GEOG701 Literature Review

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On 'Neighborhood'

Galster's neighborhoods

'Neighborhoods' are a critical concept in urban social science, underlying investigations of how spatial contexts affect behavior and outcomes as well as how space changes over time. Yet, a concrete quantification of what constitutes a neighborhood is not universally agreed upon. G. Galster (2001) attempts to define 'neighborhood' in a way that lends itself to quantification: "Neighbourhood is the bundle of spatially based attributes associated with clusters of residences, sometimes in conjunction with other land uses." These attributes (or dimensions) include characteristics of the natural and human-constructed environment, but also demographics, socio-interactive characteristics, and sentimental value. Galster's goal in this articulation is enabling researchers to test hypotheses and construct predictive models of neighborhood change.

Neigborhoods are Dynamic

Galster's work helps us to delineate neighborhoods as they stem from perceptions of their residents or governments, but they do not explicitly understand temporal dynamics of neighborhoods. In other words, it begins to address the number of issues arising from taking administrative boundaries such as census tracts as *a priori* neighborhoods, but does not appreciate that the spatial structure of neighborhoods - in addition to its physical and demographic characteristics - are dynamic and can change over space and time. Rey et al. (2011) argue that both of these dimensions are critical for understanding neighborhood change, are are likely to differ depending on the topic of neighborhood effects being investigated. As well, they demonstrate that the study of spatial boundaries are underappreciated in the scope of the larger literature.

Externality Spaces

Resident perceptions are a key factor in neighborhood quantification. G. C. Galster (1986) describes 'externality spaces,' which are the *quantified* individual perceptions of the previously described neighborhood dimensions. Specifically, a person's externality space is the "area over which changes in one or more [dimensions] initiated by others are perceived as altering the well-being [or use-value]" of the person. G. Galster (2001) Quantification of neighborhood spaces by individual perspectives means that two people living next door to each other could have differing views about where their neighborhood begins and ends. As well, we might consider administrative boundaries drawn by government agencies, such as census tracts or school districts, as additional perspectives - the difference being that administrative boundaries are often tied directly to public policies, making them useful for policy analysis.

Galster also articulates three features of externality spaces against which differing quantifications can be measured: *congruence*, or the degree to which an externality space corresponds to a predetermined geographical boundary; *generality*, or the degree to which different neighborhood dimensions correspond; and *accordance*, or the degree to which externality spaces for different individuals correspond.

Towards a Dissertation

Quantifying dynamic neighborhood dimensions through various externality spaces approaches meaningful delineations of 'neighborhood.' The application of Galster's formulations to public policy analyses yields methodologies to granularly measure policy impacts across time and space. Therefore, this paper will explore intersections in the neighborhood literature with public policy analysis in an attempt to find gaps and articulate a research agenda.

First, we investigate applications to school systems. The neighborhood effects on educational outcomes and vice versa – the school-neighborhood nexus – is the subject of an extensive body of literature, yet the spatial structure of the school-neighborhood nexus and its potential to inform policy remains under investigated.

Next, we explore applications of Galster's formulation of 'neighborhood' to homelessness. Because Galster relies heavily on quantification via market valuation of residences, quantifying the 'homeless dimension' of neighborhoods raises several complications.

Finally, we attempt to draw together a number of policy issues through the theoretical lens of 'computationalism,' or the belief that computer processes *can and must* underwrite social organization and resource allocation. To the computationalist, the inexorable advancement of technology has imbued the computer (or more specifically, the algorithm) with almost supernatural properties and the capacity to solve all of the world's problems. Here, we explore implications on social relations and civic structures by the increasingly algorithmic logic that drives public policy.

School-Neighborhood Nexus

In this section, we explore findings in the neighborhood effects literature as it relates to school systems and discuss their implications on public policy. Unlike vaguely defined neighborhoods, education systems have discrete boundaries from which specific policies are applied. The variation in policies, school characteristics, and student outcomes between (and within) school districts position school systems in a way that greatly benefits from granular spatial and temporal policy analysis.

School Catchments

Individual schools have boundaries that determine which students will attend that school, called school attendance boundaries or school catchment zones. These boundaries nest within the geography of larger school districts, which themselves

fall within the boundaries of individual cities and counties. These nesting, discrete boundaries each have their own governing bodies which each apply their own regulations and policies on top of existing state and federal policies, all of which, in part, determine how we conceive of different spaces. The higher-resolution (smaller) geographies have stronger impact on how we conceive of individual neighborhoods, and crucially, they lend themselves well to measurements and hypothesis testing of policy impacts via spatial statistical methods.

Despite their importance and relevance to the study of spatial contexts and their effects, school catchments are very difficult to study in the U.S due to a lack of institutional support for catchment data - the latest nationally representative data year is the 2015-2016 school year, and even this is not without issues. Beyond the relatively 'normal' issues that occur with spatial data such as opaque and obscure coding logics, the School Attendance Boundary Survey (SABS) data are effectively an amalgamation of data from disparate educational agencies which may have different ways of gathering and encoding this data, resulting in spatial-specific data issues such as non-planar enforcement. These issues mean that the data require additional processing before any spatial methodologies (such as regionalization) can be applied. One major avenue of work that would elevate the school-neighborhood nexus literature at large is institutional support for consistent and consecutive SABS data-years (akin to the American Community Survey).

School Catchments and Segregation

Monarrez and Chien (2021) wrote an extensive report for the Urban Institute that explicitly analyzed school catchments as a mechanism for segregation, and highlighted cases in the U.S. where intense pockets of segregation persist, even though the general levels of school segregation have decreased in recent decades. While this report performs a very compelling analysis linking pairs of highly segregated schools to the inequalities created by the New Deal's Home Owners' Loan Corporation redlining policies using historical maps, it unfortunately utilizes a privately sourced dataset, rendering the findings impervious to reproduction and validation.

In a similar vein,Saporito and Van Riper (2016) investigates whether or not the 'regularity' of catchment zones across the US has any implication for reducing or exasperating segregation, similar to how congressional districts are drawn to capture a particular voting population, a practice known as gerrymandering. The authors find that on average, irregularly drawn catchments tend to have lower levels of segregation than regular (compact) catchments.

While this might be a consequence of different urban contexts - catchments in urban cores tend to be smaller with more heterogenous populations, whereas catchments in rural areas necessarily need to be larger and have a more homogenous population - it also suggests that school administrators could be 'gerrymandering for good'. Indeed, advocacy for the use of boundary drawing as a tool for policymakers to reduce segregation and increase diversity in schools is common across this literature.

