

```
##### China Map ###
```

```
##### The duration of political imprisonment: Evidence from China ###
```

```
##### Author: Christoph Valentin Steinert ###
```

```
### Packages
```

```
library(tidyverse)
```

```
library(dplyr)
```

```
library(lubridate)
```

```
library(Hmisc)
```

```
library(readstata13)
```

```
library(MatchIt)
```

```
library(stringr)
```

```
library(texreg)
```

```
library(devtools)
```

```
library(sjPlot)
```

```
library(magrittr)
```

```
library(hchinamap)
```

```
library(tmap)
```

```
# Load prisoner data
```

```
rm(list = ls())
```

```
setwd("~/PhD Political Imprisonments/China-Projekt")
```

```
load(file = "final_pprisdat.RData")
```

```
# Open mapping data
```

```
# install.packages('hchinamap', build_vignettes = TRUE)
```

```
# Demo dataset
```

```
dir <- tempdir()
```

```
download.file('https://czxb.github.io/br/chinadf.rda', file.path(dir, 'chinadf.rda'))
```

```
load(file.path(dir, 'chinadf.rda'), verbose = TRUE)
```

```

# Load China map (here example maps from package)

library(hchinamap)

china <- chinadf %>%

  dplyr::filter(region == "China")

hchinamap(name = china$name, value = china$value,

  width = "100%", height = "400px",

  title = "Map of China", region = "China")


# Add translations in Pinyin

library('pinyin')

pydic(method = c("quanpin", "tone", "toneless"), multi = FALSE, only_first_letter = FALSE, dic =
c("pinyin", "pinyin2"))

chinadf$pny <- py(char = chinadf$name, sep = "_", other_replace = NULL, dic = pydic(method =
"toneless"))

chinadf$pny_completed <- gsub("_", "", chinadf$pny)


# Include year of detention-variable

final_pprisdat$final_pprisdat_rn <- final_pprisdat$CECC_record_number

final_pprisdat <- separate(final_pprisdat, col = final_pprisdat_rn, into = c("year", "idnumyear"), sep =
"-")


# Exclude prisoners that died in prison, that escaped or that were executed

final_pprisdat$detentiontime_months[final_pprisdat$died_in_prison == 1] <- NA

final_pprisdat$detentiontime_months[final_pprisdat$escaped == 1] <- NA

final_pprisdat$detentiontime_months[final_pprisdat$executed == 1] <- NA


# Exclude coding errors

final_pprisdat$detentiontime_months[final_pprisdat$detentiontime_months < 0] <- NA


# Code right-censored observations as NA

final_pprisdat$detentiontime_months[final_pprisdat$currently_detained == 1] <- NA

```

```
# Average detention lengths by prefectures/ provinces
```

```
average_lengths_prov <- final_pprisdat %>%
```

```
  group_by(province_imprisoned_detained) %>%
```

```
  summarise(average_lengths_prov = mean(detentiontime_months, na.rm = T))
```

```
ungroup(final_pprisdat)
```

```
average_lengths_pref <- final_pprisdat %>%
```

```
  group_by(prefecture_imprisoned_detained) %>%
```

```
  summarise(average_lengths_pref = mean(detentiontime_months, na.rm = T))
```

```
ungroup(final_pprisdat)
```

```
# Prepare prefecture-data for merging
```

```
average_lengths_pref$prefecture_imprisoned_detained <- gsub("Shi","",
```

```
average_lengths_pref$prefecture_imprisoned_detained)
```

```
average_lengths_pref$prefecture_imprisoned_detained <- gsub("\\([^\)]+\)", "",
```

```
average_lengths_pref$prefecture_imprisoned_detained)
```

```
average_lengths_pref$prefecture_imprisoned_detained <- gsub(pattern = '([[:upper:]])', perl =  
TRUE, replacement = '\\L\\1', average_lengths_pref$prefecture_imprisoned_detained)
```

```
average_lengths_pref$prefecture_imprisoned_detained <- gsub("dist\\.", "",
```

```
average_lengths_pref$prefecture_imprisoned_detained)
```

```
average_lengths_pref$prefecture_imprisoned_detained <- gsub("pref\\.", "",
```

```
average_lengths_pref$prefecture_imprisoned_detained)
```

```
average_lengths_pref$prefecture_imprisoned_detained <- gsub("\\s", "",
```

```
average_lengths_pref$prefecture_imprisoned_detained)
```

```
# Data cleaning
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison  
ed_detained == "akesu[aksu]"] <- "akesu"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison  
ed_detained == "alashanleague"] <- "alashanmeng"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison  
ed_detained == "ali[ngari]"] <- "ali"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison  
ed_detained == "bayinguoleng[bayangol]mongolauto."] <- "bayinguoleng"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "beijingcty."] <- "beijing"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "changdu[chamdo]] <- "changdou"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "chengdu"] <- "chengdou"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "chongqingcty."] <- "chongqing"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "chuxiongyiauto."] <- "chuxiongyicou"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "dalibaiauto."] <- "dalibaicou"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "diqing[dechen]tibetanauto."] <- "diqing"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "e'erduosi[ordos]] <- "eerduoshi"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "gannan[kanlho]tibetanauto."] <- "ganna"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "ganzi[kardze]tibetanauto."] <- "ganzi"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "ha'erbin[harbin]] <- "haerbin"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "haibei[tsojang]tibetanauto."] <- "haibei"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "haidong[tsoshar]] <- "haidong"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "hainan[tsoaho]tibetanauto."] <- "Hainan"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "haixi[tsonub]mongol&tibetanauto."] <- "haixi"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "hetian[hotan]] <- "hetian"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "huai'an"] <- "huaian"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "huainan"] <- "huaina"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "huangnan[malho]tibetanauto."] <- "huangna"
```

