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The Legal Reproduction of Infant Health Inequities
in Unincorporated Communities

By

Ana Cristina Gomez-Vidal

A dissertation submitted in partial satisfaction of the
requirements for the degree of

Doctor of Philosophy

in

Social Welfare

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Anu Manchikanti Gómez, Chair

Professor Tina Sacks

Professor Rachel Morello-Frosch

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Abstract

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Professor Anu Manchikanti Gómez, Chair

The United States lags in its progress in preventing infant mortality and critical infant health outcomes compared to other high-income countries. Moreover, empirical research has demonstrated that racial and socioeconomic perinatal health inequities persist despite rising government expenditures on health care. Given the lack of success of clinical interventions in reducing infant health disparities, researchers have looked outside the healthcare setting to the places where families live, work, and play as sites for intervention. Public health researchers have contributed to health inequities research by examining where, how, and why various places such as neighborhoods, disadvantaged areas, and urban and rural areas impact infant health to improve or intervene on contributing health factors. Furthermore, by using a legal epidemiological approach to advance knowledge on how to disrupt upstream factors such as political structures, policies, and practices that codify infant health risks, policymakers, practitioners, and communities can start to diminish the reproduction of health inequities by altering, improving, and holding accountable our political system and actors.

Infants in the eight-county San Joaquin Valley of California fare worse than most of the state's population on maternal and infant health outcomes across key indicators. Particularly concerning are pockets of entrenched poverty, which include 450 disadvantaged unincorporated communities that have documented detrimental environmental and social conditions, such as contaminated water and air and lack of adequate housing. Many detrimental environmental exposures associated with poor infant health outcomes are present in these disadvantaged unincorporated communities. Communities outside of city boundaries are unincorporated communities, defined as settled populated areas whose community identity is commonly known but that lack incorporation status as a city. Moreover, in California, unincorporated communities lack municipal government representation and rely primarily on their county board of supervisors for local representation. Lack of representation can lead to political exclusion and diminished access to resources (i.e., power, money, influence, material resources, and services). Unfortunately, the limited attention to unincorporated communities in infant health research—and public health research, writ large—

has created a blind spot to the potential structural vulnerability of communities outside city boundaries with no local governance.

This project bridges the research gap on unincorporated communities by using multiple methods to examine incorporation status as a political determinant of infant health. The first study examined places (i.e., cities, towns, and settled communities) with or without incorporation status to understand if there is a relationship between incorporation status and adverse birth outcomes among singleton births in California's San Joaquin Valley. We used population-level data from the California Department of Public Health Birth Statistical Master Files of births between January 1, 2006, and December 31, 2015, for the eight-county region to assess the relationship between residence in an unincorporated community and adverse infant health outcomes (small for gestational age, preterm birth, very preterm birth, and low birth weight). First, this project described a retrospective cohort of 531,668 births within the 8-county San Joaquin Valley summarizing the characteristics and risk factor distribution for infant health outcomes by incorporation status for a ten-year period (2006-2015). Second, using logistic regression analysis, we observed a relationship between living in an unincorporated community and elevated odds of preterm birth. When considering both a community's incorporation status and economic disadvantage together, we similarly observed higher odds of a preterm birth in disadvantaged unincorporated communities compared to disadvantaged and advantaged incorporated communities.

In the second study, qualitative methods were employed, leveraging a constructivist grounded theory approach with reflexive thematic analysis to understand how lack of incorporation status impacted the efforts of residents from a disadvantaged unincorporated community to address an infant health threat. Between 2007-2010, approximately 11 infants were identified as part of a birth defect cluster, three of whom died in Kettleman City, a small rural disadvantaged unincorporated community in the San Joaquin Valley of approximately 1,648 residents. Using semi-structured in-depth interviews, this study gained insights from 13 resident and 11 non-resident participants on how they understood the political arrangement for their disadvantaged unincorporated community to be an inadequate political structure for and generally unresponsive during a community health threat. Most participants perceived that the political structure for unincorporated communities is disenfranchising, constraining the capacity and will of county officials to act responsively to residents whose political power is diluted within the general county voting body. Participants attributed the marginalization by county officials who chose political inaction because of "*who they are*"- a "*small rural Latino farmworker town.*" Resident participants desired localized responsive political representation, as they felt disconnected from county officials who did not deploy their authority or government resources to help residents navigate the infant health threat in a timely manner.

This dissertation suggests structural vulnerabilities for infant health in unincorporated communities in California's San Joaquin Valley. It provides a foundation for future research on perinatal health and other health outcomes in unincorporated communities in California and beyond. Greater policy and research efforts are needed to understand and address the precarity of people in unincorporated communities that are structured as insignificant within the current political arrangement for those outside of a municipal boundary.

Para

Ana Ester y Oscar Eligio Gomez-Vidal

Para siempre en mi corazón

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Chapter 1

Introduction

“Public commitments to communities with little or no authentic future should be carefully examined before final action is initiated. These non-viable communities would, as a consequence of withholding major public facilities such as sewer and water systems, enter a process of long-term, natural decline as residents depart for improved opportunities in nearby communities.”

Tulare County General Plan (1973)

Infant health is considered by government and public health officials as a bellwether of the wellbeing of a country, state, and community. Infant mortality and birth outcomes partially predict a population’s long term socioeconomic and health status. Furthermore, birth outcomes are responsive to a place’s structural and social conditions, such as lack of a social safety net and hazardous environmental pollutants (Kim & Saada, 2013; Sartorius & Sartorius, 2014). Thus, infant health may reflect how well and equitably a government can or chooses to protect a population from harmful exposures. The United States (U.S.) declared reducing infant mortality as a national priority through various entities, such as the U.S. Department of Health and Human Services’ Office of Disease Prevention and Health promotion (ODPHP)’s Healthy People 2030 objectives (ODPHP, 2022). However, despite having one of the highest national per-capita expenditure rates on health care (Hornstein & Santos, 2019; National Academies of Sciences, Engineering and Medicine (NAS), 2020), U.S. preterm birth rates (i.e., infants born prior to 37 weeks of gestation), a key contributor to infant mortality, worsened from 2010 to 2020 (CDC, 2022a). Furthermore, adverse infant health outcomes (e.g., preterm birth, low birth weight, small for gestational age) in the U.S. demonstrate a pattern of inequitable and varied distribution by place and population group. Given the limitations of clinical interventions to reduce infant health disparities, public health researchers must look outside the health care setting to the places where families live, work, and play (Pies et al., 2016).

The San Joaquin Valley (also referred to as the Valley), an eight-county region in Central California, has demonstrably poorer infant health outcomes compared to the rest of the state. In the Valley, there are 450 disadvantaged unincorporated communities, which may be at high risk for adverse infant health outcomes, given the detrimental environmental and social conditions many of them are characterized by, including contaminated water, air, and lack of adequate housing (Arata, 2016; Flegal et al., 2013; London et al., 2018; Pannu, 2018; Richter, 2018). Communities outside of city boundaries (municipalities) are unincorporated communities, defined as settled populated areas whose community identity is commonly known but lacks incorporation status as a city (Flegal et al., 2013). One in five California residents, or roughly 6.4 million people, live in an unincorporated area, yet there are no comprehensive studies on infant health outcomes that focus on unincorporated communities.

Unincorporated communities lack municipal government representation and generally rely solely on their county board of supervisors for local representation (Anderson, 2007). Lack of representation can lead to political disenfranchisement and diminished access to flexible resources (e.g., power, money, influence, access, material resources, and services) that are health protective (Anderson, 2009; McCartney et al., 2021; Richter, 2018). In California, disadvantaged unincorporated communities are defined as having an annual median household income of less than 80% of the state median. For the approximately 310,000 resident living in San Joaquin Valley disadvantaged unincorporated communities, lack of incorporation can mean increased exposure to toxic waste sites, oil wells, industrial pollutants, inadequate sewage, and water systems, pesticide exposure, crumbling housing and infrastructure, and food insecurity (Arata, 2016; Flegal et al., 2013; J. London et al., 2018; Molina, 2014; Pannu, 2018). Many of the

constructed detrimental environmental exposures listed are associated with poor infant health outcomes (Beland & Oloomi, 2019; Carmichael et al., 2007; Dadvand et al., 2014; Di Renzo et al., 2015; Tran et al., 2020; Whyatt et al., 2004). Unfortunately, the limited attention in infant health research—and public health research, in general on unincorporated communities has created a blind spot in terms of identifying their needs and structural vulnerability.

The political system—government structures, policies, processes, and practices—that governs any settlement (incorporated or not) is largely responsible for the production of or protection from social-environmental risk factors that influence population (Bernier et al., 2011; Coggon, 2020; Dawes, 2020). The shelter a pregnant woman calls home, the pesticides used in the fields where she works, the types of labor protections her workplace affords her, the air she breathes as she walks in her neighborhood, the water she uses to wash her dishes, shower, and prepare her food: these factors can all impact a woman's health and that of her unborn fetus. For women in the San Joaquin Valley, health, pregnancy, and childbirth occur within the crucible of some of the nation's most significant agricultural production sites and California's highest concentrations of socioeconomic and environmental disadvantage (Lievanos, 2018). County and city governance and policies can play a significant role in the distribution of health risks and benefits associated with the region's social and economic activity. Despite their importance, few scholars have explored these proximal subnational governments (Van Vliet-Brown et al., 2018). Even rarer is scholarship on the health impacts of living in an unincorporated community.

More recently, scholars have emphasized the importance of a legal and political epidemiological approach: examination of how laws, legal codes, and institutions impact health (Burris et al., 2018; Dawes, 2020). Kickbusch (2015) describes a focus on political determinants as “analyzing how different power constellations, institutions, processes, interests, and ideological positions affect health within different political systems and cultures and at different levels of governance” (p. 521). By investigating unincorporated communities through a legal and political epidemiological approach, this project seeks to elucidate governance mechanisms in unincorporated communities of social determinants of health that can compromise infant health (Burris et al., 2018). This dissertation addresses the gap in the public health literature on unincorporated communities by leveraging a political epidemiological approach. It interrogates how health disparities are manufactured through the absence of an adequate local government structure and reliance on more distal county government structures and policies that may contribute to harmful risk environments in unincorporated communities across California's San Joaquin Valley. To do so, multiple methods, including regression techniques and constructivist grounded theory study methods, were utilized to investigate the impact that a lack of incorporation status has on infant health. The California Department of Public Health Birth Statistical Master Files of all births between January 1, 2006, and December 31, 2015, in the eight-county San Joaquin Valley region were matched to GIS shapefiles for unincorporated communities to identify births in unincorporated communities and to assess the association between incorporation status and adverse infant health outcomes. Furthermore, a constructivist grounded theory study with thematic analysis was conducted with a focus on one disadvantaged unincorporated community, Kettleman City, investigating how lack of incorporation status impacted residents' ability to address health threats during a congenital disability crisis that occurred between 2007 to 2009. Specifically, the following questions were investigated:

1. *What are the characteristics and outcomes of births in unincorporated and incorporated places in California's San Joaquin Valley, overall and by community economic advantage status?*

2. *What is the relationship between maternal residence in unincorporated places and birth outcomes in California's San Joaquin Valley? What is the relationship between maternal residence in disadvantaged unincorporated and incorporated places and birth outcomes?*
3. *How does living in an unincorporated community shape residents' experience and perception of their ability to address a health crisis impacting their community?*
 - a) *Specifically, given that an unincorporated community is dependent primarily on the county for governance, what is the perception or belief of the limitations or opportunities afforded them through county government to address community health threats?*

This dissertation provides the first, to our knowledge, comprehensive examination of unincorporated community status as a political determinant of perinatal health. Results can inform future policy, practice, and research, which can be used to improve infant health in disadvantaged unincorporated communities. This project bridges multiple gaps in the public health, legal studies, and the social science literature by furthering our understanding of the health consequences associated with living in an unincorporated community without the legal and socioeconomic privileges of a municipality. Moreover, this project generates insights into the relationship between lack of local representation and residents' abilities to prevent or ameliorate health threats that have consequences for infant and community health. Finally, this research reinforces the need to reexamine county government, not merely as an extension of the state, but as the key representative government institution for the one in five California residents who live in an unincorporated area. Through a political epidemiological approach, this research project contributes to the importance of investigating places as legal units whose policy heuristics have lasting implications for the health of low-income unincorporated communities.

Furthermore, the use of multiple methods is beneficial for exploratory research of an understudied phenomenon such as lack of incorporation status as a political determinant of health (London et al., 2021; Purifoy, 2021). Given the minimal research on health in unincorporated communities, an exploration through qualitative and quantitative methods lays a foundation for future work (Elman et al., 2020). Furthermore, understanding the lack of incorporation status as a political determinant of health through multiple methods provides an exploration of different facets of the impact that lack of incorporation can have on infant health.

Moreover, multiple method approaches are also helpful for research exploring small populations. Unincorporated communities in California can range from less than 500 to 126,000 (i.e., East Los Angeles) residents, but most are small: a 2013 study of unincorporated communities found that 81% were smaller than 500 (Flegal et al., 2013). These hard-to-count communities are dispersed across the state, and although their cumulative population is large, they are disregarded in conventional methods of research disaggregation that miss variability across location and population (NAS, 2018). In this dissertation, we leverage recommended methods for small populations within a particular geographic location. This includes using geospatial data that were rigorously collected using participatory methods by PolicyLink for the quantitative study (Flegal et al., 2013). Furthermore, we focus on the political arrangement for a disadvantaged unincorporated community during a salient event, a birth defect crisis, for our qualitative study which magnifies social processes that normally appear opaque in small communities. Together, these studies provide foundational knowledge that can inform future empirical work on unincorporated communities and infant health. This research project seeks to uplift the lives of those who live in unincorporated communities by making them visible through the methods employed.