Two well-published scholars in this subfield are Ann Owens at the University of Southern California, who studies trends in income and racial segregation in U.S. schools and Sean F. Reardon, who heads the Educational Opportunity Project at Stanford University, which is interested in quantification of opportunity in different educational regional contexts, primarily through variation in academic performance. Together, Owens, Reardon, and Jencks (2016) investigate schools in the U.S. through these dimensions and conclude that income segregation has increased in U.S. schools, measured as both *within and between* districts.

Finnish Context

Kauppinen, van Ham, and Bernelius (2022) and Bernelius and Vilkama (2019) study school catchment zones as causal factors in intra-regional mobility and neighborhood segregation in the context of Helsinki, Finland. They are presented here to contrast an American-centric perspective by differing significantly in political, economic, and cultural contexts. Notably, the neighborhood contexts are different in that schools do not have anywhere near the variation in quality that exists in the U.S. Though the Nordic countries are famed for their egalitarian civic structures, they have their share of xenophobia regarding non-western immigrants. Despite high quality schools uniformly across the region, Bernelius and Vilkama (2019) is able to model urban mobility patterns and segregation and finds school catchment zones (via parent's perception of school quality) to be a causal factor. Finish parents seek out higher quality schools (determined by the number of native Finns, non-immigrants), up until they have school-aged children, presumably prioritizing stability for the student over their desires to find 'suitable' neighborhood contexts. Similarly, Kauppinen et al. (2022) finds that catchment boundaries are a causal factor in intra-urban residential mobility using regression discontinuity techniques. These findings are made possible in part by the Finns maintaining datasets that are much higher quality than exists in the U.S. and contain data about the entire population as opposed to a sample.

Spatial Congruence of the School-Neighborhood Nexus

Forthcoming work by Rey and Knaap et al. (including the present author) directly investigates the spatial structure of the school-neighborhood nexus through Galster's *congruence*. Instead of taking census tracts as *a priori* neighborhoods, The authors regionalize census tracts using the *max-p regions* algorithm to create neighborhoods that represent geodemographic clustering in the 110 largest Core-Based-Statistical Areas in the United States. They calculate congruence between these neighborhoods and school catchment boundaries, and find correlates between congruence and spatial and demographic characteristics of the spaces. These metrics are constructed from both focal points: schools-to-neighborhoods and neighborhoods-to-schools.

The results indicate that full congruence (parity between neighborhoods and schools) is the exception, not the rule; congruence correlates positively with size and circularity (regularity), and negatively with density, though these relationships are by no means linear. Another important finding is that as the proportion of the Black population in a catchment grows, it tends to pull from *more* neighborhoods, while an increase in the White population tends to pull from *fewer* neighborhoods. As well, catchments that pull from multiple neighborhoods tend to have higher levels of diversity and are less regularly shaped, lending evidence to support the claims of 'good gerrymandering' suggested above.

Homelessness Dimension of Neighborhoods

Galster's emphasis on residence valuation as a focal point for neighborhood quantification is complicated by the continued proliferation of homelessness. In this review, we explore potential avenues from which to begin quantification. The unhoused are a notoriously difficult population to study in any discipline and vary widely from geography to geography. In particular, we seek to quantify where and how the homeless work to carve out a daily existence, and the effects of policies that both ameliorate and worsen homelessness.

The persistence of homelessness presents a quandary for neighborhood quantification and effects modeling by challenging the definition of 'residency', which generally is a house or a group of homes, each of which has different measurable attributes that determine their perceived value, which spills over and combines with other units into valuation of the larger area. Because the nature of residencies in homelessness can be tenuous, quantification of a neighborhood homelessness "dimension" (G. Galster, 2001) is best suited to focus on the more permanent structures, or encampments, of homeless communities as opposed to individual homeless persons. This is not to downplay the individual homeless as less important (and indeed these are the members of our communities who most badly need help), but quantitative neighborhood modeling is simply the wrong tool to address this problem. Qualitative methods in other disciplines, specifically policy analysis and sociology, are much better suited to make inroads in the homelessness epidemic.

However, given that people both produce and consume their neighborhoods (G. Galster, 2001),the individual homeless might be better understood as *attributes* of other neighborhood dimensions, such as affecting the perceptions of homeowners by 'lowering' the value of the area, in a quantitative spatial framework. Neighborhood encampments on the other hand, as we will discuss below, represent a decision by policymakers to guide (or push) the homeless to specified areas of a city, usually away from areas that are targetted for upscale development. As such, encampments have discrete borders where various 'effects' can be granularly quantified and tested against hypotheses.

Ultimately, quantification of the homelessness epidemic is a pedantic exercise if it is not concerned with furthering research on the ending homelessness through com-

munity actions and government policies. Belcher, Scholler-Jaquish, and Drummond (1991) provide a distinction between different stages of homelessness which is widely accepted by social workers and others who seek to end homelessness: marginal (or episodic) homelessness, recent homelessness, and chronic homelessness. These delineations are useful for crafting policies aimed at addressing different stages, as some interventions are more effective than others depending on which stage the person is in. The remainder of this section will mostly be concerned with the chronically homeless, as these are the people who are typically found within encampments and are the most difficult to rehabilitate into society.

In respect to different types of interventions, it can be assumed that for the chronically homeless, more generous, longer-term assistance policies are more effective at reducing homelessness than transitional housing or short-term assistance. Gubits et al. (2018) show that long-term housing vouchers are far more effective in preventing a regression into homelessness than short-term housing vouchers or transitional housing. This is a robust study that measures impacts across dimensions of housing stability, family stability, well-being of homeless parents and of their children, and self-sufficiency. This study was performed on over 2000 participants representing regions all across the United States, and employing pairwise comparisons when possible.

A Typology of Homeless Camps

Herring (2014) posits a 4-pronged typology of homeless camps on the west coast of the United States. Herring divides camps along dimensions of legality and control. The illegal dimensions consist of contested camps (such as protest-guided tent cities) and tolerated camps (those that are not legally sanctioned but tolerated by authorities for pragmatic reasons); while legal camps can be either accommodated (legally sanctioned camps that attempt to provide a link between the unhoused and the potential of getting off the streets) or co-opted (camps that have been effectively taken over by the municipality, usually mirroring the conditionality of service associated with homeless shelters and all the problems therein).

This typology contains a great deal of heterogeneity between different camps that fall within the same categorization. As well, underexplored is the idea that the differing camps may constitute a continuum rather than just a typology. For a hypothetical example, the brutality involved in the clearing of contested camps could cause enough unease in the general population that they choose to pressure municipalities, who change course and tolerate the camp. Then, the tolerated camp allows social workers to experiment with different styles of aid, leading the municipality adopt a more accommodating stance, assisting the campers in establishing a permanent site, as such was the case with Portland's Dignity Village. To stay with our hypothetical, the accommodated camp may lead the general population to become frustrated with the extent of generosity given to the unhoused through a discourse of deservedness, leading them to pressure the city, who then take a more authoritarian approach, co-

opting ownership and management of the camp. A specific avenue of research in the neighborhood literature is the therefore the quantification of *flows* from one type of camp to another, exploring and identifying examples of the scenario described here.