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "huludao"] <- "huhudao"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "ji'an"] <- "jian"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "jiamusi"] <- "jiamushi"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "kelamayi[qaramay]"] <- "kelamayi"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "kezilesu[kizilsu]kyrgyzauto."] <- "kezilesukeerkezi"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "lasa[lhasa]"] <- "lasa"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "liangshanyiauto."] <- "liangshanyicou"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "linzhi[kongpo]"] <- "linzhi"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "longnan"] <- "longna"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "loudi"] <- "loude"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "luliang"] <- "lvliang"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "ma'anshan"] <- "maanshan"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "nanchang"] <- "nachang"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "nanchong"] <- "nachong"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "nanjing"] <- "najing"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "nanning"] <- "naning"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "natong"] <- "natong"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "nanyang"] <- "nayang"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "naqu[nagchu]"] <- "naqu"

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "neijiang"] <- "nayang"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "ningbo"] <- "ningbei"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "panzhihua"] <- "panqihua"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "pingdingshan"] <- "pingxiang"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "pu'er"] <- "puer"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "qiandongnanmiao&dongauto."] <- "qiandong"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "quanzhoumuni.urb.area"] <- "quanzhou"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "rikaze[gatse]"] <- "rikaze"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "sanming"] <- "sanmeng"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "shanghaicity."] <- "shanghai"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "shannan[lhokha]"] <- "shanna"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "zuishan"] <- "zhoushan"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "siping"] <- "sibeng"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "tai'an"] <- "taian"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "taiyuan"] <- "tayuan"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "tianjincty."] <- "tianjin"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "weinan"] <- "weina"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "wulumuqi[urumqi]"] <- "wulumuji"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "wuzhong"] <- "wuzhou"
```

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "xi'an"] <- "xian"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "xianyang"] <- "xiangyang"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "xilinguole[xilingol]league"] <- "xilinguolemeng"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "xinyang"] <- "xinjiang"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "ya'an"] <- "yaan"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "yan'an"] <- "yanan"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "yanbiankoreanauto."] <- "yanbian"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "yushu[yulshul]tibetanauto."] <- "yushu"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "yuxi"] <- "yuqi"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "aba[ngaba]tibetan&qiangauto."] <- "abaqiangcou"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "benxi"] <- "benqi"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "boertalamongolauto."] <- "boerdala"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "ganzi[kardze]tibetanauto."] <- "ganzi"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "huangshi"] <- "huangshan"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "jinan"] <- "jina"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "nanping"] <- "nanning"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "xining[ziling]"] <- "xining"

average\_lengths\_pref\$prefecture\_imprisoned\_detained[average\_lengths\_pref\$prefecture\_imprisoned\_detained == "akesu [aksu] "] <- "akesu"

```
# Indicate which data is province-level in the mapping data

chinadf$pnny_completed[chinadf$name == "北京"] <- "beijing_prov"
chinadf$pnny_completed[chinadf$name == "天津"] <- "tianjin_prov"
chinadf$pnny_completed[chinadf$name == "河北"] <- "hebei_prov"
chinadf$pnny_completed[chinadf$name == "山西"] <- "shanxi_prov"
chinadf$pnny_completed[chinadf$name == "内蒙古"] <- "liaoning_prov"
chinadf$pnny_completed[chinadf$name == "吉林"] <- "jilin_prov"
chinadf$pnny_completed[chinadf$name == "黑龙江"] <- "heilongjiang_prov"
chinadf$pnny_completed[chinadf$name == "上海"] <- "shanghai_prov"
chinadf$pnny_completed[chinadf$name == "江苏"] <- "jiangsu_prov"
chinadf$pnny_completed[chinadf$name == "浙江"] <- "zhejiang_prov"
chinadf$pnny_completed[chinadf$name == "安徽"] <- "anhui_prov"
chinadf$pnny_completed[chinadf$name == "福建"] <- "fujian_prov"
chinadf$pnny_completed[chinadf$name == "江西"] <- "jiangxi_prov"
chinadf$pnny_completed[chinadf$name == "山东"] <- "shandong_prov"
chinadf$pnny_completed[chinadf$name == "河南"] <- "hena_prov"
chinadf$pnny_completed[chinadf$name == "湖北"] <- "hubei_prov"
chinadf$pnny_completed[chinadf$name == "湖南"] <- "huna_prov"
chinadf$pnny_completed[chinadf$name == "广东"] <- "guandong_prov"
chinadf$pnny_completed[chinadf$name == "广西"] <- "anxi_prov"
chinadf$pnny_completed[chinadf$name == "海南"] <- "haina_prov"
chinadf$pnny_completed[chinadf$name == "重庆"] <- "chongqing_prov"
chinadf$pnny_completed[chinadf$name == "四川"] <- "sichuan_prov"
chinadf$pnny_completed[chinadf$name == "贵州"] <- "guizhou_prov"
chinadf$pnny_completed[chinadf$name == "云南"] <- "yunna_prov"
chinadf$pnny_completed[chinadf$name == "西藏"] <- "xicang_prov"
chinadf$pnny_completed[chinadf$name == "陕西"] <- "shanxi_prov"
chinadf$pnny_completed[chinadf$name == "甘肃"] <- "gansu_prov"
```



