonious specification from Column I of Table 1.

<sup>28</sup>This assumption is likely to be true for the specifications with individual prison experience (Columns I–IV of Table B.6) than for specification with second-hand prison experience (Columns V–VI) because a child can still be affected by returning from prison father/mother at any age. Nevertheless, we report the results of these specifications for consistency.

<sup>29</sup>We formulate testable predictions of how social desirability bias might influence our results following the framework proposed in of Blair, Coppock and Moor (2020).

<sup>30</sup>Respondents that did not switch their prison status contribute to the estimation of the age- and cohort-specific fixed effects.

<sup>31</sup>In this double-robust matching procedure we run lasso on the outcome and treatment variable using the full set of variables available at HILDA. Then we choose a set of variables, that are significant correlates of both, and run a propensity score using that set of overlapping variables.

these matching estimates are qualitatively very similar to our baseline results. In combination, while both these results are based on different identifying assumptions and using a different identifying variation, the fact that they yield similar result suggest that our results are not driven by a small number of individuals that went to prison.

To conclude, our results in this section show that men who went to prison become more anti-gay but women do not. The effect is not driven by individual or economic characteristics, or by anti-gay people being also more likely to be incarcerated. We document that homophobia spreads from ex-prisoners to other household members but the magnitude of this second-order effect is smaller. The next section studies the effect of the largest mass prison amnesty in human history, large enough to spread prison culture to the general population and change cultural norms of the whole country.

## 5 Effect of Amnesty of 1953 on Prison Culture and Homophobia in Russia

In this Section, we report the results of the regression analysis for the effect of amnesty of 1953 on the spread of prison culture and homophobic attitudes in Russia. Section 5.1 introduces an empirical specification to study the effect of amnesty on “coronations” of thieves-in-law and reports results. Section 5.2 introduces our empirical specification, identification, and reports the main results on homophobia. Section 5.3 contains robustness and sensitivity checks.

### 5.1 Amnesty 1953 and Thieves-in-law Coronations

#### 5.1.1 Empirical Specification and Identification

We start by estimating event-study specification:

$$\begin{aligned} \sinh^{-1}(\# \text{ of coronations})_{i,t} = & \underbrace{\sum_{l=-3}^0 \gamma_l \cdot \text{Exposure to amnesty}_{i,1953-52} \cdot D(w=l)}_{\text{pre-amnesty period}} \\ & + \underbrace{\sum_{l=1}^5 \gamma_l \cdot \text{Exposure to amnesty}_{i,1953-52} \cdot D(w=l)}_{\text{post-amnesty period}} + \mu_i + \lambda_t + \eta X_{i,t} + \varepsilon_{i,t}, \end{aligned} \quad (4)$$

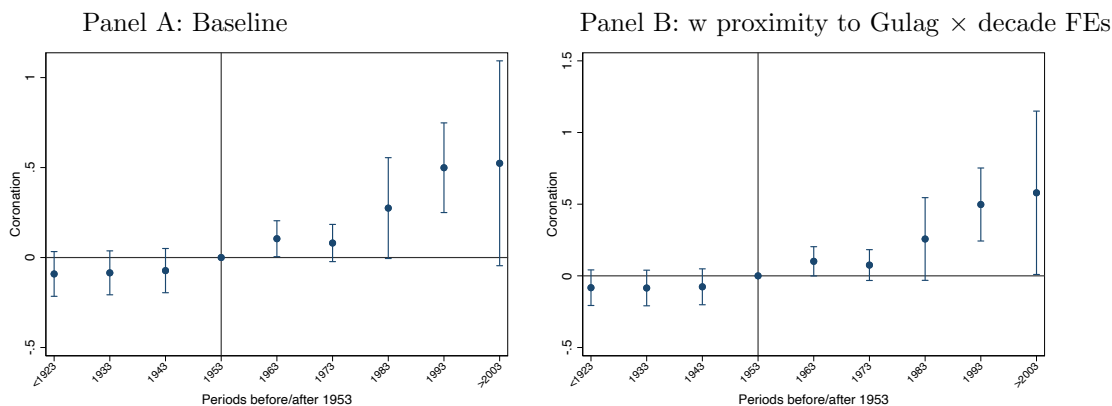
where  $\sinh^{-1}(\# \text{ of coronations})_{i,t}$  is the inverse hyperbolic sine of the number of thieves-in-law coronations happened in *rayon*  $i$  in decade  $t$ . Period indices run from  $-3$  to  $5$  and represent the decade relative to amnesty  $w = 0$  — decade period ending in 1953. The variable  $\text{Exposure to amnesty}_{i,1953-52} \equiv \sum_{g \in G} \left( \frac{\ln(\# \text{ released}_{g,1953-52})}{\ln(\text{Distance}_{i,g})} \right)$  — is the exposure to the amnesty of 1953. We compute it in a way that each location in Russia is treated by *all* released prisoners from *all* Gulag camps, but released prisoners from the camps that located farther away are counted with smaller weights than prisoners released from a nearby

camp. Hence for each location  $i$  we sum released prisoners in all camps weighted by distance from each camp to the location  $i$ . In this specification, we interact it with the  $D(w = l)$  — a dummy equal to one if decade  $w = l$ . Periods from  $l \in [-3; 0]$  represents pre-amnesty period and periods from  $l \in [1; 5]$  represents post-amnesty period. Coefficients  $\gamma_l$  with  $l \geq 1$  capture the effect of amnesty in the post period, and the ones with  $l \leq 0$  capture pre-trends.

Event-study specification allows us to not only estimate immediate effect of the amnesty on the spread of prison culture but also allows to absorb time-invariant variation coming from the endogenous location of Gulag camps. In addition to the location ( $\mu_i$ ) and decade ( $\lambda_t$ ) fixed effects, we also consider specification with controls ( $X_{i,t}$ ); in particular, we are concern that due to proximity to Gulags local economy may have unobservable trends in economic development and demographics that will also affect need for enforcement of criminal norms. Hence we control for the interaction of Min. distance to Gulag $_i$  with the decade dummies in one of the specifications. We cluster standard errors on the location level.

### 5.1.2 Results on Coronations of Thieves-in-Law

**Figure 5:** Event Study Analysis: No Increase in Number of Thief-in-law Coronations Before 1953 and Increase After the Amnesty



*Notes:* This Figure graphs the results of estimating Equation 4. The dependent variable is the inverse hyperbolic sine of the number of coronations of thieves-in-law. P-value for the joint significance of the pre-trend’s coefficients is equal to 0.694 in Panel A and 0.832 in Panel B. This figure reports 90th-percent confidence bands. Standard errors clustered at the location (*rayon*) level, are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Figure 5 reports the result. In Panel A, we see that within the next decade after the 1953’s amnesty, locations with one standard deviation higher increase in exposure to the amnesty experienced by 10.5% increase in a number of thieves-in-law coronations within the next 20 years. The effect persisted and intensified over time, suggesting that prison norms become more pronounced over time, reaching 27% in 1973–1983, and 50% after 1993. At the same time, we see no pre-trends.<sup>32</sup> Our results also hold when, in Panel B, we

<sup>32</sup>Our results hold, if we re-estimate Equation 4 on the city level, by using coordinates of the *rayon*’s population-weighted centroid for those observations where we don’t know the exact city; however, results presented in Figure C.1 appear qualitatively

additionally control for the interaction of log distance to the nearest Gulag camp and decade dummy. By doing so, we absorb possible variation coming from trends in local economic development.