The variation in camps speaks to the individual spatial contexts of the camps having effects on behaviors and social outcomes - concurrent with Galster's conception. But Herring's typology is concerned with only the visibly unhoused, and only in concentrations exceeding the threshold required for collaboration such that a camp is established. This typology does not consider the visible but isolated homeless, in addition to the far more numerous 'invisible homeless' in the episodic or recent stages. What this typology does well is characterize the relationship and stance of the municipality to its homeless population.

Speer (2016) articulates a 'right to the city,' using a 'rights' framework similar to right to food, effectively arguing for a more dignified life decoupled from capitalist commodification of housing and amenities. They highlight sanitation infrastructure and conditions of the unhoused in Fresno using interviews and visits to encampments to illustrate the dehumanization of the unhoused by municipal policymakers. Much of this article discusses heartbreaking accounts of destruction of makeshift homes and other attempts by the unhoused to find some comfort and bodily autonomy.

The unhoused are forced to perform bodily functions in public, including urination, defecation, eating, bathing, love-making, in ways that are inherently dehumanizing. Nobody likes to witness these things, nobody likes that the homeless are forced to do them, but conditions are such that nobody wants to provide (pay for) a solution to preventing it, so instead these facts are mobilized to advance arguments and policies that force the unhoused out of public sight. This hostility to the homeless is, at the time of this writing, inevitable from at least some portion of the general population, which may or may not influence municipal policy. What is important is how city administrators react to hostility, what policies are enacted downstream of that reaction, and what measures are taken to counteract reactionary logics that lead to anti-homelessness policies.

Both Herring and Speer reference the use of force by municipalities (police) to remove the unhoused from public spaces, whether an established encampment or an individual using the restroom in a public business.

The Role of Economic Development in Municpal Homelessness Policy

In many ways, the proliferation of homelessness depends largely on scarcity of housing, specifically *affordable* housing. Just as neighborhood quantification generally is understood through housing stock, the variations and impacts to the housing market have reverberating effects across neighborhoods. As well, all actors in a position to be concerned about neighborhood valuation are incentivized to gamify and advance policies that increase valuation at any cost.

DeWitt (2022) demonstrates that the California Environmental Quality act (CEQA), which requires the production of enviornmental impact reports for new

construction projects in the state, has been effectively hijacked to delay and halt development on undesirable (low-income) housing. Municipalities and residents don't want to allow lower-income housing in their neighborhoods because they perceive such construction as lowering the monetary valuation of their neighborhood, a phenomenon known as NIMBYism (not in my backyard). Therefore they utilize the power of CEQA in tandem with other policies to stop development that could ameliorate homelessness and lower housing prices more generally in favor of development that will drive commercial traffic. A particularly egregious example is presented in the case of SoFi stadium in Los Angeles, was was fast-tracked to completion shortly after being introduced to the city council, meanwhile significantly less costly affordable housing projects face seemingly insurmountable blockages.

Development plans and specific projects represent decisions by municipalities target discrete regions of their cities at the expense of others. Concentrating affluence and commerce in one area necessarily requires the removal of poorer humans and less profitable buildings, a process known as gentrification. One theory about the process of gentrification is that it happens on the receiving end of of police mobilization - the post-industrial policing theory: the police are utilized to drive undesirable (usually poorer, browner) people out of areas that are targetted for development. Laniyonu (2018) presents an empirical analysis of the post-industrial policing theory by modeling and operationalizing gentrification. The author employs spatial Durban models on New York City census tracts from 2010 to 2014 to show that gentrification is strongly positively associated with increases in policing in *adjacent* tracts, rather than the gentrifying tacts themselves, which have a negative association with police presence. This supports the hypothesis that undesirable populations are pushed to the periphery of gentrifying areas to make room for more affluent populations. A relevant theory here is the so-called 'creative classes' theory, posited by Richard Florida. Florida (2003) presents a summary of this theory, which argues that *social capital*, or the communal ties that bind us, is much less predictive of economic growth than *human capital*, or the skills and experience of individual people. Florida's arguments have not aged gracefully - they require that these rather ephemeral concepts are operationalized through indexing census data, which is itself not without issues as described above, but are presented in a rather opaque manner as well (one example is the use of a 'gay index' as an indicator of if a city has become more or less tolerant, but the gay index is derived from self-reported census data in *the year 2000*. Florida describes homosexuality as "the final frontier of diversity."). However, the downstream post-industrial policing theory is much more robustly supported by quantitative methods, which suggests that while the 'creative classes' theory may not be the definitive reasoning, the current stage of capitalism has resulted in cities mobilizing police to arrange, organize, and manage populations in a way that favors redevelopment for the express purpose of extracting higher profits and rents.

In the following section, we further explore dynamics of policing and other changes stemming from the inexorable march of technological advancement.

The Computational Logics of Capitalism

In 1997, Michael Batty defined 3 distinct aspects of the digital world for geographers to investigate: *cspace* (the space within computers), *cyberspace* (the use of computers to communicate), and *cyberplace* (the infrastructures of the digital world). These aspects are interconnected and constantly influencing each other (Batty, 1997). While the intervening 25 years have been unprecedented in technological development, Batty's articulation of virtual geography as expressions of the digitized in the physical world remains relevant for the current work. Here, we are concerned with physical manifestations of the digital infrastructures in urban systems and public policy.

This section will explore these manifestations across disparate policy areas. In order to loosely group these areas, we examine them through the lens of 'computationalism': the belief that computers and algorithms *can and must* underwrite the fundamental organization of society and the distribution of resources. This ideological belief is fundamental in city councils and municipal administrators who have experienced political pressures to do more with less - the directive to be more efficient naturally leads administrators to turn to computers to help them perform their duties. In his book *The Cultural Logic of Computation*, David Golumbia positions computationalism within the larger tradition of rational individualism and global neoliberal hegemony, all of which greatly influence the culture and pathway of municipal policy making in the United States (Golumbia, 2009). Unfortunately, as we explore below, algorithmic logics do not mitigate the systemic issues like racism as true computationalists would argue, instead they reflect (and in some cases, amplify) the biases of their authors.

Computationalism in Policing

With computationalism in mind, we return now to the topic of policing. Police departments have historically been on the cutting edge of trying to incorporate new technologies into official police duties. To the computationalist, this is unequivocally a good practice, as the imputation of computational logics have the potential to remove the deeply consequential biases of individual offers.

