In NYC, More Robberies Happen Right When School Gets Out than Any Other Time
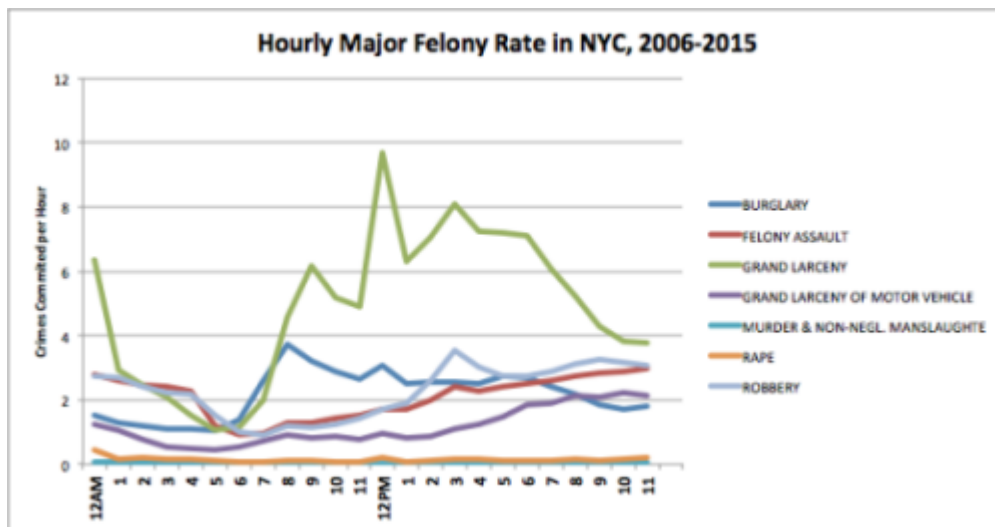
Ben Wellington : 7-8 minutes : 4/4/2016

In NYC, More Robberies Happen Right When School Gets Out than Any Other Time

As noted in my last post comparing NYC neighborhood murder rates to American cities, the City has finally released raw crime data for the first time in its history. But the more I look at data released by other cities, the more the data released by NYC seems simply inadequate. I have found over a dozen cities which release raw crime data, but NYC is the only city I have found that has filtered the crime data down to a subset of seven major crimes, (a subset which just so happens to paint the rosier picture for the Administration. Those numbers are down and not controversial.)

Though I continue to call for NYC to stop filtering most crime out of the data set, that won't stop me from finding value in what has already been released to date. And my question for today's post: **What times of day do major felonies happen?**
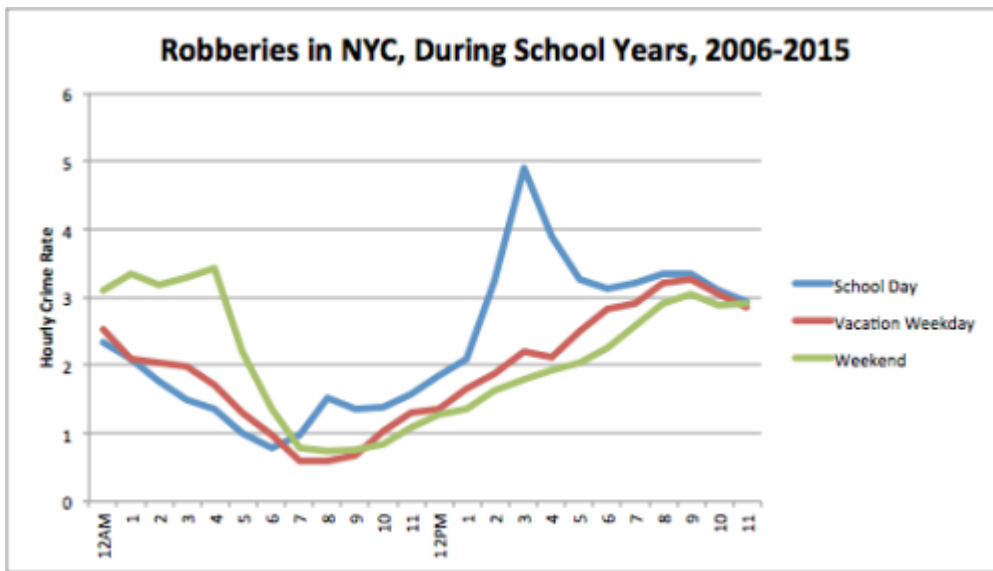
First, a look at the hourly crime rate for the Major Seven Felonies below:

