Harnessing Data from North Carolina's Jails to Inform Effective Policies — California Jail Profile Survey

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Background

In the late twentieth century, "tough on crime" rhetoric manifested in national, state, and local policies that drove up incarceration rates. These policies included "truth in sentencing," "three strikes and you're out," and mandatory minimums, all of which led to ballooning state budgets and ever-increasing allocations for penal systems.

California, despite its supposedly progressive politics, embraced these policies. In 1994, its voters overwhelmingly passed the sweeping Proposition 184, enacting a life sentence for any individual convicted of three serious or violent felonies. (Couzens & Bigelow, 2017) The law was challenged in two separate Supreme Court cases: Ewing v. California (2003) and Lockyer v. Andrade (2003). In both cases, the defendants were sentenced to 25 years to life after stealing three golf clubs and nine children's videotapes, respectively. The law was amended in 2012, when voters passed Proposition 36, freeing or reducing the sentences of an estimated 6,000 individuals. A 2020 attempt to pull back Proposition 36 failed. (Cramer 2020)

Although the Supreme Court upheld the "three strikes" law in 2003, in Brown v. Plata (2011), the Court found that California prison conditions violated the Constitution. It ordered that the state release enough prisoners to reduce the population from near 200% of capacity to 137.5%. In response, in 2011, the California legislature passed Assembly Bills 109 and 117, also known as "realignment." (Green, 2012) The legislation shifted responsibility for those who had committed "non-serious, non-violent, non-sex" crimes from the state to individual counties, incarcerating them in jails instead of prisons. Law enforcement criticized the legislation for increasing crime, but a study by the Public Policy Institute of California and the University of California, Berkeley, found that it did not, with the exception of a slight increase in auto thefts. (Kubrin & Seron, 2016)

Incarceration rates in California remain high at 581 per 100,000 people. ("California profile") An estimated 241,000 residents are incarcerated in the state, with 82,000 in jails and at least 368,000 unique jail admissions annually. (Betram & Jones, 2019)

Research Questions

- How have jail populations and lengths of stay changed over time, especially in the wake of policy changes?
- Prison populations and lengths of stay have definitely increased, but such an increase is not as certain to be reflected in jails. What facility and county characteristics drive an increase or a lack of change?

Data

```
county_m <- read.csv(here("data", "california_jail_county_monthly_1995_2020.csv"))
county_q <- read.csv(here("data", "california_jail_county_quarterly_1995_2020.csv"))
facility <- read.csv(here("data", "california_jail_facility_monthly_1995_2020.csv"))
```

These datasets are scraped from the California Board of State and Community Corrections' Jail Profile Survey by Jacob Kaplan from the University of Pennsylvania. Kaplan made the following changes to the data: adding variables for FIPS county and state codes and United States census county names, changing column names, and changing values from "Does Not Apply" and "Unavailable" to NA.

These data were collected from 57 counties from October 1995 to March 2020. Note that California has 58 counties, but its least populous county, Alpine County, does not have a jail and contracts with Calaveras County and El Dorado County.

The county-level monthly data contains 17801 observations of 48 variables.

```
##  [1] "date"                                "county"
##  [3] "unsen_male"                          "unsen_female"
##  [5] "sen_male"                            "sen_female"
##  [7] "total"                               "felony_unsen"
##  [9] "felony_sen"                          "felony_total"
## [11] "misd_unsen"                          "misd_sen"
## [13] "misd_total"                          "mental_heath_case_open_end_month"
## [15] "num_new_mental_health_cases"         "num_inmate_get_psych_meds"
## [17] "num_inmate_get_mental_heath_bed"     "num_inmates_seen_sick_call"
## [19] "num_doctor_occurrences"              "num_offsite_medical_appointment"
## [21] "num_dental_encounters"               "avg_inmate_get_sick_bed"
## [23] "avg_inmate_not_assign_housing"       "avg_own_inmate_housed_elsewhere"
## [25] "avg_fed_inmate_housed_contract"      "avg_state_inmate_housed_contract"
## [27] "avg_local_inmate_housed_contract"    "avg_inmate_wait_transport_prison"
## [29] "avg_inmate_in_hospital"              "total_num_persons_booked"
## [31] "tot_pretrial_release_lack_bed"       "tot_sentenced_release_lack_bed"
## [33] "total_juv_in_custody"
```

