Posted 1/25/18

# BE CAREFUL WHAT YOU BRAG ABOUT (PART II)

Citywide crime statistics are ripe for misuse

By Julius (Jay) Wachtel. Part I ended on a perhaps surprising note. Poverty and crime may be deeply interconnected, but our analysis of New York City crime data revealed that neither the city's 2016 total major crime rate nor its change since 2000 were significantly related to the proportion of residents living in poverty.

NYPD tracks seven categories of major crime: murder, rape, robbery, felony assault, grand larceny, and grand larceny of motor vehicle. Their sum yields an eight measure, "total major crime." (See table in Part I, below. NYPD reports yearly frequencies and percentage changes. Instead of raw numbers we used population data to generate rates per 100,000 residents.)

When total major crime didn't yield the anticipated results we turned to one of its components, felony assault. Its 2016 rate per 100,000 pop. ranged from 0.5 (112th. and 123rd. precincts) to 8.1 (40th. pct.) (Precincts 14, 22 and 41 were excluded from analysis. See Part I). As expected, the mean rates of the ten lowest-felony assault rate districts (0.7) and the ten highest-rate districts (5.8) were significantly different (t=-4.9, p <.001). They also differed markedly as to poverty. That difference was in the expected direction: persons living in poverty comprise 15.8 percent of the population in low felony assault districts and 26 percent in the high rate districts (t=-3.7, p <.002, statistically significant).

Correlation analysis was used to test the aggregate relationship between felony assault and poverty for all 73 precincts in this study. That revealed a statistically significant relationship in the "positive" direction, meaning that poverty and felony assault increased and decreased in unison (*r*=.54, *p* <.000). Here's the graph (each precinct is a dot):
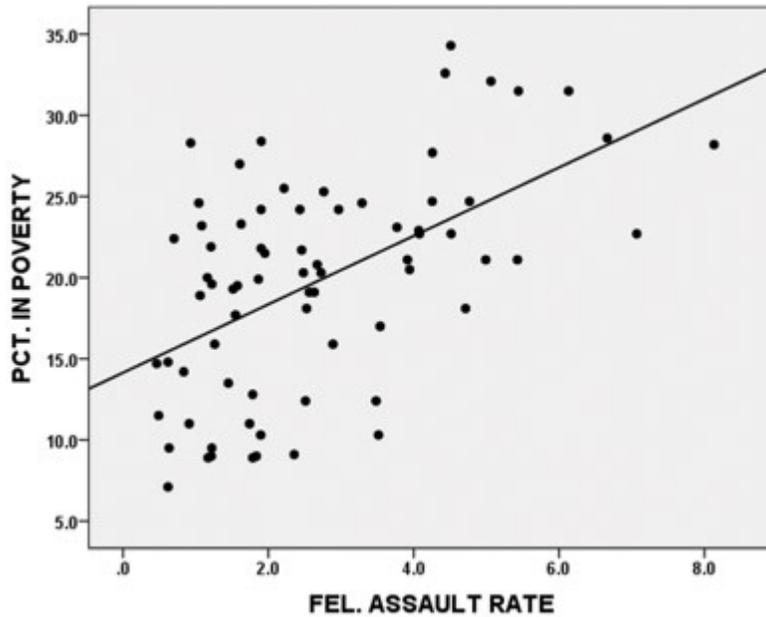
Statistically significant findings were also produced when we tested the relationships between poverty and the remaining violent crimes: robbery (r=.53, p <.000), rape (r=.46, p <.000) and murder (r=.48, p <.000). Poverty and all forms of violent crime went up and down together. There was also a significant positive relationship, of slightly lesser magnitude, between poverty and grand larceny of a motor vehicle (r=.31, p <.007; see comment below). In contrast, ordinary grand larceny (not of a vehicle) had a "negative" relationship with poverty: as one increased, the other decreased (r=-.43, p <.000, statistically significant). Here's that graph:
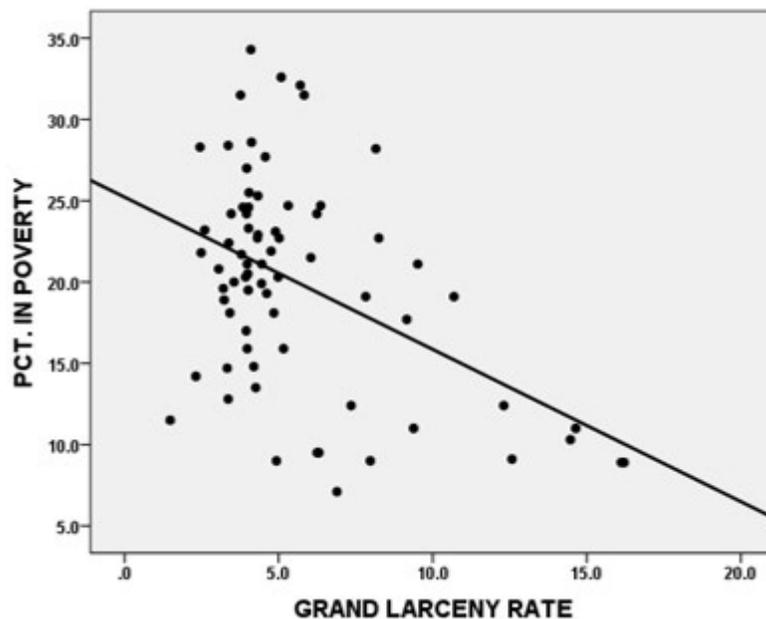
We concluded that this was the reason why there was no observable relationship between total major crime and poverty. In New York, larceny of the "grand" kind requires a loss exceeding $1,000. These are presumably more common in affluent areas. As by far the most common form of serious crime, grand larceny's strong negative relationship with poverty apparently countered the influence of the other factors. (Incidentally, the positive relationship between grand theft of a motor vehicle and poverty is likely caused by the fact that in New York, the theft of any vehicle valued at $100 or more – that's *two* zeroes – is "grand.")

