

# Reproducible Research Project

Marquianna Griffin

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```
library(knitr)
opts_knit$set(root.dir = "~/Dropbox/Soc 8802 - Grad Interdisciplinary Specialization in Demography/Reproducible Research Project")
##[Display text](URL)
#[R Markdown cheat sheet] ##(https://www.rstudio.com/wp-content/uploads/2015/02/rmarkdown-cheatsheet.pdf)
```

## Illinois Criminal Justice Best Practices Act

```
##data located at link below
##https://www2.illinois.gov/idoc/reportsandstatistics/Pages/Prison-Population-Data-Sets.aspx

##rename 2017
stock_2017 <- read.csv("prison_dec_2017.csv")

##rename 2018
stock_2018 <- read.csv("prison_dec_2018.csv")

##summary statistics
summary(stock_2017)
```

```
##      IDOC      Name      Date_of_Birth
## A00147 :    1  JOHNSON, MICHAEL :    13  Min. : 1011941
## A00367 :    1  WILLIAMS, MICHAEL:    13  1st Qu.: 4041970
## A01054 :    1  BROWN, ANTHONY   :    11  Median : 7066975
## A01072 :    1  SMITH, MICHAEL   :    11  Mean   : 6744570
## A01077 :    1  WILLIAMS, JAMES  :    11  3rd Qu.:10011989
## A01148 :    1  JOHNSON, JAMES   :    10  Max.   :12311997
## (Other):41312 (Other)          :41249
##      Sex      Race      Veteran_Status
## Female: 2276  American Indian:    55  No :14234
## Male :39042  Asian           :   149  Unknown:26275
##      Bi-Racial      :    39  Yes : 809
##      Black          :23325
##      Hispanic       : 5311
##      Unknown        :   16
##      White          :12423
##      Current_Admission_Date      Admission_Type
## Min. : 1021991      Direct from Court      :17858
## 1st Qu.: 4252017      Discharged & Recommitted :15412
## Median : 7262017      Technical MSR Violator : 4230
## Mean : 7221398      MSR Violator, New Sentence: 2228
## 3rd Qu.:10172014      Return additional mittimus: 1214
## Max. :12312015      Transferred from juvenile : 195
##      (Other)          : 181
##      Parent_Institution Projected_MSR_Date3 Projected_Discharge_Date3
## Menard : 3110      Min. : 1012015      Min. : 0
## Stateville : 3006  1st Qu.: 3182027      1st Qu.: 3212057
```

```

## Dixon      : 2286      Median : 6182019      Median : 6282021
## Illinois River: 2196      Mean   :10333181      Mean   :15545445
## Pinckneyville : 2195      3rd Qu.: 9292019      3rd Qu.:10182024
## Lawrence     : 1923      Max.    :99999999      Max.    :99989999
## (Other)      :26602
## Custody_Date      Sentence_Date      Crime_Class
## Min.    : 1011983      Min.    : 1011977      Class 1    : 6192
## 1st Qu.: 4032016      1st Qu.: 4182011      Class 2    : 8102
## Median : 7022017      Median : 7182006      Class 3    : 3496
## Mean    : 6620368      Mean    : 7008063      Class 4    : 4003
## 3rd Qu.: 9241999      3rd Qu.:10102012      Class X    :12496
## Max.    :12312016      Max.    :12312015      Murder     : 6855
##                                     Unclassified: 174
##                                     Holding_Offense Sentence_Years
## MURDER/INTENT TO KILL/INJURE : 5584 3 : 3809
## PREDATORY CRIMINAL SEXUAL ASSAULT: 1425 6 : 3744
## BURGLARY : 1353 4 : 3339
## ARMED ROBBERY/NO FIREARM : 1324 2 : 2146
## POSS AMT CON SUB EXCEPT(A)/(D) : 1311 10 : 2143
## UUV-FELON POSS/USE FIREARM PRIOR : 1211 5 : 2016
## (Other) :29110 (Other):24121
## Sentence_Months      Truth_in_Sentencing Sentencing_County
## Min.    : 0.000      Day-for-Day :27149      Cook :19967
## 1st Qu.: 0.000      85% : 6832      Will : 1216
## Median : 0.000      100% : 4271      Winnebago: 1161
## Mean    : 1.423      85% Armed Habitual Criminal: 818      DuPage : 1137
## 3rd Qu.: 0.000      85% Agg Domestic Battery : 561      Lake : 1078
## Max.    :99.000      85% Agg Discharge Firearm : 450      Kane : 1070
## NA's :1757      (Other) : 1237      (Other) :15689
## X      X.1      X.2      X.3
## Mode:logical      Mode:logical      Mode:logical      Mode:logical
## NA's:41318      NA's:41318      NA's:41318      NA's:41318
##
##
##
##
##
##
## X.4
## Mode:logical
## NA's:41318
##
##
##
##

```

```
summary(stock_2018)
```

```

##      IDOC      Name      Date_of_Birth
## A00147 : 1 JOHNSON, MICHAEL : 13 27-Aug-1988: 12
## A01054 : 1 BROWN, ANTHONY : 12 02-Oct-1991: 11
## A01072 : 1 WILLIAMS, MICHAEL: 12 03-Aug-1988: 11
## A01077 : 1 JONES, ANTHONY : 11 05-May-1983: 11
## A01148 : 1 JOHNSON, JAMES : 10 14-May-1985: 11
## A01157 : 1 JONES, MICHAEL : 10 14-Nov-1990: 11

```

