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Comparative Analysis of Charles Booth's London Poverty Map (1889) and Ernest Burgess's Concentric Model (1925)

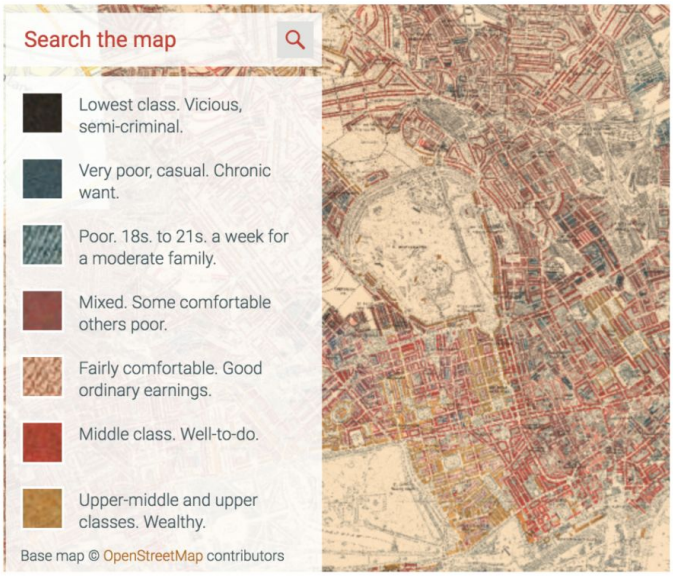
INTRODUCTION

In recent years, there are surging interests in constructing a science of cities and using geolocation and social flow data (e.g., transportation, mobile phone calls, wifi hotspots) to illuminate the regularities of cities' life cycles. Collaborations from researchers worldwide has created fruitful outcomes, exemplified by Michael Batty's book *The New Science of Cities*, Geoffrey and Bettencourt's city scaling framework (2007), and institutional efforts featuring the Center for Advanced Spatial Analysis in London, Future Cities Laboratory – Singapore-ETH Centre in Switzerland and Singapore, and Santa Fe Institute in the United State. As census data and mapping tools like ArcGIS had become readily accessible to the researchers and public today, people take for granted the spatial mapping of social problems, the availability of large-scale social statistics, and even the cross-border collaboration, while barely reflect on the origin of these practices and their implications. What does a new composite poverty index mean to represent the spatial distribution of urban poor in cities? How should we classify people to gain insights of the social, economic, and political organization of local communities? To what extent can we quantify human activities? Is it ethical to collect big data in the urban environment? These are questions that Sociologists have equally grappled with during the period of late 19th and early 20th century. At that time, the social survey methods and the cartography of social class are the equivalents of big data and ArcGIS today, driven by the desire to understand the structures dominating social divisions in cities and their relationship with space. Moreover, the maps and data from the research provided a scientific and empirical foundation for social policies to take place.

Among all the researchers, Charles Booth and Ernest Burgess were both credited as "the first person" in their fields. Charles Booth was an English businessman in the late 19th century. Without any commissions, Booth orchestrated decade-long efforts to construct a comprehensive overview of poverty distribution in London, coloring every street as a combination of wealth and employment patterns (Ball and Petsimeris 2010). Booth carried out the first series of work in 1889, relying on the School Board Visitors to provide information on the families that they are responsible for. Detailed maps and findings were published in Booth's book titled *Life and Labour of the People* in 1889. Ten years later, Booth and other investigators responded to the need to expand the previous work and accompanied policemen on their rounds to note down direct observations of the neighborhoods. The final map carved out the central part of London, bordering Isle of Dogs to its east, Chalk Farm to its north, and Chiswick to its west, and Camberwell to its south. Booth also coupled detailed qualitative notes and large-scale statistics with his poverty map, a method that initiated the social survey movement that later influenced researchers both in the U.K. and across the Atlantic.

