Supplementary material

Appendix 1

Table A1.1 Sources used for identifying ‘Date of first report on implementation of visitation rights limits at the national level’ and ‘Date of first early release or pardon during pandemic at the national level’, records for European countries between December 31st 2019 and June 1st 2020.

| Country         | Date of first report on implementation of visitation rights limits at the national level | Link 1 (enough if the information is from an official source or the NGO Prison Insider) | Link 2 (supplementary link, if available) | Date of first early release or pardon during pandemic at the national level | Link 1 | Link 2 (if available) |
|-----------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------|-----------------------|
| Albania         | 14/03/2020                                                                              | https://www.europris.org/general-directorate-of-prisons-all/                           | https://www.europris.org/wp-content/uploads/2020/04/Albanian-Prison-System-COVID19.pdf | 24/03/2020                                                                         |        |                       |
| Armenia         | 25/3/2020                                                                              | https://news.am/rus/news/568201.html                                                   | https://newsarmenia.am/news/armenia/v-armyanskikh-tyurmakh-provedeny-testy-na-koronavirus/ | No                                                                                   |        |                       |
| Austria         | 15/03/2020                                                                              | https://www.europris.org/wp-content/uploads/2020/04/Ministry-Justice-AT.pdf           | https://www.prisoninsider.com/en/articles/europe-coronavirus-la-fievre-des-prisons      | No                                                                                   |        |                       |
| Azerbaijan      | 17/03/2020                                                                              | https://cpj.org/blog/2020/03/journalist-afgan-mukhtarli-azerbaijani-prisoners-a.php   | https://media.az/society/1067775962/az-33-zaklyuchennyh-v-azerbaydzhandy-vyyavlen-koronavirus/ | 6/4/2020                                                                           | https://apa.az/en/domestic-news/Azerbaijani-president-signed-a-Decree-pardoning-176-prisoners-aged-over-65 |        |                       |
| Belarus         | 16/3/2020                                                                              | https://spring96.org/ru/news/96246                                                    | https://www.belty.by/society/view/v-mestalahishenja-svobodavyremenno-stmenili-svidanija-s-postetijani-383446-2020/ | 4/5/2020                                                                           | https://rg.ru/2020/05/04/bpolec-25-tysiach-prisoners-taken-free-by-the-azerbaijan president-amnesty |        |                       |
| Belgium         | 14/3/2020                                                                              | https://www.europris.org/wp-content/uploads/2020/03/ENG-Information-visitors-13-03.pdf |                                                                         | 31/3/2020                                                                           | https://www.brusselstimes.com/belgium/2020/103626/coronavirus/ |        |                       |
| Country                  | Date       | Prompt                                      | Calls to Free Inmates to Ease Overcrowding in Belgian Prisons | Link                                                                 |
|--------------------------|------------|---------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------|
| Bosnia and Herzegovina   | 13/3/2020  | [https://detektor.ba/2020/03/24/u-zatvorima-u-bih-zabranjene-posjete-zbog-pandemije-i-vedene-preventivne-mjere/](https://detektor.ba/2020/03/24/u-zatvorima-u-bih-zabranjene-posjete-zbog-pandemije-i-vedene-preventivne-mjere/) | No                                                              | [https://faktor.ba/vijest-zbeg-koronavirusa-zabranjene-posjete-i-dopusti-iz-zatvora-cijeli-objekat-dezinficiran/74025](https://faktor.ba/vijest-zbeg-koronavirusa-zabranjene-posjete-i-dopusti-iz-zatvora-cijeli-objekat-dezinficiran) |
| Bulgaria                 | 15/3/2020  | [https://www.europris.org/general-directorate-execution-of-sentences-bg/](https://www.europris.org/general-directorate-execution-of-sentences-bg/) | No                                                               | [http://www.focus-news.net/news/2020/03/15/2757297/ministar-danail-kirilov-v-zatvorite-sa-zabraneniy-posesheniyi-i-izvezhdaneto-na-libh-zabranjene-posjete-i-dopusti-iz-zatvora-cijeli-objekat-dezinficiran](http://www.focus-news.net/news/2020/03/15/2757297/ministar-danail-kirilov-v-zatvorite-sa-zabraneniy-posesheniyi-i-izvezhdaneto-na-libh-zabranjene-posjete-i-dopusti-iz-zatvora-cijeli-objekat-dezinficiran) |
| Croatia                  | 14/3/2020  | [https://www.europris.org/wp-content/uploads/2020/04/Covid-19-measures-and-activities-Croatia.pdf](https://www.europris.org/wp-content/uploads/2020/04/Covid-19-measures-and-activities-Croatia.pdf) | No                                                               | [https://cyprus-mail.com/2020/04/17/coronavirus-nicosia-prisons-lays-out-measures-taken-since-march-10/](https://cyprus-mail.com/2020/04/17/coronavirus-nicosia-prisons-lays-out-measures-taken-since-march-10/) |
| Cyprus                   | 15/3/2020  | [https://cyprus-mail.com/2020/04/17/coronavirus-nicosia-prisons-lays-out-measures-taken-since-march-10/](https://cyprus-mail.com/2020/04/17/coronavirus-nicosia-prisons-lays-out-measures-taken-since-march-10/) | 27/3/2020                                                        | [https://cyprus-mail.com/2020/03/27/coronavirus-around-50-prisoners-to-be-released-reports/](https://cyprus-mail.com/2020/03/27/coronavirus-around-50-prisoners-to-be-released-reports/) |