Chapter 2

Background

Between 2007 and 2009, at least 11 infants were born with severe congenital disabilities in a poor Latino farming community of 1,500 residents in the San Joaquin Valley; 3 of these infants died (Richter, 2018; Leslie, 2010). The disadvantaged unincorporated community, Kettleman City, in Kings County, is less than a mile off a major West Coast interstate highway and flanked by domineering high voltage power lines, vestiges of a once-prominent Standard Oil operation, polluting farms, trucking facilities, and an aqueduct that the community has no access to, forcing them to rely on potable, contaminated water. At the time of the birth defect cluster, residents' greatest environmental fear was the proposed expansion of Chemical Waste Management's toxic, hazardous waste site in the hills nearby. As an unincorporated community, the Kings County Board of Supervisors is the primary source of local government for Kettleman City. The Board approved the expansion, despite the concerns and opposition of residents.

This research project begins with the story of a place: the disadvantaged unincorporated community of Kettleman City—specifically the story of 11 infants born with congenital disabilities, 3 of whom died, between 2007-2009. If it were not for community environmental justice advocates who identified the birth defect cluster, their stories might have gone unnoticed beyond their families' doorsteps (Arata, 2016; Richter, 2018). The lack of disaggregated health data to unincorporated communities renders these places as invisible and thus excludes them in the fight for health equity (Richter, 2018). Although we do not know if the embodied stories of Kettleman City infants are emblematic of adverse infant health outcomes in other disadvantaged unincorporated communities across the San Joaquin Valley, there is evidence that the environmental, social, and political environments are similarly compromised (Flegal et al., 2013; Pannu, 2018; Richter, 2018).

The close connection between adverse infant health and material and social disadvantage warrants research on disadvantaged unincorporated communities (Acevedo-Garcia et al., 2003; Braveman et al., 2005; Graham, 2004; LaVeist 1989; LaVeist et al., 2011; Williams & Collins, 2001). Moreover, there is a dearth of research on how the political arrangement (i.e., governance, policies, and practices), or lack thereof, in unincorporated communities, which differ from incorporated communities (i.e., cities and towns), impacts infant health. Thus, given that upstream factors are key drivers of social determinants of health inequities (Dawes, 2020), this project focuses on providing an exploratory foundation for infant health in unincorporated communities in the San Joaquin Valley that makes visible their precarious political status. In this background section, I situate this dissertation in the interconnected relationship between infant health, place, and political determinants.

The State of Infant Health in the U.S.

Infant health reflects a population's health and a global public health priority (Moller et al., 2017). Nationally, the U.S. Department of Health and Human Services sets the Healthy People priorities—10-year goals for disease prevention and health promotion, including infant health outcomes (ODPHP, 2018). Goals include reducing the rates of fetal deaths beyond 20 weeks gestation, infant deaths within one year of birth, infant deaths related to congenital disabilities, low birth weight, preterm births, and increasing prenatal care. Infant mortality rates have steadily declined for decades but recently stalled (CDC, 2022a). In 2017, the infant mortality rate was 5.8 per 1,000 live births in the U.S., ranging from 3.8 in Massachusetts to 8.6 in Mississippi (United Health Foundation, 2020). The U.S. average mortality rate is higher than the Organization for Economic Co-operation and Development countries' average of 3.8 per

1,000 (United Health Foundation, 2020). Additionally, there are alarming health inequities between population groups in the U.S. as the infant mortality rate for babies born to non-Hispanic Black mothers is twice that of White mothers while infant mortality rates for unmarried mothers is 70% higher than to married mothers (United Health Foundation, 2020). Leading causes of infant mortality include congenital disabilities, preterm birth, complications from low birth weight, maternal pregnancy complications, sudden infant death syndrome, and injuries. However, increasingly studies have found social conditions such as socioeconomic status to be a major driver of infant mortality (Chen et al., 2016). This is consistent with findings that social determinants play a role in infant mortality (Braveman et al., 2011; LaVeist et al., 2011).

Furthermore, preterm birth is the leading cause of infant mortality. Infants that do survive are more likely to have significant health issues and developmental delays (Blencowe et al., 2013; CDC, 2022b; Saigal & Doyle, 2008). The likelihood and severity of health problems increase the earlier an infant is born in the pregnancy. Approximately one in ten babies is born preterm (i.e., under 37 weeks gestation) in the U.S. (CDC, 2022b). Notably, the prevalence of preterm birth for Black women (14%) is significantly higher than for White women (9%). Risk factors associated with preterm labor include ages under 17 or over 35, low levels of education, long hours at work, low levels of financial support, and poor socioeconomic status (Dolatian et al., 2014; Goldenberg et al., 2008). Many risk factors for preterm birth are highly impacted by socioeconomic factors and are believed to partially explain the degree of disparities in infant health outcomes between population groups that are socially stratified (Braveman et al., 2011).

Adverse infant health outcomes such as small for gestational age also contribute to an increased risk of life-long struggles. Small for gestational age in infants has been linked to a variety of adverse adult outcomes including chronic lung disease (Lal et al., 2003), hypertension (Huxley et al., 2000), type 2 diabetes mellitus (Newsome et al., 2003), chronic heart disease (Frankel et al., 1996) and psychopathological conditions (Hack et al., 2004). Large birth weight can also lead to adverse health outcomes, including higher risk of polycystic ovarian disease, breast cancer, and testicular cancer (Samaras et al., 2003). De Boo and Harding (2006) note that adult-related disease risk is associated with birth size ranges across sizes. Maternal and infant health outcomes vary across the U.S. with California faring better than most states on key indicators, including infant mortality and low birth weight (CDC, 2019). Still, within the state, there is much room for improvement. Notably, the San Joaquin Valley's eight-county region lags further behind most of the state on critical maternal and infant health outcomes, suggesting areas of health inequities in need of research and intervention.

Infant Health Inequities in the San Joaquin Valley

Infant outcomes in the San Joaquin Valley are often worse than the state's overall rate. Over the past two decades, California's infant mortality rate has dropped from 7.0 deaths per 1,000 births in 1994 to a rate of 4.2 infant deaths per 1,000 births in 2016 (CDC, 2019). But a closer look at the data reveals vulnerabilities in the San Joaquin Valley, which is traditionally one of the state's most impoverished and under-resourced regions. Between 2014 to 2016, seven of the eight San Joaquin Valley counties had higher rates of infant mortality (4.5 to 6.6 deaths per 1,000 births) than the state. The highest infant mortality rates in the Valley were in Fresno County (ranked fourth highest in the state, at 6.6 deaths per 1,000 births) and Tulare County (6.1 deaths per 1,000 births). In 2016, the proportion of preterm births (infants born prior to 37 weeks of gestation) in six of the eight counties was higher than the State's level of 8.6%. The six

counties—Tulare (10.0%), Kings (9.7%), San Joaquin (9.6%), Kern (9.4%), Fresno (9.4%), and Stanislaus (9.3%)—all rank in the top ten counties in the state with the highest rates of preterm birth (CDC, 2019). Further, all of the counties except Fresno have lower rates of prenatal care use during the first trimester (67.6% to 80.9%), compared to the state average (83.6%). The San Joaquin Valley as a region is demonstrably an area of concern for infant health.

Geographies of Socially and Politically Constructed Risk

Health disparities associated with a place reveal unaddressed social conditions that pose risks for residents (LaVeist, 2011). Place-based research can provide insight into the nonmedical factors that contribute to adverse health outcomes that emerge from social determinants and their inequitable distribution within a geographic location. Since the 1990s, social epidemiologists have investigated population health inequalities associated with place in hopes of identifying common modifiable characteristics for intervention (Cummins et al., 2003; Dankwa-Mullan & Pérez-Stable, 2016; Diez Roux, 2001; Honjo, 2004; Macintyre et al., 2002; Macintyre & Ellaway, 2003; Oakes et al., 2015). Place can be understood as a composite of landscape and social relations mutually reconstructed across time through political, social, and economic factors (Kearns & Moon, 2002; Lebel et al., 2007; Massey, 2004). Health inequities research has demonstrated that zip code matters for length and quality of life, and just a few miles of difference in location can translate into years of lost life expectancy (Graham, 2016). However, as zip codes are not jurisdictionally significant, identifying how zip code may be meaningful is complicated (Krieger et al., 2002). Still, health geographers can further understand place differences by questioning the impacts political systems can have on health (Cummins et al., 2007) and ecosocial perspective (Bambra et al., 2019; Krieger, 2001).

Place-based research on infant health has included examinations of localized social determinants including neighborhood disadvantage, residential segregation, and environmental exposures (Culhane & Elo, 2005; O'Campo et al., 2008; Rajaratnam et al., 2006; Subramanian et al., 2005). Neighborhood socioeconomic disadvantage is an identified social determinant of infant health (Blumenshine et al., 2010; Braveman et al., 2010; Chetty et al., 2016; Mehra et al., 2019). One meta-analysis of 24 neighborhood studies found significantly higher odds of an adverse infant health outcome (e.g., preterm birth, small for gestational age, and stillbirth) in the most deprived quintile of neighborhoods compared to the least deprived (Vos et al., 2014). Furthermore, resource constraints for families with low birth weight infants can lead to impaired cognitive development, lower educational attainment, and decreased labor market outcomes in adulthood (Johnson & Schoeni, 2011a, 2011b). Neighborhood disadvantage has been associated with reduced infant health outcomes despite variation in an individual's income. However, the effects are significantly higher when both neighborhood disadvantage and an individual household are low-income (Kneebone & Holmes, 2016).

Scholars have looked comprehensively at neighborhood disadvantage, capturing multiple factors in a neighborhood that could contribute to adverse infant health outcomes. The dominant frames in health research examine health from either a compositional standpoint, (examining demographic characteristics, behavioral, and socioeconomic factors), a contextual standpoint (area-level determinant from the social, physical, or environmental conditions), or both (Bambra et al., 2019; Macintyre et al., 1993). Infant health studies that have looked at the broader contextual exposures have contributed to understandings of how social conditions matter for infant health. For example, Farley et al. (2006) have examined census tract level median

household income, vacant housing rates, alcohol and tobacco retail density, and the number of food outlets. Still, other studies have looked at the relationship between socioeconomic disadvantage and crime area-level factors (Kim & Sada, 2013; Wentz et al., 2014; Janevic et al., 2010; Ma et al., 2015). A study by Masi et al. (2007) examined multiple factors beyond neighborhood socioeconomic status, including crime, residential segregation, and area density. Some scholars have posited that neighborhood disadvantage impacts pregnancy outcomes through different mechanisms including increased stress levels, environments that contribute to negative individual-level behaviors such as smoking (Kruger, 2012), environmental exposures (Morello-Frosch & Shenassa, 2006), and resource constraints including inadequate housing, nutrition and health care access (de Graaf et al., 2013; Hobel et al., 2008; Wentz et al., 2014).

Residential segregation is also associated with adverse infant health and through increased burdens of limited opportunity structures and hazardous environmental exposures. Residential segregation has been correlated with infant and adult mortality rates (Braveman et al., 2005; LaVeist, 1989; Mehra et al., 2017; Williams & Collins, 2001). For example, Nardone et al. (2020), found associations between historical redlining across California and higher prevalence of preterm birth, small for gestational age and mortality. Morello-Frosch & Jesdale (2006) found that concentrated racial residential segregation was associated with the degree of exposures to cancer risks associated with ambient air toxics. Notably, research on residential segregation has demonstrated how structural racism has historically imposed brutal costs on infant health due to the discriminatory unhealthy exposures experienced by different racial and ethnic groups (Beck et al., 2020; Williams & Collins, 2001). Residential segregation operates by excluding residents from educational, material, and economic opportunities that impact health (Acevedo-Garcia et al., 2003; Diez Roux, 2001). While there is not conclusive evidence correlating segregation or degree of segregation to diminished infant health (Grady, 2010; Mehra et al., 2019) there is enough to suggest that residential segregation manifests as a host of disadvantages to infant health.

Furthermore, the literature on environmental health and justice links hazardous environmental exposures to adverse infant health outcomes (Beland & Oloomi, 2019; Chay & Greenstone, 2003; Morello-Frosch & Shenassa, 2006). For example, high levels of exposure to pesticides, particularly near homes, are linked to lower birth weight for mothers with cumulative exposure and mothers who were only exposed in the first trimester (Larsen et al., 2017). Harmful environmental exposures (e.g., air and water pollution, industrial chemical and metal contaminants, and agricultural pesticides) in parents are correlated to infant developmental diseases (congenital abnormalities, growth, and gestational restriction) and fetal and neonatal death (Liu & Roth, 2008; Mattison, 2010; Schaefer et al., 2014). Moreover, Tran et al. (2020) found that exposure to active oil and gas development was associated with worse birth outcomes in rural areas of California. The severity of these environmental exposures depends on the type of exposure (single, multiple, or interactive effects), dose, time elements such as critical exposure window, and length of time (Sly & Flack, 2008). Exposure to environmental toxins at different developmental milestones during fetal development might generate varied outcomes (Ha et al., 2016). For example, Bobak (2000) examined multiple ambient levels of air pollution during each trimester and found varying effects on low birth weight and preterm birth based on type and amount of exposure (i.e., sulfur dioxide, total suspended particles, and nitrous oxides) and gestational period. Paternal exposures during preconception can also affect infant health via mutagenetic and epigenetic mechanisms (Anderson & Brinkworth, 2007). Additionally, there is evidence that maternal exposures to high arsenic levels in drinking water is associated with

miscarriage (Milton et al., 2017) although other similar studies of neighborhood arsenic levels have found no correlation (Aschengrau et al., 1989). Although it is complex and difficult to ascertain the impacts of hazardous environmental exposures across the reproductive cycle, it's clear that the risks posed to infant health are substantial (Morello-Frosch & Shenassa, 2006). Neighborhood disadvantage, residential segregation, and harmful environmental exposures are products of social, economic, and political decisions. Thus, by identifying modifiable political determinants that produce inequitable social conditions, we can begin to deconstruct entrenched systems that heighten risk for poor birth outcomes.

Political Determinants of Health

Political determinants are referred to as “the cause of causes” (Bambra, 2005) and the “root causes” (National Academies of Sciences, 2013) of social determinants of health inequities (Coggon, 2020; Beckfield, 2018; Kickbusch, 2015). Dawes (2020) refers to political determinants of health as “involved in the systematic process of structuring relationships, distributing resources, and administering power, operating simultaneously in ways that mutually reinforce or influence one another to shape opportunities that either advance health equity or exacerbate health inequities” (p. 49). The political determinants that operate within a community are largely determined by the jurisdictional political arrangements at the federal, state, and local levels that constitute the authority, power, and membership of where one lives (Kaushal, 2015). As public health researchers, Bambra et al (2019) wrote, “Place matters for health, but politics matters for place” (p. 37). Examining the relationship between place and health by jurisdictional differences can illuminate how politics matter for place in ways that impact health.