Ernest Burgess is a member of the Chicago School of Sociology that Booth had influenced. His famous monograph *The City* in 1925 is both a response to the intense debates about social survey methods inside the sociologist community and the first of its kind to present a concentric model of Chicago's spatial organization (see Figure 2). He also incorporated ecological mechanisms to explain the growth of cities as a result of immigration and push the boundaries of the concentric zones further away. Burgess's paradigmatic presentation of cities in a concentric form and his theory of social disorganization -- a structural and spatial explanation of urban poverty and crime -- set the foundation of the Chicago school of Sociology. Though

Burgess cited a large number of social survey efforts, including Booth, in his work (1925), he did break away from Booth's paradigm, which is evident in his mapping language that aims to present a more theoretical and dynamic representation of cities (see Figure 1 and 2) than an empirical one.



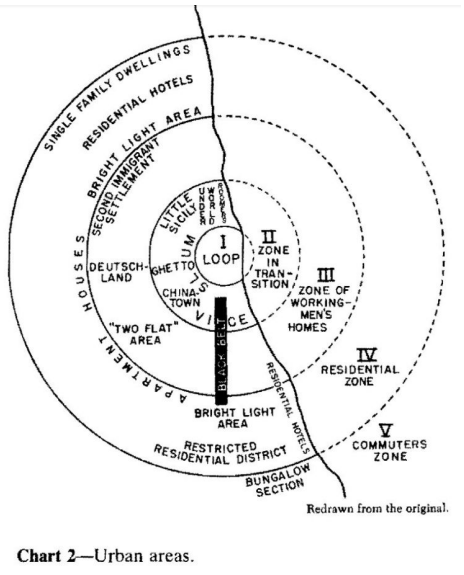


Figure 1 (left): A Screenshot of Booth's Poverty Map Legends on the LSE website ("Map | Charles Booth's London" 2016)

Figure 2 (right): Illustration of Burgess's Concentric Model (Burgess 1925)

Therefore, I would like to propose a comparative history project to juxtapose the context of which Charles Booth and Ernest Burgess came up with their paradigmatic map of cities. In particular, the historical question I would like to ask is how Booth and Burgess had used their agencies to challenge the very structures that give birth to their masterpieces by embedding a vision of new social order in their cartographies, and how may historical forces from 1889 to 1925 contributed to connect and explain their agencies. I believe a "script" approach to this comparative analysis can best reveal the fundamental commonalities that emerge across Booth

and Burgess's approach as well as the context that differentiate them. Burgess's conscious efforts to critically assess Booth's work and his legacies exemplify the rewriting process of the "script" as he added his own flavor. Traditional scholarship tends to either separate the discussion of Booth and Burgess or bridge them together under the intellectual dialogue within the discipline of Sociology. I will leverage these conversations to historicize their work under a larger social and political context, but emphasize on the thinking put into the creation of maps (what is the unit of analysis, what is the classification of data, and which areas, groups, or characteristics are mapped), in order to shed lights on contemporary debates of big data and the biases behind various mapping practices. Bake and Edelstein's methodology in *Scripting Revolutions*, Roger's transnational perspectives in *Atlantic Crossing*, and Scott's discussion of high modernism in *Seeing like a State* are the sources of my inspirations and provided valuable context for my research proposal.

HISTORIOGRAPHICAL REVIEW

Why did Booth create London Poverty Map and who followed his steps? What motivated Burgess to write *The City* and break away from Booth's paradigm? What were the historical, social, and political forces that reinforce the significance of their work? In this historiographical review section, I will discuss the existing literature that contextualizes Booth and Burgess's work in their time and derives the gaps where my research can fill in.

Contextualization of Charles Booth: Before and After London Poverty Map

Booth's initial motivation to construct the poverty map came from his criticism toward Henry Mayers Hyndman's estimation of the poverty rate at East End London. Booth suspected

that the figure Hyndman gave -- 25% of the population in extreme poverty -- was overstated, which he ironically proved to be even higher with his investigation later (Vaughan 2018). On the other hand, he was also aware of the limitations from traditional philanthropy at addressing urban poverty as it considers poverty a personal moral problem instead of a public issue under the responsibility of the government. As early as 1884, Booth had found the census data unsatisfactory in his work with the Lord Mayor of London's Relief Fund. Therefore, he decided to create his own poverty map with a team of investigators (Vaughan 2018).