The county-level quarterly data contains 5905 observations of 18 variables.

```
##  [1] "jurisdiction"                    "year"
##  [3] "quarter"                         "county"
##  [5] "fips_state_code"                 "fips_county_code"
##  [7] "fips_state_county_code"          "num_inmate_assaults_on_staff"
##  [9] "money_spent_medication_last_qtr" "money_spent_psych_med_last_qtr"
## [11] "avg_length_stay_all_releases"    "pretrial_release"
## [13] "sentenced_release"               "num_inmate_are_3rd_striker"
## [15] "num_inmate_are_2nd_striker"      "num_unserved_felony_warrants"
## [17] "num_unserved_misdemean_warrants" "percent_inmates_illegal_alien"
## [19] "month"                           "date"
```

The facility/jail-level monthly data contains 36774 observations of 14 variables.

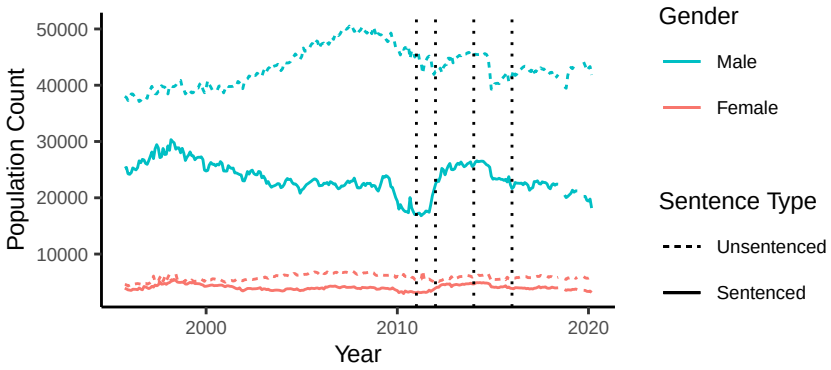
```
##  [1] "jurisdiction"          "year"                  "month"
##  [4] "date"                  "county"                "fips_state_code"
##  [7] "fips_county_code"      "fips_state_county_code" "facility"
## [10] "unsen_male"            "unsen_female"          "sen_male"
## [13] "sen_female"            "total"
```

We prepare these datasets for analysis by assigning months to quarters, checking variable types, and renaming variables for convenience.

Population

First, we analyze average daily jail populations statewide over time.

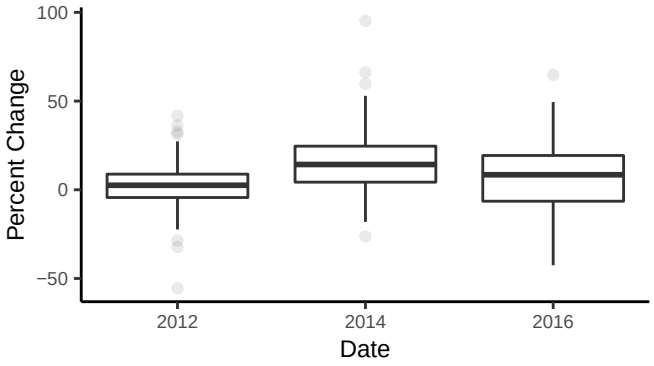
We visualize change in population, noting when realignment happened in 2011, as well as one, three, and five years afterwards.



Now, we analyze whether realignment had a lasting impact on average daily jail populations.

```
## # A tibble: 3 x 4
##    year   q25 median   q75
## * <dbl> <dbl>  <dbl> <dbl>
## 1  2012 -4.37   2.53  8.82
## 2  2014  4.30  14.2  24.6
## 3  2016 -6.46   8.45 19.3
```

We visualize the percent change in populations after realignment.