```

## (Other):39793 (Other) :39731 (Other) :39732
## Sex Race Veteran_Status
## Female: 2332 American Indian: 60 No :19138
## Male :37467 Asian : 145 Unknown:19751
## Bi-Racial : 62 Yes : 910
## Black :22044
## Hispanic : 5114
## Unknown : 43
## White :12331
## Current_Admission_Date3 Admission_Type
## 08-Nov-2018: 148 Direct from Court :17444
## 29-Nov-2018: 146 Discharged & Recommitted :14942
## 09-Nov-2018: 144 Technical MSR Violator : 4015
## 13-Dec-2018: 141 MSR Violator, New Sentence: 1989
## 27-Sep-2018: 127 Return additional mittimus: 1053
## 04-Oct-2018: 125 Transferred from juvenile : 164
## (Other) :38968 (Other) : 192
## Parent_Institution Projected_MSR_Date4 Projected_Discharge_Date4
## Stateville : 3016 : 1761 : 4426
## Menard : 2882 28-Feb-2019: 99 28-Feb-2020: 56
## Dixon : 2219 03-Jan-2019: 55 28-Feb-2021: 44
## Pinckneyville : 2206 28-Feb-2020: 49 28-Feb-2022: 41
## Illinois River: 2130 29-Jan-2019: 49 28-Feb-2023: 34
## Lawrence : 2029 07-Jan-2019: 48 14-Feb-2020: 30
## (Other) :25317 (Other) :37738 (Other) :35168
## Custody_Date Sentence_Date Crime_Class
## 28-Feb-2018: 63 05-Nov-2018: 85 Class 1 : 5871
## 28-Feb-2017: 52 12-Jul-2018: 83 Class 2 : 7639
## 04-Jun-2018: 41 30-Aug-2018: 83 Class 3 : 3549
## 10-Apr-2018: 40 29-Nov-2018: 77 Class 4 : 3532
## 17-Apr-2018: 37 25-Oct-2018: 76 Class X :12260
## 21-Jun-2017: 35 01-Nov-2018: 75 Murder : 6779
## (Other) :39531 (Other) :39320 Unclassified: 169
## Holding_Offense Sentence_Years
## MURDER/INTENT TO KILL/INJURE : 5496 3 : 3641
## PREDATORY CRIMINAL SEXUAL ASSAULT : 1341 6 : 3428
## U UW-FELON POSS/USE FIREARM PRIOR : 1251 4 : 3078
## ARMED ROBBERY/NO FIREARM : 1216 10 : 2066
## ATTEMPT MURDER/INTENT TO KILL/INJURE: 1206 2 : 2059
## BURGLARY : 1130 5 : 1968
## (Other) :28159 (Other):23559
## Sentence_Months Truth_in_Sentencing Sentencing_County
## Min. : 0.00 Day-for-Day :25419 Cook :18668
## 1st Qu.: 0.00 85% : 6922 Winnebago: 1179
## Median : 0.00 100% : 4399 Will : 1139
## Mean : 1.32 85% Armed Habitual Criminal: 795 Kane : 1093
## 3rd Qu.: 0.00 85% Agg Domestic Battery : 593 DuPage : 1046
## Max. :99.00 85% Agg Discharge Firearm : 472 Madison : 1018
## NA's :1762 (Other) : 1199 (Other) :15656
## X X.1 X.2 X.3
## Mode:logical Mode:logical Mode:logical Mode:logical
## NA's:39799 NA's:39799 NA's:39799 NA's:39799
##
##

```

```
##
##
##
##   X.4
## Mode:logical
## NA's:39799
##
##
##
##
##
##
##clean dates - 2017
library(lubridate)

##
## Attaching package: 'lubridate'

## The following object is masked from 'package:base':
##
##   date

##clean dates - 2017
stock_2017$Date_of_Birth <- mdy(stock_2017$Date_of_Birth)
stock_2017$Current_Admission_Date <- mdy(stock_2017$Current_Admission_Date)
stock_2017$Custody_Date <- mdy(stock_2017$Custody_Date)
stock_2017$Sentence_Date <- mdy(stock_2017$Sentence_Date)
stock_2017$Projected_MSR_Date3 <- mdy(stock_2017$Projected_MSR_Date3)

## Warning: 1826 failed to parse.
stock_2017$Projected_Discharge_Date3 <- mdy(stock_2017$Projected_Discharge_Date3)

## Warning: 4237 failed to parse.

##clean dates - 2018
stock_2018$Current_Admission_Date3 <- dmy(stock_2018$Current_Admission_Date3)
stock_2018$Date_of_Birth <- dmy(stock_2018$Date_of_Birth)
stock_2018$Projected_MSR_Date4 <- dmy(stock_2018$Projected_MSR_Date4)

## Warning: 1761 failed to parse.
stock_2018$Custody_Date <- dmy(stock_2018$Custody_Date)
stock_2018$Sentence_Date <- dmy(stock_2018$Sentence_Date)
stock_2018$Projected_Discharge_Date4 <- dmy(stock_2018$Projected_Discharge_Date4)

## Warning: 4426 failed to parse.

##change variable names
library(data.table)

##
## Attaching package: 'data.table'

## The following objects are masked from 'package:lubridate':
##
##   hour, isoweek, mday, minute, month, quarter, second, wday,
##   week, yday, year
```