In the past 20 years, researchers have taken different approaches to understanding the link between various political determinants and infant health. Most commonly, researchers compared countries to identify how different regime types or expenditures impact infant health (Alexiou & Trachanas, 2021; Barnish & Nelson-Horne, 2018; Chung and Muntaner, 2006). One study examined infant mortality rates of 19 OECD countries from 1960 to 1994 and found that total public medical coverage was the most significant policy predictor of outcomes among the political determinants measured (social security transfers, voter turnout, left vote, Gini coefficient GDP per capita) (Chung & Muntaner, 2006). Rodriguez et al (2014) examined trends in White and Black infant mortality rates in the U.S. between 1965 to 2010 and their correspondence to different political party presidential administrations. This study found that infant mortality rates fell below trend during Democratic Party presidential administrations. More recently, Gemmill et al., (2019) examined the relationship between the 2016 U.S. presidential election and preterm birth among Latinas. The study highlighted the stressors associated with the political discourses, including threats toward immigrant populations and racist and xenophobic rhetoric. The study found an increase in risk for preivable births for Latinas nationally, regardless of immigration status, from April to November 2016. While there are other studies that have demonstrated inconclusive and divergent findings when examining similar political determinants' impacts on health outcomes (Barnish & Nelson-Horne, 2018), these studies demonstrate how correlations, although difficult to conclusively determine with upstream factors (Braveman et al., 2011), are crucial to identifying, and later mitigating, potential causes that negatively impact maternal and infant health.

The link between political determinants and infant health has the promise of deconstructing harmful social conditions that accumulate infant health risks. Political structures

have reinforced social hierarchies and harmful extractive labor market practices that co-construct inequitable social conditions (Bullard, 2007; Bullard, 2008; Morello-Frosch & Jesdale, 2006; Purifoy & Seamster, 2021). Most often, policy decisions that are made (or not) lead to disproportionate benefits and heavier health burdens, often to the detriment of racial and ethnic minorities and those of lower socioeconomic status (Bullard, 2008; Morello-Frosch & Jesdale, 2006; Morello Frosch & Shenassa, 2006; Purifoy & Seamster, 2021; Richter, 2018). For example, government policies and social practices directly and indirectly steer low-income communities of color into neighborhoods that are disinvested in, segregated, and characterized by harmful environmental exposures (e.g., substandard housing, landfills, and pollution) (Moore et al., 2022; Purifoy & Seamster, 2021). Poor communities of color have been sites of policy targeting, such as the practices of redlining and siting of locally unwanted land uses that generate unfavorable social conditions (Blessett & Littleton, 2017; Rothstein, 2017). Political institutions have facilitated hazardous siting through economic incentives (Collins, T., 2010) and policy making bodies that diminish the political agency of low-income communities of color (Richter, 2018). For example, the Commission for Racial Justice United Church of Christ (1987) published the report “Toxic Wastes and Race in The United States,” which exposed patterns of racial injustice in the zoning of toxic waste sites by corporations and local governments. Bullard (2021), when calling for procedural and geographic equity, emphasized that “unincorporated, poor, and communities of color often suffer “triple” vulnerability of noxious facility siting” (p. 156). Notably, the literature suggest that policy, place, racism, and health risks are often bounded concepts that should be studied together. We believe that unincorporated communities in the San Joaquin Valley reflect manufactured social conditions whose political determinants may in part contribute to landscapes of risks for adverse infant health outcomes.

The San Joaquin Valley

The San Joaquin Valley, often referred to as the Valley, is a unique region of California, sustaining the nation's energy and food consumption while serving as a precarious home to its immigrant labor force (Asmatey, 2013; Quesada, 2019). Within the eight-county region live 4.3 million people, approximately 11% of the state's population (Thorman et al., 2018). The area is majority Latinx (54% of the region compared to the state's 39%). In 2013, the region was also home to 280,599 undocumented immigrants, about 10% of the state's undocumented population (Hayes & Hill, 2017). The Valley's population is generally younger, with 38% of residents aged 18 or younger, compared to 23% at the state level (U.S. Census Bureau, 2020). The region has the highest percentage of children under the age of five (8% of the total population) out of any other region in California (Thorman et al., 2018). Additionally, a slightly higher percentage of children in the Valley live in single-parent families (34%) than in the state overall (31%) (California Department of Developmental Services, 2020). Additionally, in 2017, the region had a higher percentage of children living in food-insecure households (23%) than the state overall (18%) (Chen et al., 2016) (Gunderson et al., 2019).

The region is characterized by multiple social and environmental challenges. The Valley accounts for 57% of the state's \$25 billion in agricultural sales (USDA, 2017). Six of the San Joaquin Valley counties are the top agricultural producers in the nation. Nevertheless, all Valley counties have higher percentages of people living in poverty (ranging from 13% in Kern County to 24% in Tulare County), compared to the state average (13%) (U.S. Census Bureau, 2017). Furthermore, since 1975, economic growth has been slower in the Valley than the state's average

economic growth as measured by GDP per capita (CCSCE, 2019). In 2017, the per capita annual income in the region was \$40,155, compared to \$59,796 for California. Low-income San Joaquin Valley residents benefit from a lower cost of living in the region and higher dependence than many areas of the state on safety net programs (e.g., Earned Income Tax Credit, Supplemental Nutrition Program for Woman, Infants, and Children, CAL Fresh), which helps offset lower wages (Bohn et al., 2019). However, population trends demonstrate that rising prices in the San Francisco Bay Area are prompting an exodus into the Valley, especially among lower-income families of color (Lillis, 2018). This puts financial constraints on San Joaquin Valley residents, who must now contend with competition for housing stock, fueling increased housing prices and affordable housing shortages.

Low-income households and low educational attainment are byproducts of the region's food and energy industrial activity. Agriculture is the largest employer in the region, followed by government jobs (White, 2020; Huang & London, 2012). The San Joaquin Valley also produces 75% of the state's crude oil (Dobbins & Lubell, 2021). Retail, trade, and energy production, including oil and fracking, are also sources of employment. Overall, the most significant demands for labor by employers in the region are low-wage jobs (Huang & London, 2012). In 2019, the unemployment rate (8%) in the Valley was higher than the state (4%). In part, this is due to the inability to attract diverse industries with higher wages. Unfortunately, the region's economic and education structure eschews higher-wage industries that require a highly educated workforce. The area has lower education rates than the state's high school graduation rate of 83%, ranging from 69% in Merced County to 81% in San Joaquin County (Johnson et al., 2018). The area also has some of the lowest rates of college graduation in the state. Thus, county and city governments in the region often depend on revenues and employment tied to prisons and dirty industries (e.g., refineries, power plants, and waste disposal sites) that are willing to locate in the area (Huang & London, 2012).

Environmental exposures (e.g., chemical exposures, traffic pollution, and pesticides) in the region generate cumulative impacts over time that threaten health (Huang & London, 2012; Richter, 2018; White, 2020). The location of the San Joaquin Valley and its agricultural and manufacturing industries are significant midpoints for transporting goods across the state and countries. The highways and freeways that traverse across the region facilitate the delivery of goods to urban centers. They also serve as pathways for illegal drug industries (Huang & London, 2012). Air quality in the Valley is one of the worst in the nation due in part to failure to meet emissions standards from trucks and diesel, tractors, irrigation pumps, and wood-burning fuel sources (US EPA, 2013). Furthermore, half of all California pesticides (approximately 85 million kilograms) are used in five Valley counties (Fresno, Kern, Tulare, Madera, and San Joaquin), where large amounts of fruits and nuts are grown (Feldman, 2018; Grube et al., 2011; Larsen et al., 2017). The combination of exposures from multiple polluting industries and economic activities is augmented by the region's lax regulatory environment and the region's topography, which is an oval bowl shape that traps in pollutants (White, 2020).

Complicating the region's social and environmental conditions is a political climate that leans politically conservative, pro-business, and anti-regulation. The eight-county region has traditionally been considered conservative (White, 2020). In recent years, the northern counties of the Valley have trended toward higher numbers of Democrats, but even still, Democrats in the area trend more conservative in the region than in other areas of the state (McGhee, 2020). The ideological composition of environmental regulatory boards can be reflective of conservative interests and thus are reluctant to make substantial environmental reform (White, 2020). One

example of this is the San Joaquin Valley Air Pollution Control District, which has traditionally broached air pollution as emblematic of the region's topography and as pollution that has migrated from other areas of the state while minimizing local agricultural production's role as a contributor (White, 2020). The reluctance of government officials to address comprehensive environmental reforms has contributed to harmful living conditions for many Valley residents (White, 2020). In 2014, the California Environmental Protection Agency conducted a survey to identify "disadvantaged communities" – communities who face cumulative harmful environmental and social exposures. Of the 30 highest ranked disadvantaged communities, 23 were within the San Joaquin Valley (The Office of Environmental Health Hazards, 2014; White, 2020).

Unincorporated Communities in California

Outside of California's municipal borders are unincorporated areas that are home to approximately 7.9 million people, or 10.8% of the state's population (Flegal et al., 2013; London et al., 2018). Within these areas are unincorporated communities whose shared geographical identity and proximity to each other allow them to function similarly to a town or city; however, they lack a municipal charter (i.e., incorporated status). Many of these unincorporated communities are entrenched pockets of poverty located in the San Joaquin Valley, of which there are 450 disadvantaged unincorporated communities (annual household incomes of \$38,000 or less) (London et al., 2018). A disadvantaged unincorporated community is defined as an unincorporated community in California, with a median household income of 80% or less than the statewide median household income (Wolk, 2011). Disadvantaged unincorporated communities represent community pockets of disadvantage, typically unaccounted for in state, county, and city policymaking and public consciousness. Low-income households are overrepresented in disadvantaged unincorporated communities (64%) compared to identified Census Designated Places (51%), cities (48%), and counties (48%). People of color comprise 65% of disadvantaged unincorporated community populations in California, but only 57% of city populations in the state (Flegal et al., 2013).

Historical Roots of Unincorporated Communities in California

Many disadvantaged unincorporated communities in California formed during the industrial and agricultural booms of the early 20th century as the labor force sought affordable places to live near job opportunities (Flegal et al., 2013). Developers exploited the high need for low-cost housing and the lax regulation environment in unincorporated areas and produced low-quality homes where water and sewer lines were not always provided. Other unincorporated communities in California were built around a train station, coal mine, or other historical sites of economic activity, most of which have ceased to exist, except for agriculture (Anderson, 2007; Eissinger, 2008, 2017; Flegal et al., 2013). Other unincorporated communities, including Fairmead and East Dos Palos, came into existence as a response to discrimination from nearby cities in the form of racially restrictive covenants, sundown towns, or racial hostilities towards immigrants (Anderson 2007, 2009; Bender, 2009; Eissinger, 2008). In the late 19th century, early cotton farming practices in the Valley were partially enacted by White southerners who shipped in Black labor and Jim Crow policies into communities in Kern and Madera County. More recently, contemporary practices of segregation operating through annexation policies have been

created and maintained in unincorporated communities through the *de facto* practice of municipal underbounding (Quesada, 2019, Pulido et al., 2016). Municipal underbounding refers to the systematic exclusion of unincorporated areas, most often due to race/ethnicity or income levels, by municipalities who selectively annex unincorporated territories of interest (Aiken, 1987; Lichter et al., 2007). Cities use economic justification to legally refuse annexation while simultaneously leapfrogging over low-income unincorporated communities of color to annex wealthier White communities (Aiken, 1987; Anderson 2007, 2009; Eissinger, 2017; Lichter et al., 2007; Pulido et al., 2016). For example, Bret Harte, Garden/Rouse-Colorado, No Man's Land/Hatch-Midway, and Robertson Road are four unincorporated communities with largely Latinx populations entirely within Modesto city limits, but are bypassed for annexation, denying them the benefits of cityhood and connection to the wastewater treatment services that lie beneath their ground (Molina, 2014).

Unincorporated communities can generally be found in one of three forms in California: legacy (hinterlands), fringe, or island unincorporated communities (Flegal et al., 2013; London et al., 2018). The distinctions between the three forms of unincorporated communities (depicted in Figure 1) reflect their geolocation compared to nearby municipalities and the political and socioeconomic context from which these communities emerged (Flegal et al., 2013). Legacy communities are distinguished by their distance from incorporated cities (not adjacent to a municipality or its perimeter) and their longevity of existence (usually more than 50 years) (Flegal et al., 2013). They are referred to as remote if they are three miles beyond a city border (Pemberton, 2022). Island communities are entirely surrounded by municipality borders (Anderson, 2007). They are settled pockets of territory entirely within a city, yet unincorporated community residents do not have the legal status of a city resident (Flegal et al., 2013). These communities' mailing addresses and zip codes may share the same moniker as the adjacent city. However, this is merely a post office convenience and does not reflect a community's incorporation status. Unincorporated communities often have a mailing address with a city name that has not annexed them, possibly bypassed for annexation because it was deemed undesirable (Rubin et al., 2007). Finally, urban fringe unincorporated communities describe communities that share at least a partial border with a municipality and have been in existence for a period of time, generally 25 years or more (Anderson, 2007). These residential communities developed on the edges of a city as residents sought affordable housing and homeownership (Anderson, 2007; Bacon, 2022; Flegal et al., 2013). For some residents in the early to mid-20th century, moving to the fringes was enforced through racial steering by realtors and racially restrictive covenants (Anderson, 2007; Eissinger, 2008, 2017).