Clearly, aggregate measures such as total major crime should be used with great caution. Fine. So, just how *were* the benefits of New York City's crime drop distributed? Let's compare crime rates for the ten poorest and ten most well-off precincts at two points in time: 2000 and 2016. (Precincts #14 and #22 were excluded for methodological reasons, and #41 for trustworthiness. See Part I.) We'll begin with felony assault:
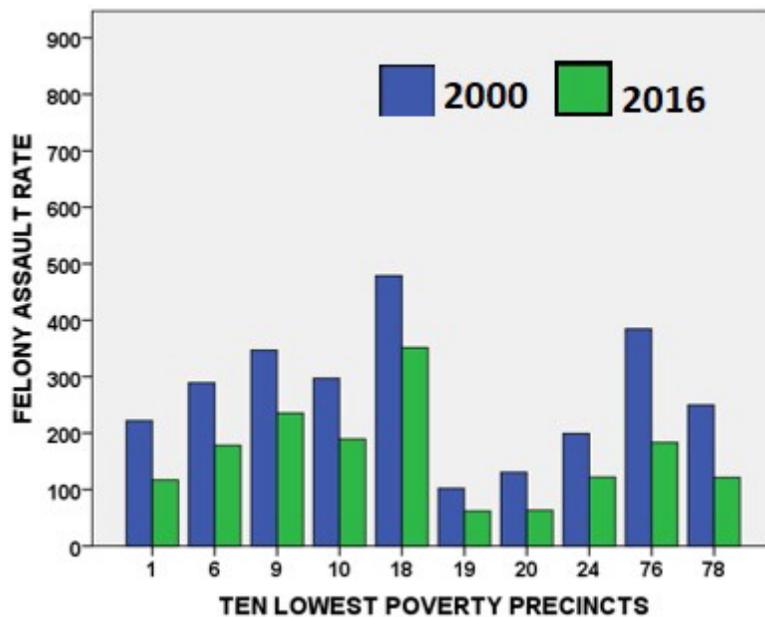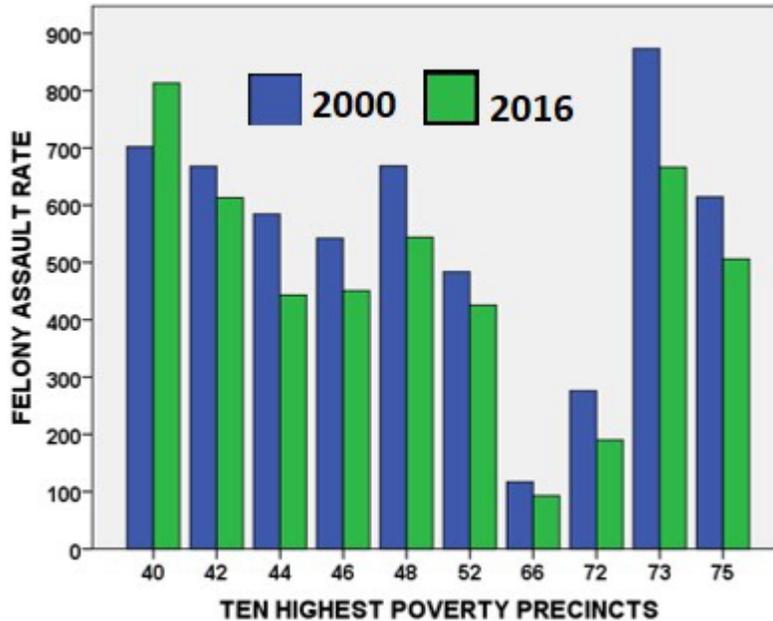
These graphs dramatically depict income's differential effects. In 2016 the mean felony assault rate in the high-poverty precincts was nearly *three times* that of their well-off counterparts (474.5 v. 162.4, *t*=4.3, *p* <.001, a statistically significant difference.) Noe that in both sets of precincts, scores clustered in observable groups. Felony assault rates in all but one of the low-poverty precincts topped out at 235.5. Add nearly *two-hundred* points to that and you'll reach the *lowest* score (425.7) in a group of eight high-poverty precincts.