```

setnames(stock_2017, "Projected_MSR_Date3", "Projected_MSR_Date")
setnames(stock_2017, "Projected_Discharge_Date3", "Projected_Discharge_Date")

setnames(stock_2018, "Current_Admission_Date3", "Current_Admission_Date")
setnames(stock_2018, "Projected_MSR_Date4", "Projected_MSR_Date")
setnames(stock_2018, "Projected_Discharge_Date4", "Projected_Discharge_Date")

##head for all data
head(stock_2017)

```

```

##      IDOC      Name Date_of_Birth Sex Race Veteran_Status
## 1 A01157  LANGFORD, ROBERT   1945-01-18 Male Black          No
## 2 A01806   GREEN, TYREED    1951-01-27 Male Black        Unknown
## 3 A02133   HOWARD, CHARLES   1951-03-12 Male Black          No
## 4 A50321  ROBERTS, CLARENCE  1950-09-08 Male Black          No
## 5 A81457    JONES, JERRY     1952-12-05 Male White         No
## 6 A81630   JONES, MARSHALL   1959-10-18 Male White         No
##      Current_Admission_Date      Admission_Type Parent_Institution
## 1              2000-09-15 Admit from other custody      Pontiac
## 2              1996-08-20 Admit from other custody      Stateville
## 3              2006-03-02 Admit from other custody      Stateville
## 4              1992-04-10 Admit from other custody      Stateville
## 5              1993-04-23 Admit from other custody      Hill
## 6              1991-12-13 Admit from other custody      Hill
##      Projected_MSR_Date Projected_Discharge_Date Custody_Date Sentence_Date
## 1              <NA>              <NA>      1987-06-04      1990-01-08
## 2              <NA>              <NA>      1984-06-27      1985-10-04
## 3              <NA>              <NA>      1996-02-26      1996-02-27
## 4              <NA>              <NA>      1989-07-24      1992-04-08
## 5              2030-12-04      2033-12-04      1990-12-04      1990-08-10
## 6              2027-02-22      2030-02-22      1989-08-22      1990-08-10
##      Crime_Class      Holding_Offense Sentence_Years Sentence_Months
## 1      Murder MURDER/INTENT TO KILL/INJURE      LIFE      NA
## 2      Class X      ARMED ROBBERY      LIFE      NA
## 3      Class X      ARMED ROBBERY      LIFE      NA
## 4      Murder MURDER/INTENT TO KILL/INJURE      LIFE      NA
## 5      Murder MURDER/INTENT TO KILL/INJURE      80      0
## 6      Murder MURDER/INTENT TO KILL/INJURE      75      0
##      Truth_in_Sentencing Sentencing_County X X.1 X.2 X.3 X.4
## 1      Day-for-Day      Cook NA NA NA NA NA
## 2      Day-for-Day      Cook NA NA NA NA NA
## 3      Day-for-Day      McLean NA NA NA NA NA
## 4      Day-for-Day      Cook NA NA NA NA NA
## 5      Day-for-Day      Cook NA NA NA NA NA
## 6      Day-for-Day      Cook NA NA NA NA NA

```

```
head(stock_2018)
```

```

##      IDOC      Name Date_of_Birth Sex Race Veteran_Status
## 1 A01157  LANGFORD, ROBERT   1945-01-18 Male Black          No
## 2 A01806   GREEN, TYREED    1951-01-27 Male Black        Unknown
## 3 A02133   HOWARD, CHARLES   1951-03-12 Male Black          No
## 4 A50321  ROBERTS, CLARENCE  1950-09-08 Male Black          No

```

```

## 5 A81457      JONES, JERRY      1952-12-05 Male White      No
## 6 A81630      JONES, MARSHALL    1959-10-18 Male White      No
##   Current_Admission_Date      Admission_Type Parent_Institution
## 1           2000-09-15 Admit from other custody      Stateville
## 2           1996-08-20 Admit from other custody      Stateville
## 3           2006-03-02 Admit from other custody      Stateville
## 4           1992-04-10 Admit from other custody      Stateville
## 5           1993-04-23 Admit from other custody      Danville
## 6           1991-12-13 Admit from other custody      Danville
##   Projected_MSR_Date Projected_Discharge_Date Custody_Date Sentence_Date
## 1           <NA>           <NA>      1987-06-04      1990-01-08
## 2           <NA>           <NA>      1984-06-27      1985-10-04
## 3           <NA>           <NA>      1996-02-26      1996-02-27
## 4           <NA>           <NA>      1989-07-24      1992-04-08
## 5           2030-10-20      2033-10-20      1990-12-04      1990-08-10
## 6           2027-02-22      2030-02-22      1989-08-22      1990-08-10
##   Crime_Class      Holding_Offense Sentence_Years Sentence_Months
## 1      Murder MURDER/INTENT TO KILL/INJURE      LIFE      NA
## 2      Class X      ARMED ROBBERY      LIFE      NA
## 3      Class X      ARMED ROBBERY      LIFE      NA
## 4      Murder MURDER/INTENT TO KILL/INJURE      LIFE      NA
## 5      Murder MURDER/INTENT TO KILL/INJURE      80      0
## 6      Murder MURDER/INTENT TO KILL/INJURE      75      0
##   Truth_in_Sentencing Sentencing_County X X.1 X.2 X.3 X.4
## 1      Day-for-Day      Cook NA NA NA NA NA
## 2      Day-for-Day      Cook NA NA NA NA NA
## 3      Day-for-Day      McLean NA NA NA NA NA
## 4      Day-for-Day      Cook NA NA NA NA NA
## 5      Day-for-Day      Cook NA NA NA NA NA
## 6      Day-for-Day      Cook NA NA NA NA NA

```

