

Community Justice Impacts over Time:
Adult Arrest Rates, and Male Serious Delinquency Prevalence, Rates Within and Between
Philadelphia Communities¹

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Hi. My name is Ralph Taylor, I'm from Temple University's Department of Criminal Justice and the title of today's presentation is: **Community Justice Impacts over Time: Adult Arrest Rates, and Male Serious Delinquency Prevalence Rates Within and Between Philadelphia Communities**. Yes, it's a long title, as is the list of co-authors, but it at least conveys all the key ideas in the talk. It uses a community justice framework. It looks at impacts over time. It is concerned with the impacts of adult arrest rates on serious delinquency prevalence rates. And it considers impacts both within as well as between communities. Just two more introductory points. First, this work was funded by the Annie E. Casey Foundation and the

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Open Society Institute, but they are not linked to or responsible for what is said here. And if you will just hold your questions until later, I am sure there will be plenty of time.

The best theoretical starting point is the community justice framework, as articulated by Todd Clear, Dina Rose, David Karp, and many others. Sociologists like Bruce Western in his publications and his forthcoming book Punishment and Inequality in America have investigated related dynamics at a more aggregate level. The kernel idea in the community justice framework is that removing adults from communities, as happens when adults are arrested and later imprisoned, impairs the ability of the community to self-regulate. The self-regulation on interest here is with reference to supervising teens and preteens. Depending on your taste, you would then talk about things like impaired collective efficacy, diminished social capital, weakened informal social control, reduced collective efficacy, or increased social disorganization. You could frame the arrest rates as creating high rates of forced mobility in the community, as Rose and Clear have done; or you could more simply emphasize reduced supervision of children by adults. Western indicates (p. 6):

By 2000, over a million black children—nine percent of those under age eighteen—had a father in prison or jail. In around half of all cases, these fathers were living with their children at the time they were incarcerated.

Rose and Clear expanded Bursik and Grasmick's systemic model of informal control, linking it to community justice relevant concerns. The model from their 1998 *CRIMINOLOGY* article appears in the next slide.

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Clearly there's a lot going on here but let me just draw your attention to the upper right hand portion of the model, and the connection between local crime rates and local removal rates.

-- Slide: 3 --

The model suggests relatively immediate, nonrecursive relationships between the two. As crime goes up, arrests go up, and as arrests go up, crime goes down. Basic Incapacitation.

-- Slide: 4 --

But also take a look at some other pathways, showing different types of effects of removal rates, presumably operating over a longer time frame. The model suggests that over time the communities with higher removal rates will be made more unstable, their social capital will be reduced, and processes of private, parochial and public control which lead to effective socialization, will be impaired. Therefore, eventually, the local crime rate will be driven back up.

Clear, Rose, Waring and Scully in their 2003 JUSTICE QUARTERLY piece tested this idea in Tallahassee neighborhoods. Admissions to prison in 1996, and releases from prison in 1996, were used to predict 1997 neighborhood crime rates. Their results are pretty complicated, but the main take away lesson was that the cumulative effect of prison admissions on crime shifted at higher levels of removal – i.e., higher prison admission rates. More simply, up to a point prison admission rates lowered crime in the neighborhood, but above a certain admission rate the removals were hurting – driving up neighborhood crime – more than helping.

Those on the political right would be happy with this result. Crime rates are higher in neighborhoods where more people have been removed, they might suggest, because there were more bad people there doing bad things, who needed to be removed. They would suggest the community justice theorists are emphasizing the wrong end of the feedback loop. So we have the snake biting its tail.

The challenge in this area is to think of an outcome that, within a short period, cannot, theoretically, cause the removal rate. That is, is there an outcome that we all might agree over time can be shaped by the removal rate but cannot itself influence the removal rate?

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Delinquency rates come to mind, especially if we limit the delinquency to those, for example, aged 10 to 15. This slide shows how “delinquency,” can stand in for INeffective socialization in the Rose and Clear model. (There are some signs in the model which need to be reversed, but that is not done here.) Higher delinquency can cause higher crime cross-sectionally or over a short time span: yes. Delinquents can commit serious crimes. But, cross-sectionally, or over a short time frame, presuming you are willing to overlook a proportionally small number of cases of transfer to adult court, delinquency rates canNOT cause adult removal rates. But, given the highlighted pathways in community justice model, higher removal rates CAN cause higher delinquency rates.

Given the socialization perspective inherent in the community justice model, and the deleterious effects of labeling, the focus here is on delinquency prevalence rates. The work will be concentrating on those delinquents with no prior arrests. A switch to delinquency incidence

rates starts to confound labeling processes with removal processes. A youth already adjudicated delinquent is already self-labeling.. It is possible to imagine those labeling processes, at the individual level but not necessarily the group or ecological level, to be amplified when he or she knows his/her father is arrested, and to imagine further that those amplified labeling processes might shape future delinquent behavior.

-- Slide 6 --

So the key idea here is that over time community removal rates will elevate community delinquency rates. Of course over time many other factors are also shaping community delinquency rates, but are not shown here.

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One of the conceptual challenges is figuring out how long to allow for these lagged effects to operate. Are the deleterious effects of increasing removal felt within a few months? Or a year? Thinking just about the processes mediated by social capital changes, and leaving aside the presumably longer cycle processes involving community change, a huge known unknown is: how long does it take for these changes in removal rates to affect social capital, these changes in turn to effect changes in different control levels, and these changes in turn to effect delinquency? When you put this all together, how long are we talking about? And is that a set of processes whose cycling time varies across neighborhoods? Presumably the processes affecting

neighborhood composition will have an even longer cycling time. In the work reported here lags ranging from three months up to 24 months, going by yearly quarters, will be investigated.

DATA SOURCES

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Data sources included the following. Monthly total arrest counts by police district were obtained for calendar years 1996 through 1999. These were converted to yearly adult rates per 100,000 population of 18 and older; then these yearly rates were retained for each quarter. Quarterly rates were pro rated “up” to get what the yearly rates would be if the quarter represented the year.