Booth's work was at a critical turning point of the social history of London. In his book titled *Atlantic crossings: Social politics in a progressive age*, Rodgers placed the period from the late 19th century to 1920s as "the progressive era", a period of which transnational social movements and reforms between the United States and Europe had fed into each other (Rodgers 2009). In particular, people grew public consciousness toward urban problems because the drastic increase in population had fueled clashes between public needs and private interests. Newspapers fed the early attention to the urban poor with sensational writings and moral condemnations (Vaughan 2018).

Booth proposed an alternative: instead of seeing the urban poor as "brutalized and degenerate race of people" (Vaughan 2018), he wanted to show that the poor problem is inherently spatial and structural. The language of the legend in his poverty map reveals his underlying logic of the organizing principles of social divisions (see Figure 1). Each of the colors denotes income, employment patterns, and status, instead of a simple indicator of social class (e.g., poor). With his map and extra data collected, he was able to move the discussion of poverty to a more empirical and scientific inquiry that recognized the structural forces, such as how much

the labors rely on seasonal jobs and local knowledge to produce income, that perpetuates the poverty in an urban context.

However, Booth's innovation is not discontinuous from the past. Despite his findings disprove the moral approaches to social problems, the language he used in the legend still pertains the legacy of moral judgments, such as naming the lowest class as vicious and semi-criminal. The progressive imaginations of urban administration also led him to believe that isolating the poor and putting them in a more tightly controlled environment is the solution to the problem (Rodgers 2009). Booth also proposed policies based on the new classification created by the map legends, arguing that local government should better regulate people in Class B, the very poor that depends on seasonal and casual work category, by sending them to "industrial colonies" to receive training and full employment and thus maximize their labor efficiency (Rodgers 2009). Though his suggestion of industrial colonies was never realized, Booth's research called for top-down state actions and scientific approaches to understand and alleviate urban problems.

The direct legacies of Booth's work often include Rowntree's study of town life in York, U.K. (1901), the establishment of Hull-House and Janes Addams's wage map of Chicago (1899), and Du Bois's map of the Seventh Ward of Philadelphia (1896) (Vaughan 2018). Rowntree adopted similar color coding scheme as Booth, and his finding confirmed the structural explanations that Booth proposed to explain poverty. After the visit to Toynbee Hall in London, social reformer Janes Addams and her colleagues founded the Hull House in Chicago in 1899. Instead of collecting data street by street, they captured data using building lots as the unit of analysis to align with the way that wage data was collected. Du Bois also adopted building lots

as the unit of visualization, but instead focus his attention to the "Negro inhabitants" and mapped the spatial distribution along race, class, and countries of origin (Vaughan 2018).

Different from U.K., metropolitan cities such as Chicago, have only started to grow in the early 20th century and soon became overcrowded. A large proportion of this population growth comes from immigrants of Italy and China, and each has formed its own ethnic enclaves in the cities. By the time Burgess encountered the "script" pioneered by Booth, the challenges of mapping had gone beyond technical difficulties and become a theoretical one: how can he create a representation of society that not only reflects the dynamic changes of the population but also suggests appropriate interventions to improve the living conditions of the poor?

Contextualization of Ernest Burgess: The Concentric Model and The City

It is difficult to discuss Burgess without mentioning the Chicago School of Sociology. Chicago School of Sociology refers a group of Sociology researchers who follow an urban-focused research agenda in The University of Chicago from 1892 to 1945. In 1892, University of Chicago opened up the first Sociology department in the world and only in the following decades had the academic inquiries, methodologies, and the standard of research finally come into place. The key ideology of the school is to treat human behaviors as a result of the natural environment and social structures. It was named Chicago School, however, mostly because of a group of extraordinary Sociologists from University of Chicago that actively engaged in shaping the early discourse of Sociology as a scientific discipline and its close relationships to empirical problems in the cities (Lutters and Mark 1996). Bulmer (1986) cited the role of the University of Chicago as an institution at facilitating a thriving community of