```

##create table - 2017
table(stock_2017$Admission_Type)

```

```

##
##      Admit from other custody Conditional Release Violator
##              88              12
##      Direct from Court      Discharged & Recommitted
##      17858              15412
##      MSR Violator, New Sentence      Not in IDOC custody
##      2228              3
##      Parole Violator, New Sentence      Return additional mittimus
##      63              1214
##      Return to Custody      Technical MSR Violator
##      2              4230
##      Technical parole violator      Transferred from juvenile
##      13              195

```

```

prop.table(table(stock_2017$Admission_Type))

```

```

##
##      Admit from other custody Conditional Release Violator
##      2.129822e-03      2.904303e-04
##      Direct from Court      Discharged & Recommitted
##      4.322087e-01      3.730093e-01

```

```
##      MSR Violator, New Sentence      Not in IDOC custody
##      5.392323e-02      7.260758e-05
## Parole Violator, New Sentence      Return additional mittimus
##      1.524759e-03      2.938187e-02
##      Return to Custody      Technical MSR Violator
##      4.840505e-05      1.023767e-01
##      Technical parole violator      Transferred from juvenile
##      3.146328e-04      4.719493e-03
```

```
##admission table - n, % - 2017
library(janitor)
```

```
##
## Attaching package: 'janitor'
## The following objects are masked from 'package:stats':
##
##      chisq.test, fisher.test
```

```
tabyl(stock_2017$Admission_Type, sort=TRUE)
```

```
##      stock_2017$Admission_Type      n      percent
##      Admit from other custody      88 2.129822e-03
##      Conditional Release Violator      12 2.904303e-04
##      Direct from Court 17858 4.322087e-01
##      Discharged & Recommitted 15412 3.730093e-01
##      MSR Violator, New Sentence      2228 5.392323e-02
##      Not in IDOC custody      3 7.260758e-05
##      Parole Violator, New Sentence      63 1.524759e-03
##      Return additional mittimus      1214 2.938187e-02
##      Return to Custody      2 4.840505e-05
##      Technical MSR Violator      4230 1.023767e-01
##      Technical parole violator      13 3.146328e-04
##      Transferred from juvenile      195 4.719493e-03
```

```
##admission table - n, %, cum % - 2017
library(epiDisplay)
```

```
## Loading required package: foreign
## Loading required package: survival
## Loading required package: MASS
## Loading required package: nnet
```

```
tab1(stock_2017$Admission_Type, sort.group = "increasing", cum.percent = TRUE)
```

```
## stock_2017$Admission_Type :
##
##      Frequency Percent Cum. percent
## Return to Custody      2      0.0      0.0
## Not in IDOC custody      3      0.0      0.0
## Conditional Release Violator      12      0.0      0.0
## Technical parole violator      13      0.0      0.1
## Parole Violator, New Sentence      63      0.2      0.2
## Admit from other custody      88      0.2      0.4
## Transferred from juvenile      195      0.5      0.9
## Return additional mittimus      1214      2.9      3.8
## MSR Violator, New Sentence      2228      5.4      9.2
```

```
## Technical MSR Violator      4230    10.2    19.5
## Discharged & Recommitted    15412   37.3    56.8
## Direct from Court           17858   43.2   100.0
## Total                       41318  100.0   100.0
```

```
##print table to latex - 2017
library(stargazer)
```

```
##
```

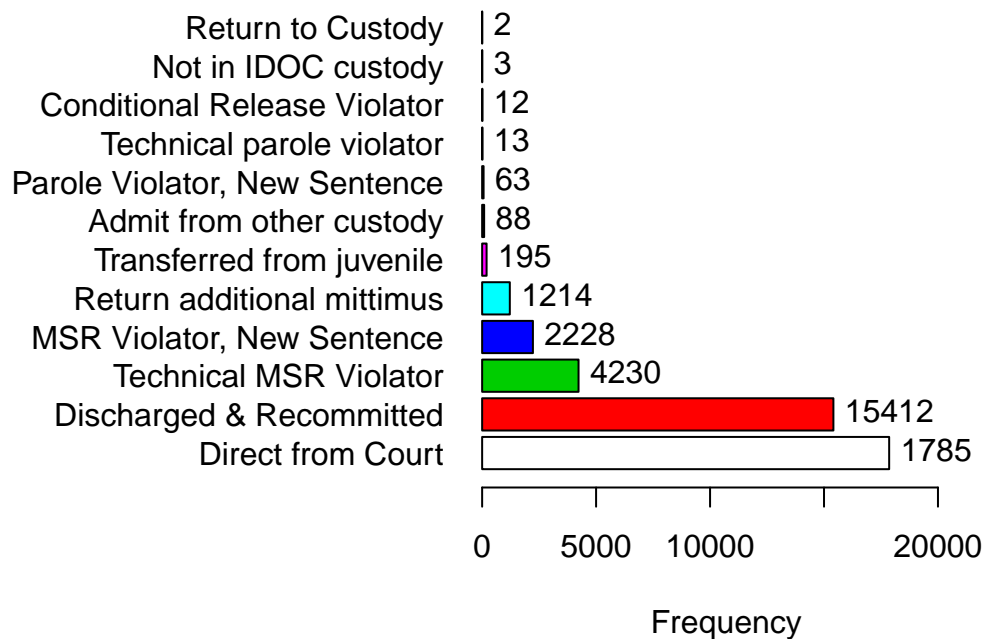
```
## Please cite as:
```

```
## Hlavac, Marek (2018). stargazer: Well-Formatted Regression and Summary Statistics Tables.
```