Delinquency data were only available for serious delinquents. As part of a collaboration between Phil Harris and Peter Jones in our department and Philadelphia’s Department of Health and Human Services, and Family Court, the arrest data for **all** juvenile delinquents mandated to treatment by Family Court were collected. Data were collected for the years 1994 through 2004 and were complete for 1996 through 2002. So 1996 through 2002 is the time frame considered here. The indicators available for this project included home addresses, gender, age, number of prior arrests, and date of arrest. There were over 17,000 first time delinquents, over the entire ten years, and 97.3% of those were successfully geocoded. Since the serious delinquents, first time delinquents and repeaters both, were about 90 percent male, these analyses concentrated solely on the males.

Using linear interpolation of 1990 and 2000 census data, rates per 100 and per 100,000 boys aged 10 to 15 were analyzed. Parallel analyses also were done for delinquents aged 10 to 18, and gave very similar results, but those are not shown here. Again, yearly rates were calculated and retained for each quarter.

Both arrest rates and delinquency rates were smoothed by creating moving 3-quarter averages.

Because the arrest data only were available at the police district level, that is the unit of analysis used here. There are 23 districts in Philadelphia, excluding Fairmount Park and the Airport.

DESCRIPTIVE DELINQUENCY RATES

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The next slide shows cumulative three year delinquency rates, per 100 males, for 10 to 15 year olds, from 1926-1928, and from 1996-1998. The maps shown shade location by quartiles. Bear in mind two important differences, besides the seven decade gap, when looking at these two maps. The 1920s map uses election wards, the 1990s map uses police districts. Further, the 1990s map shows only serious delinquents, those mandated to treatment by the court. Although the cases from the 1920s also came before family court judges, it is not clear if all of them were mandated to treatment.

The parallels and shifts are interesting. Whereas 80 years ago the highest rates were concentrated in and around Center City, the highest rates now have moved north and southwest

from Center City. The outer section of the greater Northeast remains low, as do sections of Manayunk, Roxborough and Chestnut Hill in the northwest quadrant. The current rates shown here are LOWER than seen in the 1920s in part because these results are based only on those whose delinquency was so serious that they were mandated to a treatment program.

ANALYSIS PLAN

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Quarterly observations are repeated within police districts. These were analyzed with hierarchical linear models applying a model roughly analogous to a cross sectional time series. Police districts operated as random effects. To control as effectively as possible for temporal trends and period effects three parameters were included. A linear effect of temporal sequence was allowed to vary over districts, and did so significantly. A quadratic effect of temporal sequence was similarly allowed to vary over districts, and did so significantly. So linear and quadratic temporal trends, specific to each district, were modeled. In addition, three dummies controlled for periodicity.

Also, since there were less arrest data than delinquency data, arrest rates were estimated for some quarters. Dummy flag variables captured quarters where an estimated arrest rate was used. Delinquency and arrest rates were both calculated to reflect rates per 100,000, for each quarter, annualized.

IMPACTS

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The next slide shows, in the column under TOTAL, the unstandardized impact of adult arrest rate on delinquency rates, when those arrest rates precede delinquency rate by anywhere from one quarter of a year, up to two years. They are all in the expected direction – positive – and several are significant at the conventional significance levels. So the pattern looks like it should, according to the community justice model. This model controls for period, temporal trends, and district.

It is a bit troubling, however, that the size of the coefficients does not appear to vary as a function of the lag between removal and delinquency. If there is a generally appropriate cycling time for the hypothesized processes, the effect should get stronger as the models more closely approximate that time.

There is an important caveat to these total impacts. They meld arrest impacts emerging from within-district changes over time with fluctuating between-district differences. (Enduring between district differences are captured with the random effect for district. Temporally patterned shifts by district are captured with the linear and quadratic time effects. But net of these three parameters, there can be shorter term differences across districts.) To isolate the impacts so they reflect SOLELY **within-district** shifts in arrest rates, the arrest rates were group mean centered in each district. The next column under “within” shows generally much smaller impacts, all of which are non-significant. But what IS encouraging here is that the within-district impacts of changing arrest rates DO appear to be **increasing** over time. This may be because as the lag period increases the models are getting closer to the theoretically correct cycling time.

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This next slide separates out, proportionally, the within vs. between district impacts of arrest rates on delinquency. As the lag between earlier arrest rates and later delinquency rates increases, the impact of arrest rates becomes **increasingly** endogenous or within district, and **decreasingly** compositional or between district. That bodes well theoretically.

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DISCUSSION

There are limitations all over the place. Most notably:

- The models lack a spatially lagged dependent variable, so there are no controls here for spatial autocorrelated outcomes.
- There may be a modifiable area unit problem. Districts are used here. Switching to smaller units of aggregation makes for more quarters with zero delinquency rates, which then means thinking about a different type of multilevel time series model. But even though districts may be too large for delinquency rates, they may be the appropriate level at which to organize arrest rates, given varying police practices across districts.
- By focusing only on “serious” delinquents mandated to treatment, the dependent variable may have been too stringently defined. A test using all those adjudicated delinquent, whether they were mandated to treatment programs or not, may show stronger impacts of arrest rates. On the other hand, the Rose and Clear model does link socialization to crime,

and changing serious delinquency prevalence rates probably have a stronger connection with local crime rates than do total delinquency prevalence rates, although no known data speak to the issue.

What are the main take away lessons?

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A modification of Rose and Clear's community justice model, substituting serious male delinquency prevalence rates at the police district level for ineffective socialization, and using adult arrest rates for removal rates, does receive support. Controlling for linear and quadratic delinquency trends by district, and for district as a random effect, those with higher arrest rates have higher delinquency rates later.

The impact, however, arises from BOTH between-district differences in arrest rates, as well as within-district differences over time. Stated differently, the impact has both a compositional and an endogenous component. The endogenous component is of central interest to the community justice model but is not, unfortunately, significant in the conventional statistical sense. It is encouraging, and fits with that model, to see the proportion of total impact which is endogenous increasing as the lag increases. This would also seem to be in line with the model.

-- Slide 14 --

If you would like to correspond with me further, here is some contact information. Thank you for your consideration.