| Czech Republic           | 14/3/2020  | [https://www.europris.org/prison-service-of-the-czech-republic-cz__trashed](https://www.europris.org/prison-service-of-the-czech-republic-cz__trashed) | 1/0/1900                                                         | [https://www.lidovky.cz/domov/tuzemskym-vyznicim-se-koronavirusu-vzyba-prestanci-opatreni-respektuju-nikde-neprobijaji-yetsi-A200502_105522_in_dovom_rk](https://www.lidovky.cz/domov/tuzemskym-vyznicim-se-koronavirusu-vzyba-prestanci-opatreni-respektuju-nikde-neprobijaji-yetsi-A200502_105522_in_dovom_rk) |
| Denmark                  | 18/3/2020  | [https://www.kriminalforsorgen.dk/corona/](https://www.kriminalforsorgen.dk/corona/) | No                                                               |                                                                      |
| Country   | Date      | Estonian Prison Service - ee - Covid19 | Finland RIKOSSEURAMUS | France Ministry of Justice Department of Prisons | Greece Prison Insider | Hungary Prison Insider | Iceland MBL.is | Spain No |
|-----------|-----------|---------------------------------------|------------------------|-----------------------------------------------|--------------------|------------------------|-----------------|--------|
| Estonia   | 14/03/2020| https://www.europris.oeg/estonian-prison-service-ee-covid19/ | No | No |
| Finland   | 13/03/2020| https://www.rikosseuramus.fi/ti/index/aikanotkhaista/tiedotteet/januutiset/202003/rikosseuramus-muuslatosotaakaayttoon-suomi-fi-viestitysaahkousviranomaispostistaavuttaanymyovangit.html | No |
| France    | 18/03/2020| https://www.europris.org/ministry-of-justice-department-of-prisons-fr/ | https://www.prison-insider.com/en/articles/europe-coronavirus-la-fievre-des-prisons 23/03/2020 | https://www.france24.com/en/20200406-europe-worries-about-virus-timebomb-in-its-prisons |
| Georgia   | 5/3/2020  | https://www.europris.org/wp-content/uploads/2020/03/Info_for_EUROPRIS_Georgia_MOJ_SPS_Covid-19.pdf | No |
| Germany   | 9/3/2020  | https://www.prison-insider.com/en/articles/europe-coronavirus-la-fievre-des-prisons | https://www.vice.com/de/article/qjdxx3/coronavirus-covid-19-gefangnisse-sars-cov-2 22/03/2020 | No |
| Greece    | 19/3/2020 | https://www.prison-insider.com/en/articles/europe-coronavirus-la-fievre-des-prisons#greece | No |
| Hungary   | 27/3/2020 | https://www.helsinki.hu/en/the-situation-in-hungarian-prisons-in-light-of-covid-19/ | https://www.helsinki.hu/en/the-situation-in-hungarian-prisons-in-light-of-covid-19-2/ | No |
| Iceland   | 6/3/2020  | https://www.mbl.is/retir/innlent/202004/15/alrei_minna_um_fiknjein/?redirect=2Fmoginn%2Fbladid%2Fpre | No | No |
| Country   | Date       | Source                                                                 | Relevance | Notes                                                                 |
|-----------|------------|------------------------------------------------------------------------|-----------|----------------------------------------------------------------------|
| Ireland  | 27/03/2020 | [Source](https://www.independent.ie/world-news/coronavirus/prisoners-offered-virtual-visits-from-loved-ones-after-all-in-person-visits-suspended-39081343.html) | 3/03/2020 | [Source](https://www.iprt.ie/latest-news/irish-prison-service-and-covid-19/) |
| Italy    | 8/3/2020   | [Source](http://www.prisonobservatory.org/upload/25032020European_prisons_during_covid19.pdf) | 16/3/2020 | [Source](https://www.aijazeera.com/news/202003/immates-die-prison-riots-coronavirus-rules-italy-200309125813658.html) |
| Kazakhstan | 16/3/2020 | [Source](https://tengrinews.kz/kazakhstan_news/v-koloniyah-zapretili-svidaniya-s-osujudnymi-394828/) | No        |                                                                      |
| Latvia   | 12/3/2020  | [Source](https://www.europris.org/wp-content/uploads/2020/03/Latvia-Prison-Administration.pdf) | No        |                                                                      |
| Lithuania | 19/03/2020 | [Source](https://www.europris.org/ministry-of-justice-prison-department-lt/) | No        |                                                                      |
| Luxembourg | 18/03/2020 | [Source](http://www.prisonobservatory.org/index.php?option=com_content&view=article&id=32:covid-19-what-is-happening-in-european-prisons&catid=7&Itemid=101) | No        | [Source](https://ap.gouvernement.lu/fr/actualites.gouv.commentation%2Br%c3%a9formation%2Bproximité%2Btours.2020%2B3-mars%2B03.-admenententiaire-renforcement.html) |
| Malta    | 12/3/2020  | [Source](https://www.maltatoday.com.mt/news/national/100975/coronavirus-no-visitors-in-prison-and-detention-centres-for-next-seven-days-#X2E8W8eZPY) | No        |                                                                      |
| Montenegro | 16/3/2020 | [Source](http://www.rtg.me/vijesti/drustvo/272249/za-tvaraju-se-skole-i-vrtici-zabranjena-skupljanja.html) | No        | [Source](http://www.rtg.me/vijesti/drustvo/278010/vlada-podizala) |
| Country                  | Date         | URL                                                                 | Action Date               | Action |
|-------------------------|--------------|----------------------------------------------------------------------|---------------------------|--------|
| Netherlands             | 14/3/2020    | [http://www.prisonobservatory.org/upload/03042020European_prisons_during_covid19.pdf](http://www.prisonobservatory.org/upload/03042020European_prisons_during_covid19.pdf) | No                        |        |
| Norway                  | 12/3/2020    | [https://www.kriminalomsorgen.no/tiltak-som-gjelder-fengsel.525465.no.html](https://www.kriminalomsorgen.no/tiltak-som-gjelder-fengsel.525465.no.html) | 16/3/2020                 |        |