However, Richardson, Schultz, and Crawford (2019) demonstrates that in the application of predictive policing systems, this is simply not the case. The authors investigate three police departments that are under consent decrees or other federal investigations for racist or corrupt practices that are simultaneously developing predictive policing systems, which, unsurprisingly, are found to reproduce the biases of the creators. This dynamic is the result of police data which reflect the decisions and priorities of the department, including focuses on certain kinds of crime (violent, street, property, and quality of life) over others (white-collar). Despite any studies that show a significantly higher occurrence of white-collar crime over property or violent crime (as cited in Richardson et al. (2019)), police databases are primarily focused on the latter while largely avoiding the former. This reflects the computa-

tional nature of municipal policing policies - rather than addressing the crimes that are impacting far more people, the police are guided to manage the aesthetics of the city by devoting all resources to addressing the more salient crimes and organizing the homeless away from developing centers of commerce - avoiding altogether the prospect of diverting funds from runaway police budgets towards programs that address the causes of crime.

The predictive policing systems described here are both ineffective at their stated goals and premised on the corruption that precede them. The fact that police departments are developing systems for predictive policing while under federal investigations for corruption and abuse speaks to the general autonomy that police departments have, but the lack of oversight (or even a general understanding) associated with big data practices is another theme that we will find recurring throughout this section.

On the Ubiquity of 'Big Data'

Big Data is a catch-all phrase that has colloquially come to mean the use of massive datasets to guide our decisions and policies. However, The implications of Big Data is widespread and immense, in some ways more theoretical than quantifiable. Jeremy Crampton defines Big Data as "a matter of technologic practices, epistemologies, and ontologies." This definition captures the essence of Big Data as a *practice* rather than simply large and complex datasets. Big Data centers the uninhibited, wanton harvesting of data - pieces of information about humans, essentializing and generalizing them. Crampton (2015) provides an accounting of the facts about the intelligence community revealed by Edward Snowden, including characteristics about the overarching intelligence apparatus/workforce, which contains the enrollment of academia, social media, and the private sector. In addition to both the still-secret and publicly known uses of 'activity based intelligence' disclosed by Snowden, these practices have become widely accepted across the digital dimensions of our lives, largely due to the computational logics of capitalism that guide the public and private sectors to prioritize short-term economic gains over promoting equitable societies and sustainable practices.

Lest we descend into cynicism in the upcoming sections, we should briefly acknowledge that there are practical applications for new technologies that can improve quality of life through pleasure and convenience that don't necessarily comport with the computational logics of capitalism. In the United States, the speed at which digital platforms are put to market by way of investors (and indeed, the preeminent privatization of all life) somewhat precludes this conceptualization, but Certomà (2020) elaborates a research agenda for digital social innovations (DSI) in a European context, which refer to initiatives that leverage digital technologies to co-create solutions for a wide range of social needs. They cite a few examples: The reusing of abandoned buildings, and the organization of new commons. Of particular interest here is the use of DSI in creating local sharing economies in neighborhoods. The

recency of digital platforms in the sharing economy, the aftermarket economy, local civic communication, and micrologistics make it possible to imagine the use of digital platforms absent extractive practices, but work will need to be done to reclaim these spaces from exploitation.

California Proposition 22 (2020)

The context surrounding and passage of California proposition 22 in 2020, detailed in Cherry (2021), is relevant here. Prop 22 was propelled by Uber, Lyft, Doordash, and other ridesharing/micrologistics companies in response to California AB5 (2019), which codified gig workers as employees under California law. This change in categorization would have required the companies to provide their workers with additional benefits and rights (including collective bargaining). Prop 22 passed by a margin of 2.5 million votes, largely as a result of the companies breaking records for money spent on advertising, much of which went above and beyond the typical bad-faith arguments used to convey and posit arguments about complicated labor law to an overstimulated and attention-depleted voting population - there were instances of food delivery workers being asked to drop "yes on 22" literature off with their orders.

In the context of the height of the COVID-19 pandemic, wherein these workers are on the front lines, the prospect of being forced to include leaflets containing specious arguments about what is best for you in your relationship to the exploitation of your labor is particularly grim.

Marxist perspectives

Along with the advance of technology comes a rich literature investigating specific uses of technology and societal implications resulting from those uses. Burrell and Fourcade (2021) presents a thorough reading and framing of these topics that is explicitly Marxist in perspective. They propose an extension of the class divide formulated by Marx: The *coding elite*, the upper crust of programmers and tech executives, who organize society extract wealth from the *cybertariat*, who comprise a wide swath of digital laborers.

Something that is underexplored here is the processes through which the coding elite and cybertariat are produced. Central to the formulation of this 'Marxism with Silicon Valley characteristics' is the notion of the 'almighty code' - if one can touch, edit, or read the codes or algorithms that drive Big Data innovations, one inherently has more potential to advance through class structures than those who do not touch code. This is mostly correct, but increasingly, the cybertariat class can and does touch code, and yet are relegated to cybertarian jobs. Computer science know-how does not necessarily elevate a person on their own merits. Inter and intra-industry social capital still plays an outsized role in determining if someone will advance in

class status - but this is a potential avenue for further research. [1]

Here we must recognize that the relationship between the two classes are significantly more obfuscated than they were in Marx's time. Indeed, when considering the various End User License Agreements and general opaqueness with which existing regulations are presented to the consumer (and in the case of the gig worker, the presentation of a labor contract), we are often agreeing to various breaches of privacy through an increasingly sophisticated array of sensors, algorithms, and third-party arrangements without knowing it (Thatcher, O'Sullivan, & Mahmoudi, 2016). Meanwhile, the products are commodified in privacy information markets. Thatcher et al. (2016) present these processes as 'data colonialism,' to counter the early framing of technologies as 'digital frontierism', arguing that the current relationships amount to an "accumulation by dispossession", as formulated by Harvey (2003).

Privacy Information Markets and Conclusion

A privacy information market "arises when privacy becomes a market commodity that can be bought and sold" (Crampton, 2015). Individual data points, once abstracted and aggregated, are algorithmically processed and used to generalize and predict purchasing and consumption patterns. The Snowden documents revealed that such patterns are being collected and acted upon at the national and international levels in ways that are consequential to our expectations of privacy. What is sure, but less clear, is that these practices are widespread across private firms as well.