This result suggests, that in the aftermath of the amnesty of 1953, prison culture indeed spread and culminated into the coronation of thieves-in-law needed for its supervision. In the next section, we show in a cross-section with control on minimum distance to Gulag camp that one of the manifestations of the prison culture — homophobia.

## 5.2 Amnesty 1953 and Homophobia

### 5.2.1 Empirical Specification and Identification

We estimate the following specification:

$$y_i = \beta \cdot \text{Exposure to amnesty}_{i,1953-52} + \gamma \cdot \text{Min. distance to Gulag}_i + \eta X_i + \varepsilon_i, \quad (5)$$

where  $y_i$  is one of our measures of intolerance toward gay persons in location  $i$ . Our main explanatory variable — Exposure to amnesty $_{i,1954-53} \equiv \sum_{g \in G} \left( \frac{\ln(\# \text{ released}_{g,1953-52})}{\ln(\text{Distance}_{i,g})} \right)$  — is the exposure to the amnesty of 1953.

Because Gulag locations were endogenous to the economic geography of the Soviet Union, weighting by distance to Gulag camps may confound our results. For example, a location near Gulag’s labor camp may become an industrial center with a large number of low-skilled manufacturing workers who are homophobic due to socio-economic conditions rather than amnesty of 1953 but because our measure of exposure to amnesty is correlated to distance to that nearby camp we will capture the effect of gulag on economy rather than prison culture. To address this concern we always control for the Min. distance to Gulag $_i$ . Thus the effect we capture is not explained by the presence of gulag and its influence on the local economy but rather the magnitude of the amnesty from nearby camps. Note, that controlling for the distance to the nearest labor camp does not address the fact that amnesty may affect homophobia not through prison culture but through a change in economic conditions due to the inflow of a large number of ex-prisoners. We show that our results are not driven by this explanation separately in Section 5.3.

We also control for a set of geographic controls ( $X_i$ ) such as population, coordinates, and Russian classification of municipalities (regional capital, city, township, and big (*poselok*) or small (*selo*) village). As our treatment is on location level, we use robust standard errors for specifications where our observation is the location (for crimes against LGBTQ+ and homophobic slur in vk.com) and cluster by location for specification with survey data.<sup>33</sup>

similar.

<sup>33</sup>Here our results also hold if we cluster all specifications by region (*oblast'*) or use HAC spacial standard errors. We do not have a preference for which standard errors to use but since all works, we chose the most intuitive method.

### 5.2.2 Results on Homophobia

Table 2 presents our results on location level. The dependent variable in Panel A is a dummy for crimes against gay persons. The dependent variable in Panel B is the inverse hyperbolic sine of the number of mentions of homophobic slur in the last 1,000 posts in vk.com. To make our coefficient of interest more interpretable we normalize exposure to amnesty to have a mean 0 and standard deviation of 1.

Column I of Panel A reports results of the bivariate regression. Comparing two towns, one at the 25th percentile and the other at the 75th percentile of exposure to the amnesty of 1953, the more exposed location would experience a 0.6-percentage-point increase (39 percent of the mean) in the probability of a hate crime. The coefficient of interest remains stable when we add additional controls in Columns II–V. Panel B replicates Panel A but for log number of homophobic slur as the dependent variable. Comparing two locations, one at the 25th percentile and the other at the 75th percentile of exposure to the amnesty of 1953, the more exposed location would experience a 2-percent increase (80 percent of the mean) in the number of homophobic slurs in social media.

**Table 2:** Locations More Exposed to Amnesty of 1953 are More Homophobic Now: Hate Crimes and Homophobic Slur in Social Media

	I	II	III	IV	V
<i>Panel A:</i>					
	Dependent variable: 1(Crime against LGBTQ+)				
Exposure to 1953 Amnesty	0.0040*** (0.0015)	0.0038** (0.0015)	0.0032** (0.0015)	0.0031* (0.0018)	0.0039* (0.0023)
R-squared	0.001	0.002	0.002	0.002	0.034
Observations	10,137	10,137	10,137	10,137	10,137
<i>Panel B:</i>					
	Dependent variable: Log # homophobic slur in VK				
Exposure to 1953 Amnesty	0.0227*** (0.0053)	0.0166*** (0.0045)	0.0137*** (0.0044)	0.0117** (0.0055)	0.0114** (0.0054)
R-squared	0.008	0.101	0.102	0.103	0.112
Observations	10,137	10,137	10,137	10,137	10,137
Log population		✓	✓	✓	✓
Min. distance to Gulag camp			✓	✓	✓
Latitude & longitude				✓	✓
Location type					✓

*Notes:* Unit of observation in this Table is a town/village with a population of at least 1,000 people. The dependent variable in Panel A is a dummy for a crime against LGBTQ+ people in 2010–2015. The dependent variable in Panel B is an inverse hyperbolic sine of the number of homophobic slurs in the latest 1,000 public posts in vk.com. Min. distance to labor camp is a log of minimum distance to any of 475 ever-existing Gulag camps. Location types include dummies for small village (*selo*), large village (*poselok*), township, regional capital, and city is taken for reference. Standard errors clustered at the province (*oblast'*) level, are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 3 presents results with the survey data on individual intolerance toward homosexuals. Column I only includes survey fixed effects. The resulting coefficient is positive but insignificant. On inclusion of the minimum distance to labor camp in Column II the coefficient increases in magnitude and becomes



significant. It remains significant when we include demographic and geographical controls in Columns III–VI. The resulting interquartile difference in exposure to the amnesty of 1953 suggests that the more exposed location would experience an 8.2-percentage-point increase (12 percent of the mean) in the probability of a respondent being intolerant toward gay persons.

Overall, we find that exposure to the amnesty of 1953 positively affects all three measures of intolerance toward homosexuals. The effect is statistically significant and explains a large share of the variation in these variables. As these measures are based on different dimensions of discrimination of gay persons and generated by different data-generation processes we see this as compelling evidence that the amnesty of 1953 had a profound effect on cultural acceptance of homosexuality in Russia.