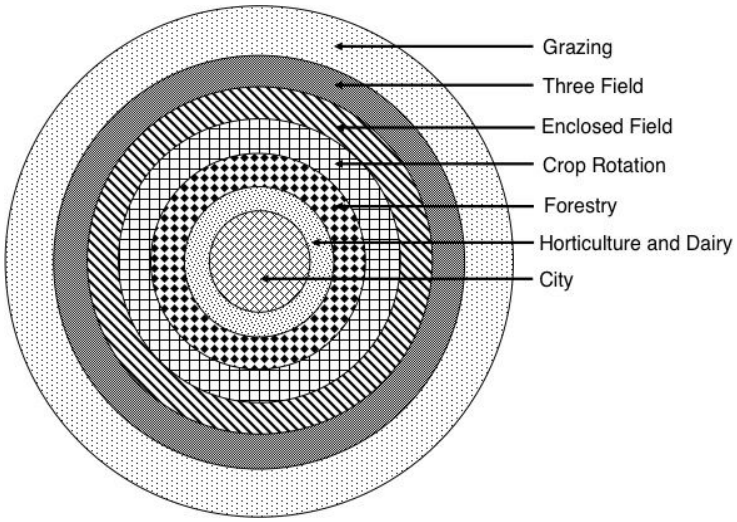
Sociologists that drew ideas from each other and hindering divergences through the dictation of the resource distribution.

Burgess was one of those key figures that had moved the discourse of the Chicago School of Sociology forward. What motivated Burgess to is his active reflection on the limitations of the social survey methods inherited from Booth. He realized collecting large-scale social data was both time exhausting and resource consuming, and could be quickly outdated when cities like Chicago were experiencing drastic social and demographic changes year by year. He was also unsatisfied with the delineating nature of social survey methods that stem from the inquiries of researchers rather than those of the communities (Burgess 1916).

What eventually pushed through his breakthrough is Burgess's collaboration with Park, another well-known figure who later headed the Department of Sociology at UChicago. They co-authored the two most influential work back in time, *The City* (1925), and *Introduction to the Science of Sociology* (1924). The former introduced the innovative idea of human ecology -- the relationship between human and built environment -- as the foundational framework of analysis in cities, while the latter constituted the first comprehensive text to define Sociology as a scientific discipline. Different from Burgess's active engagement with previous social survey methods and explicit references to early works from Booth and Hull House, Park was at a marginal position in the Sociologist community for a long time and barely refer to early work in the line of social surveys (Lannoy 2004). His ecological metaphor of city expansion was foreign to many Sociologists who engaged primarily with social issues and human interactions. While Park sets the theoretical framework for *The City*, it is Burgess who articulated his ideas and brought them into concrete forms. It is unclear how Park and Burgess got involved in applying

the language of evolution and ecology to the mechanism of cities, but Burgess's concentric form has a direct bearing from the German economist Von Thünen. Von Thünen was the first person in the world that uses a concentric arrangement to explain the agricultural land use patterns in cities. Lannoy (2004) speculated that Park's Ph.D. study in Germany might be the link that Burgess leveraged to draw on Von Thünen's influence.

However, Burgess's illustration of the concentric model is very different from Von Thünen. In fact, his argument is much more complex: he associated the growth of cities over time with both the concentration and diffusion of the population through waves of immigration and overlay the diverse social groups and residential dynamics on top of the differentiated land uses, resulting in different functional zones in the cities (Ball and Persimeri 2010). As new immigrants flux into the cities, the boundaries of loops will be pushed further away, and the areas of intersections and transitions became the soil of social disorganization, a form of chaos that comes from the cognitive dissonance immigrants experienced to settle in a new environment. The concentric structure resembles the ripple effect of city expansions. His concentric map also made explicit references to the slum, black belt, Chinatown, ghetto, and Little Sicily. As Ball and Persimeri (2010) stated, Burgess's chart "looks like a cross between Ebenezer Howard's vision of the polycentric of the virtual city of tomorrow and the moral topographies of Booth."