Six counties were below the 25th percentile of percent change in population for all analyzed years after realignment.

```
## # A tibble: 6 x 4
## # Groups:   county [6]
##   county               `2011_population` `2012_population` `2014_population`
##   <chr>                            <dbl>             <dbl>             <dbl>
```

```
## 1 Alameda County                    3816             3270             2622
## 2 Contra Costa County               1571             1470             1378
## 3 Del Norte County                   116              105              102
## 4 Inyo County                         76               59               70
## 5 San Francisco County              1710             1543             1236
## 6 Santa Cruz County                  429              383              375
```

```
## # A tibble: 6 x 4
## # Groups:   county [6]
##   county               population percent_urban proximity_to_prison
##   <chr>                     <dbl>         <dbl>               <dbl>
## 1 Alameda County          1671329          99.6                35.8
## 2 Contra Costa County     1153526          99.2                40.1
## 3 Del Norte County          27812          59.8                 0
## 4 Inyo County               18039          48.7               248
## 5 San Francisco County     881549         100                  18
## 6 Santa Cruz County        273213          86.2                61.4
```

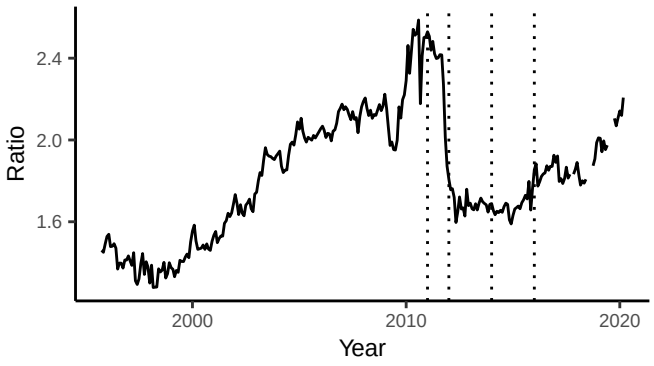
Seven counties were above the 75th percentile of percent change in population for all analyzed years after realignment.

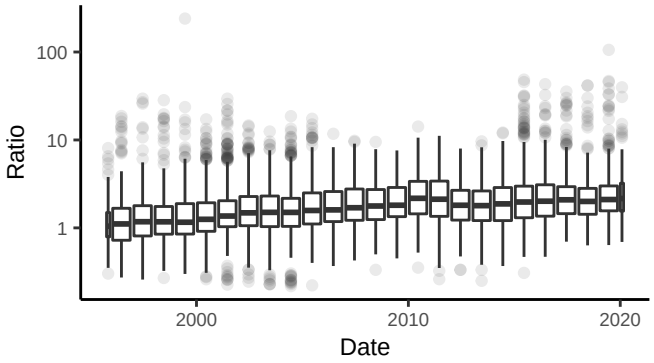
```
## # A tibble: 7 x 4
## # Groups:   county [7]
##   county          `2011_population` `2012_population` `2014_population`
##   <chr>                       <dbl>             <dbl>              <dbl>
## 1 Colusa County                  51                64                 84
## 2 Fresno County                1772              2350               2648
## 3 Kings County                  316               448                434
## 4 Lake County                   215               293                262
## 5 Mariposa County                34                37                 45
## 6 Placer County                 507               553                658
## 7 Tulare County                1242              1521               1482
```

```
## # A tibble: 7 x 4
## # Groups:   county [7]
##   county          population percent_urban miles_from_prison
##   <chr>                <dbl>         <dbl>             <dbl>
## 1 Colusa County        21547          62.7              88.8
## 2 Fresno County       999101          88.5               0
## 3 Kings County        152940          87.3               0
## 4 Lake County          64386          65.6              99.3
## 5 Mariposa County      17203           0                42.3
## 6 Placer County       398329          80.3              47.8
## 7 Tulare County       466195          82.2              46.6
```

Ratio of Unsentenced to Sentenced

Next, we visualize change in ratio of unsentenced to sentenced jail populations.