```
## R package version 5.2.2. https://CRAN.R-project.org/package=stargazer
```

```
tabadm2017 <- tab1(stock_2017$Admission_Type, sort.group = "increasing", cum.percent = TRUE)
```

### Distribution of stock\_2017\$Admission\_Ty



```
str(tabadm2017$output.table)
```

```
## num [1:13, 1:3] 2 3 12 13 63 ...
```

```
## - attr(*, "dimnames")=List of 2
```

```
## ..$ : chr [1:13] "Return to Custody" "Not in IDOC custody" "Conditional Release Violator" "Technical MSR Violator"
```

```
## ..$ : chr [1:3] "Frequency" "Percent" "Cum. percent"
```

```
stargazer(tabadm2017$output.table, type="latex", summary=FALSE, digits=1, title="2017 IDOC Admission Types")
```

```
##
```

```
## % Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu
```

```
## % Date and time: Tue, Dec 03, 2019 - 14:59:58
```

```
## \begin{table}[!htbp] \centering
```

```
## \caption{2017 IDOC Admission Types}
```

```
## \label{}
```

```
## \begin{tabular}{@{\extracolsep{5pt}} cccc}
```



```
## \[-1.8ex]\hline
## \hline \[-1.8ex]
## & Frequency & Percent & Cum. percent \\
## \hline \[-1.8ex]
## Return to Custody & $2$ & $0$ & $0$ \\
## Not in IDOC custody & $3$ & $0$ & $0$ \\
## Conditional Release Violator & $12$ & $0$ & $0$ \\
## Technical parole violator & $13$ & $0$ & $0.1$ \\
## Parole Violator, New Sentence & $63$ & $0.2$ & $0.2$ \\
## Admit from other custody & $88$ & $0.2$ & $0.4$ \\
## Transferred from juvenile & $195$ & $0.5$ & $0.9$ \\
## Return additional mittimus & $1,214$ & $2.9$ & $3.8$ \\
## MSR Violator, New Sentence & $2,228$ & $5.4$ & $9.2$ \\
## Technical MSR Violator & $4,230$ & $10.2$ & $19.5$ \\
## Discharged & Recommitted & $15,412$ & $37.3$ & $56.8$ \\
## Direct from Court & $17,858$ & $43.2$ & $100$ \\
## Total & $41,318$ & $100$ & $100$ \\
## \hline \[-1.8ex]
## \end{tabular}
## \end{table}
```

```
## create table - 2018
table(stock_2018$Admission_Type)
```

```
##
##      Admit from other custody  Conditional Release Violator
##                               96                          14
##      Direct from Court        Discharged & Recommitted
##                               17444                       14942
##      MSR Violator, New Sentence      Not in IDOC custody
##                               1989                         4
##      Parole violator, New sentence    Return additional mittimus
##                               59                          1053
##      Return to Custody             Technical MSR Violator
##                               4                           4015
##      Technical parole violator      Transferred from juvenile
##                               15                          164
```

```
prop.table(table(stock_2018$Admission_Type))
```

```
##
##      Admit from other custody  Conditional Release Violator
##                               0.0024121209                0.0003517676
##      Direct from Court        Discharged & Recommitted
##                               0.4383024699                0.3754365688
##      MSR Violator, New Sentence      Not in IDOC custody
##                               0.0499761301                0.0001005050
##      Parole violator, New sentence    Return additional mittimus
##                               0.0014824493                0.0264579512
##      Return to Custody             Technical MSR Violator
##                               0.0001005050                0.1008819317
##      Technical parole violator      Transferred from juvenile
##                               0.0003768939                0.0041207066
```

```
##admission table - n, %, cum % - 2018
tabyl(stock_2018$Admission_Type, sort=TRUE)
```

```
##      stock_2018$Admission_Type      n      percent
##      Admit from other custody      96 0.0024121209
##      Conditional Release Violator   14 0.0003517676
##      Direct from Court 17444 0.4383024699
##      Discharged & Recommitted 14942 0.3754365688
##      MSR Violator, New Sentence 1989 0.0499761301
##      Not in IDOC custody           4 0.0001005050
##      Parole violator, New sentence   59 0.0014824493
##      Return additional mittimus 1053 0.0264579512
##      Return to Custody              4 0.0001005050
##      Technical MSR Violator 4015 0.1008819317
##      Technical parole violator      15 0.0003768939
##      Transferred from juvenile     164 0.0041207066
```

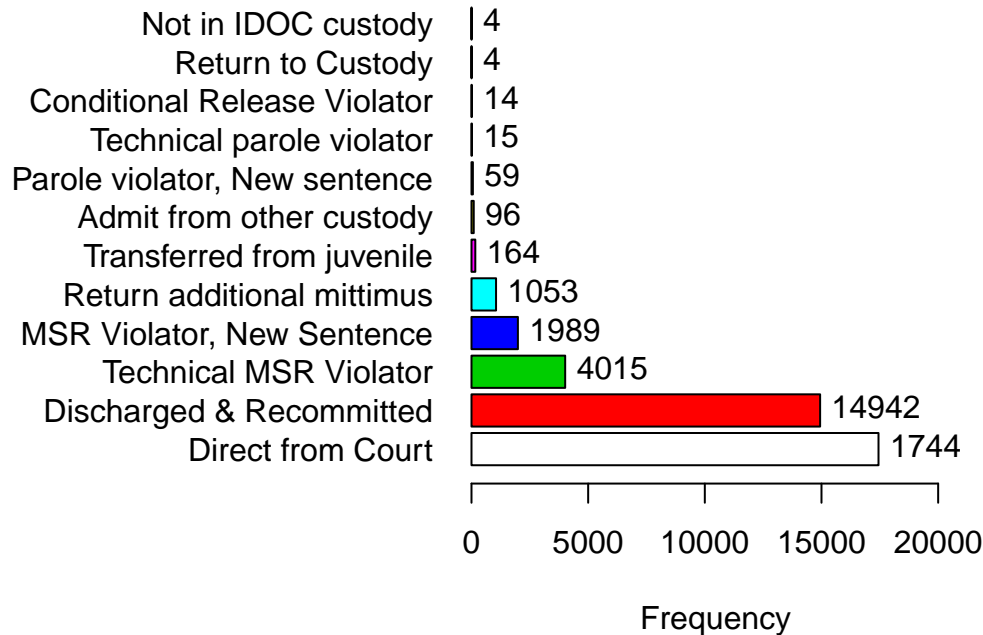
```
tab1(stock_2018$Admission_Type, sort.group = "increasing", cum.percent = TRUE)
```

