CT Pretrial Detainees

Overview

Full code is in CT_EDA.ipynb.

("Days" and "counts" are two different ways of determining length of detention. Days is a mathematical calculation from the latest admission date, although CT acknowledges that those dates could be original entry into the CT system. Counts is a count of each row in which the detainee appears, which can also be inaccurate. Similarly, "ages" and "tens" are both used to show different age patterns, with tens calculated from floor of ages.)

Exploration

The purpose of this project is to examine whether "An Act Concerning Pretrial Justice Reform" impacted bond amounts for misdemeanor pretrial detainees in Connecticut. To that end, various factors are compared graphically. First, a look at the age distribution in the sample and its cumulative distribution function (CDF). Most detainees are under 60, with a median age of 34, and with a possible second peak in the late 40s.
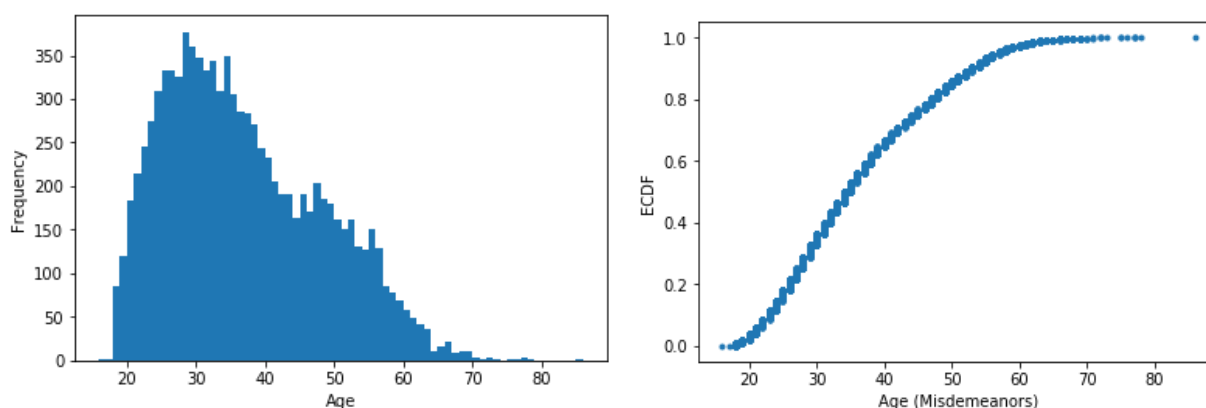
I compared ages to the days detained and to the bond amounts. (Days capped at 1,095.) Teenagers and over-70s appear to spend less time detained overall and have lower average bonds.
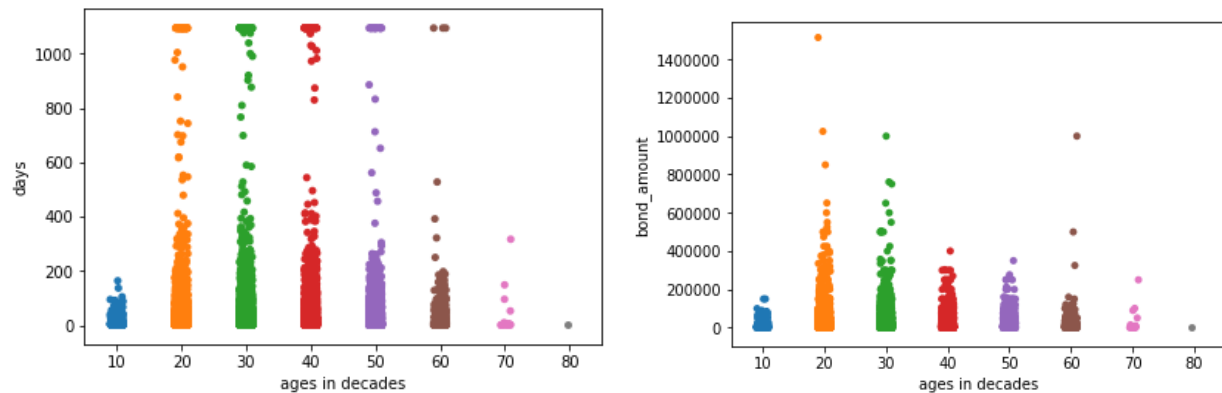
Next, I compared the full set of bond amounts and their CDF. The bond distribution is skewed by a few high bonds. The latter plots are the 93.6% of bonds that are $80,000 or less and their CDF.
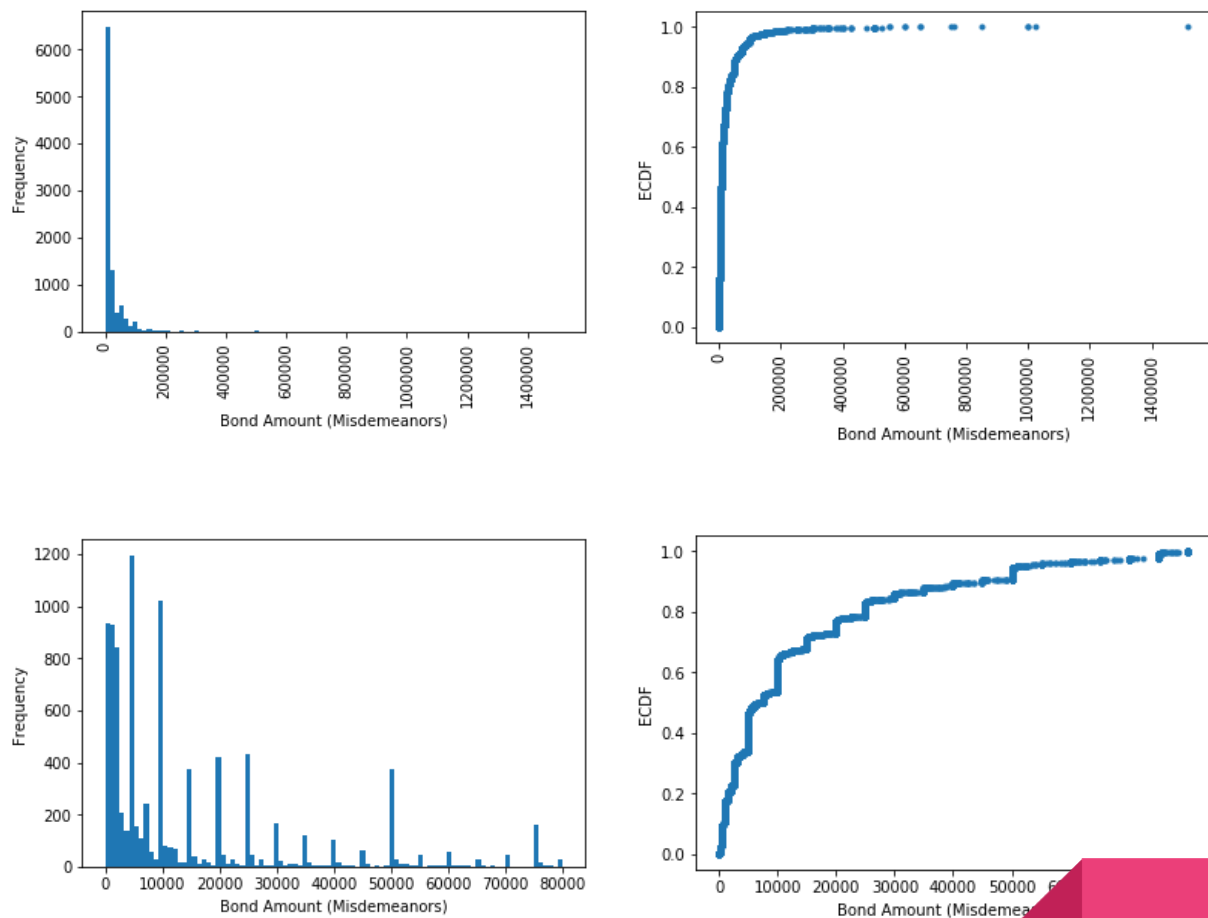
Now that I have seen how the bonds are distributed, I want to check distribution of charges.
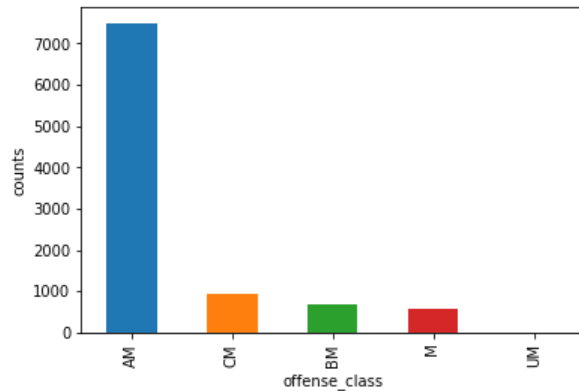

First is the counts of the misdemeanor charges. By far, the highest number of detentions are A-class, followed by C-class, B-class, no-class, and finally a single unclassed misdemeanor.