**Table 3:** Locations More Exposed to Amnesty of 1953 are More Homophobic: Survey Data

	I	II	III	IV	V	VI
	Dependent variable: 1(Dislike homosexuals)					
Exposure to 1953 amnesty	0.052 (0.035)	0.066* (0.037)	0.065* (0.038)	0.061* (0.037)	0.059* (0.037)	0.057* (0.037)
R-squared	0.090	0.091	0.093	0.099	0.106	0.107
Observations	6,522	6,522	6,522	6,522	6,522	6,522
Survey-wave FEs	✓	✓	✓	✓	✓	✓
Min. distance to labor camp		✓	✓	✓	✓	✓
Demographic controls			✓	✓	✓	✓
Ethnicity FEs				✓	✓	✓
Religion FEs					✓	✓
Coordinates						✓

*Notes:* Unit of observation in this Table is a survey respondent. The dependent variable is a dummy equal to 1 if respondents would not like having homosexuals as their neighbors. Data for this Table pools the data from the 7th wave (2017) of the WVS, 2nd (2010) and 3rd (2016) waves of LITS, and 2013’s and 2015’s Courier Survey. Survey-wave FEs include 4 fixed effects. Min. distance to labor camp is a log of minimum distance to any of 475 ever-existing Gulag camps. Demographic controls include gender, age, age squared, and marital status. Religion FEs include a dummy for Christianity, Islam, Judaism, Buddhism, Other, and “no religion” is taken for reference. Standard errors clustered at the primary sampling unit level are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

### 5.3 Mechanisms and Alternative Explanations

In this section, we address possible alternative explanations for our effects. Then we discuss possible mechanisms of how amnesty affected attitudes toward gays.

#### 5.3.1 Endogenous Proximity to Gulag Camps

Locations closer to Gulag camps may be different in terms of local economic composition. There is consistent evidence that Gulag labor camps were strategically placed to supply coerced labor force for big industrial construction sites, timber production, mines, water channels, and railroad construction (Gregory and Lazarev, 2013; Gallen, 2019). As a result, it (differentially) affected the long-run economic development

of these locations (Mikhailova, 2012) and, because modernization is generally associated with more inclusive values (Inglehart and Welzel, 2005), could affect cultural norms such as attitudes toward gays.

Our specification, however, allows us to directly control for the endogenous location of Gulag labor camps by controlling on the distance to the closest labor camp and coordinates of the location.<sup>34</sup> This is possible because our identifying variation comes from the random number of pardoned criminals of that unique amnesty rather than exposure to a labor camp itself. As a result, while the existence of a labor camp could affect (both, positively and negatively) attitudes toward gays directly through the economic development of the region, our specification absorbs this effect. And while we can't identify it separately but it does not confound our results.

Overall, our effect is driven by the variation in amnesty rather than anything else. However, whether its effect on homophobia is driven by prison culture or through the effect of ex-prisoners on local economic condition remains, and we provide the evidence in support of the former and against the latter in the next sections.

### 5.3.2 Economic Underdevelopment as a Mechanism

Possibly, the most important concern is that amnesty itself affected local economic development as ex-convicts could devastate economic growth through criminal activities. We address this concern by showing that conditional on the distance to the nearest labor camp, exposure to the amnesty does not correlate with the economic outcomes. Table C.1 replicates Table 2 but uses log average salary as the main dependent variable. We see that exposure to amnesty is positively associated with wages in 2010 in a specification without any controls (Column I), but conditional on the population, the significance disappears (Column II). Adding additional controls makes the resulting coefficient even smaller and magnitude and it remains insignificant. These results suggest, that the effect of amnesty on the economy was not economically strong and the long-run economic development is likely to be driven only by the existence of labor camps rather than how many people were pardoned in 1953.

Additionally, economic underdevelopment is unlikely to explain our results, as recent findings by Toews and Vezina (2020) indicate that areas near Gulag camps have higher wages, education, and are more prosperous nowadays. Hence, it is likely that this works against us in estimating the negative effect of amnesty on tolerance toward gays.

### 5.3.3 Family History and Gulag Camps as a Mechanism

In this section, we provide evidence that prison culture is the mechanism behind the effect of amnesty on changes in attitudes toward gays.

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<sup>34</sup>We use all labor camps locations when computing this minimal distance even if the camp was already closed by 1953. We do so because our intention is to absorb the confounding effect of endogenous labor camp location and omitting already closed camps would introduce non-classical measurement error. Although results hold if we only measure the minimal distance to the nearby existing camp, or if we use a number of labor camps within a 100-kilometer radius.

The 3rd LITS survey (2016) contains the question about whether the respondent’s immediate family members served sentence in labor camps. We use this question to estimate the effect of having immediate family members (parents or grandparents) in labor camps on respondents’ anti-gay attitudes. Table 4 reports the results of this regression with and without demographic and geographical controls.<sup>35</sup> We strong first positive correlation, suggesting that descendants of gulag camps prisoners are more likely to be intolerant toward gays even conditionally on such factors like income and education.<sup>36</sup>

**Table 4:** Respondents Whose Immediate Relatives Were in Labor Camps are More Homophobic: Survey Data (LITS, 2016)

	I	II	III	IV	V	VI
	<b>Dependent variable: 1(Dislike homosexuals)</b>					
Parents/Grandparents sent to labor camp	0.220*** (0.064)	0.213*** (0.066)	0.201*** (0.057)	0.205*** (0.058)	0.203*** (0.056)	0.202*** (0.058)
R-squared	0.067	0.073	0.075	0.080	0.093	0.095
Observations	1,507	1,507	1,507	1,507	1,507	1,507
Min. distance to labor camp		✓	✓	✓	✓	✓
Demographic controls			✓	✓	✓	✓
Ethnicity FEs				✓	✓	✓
Religion FEs					✓	✓
Coordinates						✓

*Notes:* Unit of observation in this Table is a survey respondent. The dependent variable is a dummy equal to 1 if respondents would not like having homosexuals as their neighbors. This Table is using data from the 3rd (2016) wave of LITS. Min. distance to labor camp is a log of minimum distance to any of 475 ever-existing Gulag camps. Demographic controls include gender, age, age squared, and marital status. Religion FEs include a dummy for Christianity, Islam, Judaism, Buddhism, Other, and “no religion” is taken for reference. Standard errors clustered at the primary sampling unit level are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Overall, our results suggest, that it was male prison culture that was the defining mechanism of the effect of amnesty of 1953 on homophobia in Russia.

## 6 Discussion and Conclusion

This paper makes a simple claim: prisons promote homophobia among men, and, if the incarceration rate is high enough in the country, the attitudes that emerge in prisons, get transmitted to the general population and exert a long-run influence on the hostility towards LGBTQ+ individuals.

We substantiate this claim in several ways. First, using longitudinal survey data from Australia, we confirm that men (but not women) who have been to prison become more homophobic after they served their time than they had been before. The same empirical pattern is observed for the members of their families. Second, turn to investigate the potential transmission of the anti-gay norms to the general population. To demonstrate such a phenomenon takes place, we need an event in which many geographical locations in a

<sup>35</sup>We use the same set of controls as in the baseline survey-data Table 3 but we do not include survey-wave-year fixed effects because we only have one wave with this question.

<sup>36</sup>The effect is possibly attenuated as we do not know whether imprisoned ancestors were men or women.

country are exogenously exposed to the influx of people with prison experiences. We use the Soviet amnesty of 1953 that freed 53 percent of Gulag prisoners as an example of such an event. We find that places more exposed to the amnesty had an immediate increase in the number of thieves-in-laws' coronations — indicative of the intensification of prison culture. We also find that more affected by amnesty locations are more likely to have instances of hate crimes against LGBTQ+ individuals, have a higher rate of homophobic slurs on social media, and a higher level of anti-gay sentiments expressed in the representative surveys.