```
## stock_2018$Admission_Type :
##                               Frequency Percent Cum. percent
## Not in IDOC custody           4         0.0         0.0
## Return to Custody             4         0.0         0.0
## Conditional Release Violator  14         0.0         0.1
## Technical parole violator     15         0.0         0.1
## Parole violator, New sentence  59         0.1         0.2
## Admit from other custody      96         0.2         0.5
## Transferred from juvenile    164         0.4         0.9
## Return additional mittimus  1053         2.6         3.5
## MSR Violator, New Sentence   1989         5.0         8.5
## Technical MSR Violator      4015        10.1        18.6
## Discharged & Recommitted    14942        37.5        56.2
## Direct from Court          17444        43.8       100.0
## Total                      39799       100.0       100.0
```

```
##print table to latex - 2018
```

```
tabadm2018 <- tab1(stock_2018$Admission_Type, sort.group = "increasing", cum.percent = TRUE)
```

## Distribution of stock\_2018\$Admission\_Ty



```
str(tabadm2018$output.table)
```

```
## num [1:13, 1:3] 4 4 14 15 59 ...
## - attr(*, "dimnames")=List of 2
## ..$ : chr [1:13] "Not in IDOC custody" "Return to Custody" "Conditional Release Violator" "Technical MSR Violator"
## ..$ : chr [1:3] "Frequency" "Percent" "Cum. percent"
```

```
stargazer(tabadm2018$output.table, type="latex", summary=FALSE, digits=1, title="2018 IDOC Admission Types")
```

```
##
## % Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu
## % Date and time: Tue, Dec 03, 2019 - 15:00:00
## \begin{table}[!htbp] \centering
## \caption{2018 IDOC Admission Types}
## \label{}
## \begin{tabular}{@{\extracolsep{5pt}} cccc}
## \hline
## \hline \hline
## & Frequency & Percent & Cum. percent & \\
## \hline \hline
## Not in IDOC custody & 4 & 0.0 & 0.0 & \\
## Return to Custody & 4 & 0.0 & 0.0 & \\
## Conditional Release Violator & 14 & 0.1 & 0.1 & \\
## Technical parole violator & 15 & 0.1 & 0.1 & \\
## Parole violator, New sentence & 59 & 0.1 & 0.2 & \\
## Admit from other custody & 96 & 0.2 & 0.5 & \\
## Transferred from juvenile & 164 & 0.4 & 0.9 & \\
## Return additional mittimus & 1,053 & 2.6 & 3.5 & \\
## MSR Violator, New Sentence & 1,989 & 5.0 & 8.5 & \\
## Technical MSR Violator & 4,015 & 10.1 & 18.6 & \\
## Discharged & Recommitted & 14,942 & 37.5 & 56.2 & \end{tabular}
```

```
## Direct from Court & $17,444$ & $43.8$ & $100$ \\
## Total & $39,799$ & $100$ & $100$ \\
## \hline \([-1.8ex]
```