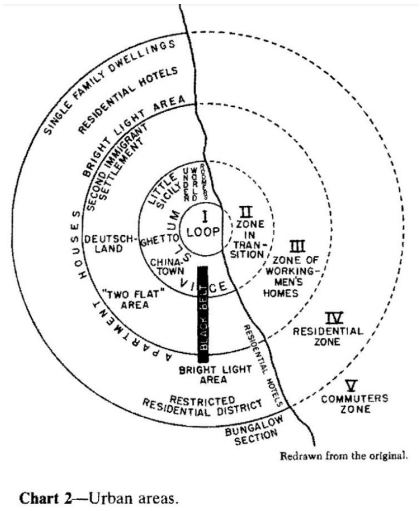


Chart 2—Urban areas.

Figure 2 (right): Illustration of Burgess's Concentric Model (Burgess 1925)

Figure 3 (left): The Von Thünen Model (Bellafiore 2018)

Gap Analysis

Despite the explicit influence of Booth on Burgess's work, very few scholarships have attempted to connect them under one overarching picture, mostly due to the level of depth and legacies that their work bear so that contextualization of one will inevitably tradeoff the discussion of the other. For example, Rogers (1998) situated Booth's work under a broader social and political milieu in the late 19th century, but he also narrowed his narrative to an early period when Burgess had not entered the stage. Another factor of the rupture comes from the fact that the discipline of Sociology was slowly establishing during the early 20th century. Despite Booth's contribution to the scientific foundations and methodological innovations to the discipline, he was classified as more of a social reformer than a Sociologist as he conducted his work in the 1880s. Therefore, Bulmer (1986) and Owen (2012)'s discussion of the Chicago

School of Sociology focusing on the early 1920s and onward did not include Booth's influence from an earlier time.

Gordon (1973) was among the few that connect Booth and Burgess's work under the light of social survey movement. Still, Burgess's contribution was brushed over and only mentioned as one of the critiques that berated social survey methods as they neglected the request of communities and put labels on neighborhoods that further stigmatization. Vaughan (2018) also mentioned both Booth and Burgess as part of a collection of efforts to map societies, but she separated Booth and Burgess in two chapters to distill the thematic focus of Burgess's work in response to a mix of race, nationalities, immigration, and crime problems beyond just urban poverty. She also exerted very few efforts to interpret the cartographic elements of Burgess's concentric model compared with the narratives on its significance. Though Ball and Petsimeris acknowledged the connections between Booth and Burgess's work, they failed to emphasize on the agencies Booth and Burgess put forward through their map constructions and interpret the embedded new social orders, such as how to better organize cities, navigate between the complexities of race, ethnicity, class, and built environment, and address them with urban policies.

Compared with Park, materials that contextualized Burgess's motivations and his process of work are also lacking and difficult to find. One of the reasons may be that Park as the senior in the team often overshadowed Burgess's contributions, while Burgess's lack of independent work, not to say that his collaborations are not influential, makes it hard to disentangle his thoughts and his collaborators' offerings. Therefore, my research can try to fill the gap to uncover Burgess's agency in challenging the dominant social survey movement through a close

examination of both the context and process of which he created the concentric model and the interpretations of social orders he proposed, in contrast with Booth.

PROJECT OUTLINE

For my research project, I will decompose my arguments to three key parts: 1) the social and political settings of London and Chicago throughout the late 19th and early 20th century, 2) Booth and Burgess's motivations, sources of inspirations, and influences inherited both from the context of time and other intellectuals, and 3) the theories of social orders they implied or enacted by other parties through the active map construction. The organization of the evidence and narratives will roughly follow a chronological order as the script framework naturally emphasizes a linear or mutual influence in a sequence of time. However, the sections of the paper will be organized under different components and thematic focus of the argument so that within each chapter, the narrative is aligned with the timeline, but overall, they collectively form a cohesive persuasion that tied to the central case.

In specific, the sections include:

1) Characterization of the social and political setting of London and Chicago from the 1880s to 1930s, which roughly covers the time period before and after Booth and Burgess's work, highlighting the social survey movement, the emergence of social science discipline, surging public awareness (progressive era) in social and political issues embedded in urban context, and the interactions between social activists and social science research.

2) Contextualization of Booth and Burgess's agency by examining the primary sources to unfold the origin of their thoughts, motivations of inquiries, and the particular approaches they undertook to construct maps.