In 1961 Raymond Williams published a book containing an essay titled *Advertising: The Magic System.* Referring to advertising as the official art of capitalism, he writes:

"*It is what 'we' put up in 'our' streets and use to fill up 'our' newspapers and magazines: and it commands the services of perhaps the largest organized body of writers and artists, with their attendant managers and advisers, in the whole society.* Williams (1961)"

Increasingly, the logics of advertising are informed algorithmically. As human interaction moved online, tech firms were able to claim the entirety of ownership of the new means of production by framing uninhibited data harvesting as benign, even mutually beneficial (Burrell & Fourcade, 2021). In the intervening years, with the advent of privacy information markets, the art of capitalism is no longer just the work of the marketer, but it is also passively performed by the marketed by virtue of data colonialism. As well, the marketer is no longer limited to advertisement of goods and services, but can monetize the processing of the aggregated data itself; as

[1] As well, to consider a development of the utmost recency, the various innovations being made in regards to Artificial Intelligence imply an imminent disruption of the knowledge economy and the way humans interact akin to the impact of the Google search engine. This is sure to result in a wider distribution of coding skills. `https://youtu.be/40Kp_fa8vIw?t=113`

described by Crampton (2015) *vis-a-vis* Snowden, these practices permeate back and forth from the private sector to the intelligence community and beyond, informing how humans interact, associate, and think (Burrell & Fourcade, 2021). The 'art' has already conquered *cspace* and *cyberspace* (Batty, 1997), but through the widespread application of computational logics to societal organization, its tendrils are extending into *cyberplace*.

Annotated Bibliography

1. Monarrez and Chien (2021)

   This paper evaluates ethnic and racial compositions of neighboring schools to find discontinuities. The question is to what extent do neighboring schools segregate their populations and school resources (such as staffing). The authors find over 2000 pairs of neighborhoring schools that are vastly different from each other in ethnic composition and resources, suggesting that school attendance boundaries (SABs) are drawn in ways that amplify segregation, intentionally or otherwise. They link existing inequalities to those created by the New Deal's Home Owners' Loan Corporation redlining policies using historical maps. While they use SABs extensively, they source their data privately, rather than using the public School Attendance Boundary Survey.

2. Saporito and Van Riper (2016)

   This paper contextualizes the 'school attendance zone' or 'school attendance boundary' (SAB) as a concept in education research and demography. The authors establish the benefits of diverse schools and argue that the drawing of SABS is one of the best tools available to administrators to increase diversity. They explore the causation and directionality of segregation in neighborhoods in schools, considering the 'regularity' of school catchment zones, meaning if the zone is square/rectangular/compact or irregular/large/amorphously drawn, and show that the more irregularly drawn (i.e. not rectangular) shapes contribute to school diversity. Compact, rectangular SABs tend to mirror the demographic makeup of the overall city, meaning that a grid of SABs will simply reproduce the existing segregation in the city. SABs which are 'gerrymandered' to be sprawling and irregular can draw students from across different ethnic neighborhoods in the city, resulting in a more diverse school. The thesis of this paper is that segregation in schools is largely driven by segregation patterns in the local residential areas, though this not a universally agreed upon pathway.They develop measures of irregularity, including concavity, convex hulls, and Polsby-Popper. As well, they calculate spatial clustering and absolute diversity measures for race/ethnicity. Shape comparisons are made to US congressional districts and find that on average, school catchments are mostly regular, but that some are very irregular. The major finding of this paper is that the irregularly shaped catchments are almost always more diverse than the compact catchments.They use the 2009 SABINS database to show that this pattern largely holds, that irregularly drawn SABs almost always have diverse schools.

3. Rey et al. (2011)

   This paper is concerned with advancing the study of spatial dynamics of neighborhoods, as opposed to neighborhood composition; i.e. spatial boundaries of

a neighborhood vs. the people that live within it. The authors argue that while both are critical for understanding neighborhood change, the study of spatial boundaries is vastly underinterrogated compared to neighborhood composition. The framework presented ivolves regionalizing census tracts (using a Max-P algorithm) in Metropolitan Statistical Areas for two time periods and then investigating 22 neighborhood characteristic variables from census. Results were examined in the regionalized study area (neighborhoods) and at the /a priori/ level (tracts). The findings suggest that higher density, smaller land area, and more centrally located (centrality) neighborhoods tend to experience the highest degree of change.

4. Fu (2020)

   This article asks Q1: Which disciplines are most quantitively interact with geography for the purpose of advancing sustainability science; Q2: How to best promote geograpic sciences in transdisciplinary methodologies /public policly/, /urban planninging/. The author collect data on frequencies of 11 words that appear with "geography" + "sustainability" in titles, keywords, and abstracts in publications of the ISI Web of Science from 2010 to 2019. The resulting associations between geography, sustainability are orgazied along different dimmensions, such as research objects, policy areas, and modelling methodology. The author then theorizea and describes 5 distinct spheres of research that geographers could pursue to advance the use of geographical methods into sustainability studies: Geographical processes, Ecosystem services and human wellbeing, Human-Environmental Systems, Sustainable development, and Geo-data and models for sustainability.

5. Thatcher et al. (2016)

   This article contributes to theoretical understanding of the role of big data in capitalist production. Through End User License Agreements and myrriad smart devices and sensors, technology firms collect and aggregate data in a way that resembles David Harvey's Accumulation by Dispossession. Individual data points are abstracted away from the "lifeworld" and algorithmicly processed to generalize and predict purchasing and consumption patterns. "Social norms, aesthetic pleasures, and perceived values encourage the use of an increasing array of technologies equipped with sensors that quantify and then communicate data about previously private times and places to third-party actors." This process is termed "data colonialism," to contrast with the framing of technological advancements as "digital frontierism." Further investigation in this area for me is the role of big data in the "filtering" of news and personal information feeds from the basis of the aggregated digital identities created by dispossed data.

6. Crampton (2015)

This paper provides a study of the complications of the techonological advancement of big data. It draws primarily from examples of consequences drawn from the US Intelligence Agencies (IC) and are primarily divided into two categories: (geo)privacy and algorithmic security. "Big data are a matter of technologic /practices, epistimologies, and ontologies/." The article provides a detailed summary of key facts about the IC revealed by the Snowden documents; personel, budgets, specific operation details, and entertains the legal arguments surrounding things like bulk surveillance and 'incidental collection'. The author argues that corporate activities actively extend the state by increasing its reliance on the private sector; government purchases data, underwrites research, funds operations that increase government's depth of view. The paper touches on uses of big data by the government for warfare, particularly with drones in the war on terrorism. The author provides avenues for future research: Better histories of development of geospatial IC, better accounting for IC operations, better encryption and legal protections (informed consent about government surveillance.