We analyze whether realignment had a lasting impact on the ratio of unsentenced to sentenced jail populations.

```
## # A tibble: 3 x 4
##    year   q25 median    q75
## * <dbl> <dbl>  <dbl>  <dbl>
## 1  2012 -1.05 -0.236 0.0988
## 2  2014 -1.15 -0.531 0.142
## 3  2016 -1.00 -0.259 0.405
```

Eight counties were below the 25th quartile of percent change in population for all analyzed years after realignment. Note that Contra Costa County experienced a decrease in both population and ratio after realignment, while Fresno County experienced an increase in population and a decrease in ratio after realignment. Also, note that half of these counties have a prison in the county, which may have driven such a decrease in the ratio of unsentenced to sentenced jail populations.

```
## # A tibble: 8 x 5
## # Groups:   county [8]
##   county              `2011_ratio` `2012_ratio` `2014_ratio` `2016_ratio`
##   <chr>                      <dbl>        <dbl>        <dbl>        <dbl>
## 1 Contra Costa County         5.55         2.31         3.60         2.58
## 2 Fresno County               7.60         2.29         2.43         2.22
## 3 Kern County                 4.42         2.67         1.75         1.68
## 4 Marin County                4.98         3.40         3.39         3.46
## 5 Riverside County            3.63         2.03         2.48         1.70
## 6 Shasta County               5.57         2.95         2.69         3.19
## 7 Sutter County               5.48         4.39         4.10         2.26
## 8 Yuba County                 7.53         4.05         6.16         4.75
```

```
## # A tibble: 8 x 4
## # Groups:   county [8]
##   county              population percent_urban proximity_to_prison
##   <chr>                    <dbl>         <dbl>               <dbl>
## 1 Contra Costa County    1153526          99.2                40.1
## 2 Fresno County           999101          88.5                 0
## 3 Kern County             900202          87.5                 0
## 4 Marin County            258826          91.5                 0
## 5 Riverside County       2470546          94.3                 0
## 6 Shasta County           180080          69                 116
## 7 Sutter County            96971          84.1                49.7
## 8 Yuba County              78668          69.3                60.8
```

Seven counties were above the 75th quartile of percent change in population for all analyzed years after realignment. Note that Placer County experienced an increase in both population ratio after realignment, while San Francisco County and Santa Cruz County experienced a decrease in population and an increase in ratio.

```
## # A tibble: 7 x 5
## # Groups:   county [7]
##   county               `2011_ratio` `2012_ratio` `2014_ratio` `2016_ratio`
##   <chr>                       <dbl>        <dbl>        <dbl>        <dbl>
## 1 Madera County               1.90          2.33         7.32         3.52
## 2 Merced County               2.46          4.02         4.14        24.2
## 3 Napa County                 1.72          1.98         2.84         2.41
## 4 Nevada County               1.03          1.24         5.94         2.66
## 5 Placer County               1.64          1.87         1.87         2.07
## 6 San Francisco County        4.62          5.51         5.74         5.65
## 7 Santa Cruz County           0.898         1.55         2.53         2.23
```

```
## # A tibble: 7 x 4
## # Groups:   county [7]
##   county               population percent_urban proximity_to_prison
##   <chr>                     <dbl>         <dbl>               <dbl>
## 1 Madera County            157327          60.7                 0
## 2 Merced County            277680          84.8                35
## 3 Napa County              137744          82.5                33.6
## 4 Nevada County             99755          53.6                43.8
## 5 Placer County            398329          80.3                47.8
## 6 San Francisco County     881549         100                  18
## 7 Santa Cruz County        273213          86.2                61.4
```

Length of Stay

Next, we analyze average length of stay statewide over time. California started collecting length of stay data after 2001. The county-level quarterly data contains this variable, but there is a lot of missingness. This unreliable reporting shows a need for standards in jail data collection. Otherwise, data that would be useful to stakeholders, as well as hold those who operate jails accountable, will not be publicly available.

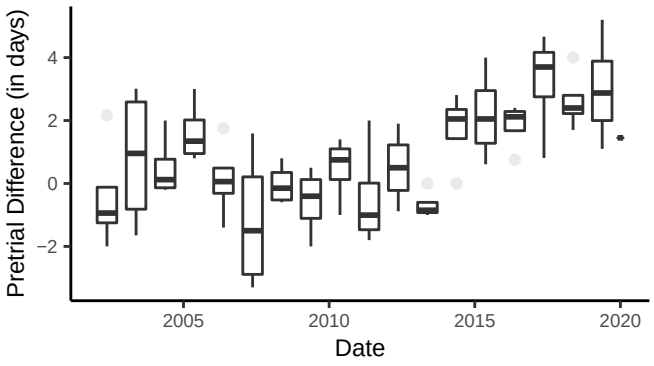
24 counties have less than 25% missingness for length of stay data.