It's no surprise that crime dies down at 5 or 6 AM, when most everyone is asleep. *(Note that 5AM on these charts indicate everything from 5:00-5:59AM)* But some other patterns stand out in the chart. First, there are some odd spikes in Grand Larceny (shown in green) at *noon* and *midnight*. I can't be sure, but I'd bet those are police officers entering in some sort of default times when victims are unsure exactly of the time of a crime. But two other spikes caught my eye - one at 8AM and one at 3PM. The 8AM one is most seen in the dark blue Burglary line, but you can see traces of it in other crimes. The 3PM spike is most pronounced in the light blue Robbery line, but once again traces show up in other crimes. *(Note that Robbery involves force, while Burglary involves breaking and entering.)*
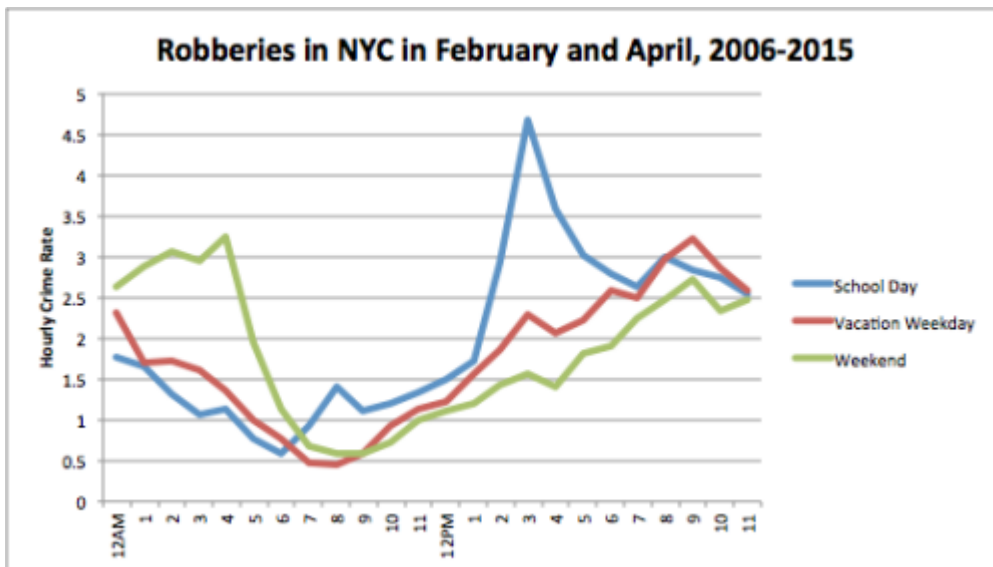
Now what do 8AM and 3PM have in common? They are more or less the bookends of the school day in most NYC high schools. So that had me wondering something… Could the end of the school day really lead to a noticeable spike in crime?

To find out, I looked at only crime that happened during the school year (after the first day of school but before the last), and split crimes into three buckets- *School Days*, *Vacation Weekdays* and *Weekends*. If my theory about school days was correct, then we should not see any spike in these crimes on *Vacation Weekdays* or *Weekends* at 3PM, but we should see a spike on *School Days*. Let's first use *Robberies* as an example, since it had the largest 3PM spike:

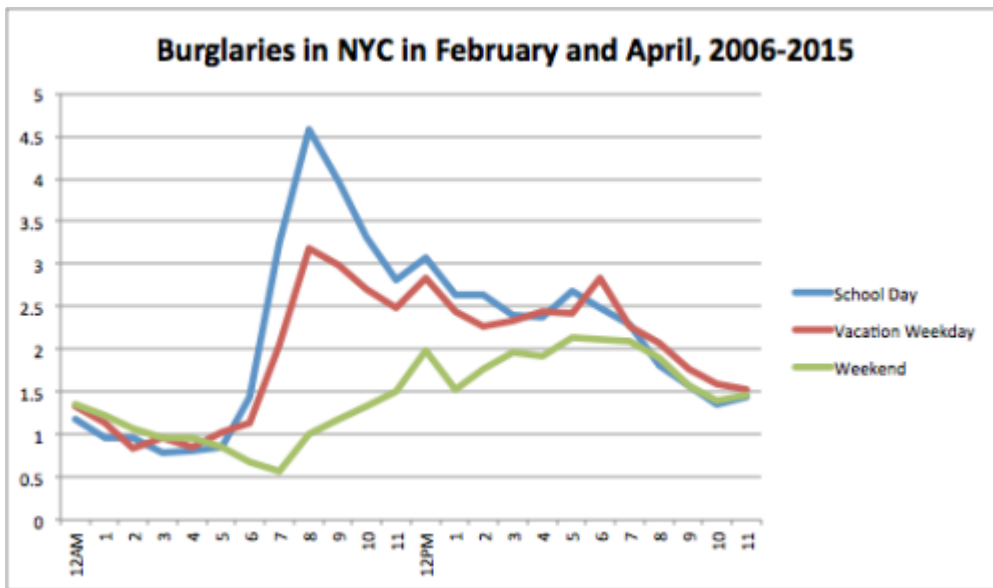Robberies in NYC, During School Years, 2006-2015