Our results demonstrate an important source of homophobia that was previously under-explored in the quantitative studies: prisons. When policymakers contemplate new reforms that can potentially increase the number of incarcerated individuals, they should take into account the long-run effect this might have on the level of anti-LGBTQ+ intolerance.

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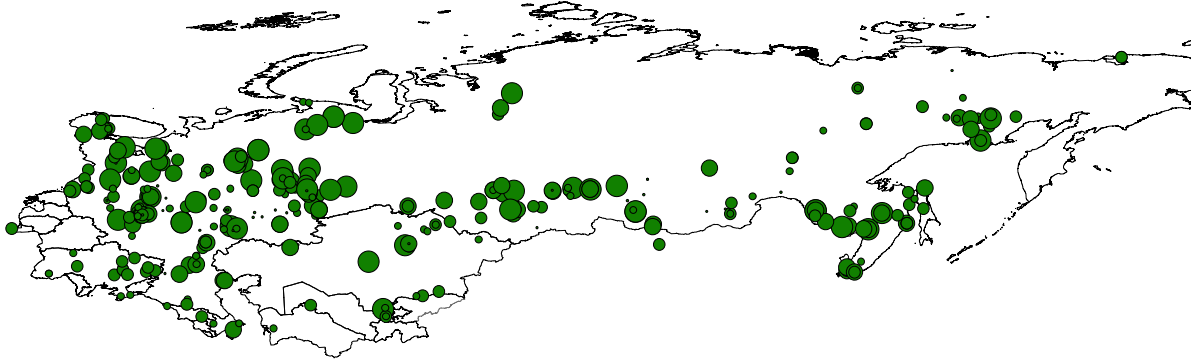
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**Online Appendix**  
**to**  
**“Prisons and Homophobia”**

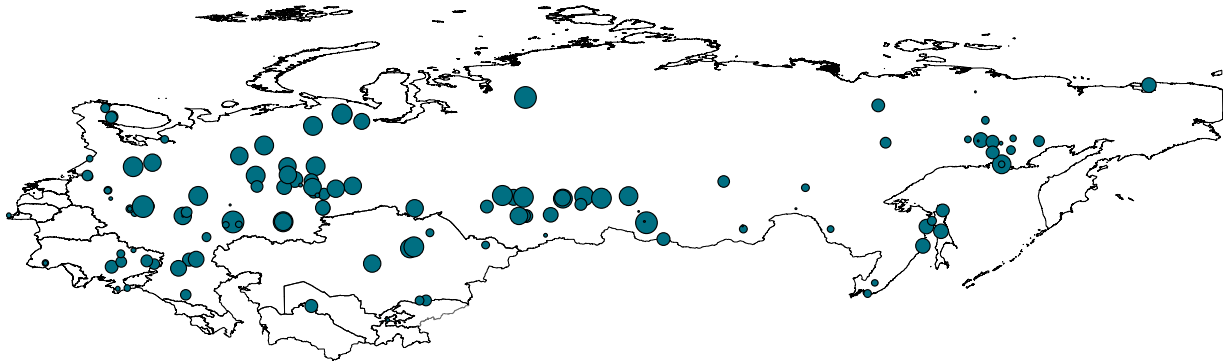
## A Additional Data Description

Figure A.1: Location and Sizes of *All* Gulag Camps



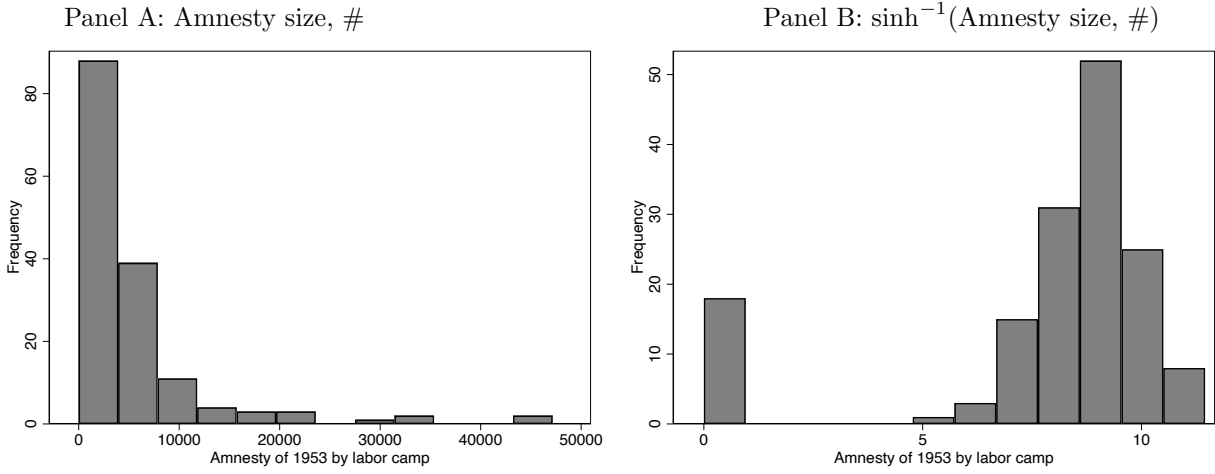
*Notes:* This map shows location of 460 Gulag camps on the territory of former Soviet Union. The size of the ball corresponds to the total number of the prisoners that pass through each camp. Note, that one camp was located in Ulaanbaatar, the capital of Mongolia.

Figure A.2: Location and Sizes of Gulag Camps in 1953



*Notes:* This map shows location of 153 Gulag camps on the territory of former Soviet Union that were operational in 1953. The size of the ball corresponds to the total number of the prisoners that pass through each camp.

**Figure A.3:** Histogram of 1953 Amnesty by Gulag Camp (# and Inverse Hyperbolic Sine)



*Notes:* This Figure shows histogram of amnesty of 1953 for 153 Gulag camps on the territory of former Soviet Union that were operational in 1953. Panel A shows raw numbers of released prisoners. Panel B uses inverse hyperbolic sine. 18 camps did not release any prisoners or slightly increased the number of prisoners. We set the number of amnestied prisoners from these camps to be equal to zero.

## B Additional Results for Australian Longitudinal Data

**Table B.1:** Robustness for Table 1: Alternative Exposure to Prison Culture ( of Times in Prison)

	I	II	III	IV	V	VI	VII
	Dependent variable: Homosexuals should have equal rights						
<i>Panel A: Sample of men</i>							
# times respondent was in prison	-0.158*** (0.058)	-0.158*** (0.059)	-0.196*** (0.062)	-0.196*** (0.064)	-0.193*** (0.064)	-0.175*** (0.067)	-0.175*** (0.067)
R-squared	0.751	0.751	0.763	0.768	0.775	0.803	0.803
Observations	32,083	32,083	32,083	32,083	32,083	32,083	32,083
<i>Panel B: Sample of women</i>							
# times respondent was in prison	-0.095 (0.058)	-0.094 (0.058)	-0.081 (0.060)	-0.092 (0.062)	-0.109* (0.064)	-0.066 (0.075)	-0.066 (0.076)
R-squared	0.767	0.768	0.778	0.783	0.789	0.806	0.806
Observations	36,466	36,466	36,466	36,466	36,466	36,466	36,466
<i>Panel C: Sample of men</i>							
# times respondent's close family member was in prison	-0.038 (0.025)	-0.037 (0.026)	-0.047* (0.027)	-0.046* (0.027)	-0.056** (0.027)	-0.043* (0.026)	-0.044* (0.026)
R-squared	0.751	0.751	0.762	0.768	0.775	0.803	0.803
Observations	32,083	32,083	32,083	32,083	32,083	32,083	32,083
Respondent FEs	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓
State-Year FEs		✓	✓	✓	✓	✓	✓
Religion x age & YoB FEs			✓	✓	✓	✓	✓
Ethnicity x age & YoB FEs				✓	✓	✓	✓
Education x age & YoB FEs					✓	✓	✓
Occupation x age & YoB & year FEs						✓	✓
lhs Income							✓