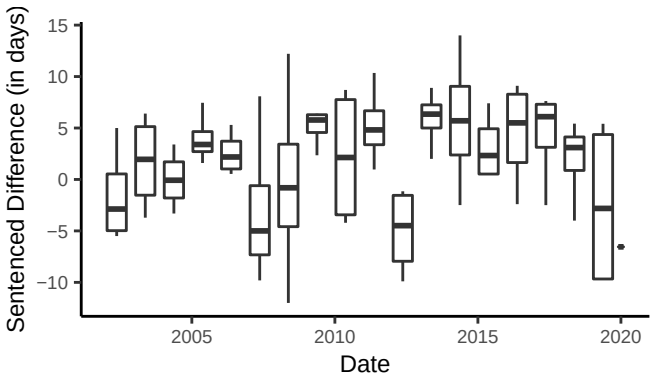
```
##   percent_missing number_of_counties
```

```
## 1       0% to 25%                24
## 2      25% to 50%                 5
## 3      50% to 75%                10
## 4     75% to 100%                 8
```

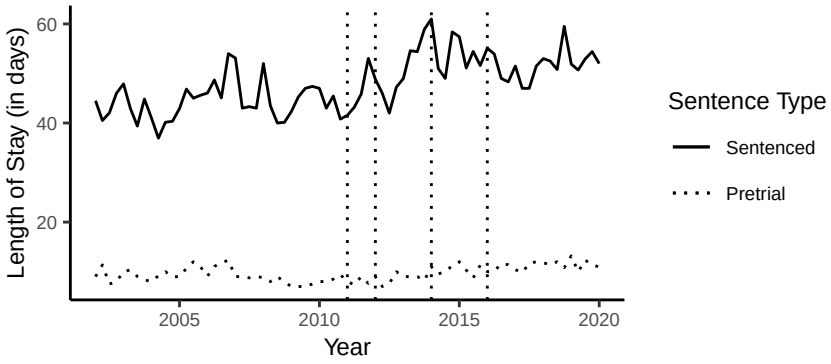
```
##  [1] "Amador County"        "Colusa County"        "Del Norte County"
##  [4] "El Dorado County"     "Fresno County"        "Glenn County"
##  [7] "Humboldt County"      "Los Angeles County"   "Madera County"
## [10] "Marin County"         "Mariposa County"      "Orange County"
## [13] "Plumas County"        "San Benito County"    "San Joaquin County"
## [16] "San Mateo County"     "Santa Barbara County" "Santa Clara County"
## [19] "Siskiyou County"      "Sonoma County"        "Stanislaus County"
## [22] "Trinity County"       "Tulare County"
```

Now, we identify differences between filtered and unfiltered lengths of stay.





Now, we visualize median average quarterly lengths of stay.