This chart said a lot to me. The 3PM spike (and the smaller 8AM spike) appear on *School Days*, but don't appear on *Weekends* or on *Weekdays* when school is out on vacation.

Vacation days only happen a few weeks a year, so to double check my numbers, and remove any seasonal issues that may arise from the fact that vacations are more frequent towards the end of the school year , I reran the analysis only looking at crimes in *February* or *April*, two months with week-long school vacations. That's a bit more of an apples to apples comparison.

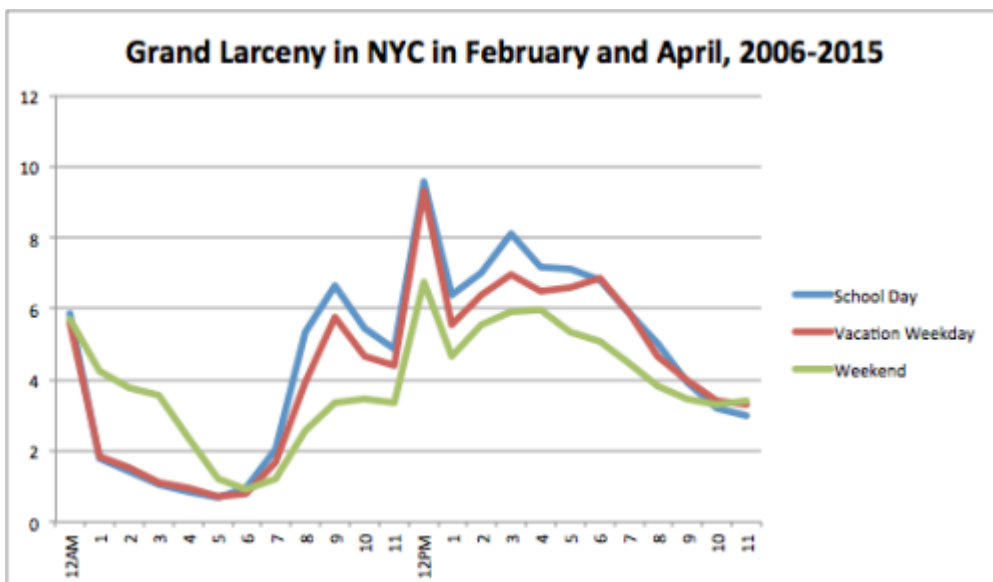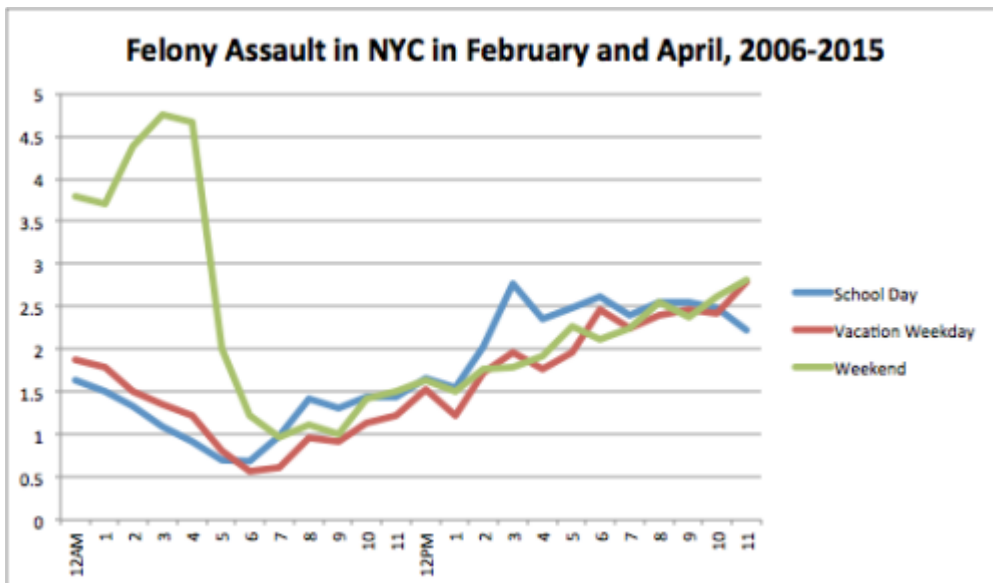Robberies in NYC in February and April, 2006-2015