Poverty-stricken precincts had more lousy news. Excluding the besieged 40th., where the felony assault rate *increased* 15.8 percent between 2000-2016, its group's mean decrease of 19.2 percent was *less than half* the 41.4 percent decrease enjoyed by the low-poverty group. That old saw about "the rich getting richer" seems to apply to felony assaults in the Big Apple.

Let's look at the graphs for robbery:
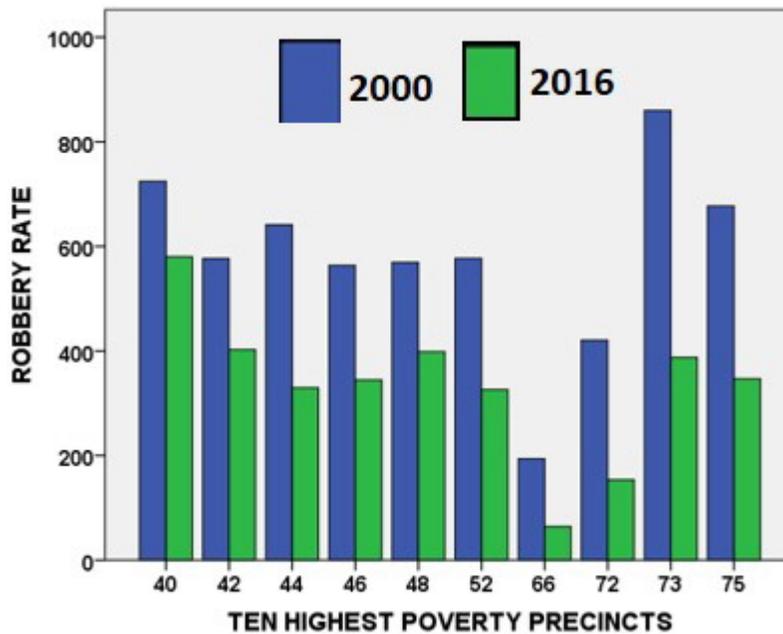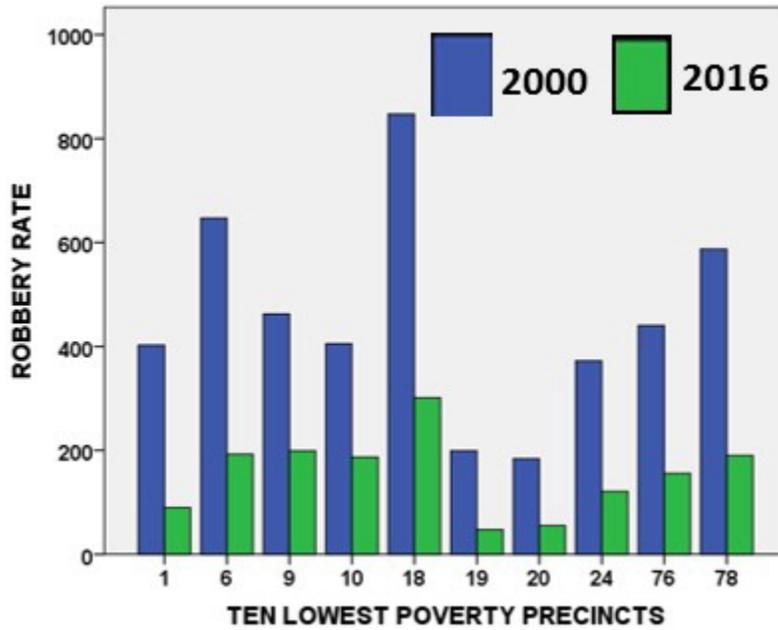
In 2016 the mean robbery rate of the high-poverty precincts was slightly more than *twice* that of their low-poverty counterparts (333.4 v. 154.1, *t*=3.5, *p* <.003, difference statistically significant.) Except for the 18th. (rate=301.5) low-poverty precincts clustered at the lower end of the scale, topping out with the 9th.'s 198.8. One-hundred points later we encounter the trailing edge of a loose group of eight high-poverty precincts, with rates ranging from the 52nd.'s 325.9 to the 4oth.'s skyscraper-worthy 580.3.