| Poland                  | 19/03/2020   | [http://www.prisonobservatory.org/upload/17042020European_prisons_during_covid19%233.pdf](http://www.prisonobservatory.org/upload/17042020European_prisons_during_covid19%233.pdf) | No                        |        |
| Portugal                | 8/3/2020     | [http://www.prisonobservatory.org/upload/25032020European_prisons_during_covid19.pdf](http://www.prisonobservatory.org/upload/25032020European_prisons_during_covid19.pdf) | 9/4/2020                  |        |
|                        |              | [https://uk.reuters.com/article/us-health-coronavirus-portugal/portugal-suspends-water-electricity-shutoffs-and-releases-some-prisoners-amid-coronavirus-outbreak-idUKKCN21Q38F](https://uk.reuters.com/article/us-health-coronavirus-portugal/portugal-suspends-water-electricity-shutoffs-and-releases-some-prisoners-amid-coronavirus-outbreak-idUKKCN21Q38F) | [https://www.porugalresident.com/judges-call-on-government-to-release-1400-prisoners/](https://www.porugalresident.com/judges-call-on-government-to-release-1400-prisoners/) |        |
| Republic of Moldova     | 13/03/2020   | [https://www.europris.org/wp-content/uploads/2020/03/COVID-19-Moldova.pdf](https://www.europris.org/wp-content/uploads/2020/03/COVID-19-Moldova.pdf) | No                        |        |
| Romania                 | 15/3/2020    | [https://www.europris.org/wp-content/uploads/2020/04/Addressing-Corona-virus-in-European-prisons-NAP.pdf](https://www.europris.org/wp-content/uploads/2020/04/Addressing-Corona-virus-in-European-prisons-NAP.pdf) | No                        |        |
| Russian Federation      | 16/03/2020   | [http://fsin.gov.ru/news/index.php?ELEMENT_ID=502612](http://fsin.gov.ru/news/index.php?ELEMENT_ID=502612) | [https://ria.ru/20200315/1568789372.html](https://ria.ru/20200315/1568789372.html) | No     |
| Country      | Date       | URL                                                                 | Another URL                                                                 | Result |
|-------------|------------|---------------------------------------------------------------------|----------------------------------------------------------------------------|--------|
| Serbia      | 30/03/2020 | https://javno.rs/analiza/karantinski-zivot-u-zatvoru                | https://www.021.rs/story/Info/Srbija/238374/Zabranjene-posete-zatvorenicima-u-naredne-dve-nedelje.html | No     |
| Slovakia    | 6/3/2020   | https://www.europris.org/general-directorate-of-the-corps-of-prison- and-court-guard-sk/ |                                                                           | No     |
| Slovenia    | 13/3/2020  | https://www.gov.si/obvestilo-obiskovalcem-obvez-v-zavodih-za-prestajanje-karzin-zapora-in-prevzozinem-domudopolnilo/ | https://siol.net/novice/slovenija/izzapora-zacasno-izpustili-68-zapornikov-222062 | 30/3/2020 |
| Spain       | 15/3/2020  | https://elpais.com/sociedad/2020-03-09/interior-imponerestricciones-en-las-carceles-tras-detectar-un-caso-de-coronavirus-y-cuatro-sospechosos.html | https://elpais.com/espana/2020-03-15/prisiones-suspendelanavisitas-y-los-permisos-a-los-reclusos-por-el-coronavirus.html | No     |
| Sweden      | 12/3/2020  | https://www.kriminalvarden.se/om-kriminalvarden/nyheter/2020/mars/stopp-for-besok-permission-och-egen-installelse/ |                                                                           | No     |
| Switzerland | 25/3/2020  | https://www.cdt.ch/tici/no/nelle-prigioni-ticinesi-ora-piu-soliche-mai-FC2499042 | http://www.prisonobservatory.org/upload/03042020European_prisons_during_covid19.pdf | No     |
| North Macedonia | 12/3/2020 | https://tv21.tv/mk/zatvortvo-makedonija-pod-posdni-merki-zabranet-se-poseti-inaupustane-nazatvoro-zavikendoporadikoronavirusot/ |                                                                           | No     |
| Turkey      | 16/3/2020  | https://www.al-monitor.com/pulse/original/2020/03/turkey-coronavirus-spread-case-triple.html |                                                                           | 23/3/2020 |
| Ukraine     | 13/3/2020  | https://minjust.gov.ua/news/ministry/eugeniy-gorovets-zaprovadjeno-obmejennya-navidviduvannya-ustanov-vikonannya-pokaran-ta-size | https://lib.ua/pravo/20200507/57038_komitet-rad-i-podderzhal-amnistiyu.html | 6/5/2020 |
|             |            |                                                                     | https://iportal.rada.gov.ua/news/Novnyi/192445.html |        |
| Country                  | Date       | Link                                                                 | Date       | Link                                                                 |
|-------------------------|------------|----------------------------------------------------------------------|------------|----------------------------------------------------------------------|
| United Kingdom – England and Wales | 24/3/2020  | [https://www.gov.uk/government/news/prison-visits-cancelled](https://www.gov.uk/government/news/prison-visits-cancelled) | 24/4/2020  | [https://www.gov.uk/government/publications/covid-19-prison-releases](https://www.gov.uk/government/publications/covid-19-prison-releases) |
| United Kingdom – Northern Ireland | 23/3/2020  | [https://www.derryjournal.com/news/uk-news/all-prison-visits-suspended-northern-ireland-minimise-contagion-risk-2504421](https://www.derryjournal.com/news/uk-news/all-prison-visits-suspended-northern-ireland-minimise-contagion-risk-2504421) | 30/3/2020  | [https://inside.time.org/northern-ireland-justice-minister-showing-rest-of-the-uk-the-way-on-prisons-virus-policy/](https://inside.time.org/northern-ireland-justice-minister-showing-rest-of-the-uk-the-way-on-prisons-virus-policy/) |
| United Kingdom - Scotland | 24/3/2020  | [https://www.prisoninsider.com/en/articles/europe-coronavirus-la-fievre-des-prisons#ecosse](https://www.prisoninsider.com/en/articles/europe-coronavirus-la-fievre-des-prisons#ecosse) | 4/5/2020   | [https://www.gov.scot/news/short-term-prisoner-release/](https://www.gov.scot/news/short-term-prisoner-release/) |