Once again, the hypothesis that crime increases after school gets out seems to be true. A spikes appears centered at 3PM and a smaller one appears at 8AM. **Strikingly there are two times more robberies between 3 and 4PM on school weekdays than non-school weekdays in February and April.**
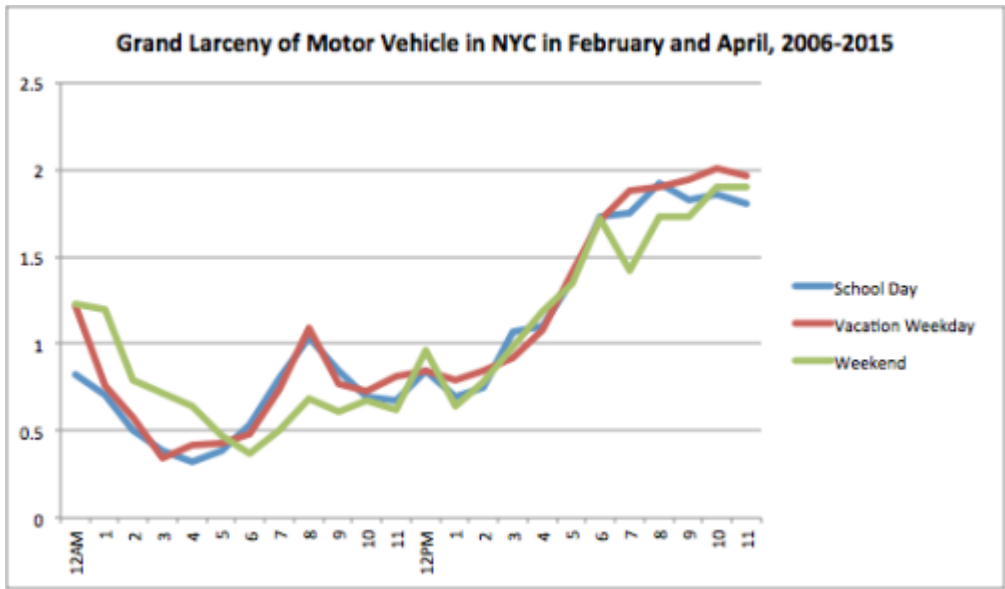
Burglaries, on the other hand, see a morning spike on school days. They seem to be about 50% higher between 8AM and 9AM on school day mornings than non-school day weekdays:

Burglaries in NYC in February and April, 2006-2015

Felony assault and Grand Larceny also seem to be a bit higher between 6AM and 5PM on school days compared to vacation days, though the increase is much more slight. Both of these also spike at the wee hours of weekends.

Felony Assault in NYC in February and April, 2006-2015

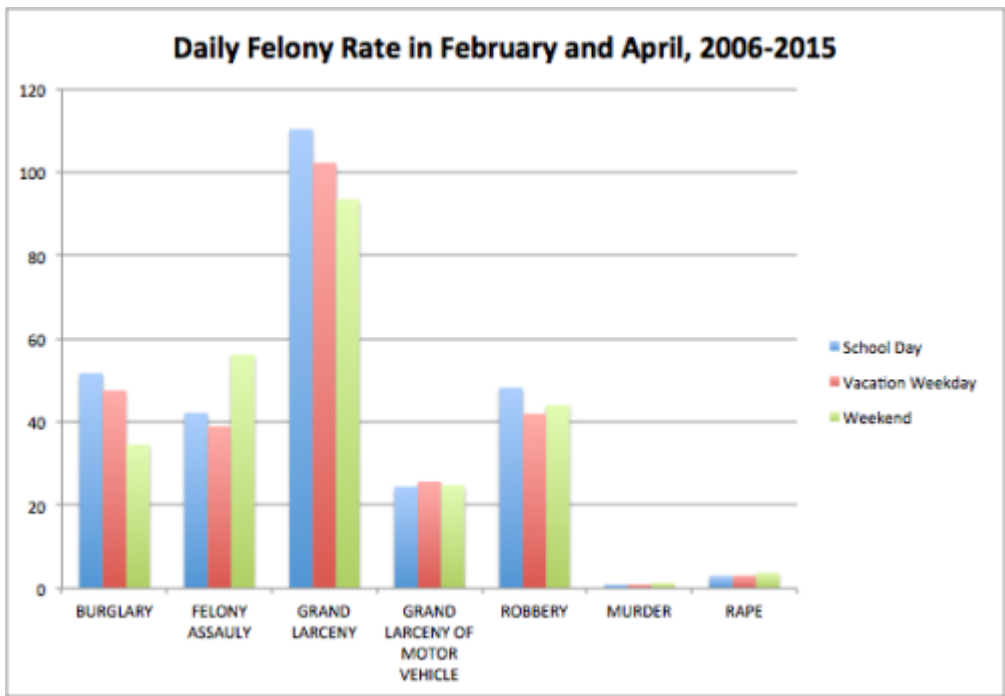**Grand Larceny in NYC in February and April, 2006-2015**