```

chinadf$pnny_completed[chinadf$name == "青海"] <- "jinghai_prov"
chinadf$pnny_completed[chinadf$name == "宁夏"] <- "ningjia_prov"
chinadf$pnny_completed[chinadf$name == "新疆"] <- "xinjiang_prov"
chinadf$pnny_completed[chinadf$name == "台湾"] <- "siwan_prov"
chinadf$pnny_completed[chinadf$name == "香港"] <- "xianggang_prov"
chinadf$pnny_completed[chinadf$name == "澳门"] <- "aomen_prov"
chinadf$pnny_completed[chinadf$name == "南海诸岛"] <- "nahaizhudao_prov"

```

```

# Add province-data to prefecture data

```

```

average_lengths_prov <- rename(average_lengths_prov, average_lengths_pref =
average_lengths_prov)

average_lengths_prov <- rename(average_lengths_prov, prefecture_imprisoned_detained =
province_imprisoned_detained)

average_lengths_pref <- rbind(average_lengths_pref, average_lengths_prov)

```

```

# Change names of provinces for merging

```

```

average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison
ed_detained == "Anhui Province"] <- "anhui_prov"

average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison
ed_detained == "Beijing Shi (prov.)"] <- "beijing_prov"

average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison
ed_detained == "Chongqing Shi (prov.)"] <- "chongqing_prov"

average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison
ed_detained == "Fujian Province"] <- "fujian_prov"

average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison
ed_detained == "Gansu Province"] <- "gansu_prov"

average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison
ed_detained == "Guangdong Province"] <- "guandong_prov"

average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison
ed_detained == "Guizhou Province"] <- "guizhou_prov"

average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison
ed_detained == "Hainan Province"] <- "haina_prov"

average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprison
ed_detained == "Hebei Province"] <- "hebei_prov"

```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Heilongjiang Province"] <- "heilongjiang_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Henan Province"] <- "hena_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Hubei Province"] <- "hubei_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Hunan Province"] <- "huna_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Jiangsu Province"] <- "jiangsu_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Jiangxi Province"] <- "jiangxi_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Jilin Province"] <- "jilin_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Liaoning Province"] <- "liaoning_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Ningxia Hui Auto. Region"] <- "ningjia_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Qinghai Province"] <- "jinghai_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Shaanxi Province"] <- "shanxi_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Shandong Province"] <- "shandong_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Shanghai Shi (prov.)"] <- "shanghai_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Shanxi Province"] <- "shanxi_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Sichuan Province"] <- "sichuan_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Tianjin Shi (prov.)"] <- "tianjin_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Yunnan Province"] <- "yunna_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Zhejiang Province"] <- "zhejiang_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Hong Kong [Xianggang] SAR"] <- "xianggang_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Tibet [Xizang] Auto. Region"] <- "xicang_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Guangxi Zhuang Auto. Region"] <- "anxi_prov"
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Macao SAR"] <- "aomen_prov"
```

```
#
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Inner Mongolia [Neimenggu] Auto. Region"] <- ???
```

```
average_lengths_pref$prefecture_imprisoned_detained[average_lengths_pref$prefecture_imprisoned_detained == "Xinjiang Uyghur Auto. Region"] <- "xinjiang_prov"
```

```
# Merging
```

```
chinadf <- rename(chinadf, prefecture_imprisoned_detained = pny_completed)
```

```
unmerged <- anti_join(average_lengths_pref, chinadf, by="prefecture_imprisoned_detained")
```

```
chinamapping <- merge(chinadf, average_lengths_pref, by = "prefecture_imprisoned_detained",  
all.x = T, all.y = F)
```

```
chinamapping$n <- ifelse(is.na(chinamapping$n), 0, chinamapping$n)
```

```
# Present China map
```

```
#### See Figure 2 in the article ####
```

```
china <- chinamapping %>%
```

```
  dplyr::filter(region == "China")
```

```
hchinamap(name = china$name, value = china$average_lengths_pref,
```

```
  legendVerticalAlign = "bottom",
```

```
  min = 0, minColor = "rgb(153,255, 153)", maxColor = "rgb(255, 0, 0)",
```

```
  legendTitle = "Average length of political imprisonment in months", region = "China")
```

```
dev.off()
```