```
##add column(s) - Year
stock_2017$Year <- 2017
stock_2018$Year <- 2018
```

```
##merge
all_prison <- rbind(stock_2017, stock_2018)
head(all_prison)
```

```
##      IDOC      Name Date_of_Birth Sex Race Veteran_Status
## 1 A01157  LANGFORD, ROBERT   1945-01-18 Male Black          No
## 2 A01806   GREEN, TYREED    1951-01-27 Male Black        Unknown
## 3 A02133  HOWARD, CHARLES   1951-03-12 Male Black          No
## 4 A50321 ROBERTS, CLARENCE  1950-09-08 Male Black          No
## 5 A81457    JONES, JERRY    1952-12-05 Male White         No
## 6 A81630   JONES, MARSHALL  1959-10-18 Male White         No
## Current_Admission_Date      Admission_Type Parent_Institution
## 1      2000-09-15 Admit from other custody      Pontiac
## 2      1996-08-20 Admit from other custody      Stateville
## 3      2006-03-02 Admit from other custody      Stateville
## 4      1992-04-10 Admit from other custody      Stateville
## 5      1993-04-23 Admit from other custody      Hill
## 6      1991-12-13 Admit from other custody      Hill
## Projected_MSR_Date Projected_Discharge_Date Custody_Date Sentence_Date
## 1      <NA>      <NA>      <NA>      1987-06-04      1990-01-08
## 2      <NA>      <NA>      <NA>      1984-06-27      1985-10-04
## 3      <NA>      <NA>      <NA>      1996-02-26      1996-02-27
## 4      <NA>      <NA>      <NA>      1989-07-24      1992-04-08
## 5      2030-12-04      2033-12-04      1990-12-04      1990-08-10
## 6      2027-02-22      2030-02-22      1989-08-22      1990-08-10
## Crime_Class      Holding_Offense Sentence_Years Sentence_Months
## 1      Murder MURDER/INTENT TO KILL/INJURE      LIFE      NA
## 2      Class X      ARMED ROBBERY      LIFE      NA
## 3      Class X      ARMED ROBBERY      LIFE      NA
## 4      Murder MURDER/INTENT TO KILL/INJURE      LIFE      NA
## 5      Murder MURDER/INTENT TO KILL/INJURE      80      0
## 6      Murder MURDER/INTENT TO KILL/INJURE      75      0
## Truth_in_Sentencing Sentencing_County X X.1 X.2 X.3 X.4 Year
## 1      Day-for-Day      Cook NA NA NA NA NA 2017
## 2      Day-for-Day      Cook NA NA NA NA NA 2017
## 3      Day-for-Day      McLean NA NA NA NA NA 2017
## 4      Day-for-Day      Cook NA NA NA NA NA 2017
## 5      Day-for-Day      Cook NA NA NA NA NA 2017
## 6      Day-for-Day      Cook NA NA NA NA NA 2017
```

```
tail(all_prison)
```

```
##      IDOC      Name Date_of_Birth Sex      Race
```

```

## 81112 Y30342      MONROE, ALFONZO      1998-08-03 Male      Black
## 81113 Y31391      HICKS, JAVAR C.      2000-06-28 Male      Black
## 81114 Y31392      RAY, BRANDON      2000-03-31 Male      Black
## 81115 Y32684      SPILLER, KEON E.      2000-06-30 Male      Black
## 81116 Y32685      BLAKES, NISSAN S.      2000-10-25 Male      Black
## 81117 Y33857 TAPIA, QUANTARIOUS A.      2000-07-14 Male      Hispanic
##      Veteran_Status Current_Admission_Date      Admission_Type
## 81112      No      2018-06-28 Transferred from juvenile
## 81113      No      2018-08-20 Transferred from juvenile
## 81114      No      2018-08-20 Transferred from juvenile
## 81115      No      2018-10-25 Transferred from juvenile
## 81116      No      2018-10-25 Transferred from juvenile
## 81117      No      2018-12-28 Transferred from juvenile
##      Parent_Institution Projected_MSR_Date Projected_Discharge_Date
## 81112      Hill      2019-07-12      2021-07-12
## 81113      Pinckneyville      2038-04-25      2041-04-25
## 81114      Pinckneyville      2027-04-15      2030-04-15
## 81115      Pinckneyville      2020-06-21      2023-06-21
## 81116      Menard      2038-11-25      2041-11-25
## 81117      Stateville      2021-09-19      2023-09-19
##      Custody_Date Sentence_Date Crime_Class      Holding_Offense
## 81112      2018-02-27      2018-06-13      Class 2      AGG BATTERY/PEACE OFFICER
## 81113      2016-11-30      2017-10-12      Class X AGG BATTERY/DISCHARGE FIREARM
## 81114      2016-03-17      2017-11-09      Class X AGG BATTERY/DISCHARGE FIREARM
## 81115      2016-10-24      2017-02-22      Class X ARMED ROBBERY/ARMED W/FIREARM
## 81116      2017-06-03      2018-03-21      Class X AGG BATTERY/DISCHARGE FIREARM
## 81117      2017-06-19      2018-04-13      Class 1 AGG DISCHARGE FIREARM/OCC VEH
##      Sentence_Years Sentence_Months      Truth_in_Sentencing
## 81112      3      0      Day-for-Day
## 81113      25      0      85%
## 81114      8      0      85%
## 81115      7      0      Day-for-Day
## 81116      25      0      85%
## 81117      5      0 85% Agg Discharge Firearm
##      Sentencing_County X X.1 X.2 X.3 X.4 Year
## 81112      Saline NA NA NA NA NA 2018
## 81113      St. Clair NA NA NA NA NA 2018
## 81114      St. Clair NA NA NA NA NA 2018
## 81115      McLean NA NA NA NA NA 2018
## 81116      Peoria NA NA NA NA NA 2018
## 81117      Rock Island NA NA NA NA NA 2018

```

```
##table
```

```

tbl_prison <-table(all_prison$Admission_Type, all_prison$Year)
tbl_prison2 <- prop.table(tbl_prison, 2)
tbl_prison2

```