**Appendix 2**

**Appendix 2 List with United Nations regional clusters and countries**

This list is based on United Nations’ classification (United Nations 2015).

**Europe**

**Eastern Europe**
Belarus, Bulgaria, Czech Republic, Hungary, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia, and Ukraine.

**Northern Europe**
Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway, Sweden, Northern Ireland, Ireland, England, and Scotland.

**Southern Europe**
Albania, Andorra, Bosnia and Herzegovina, Croatia, Greece, Italy, Kosovo, Malta, Montenegro, Portugal, Serbia, Slovenia, Spain, and North Macedonia.

**Western Europe**
Austria, Belgium, France, Germany, Luxembourg, Netherlands, and Switzerland.

**Central Asia**
Kazakhstan.

**Western Asia**
Armenia, Cyprus, and Georgia.
Appendix 3

Table A3.1 Survival models predicting ‘Date of first report on implementation of visitation rights limits at the national level.’ (Gompertz models).

| Outcome                                                                 | Date of first report on implementation of visitation rights limits at the national level |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| **Onset**                                                              | January 31st, 2020-WHO declares global health emergency\(^a\)                          |
| Respective date a country reports its first case of COVID-19\(^b\)     |                                                                                         |

| Determinants                                                                 | HR | 95% CI | HR | 95% CI | HR | 95% CI |
|------------------------------------------------------------------------------|----|--------|----|--------|----|--------|
| Prison population rate                                                       | 1.003 | 0.991 | 1.015 | 1.001 | 0.989 | 1.013 | 1.006 | 0.989 | 1.022 |
| Percentage of foreign prisoners                                             | 1.005 | 0.987 | 1.023 | 1.004 | 0.985 | 1.024 | 0.872 | 0.796 | 0.955 |
| Number of years since capital punishment was abolished                      | 1.019 | 0.976 | 1.063 | 1.011 | 0.960 | 1.064 | 1.030 | 0.975 | 1.087 |
| Prison occupancy level                                                      | 0.987 | 0.967 | 1.007 | 0.990 | 0.967 | 1.012 | 0.964 | 0.933 | 0.996 |
| Epidemic security index (z score)                                           | 1.507 | 1.061 | 2.142 | 1.476 | 1.029 | 2.118 | 1.391 | 0.966 | 2.004 |
| Percentage of foreign prisoners x Prison occupancy level                    | 1.001 | 1.000 | 1.003 |                      |
| **Control variables**                                                       |          |        |        |          |        |        |          |        |        |
| GDP per capita (ln)                                                         | 0.683 | 0.335 | 1.391 | 0.703 | 0.339 | 1.459 | 0.752 | 0.343 | 1.650 |
| Democracy (z score)                                                        | 1.527 | 0.552 | 4.228 | 1.346 | 0.474 | 3.820 | 1.504 | 0.455 | 4.970 |
| Political orientation of dominant party                                    | 3.200 | 1.843 | 5.556 | 3.074 | 1.717 | 5.501 | 3.049 | 1.768 | 5.260 |
| Population size (ln)                                                       | 1.202 | 0.928 | 1.556 | 1.164 | 0.824 | 1.643 | 1.162 | 0.859 | 1.573 |
| Number of countries                                                        | 43    | 41     | 41    |          |        |        |          |        |        |
| Number of adoptions                                                        | 43    | 41     | 41    |          |        |        |          |        |        |
| Time at risk                                                               | 1903  | 860    | 860   |          |        |        |          |        |        |