3) A detailed analysis of the semiotic elements in their maps concerning data, purpose, interpretation, and the absences in the maps. For example, in Booth's London Poverty Map, there is an area around East End close to the river that was completely neglected from coloring. What happened to that region? Why had Booth not been able to color code its streets? Inquiries like this can help uncover the biases and power dynamics in creating maps for cities.

4) The social order implications from the cartographies and whether they had been enacted to create social changes by Booth, Burgess, or third parties in practices.

RESEARCH PLAN

To answer my questions, I will draw on both primary and secondary sources. The secondary sources are mainly used to serve section 1 and 4 (see above) to leverage the existing comparative research in political and social history, such as Roger's *Atlantic Crossings* (1998), to illustrate the connections and context of which Booth and Burgess created their maps. The secondary sources can be in the form of research papers or curated exhibitions that aim to address either one of the two figures. An example of the latter is *Mapping the Young Metropolis The Chicago School of Sociology, 1915-1940* by UIUC professor Harvey Choldin that features Burgess's research journey back in time. A close read to the secondary sources may also reveal more options to the primary sources that I can access. Since the focus of this research project is

to investigate the agency of Booth and Burgess, I will not trade off the depth to reiterate the background research where comparative literature is abundant, but instead, focus the significant searching efforts and primary sources organizations to section 2 and 3.

For the primary sources in section 2 and 3, I grouped them in the following categories and attached a rough description of the potential usage:

1) Writings, publications, and paper or electronic maps of Booth and Burgess from 1880s to 1930s. With access to library and internet, this set of primary sources is the easiest to access. Booth's *Life and Labour of the People of London* (1901-1903) which later ran up to seventeen volumes, and Burgess's paper with Park on *The City* (1925), are the two most direct examples of this category. London School of Economics now hosts the archive of Booth's original work on London poverty map, including the manuscripts of notebooks his team wrote during the investigation, that can be accessed in copy through the library or interacted with online ("Map | Charles Booth's London" 2016). The University of Chicago, on the other hand, has an organized archive of all the work from Burgess, called *Guide to the Ernest Watson Burgess Papers 1886-1966* (2009), that can be used as a helpful guideline to start the search. By examining the texts of these original writings and the work they cited, we can restore the progression of Booth and Burgess's thoughts, the difficulties and challenges they face, and the lines of research they resonate with.

2) Autobiography and Personal Accounts of Charles Booth and Ernest Burgess. For Charles Booth, Simey and Margaret had written an autobiography for him in 1960, from which I can learn about his personal experience that may have influenced his writings and

interests. There is also quite detailed documentation of his work and inspirations from the secondary sources I have checked so far. However, Burgess's life history remains in the mystery. My preliminary search has not found any relevant autobiography, dairy, or letters that connect to the personal background behind his research.

3) Third party interactions and records, such as newspapers, interviews, lecture notes, lesson plans, talks at conferences, and appointments within and outside of the university. Bulmer (1986) pointed out how Burgess insisted all of his students to learn basic cartographical skills and participate in collecting data for the maps of Chicago. Therefore, it will be valuable to acquire primary source for such course as it exemplifies Burgess's approach to map analysis. Unfortunately, there is not a central place where I can find all the information collectively, so I may drill into each type of sources separately.

4) Additional search through hypothesis testing. In the case when primary sources may be scarce or unavailable, especially for Burgess, we may hypothesize the explanations of certain actions and then searched for the evidence. For example, Lannoy (2004) suspected that Park's self-distancing to the discourse of social movement might have to deal with the fact that he and other prominent figures in the social survey field, such as Janes Addams, were competitors in the job market at the time. He dug out the appointment letters from a few universities in Chicago to prove his points. We can deploy a similar strategy to postulate a reasonable explanation for Booth or Burgess and then back it up accordingly.

In addition to the existing primary source, it may be interesting to visualize the citation networks that Booth and Burgess's work are embedded in. The network can reveal the quantitative extent of connections between Booth and Burgess, clearly indicating who they draw inspirations from, and what community of researchers they surround themselves with. Such exhaustive search of the citation network may also reveal surprising clusters or patterns to Booth and Burgess's work that were neglected by previous researchers. However, what citations to include should be deliberated. A natural choice to include work that Booth and Burgess cited and people who cited them assumes a natural dichotomy between Booth and Burgess as they may become the most cited nodes with least connections to each other in the network. Nonetheless, the citation network can still present an exciting opportunity to explore their connections and ways that their work were used by the followers in the next decades.