*Notes:* This Table replicates Table 1 but uses different explanatory variable. Panels A and B use the total number of times that the respondent went to prison by year  $t$  instead of a dummy. Panel C use the total number of times that the respondent has a close family member returning to prison by year  $t$  instead of a dummy. Note, that we if more than two family members return from prison in the same year we can't distinguish them and, thus, we may undercount it. Standard errors clustered at the individual level, are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Table B.2:** Robustness for Table 1: Alternative Exposure to Prison Culture ( of Years in Prison)

	I	II	III	IV	V	VI	VII
	Dependent variable: Homosexuals should have equal rights						
<i>Panel A: Sample of men</i>							
# years respondent spent in prison	-0.158*** (0.058)	-0.158*** (0.059)	-0.196*** (0.062)	-0.196*** (0.064)	-0.193*** (0.064)	-0.175*** (0.067)	-0.175*** (0.067)
R-squared	0.751	0.751	0.763	0.768	0.775	0.803	0.803
Observations	32,083	32,083	32,083	32,083	32,083	32,083	32,083
<i>Panel B: Sample of women</i>							
# years respondent spent in prison	-0.095 (0.058)	-0.094 (0.058)	-0.081 (0.060)	-0.092 (0.062)	-0.109* (0.064)	-0.066 (0.075)	-0.066 (0.076)
R-squared	0.767	0.768	0.778	0.783	0.789	0.806	0.806
Observations	36,466	36,466	36,466	36,466	36,466	36,466	36,466
Respondent FEs	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓
State-Year FEs		✓	✓	✓	✓	✓	✓
Religion x age & YoB FEs			✓	✓	✓	✓	✓
Ethnicity x age & YoB FEs				✓	✓	✓	✓
Education x age & YoB FEs					✓	✓	✓
Occupation x age & YoB & year FEs						✓	✓
Ihs Income							✓

*Notes:* This Table replicates Table 1 but uses different explanatory variable. Panels A and B use the total number of years that the respondent spent in prison by year  $t$  instead of a dummy. To compute number of years that a person spent in prison we assume that if the person appear in the data in year  $t$  and then is not present in the survey for  $j$  years and re-appears in year  $t + j + 1$  and says that she/he was in prison last year, we count that she/he spent  $j + 1$  years in prison. Note, that we can't estimate Panel C from Table 1 here because we do not have longitudinal data on close family members who returned from prison to compute number of years that they spent in prison. Standard errors clustered at the individual level, are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Table B.3:** Robustness for Table 1 Panel C: Alternative Samples

	I	II	III	IV	V	VI	VII
Dependent variable: Homosexuals should have equal rights							
<i>Panel A: ~Panel C w All respondents</i>							
1(Respondent's close family member was in prison)	-0.023* (0.013)	-0.022* (0.013)	-0.025* (0.013)	-0.025* (0.013)	-0.033** (0.013)	-0.028** (0.013)	-0.029** (0.013)
Female FE	✓	✓	✓	✓	✓	✓	✓
R-squared	0.764	0.764	0.770	0.775	0.779	0.792	0.792
Observations	68,549	68,549	68,549	68,549	68,549	68,549	68,549
<i>Panel B: ~Panel C w Sample of women</i>							
1(Respondent's close family member was in prison)	-0.013 (0.015)	-0.013 (0.015)	-0.012 (0.015)	-0.013 (0.015)	-0.022 (0.016)	-0.043 (0.027)	-0.023 (0.016)
R-squared	0.767	0.768	0.778	0.783	0.789	0.803	0.806
Observations	36,466	36,466	36,466	36,466	36,466	36,466	36,466
Respondent FEs	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓
State-Year FEs		✓	✓	✓	✓	✓	✓
Religion x age & YoB FEs			✓	✓	✓	✓	✓
Ethnicity x age & YoB FEs				✓	✓	✓	✓
Education x age & YoB FEs					✓	✓	✓
Occupation x age & YoB & year FEs						✓	✓
lhs Income							✓

*Notes:* This Table replicates Panel C of Table 1 but uses different samples. Panel A estimate it on the sample of both, male and female respondents. Panel B estimates it on the sample of female respondents. Standard errors clustered at the individual level, are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B.4: Event-Study Coefficients for Figure 4

Sample	I	II	III
	Dependent variable: Homosexuals should have equal rights		
	Men	Women	Men
Event	R's incarceration	R's incarceration	R's close family member incarceration
>12 years before event	0.257 (0.180)	0.164 (0.150)	0.108 (0.082)
8 years before event	0.165 (0.125)	0.041 (0.196)	0.138** (0.066)
1st year after event	-0.241** (0.101)	-0.048 (0.144)	-0.103 (0.074)
4 years after event	-0.138 (0.119)	-0.112 (0.162)	-0.056 (0.066)
8 years after event	-0.066 (0.144)	-0.265* (0.147)	-0.102 (0.070)
>12 years after event	-0.290* (0.163)	-0.266 (0.240)	-0.148* (0.090)
Joint F-test for pre-trend coef., p-value	[0.5773]	[0.4713]	[0.7185]
R-squared	0.804	0.806	0.804
Observations	32,083	36,466	32,083

*Notes:* This Table estimates event-study specification 2. We use the same (most demanding) set of controls as in Column VII of Table 1. Column I corresponds to the Column VII of Panel A, Column II — Panel B, and Column III — Panel C. The event is first time when a respondent answers that he/she was in prison last year (or a close family member returned from prison last year). Thus all periods there are in relative terms. Because the question about attitude toward homosexuals was asked every 4 years, periods also represent 4-year intervals. Standard errors clustered at the individual level, are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



**Table B.5:** Men That Went To Prison Become more Anti-Gay

	I	II	III	IV	V	VI	VII
Dependent variable: Homosexuals should have equal rights							
<i>Panel A: ~Panel C w All respondents</i>							
1(Respondent's close family member was in prison)	-0.023* (0.013)	-0.022* (0.013)	-0.025* (0.013)	-0.025* (0.013)	-0.033** (0.013)	-0.028** (0.013)	-0.029** (0.013)
Female FE	✓	✓	✓	✓	✓	✓	✓
R-squared	0.764	0.764	0.770	0.775	0.779	0.792	0.792
Observations	68,549	68,549	68,549	68,549	68,549	68,549	68,549
<i>Panel B: ~Panel C w Sample of women</i>							
1(Respondent's close family member was in prison)	-0.013 (0.015)	-0.013 (0.015)	-0.012 (0.015)	-0.013 (0.015)	-0.022 (0.016)	-0.043 (0.027)	-0.023 (0.016)
R-squared	0.767	0.768	0.778	0.783	0.789	0.803	0.806
Observations	36,466	36,466	36,466	36,466	36,466	36,466	36,466
Respondent FEs	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓
State-Year FEs		✓	✓	✓	✓	✓	✓
Religion x age & YoB FEs			✓	✓	✓	✓	✓
Ethnicity x age & YoB FEs				✓	✓	✓	✓
Education x age & YoB FEs					✓	✓	✓
Occupation x age & YoB & year FEs						✓	✓
lhs Income							✓