Between 2000-2016 robbery rates declined 66.9 percent overall in low-poverty precincts and 44.5 percent in the high-poverty group. While both trends seem substantial, so was their difference (t=-4.2, p <.001, statistically significant). Rates were also distinctly dispersed: narrowly within low poverty (range 53.8 to 77.6 percent) and broadly within high poverty (19.9 to 66.8 percent.) Why this difference between differences we don't know, but such volatility inevitably reminds us of tendencies at NYPD and elsewhere to fudge the numbers (see Part I).

And then we arrive at murder. This time we'll begin with the high-poverty precincts:
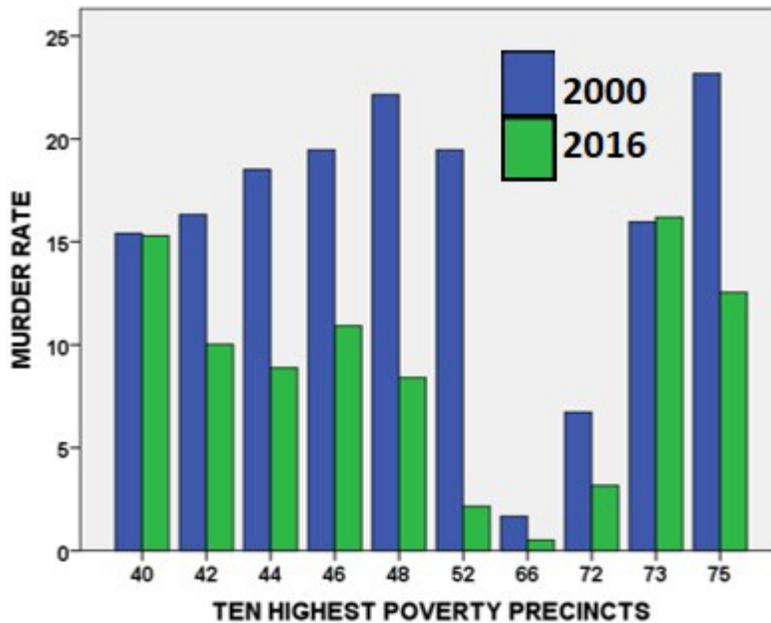
Let's skip rates and talk actual counts. In 2016 the range for the high-poverty group was from one murder in the 66th. to twenty-three in the 75th. These two precincts also had the extreme scores in 2000, when there were three killings in the 66th. and *forty* in the 75th. By 2016 murder receded in all high-poverty precincts but two, the 40th. and 73rd. In both killings ticked up a bit, going from thirteen to fourteen. Murders otherwise fell, most markedly in the 44th. (25-13), the 46th. (23-14), and especially, the 52nd., which plunged from twenty-five in 2000 to only three in 2016. (However, this precinct had twelve murders each in 2013 and 2015, so its numbers are volatile.)