\(^a\) Countries in models Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway Poland, Portugal, Romania, Russian Federation, Scotland, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and United Kingdom. \(^b\) Same countries with the exception of Slovakia and Montenegro, since these countries limited visits before the first COVID-19 case was reported. HR: Hazard Ratio. Bold numbers indicate p < 0.05.
Table A3.2 Survival models predicting ‘Date of first report on implementation of visitation rights limits at the national level.’ (Exponential models)

| Determinants | HR   | 95% CI  | HR   | 95% CI  | HR   | 95% CI  |
|--------------|------|---------|------|---------|------|---------|
| Prison population rate | 1.000 | 0.999 | 1.001 |        | 1.000 | 0.995 | 1.004 |        | 1.000 | 0.995 | 1.004 |
| Percentage of foreign prisoners | 0.999 | 0.997 | 1.002 |        | 1.000 | 0.992 | 1.009 |        | 1.013 | 0.984 | 1.043 |
| Number of years since capital punishment was abolished | 1.001 | 0.999 | 1.004 |        | 0.997 | 0.986 | 1.008 |        | 0.996 | 0.985 | 1.007 |
| Prison occupancy level | 0.999 | 0.998 | 1.001 |        | 1.002 | 0.988 | 1.016 |        | 1.004 | 0.991 | 1.018 |
| Epidemic security index (z score) | 1.028 | 1.004 | 1.053 |        | 1.122 | 0.927 | 1.358 |        | 1.129 | 0.941 | 1.354 |
| Percentage of foreign prisoners x Prison occupancy level |        | 1.000 |        |        | 1.000 |        | 1.000 |        | 1.000 |        | 1.000 |

Control variables

|                      | HR   | 95% CI  | HR   | 95% CI  | HR   | 95% CI  |
|----------------------|------|---------|------|---------|------|---------|
| GDP per capita (ln)  | 0.965 | 0.883 | 1.055 |        | 0.710 | 0.463 | 1.090 |        | 0.706 | 0.462 | 1.078 |
| Democracy (z score)  | 1.046 | 0.949 | 1.153 |        | 1.073 | 0.552 | 2.084 |        | 1.066 | 0.549 | 2.071 |
| Political orientation of dominant party | 1.090 | 1.050 | 1.132 |        | 0.962 | 0.626 | 1.479 |        | 0.967 | 0.638 | 1.467 |
| Population size (ln) | 1.004 | 0.989 | 1.019 |        | 0.784 | 0.685 | 0.896 |        | 0.785 | 0.688 | 0.896 |
| Number of countries  | 43   |        | 41   |        | 41   |        | 41   |        | 41   |        | 41   |
| Number of adoptions  | 43   |        | 41   |        | 41   |        | 41   |        | 41   |        | 41   |
| Time at risk         | 1903 |        | 860  |        | 860  |        | 860  |        | 860  |        | 860  |

* Countries in models Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Scotland, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and United Kingdom. * Same countries with the exception of Slovakia and Montenegro, since these countries limited visits before the first COVID-19 case was reported. HR: Hazard Ratio. Bold numbers indicate p < 0.05.
### Table A4.1 Survival models predicting ‘Date of first early releases or pardons during pandemic at the national level.’ (Gompertz models)

| Determinants                                                                 | HR (95% CI) | HR (95% CI) | HR (95% CI) | HR (95% CI) |
|------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|
| **Outcome**                                                                  |             |             |             |             |
| **Onset**                                                                    |             |             |             |             |
| Date of first early releases or pardons during pandemic at the national level | January 31st, 2020-WHO declares global health emergency<sup>a</sup> | Respective date a country reports its first case of COVID-19<sup>b</sup> |
| **Determinants**                                                             | HR (95% CI) | HR (95% CI) | HR (95% CI) | HR (95% CI) |
| Prison population rate                                                       | 0.997 (0.003, 1.002) | 1.000 (0.994, 1.005) | 1.001 (0.994, 1.008) |
| Percentage of foreign prisoners                                              | 0.975 (0.924, 1.030) | 0.978 (0.915, 1.046) | 0.873 (0.696, 1.097) |
| Number of years since capital punishment was abolished                       | 0.982 (0.895, 1.076) | 0.990 (0.903, 1.086) | 1.005 (0.893, 1.132) |
| **Prison occupancy level**                                                   | **1.059** (1.027, 1.093) | **1.064** (1.029, 1.100) | 1.042 (0.980, 1.108) |
| Epidemic security index (z score)                                            | 0.806 (0.264, 2.464) | 0.785 (0.242, 2.547) | 0.699 (0.168, 2.900) |
| Percentage of foreign prisoners x Prison occupancy level                      | 1.001 (0.998, 1.004) |             |             |             |
| **Control variables**                                                        |             |             |             |             |
| GDP per capita (ln)                                                          | 4.112 (0.330, 51.277) | 3.382 (0.160, 71.25) | 2.838 (0.105, 76.59) |
| Democracy (z score)                                                          | 0.253 (0.050, 1.281) | 0.243 (0.051, 1.153) | 0.251 (0.046, 1.368) |
| Political orientation of dominant party                                      | 2.030 (0.311, 13.242) | 1.616 (0.279, 9.359) | 1.580 (0.288, 8.677) |
| Population size (ln)                                                         | 1.103 (0.615, 1.978) | 0.908 (0.504, 1.636) | 0.929 (0.514, 1.679) |
| Number of countries                                                          | 43 (41)     |             |             |             |
| Number of adoptions                                                          | 43 (41)     |             |             |             |
| Time at risk                                                                 | 1903 (860)  |             |             |             |