Not all crimes show increases when kids go to school. For example, car theft seems to be relatively unaffected, showing the same pattern on both types of weekdays.
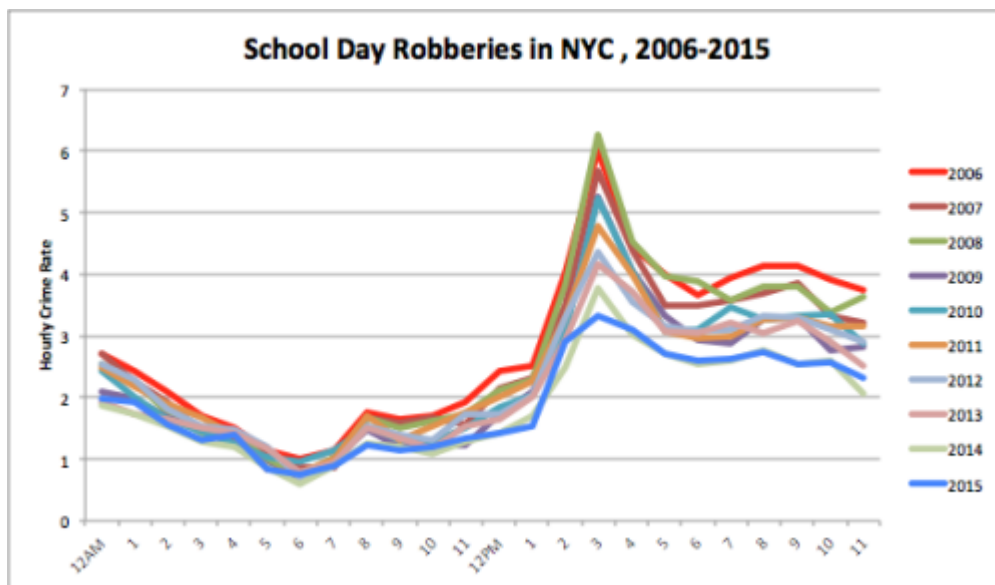

Murder and Rape both have too few instances to draw this kind of comparison, so I'll skip them for this analysis.

The final question for me was whether more crime is committed on these school days overall, or if the crimes just happen at different times. A quick look at the daily crime rates tells us a bit about that:

It turns out that *School Days* have 15% more Robberies than *Vacation Weekdays*, and *School Days* have about 8% more Burglaries, Felony Assaults and Grand Larcenies.

All of the analysis I've shown above was over the last ten years, but how has this changed over time?

School Day Robberies in NYC , 2006-2015

Here's a bright spot in all of this. Comparing the red and blue lines shows the difference between 2006 and 2015 specifically, and we see a drop in robberies at all times of day. But what is more impressive is that while robberies have dropped 29%, robberies on school days have dropped 32% and robberies committed between 3PM and 4PM on school days have dropped 44%! While a large part of that 3PM decline has happened under the deBlasio administration in 2014 and 2015, it's unclear from this analysis if increased after school programming has played a role in it. (The biggest percent drop (~11%) from 2014 to 2015 once again appears at 3PM). In the end, this chart makes me pretty optimistic about the future of our city and its youth.

Crime data tells us a lot about our city. It can be used to understand where more resources might help improve the quality of life for all city residents. I'm happy to see this data being released to the NYC public for the first time. But the insights will be much bigger when the city stops filtering out most types of crimes from the data before releasing it and gives all New Yorkers access to the data sets that make up the fabric of our city. I look forward to that day, but in the meantime I'll still be quanting!

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Crime data can be found here.
Academic Calendar Data found here, though not in a clean form. I had to hand create the data set.

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