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HC/LO APPENDIX

#historicalarguments:

- Crafted my own historical argument using script approach and evaluated relevant historical arguments made by existing literature in the next section (especially in the gap analysis). Some of the contextualization, in particular, the part on Burgess is limited by my abilities to access books online. For example, Bulmer (1986)’s monograph is often cited as the most comprehensive overview of the origin and development of Chicago school, in which he featured the stories behind Burgess. However, I cannot find direct access to it on the internet.

#criticalcasestudy:

- Evaluate the analytical framework Booth and Burgess use and a full contextualization for each in following sections and justified the comparison between the two.

#historyscale:

- In the introduction, I established the temporal and geographic scale of Charles Booth's Poverty Map and Burgess's concentric model and justify why such history scale will produce a fruitful comparison, will full contextualization in the Historiographical review section.

#primarysource:

- There are three applications of primary sources: 1) picking Charles Booth's Poverty Map as the primary source, contextualizing it, and focusing on the language of legends to reveal the social perceptions of urban poor in the 1890s as well as the social thinking from "progressive era" that underlines Booth's approach. 2) using Burgess's concentric model as the primary source, contextualizing it, and focusing on how he depicted the model in accordance with his explanations of growth mechanisms in cities as well as the immigration context that underlines his portrait. 3) In the research plan section, demonstrate the ability to utilize primary sources and secondary sources for different functions and what kinds of primary sources are good for what questions and how to access them.

#socialorder:

- The centrally-controlled, top-down organization of society became popular during the "progressive era" and established a new social order and perception toward public

problems in cities, as urban poverty continues to be wrapped with crime, public health, and education. It contributed to Booth's approach to present the spatial relationship of social divisions in cities. I also connected Booth's ideas and the resulting improvements he suggested based on the map. Due to time constraint, I did not do detailed analysis of how Burgess's idea is connected to potential policy interventions, but this is one of the aspects of the argument I proposed to explore in the research plan.

#connectionincontext:

- Historicize the transfer of Booth's ideas to researchers in the U.S. and in the later sections, demonstrate how his ideas finally reached Burgess and were critically absorbed. Another example is how Von Thünen's concentric idea is transferred to Burgess through Park, and how Burgess engages in the debate of social survey methods before he wrote *The City*.

#structureandagency:

- I reveal two layers of structure and agency in the discussion of Booth: 1) the social thinking of reorganizing society during the progressive era that has shaped the Booth's approach (reversely, the moral approaches to social problems that have shaped the public perception of the urban poor) and Booth's agency to integrate the thinking into the map, and 2) the seasonal job uncertainty and spatial dependency that serve as the structural forces of poverty, and Booth's agency to recognize them. I also attempted to do a similar analysis to Burgess by emphasizing the institutional structures (UChicago, Chicago School, and his colleague Park) that facilitate his research as well as the immigration context that motivated him to do come up with concentric model. I only touched on a

small part of Burgess's agency due to the limitation of time and resources and proposed to do so in the research plan.

#causationincontext:

- This research project does not aim to answer causation question, but the "script" approach itself implies causal influence that flow from early researcher like Booth to Burgess. A careful examination of the extent of influences and the sources of inspirations for Booth and Burgess can be seen as an causal argument. Accounting for structural and historical forces that shaped urban poverty as well as Booth and Burgess's work can also be treated as causal analysis.

#gapanalysis:

- In the gap analysis of the historiographical review, identity the gaps in the literature and justify my research agenda accordingly.

#thesis:

- In the project outline section and the introduction , I formulate a well-defined thesis and discussed different components of the arguments.

#audience:

- The introduction takes the audience in mind to connect a historical inquiry with contemporary concerns to effectively persuade people to buy in the significance of the research.

#evidencebased:

- draw on a large amount of high-quality primary and secondary sources to contextualize both Booth and Burgess's work in the Historiographical Review section.