<sup>a</sup> Countries in models Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Scotland, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and United Kingdom. <sup>b</sup> Same countries with the exception of Slovakia and Montenegro, since these countries limited visits before the first COVID-19 case was reported. HR: Hazard Ratio. Bold numbers indicate p < 0.05.
Table A4.2 Survival models predicting ‘Date of first early releases or pardons during pandemic at the national level.’ (Exponential models)

| Determinants                                                                 | HR  | 95% CI | HR  | 95% CI | HR  | 95% CI |
|------------------------------------------------------------------------------|-----|--------|-----|--------|-----|--------|
| Prison population rate                                                       | 0.997 | 0.992 | 1.002 | 1.00 | 0.994 | 1.005 | 1.00 | 0.99 | 1.01 |
| Percentage of foreign prisoners                                             | 0.975 | 0.924 | 1.029 | 0.978 | 0.911 | 1.050 | 0.86 | 0.68 | 1.08 |
| Number of years since capital punishment was abolished                      | 0.982 | 0.896 | 1.075 | 0.989 | 0.890 | 1.098 | 1.01 | 0.89 | 1.15 |
| Prison occupancy level                                                       | 1.059 | 1.033 | 1.085 | 1.071 | 1.037 | 1.107 | 1.04 | 0.98 | 1.11 |
| Epidemic security index (z score)                                            | 0.806 | 0.266 | 2.440 | 0.773 | 0.216 | 2.767 | 0.67 | 0.15 | 3.07 |
| Percentage of foreign prisoners x Prison occupancy level                     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Control variables

| GDP per capita (ln)                                                          | 4.076 | 0.327 | 50.833 | 3.897 | 0.153 | 99.10 | 3.00 | 0.09 | 100.6 |
| Democracy (z score)                                                          | 0.255 | 0.052 | 1.257 | 0.212 | 0.037 | 1.217 | 0.23 | 0.03 | 1.49 |
| Political orientation of dominant party                                      | 2.013 | 0.337 | 12.034 | 1.875 | 0.276 | 12.74 | 1.78 | 0.31 | 10.24 |
| Population size (ln)                                                          | 1.099 | 0.630 | 1.918 | 0.976 | 0.540 | 1.762 | 0.98 | 0.56 | 1.74 |
| Number of countries                                                           | 43 | 41 | 43 | 41 | 41 | 41 |
| Number of adoptions                                                           | 43 | 41 | 43 | 41 | 41 | 41 |
| Time at risk                                                                  | 1903 | 860 | 860 | 860 | 860 | 860 |

* Countries in models Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Scotland, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and United Kingdom. HR: Hazard Ratio. Bold numbers indicate p < 0.05.
| Outcome | Date of first early releases or pardons during pandemic at the national level<sup>a</sup> |
|---------|--------------------------------------------------------------------------------|
| **Models** | **Logistic** | **Poisson** | **Negative binomial** |
| **Determinants** | HR | 95% CI | HR | 95% CI | HR | 95% CI |
| Epidemic security index (z score) | 0.637 | 0.190 | 2.127 | 0.789 | 0.372 | 1.672 | 0.789 | 0.372 | 1.672 |
| GDP per capita (ln) | 6.475 | 0.617 | 67.97 | 3.063 | 0.567 | 16.54 | 3.063 | 0.567 | 16.54 |
| Population size (ln) | 1.065 | 0.482 | 2.352 | 0.993 | 0.693 | 1.422 | 0.993 | 0.693 | 1.422 |
| Democracy (z score) | 0.195 | 0.029 | 1.315 | 0.339 | 0.092 | 1.244 | 0.339 | 0.092 | 1.244 |
| Political orientation of dominant party | 2.043 | 0.227 | 18.41 | 1.597 | 0.501 | 5.095 | 1.597 | 0.501 | 5.095 |
| Prison population rate | 0.998 | 0.987 | 1.008 | 0.997 | 0.992 | 1.002 | 0.997 | 0.992 | 1.002 |
| Prison occupancy level | 1.079 | 1.036 | 1.123 | 1.040 | 1.021 | 1.060 | 1.040 | 1.021 | 1.060 |
| Percentage of foreign prisoners | 0.961 | 0.918 | 1.005 | 0.976 | 0.943 | 1.010 | 0.976 | 0.943 | 1.010 |
| Number of years since capital punishment was abolished | 0.973 | 0.871 | 1.086 | 0.986 | 0.933 | 1.041 | 0.986 | 0.933 | 1.041 |
| Number of countries | 43 | 43 | 43 |
| Number of adoptions | 14 | 14 | 14 |