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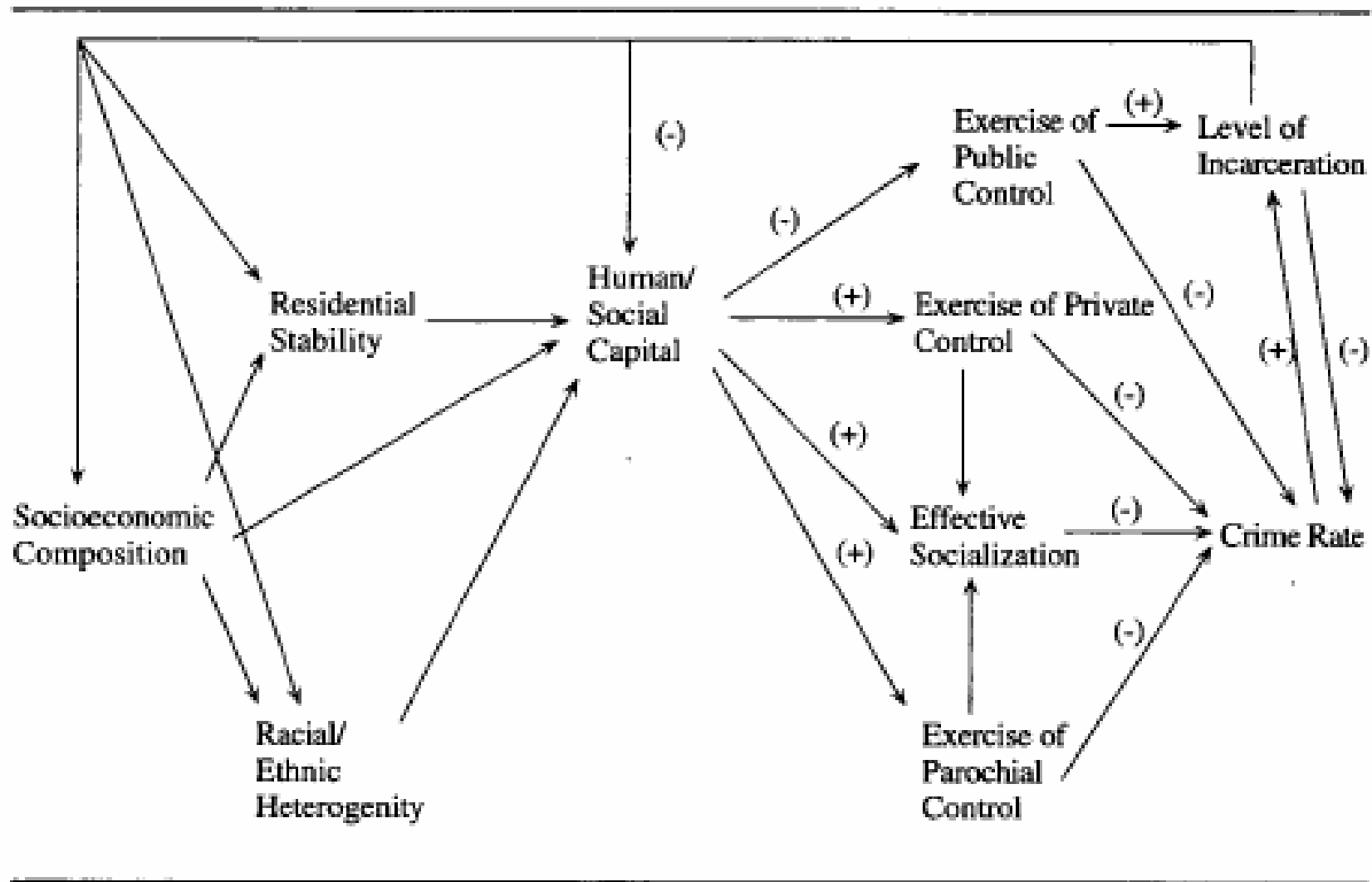
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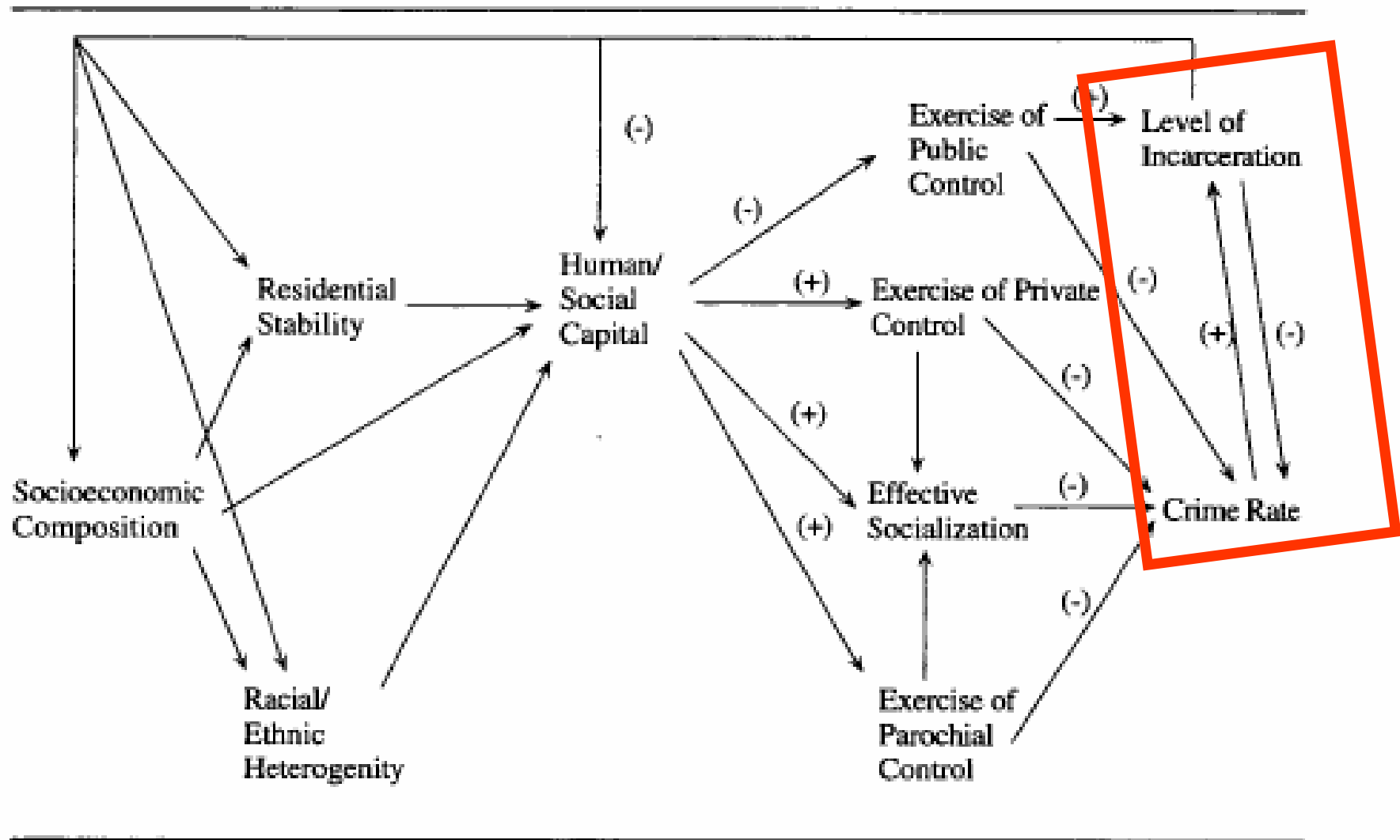
Figure 2. A Nonrecursive Model of Crime Control, Social Disorder, and Crime