7. Laniyonu (2018)

   This article presents an empirical analysis of the post-industrial policing hypothesis by operationalizing gentrification and applying spatial Durban models in New York City between 2010 and 2014. Spatial Durbin models an outcome of interest as a function of endogenous interaction effects, direct effects, and exogenous interaction effects. Effects are modelled based on differing theories to explain the spatial variation of policing, including rational-beauracratic theory, and conflict theory; racial threat, economic threat. Initial analysis yields support for all of these theories - Effectively, the Durbin modelling reveals that gentrification in a given tract is very strongly associated in increases in policing in neighboring tracts, but negatively associated in itself. As well, these effects vary with the extent of gentrifiation that has occurred - the author distinguishes between tracts inelligable for gentrification, tracts elligable, and post-gentrified tracts. These findings support the notion that police are utilized to drive undesired persons from a given area to make it more ammenible to the in-moving richer, whiter population. The poorer, darker population is corralled and heavily policed in adjacent tracts. Police ramp up their postindustrial policing practices in areas known to be undergoing change (i.e. experienced influx of 'undesirable' people).

8. Sampson, Raudenbush, and Earls (1997)

   This article is a study of the correlates of violent crime across varried neighborhood contexts, using the Project on Human Development in Chicago Neighborhoods dataset; the census tracts of which were regionalized into neighborhood clusters. The basic hypothesis is that collective efficacy, and through it informal

social control, can explain the variation of violent crime across neighborhoods. Things like duration of tenacy and homeownership matter more than economic stratification or demographic factors (race). The methodology involves a hierarchical model of variations within persons, variations within neghborhoods, and variations between neighborhoods to get at correlates of social cohesion. After operationalizing collective efficacy, the author finds that collective efficacy is negatively related to violence in neighborhoods using regression modelings. Several additional tests were run to determine the extent that previous homicides, concentrated disadvantage, immigrant concentration and resident stability factor into violent crime, and found that collective efficacy was by far the largest effect. The results imply that collective efficacy can be meausured reliably at neighborhood scales and is relevant to the story of violent crime in Chicago neighborhoods. One major flaw of the study is that the operationalization of collective efficacy is done by collecting survey responses rather than actually observed.

9. Herring (2014)

   This paper demonstrates a good deal of variation in large homeless encampments, and attempts to develop a typology. The study is the first to comparitavely examine variegated homelessness within a single analytical framework, consisting of 12 encampments across 8 municipalities on the west coast. The result is a topology of 4 kinds of encampments: /co-optation/, /accomodation/, /contestation/, and /toleration/. The author utlizes interviews with municipal administrators, non-profit actors, and the homeless residents, as well as living in the communities from a period fo 2009 to 2011. The typology reveals that the type of encampment is largely "co-structured by policies of the state and the adaptive strategies of homeless people and their allies in their particular urban context." This is clear by contrasting the aesthetics, purpose, and results of Portland's Dignity Villiage (accomodation) with the prison-like structure and restrictions of Ontario's THSA (co-optation). These two examples represent the 'legal' end of the typology. The illegal encampments range from serving an explicitly political goal of bringing awareness to homelessness (contested) to mirroring representations of condensed poverty, including the open-air drug markets (toleration). This paper should be considered in a continuum of post-industrial policing in service of capital. Underlying many of the findings in this paper are the facts that municipalities take these actions at the behest of landed residents and commercial interests.

10. Certomà (2020)

    This paper is a review of a new concept called Digital Social Innovation (DSI), which refers to innitiatives that attempt leverage digital technologies to co-create solutions to a wide variety of social needs. DSI is associated with the

development of"smart cites." The paper argues that a applying a critical geography lens to these initiatives could yield important perspectives about the power relationships involved. The author thus elaborates on 4 avenues of research that critical geographers should pursue. The suggested agenda starts with investigating DSI as networks of networks and deconstructing mainstream narratives about smart hyperconnected city in relation to the reproduction of capitalism. Are cities laboratories for technocratic governmental solutions? Are they incubators of citizen critical engagement or do they aid in the production of state and market power? This article is a little obtuse without any prior knowledge of some of the works referrenced. Further investigation: *Manifesto for Digital Social Innovation (Chic 2020), Ind.ie, Mastodon, Digital Space (concept).*

11. Andreasson and Rajah (2022)

    This article demonstrates a system dynamics model to model the influence of the American Legislative Exchange Council (ALEC, the conservative lobbying group) on American legislative process through their increased membership. The political science literature guiding the model suggests that a shift in governance to 'network governance' is causing a reduction of resources in public institutions via the creation of new institutions. New problems result in the creation of new institutions, which absorb resources away from the existing institutions. The model demonstrates 6 feedback loops that reinforce and increase ALEC membership and influence in the legislative process. The authors then employ scenario analysis, wherein several hypothetical situations (based on 'what if'-ing real events, i.e. corporate backlash after the Trayvon Martin killing was linked to ALEC) are evaluated against a baseline scenario. The explanations provided by the model make sense and are intuitive, but the data driving the model is mostly implied, and unclear - the specific driving points are unstated. ALEC is very secretive with its data and does not generally assist in this expose. I might consider more research on system dynamics methodology in the event I want to model political behavior.

12. Richardson et al. (2019)

    This paper expands upon the term 'dirty data' to reflect the nature of data production in policing - derrived from corrupt and unlawful practices, and presents three case studies of police departments that were simulatniously under a consent decree or some other federal investigation while developing predictive policing systems. The idea is that these departments are under investigation as a result of their corrupt practices (including dirty data creation and utilization) while using those practices to inform their predictive systems. I read the Chicago section, which describes the Strategic Subject List, which was both ineffective at its stated goal and entirley informed by the corrupt and biases practices that preceeded it. The paper ultimately argues that dirty data exists

systemically in the criminal justice system. The paper concludes with a brief, but concise discussion of the role of police as servants of capital (my interpretation), the dynamics of gentrification and the threat/consequences of unabatted use of dirty data in policing systems.

13. Batty (1997)

    This paper is a widely cited typology of new frontiers created by the intersection of computers and geography. The author delineates and defines 3 distinct aspects of the digital world that are relevant to geography: cspace: the space within computers, cyberspace: the use of computers to communicate, and cyberplace - the infrastructure of the digital world. The author presents these aspects as interconnected and constantly influencing each other, along with the traditional concept of space/place. In this context, it seems that I would be interested most in cyberplace and the implications of its growth on public systems - how better systems can help improve society but more critically safeguarding against the dangers big data imply: the destruction of any concept of privacy or control over ones own life. The paper is relatively dated given the advance of technology in the previous two decades, and there is sure to be more recent works that I should investigate for any concrete phenomenon which might overlap with my research interests.

14. Speer (2016)

    This paper describes and advances an argument for the right of the homeless to a 'right to the city', originally articulated by Lefebver in 1996 (?); effectively arguing for a more dignified life decoupled from capitalist commodification of housing and sanitation infrastructure. The article details the conditions endured by Fresno's homelessness community using interviews and visits to encampments over several months. There is a discussion of municipal policy to displace and dehumanize the homeless while refusing to consider ammeliorating the conditions on the ground, primarily waste and sanitation services. A lot of the paper has to do with accesss to bathrooms for bodily autonomy. Public defication, urination, bathing, love-making, is dehumanizing, but conditions are such that nobody wants to provide (pay for) a solution for preventing it, so instead it is mobilized to advance arguments for destoying encampments. This paper has heartbreaking accounts of destruction of makeshift homes and treasured posessions to advance the normative arguments presented.