<sup>a</sup> Countries in models Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Scotland, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and United Kingdom. HR: Hazard Ratio. Bold numbers indicate p < 0.05.
### Appendix 6

**Table A6-1** Survival models predicting ‘Date of first report on implementation of visitation rights limits at the national level’ (Weibull models excluding Belarus and Kazakhstan)

| Outcome | Date of first report on implementation of visitation rights limits at the national level |
|---------|--------------------------------------------------------------------------------------|
| **Onset** |                                                   |
| | January 31st, 2020-WHO declares global health emergency<sup>a</sup> | Respective date a country reports its first case of COVID-19<sup>b</sup> |
| **Determinants** | **HR** | **95% CI** | **HR** | **95% CI** | **HR** | **95% CI** |
| Prison population rate | 1.003 | 0.985 | 1.022 | 1.002 | 0.984 | 1.020 | 1.007 | 0.984 | 1.031 |
| Percentage of foreign prisoners | 1.004 | 0.982 | 1.025 | 1.004 | 0.982 | 1.026 | **0.964** | **0.929** | **1.000** |
| Number of years since capital punishment was abolished | 0.987 | 0.968 | 1.007 | 0.990 | 0.968 | 1.013 | 0.868 | 0.771 | 0.978 |
| Prison occupancy level | 1.019 | 0.964 | 1.077 | 1.013 | 0.953 | 1.077 | **1.034** | **0.966** | **1.107** |
| Epidemic security index (z score) | **1.476** | **1.036** | **2.103** | **1.451** | **1.002** | **2.102** | 1.347 | 0.929 | 1.954 |
| Percentage of foreign prisoners x Prison occupancy level | **1.002** | **1.000** | **1.003** |
| **Control variables** | | | | | | | |
| GDP per capita (ln) | 0.674 | 0.212 | 2.142 | 0.662 | 0.213 | 2.054 | 0.752 | 0.343 | 1.650 |
| Democracy (z score) | 1.535 | 0.256 | 9.196 | 1.482 | 0.273 | 8.038 | 1.504 | 0.455 | 4.970 |
| Political orientation of dominant party | **3.109** | **1.812** | **5.336** | **3.081** | **1.751** | **5.421** | **3.049** | **1.768** | **5.260** |
| Population size (ln) | 1.179 | 0.909 | 1.529 | 1.153 | 0.812 | 1.638 | 1.162 | 0.859 | 1.573 |
| Number of countries | 41 | 40 | 41 | |
| Number of adoptions | 41 | 40 | 41 | |
| Time at risk | 1858 | 856 | 860 | |

<sup>a</sup> Countries in models Albania, Armenia, Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Scotland, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and United Kingdom.  
<sup>b</sup> Same countries except for Slovakia and Montenegro, since these countries limited visits before the first COVID-19 case was reported. HR: Hazard Ratio. Bold numbers indicate p < 0.05.
Table A5-2 Different models predicting ‘Date of first report on implementation of visitation rights limits at the national level.’ (Excluding Belarus and Kazakhstan)

| Determinants                                      | Date of first early releases or pardons during pandemic at the national level<sup>a</sup> |
|---------------------------------------------------|----------------------------------------------------------------------------------------|
|                                                    | Models                                                                                     |
|                                                    | Logistic | Poisson | Negative binomial |
| Epidemic security index (z score)                  | HR       | 95% CI   | HR       | 95% CI   | HR       | 95% CI   |
|                                                    | 0.700    | 0.180  | 2.725    | 0.83      | 1.78    | 0.825    | 0.384  | 1.776 |
| GDP per capita (ln)                                | 9.303    | 0.368  | 235.3    | 4.04      | 32.59 | 4.041    | 0.501  | 32.58 |
| Population size (ln)                               | 1.101    | 0.490  | 2.473    | 1.01      | 1.44    | 1.013    | 0.712  | 1.442 |
| Democracy (z score)                                | 0.113    | 0.008  | 1.542    | 0.24      | 1.10    | 0.237    | 0.051  | 1.100 |
| Political orientation of dominant party            | 2.159    | 0.225  | 20.72    | 1.58      | 4.81    | 1.576    | 0.517  | 4.808 |
| Prison population rate                             | 0.994    | 0.972  | 1.015    | 0.99      | 1.00    | 0.995    | 0.986  | 1.004 |
| Prison occupancy level                             | **1.071**| **1.032**| **1.111**| **1.04** | **1.02**| **1.06** | **1.037**| **1.017**| **1.056**|
| Percentage of foreign prisoners                    | 0.957    | 0.908  | 1.009    | 0.97      | 1.01    | 0.973    | 0.934  | 1.013 |
| Number of years since capital punishment was abolished| 0.966    | 0.852  | 1.095    | 0.98      | 1.04    | 0.983    | 0.926  | 1.043 |
| Number of countries                                | 41       | 41     | 41       | 14        | 14     | 14       |
| Number of adoptions                                | 14       | 14     | 14       |           |        |          |