Adapted from Bursik and Grasmick (1993).



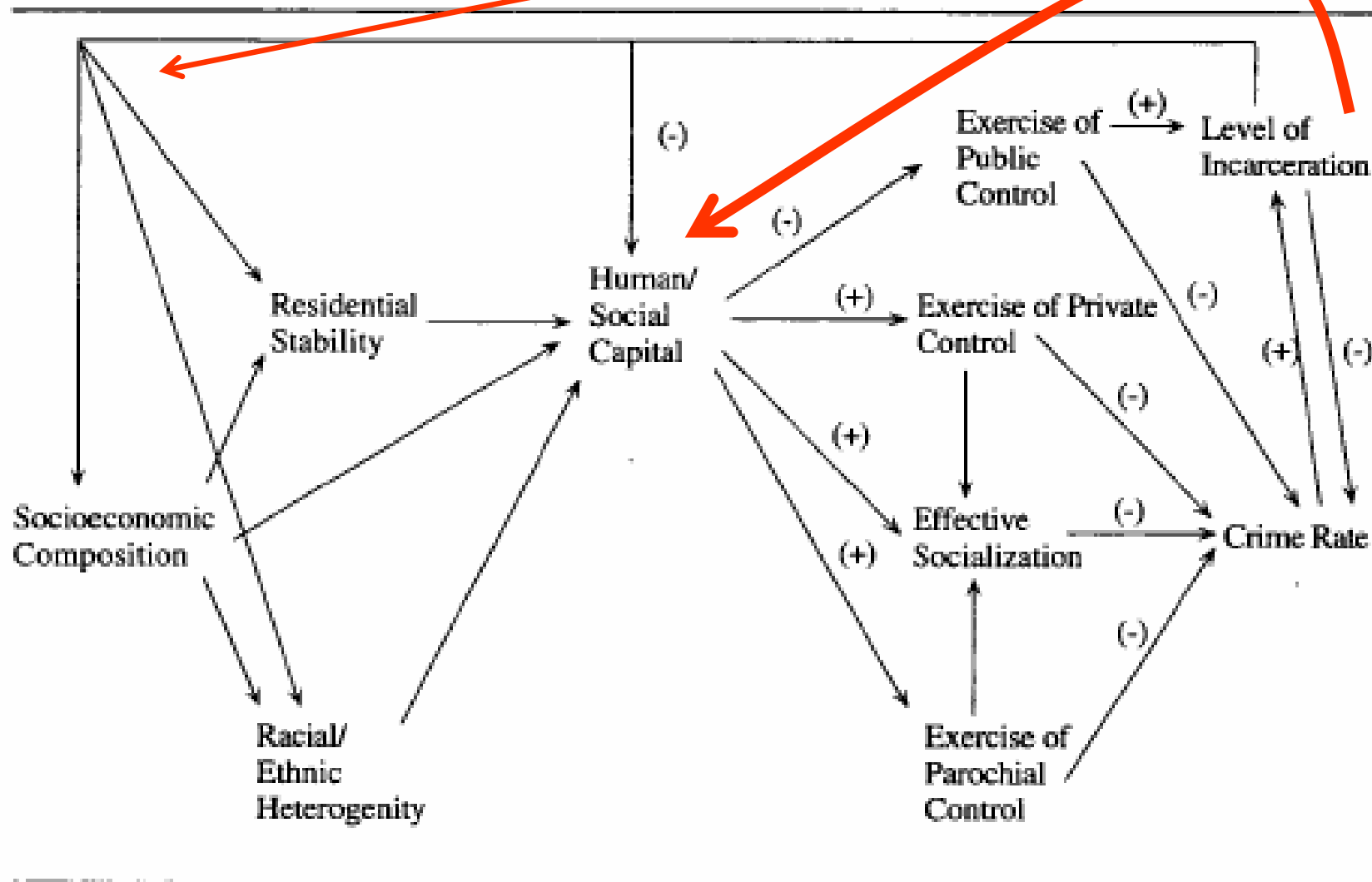
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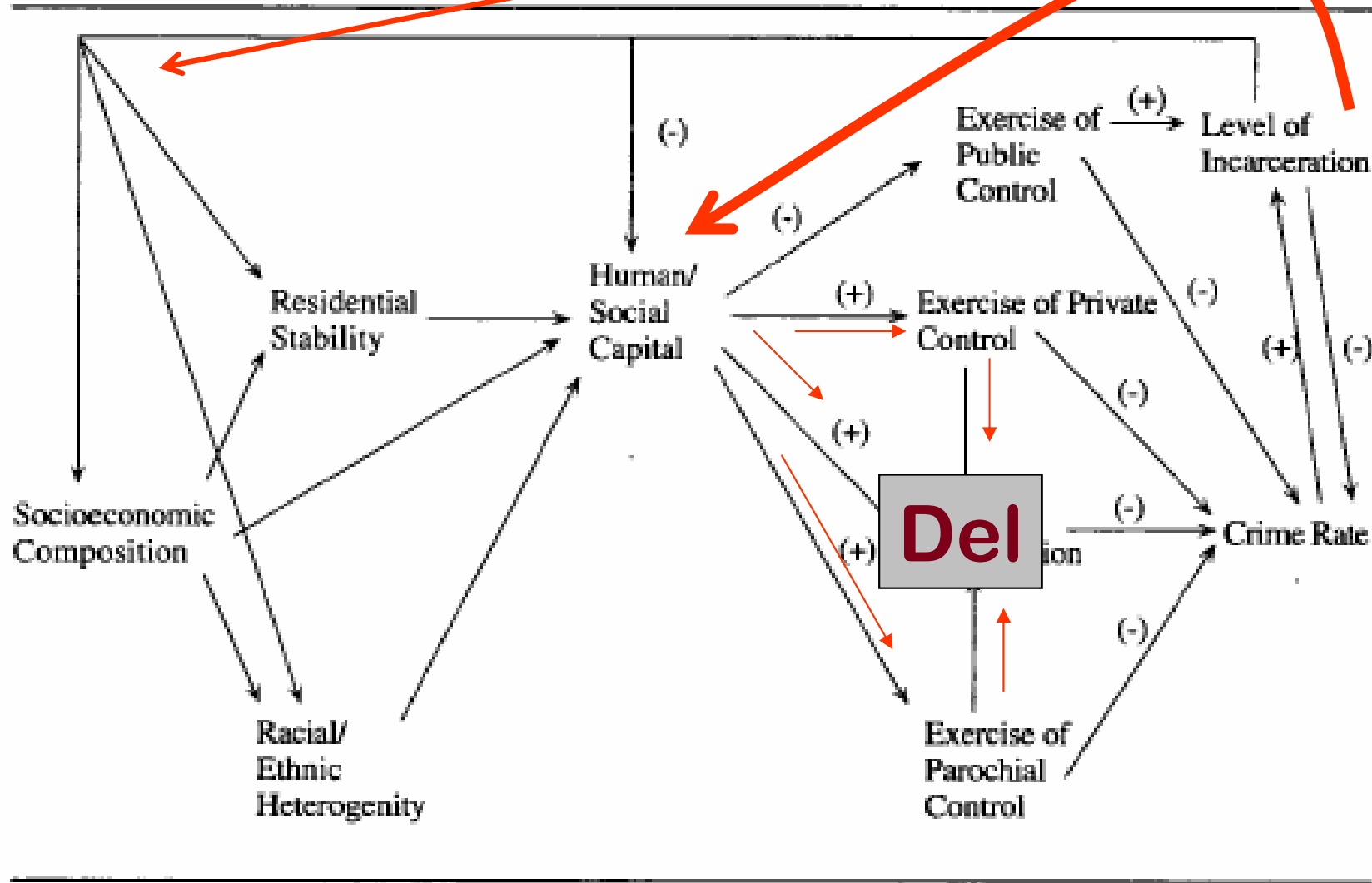