And here's how the offense classes compare to the bond amounts, full sample and sub-80k. A-class misdemeanors account for the higher bond amounts and appear to be more varied.
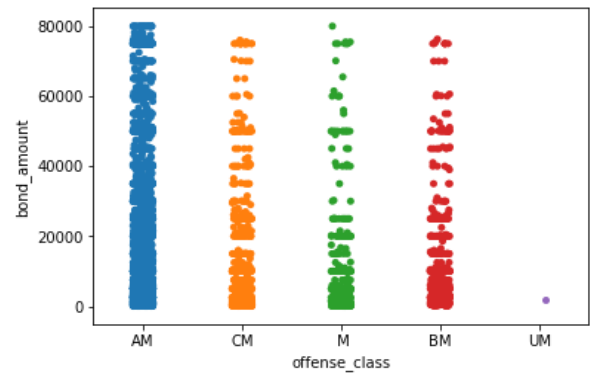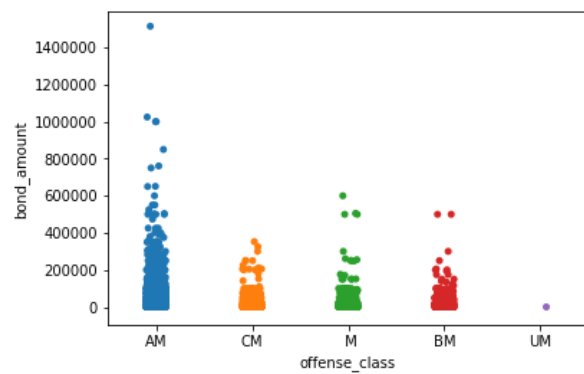