*Notes:* Panel A estimates Equation 1 on the sample of male respondents. Panel B estimates Equation 1 on the sample of female respondents. Panel C estimates Equation 1 on the sample of all respondents but use a different explanatory variable — dummy whether respondent’s close family member was in prison. Panel C additionally controls for respondent’s gender fixed effects. lhs income is an inverse hyperbolic sin of the respondent’s last financial year disposable regular income. All Columns include respondent and year fixed effects. Standard errors clustered at the individual level, are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table B.6:** Robustness for Table 1: Results Hold on Subsample of Respondents that Entered Survey by the Age of 18

Sample	I	II	III	IV	V	VI
	Dependent variable: Homosexuals should have equal rights					
	Men $\leq$ 18y.o.	Men $>$ 18y.o.	Women $\leq$ 18y.o.	Women $>$ 18y.o.	Men $\leq$ 18y.o.	Men $>$ 18y.o.
1(Respondent was in prison)	-0.246** (0.115)	-0.249** (0.097)	-0.113 (0.126)	-0.146 (0.134)		
1(Respondent's close family member was in prison)					-0.224* (0.137)	-0.100* (0.056)
R-squared	0.673	0.760	0.706	0.767	0.673	0.759
Observations	4,995	27,088	5,691	30,775	4,995	27,088

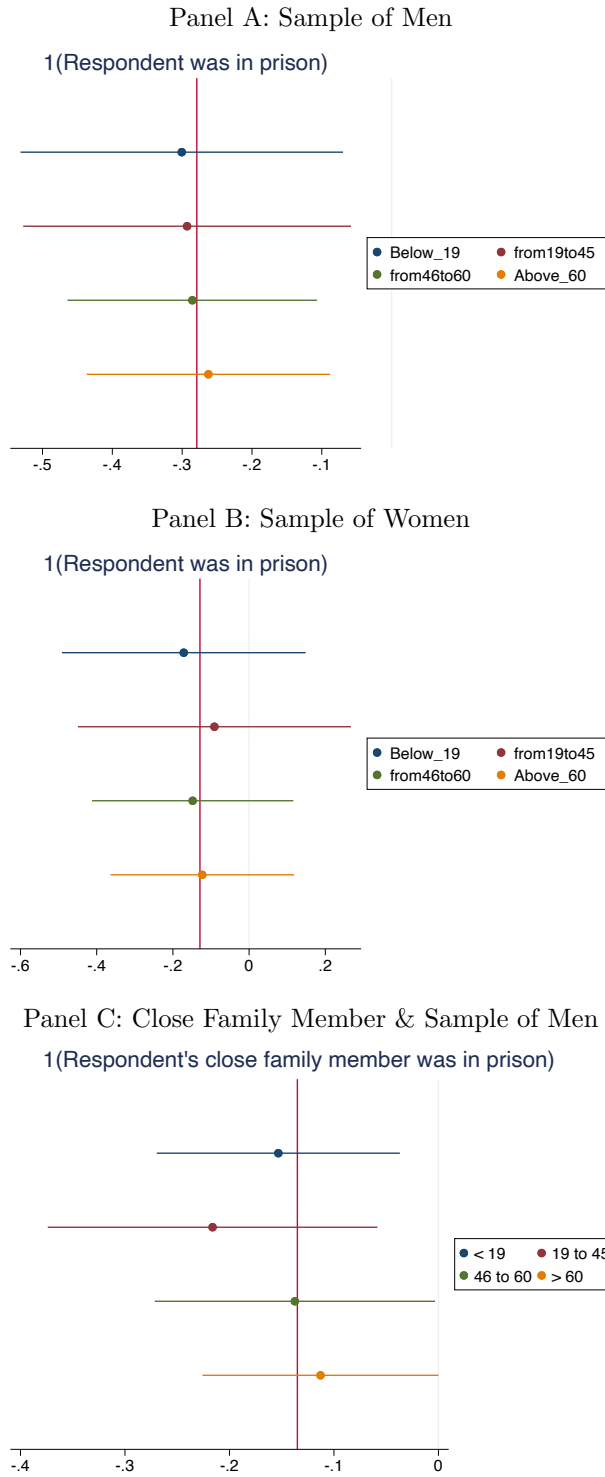
*Notes:* This Table replicates Column I of Table 1 but uses different samples. Columns I, III, and V only use respondents that entered survey at the age of 18 or earlier. Columns II, IV, and VI only use respondents that entered survey at the age of 19 or later. Standard errors clustered at the individual level, are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table B.7:** Homophobic Persons Are Not More Likely To Be Incarcerated

	I	II	III	IV	V	VI	VII
<u>Dependent variable: 1(Respondent was in prison)</u>							
<i>Panel A: Sample of men</i>							
Homosexuals should have equal rights	-0.0004 (0.00042)	-0.0004 (0.00042)	-0.0004 (0.00042)	-0.0004 (0.00042)	-0.0004 (0.00042)	-0.0004 (0.00042)	-0.0004 (0.00042)
R-squared	0.233	0.233	0.234	0.234	0.233	0.234	0.234
Observations	86,873	86,873	86,873	86,873	86,873	86,873	86,873
<i>Panel B: Sample of women</i>							
Homosexuals should have equal rights	0.0001 (0.00029)	0.0001 (0.00029)	0.0001 (0.00029)	0.0000 (0.00029)	0.0001 (0.00029)	0.0001 (0.00029)	0.0000 (0.00029)
R-squared	0.194	0.194	0.194	0.194	0.194	0.194	0.194
Observations	100,122	100,122	100,122	100,122	100,122	100,122	100,122
<i>Panel C: All</i>							
<u>Dependent variable: 1(Respondent's close family member was in prison)</u>							
Homosexuals should have equal rights	-0.0006 (0.00078)	-0.0006 (0.00078)	-0.0005 (0.00078)	-0.0005 (0.00078)	-0.0005 (0.00078)	-0.0005 (0.00078)	-0.0005 (0.00078)
Female FE	✓	✓	✓	✓	✓	✓	✓
R-squared	0.301	0.301	0.302	0.302	0.301	0.302	0.302
Observations	187,005	187,005	187,005	187,005	187,005	187,005	187,005
Respondent FEs	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓
State-Year FEs		✓	✓	✓	✓	✓	✓
Religion x age & YoB FEs			✓	✓	✓	✓	✓
Ethnicity x age & YoB FEs				✓	✓	✓	✓
Education x age & YoB FEs					✓	✓	✓
Occupation x age & YoB & year FEs						✓	✓
Log Income							✓