<sup>a</sup> Countries in models Albania, Armenia, Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway Poland, Portugal, Romania, Russian Federation, Scotland, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and United Kingdom., HR: Hazard Ratio. Bold numbers indicate p < 0.05.
Appendix 6

Table A6.1 Survival models predicting ‘Date of first report on implementation of visitation rights limits at the national level.’ with capital punishment as dichotomous variable (Weibull models).

| Determinants                               | HR   | 95% CI   | HR   | 95% CI   | HR   | 95% CI   |
|--------------------------------------------|------|----------|------|----------|------|----------|
| Prison population rate                     | 1.003| 0.991    | 1.015| 1.001    | 0.989| 1.013    | 1.006| 0.989    | 1.022|
| Percentage of foreign prisoners            | 1.005| 0.987    | 1.023| 1.004    | 0.985| 1.024    | **0.872**| **0.796**| **0.955**|
| Capital punishment abolished               | 1.019| 0.976    | 1.063| 1.011    | 0.960| 1.064    | 1.030| 0.975    | 1.087|
| Prison occupancy level                      | 0.987| 0.967    | 1.007| 0.990    | 0.967| 1.012    | **0.964**| **0.933**| **0.996**|
| Epidemic security index (z score)          | **1.507**| **1.061**| **2.142**| **1.476**| **1.029**| **2.118**| 1.391| 0.966    | 2.004|
| Percentage of foreign prisoners x Prison occupancy level | 1.001| 1.000    | 1.003|          |
| Control variables                          |      |          |      |          |      |          |
| GDP per capita (ln)                        | 0.683| 0.335    | 1.391| 0.703    | 0.339| 1.459    | 0.773| 0.303    | 1.975|
| Democracy (z score)                        | 1.527| 0.552    | 4.228| 1.346    | 0.474| 3.820    | 1.143| 0.814    | 1.604|
| Political orientation of dominant party    | **3.200**| **1.843**| **5.556**| **3.074**| **1.717**| **5.501**|      |          |
| Population size (ln)                       | 1.202| 0.928    | 1.556| 1.164    | 0.824| 1.643    | **2.810**| **1.531**| **5.160**|
| Number of countries                        | 43   | 41       | 41   |          |      |          |
| Number of adoptions                        | 43   | 41       | 41   |          |      |          |
| Time at risk                               | 1903 | 860      | 860  |          |      |          |

* Countries in models Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway Poland, Portugal, Romania, Russian Federation, Scotland, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and United Kingdom. * Same countries except for Slovakia and Montenegro, since these countries limited visits before the first COVID-19 case was reported. HR: Hazard Ratio. Bold numbers indicate p < 0.05.
Table A6.2 Survival models predicting ‘Date of first early releases or pardons during pandemic at the national level’ with capital punishment as dichotomous variable (Weibull models).

| Outcome | Date of first early releases or pardons during pandemic at the national level<sup>a</sup> |
|---------|-------------------------------------------------------------------------------------------------|
| **Onset** | |
| January 31st, 2020-WHO declares global health emergency<sup>a</sup> | Respective date a country reports its first case of COVID-19 |

| Determinants | HR | 95% CI | HR | 95% CI | HR | 95% CI |
|--------------|----|--------|----|--------|----|--------|
| Prison population rate | 0.997 | 0.989 | 1.004 | | 1.000 | 0.993 | 1.007 | | 1.000 | 0.992 | 1.007 |
| Percentage of foreign prisoners | 0.980 | 0.941 | 1.021 | | 0.980 | 0.936 | 1.026 | | 0.980 | 0.937 | 1.025 |
| Capital punishment abolished | 2.019 | 0.244 | 16.703 | | 2.734 | 0.449 | 16.63 | | 2.832 | 0.579 | 13.85 |
| Prison occupancy level | **1.061** | **1.010** | **1.114** | | **1.063** | **1.014** | **1.113** | | **1.062** | **1.014** | **1.112** |
| Epidemic security index (z score) | 0.742 | 0.297 | 1.856 | | 0.721 | 0.287 | 1.810 | | 0.718 | 0.281 | 1.834 |
| Percentage of foreign prisoners x Prison occupancy level | | | | | | | | | | | 1.001 | 0.982 | 1.020 |

**Control variables**

| GDP per capita (ln) | 4.933 | 0.323 | 75.341 | | 4.791 | 0.245 | 93.70 | | 4.828 | 0.273 | 85.42 |
| Democracy (z score) | 1.142 | 0.586 | 2.227 | | 0.961 | 0.471 | 1.960 | | 0.960 | 0.475 | 1.938 |
| Political orientation of dominant party | 0.126 | 0.014 | 1.108 | | 0.124 | 0.012 | 1.247 | | 0.123 | 0.014 | 1.048 |
| Population size (ln) | 2.168 | 0.210 | 22.420 | | 1.843 | 0.215 | 15.78 | | 1.830 | 0.227 | 14.75 |

| Number of countries | 43 | | 43 | | 43 |
| Number of adoptions | 14 | | 14 | | 14 |
| Time at risk | 5336 | | 4288 | | 4288 |

* Countries in models Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Scotland, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and United Kingdom. HR: Hazard Ratio. Bold numbers indicate p < 0.05.