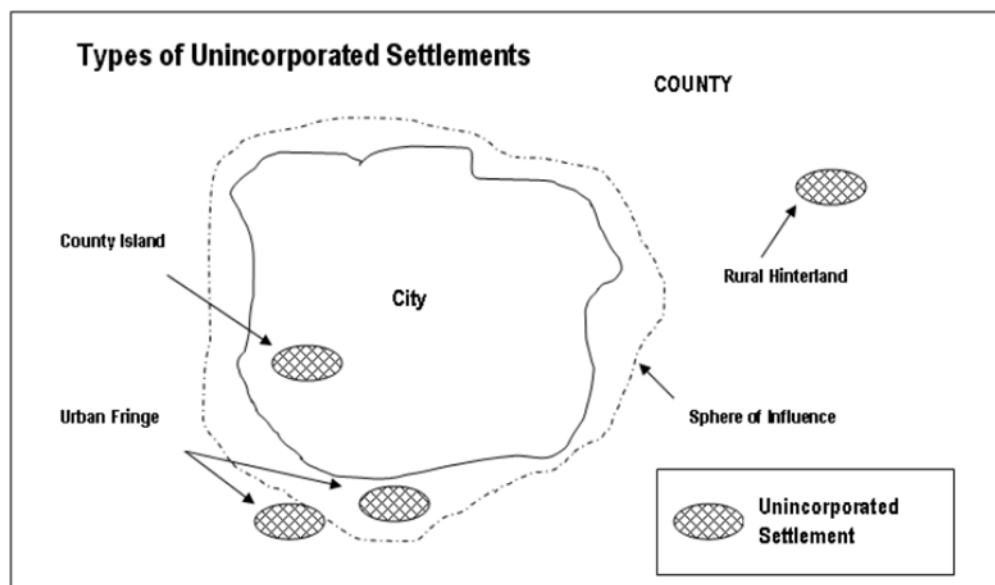


Figure 1. Types of Unincorporated Communities. “Unincorporated communities in the San Joaquin Valley: New responses to poverty, inequity, and a system of unresponsive governance.” *Framing paper for the first convening hosted by California Rural Legal Assistance and PolicyLink, Fresno, California, 27* by From Rubin, V., Chandler, A., Bernabei, E., & Lizardo, R. (2007), p. 9.

Unincorporated communities are not just physically on the fringe of cities, but on the periphery of modernity and outside of municipal rights (Aiken, 1987; Anderson, 2007). Many disadvantaged unincorporated communities continue to live without adequate water, sewer, and garbage access, posing ongoing community health risks (Durst; 2018; Pemberton, 2022). Inadequate sewage and water systems threaten public health and increase the chances of spreading infectious diseases (Heaney et al., 2013; Uhlman et al., 2014; Wilson et al., 2008). In SB 244, the California legislature made it necessary for counties and cities to identify and plan for essential service provision for disadvantaged unincorporated communities. However, there are no legal requirements and few financial provisions to ensure that counties provide clean water, wastewater treatment, storm drainage, or sewer services (Pemberton, 2022). Compounding the issue of adequate water is the substandard and complex water systems of the San Joaquin Valley that impact unincorporated communities (London et al., 2018; London et al., 2021). For many unincorporated communities, water runs through old plumbing systems, and the available water can be toxic. London et al. (2018) found that disadvantaged unincorporated communities were less likely to receive safe, clean drinking water through community water systems than residents living elsewhere in their county within the San Joaquin Valley. More than two-thirds of residents in disadvantaged unincorporated communities had running water from unsafe water systems.

Social, environmental conditions (e.g., lack of amenities or access to healthy foods, chemical exposures, noxious fumes) and housing conditions (e.g., crumbling infrastructure, contaminated water, failing septic tanks, poor ventilation) associated with poor health outcomes are often present in these communities (Anderson, 2007; Flegal et al., 2013). Neighborhoods are riddled with abandoned properties, negligent or absent landlords, blight, and disorder from lack of code enforcement (Anderson, 2007; Shenassa et al., 2004; Wallace, 1990). A lack of sidewalks, streets with potholes and standing water, and no desirable amenities like grocery

stores or parks result in neighborhoods undesirable for public use (Rivera, 2014). Additionally, unincorporated communities are often used as dumping grounds for contractors and other nearby cities (Parnell et al., 2004). Many unincorporated communities are home to landfills and sewage treatment plants for cities outside their county's borders (Caruthers, 2003; Lowman et al., 2013; Gibson et al., 2014). A lack of local governance facilitates unincorporated communities' vulnerability to negative environmental landscapes.

State of Unincorporated Communities in the San Joaquin Valley

Environmental and social justice advocates have raised concerns that San Joaquin Valley's unincorporated communities are economically disadvantaged, resource deprived, residentially segregated, and often sites of environmental injustice (Asmatey, 2013; Arata, 2016; Bullard, 2008; Cole, 1994; Eissinger, 2008; 2017; Flegal et al., 2013; Richter, 2018). Within the San Joaquin Valley, many areas contain pollutants possibly associated with higher cancer rates and infectious diseases, such as arsenic, pesticides, asbestos, nitrates, chloroprene, and polychlorinated biphenyls (Arata, 2016; Bullard 2008; London et al., 2018; Richter, 2018). Pregnant women and children may be bearing the cost of the compromised environmental and social conditions through diminished health outcomes in these communities. Unfortunately, the lack of research and surveillance on these areas renders their health outcomes unknown (Anderson, 2007; Richter, 2018). Despite the lack of health research on unincorporated communities, there is enough information to warrant an examination of infant health among these communities.

More recently, San Joaquin Valley's unincorporated communities are on the front lines of California's water crisis. Dobbins & Lubell (2021) and Sze (2020) refer to the water crisis in the region as "slow violence." The term originated from Nixon (2011, p. 2) and is defined as "violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all." The long-term disinvestment from local governments and resource governments in unincorporated communities has resulted in unjust water allocation that threatens disadvantaged communities (London et al., 2021). Access to clean drinking water for communities dependent on groundwater has been threatened by excessive pumping, historical contamination of groundwater, and decreasing replenishment due to ongoing drought conditions perpetuated by climate change (Dobbins, 2020; London et al., 2021). Unincorporated communities are increasingly running out of water from dry wells in Tooleville and Fairmead to broken pumps in East Oroquieta (Jasechko & Perrone, 2021; London et al., 2021). Similarly, despite overcoming ten years of struggle to connect Kettleman City to the adjacent California aqueduct, the community was told in December of 2021 that it would not be allocated any water. Instead, Kettleman City had to purchase water from the Mojave Water Agency to meet its needs (Vad, 2022). While water trading is considered by some to be beneficial for the environment (Hanak, et al., 2021), the reality is that the market for water favors large markets (i.e., big cities) while disadvantaged unincorporated communities may be priced out. Currently, there are large state efforts through the Sustainable Groundwater Management Act (SGMA) to try to mitigate the water crisis (CA Department of Water Resources, 2022). Notably, however, SGMA's efforts are dependent on local governance cooperation which has been historically unresponsive to disadvantaged unincorporated communities (Dobbins, 2021).

Governance and Structural Vulnerability in Unincorporated Communities

Unincorporated communities are embedded in governmental structures and processes that can render them structurally vulnerable. Structural vulnerability is defined as the individual or group condition of having one's agency constrained from making beneficial decisions by sociopolitical-economic institutions and forces of power in society based on one's social location (Quesada et al., 2011). Adapting the concept from political science, Quesada et al. (2011) have demonstrated that political exclusion puts individuals and groups at risk for various adverse health outcomes. For unincorporated communities—particularly those that are low-income communities of color—reliance on distal county government as their sole decision-making body and lack of awareness and attention by government population surveillance systems contribute to conditions that can lead to a distribution of social determinants of health that increase burdens and risks for adverse health events (Richter, 2018). As the most proximal form of general-purpose governance, county government is a significant institutional factor impacting unincorporated communities. Some California county governments have provided institutionalized methods for participation through Municipal Advisory Councils (i.e., advisory governing board with no fiscal authority) for selected unincorporated communities. Additionally, California allows for special districts, including in unincorporated communities, to be apportioned a small percentage of county property taxes to serve critical community services such as a community services district, electric utility district, water, fire, or hospital district. Independent special districts have elected boards and are directly accountable to the community but are limited in their authority to the prescribed purpose the district was formed (CSDA, 2022). Typically, unincorporated community residents do not benefit from two tiers of political representation (local and county) and are instead solely dependent on county decision-making and service provision (Anderson, 2009).

County government is the most prevalent form of general-purpose government across the nation (Benton, 2005; Benton et al., 2007; Benton et al., 2008; Cigler, 1995; Lubell et al., 2005). There are two types of county governments in California: traditional and reformed (i.e., charter). In the eight-county region, only Fresno County has a charter government. The “traditional” models have no central authority—only a governing board of elected commissioners or supervisors and possibly row officers (operations administrators such as clerks, controllers, sheriffs, treasurers) (Choi, Kwon & Feiock, 2010; Cigler, 1995; Benton, 2005). Less frequently, counties operate under the leadership of an executive authority or county administrator that is voted in separately from the governing board (Benton, 2005; Benton et al., 2008; Cigler, 1995; McDonald, 2015). The lack of an executive political leader means that power is more equally distributed among board members, and thus this model is run more by consensus. However, without an elected figurehead, decision-making accountability is less clear. Reformed or charter governments are allowed an additional “home rule”: which enables greater authority over county officer positions, including choices regarding compensation, election or appointment, and removal (California State Organization of Counties, 2020).

As regional political and administrative units of state government, county governments operate within the state's parameters. Counties' principal roles and responsibilities are delineated and confined by the federal and state legislature (Benton, 2005). As state administrative units, counties are often responsible for the distribution and implementation of public services related to the state's duties (Benton, 2005; Benton et al., 2008; Lobao & Kraybill, 2005). Among services that county governments often provide for both incorporated municipalities include

court and county jail administration, public records keeping, health and human services, and emergency management services. Additionally, counties are the primary local providers of services (e.g., water, planning, fire, police/sheriff) to unincorporated communities (Benton et al., 2008; Lobao & Kraybill, 2005).

In recent decades, growing federal and state decentralization policies have increased delegation of welfare administration to county governments, increasing counties' responsibilities for public services, including social services, child welfare, mental health, unemployment, cash aid, food and nutrition services, and adult and aging services. The scope of services and resources distributed by counties has far-reaching consequences for residents' health and well-being. However, the increasing responsibilities managed by counties for the state may limit the capacity for the county to serve as a representative body for unincorporated communities (Anderson, 2009). Moreover, counties' limited forms of revenue generation increase their dependence on large corporations (Anderson, 2007, 2009; Feiock et al., 2008; Richter, 2018). Peterson (1981) argued that limited county revenues were a primary driver for county decision-making. Counties are often more constrained through state constitutions than municipalities whose charter with the state allows them more options for generating revenues through taxes and other policy tools. To attract necessary business development investments, counties use the policy tools that are within their jurisdictions such as relaxing tax and land-use requirements or loosening environmental regulations to compete with nearby cities (Anderson, 2012; Bullers, 2005; Feiock et al., 2010; Green, 2014; Wing, Dole, & Grant, 2000). This can result in attracting businesses and land-usage that may pose greater environmental risks for unincorporated communities that are not optimal for sustainable quality living conditions but are instead to the advantage of corporations and private investors (Feiock et al., 2008). Furthermore, Alford (2019) found financial inequities associated with governance in two disadvantaged unincorporated communities in Merced County, California. With limited political representation, unincorporated communities are seen as insignificant from decision-makers' priorities and forgotten by the public (Purifoy, 2021; Richter, 2018; Moore et al., 2022).

Illegibility of Unincorporated Communities and Unaddressed Health Outcomes

Unincorporated communities often fall outside of political priorities. They are also rendered illegible in existing health studies. Public health research often gathers population data from secondary sources, including birth and death records, medical and insurance records, household surveys, and census data (Woodward, 2013). Unfortunately, these data systems are sorted by zip codes and census designations that are not sensitive to those labeled as unincorporated communities (Anderson, 2009; Fernandez, 2014; Lichter et al., 2015; Richter, 2018). As a result, although individuals' information is represented in records, their community's identity as a geopolitical unit is lost. This is further aggravated by a lack of consistent identification of these communities in federal definitions which leaves their data unread as political units (Lichter et al., 2015).

An unknown number of people living in unincorporated communities are illegible in conventional national data collection and demographic methodologies (Flegal et al., 2013; Pannu, 2018). The Census Bureau (2020) currently identifies unincorporated communities as Census Designated Places (CDPs). These are defined as statistical areas that are named, commonly known, and designated as settled places with no population maximum, but aren't incorporated by the laws of the state. CDPs are considered "equivalents of incorporated places,

with the primary differences being the lack of both a legally defined boundary and an active, functioning governmental structure, chartered by the state and administered by elected officials" (Census Bureau, 2020, p. 13). To be designated, a CDP requires that an unincorporated community be identified as a candidate before each decennial census through the U.S. Census Bureau's Participants Statistical Area Program (PSAP) (U.S. Census Bureau, 2018; Flegal et al., 2013). The PSAP includes invited representatives from states, counties, tribes, or regional organizations; however, not all counties are represented (U.S. Census Bureau, 2018). Unfortunately, without local government representation, an unincorporated community must rely on county policymakers to advocate that they are listed as a CDP. The absence of local representation and low visibility to Census Bureau and PSAP stakeholders may limit the likelihood that an unincorporated community is put forth as a CDP by a primary PSAP (Flegal et al., 2013).

A notable study on unincorporated communities in California demonstrated the drawbacks of relying on the U.S. Census alone for identifying all unincorporated community residents. The *California Unincorporated: Mapping Disadvantaged Communities in the San Joaquin Valley* report, compiled by PolicyLink (Flegal et al., 2013) was undertaken by the Community Equity Initiative (CEI) of California Rural Legal Assistance, which in 2007 undertook an extensive three-year research project tracking unincorporated communities in California's Central Valley. PolicyLink reported that there were an additional 2.8 million people living in an unincorporated community above the 3.6 million living in a CDP (i.e., census equivalent to unincorporated communities) identified in the 2000 U.S. Census across California. CEI had identified the additional population using multiple methods that included agricultural and parcel maps, aerial photography, census block data for small populations, and local public documents. Importantly, CEI engaged local residents and stakeholders within the San Joaquin Valley and held regional forums to identify areas that met the definition of a CDP but had not yet been recognized as such. (Flegal et al., 2013; Rubin et al., 2007). Unfortunately, employing comprehensive grassroots efforts like those used by CEI to identify unincorporated communities are not often utilized by government officials, and therefore unincorporated communities are undercounted.