```

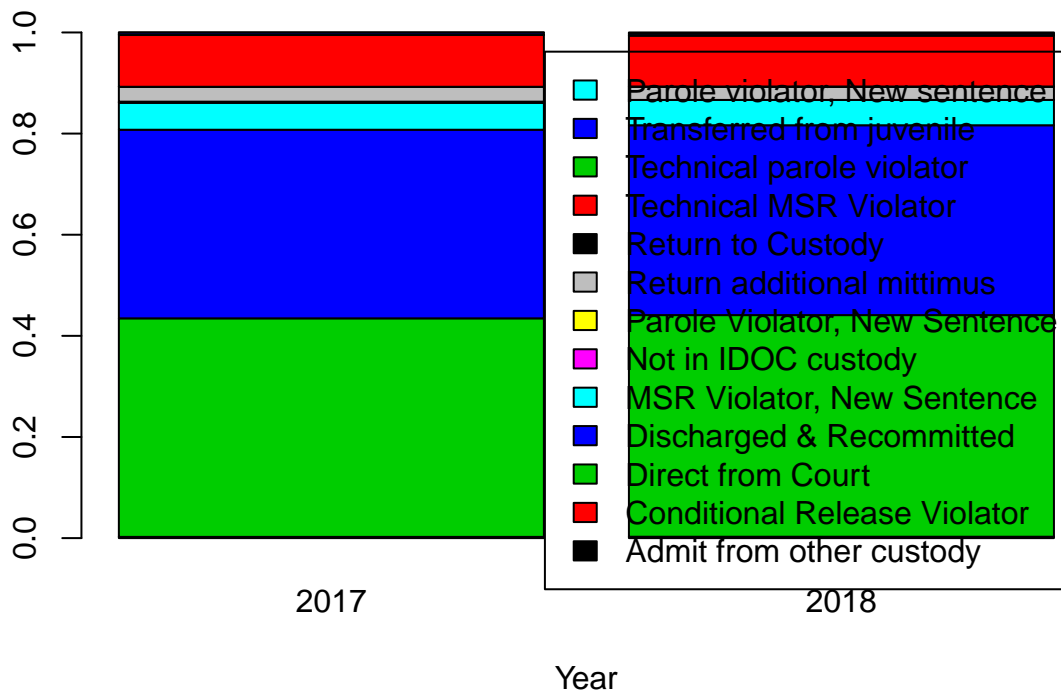
##
##      2017      2018
## Admit from other custody      2.129822e-03 2.412121e-03
## Conditional Release Violator      2.904303e-04 3.517676e-04
## Direct from Court      4.322087e-01 4.383025e-01
## Discharged & Recommitted      3.730093e-01 3.754366e-01
## MSR Violator, New Sentence      5.392323e-02 4.997613e-02
## Not in IDOC custody      7.260758e-05 1.005050e-04

```

```
## Parole Violator, New Sentence 1.524759e-03 0.000000e+00
## Return additional mittimus 2.938187e-02 2.645795e-02
## Return to Custody 4.840505e-05 1.005050e-04
## Technical MSR Violator 1.023767e-01 1.008819e-01
## Technical parole violator 3.146328e-04 3.768939e-04
## Transferred from juvenile 4.719493e-03 4.120707e-03
## Parole violator, New sentence 0.000000e+00 1.482449e-03
```

```
##create bar chart
```

```
#barplot(tbl_prison2)
##add color and label x-axis
#barplot(tbl_prison2, xlab="Year", col=1:17)
##add legend
barplot(tbl_prison2, legend=rownames(tbl_prison2), xlab="Year", col=1:17)
```



```
##convert table to data frame
```

```
all_prison_df<-as.data.frame.matrix(tbl_prison2)
all_prison_df$adm_type <-rownames(all_prison_df)
```

```
library(reshape2)
```

```
##
```

```
## Attaching package: 'reshape2'
```

```
## The following objects are masked from 'package:data.table':
```

```
##
```

```
## dcast, melt
```

```
all_prison_long <- melt(all_prison_df, id.vars=c("adm_type"), value.name = "proportion")
all_prison_long
```

```
## adm_type variable proportion
## 1 Admit from other custody 2017 2.129822e-03
```

```
## 2 Conditional Release Violator 2017 2.904303e-04
## 3 Direct from Court 2017 4.322087e-01
## 4 Discharged & Recommitted 2017 3.730093e-01
## 5 MSR Violator, New Sentence 2017 5.392323e-02
## 6 Not in IDOC custody 2017 7.260758e-05
## 7 Parole Violator, New Sentence 2017 1.524759e-03
## 8 Return additional mittimus 2017 2.938187e-02
## 9 Return to Custody 2017 4.840505e-05
## 10 Technical MSR Violator 2017 1.023767e-01
## 11 Technical parole violator 2017 3.146328e-04
## 12 Transferred from juvenile 2017 4.719493e-03
## 13 Parole violator, New sentence 2017 0.000000e+00
## 14 Admit from other custody 2018 2.412121e-03
## 15 Conditional Release Violator 2018 3.517676e-04
## 16 Direct from Court 2018 4.383025e-01
## 17 Discharged & Recommitted 2018 3.754366e-01
## 18 MSR Violator, New Sentence 2018 4.997613e-02
## 19 Not in IDOC custody 2018 1.005050e-04
## 20 Parole Violator, New Sentence 2018 0.000000e+00
## 21 Return additional mittimus 2018 2.645795e-02
## 22 Return to Custody 2018 1.005050e-04
## 23 Technical MSR Violator 2018 1.008819e-01
## 24 Technical parole violator 2018 3.768939e-04
## 25 Transferred from juvenile 2018 4.120707e-03
## 26 Parole violator, New sentence 2018 1.482449e-03
```

```
##rename "variable"
names(all_prison_long)[2] <- paste("year")
```

```
library(ggplot2)
```

```
##
## Attaching package: 'ggplot2'

## The following object is masked from 'package:epiDisplay':
##
## alpha
```

```
## add stacked barplot
graph <- ggplot(data = all_prison_long,
  aes(y = proportion, x = year, fill = adm_type)) +
  geom_bar(position = "stack", stat = "identity") +
  geom_text(aes(label = paste0(round(100*proportion, 1), "%")),
    position = position_stack(vjust = 0.5), size = 3)
graph
```