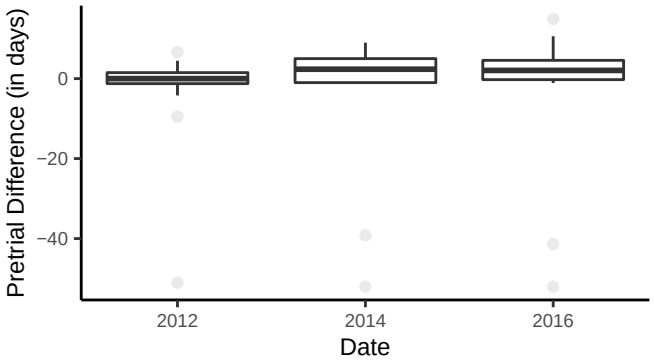


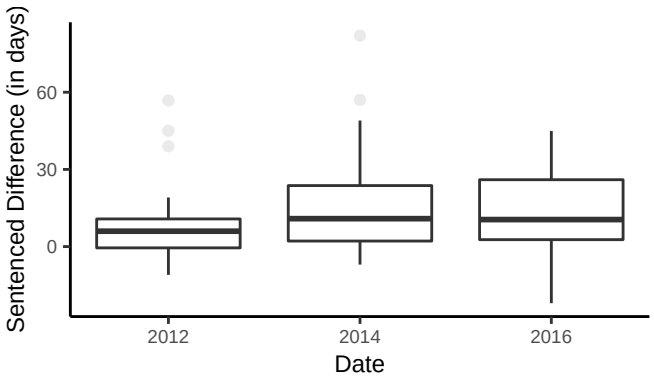
Now, for the 20 counties which have observations for all analyzed years after realignment, we analyze whether the policy had a lasting impact on lengths of stay in jails.

```
##  [1] "Amador County"        "Colusa County"        "El Dorado County"
##  [4] "Fresno County"        "Humboldt County"      "Los Angeles County"
##  [7] "Madera County"        "Marin County"         "Mariposa County"
## [10] "Orange County"        "Plumas County"        "San Benito County"
## [13] "San Joaquin County"   "Santa Barbara County" "Santa Clara County"
## [16] "Siskiyou County"      "Sonoma County"        "Stanislaus County"
## [19] "Trinity County"       "Tulare County"
```

```
## # A tibble: 3 x 7
##    year pre_q25 pre_median pre_q75 sen_q25 sen_median sen_q75
## * <dbl>   <dbl>      <dbl>   <dbl>   <dbl>      <dbl>   <dbl>
## 1  2012   -1.25       0       1.5   -0.500       5.98    10.8
## 2  2014   -1          2.35    5      2.16       10.8     23.7
## 3  2016   -0.25       2.06    4.58   2.7        10.5     26.0
```

We visualize the difference between lengths of stay after realignment.





Two counties were below the 25th percentile of pretrial length of stay for all analyzed years after realignment.

```
## # A tibble: 2 x 5
## # Groups:   county [2]
##   county             `2011_length` `2012_length` `2014_length` `2016_length`
##   <chr>                      <dbl>         <dbl>         <dbl>         <dbl>
## 1 Los Angeles County          46.4          36.9          7.24          5.04
## 2 San Joaquin County          59             8            7             7
```

```
## # A tibble: 2 x 4
## # Groups:   county [2]
##   county             population percent_urban proximity_to_prison
##   <chr>                   <dbl>         <dbl>               <dbl>
## 1 Los Angeles County   10039107          99.3                   0
## 2 San Joaquin County     762148          91.4                   0
```

No counties were above the 75th percentile of pretrial length of stay for all analyzed years after realignment.

Two counties were below the 25th percentile of sentenced length of stay for all analyzed years after realignment.

```
## # A tibble: 2 x 5
## # Groups:   county [2]
##   county          `2011_length` `2012_length` `2014_length` `2016_length`
##   <chr>                   <dbl>         <dbl>         <dbl>         <dbl>
## 1 Humboldt County          48.2            42          42.7            38
## 2 Siskiyou County          24              17          26              21
```

```
## # A tibble: 2 x 4
## # Groups:   county [2]
##   county          population percent_urban proximity_to_prison
##   <chr>                <dbl>         <dbl>               <dbl>
## 1 Humboldt County     135558          67                   105
## 2 Siskiyou County      43539          31.6                 160
```

Three counties were above the 75th percentile of pretrial length of stay for all analyzed years after realignment. Note that Madera County experienced an increase in ratio of unsentenced to sentenced and sentenced length of stay after realignment, which means that although its pretrial population increasingly outnumbered its sentenced population, its sentenced population was incarcerated for longer periods of time. Also note that San Joaquin County experienced an increase in both pretrial and sentenced length of stay after realignment.

```
## # A tibble: 3 x 5
## # Groups:   county [3]
##   county             `2011_length` `2012_length` `2014_length` `2016_length`
##   <chr>                      <dbl>         <dbl>         <dbl>         <dbl>
## 1 Amador County               12.6          69.4          55.7          57.5
## 2 Madera County               57            73           139            96
## 3 San Joaquin County          19            64            68            56
```

```
## # A tibble: 3 x 4
## # Groups:   county [3]
##   county             population percent_urban proximity_to_prison
##   <chr>                   <dbl>         <dbl>               <dbl>
## 1 Amador County           39752          29.3                   0
## 2 Madera County          157327          60.7                   0
## 3 San Joaquin County     762148          91.4                   0
```

Bibliography

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