We won't sweat the details: for lots (but not all) poor New Yorkers, the murder news seems at least somewhat favorable. Now consider the horrors the wealthier set faced:
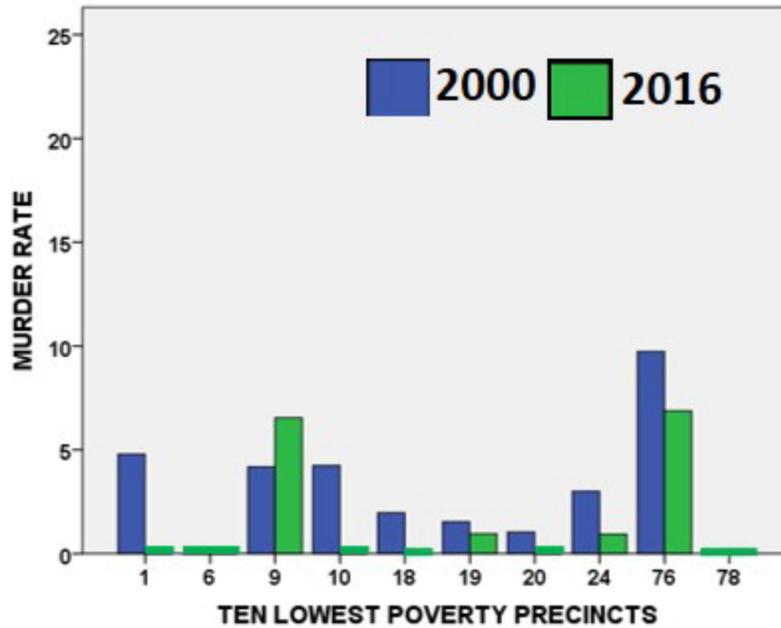
Six of the ten low-poverty precincts had zero murders (thus, zero rates) in 2016. Scores for the other four ranged from one killing in the 24th. to five in the 9th. Only two precincts, the 6th. and 78th., scored zero murders in 2000. Others ranged from one killing in the 18th. to four in the 76th. (note that a relatively low population of 43,643 lends its rate an inflated appearance.) Murders during the 2000-2016 period increased in only one low poverty precinct, the 9th., which went from three to four.

Glancing at the charts, does it seem that the rich get to ride up front, crime-wise, while the poor are consigned to the caboose? If so, that's hardly unique to Gotham. Consider Los Angeles. In "Location, Location, Location" we mused about our hometown. Between 2002-2015 murders fell from 656 (rate=17.3 per 100,000) to 279 (rate=7.3), a stunning drop of *fifty-seven percent.* Now consider two of the dozens of communities that comprise the "City of Angels": poverty-stricken Florence, pop. 49001, and upscale Westwood, pop. 51485. During 2002-2015 murder in Florence dropped from an appalling *twenty-five* killings (rate=51.0/100,000) to a merely deplorable eighteen (rate=36.7). Kind of like...New York City's 44th.! Meanwhile murder in Westwood went up: from zero in 2002 to (yawn) one in 2015, a rate of 1.9. And that resembles...NYC's 24th!

Back to New York. Our chart in Part I indicates that between 2000-2016 murders in Gotham fell from 673 (rate 8.4/100,000 pop.) to 335 (rate 3.9.) But let's look *within.* In both the downtrodden 40th. (2016 pop. 79,762, poverty 28.2 percent) and the equally challenged 73rd. (pop. 86,468, poverty 28.6 pct.) killings ticked up from twelve to thirteen, yielding rates of 15.3 and 16.2, *four times* the citywide rate. Meanwhile, in the

affluent 18th. (pop. 54,066, poverty 10.3 pct.), murders declined from one to zero (rate of zero) while in the large and fabulously rich 19th. (pop. 208,259, poverty 7.1 pct.) they fell from three to two, generating a rate of, um, *one.*

That's our "point." New Yorks' citywide poverty rate is 19.9 percent. As long as it has a sufficient proportion of well-off residents, it can use summary statistics to brag about "great crime drops" until the cows come home. Except that unlike citywide numbers, people aren't composites. Can we assume that residents of the 40th. and 73rd. precincts feel – or truly are – as well served as those who live in the more fortunate 18th. and 19th.? What do poorer citizens think when they hear Mayor de Blasio boast that his administration has turned crime around? Are they as reassured about things as their wealthier cousins?

As we suggested in "Location," it really *is* about neighborhoods. Aggregating seventy-six precincts because they're located within a single political boundary, then acting as though the total truly reflects the sum of its parts, is intrinsically deceptive. Actually, when it comes to measuring crime and figuring out what to do about it, the 40th., the 73rd. and a host of other New York City precincts really aren't in the Big Apple. They're a part of that other America – you know, the one where the inhabitants of L.A.'s beleaguered Florence district also reside.