Health outcomes in unincorporated communities are challenging to identify in part because research on communities outside of municipalities often use descriptive terms (e.g., rural, non-metro, small towns) or measurements (e.g., census blocks or census tracts, zip codes) and seldom represent them by their lack of incorporation status (Flegal et al., 2013; Rubin et al., 2007). Proxies for unincorporated communities include CDPs, census blocks or census tracts, and rural designations—each with its own limitations. Lichter et al. (2015) recommend that researchers should intentionally select locations based on meaningful political units (e.g., city, county, town, district, unincorporated community) instead of measurements, which are drawn irrespective of population or policy heterogeneity. Census tracts and census blocks are convenient boundaries that help segment geographical areas. However, these boundaries are drawn without attention to the distinct populations in geographic proximity, which have substantial differences in resources, governance, and socioeconomic profiles (Lichter et al. et al., 2015). Descriptive terms can be even more vague. Rural in the U.S. Census is defined as “not urban.” Urban has two categories: urbanized areas of 50,000 or more people and urban clusters of more than 2,500, but less than 50,000 people. There is no reference to the municipal border. Therefore, a large unincorporated area outside a municipal border would be considered urban, while a small, incorporated settlement (i.e., town) with less than 2,500 population would be

considered rural. Thus, rural by census definition is not synonymous with unincorporated and fails to capture municipality status. The most equivalent alternative to unincorporated communities would be CDPs. CDPs confirm a spatial relationship among residents, while census tracts do not. However, CDPs do not account for all unincorporated communities and include minor civil divisions that are incorporated. Despite their limitations, CDPs encompass a large portion of residents in unincorporated communities and can serve as a useful metric in public health research. Unfortunately, despite the more accurate information CDPs can bring to understanding unincorporated communities, CDPs as a political unit of identification are seldom used in social science and health research.

Health Outcomes in Unincorporated Communities

Despite challenges to health research on unincorporated communities, there is a limited body of work on health outcomes in reference to unincorporated communities (Anders et al., 2010; Collins-Dogrul, 2006; Mier et al., 2008; Weinberg et al., 2003; Todić, & Scott, 2021). A brief review of the PubMed database for health research on unincorporated communities between 1990 to 2020 yielded 22 studies, of which only a few sought to measure health outcomes (Hasoon et al., 2020; Holden et al., 2016; King et al., 2009). The studies are disparate and point to conflicting evidence on whether these communities have protective and harmful health impacts. Hasoon et al. (2020) examined the incidence of dog bites in unincorporated areas of Harris County, Texas and found that dog bites were more prevalent in nearby municipalities than in unincorporated areas. Holden et al. (2016) examined compliance with treatment for tuberculosis in four U.S.-Mexico border counties in New Mexico from 1993 to 2010. Colonia (i.e., unincorporated communities on the U.S.-Mexico border) residents had slightly higher completion rates (79%) than non-colonia residents (78%). A third study included a qualitative assessment of Black residents' health status in the unincorporated community of Fresno, Texas (King et al., 2009) in which 21 participants from five focus groups shared perceptions of excellent individual health, but only fair community health status. Concerns from residents included water quality and health care access. Additional online searches yielded another study on health outcomes, including research that indicated risks for infectious diseases in unincorporated communities (Dutton et al., 2000). Colonia residents on the Texas border from six counties (El Paso, Webb, Maverick, Val Verde, Cameron, and Hidalgo) were found to have higher rates of both intestinal problems and lung disease than residents in non-colonias (Dutton et al., 2000). Furthermore, in the same study, children under the age of five in colonias had a much higher frequency of diarrhea in a two-week span compared to those residing in non-colonias. Though the rates of diarrhea in colonias and non-colonias were 11% for children under the age of one, five colonias without drinking water or wastewater services had rates as high as 20% (Dutton et al., 2000). There may be many more empirical studies that explicitly mention unincorporated communities' health outcomes, but they are challenging to identify.

Additional health-related research on unincorporated communities has focused on social determinants of health (Fernandez, 2014). Arata (2016) and Richter (2018) have outlined the inequitable environmental policies and participatory processes that negatively impact a disadvantaged unincorporated community in the San Joaquin Valley, such as Kettleman City. Additional studies include Valley disadvantaged unincorporated communities' struggle for clean drinking water and wastewater disposal (Huang & London, 2012; London et al., 2021; Molina, 2014; Pannu, 2018). Karner and London (2014) have disaggregated data on transportation costs

and tradeoffs for disadvantaged unincorporated communities in the San Joaquin Valley that highlight heterogeneity and inequities within the region. In other regions of the state and country, there are more studies on water quality (Hudgins, 2018; Naman & Gibson, 2015), community engagement (Fernandez, 2014, 2018; Tach et al., 2019) and zoning (Baig et al., 2016; Chriqui et al., 2017; Molina, 2014).

As important as social determinants of health research are for unincorporated communities, research on health outcomes is also needed. Infant health outcomes data is available for empirical studies such as the CDPH's Maternal and Infant Health Assessment, CDPH Vital Records, and hospital and clinic medical records; however, it remains obscured by not being disaggregated to disadvantaged unincorporated communities. Notably, legal justice advocates from the Leadership Counsel for Justice and Accountability, who have worked with unincorporated communities for over two decades in the San Joaquin Valley and the Imperial Valley region have generated research health research, including a Health Impact Assessment in Kern County, California (Leadership Counsel for Justice and Accountability, 2015). Furthermore, there may be health research on unincorporated communities, but the use of descriptive terms such as small towns, outside cities, rural towns make it difficult to determine the policy impact of lack of incorporation status (Eberhardt & Pamuk, 2004; Hall et al., 2006; Hargrove et al., 2015; McKenna et al., 2017). For the often small, underrepresented populations in disadvantaged unincorporated communities, lack of representation in health research will leave needs unaddressed (Korngiebel et al., 2015).

Consequently, for disadvantaged unincorporated communities in the San Joaquin Valley, lack of representation in data results in detrimental effects (Richter, 2018). Communities that are left out of public health surveillance systems are excluded from funding streams, research (Office of Public Health Scientific Services, 2018), and in the case of Kettleman City, can prevent disease clusters from being identified (CBDMP, 2010). The California Birth Defects Monitoring Program (CBDMP) is one of several public health surveillance systems in the state for tracking infant health outcomes and trends. However, as many unincorporated communities have small populations or are unknown, their data are not disaggregated (Flegal et al., 2013). Thus, when an infant health crisis of structural birth defects occurred in the Kettleman City disadvantaged unincorporated community between 2007 to 2009, the cluster went unobserved until community advocates identified it through a door-to-door survey (Richter, 2018; CBDMP, 2010). Only until public pressure was brought to bear on Kings County government, did officials acknowledge the cluster existed (Arata, 2016).

San Joaquin Valley Disadvantaged Unincorporated Communities in Crisis

Across the San Joaquin Valley, disadvantaged unincorporated communities are constructed as landscapes of risk. This includes environmental (e.g., lack of amenities or access to healthy foods, chemical exposures, noxious fumes) and housing conditions (e.g., crumbling infrastructure, contaminated water, failing septic tanks, poor ventilation) that have been identified as related to respiratory illness, obesity, and diabetes. Additionally, the lack of access to nutritious foods and physical activity are among many other community conditions that cause concern. Factors possibly associated with higher cancer rates and infectious diseases include arsenic, pesticides, asbestos, nitrates, chloroprene, and polychlorinated biphenyls in the Valley disadvantaged unincorporated communities (Arata, 2016; Bacon, 2022; Bullard 2008; London et al., 2018; Pannu, 2018; Richter, 2018). Still, in the absence of disaggregated comprehensive

infant health data, the prevalence of adverse infant health outcomes is unknown and has remained unexamined. The stories of 11 Kettleman City infants and their families remain localized. The lack of legibility in research is one more outcome that demonstrates that the lack of incorporation status is a structural determinant of health that renders these communities insignificant and vulnerable (Richter, 2018).

Chapter 3

Theoretical and conceptual foundations: The Political reproduction of social inequalities

“Medicine is social science and politics nothing but medicine on a grand scale.”

Rudolf Virchow (1848)

In this chapter, I outline the theoretical and conceptual orientations that inform this dissertation. I will describe the ontological and epistemological roots from which the research questions emerge. Here, I draw on health and legal/political theories and concepts that focus our lens on (un)incorporated status as a political determinant of health. Together these theoretical concepts guide an examination of the common, yet opaque political arrangement associated with lack of incorporation status for residents of disadvantaged unincorporated communities in California’s San Joaquin Valley.

The Researcher’s Lens – A Critical Realist Frame

Foundationally, this study is informed by a critical realist lens. It accounts for both ontological realism and epistemological constructivism (Maxwell, 2015). Maxwell (2015) defines critical realism as a philosophy of science that believes in an underlying reality that exists but is distinct from what is observable. The observation of the real world is constructed by human perceptions, tools, social structures, and processes. For example, from an epidemiological perspective, there are factors that contribute to adverse health outcomes; thus, there is a reality to be known (Krieger, 2001). However, through a constructivist lens, there must be an acknowledgment that researchers are limited in their ability to know 'reality' based on the constraints of the researcher's tools, knowledge, ways of knowing, and imagination (Haraway, 2004). Current conventional epidemiological methods, knowledge and understanding, the construction of research questions, and scientific inability to capture impacts across time and space distort what we can know about what is real (Haraway, 2004). Therefore, this research project recognizes that there are multiple approaches and answers to the fundamental question—“Does incorporation status matter for infant health?”

Examining the Political Production of Disease Through an Examination of Government Power

This dissertation employs a political epidemiological approach to explore the relationship between infant health outcomes and lack of incorporation status. In this study, I refer to legal and political epidemiology as joint enterprise of social epidemiology using Coggon’s (2020) broader explanation of legal determinants as “integrated within the political determinants of health: that is the overall aspects of power, control and coordination that reside (or arguably should reside) with governmental actors and agencies (legal and otherwise) (p. 44).” This project approaches political systems as key social relationship arrangements. Ecosocial theory of disease distribution provides a substantive theory that informs how political regimes may operate as fundamental drivers of health inequities by linking the interlocking pathways between the biological and society (Krieger, 2012). We conceive of this research project as an examination of political determinants of health within the theoretical ecosystem of ecosocial theory. Specifically, this study seeks to contribute to an understanding of the ecological role that subnational political determinants play in the inequitable distribution of socially constructed vulnerabilities for infant health.

Furthermore, we believe that any assessment of political power must be examined as intertwined within the intersectional underlying systems of oppression that use political power in complex and nuanced ways that reproduce themselves (Collins, P.H., 2017). Here we outline key tenets of critical race theory to identify how lack of incorporation status can reproduce structural racism. The construction, history, and trajectory of low-income unincorporated communities of color intertwines with racialized processes of municipalities, boundary making, and processes of spatial stratification (Purifoy & Seamster, 2021, Tyson, 2013). The roots of many unincorporated communities in the San Joaquin Valley sprung from racialization processes or resistance (Quesada, 2019). Thus, we incorporate critical race as a theoretical lens by which we can interrogate how the roots may be infecting unincorporated communities today.

Ecosocial theory of disease distribution is a theoretical perspective that posits that health outcomes are a consequence of multiple intersecting systems and relationships in which individuals are embedded and come to embody (Krieger 2001, 2012). Krieger (2012) builds on past ecological models and lays out four key constructs to guide research. The first construct of ecosocial theory is *embodiment*, or how our bodies inhabit and manifest biologically the material and social world we live in (Krieger 2001, 2005). Bodies suffering from disease can thus be manifestations in part of broken political systems that have not supported population health either by exposure or lack of protection from harmful social conditions.

The second construct is *pathways to embodiment*. Pathways to embodiment are not singular but multidimensional and can intersect and impact one another. Pathways incorporate exogenous factors, such as environmental exposures and degraded living conditions (e.g., lack of adequate resources), or over-resourced harmful commodities (e.g., lack of fresh fruits and excess availability of alcohol) attributed to social and structural factors, such as discrimination, poverty, and trauma. Often these pathways have been shaped by the political structures and decision making that allow direct and indirect harmful exposures in communities (Beckfield, 2018; Beckfield & Krieger, 2009). Moreover, pathways should be contextualized accounting for the current and historical sociopolitical factors and processes. There are often tradeoffs in research on political determinants between identifying pathways and establishing broader relationship patterns (Torche & Rauf, 2021). Thus, any research study including the two studies undertaken by this dissertation project should be interrogated as pieces of larger analytical projects investigating health inequities.

The third construct of ecosocial theory is the *cumulative interplay of exposure*, susceptibility, and resistance across the life course. This construct factors in time across one's lifespan (when and for how long) and space (where one lives, works, or frequents) and how the intersection of time and space have a differential impact due to the timing of occurrence, frequency and magnitude of exposure that are then reflected in one's biology. Notably, ascertaining evidence for a relationship between upstream political determinants and downstream infant health outcomes can be complicated because of the multiple factors at work across birthing parents' lifecourse (Braveman et al., 2011; Torche & Rauf, 2021). Finally, the fourth construct is *accountability and agency*: Identifying responsible actors (e.g., governments, policies, institutional racism, discrimination, stigma) for social disparities in health is needed to address health inequities. Critical theories have shown that laws can operate without intent to produce inequities and still serve structural inequalities such as structural racism (Bell, 1995). This does not negate that accountability and agency at the structural and individual level coexist, maintain and reproduce inequities that should be identified. Structural determinants such as governance institutions can entrench inequalities, while decision-makers can choose to act or not

to address injustice. By examining (un)incorporated places as political units in research, scholars can identify relevant social actors and structures that perpetuate inequities to hold them accountable for changing existing paradigms within different regions.

The selection of ecosocial theory is motivated by its inclusion of a political economy approach that makes visible the relationship between political structures and social economic structural processes embedded in our society that create a differential distribution of social determinants (Doyal & Pennell, 1979; Bambra et al., 2005). Political economy of health and its theoretical companion the social production of disease are materialist frameworks that explore how health is shaped by the broader societal, economic, and political systems and structures that determine one's life chances and resources (Bambra et al., 2019; Breilh, 2021; Doyal, & Pennell 1979; Krieger, 2001). The framework examines not only who is affected but also who profits most from the inequitable distribution of power and resources (Krieger, 2001).