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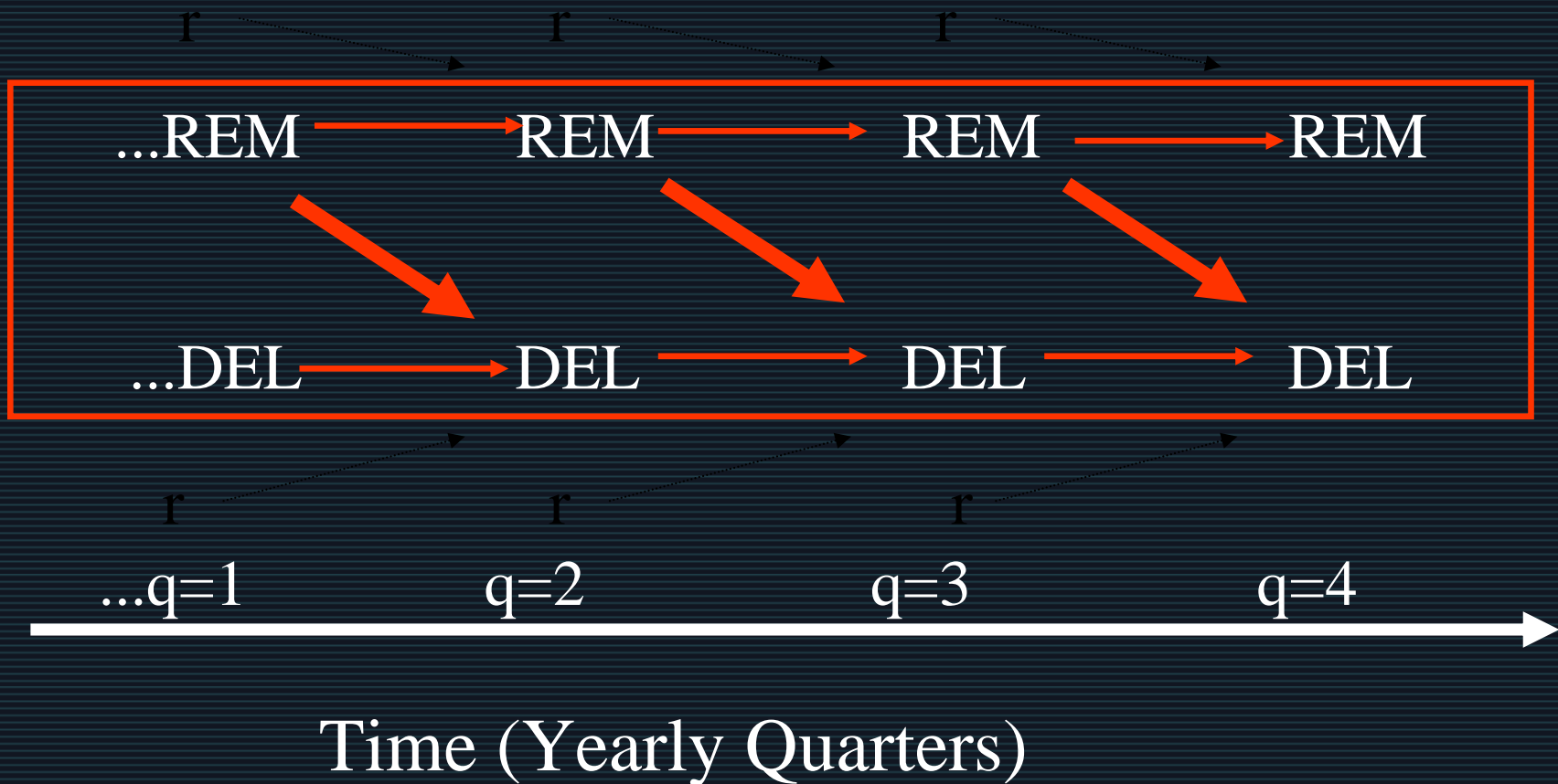
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