Is there anything to see in how long the detainee stays in detention or across ages? I'd assumed that higher offense classes would skew younger, but all offense classes seem evenly distributed by age.
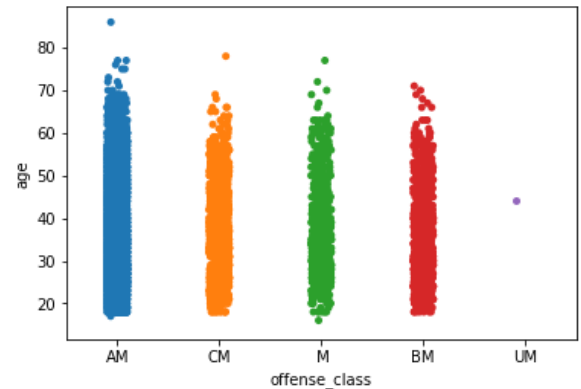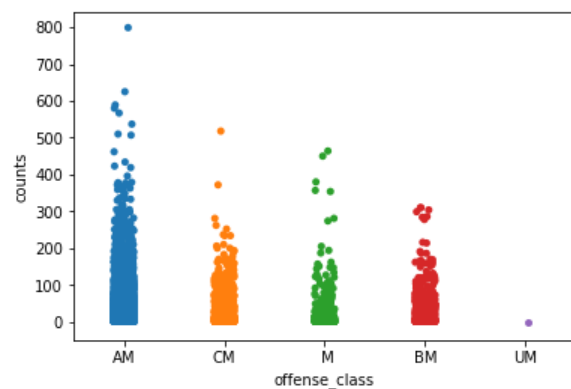
On to the next potential factor, gender. How are offenses distributed between the genders by age?
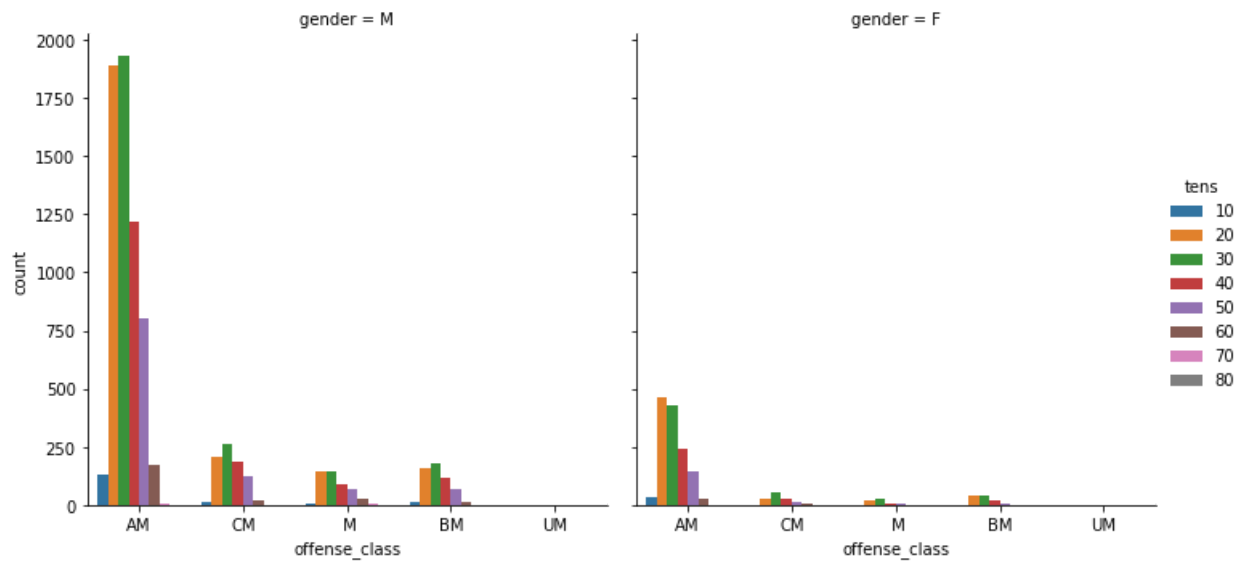
The plot above implies that there might be a different age skewing for the genders, but below is a plot of male and female detainees by age. The distributions are fairly similar. Next to it is a plot of the bail amounts by age, also separated by gender.
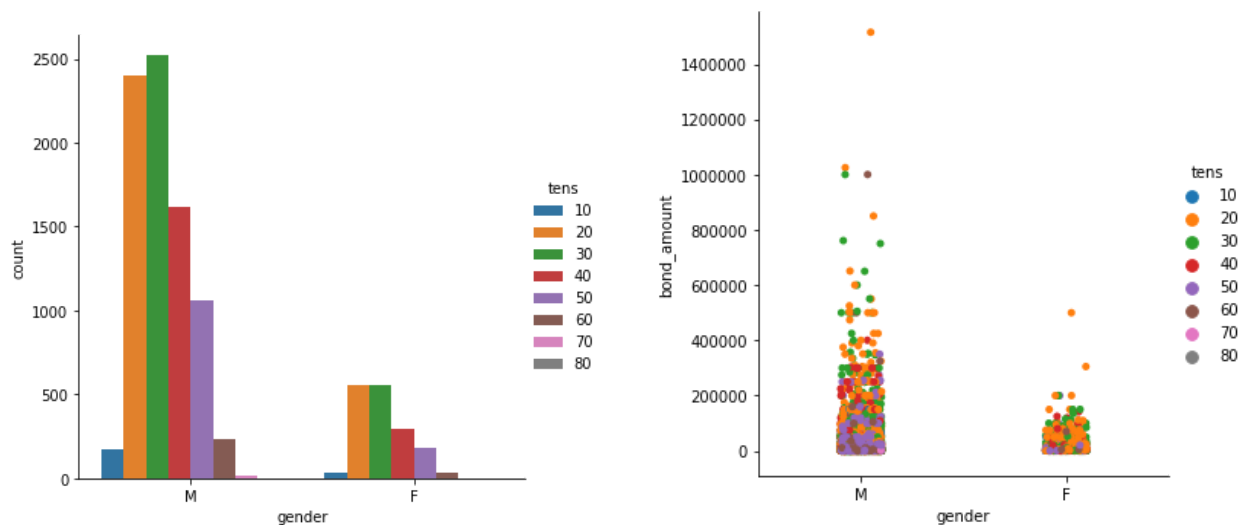
Conclusions

I've visually examined the ages, bond amounts, classes of offense, and gender individually and against each other. I've found that the median bond amount is $9,000, and nearly 94% of the misdemeanor bonds are below $80,000. I've also shown that most of the offenses are for A-class misdemeanors, and these charges tend to have the highest bond amounts and most days spent behind bars.

Further Investigations

Stars are used on both plots to mark 2017-07-01, the date the Act went into effect.