By examining the political relationship of unincorporated communities as embedded within a larger political-economic arrangement within the San Joaquin Valley context, concepts of resource dependency rise as a potential underlying factor fueling government decision-making that does not prioritize community health in unincorporated areas. We engage with the concept of institutional power to not act in Chapter 5. Through an ecosocial perspective, we seek to understand how institutions deploy and withdraw power within the political arrangement for unincorporated communities that serve as pathways to health inequities. Furthermore, we rely on critical race theory to contextualize and deepen our examination of unincorporated communities in the San Joaquin valley as many were and are embedded in processes of structural racism.

Critical Race Theory is a theoretical framework that can work with ecosocial theory to expose how societal structures and social relations reproduce racism and serve white supremacy through institutions that appear “race neutral.” (Crenshaw, 1995; DeCuir & Dixson, 2004; Delgado & Stefancic, 2017). This includes political institutions oft taken for granted, including county and local governments (Anderson, 2007; 2009). For example, critical race theory calls out the racialization processes of white hegemony that illuminates how municipal governments choose to bypass poor unincorporated communities of color for annexation (Aiken, 1987). Critical race theory emanated from jurisprudence but has since spread to include multiple disciplines and includes provocative work from Bell, Crenshaw, Cook, Delgado, & Matsuda (Ford & Airhihenbuwa, 2010). Notably, critical race seeks not just to examine oppressive structures, but to center the lives of the marginalized and pursue a liberatory project that upends old hierarchies (Mullings & Schulz, 2006).

Critical race holds five fundamental tenets: “counter storytelling, permanence of racism, whiteness as property, interest convergence, and critique of liberalism” (DeCuir & Dixson, 2004, p. 27). Applying these tenets to unincorporated communities elucidates racial narratives that may not have been identified. For example, counter storytelling is the practice of sharing alternative narratives that expose the racial stereotypes manufactured through dominant discourses (Yosso, 2005). In 2009, after being reassured by county government that Chem Waste posed no threat to community health, residents in Kettleman City decided to do their own data collection to determine if there were any common adverse health outcomes instead of depending on CAPHD. Their counter narrative efforts exposed the birth defect cluster that had previously not been identified (Arata, 2016). Permanence of racism refers to the recognition that racism is endogenous to our governmental institutions and social order and are themselves shaped to maintain a racial hierarchy (Bell, 1995). An application of this tenet can be seen in Aiken’s

(1987) research, which was the first to identify how "colorblind" policy tools such as municipal status and annexation served as racial segregation.

Similarly, the concept of Whiteness as property applies a notion of property rights to race, where Whites have rights that have been historically by *de jure* and by *de facto* practice conferred privilege and ensured that whites remained dominant (Harris, 1993). Unincorporated communities have served as a form of exclusion by creating racially segregated communities without the same municipal rights and benefits (Anderson, 2007, 2009; Quesada, 2019). Similarly, intersection convergence demonstrates that concessions for non-Whites are made to the extent that the existing racial order can be maintained. This, similarly, can be seen in the ways that municipal services are sometimes provided to unincorporated communities to provide just enough not to cause residents in these communities to seek annexation (Anderson, 2007, 2009). The final tenet is a critique of liberalism that clings to maintaining neutral stances that do not call out racism (Gotanda, 1991).

This final tenet informs use of critical race theory as a lens for this project. Incorporation, annexation, and zoning are conceptual building blocks of the communities we live in and can remain unexamined. The goal of this dissertation is to be aware that to accept any structure as race-neutral is to practice bias by not intentionally interrogating dominant structures. This project draws specifically on critical race theory to examine power hierarchies between social actors within the structural racist processes that formed and may maintain unincorporated communities in the San Joaquin Valley (Quesada, 2019). Furthermore, In Chapter 5, we specifically engage with the concept of intersectionality which enhances our critical examination of incorporation status and power relations by identifying how intersectional markers of power operate to reinforce structural inequities.

Leveraging Complementary Theoretical Frameworks

Researchers can use theoretical lenses to engage and interrogate overlooked phenomena that can make visible social patterns that may have gone unexamined (Krieger, 2014). Social epidemiological theories enable us to travel across physiological and social dimensions to imagine their relationships to one another. It is within theoretical concepts of embodiment that Krieger outlined in ecosocial theory that we can imagine how one's body can inhabit the social conditions of a remote disadvantaged unincorporated community in the Valley that serves as a cog in the wheel of global food production. Additionally, critical race theory contributes to an understanding of political processes and systems that are often taken for granted like counties, one of the most ubiquitous forms of general-purpose government in the U.S. By examining how power in the county may be operating to maintain racial hierarchies through common practices and political arrangements, we can gain insight into processes that marginalize unincorporated communities, embedded in a county government system or structure that does not serve to protect marginalized communities of color.

Chapter 4

Births on the periphery: Examining perinatal outcomes in unincorporated communities in California's San Joaquin Valley, 2006-2015

“The Global South is everywhere, but it is also always somewhere, and that somewhere, located at the intersection of entangled political geographies of dispossession and repossession, has to be mapped with persistent geographic responsibility.”

-Matthew Sparke (2007, p.117)

Disadvantaged unincorporated communities in California's San Joaquin Valley have weathered historical state and county disinvestment yet survived as settled communities over decades (Balazs & Ray, 2015; Flegal et al., 2013; London et al., 2021). Many of these communities face health threats from lack of access to clean drinking water, leaking septic tanks, environmental hazards, crumbling infrastructure, and inadequate garbage removal (Anderson, 2008; London et al., 2018; London et al., 2021; Quesada, 2019; Rubin et al., 2007). Repairing community conditions in unincorporated communities can be complicated by residents' limited political representation. Unlike residents in cities and towns that can elect local officials for democratic representation from within their communities, residents in California's unincorporated communities rely on county government as their most proximal local government representatives. For unincorporated communities in California that have sought incorporation (i.e., as a city or town), cityhood and its privileges and burdens have remained unattainable because of the state's financially and legally restrictive incorporation policies (Anderson, 2009, 2011; Molina, 2014; Pulido, 2017).

The lack of research and surveillance on disadvantaged unincorporated communities further renders infant health outcomes in these communities obscured (Anderson, 2007; Gomez-Vidal & Gomez, 2021; Richter, 2018). Disaggregated data are vital in identifying and understanding the nature of birth outcomes. Disaggregated data can make the nature of health outcomes visible by revealing trends, distinctions, and previously unidentified characteristics that contribute to known and unknown health inequities. For example, disadvantaged and advantaged unincorporated communities are not like incorporated advantaged and disadvantaged places that share the same municipal boundary. Instead, unincorporated communities can be segregated from other unincorporated or incorporated places, lacking demographic and economic heterogeneity (Alford, 2019; Flegal et al., 2013; Lichter et al., 2010; Rubin et al., 2007). In a city, one can transverse within the jurisdictional territory physically, if not socially, between disadvantaged and advantaged places to seek services or resources. However, settlements in unincorporated areas that are not on urban fringes can be spatially isolated from one another and reliant on the resources, access, and opportunities available within a very concentrated area that may be exclusively advantaged or disadvantaged (Anderson, 2007; Gomez-Vidal & Gomez, 2021; London et al., 2021; Rubin et al., 2007). Thus, disadvantaged, and advantaged, and unincorporated communities are socially, economically, and spatially distinct from each other. With research on health in (un)incorporated places by (dis)advantage status, we may better understand how health inequities may be produced or maintained in these excluded or secluded communities.

Purpose and Research Questions

This paper explores the lack of incorporation as a distinct and informative political determinant of health that yields another layer of understanding of places needing targeted intervention for infant health outcomes. Importantly, incorporation status or lack of it delineates

governance and policy differences that may contribute to a population's health status that may be reflected in area-level characteristics. This study aims to make visible (dis)/advantaged unincorporated communities by using birth records to assess area and individual characteristics of the birthing population and birth outcomes to identify variations across communities with or without incorporation status and advantage in the San Joaquin Valley. To our knowledge, this is the first study examining birth outcomes in California by incorporation status as the primary exposure of interest. This study's research questions are:

Question 1: What are the characteristics and outcomes of births in unincorporated and incorporated places in California's San Joaquin Valley, overall and by community economic advantage status?

Question 2: What is the relationship between maternal residence in unincorporated places and birth outcomes in California's San Joaquin Valley? What is the relationship between maternal residence in disadvantaged unincorporated and incorporated places and birth outcomes?

Materials and Methods

Data Sources and Population

This study utilized a retrospective cohort sample selected from the California Department of Public Health (CDPH) Birth Statistical Master Files of singleton births between January 1, 2006- December 31, 2015, from the eight counties in the San Joaquin Valley region (San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern counties). We used CDPH birth records geocoded to maternal residence as prepared by Tran et al. (2020). Our sample was restricted to the San Joaquin Valley's eight-county region. The San Joaquin Valley region was selected as the prevalence of adverse birth outcomes (infant mortality and preterm birth) are some of the highest in the state (CDC, 2019). Furthermore, the Valley region is home to one of the highest concentrations of environmentally and socially disadvantaged places in the state (CalEPA, 2021).

We assessed births by maternal residence in an (un)incorporated place. First, we linked geocoded birth files to shapefiles within the U.S. Census Bureau TIGER/line census places shapefile data (2013) and to disadvantaged unincorporated community shapefiles provided by the University of California, Davis Center for Regional Change (CRC) for the eight-county region. The CRC shapefiles were generated using data initially gathered by PolicyLink in 2009-2013 and updated by CRC (Flegal et al., 2013; London et al., 2018). PolicyLink identified unincorporated places in the San Joaquin Valley using public records, aerial photography, Google Street view, agricultural and parcel land maps, and community convenings. We restricted our sample to birth files matched to a shapefile for a settlement that is commonly named with a minimum of parcel density of 250 parcels per square mile. We adopted the minimum size for a settlement used by London et al. (2018).

We further determined if the shapefile represented a settled place that was incorporated (i.e., city or town) or unincorporated (i.e., census-designated place, unincorporated community), using classifications in the U.S. Census TIGER/line census place classifications. Next, we refined our classification of settlements using the CRC shapefile classifications which resulted in an additional 17,833 births not identified through the U.S. Census Bureau Tiger/line census place

data. We excluded births whose maternal residence was not included in an administration type classified as incorporated or unincorporated place. Birth files dropped included those matching military installations or unincorporated areas with a parcel density of less than 250 parcels per square miles such as ranches, farms, and isolated dwellings that are not part of any residential pattern and do not meet the inclusion criteria (described immediately above).

We subsequently linked births to census block group data from the American Community Survey (ACS) Data five-year estimates (2011-2015) with median household income data. The year was chosen to correspond with the CRC data sets used to identify disadvantaged unincorporated communities. We used ACS 5-year estimate data as they do not suppress data for population groups with 20,000 or fewer (ACS, 2015). Census block groups are also the smallest geographic measure with median household income data that is publicly available (American Community Survey: 2015) and are better suited for measuring small settlement sizes. This allowed us to determine which births were in disadvantaged census block groups measured at or below \$50,556 median household income. We used California's definition of disadvantaged status for communities measured as at or below 80% of the state median household income.

Two other data sets were linked to birth files to identify rurality and environmental and social exposures. We matched maternal residential addresses to the U.S. Census tracts with an urban score value. We classified births of rural residents using a census tract urban score value of less than 60% by the 2010 Decennial U.S. Census (Tran et al., 2020). Lastly, we matched birth files to CalEnviroScreen 4.0 metric data shape files constructed at the census-tract level provided by the California Office of Environmental Health Hazard Assessment. We constructed six measures using three CalEnviroScreen 4.0 score metrics to identify births located in the worst concentration of pollution and population vulnerability in California, as identified by the California Office of Environmental Health Hazard Assessment. California defines environmentally disadvantaged communities in Senate Bill 535 as communities identified by CalEPA as within the highest scoring for pollution and population vulnerability or 75th + percentile of CalEnviroScreen 4.0 census tracts. Furthermore, the California Office of Environmental Health Hazard Assessments defined those "most affected" as populations residing in the 90th+ percentile of cumulative impact score (Cushing et al., 2015). Study protocols were approved by the Institutional Review Board of the CA Department of Public Health (#13-05-z) and the University of California, Berkeley (# 2013-10-5,693).

Inclusion and Exclusion Criteria

The initial sample population of infants born between 2006-2015 whose maternal residence was listed as one of eight San Joaquín Valley counties was 612,367 births (See Figure 2). Births were restricted to those where the birthing person resided in a known settled community regardless of municipal charter (excluded n=52,754). Only singleton live births were included that were delivered in the range of 22 to 44 completed weeks of gestation and had birth weights greater than 500 grams, and less than 5,500 grams, eliminating non-viable, missing, or incorrectly reported births (n= 8,639) (Ratnasiri et al., 2020). Furthermore, we restricted our birth to those whose maternal age was greater than 14 and less than 48 and excluded those with missing data on relevant covariates or births that could not be geocoded were excluded (n= 19,306). The final sample was 531,668 births.

Measures

Primary Exposure: Residence in an Unincorporated (Disadvantaged) Community

The primary exposure of interest is residence in a disadvantaged unincorporated community in the San Joaquin Valley. The State of California defines a “disadvantaged unincorporated community” as a fringe, island, or legacy community in which the median household income is 80% or less than the statewide median household income (Wolk, 2011). To examine the impact of living in a settlement without incorporation status and disadvantage, we examined birth outcomes by incorporation status alone (i.e., incorporated vs. unincorporated) and by incorporation and disadvantage categories (i.e., incorporated advantaged, incorporated disadvantaged, unincorporated advantaged, unincorporated disadvantaged; see Table 1). Throughout this study, the terms ‘place’, ‘community’ and ‘settlement’ are interchangeable.