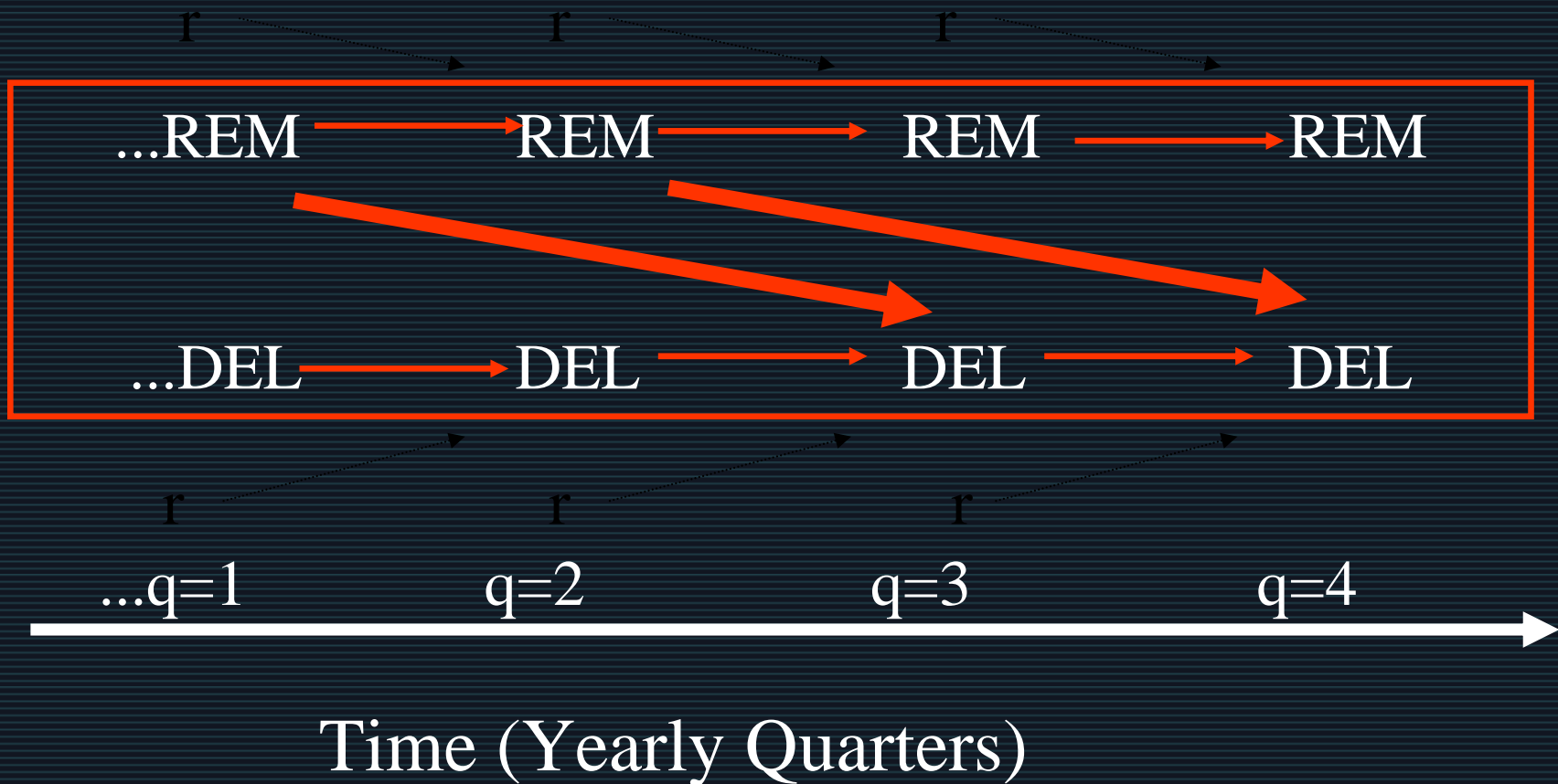
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**Delinquency substituted for effective socialization;
Sign changes not made**