15. DeWitt (2022)

    This comment is a law review of the California Environmental Quality Act (CEQA), in which the history of the evoluation of CEQA is described - the motivation, formulation, passage, and eventual mobilization and weaponization of

the legislation to block construction projects, particularly as it relates to housing. It also highlights 3 major ways that California has attempted to circumvent, weaken the blockade of CEQA, mostly through state legislation: SB540, AB70, and AB73. These leverage other mechanisms in the state, such as the Regional Housing Needs Assessment - if the municipality isn't within projections to meet the needs as defined by the RHNA, certain CEQA requirements, time constraints, etc. could be bypassed. Because these bills needed leglislative concesssions to pass, such as requirements that developers pay workers prevailing wages, or that they bills fail to pass at all, they are largely inneffective for increasing the State's housing stock. The author concludes that solutions from within the stateare not viable, and that California should consider adopting policy fixes from other states: MA, MN, and NY, in ways that streamline the regulatory steps involved in housing development. These mostly involve trying to protect developments from frivolous or otherwise counterproductive CEQA lawsuits: removing anonymity, creating municipality-specific CEQA processes, enacting housing-friendly zoning statutes, and others. Ultimatley these are all subject to California's Supreme Court and have their own barriers. CEQA remains a impenetrable barrier for increasing the supply of housing in the state, seemingly in service of landed Capital to pursue commercial developments and upscale housing above multi-family dwellings, apartment buildings, and low income housing.

16. Kauppinen et al. (2022)

    This article is an empirical investigation of the causes of segregation in schools in Helsinki, Finland. The study design uses the total population in the city and school catchment zones to create a regression discontinuty design to determine if national origin (operationalized as 'Western' vs 'Non-Western' is a causal factor in residential/neighborhood and school selection and driving segregation. Several distinctions can be made between school systems in Helsinki vs. the US, including the extent of privitization and charter schools that exist here but not there. Catchment boundaries are found to be a causal factor in intra-urban residental mobility. The results are stratified by income and household composition (single person, dual persons, dual persons with child under 7, dual persons with child over 7, etc. The greatest pronouncement of the boundaries as a causal factor in migration was found in high income people with children under school age: wealthy parents utilize their resources to select what they think are the better schools, determined by the share of non-western migrants and subsidized housing in the catchment zone.

17. Bernelius and Vilkama (2019)

    This paper is an analysis of the two-way relationship between school catchment segregation and urban residential mobility in Helsinki, Finland. The city is an

interesting case due to the (self-proclaimed) egalitarian nature of Nordic civic infrastructure - the quality of schools not only exceed those in the US, but they are largely uniform across the city in quality and resources. The main finding of this paper is that despite the uniformity, urban mobility and segregation can be linked to parent's perceptions of school/neighborhood quality in the sense of demographic factors. The data demonstrates that while housing decisions are influenced by multiple factors, the catchment areas are linked to residential mobility patterns of native Finns in systematic ways: family mobility is higher when the child is not school-aged, but drops off dramatically once they are. Parents move to try to get the 'best' socioeconomic context for their children, and stop once the childs networks are being established.

18. Burrell and Fourcade (2021)

    This article is a thorough reading of literature concerned with 'Big Data' and discusses the social implications of the various transformations caused. It takes a particularly marxist perspective by positing the rise of a new occupational class called the coding elite, who has consolidated power through technical control and therefore the digital means of production over the marginalized class: cybertariat

19. Florida (2003)

    This article is generally exploring dynamics of social ties and social makeups in regional/city transformation and development. Florida is refuting claims about the importance of social capital, positing that in the modern era, people want quasi-anonymity and don't really want to live in ties that are invasive or prevent them from pursuing their own lives. He then lays out a theory of the creative class, a cadre of people that are educated and creative are the primary drivers of economic growth in cities and regions. The rest of the paper attempts to quantify three theories, ocial capital, human capital, and creative class, as being determinitive of the growth of a city. The general conclusion is that social capital is much less predictive than human capital, while creative class out-predicts them both. The paper is generally opaque in that these theories are quantified into indexes that the reader don't get to read, though the entire paper is generally an abstraction of his book, which presumably has more details. The creative class putting a high value on 'tolerance'. All of the concepts in this paper are not sufficiently defined for me to judge them on their merits due to this artcile being a summary of Florida's 2003 book, rise of the creative class.

20. Woods (2017)

    Development Arrested is a seminal work that combines several methodologies to describe the history of development in the region known as the Mississippi

Delta. The work is largely concerned with the power structures involved in the creation, action, and dissolution of administrative bodies in the region; but Woods also draws upon the development of culture in the region, and as such this book is also an epistomology of the blues, broadly defined.

Supporting articles: Isenberg, Connerly, Lipsitz, Wilson, and Thomas (2004), Tiefenbacher (2019)

21. Golumbia (2009)

    The Cultural Logic of Computation presents a critique of the ideology that David Golumbia calls 'computationalism', which is the belief that computers and algorithms *can and must* underwrite the fundamental organization of society and the distribution of resources. The book begins by placing computationalism in relationship to the works of Noam Chomsky, who's works have largely redefined the field of linguistics. Golumbia argues that The implications of Chomsky lead to computationalism, which is most fulfilled and complete in an authoritarian state, rather than the leftist ideology that Chomsky publicly espouses. Eventually, the book moves to discuss computationalism in the context of global culture and the advancement of technology, and in particular the notion that computationalism is a logical extension of rational individualism which itself is often deployed to support neoliberal economic arrangements. The contrast between the communitarian ideal that computers are marketed to evoke and the reality that they are utilized to impose a top-down, anti-democratic, even authoritarian ideology is a recurring theme in the book.

22. Brazil, Wagner, and Ramil (2022) This article is a comparison of 5 different methodologies that can be used to measure opportunity (or lack thereof) in neighborhoods. The methods compared are: California: CalEnviroScreen 3.0 (CES), Child Opportunity Index 2.0 (COI), Low Income HousingTax Credit Opportunity Index (LIHTC), Opportunity Atlas, and the Regional Opportunity Index (ROI). The general disagreement between each of these indexes was more substantial in the higher opportunity areas in the state. The major take away from this study is that measuring opportunity for policy applications should not be performed in a one-size-fits-all capacity - instead the measures taken should be carefully considered alongside the type of programs that are designed to be implemented. As well, low opportunity designations may carry a degree of stigma that could negate the programs being implemented, and the general disagreement at the high opportunity (lower income) end of the mapping suggests that these are sometimes applied more arbitrarily than it might seem.