Incorporated places are operationalized using the census definition for incorporated places (i.e., city, town) as “geographic area with legally defined municipal boundaries under the laws of the state in which it is located.” (U.S. Census Bureau, 2007, p.2). We identified births in incorporated places by spatially matching geocoded birth files to the 2013 TIGER/Line shapefiles for U.S. census places classified as incorporated.

Unincorporated places are operationalized in a multi-step process. We defined unincorporated places using the U.S. Census Bureau's definition of a census-designated place: “statistical equivalents of incorporated places and represent unincorporated communities that do not have a legally defined boundary or an active, functioning governmental structure” (U.S. Census Bureau, 2007, p.2). Unincorporated place births were identified if a birth file matched a place shapefile classified as unincorporated by either the U.S. Census Bureau Tiger/Line shapefiles data or the CRC shapefiles. If there was a place classified in the TIGER/Line shapefiles as being in an incorporated area, yet the CRC census shapefiles classified the place as being in an unincorporated disadvantaged community, we coded these births (n= 291) according to the CRC shapefiles, as their methods provided more precision (Flegal et al., 2013). Births outside of an incorporated or unincorporated settlement or in a parcel density of less than 250 parcels per square miles in unincorporated areas (e.g., military bases, farms, ranches, or isolated residences) were excluded (n=46,438), as they fall outside this project's scope.

Economic advantage status was operationalized using the State of California’s definition of *disadvantaged* places as being at or below 80% of the State median household income. Between 2011-2015, 80% of California's median household income was \$50,556 (U.S. Census Bureau, August et al., 2021).

Therefore, this analysis considers four place types, combining incorporation and advantage status: incorporated advantaged, incorporated disadvantaged, unincorporated advantaged, and unincorporated disadvantaged (Table 1).

Table 1. Place Types	
Incorporated Advantaged Places <i>Incorporated place in a census block group above 80% of state median household income.</i>	Unincorporated Advantaged Places <i>Unincorporated place in a census block group above 80% of state median household income.</i>
Incorporated Disadvantaged Places <i>Incorporated place in a census block group at or below 80% of state median household income.</i>	Unincorporated Disadvantaged Places <i>Unincorporated place in a census block group at or below 80% of state median household income.</i>

Primary Perinatal Outcomes of Interest

This study had four primary perinatal outcomes of interest: small for gestational age, preterm birth, very preterm birth, and low birth weight. All outcomes were constructed as binary variables. Preterm birth (PTB) was defined as delivery before 37 weeks of gestation, and very preterm birth (VPTB) as delivery before 32 weeks of gestation. Low birth weight (LBW) was defined as any infant born weighing less than 2500 grams (5.51 pounds). Small for gestational age (SGA) was defined as birth weight below the 10th percentile for U.S. sex-specific birth weight for gestational age measured in grams and calculated using the last menstrual period date (Talge et al., 2014).

Maternal Characteristics

We include maternal covariates associated with risk of adverse birth outcomes (Jelliffe-Pawlowski et al., 2015; Visco et al., 2006). Race/ethnicity included 5 categories: non-Hispanic Asian and Pacific Islander, non-Hispanic Black, Hispanic, non-Hispanic Other, and non-Hispanic White. Notably, we used race/ethnicity as a crude proxy variable for the social experiences of different racial and ethnic groups in the San Joaquin Valley context and not as an indicator of inherent biological difference (Ross et al., 2020). Furthermore, the racial and ethnic categories used correspond to common categorizations within birth record data and should not be regarded as preferable categorization of populations for research (Guarneri & Dick, 2012).

Other maternal characteristics included nativity (born in the U.S., born outside the U.S.); maternal age (categories 15-19, 20- 24, 25-29, 30-34, 35-46); educational attainment (<high school, high school graduate/GED, some college, college degree or>); parity (nulliparous, multiparous); payer type for birth (government, private, other); participation in the Women, Infant and Children (WIC) program (WIC recipient, not WIC recipient, unsure); and the Kotelchuk Index of prenatal care (inadequate, intermediate, adequate, adequate+) (Bloch et al., 2009; Boudet-Berquier et al., 2017; Haghighat et al., 2016). The Kotelchuk index is a measure of prenatal care adequacy, determined by the reported date of prenatal care initiation and the number of prenatal care visits, adjusted for gestational age at the start of care and delivery. Adequacy is generally determined as a percent of recommended visits (80%-109%), with the first visit occurring prior to 14 weeks gestation (Bloch et al., 2009). Prenatal care started after 20 weeks gestation is considered inadequate, regardless of the number of subsequent visits. Notably, a score of adequate+ may signal a high-risk pregnancy and is not considered preferable to adequate (Kruger & French-Turner, 2011).

Area Characteristics

We selected area-level characteristics that are known or theorized social determinants of infant health outcomes. These area-level characteristics were selected to provide a comparison of the distribution and conditions of places of birth by incorporation status in the San Joaquin Valley for the descriptive portion of this study. Neighborhood income status (Cambell & Seabrook, 2016), rurality (Basile Ibrahim et al., 2022, Beal et al., 2021), and environmental burden (Di Renzo et al., 2015; Whyatt et al., 2004) are identified social determinants of perinatal health. We included county, median household income, rural status (rural, urban), and six measures from CalEnviroScreen 4.0 metric scores measuring population burden and population vulnerability. County of residence of the person giving birth was included in the birth records data. Median household income was determined at the reported aggregated median household income value at the census block group level using ACS 5-year data from 2011-2014. Rural status was constructed as a binary variable. The U.S. Census Bureau's (2010) definition of rural areas is "all population, housing, and territory not included within an urban area." Urban is defined as a territory that "encompasses at least 2,500 people, at least 1,500 of which reside outside institutional group quarters" (U.S. Census Bureau, 2010). The CalEnviroScreen 4.0 metrics measuring cumulative population burden and population vulnerability were utilized to highlight the number of births in our sample by incorporation status within the most environmentally burdened areas of the San Joaquin Valley (August et al., 2022; Lievanos, 2018). The metrics measure health factors described above that can pose risks to infant health. The CES tool was developed to inform policymakers on areas experiencing environmental and social injustice that may have been invisibilized and can inform public health professionals of populations at risk for adverse health outcomes (August et al., 2022). We include the CES metric in our descriptive analysis to gain a foundational understanding of the scope and pattern of harmful environmental exposures by incorporation status to better understand the relationship to local government jurisdictions who are in part responsible for the protection of the people's health (Fox et al., 2022). Furthermore, we seek to bring into focus the birthing populations in unincorporated communities that may be inequitably at risk for an adverse birth event. However, to avoid issues such as confounding and spurious inflation, we did not include the CES metrics but not in the regression analysis (Johnston et al., 2017). CES as composite scores include indicators such as educational attainment and household income which we chose to measure at a more granular level for this initial study, such as identifying household income at the census block group level as opposed to a more generalized measure at the census tract level.

Statistical Analysis

First, we calculated descriptive statistics for births stratified by maternal residence in incorporated vs. unincorporated communities, and by the four place categories combining advantage and incorporation status.

Second, to investigate the association between incorporation status and adverse birth outcomes, we calculated crude and adjusted odds ratios and 95% confidence intervals (CIs) using logistic regression models. Throughout the analysis, we investigate incorporation status in two ways. In the first set of models, we examined residents in an unincorporated vs. incorporated community. In the second set of models, we consider the four-part variable that combines

(un)incorporation status and community (dis)advantage. For the adjusted models, we chose variables for inclusion based on *a priori* knowledge of associated factors with adverse birth events. We also used backwards stepwise regression with bootstrapping resampling with replacement methods performed on 50 samples to determine final variable inclusion for multivariable models. Bootstrapping allows improved diagnostic modeling on non-parametric models and mitigates sensitivity (Hu et al., 2021). The original multivariable model included the following covariates: educational attainment, maternal age group, nativity, parity, payer insurance type, WIC receipt, Kotelchuck Prenatal Care Index, and County. After stepwise regression, we excluded WIC receipt from the final multivariable model. Furthermore, after measuring collinearity using variance inflation factor (VIF), the County variable was also removed. The adjusted model includes covariates: age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Prenatal Care Index.

Additionally, we fit models stratified by race/ethnicity. Rather than including race/ethnicity in adjusted models, we chose to stratify for each group to assess the differences in odds of exposure by incorporation and combined incorporation and advantage. Where one lives and neighborhood household income are largely stratified by racial and ethnic group (Argeos, 2018). Using stratification allows us to examine if (un)incorporated and (dis)advantage status operates differently for different racial and ethnic groups (Finnigan, 2014).

Results

Area-Level Characteristics

Table 2a and 2b summarize the frequency and proportion of births in the San Joaquin Valley by area-level characteristics—overall, by incorporation status, and by incorporation status-community advantage combined. Among the 531,668 singleton births in the San Joaquin Valley from 2006-2015 that were included in our study sample, 16.7% were born to residents of unincorporated places and 83.3% to residents of incorporated places. Most birthing individuals resided in disadvantaged places (65.2%) compared to advantaged places (34.8%). The median household income of unincorporated places was \$35,500, lower than the median household income of \$41,000 in incorporated places. Among births to residents of unincorporated places, 76.1% occurred among residents of unincorporated disadvantaged places, compared to 23.9% in unincorporated advantaged places. Within the eight-county region, almost all births (85.1%) to rural residents were in an unincorporated place.

Additionally, births located in the unincorporated disadvantaged communities experienced high (75th+ or 90th+ percentile) CalEnviroScreen scores for pollution burden, population vulnerability, and cumulative impact. Most births (59%) within the sample were found to be within the 75th+ percentile for the CES cumulative impact score, constituting 73.9% of unincorporated place births and 56.0% of incorporated place births. Almost a quarter (24.2 %) of all births in the region were in the most affected census tracts within the 90th+ percentile CES cumulative impact score. Unincorporated places (25.6%) and incorporated places (23.9%) had a comparable percentage of births in the 90th+ percentile of the CES cumulative impact score. Across the sample, similar proportions of births representing unincorporated places (39.5%) and incorporated places (37.9%) are in tracts within the 75th+ percentile of the pollution burden score. Furthermore, 15.2% of births with maternal residence in unincorporated places and 12.0% in incorporated places were in a census tract that scored in the 90th+ percentile for experiencing the highest pollution burden. Additionally, most births to both unincorporated place (68.5%) and

incorporated place (57.7%) residents are in tracts within the 75th+ percentile of population vulnerability score in the state. Within census tracts scoring in the 90th+ percentile for population vulnerability there were 31.1% of births in incorporated places and 32.1% of those in unincorporated places.

Sociodemographic Characteristics

The distribution of maternal sociodemographic characteristics, such as race/ethnicity, nativity, and age, shows four distinct populations by place type (Table 3a and 3b). Overall, births to Hispanic birthing people (60.9%), followed by non-Hispanic White birthing people (24.2%), represented most of the sample. Overall, the proportion of births to Black (4.5%) and Asian and Pacific Islander (8.1%) birthing people represented a small proportion of the overall births in the region among racial and ethnic categories provided by birth records. The characteristics of birthing people are similarly distributed between incorporated and unincorporated places for non-Hispanic White and Hispanic populations. However, for Asian and Pacific Islander and Black birthing populations, there were more than double the population in incorporated places (9.0% and 4.9%, respectively) compared to unincorporated places (3.8% and 2.2% respectively).

Table 3b also describes the distribution of sociodemographic characteristics by the four place type categories. Hispanic birthing people represented the largest proportion of births in each place type, except for unincorporated advantaged places, White non-Hispanic birthing people (47.9%) represented the largest percentage of births. Hispanic birthing people represented the highest proportion of births in both disadvantaged place types: 75.6% of births in unincorporated disadvantaged places and 69.0% in incorporated disadvantaged places. Births to non-Hispanic White are concentrated in advantaged communities, representing only 19.3% of births in unincorporated disadvantaged places and 15.8% of those in incorporated disadvantaged places, compared to 37.7% of births in advantaged incorporated and 47.9% in unincorporated advantaged places. The place type with the largest proportion of births to Black birthing people was in incorporated disadvantaged places (5.6%). In comparison, the highest proportion of births to Asian and Pacific Islander birthing people was incorporated advantaged places (12.2%). Unincorporated disadvantaged places had the highest proportion of births to people non-native to the U.S. (41.5%) within each place type.

Comparisons of maternal characteristics associated with material and health care access by place type also reveal important differences. For birthing people in unincorporated places compared to incorporated places, educational attainment is lower, with 37.5% vs. 28.3% having less than a high school diploma. Similarly, birthing people with a college degree or higher represented only 7.6% of births in unincorporated places and 13.0% of births in incorporated places. The differences in education are highlighted by incorporation and advantage as births to birthing people with less than a high school diploma represent 44.1% of unincorporated disadvantaged places compared to unincorporated advantaged places (16.5%), incorporated advantaged (13.6%) or incorporated disadvantaged places (36.9%). Meanwhile, those with a college education were disproportionately living in advantaged places regardless of incorporation. Among birthing people, 25.7% in incorporated advantaged and 20.7% in unincorporated advantaged places compared to only 5.6% of incorporated disadvantaged and 3.5% of unincorporated disadvantaged populations had a college degree or higher educational attainment.

Proportions of birthing people receiving WIC were comparable in unincorporated (66.7%) and incorporated (59.8%) places. There were differences in payer type between

unincorporated and incorporated places, in terms of the payer source being government-funded insurance (72.1% in unincorporated places, 63.4% in incorporated places), compared to private pay type (i.e., private insurance and self-pay; 26.2% in unincorporated places and 34.9% in incorporated places). Patterns of prenatal care utilization measured by the Kotelchuck Prenatal Care Index are comparable in unincorporated and incorporated places. While the percentage of birthing people who received inadequate prenatal care was similar in unincorporated and incorporated places, the distribution among the four place types revealed differences. One in five (21.5%) residents of unincorporated disadvantaged places received inadequate prenatal care, compared to 12.6% in incorporated advantaged, 14.3% in unincorporated advantaged places, and 17.9% in incorporated disadvantaged places. For adequate+ prenatal care utilization, unincorporated disadvantaged and advantaged places had similar rates (25.9% and 26.5%, respectively), lower than both incorporated place types (28.9% in advantaged and 29.9% in disadvantaged).