Lagged impacts of removal rates on delinquency rates



6 month lagged impact? 9? 12? ... 24?

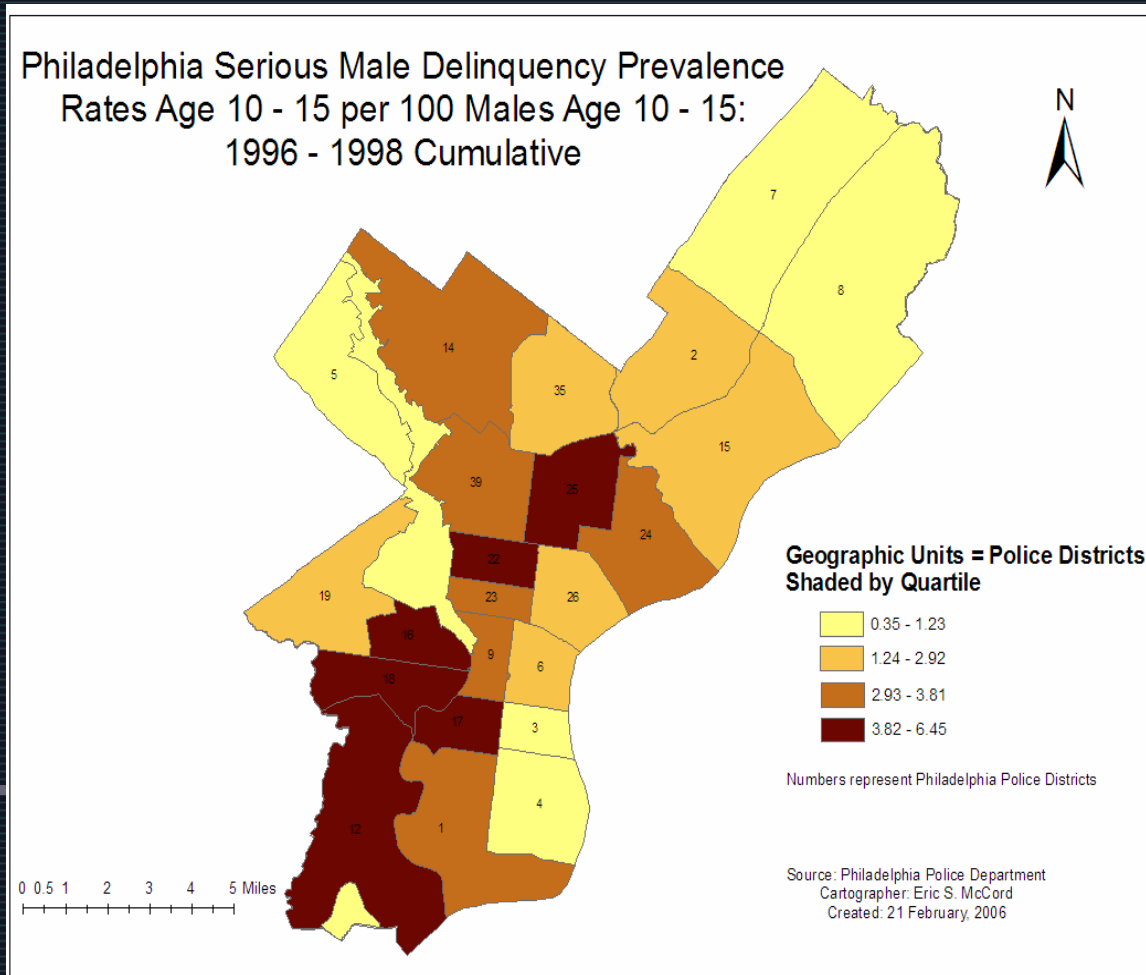
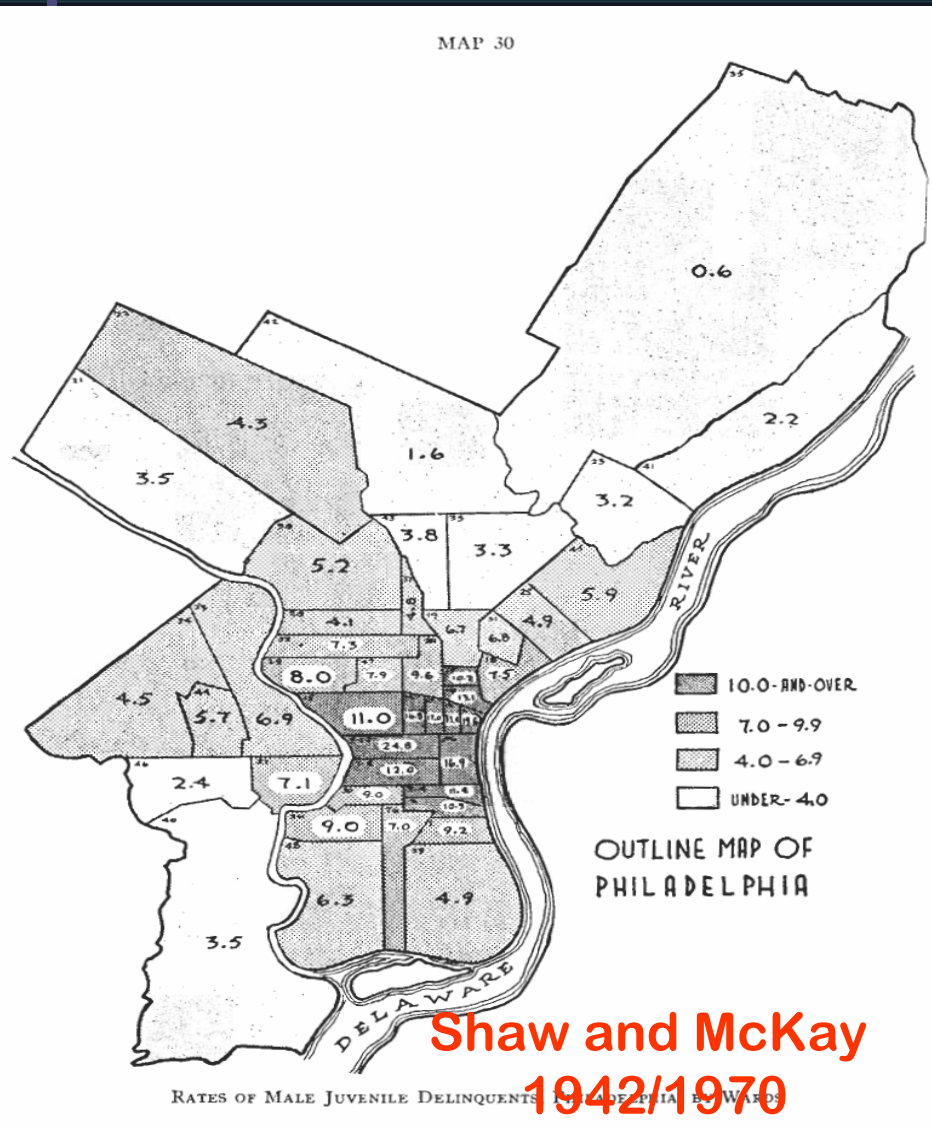