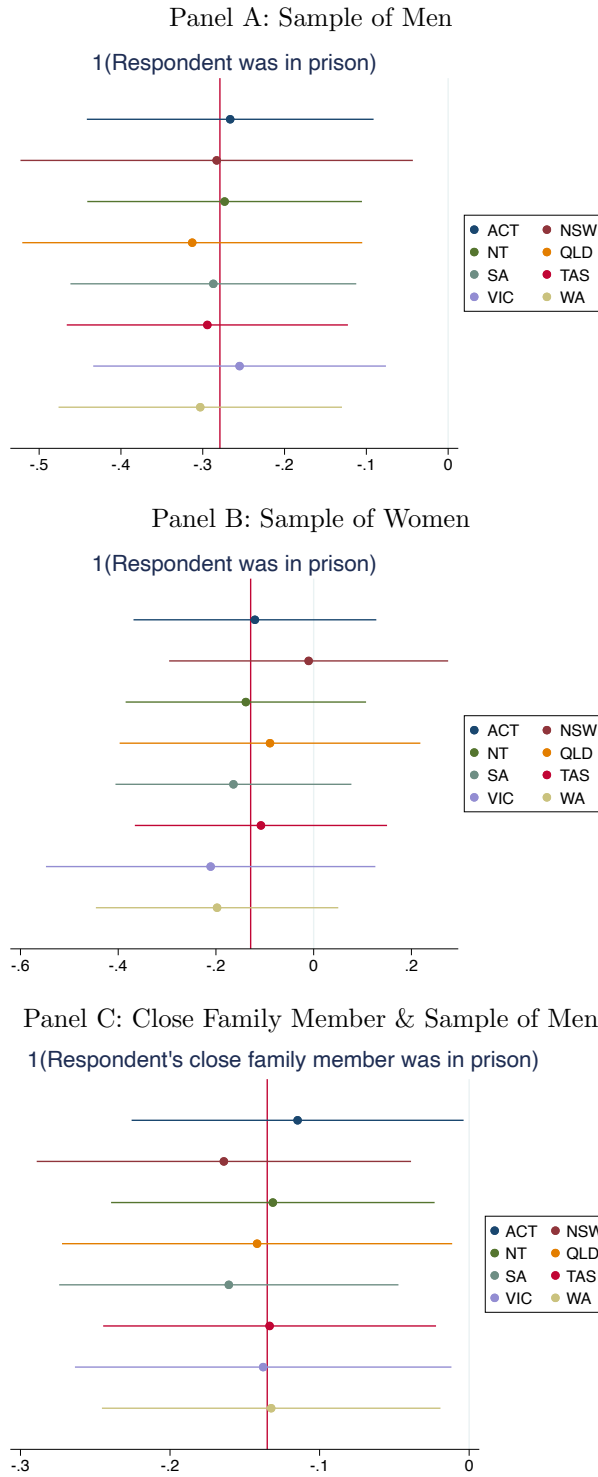
Notes: Standard errors clustered at the individual level, are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table B.8:** Results are Not Driven by a Particular Age-Bin of Respondents Entering HILDA Survey



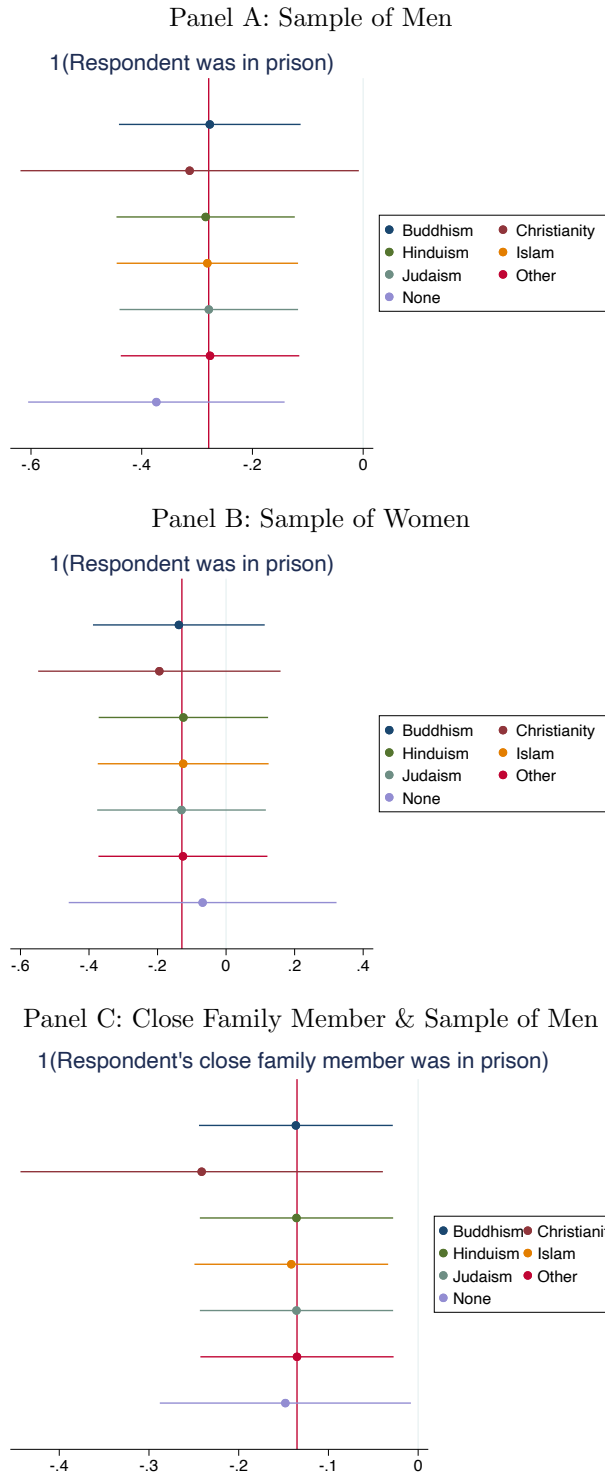
*Notes:* This figure reports on the point-estimate and 90th-percent confidence band that results when re-estimating the specification in Column VII of Table 1, dropping one age bin (age of the respondent entering HILDA survey for the first time) at a time. The (red) vertical line is the baseline point estimate. The results are sorted top-to-bottom, i.e., omit below 19 age group, then 19–45, then 46–60, and above 60.

**Table B.9:** Results are Not Driven by a Particular State



*Notes:* This figure reports on the point-estimate and 90th-percent confidence band that results when re-estimating the specification in Column VII of Table 1, dropping one state at a time. The (red) vertical line is the baseline point estimate. The results are sorted alphabetically, i.e., omit Australian Capital Territory, then New South Wales, then Northern Territory, and etc.