23. Burdick-Will (2018) This paper tests two hypothesis regarding the 'placeness' of elementary schools: first that parents of students will report stronger ties to the friends and neighbors also attached to that school, and second that

parents will shift the orientation of their percieved neighborhood boundaries in the direction of the school their child attends. These are tested using the Making Connections survey, which surveys 28 low-income schools in 10 cities. Importantly, the survey includes questions that require respondants to draw the physical boundary of their neighborhoods in relation to the location of the school. Results confirm both hypotheses, but the methods used to confirm H2 (drawing) are a bit confusing. I should return to this paper to evaluate the findings when I have a better understanding (and more time!)

24. Church and Murray (1993) This paper is responding to a model formulated by (Diamond and Wright, 1987), who were trying to optimize school closures and school utilization. Church and Murray show that the Diamond and Wright paper biased the closures of lower capacity schools, which would result in utilization problems across a district. A major problem with the original formulation is that it minimizes the deviation between open and closed schools, which leads to the closure of smaller schools, regardless of location, because it would lower average utilization rates.This leads to a discussion about school utilization rates more based in reality - a school is not optimally utilized at 100 percent capacity because the school needs to have some operating space for student fluctuation both during and in-between academic years. To adjust, Church and Murray add an additional constraint to the model, which accounts for deviation between only schools that remain open.The adapted model is then turned loose on a hypothetical (toy) dataset of 15 tracts and 5 schools. I must remember that I was 1-years-old when this paper came out so the computing power (which is boasted about in the paper) had significantly less capacity than it does now. Though the model is saled up to a larger dataset (200 tracts and 9 schools, unclear if it is a real area), the use of toy data for the model really detracts from its usefulness at this point in time due to the degree of assumptions it takes - particularly equallity in capacities and racial balances

25. Gubits et al. (2018) This paper is an analysis about different approaches to addresssing homelessness. It specifically wants to understand if long term housing assistance is more effective relative to other, less generous policies. The study employes over 2000 families across 12 sites and models effectiveness between transitional housing, short term housing subsidies, and long term housing subsidies. The long term interventions resulted in fewer instances of homelessness, food insecurity, and other indicators of well-being at a cost that was on average 9 percent higher than other interventions. As well, the model indicated that the less generous interventions have little effect on these metrics.

26. Healy (2017) In his provocatively titled “Fuck Nuance, Kieran Healy describes three kinds of ’nuance traps’ that are common in sociology, some of which are applicable to my work. Most of these have to do with understanding that nuance

is not a replacement for theory, that having a high resolution model with tons of data points is largely useless without a theoretical principle to guide hypothesis. Ultimatley, this paper argues for more rigorous investigations of theories that guide research in a effort to make them more robust. An underrated part of Healy's writing is how he describes the role of an academic in the public age. In particular he argues that to the extent possible, sociologists should participate in public debates and posit their theories on social media (he recommends twitter), but cautions the various traps that are innevitable in this particpation.

27. Herring (2019) This article demonstrates a turn in the orientation of policing towards 'quality of life' complaints against the homeless. These complaints stem from a massive increase in "anti-social behavior" laws across the United States (probably as a result of an increase in the homeless population. These include bans on camping, sleeping in public, loitering, living in vehicles, and more. On average, cities in California have 9 anti-homeless laws (LA and SF have 21 and 24). This article contains a plethora of qualitative work that describes the formulation of anti-homelessness policy and reactions from municipalities, including the 'shuffling' of poverty around the city, and the privelidging of high impact areas (such as near where city officials live). Its primary data source is a hoard of 311 calls. See the vignette at the start of the article: "We're playing a massive game of whack-a-mole... I get it, but where are they supposed to go?"

28. Leckie (2009) This UK article explores the relationships of pupil mobility to academic acheievment. The author argues that even advanced modeling techniques fail to acknowledge that various moves during a student's academic career can impact achievement. Unsurprisingly, the author finds that moving during school is negatively associated with academic performance, though the strength of this effect is dependent on the timing of these moves. A major finding is that a strong primary school effect (finishing the entirety of primary school in one location) has positve lasting effects on academic performance. This augments rather than contradictions previous findings that secondary schools were the more important as the author still finds strong effects.

29. Murray (2000) This paper presents and analyzes the differences between two clustering models: the Interaction Clustering Problem (ICP) and the Median Clustering Problem (MCP). ICP is much more sensitive to the functional quality of cluster groupings than is the MCP. That is, when an MCP grouping is evaluated as an ICP, it always results in a functional difference that is greater than when an ICP grouping is evaluated as an MCP.There are large and numerous occurrences of functional dissimilarity between evaluated clusters for ICP. The use of the MCP to approximate the ICP resulted in clusters which were as much as 46 percent less efficient - therefore, for [[exploratory spatial data analysis]] and GIS applications dealing with interaction more generally,

The ICP should be preferred.

30. Owens et al. (2016) This collaboration of segregation scholars is an investigation of income segreation dynamics in schools and school districts. By combining Census and CCD (school) data, they investigate trends of these dynamics through . The general finding is that income segregation increased from 1990 to 2010 by about 17 percent with 28 percent STD. This paper is useful for its thorough evaluation of different factors that could be independent variables in regression modeling in the school-neighborhood nexus, as well as a formulation of Rank Order Index (Reardon2011) to model segregation. This is a good one to review for a general understanding of the dynamics of school segregation since 1990.

31. Takahashi, McElroy, and Rowe (2002) This paper presents an analysis of 8 semistructured interviews with homeless women with children in Orange County to determine to what extent their status as parents coincides with the stigmitization of homelessness as a major barrier to reentery. A takeaway from this article is that despite the fact that all participants were employed and housed, they reported that their status as homeless was constantly reinforced by family, friends, and social workers, in ways that resulted in shame, which they cited as reasoning for not enrolling in services or benefits that might have aided them. These interviews were performed in 1998 however - culture around homelessness services and the transitional housing from which the respondents were recruited may have shifted.

32. Williams (1961) This is an essay that was origianlly published in Raymond William's 1961 book that I originally read in my undergraduate Media and Cultural studies program. It is a narrative history of the development of the advertising industry that I associate with the family of cultural critics; chomksy, adorno and horkheimer, stuart hall, gramsci, etc. The rage in the quote from losing yet another public space to advertising is reflects the general feeling of dread and disappointment that I get from recalling watching the internet develop over time. the internet experience grew from the mysterious place I used to play browser games and chat with my friends over AIM as a kid into this thing that is supposed to represent humanity's salvation but has just become an unnavigable deluge of advertising, data farming, third-party-isms and EULAs.

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