Data Sources

- ◆ Adult Arrest Rates
 - ◆ 1996-1999
- ◆ “Serious” Delinquency Prevalence Rates
 - ◆ Mandated to Treatment
 - ◆ No Prior Arrests
 - ◆ Males 10 – 15 / 10-18
 - ◆ 1996 – 2002
- ◆ Yearly Rates Calculated Every Quarter Year
- ◆ Aggregated to Police District (n=23)
- ◆ 3-Quarter Moving Averages



Male Delinquency Rate Quartiles 1926-1928 / 100 boys 10-15 By election ward



Analysis: Cross-Sectional Time Series Via HLM

- ◆ Controlling for Time
 - ◆ Linear effect (varies by District)
 - ◆ Quadratic effect (varies by District)
 - ◆ Dummy variables (3) for quarterly period
- ◆ Estimated arrest rate
 - ◆ Dummy: specific to each lag
- ◆ Outcome
 - ◆ Serious delinquency yearly prevalence rate per 100,000 males, aged 10-15, by quarters, 1996-2002



Impacts of Arrest on Delinquency by Size of Lag (Unstandardized Coefficients)

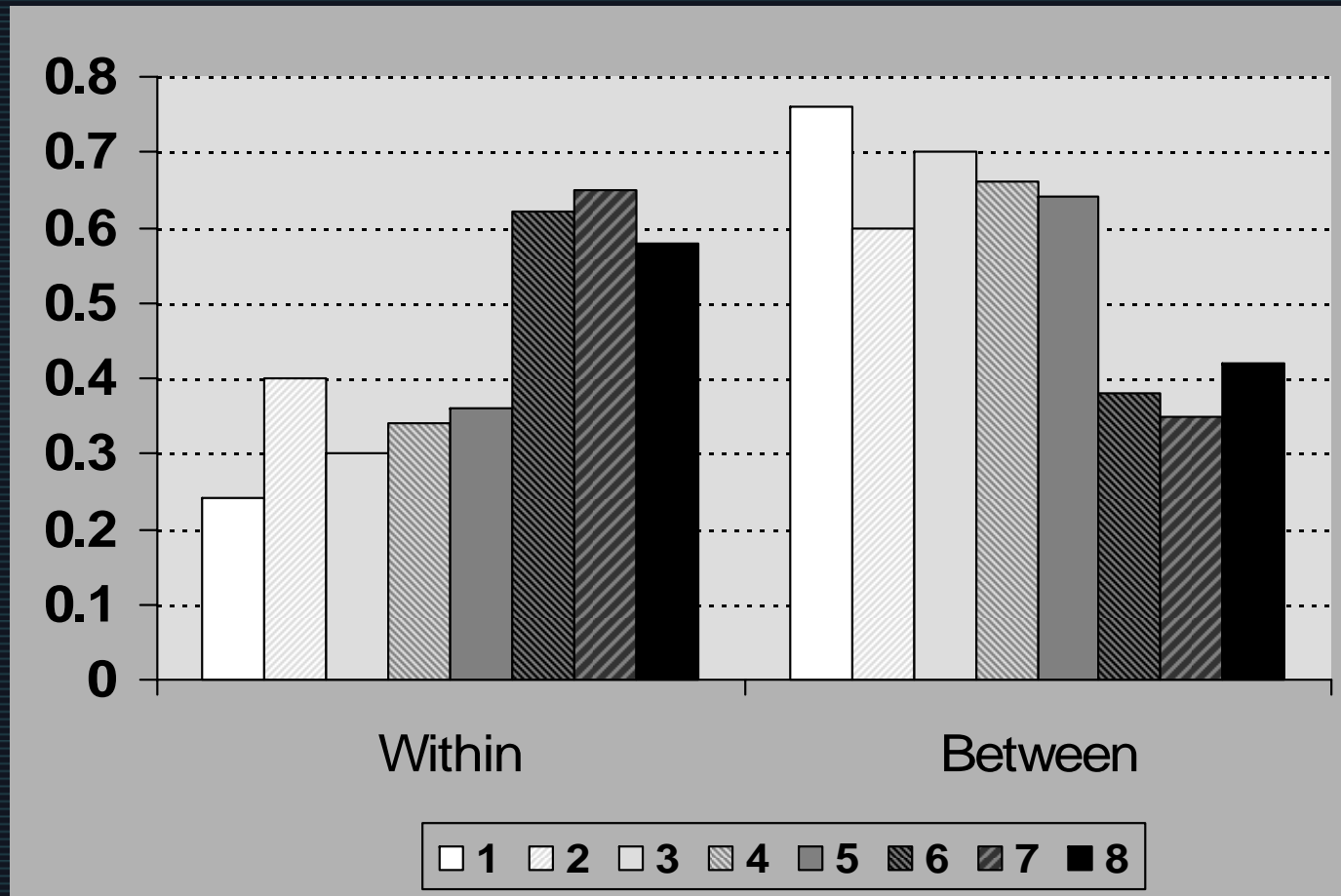
Lag (quarters) Total p < Within District

1	0.023	*	0.006
2	0.026	*	0.010
3	0.024	<.1	0.007
4	0.025	<.1	0.008
5	0.025	<.1	0.009
6	0.033	*	0.020
7	0.034	*	0.022
8	0.030	*	0.018



Between vs. Within District Impacts of Arrest on Delinquency as a Function of Lag (in Quarters)

Proportion of Effect





Limitations

- ◆ Models lack spatially lagged autocorrelation control
- ◆ Potential MAUP
- ◆ Are “serious” delinquency rates too stringent an outcome given processes described in community justice model?



Take away lessons

- ◆ Community justice model receives support
 - ◆ But ONLY when compositional and endogenous effects are combined
- ◆ Endogenous impact  as lag 
 - ◆ Theoretically consonant



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