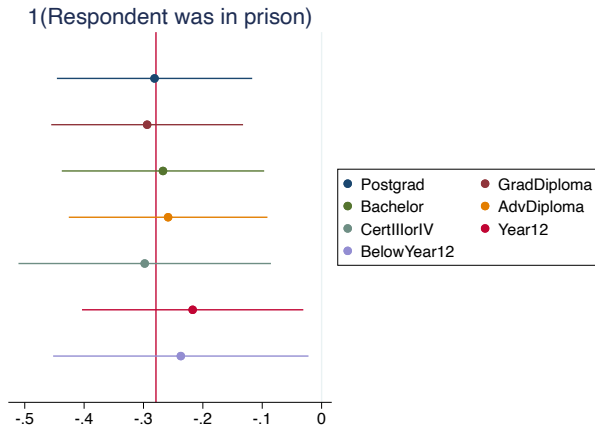
**Table B.10:** Results are Not Driven by a Particular Religious Group



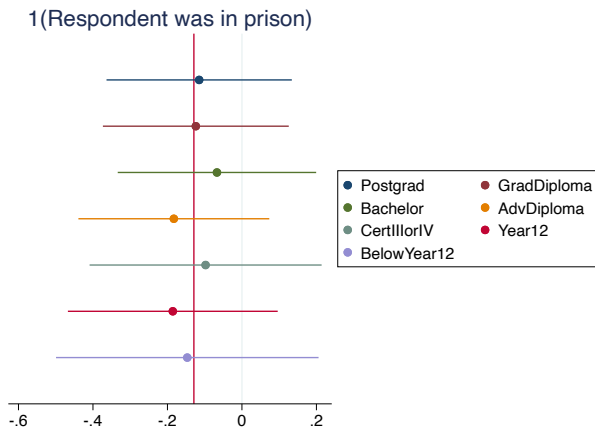
*Notes:* This figure reports on the point-estimate and 90th-percent confidence band that results when re-estimating the specification in Column VII of Table 1, dropping one religious group at a time. The (red) vertical line is the baseline point estimate.

**Table B.11:** Results are Not Driven by a Particular Educational Group

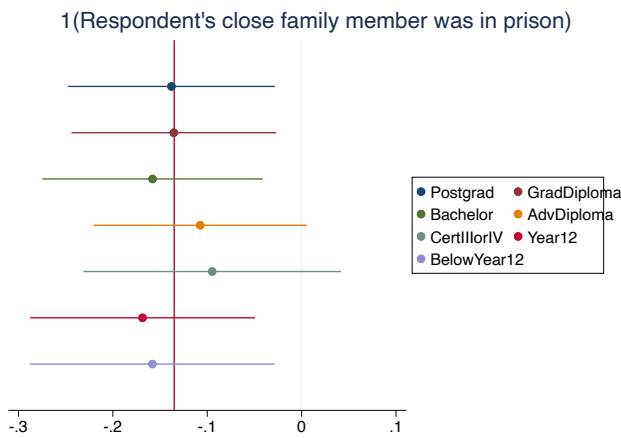
Panel A: Sample of Men



Panel B: Sample of Women



Panel C: Close Family Member & Sample of Men



*Notes:* This figure reports on the point-estimate and 90th-percent confidence band that results when re-estimating the specification in Column VII of Table 1, dropping one education group at a time. The (red) vertical line is the baseline point estimate.

**Table B.12:** Effect of Prison Experience on Reduction in Tolerance Toward Homosexuals: Matching Estimation

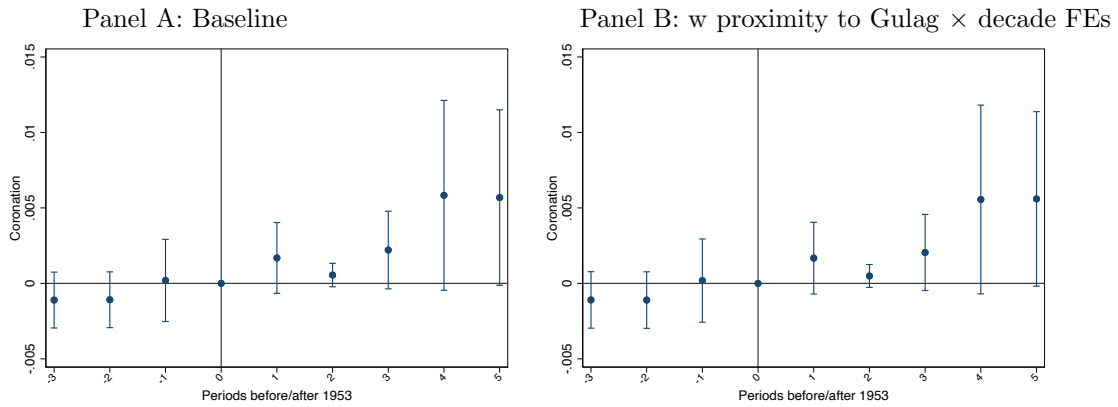
Sample	I	II	III	IV	V	VI
	Dependent variable: Homosexuals should have equal rights					
	Men		Women		Men	
Matching	Nearest neighbor	Kernel	Nearest neighbor	Kernel	Nearest neighbor	Kernel
ATT: 1(Respondent was in prison)	-0.276 (0.061) [0.075]	-0.238 - [0.036]	-0.122 (0.093) [0.096]	-0.129 - [0.065]		
ATT: 1(Respondent's close family member was in prison)					-0.109 (0.036) [0.039]	-0.115 - [0.027]
# treated	541	541	227	227	1,598	1,598
# controls	541	29,478	227	33,678	1,708	30,438

Notes: All blocks are balanced. Standard errors computed using analytical standard errors are in parentheses. Bootstrapped standard errors are in brackets \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



## C Additional Results for the Effect of Amnesty of 1953 on Prison Culture and Homophobia in Russia

**Figure C.1:** Event Study Analysis: No Increase in Number of Crime Lord Coronations Before 1953 and Increase After the Amnesty, City-Level



*Notes:* This Figure graphs the results of estimating Equation 4 but uses city-level coordinates instead of *rayon*-level. The dependent variable is the inverse hyperbolic sine of the number of coronations of crime lords. P-value for the joint significance of the pre-trend's coefficients is equal to 0.568 in Panel A and 0.607 in Panel B. This figure reports 90th-percent confidence bands. Standard errors clustered at the location (*rayon*) level, are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table C.1:** Exposure to Amnesty 1953 Did Not Affect Local Economic Conditions in 2010

	I	II	III	IV	V
	Dependent variable: Log average monthly salary				
Exposure to 1953 Amnesty	0.8762* (0.5069)	0.8106 (0.5019)	0.7141 (0.4697)	0.2308 (0.4165)	0.2751 (0.4000)
R-squared	0.033	0.090	0.094	0.110	0.164
Observations	5,665	5,665	5,665	5,665	5,665
Log population		✓	✓	✓	✓
Min. distance to Gulag camp			✓	✓	✓
Latitude & longitude				✓	✓
Location type					✓

*Notes:* Unit of observation in this Table is a town/village with a population of at least 1,000 people. The dependent variable is a log of the average monthly salary in that location. Min. distance to labor camp is a log of minimum distance to any of 475 ever-existing Gulag camps. Location types include dummies for small village (*selo*), large village (*poselok*), township, regional capital, and city is taken for reference. Standard errors clustered at the province (*oblast'*) level, are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1