It appears that fewer detainees were in state facilities in the year directly after enactment of the bill, a potential sign that the bill had a positive impact. (See final note for more on this.)
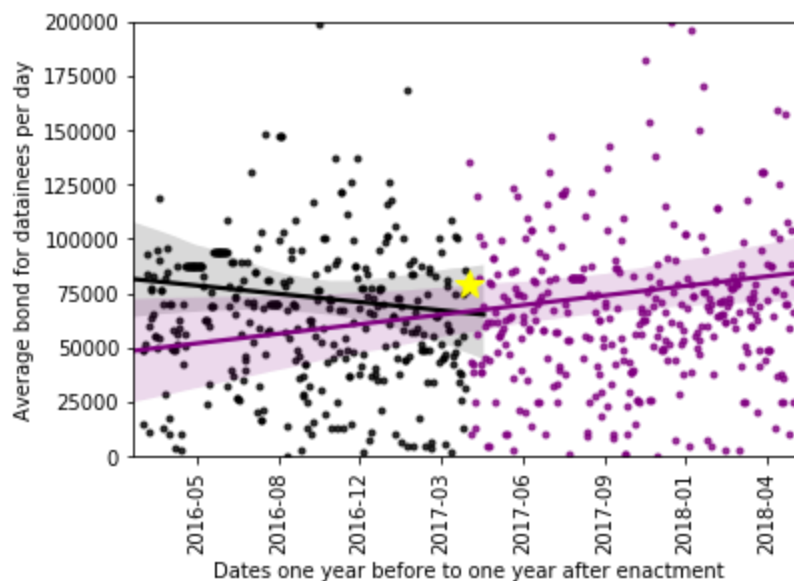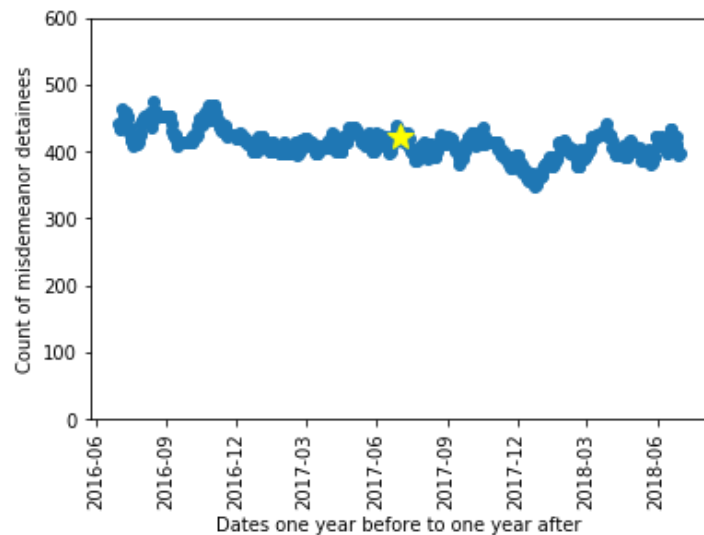
I can, however, see why advocates are concerned about the bill's possible negative impact. Average bond amounts appear to have been decreasing before the bill's enactment, but they seem to have a fairly steep rise since enactment. This will be further pursued in the next part of the analysis.

Final Note

In the interests of full disclosure -- I noticed an increase in the rate of misdemeanor detainees starting in 2018-07, marked below in green. This plot of the 2018 data will better show why I needed to defend leaving this time period out.
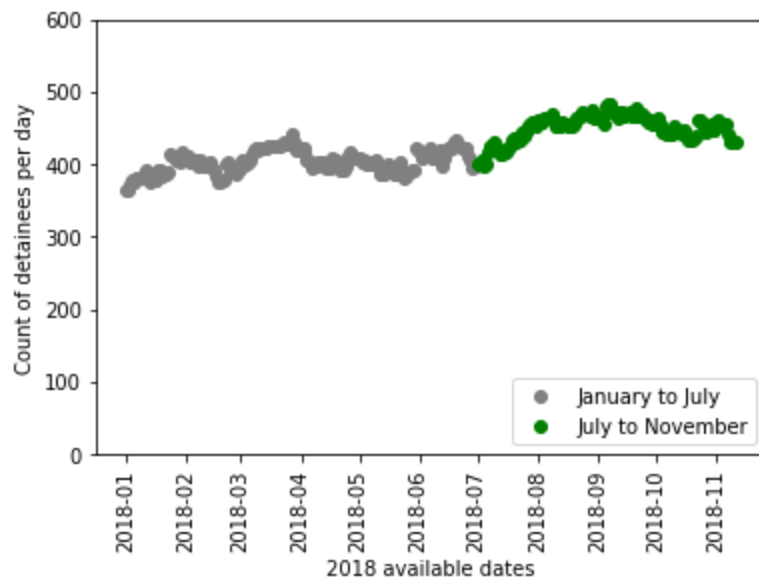
I've chosen to examine one year before to one year after the 2017-07-01 enactment date. The symmetry was chosen in part to more easily determine or identify seasonality. The original dataset contained a little over four additional months, 2018-07-01 through 2018-11-11.

I didn't have enough data to determine the significance of the increase, to establish its seasonality, or to see if it had ended. This phenomenon should be examined after adequate time has passed.