Perinatal Outcomes

Table 4 describes birth outcomes by place type, showing similar percentages of adverse birth outcomes in unincorporated and incorporated places. The proportions of SGA (12.0%), VPTB (1.8%), and LBW (6.2%) births are the same in unincorporated places and incorporated places. The preterm birth percentage within unincorporated places (8.8%) is also very similar to the proportion in incorporated places (8.6%). Examining places by incorporation status and community advantage combined shows that proportions of SGA, PTB, VPTB, and LBW births are slightly larger in incorporated disadvantaged places vs. incorporated advantaged places and in unincorporated disadvantaged places vs. unincorporated advantaged places. For example, the rate of SGA was higher in incorporated disadvantaged places (12.4%) vs. incorporated advantaged places (11.2%) and in unincorporated disadvantaged places (12.4%) compared to unincorporated advantaged places (10.9%).

Overall Regression Models

(Un)incorporated Status Regression Models

We report results from unadjusted and adjusted regression models examining adverse birth events (SGA, PTB, VPTB, and LBW) by place type (Table 4). First, we examined residence in an unincorporated vs incorporated place. In unadjusted models, there were no statistically significant differences between places based solely on incorporation status for SGA, LBW, PTB, or VPTB. In adjusted logistic regression models, there was still no association between incorporation status and SGA, LBW, and VPTB. However, we observed significantly elevated odds of PTB in unincorporated places (aOR 1.05 [95% CI, 1.02 – 1.08]) compared to incorporated places.

(Un)incorporated and (Dis)advantaged Status Regression Models

When examining place type by the four categories of incorporation and advantaged status combined, we find variations in odds of SGA, PTB, and LBW (see Tables 5a, 5b, 5c, and 5d). Births in both incorporated disadvantaged and unincorporated disadvantaged places had greater unadjusted odds of all four adverse perinatal outcomes than incorporated advantaged places (reference group). For example, residents of unincorporated disadvantaged places (1.22 [95% CI, 1.18-1.26]) and incorporated disadvantaged places (1.21 [95% CI, 1.19-1.24]) had higher odds of PTB than residents of incorporated advantaged places. In adjusted models, we do find that

adjusted odds ratios were attenuated but remained significantly elevated for unincorporated disadvantaged places for all four outcomes and in incorporated disadvantaged places for SGA, PTB, and LBW, compared to incorporated advantaged places. Adjusted odds of SGA in incorporated disadvantaged places (aOR 1.06, 95% CI [1.04-1.08]) and unincorporated disadvantaged places (aOR 1.05, 95% CI [1.02– 1.08]) were elevated compared to incorporated advantaged places. For unincorporated disadvantaged places, the adjusted odds of PTB (aOR 1.13, 95% CI [1.09– 1.17]) and VPTB (aOR 1.13, 95% CI [1.05– 1.21]) were elevated compared to incorporated advantaged places. Additionally, we observed greater odds of LBW in unincorporated disadvantaged places (aOR 1.10, 95% CI [1.05 – 1.14]) and incorporated disadvantaged places (aOR 1.07, 95% CI [1.04 – 1.10]). Notably, we found that in adjusted models, unincorporated advantaged places had modestly decreased odds of SGA (aOR 0.95, 95% CI [0.91-1.00]) and stronger decreased odds of VPTB (aOR 0.86, 95% CI [0.76- 0.97]), suggesting that unincorporated status may be a protective factor when combined with area-level socioeconomic advantage.

Stratified Regression Models

(Dis)advantaged Status and (Un)incorporated Status Stratified Regression Models

Additionally, we stratified models by advantaged status (see Tables 6a, 6b, 6c, 6d). Comparing unincorporated disadvantaged vs incorporated disadvantaged places (reference group), we saw slightly higher odds of a PTB (aOR 1.06 [95% CI, 1.03-1.09]) and a VPTB (aOR 1.08 [95% CI, 1.01-1.15]), respectively. By contrast, when comparing unincorporated advantaged vs incorporated advantaged places (reference group), we found lower odds of a VPTB (aOR 0.84 [95% CI, 0.74- 0.95]) and almost no difference in odds for a PTB (aOR 0.96 [95% CI, 0.90-1.01]). We also chose to examine unincorporated places by advantage. Comparing unincorporated disadvantaged places to unincorporated advantaged places, we found higher odds for all four birth events: SGA (aOR 1.12 [95% CI, 1.06-1.18]), PTB (aOR 1.17 [95% CI, 1.09-1.25]), VPTB (aOR 1.37 [95% CI, 1.19-1.59]), and LBW (aOR 1.10[95% CI, 1.03-1.19]). We found similar associations when comparing incorporated disadvantaged places to incorporated advantaged places for all birth outcomes: SGA (aOR 1.05 [95% CI, 1.03-1.07]), PTB (aOR 1.10 [95% CI, 1.07-1.13]), VPTB (aOR 1.07 [95% CI, 1.01-1.13]), and LBW (aOR 1.10[95% CI, 1.07-1.13]). Overall, we did not observe strong effect estimates when stratifying by advantage status.

Race/Ethnicity Stratified Regression Models

We also stratified models by birthing population race/ethnicity to examine whether effect estimates differed for the relationship between birth outcomes and place type within racial/ethnic groups (See Table 7a-7d). Results are organized by outcome. We observed that odds of adverse birth outcomes by residence in places by incorporation status alone and by incorporation and advantaged status combined varied among racial/ethnic groups. Hispanic (aOR 1.03, 95% CI [1.00-1.06]) and non-Hispanic Whites (aOR 1.09, 95% C I [1.04-1.14]) residing in unincorporated places had higher odds of SGA compared to those of the same race/ethnicity group in incorporated places. When examining effect estimates by incorporation and advantage status combined, we found that among those living in unincorporated disadvantaged places, non-Hispanic Black (aOR 1.17, 95% CI [1.02-1.35], Hispanic (aOR 1.08, 95% CI [1.04-1.12])), and non-Hispanic White birthing people (aOR 1.17 (95% C I [1.09-1.24] had elevated odds of SGA

compared those of the same race/ethnicity population group in incorporated advantaged places. Additionally, among those living in incorporated disadvantaged places, both non-Hispanic Black (aOR 1.16, 95% CI [1.07-1.25] and Hispanic birthing people (aOR 1.05, 95% CI [1.02-1.08])) had elevated odds of SGA compared those of the same race/ethnicity population group in incorporated advantaged places (reference group).

For PTB, we observed higher odds for all groups in unincorporated places compared to incorporated places: non-Hispanic Asian and Pacific Islander (aOR 1.16, 95% CI [1.02-1.31]), non-Hispanic Black (aOR 1.19, 95% CI [1.03-1.36]), Hispanic (aOR 1.07, 95% CI [1.03-1.10]), and non-Hispanic White (aOR 1.08, 95% CI [1.02-1.14]). We additionally observed elevated odds of a VPTB for non-Hispanic Black (aOR 1.20, 95% CI [0.93-1.52]) and Hispanic (aOR 1.08, 95% CI [1.01-1.16]) birthing populations living in unincorporated places compared to incorporated places.

Moreover, when examining incorporation status and advantage, we observed that there were elevated odds of PTB for all four racial and ethnic groups among those living in unincorporated disadvantaged places (non-Hispanic Asian and Pacific Islander (aOR 1.44, 95% CI [1.23-1.68]), non-Hispanic Black (aOR 1.20, 95% CI [1.00-1.42]), Hispanic (aOR 1.10, 95% CI [1.06-1.15]), and non-Hispanic White (aOR 1.18, 95% CI [1.09-1.27])), compared their counterparts living in an incorporated advantaged place (reference group). Non-Hispanic Asian Pacific Islander (aOR 1.13, 95% CI [1.05-1.22]) and non-Hispanic White (aOR 1.08, 95% CI [1.02-1.13]) birthing people residing in unincorporated, disadvantaged places had elevated odds of a PTB compared to those of the same groups living in an incorporated advantaged place. Only non-Hispanic Black birthing people (aOR 1.33, 95% CI [0.98-1.78]) had elevated odds of a PTB if living in unincorporated advantaged places compared to the same birthing population group living in incorporated advantaged places (reference group).

Similarly, we observed elevated odds of a VPTB in each of the four racial and ethnic group's stratified models for residence in unincorporated disadvantaged places (non-Hispanic Asian and Pacific Islander (aOR 1.18, 95% CI [0.85-1.61]), non-Hispanic Black (aOR 1.17, 95% CI [0.85-1.61]), Hispanic (aOR 1.13, 95% CI [1.03-1.23]), and non-Hispanic White (aOR 1.19, 95% CI [1.01-1.39])), compared to living in an incorporated advantaged place. Among those living in unincorporated advantaged places, only non-Hispanic Black (aOR 1.68, 95% CI [1.00-2.69]) population groups had elevated odds of a VPTB compared to living in an incorporated advantaged place.

Finally, we observed elevated odds of LBW for Hispanic (aOR 1.09, 95% CI [1.05-1.13]) and non-Hispanic White (aOR 1.11, 95% CI [1.04--1.18]) birthing populations groups living in an unincorporated community compared to those of the same racial and ethnic birthing population group in incorporated places (reference group). When examining place type by advantage, we found elevated odds of LBW among non-Hispanic Black (aOR 1.14, 95% CI [0.95-1.37]), Hispanic (aOR 1.12, 95% CI [1.06-1.18]), and non-Hispanic White (aOR 1.20, 95% CI [1.11-1.31])) birthing population groups. Only in the model for non-Hispanic Black birthing people was residence in an incorporated advantaged place associated with elevated odds of LBW (aOR 1.17, 95% CI [1.05-1.29])) compared to residence in an incorporated advantaged place. Among those living in unincorporated advantaged places, non-Hispanic Black (aOR 1.15, 95% CI [0.83- 1.56]) and Hispanic (aOR 1.11, 95% CI [1. 0-1.22]) populations had elevated odds of a LBW compared to those of the same racial and ethnic population living in incorporated advantaged places (reference group).

Discussion

Examining potential political determinants of infant health outcomes can elucidate mechanisms that perpetuate health inequities. In this study, we sought to contribute to the sparse literature on incorporation status and health by using population-level vital statistics data to examine the relationship between residence in an unincorporated place and infant health outcomes. Further, because we used community-informed geospatial data to identify unincorporated communities, we were able to provide a more accurate portrait of birth outcomes by incorporation status, as relying on census-data alone missed 20.2% of births to unincorporated community residents. This novel exploration yielded modest evidence of differences in birth outcomes by incorporation status, suggesting the need for further examination.

This study's three main findings contribute to understanding potential relationships between birth outcomes and lack of incorporated status.

First, our findings indicate an association between living in an unincorporated community and PTB. We found there were modestly higher odds of PTB for unincorporated places compared to incorporated places in adjusted models. When stratifying and examining only disadvantaged communities, we also found elevated odds of PTB and VPTB in unincorporated places compared to incorporated places. Among advantaged places, we observed a protective effect for unincorporated places for VPTB as odds were lower in unincorporated places compared to incorporated places. While there are numerous studies on the impact of neighborhood disadvantage in cities and towns (Bell et al., 2006; Debbink & Bader, 2011; Grady & Darden, 2012; Massey et al., 2018; Morenoff, 2003), we are not aware of studies that are contextualizing whether a neighborhood is incorporated or not. We believe that including incorporation status is an important distinction that should be examined as a key feature of place.

Second, we saw that residence in disadvantaged places was associated with higher odds of an adverse perinatal outcome. However, results of models with incorporation and disadvantage combined and in stratified models by race suggested heterogeneous effects. When comparing places by four place types (incorporated advantaged, incorporated disadvantaged, unincorporated advantaged, and unincorporated disadvantaged), we observed that odds of a preterm birth and very preterm birth in unincorporated disadvantaged places were attenuated in adjusted models but still showed higher odds of a PTB and VPTB than in incorporated advantaged places. Similar yet slightly lower elevated odds of a PTB and VPTB were observed in incorporated disadvantaged places compared to incorporated advantaged places.

This study generally confirms previous research showing that community disadvantage confers higher risks of adverse birth outcomes generally (Blumenshine et al., 2010; Debbink & Bader, 2010; Kane et al., 2018; Lu et al., 2010; Messer et al., 2006a, 2006b). When considering community economic (dis)advantage in concert with (un)incorporation status, there were higher odds of a SGA, PTB and LBW in incorporated and unincorporated disadvantaged places than in incorporated advantaged places. There were also greater odds of VPTB in unincorporated disadvantaged places compared to incorporated advantaged places. Additionally, we observed a slight protective association for unincorporated advantaged places compared to incorporated advantaged places. However, trends of birth outcomes by advantage and disadvantage status are complicated when stratified by race and ethnic group.

Third, we observed heterogeneous risks of adverse perinatal outcomes within racial and ethnic birthing population groups by place type. In stratified models, different racial and ethnic

groups had higher odds of at least one of the four birth outcomes (SGA, PTB, VPTB, and LBW) in unincorporated places and in either or both incorporated disadvantaged and unincorporated disadvantaged places. All four stratified racial/ethnic groups population groups had elevated odds of a PTB in unincorporated places and VPTB. Non-Hispanic Black, Hispanic, and non-Hispanic White populations had higher odds of an SGA and LBW in unincorporated places. Findings suggest a potential protective factor trend for PTB and VPTB, where there were observations for non-Hispanic Asian and Pacific Islander, Hispanic, and non-Hispanic White birthing populations with lower odds of a birth event in unincorporated advantaged places compared to those of the same racial ethnic group in incorporated advantaged places. Notably, the odds for non-Hispanic Black birthing populations were counter to the trend for the other racial and ethnic groups with greater odds of a VPTB (1.68 [95% CI, 1.00-2.69]) and greater odds of a PTB (1.33 [95% CI, 0.98-1.78]) in unincorporated advantaged places in comparison to non-Hispanic Black populations in incorporated advantaged places. Kane et al. (2017) highlight the need to better understand how neighborhoods' affluence impacts population groups differently.

This study provides the first assessment of perinatal health outcomes in the San Joaquin Valley by incorporation status as a political unit. We found the composition of unincorporated communities compared to incorporated places and unincorporated disadvantaged compared to unincorporated advantaged places are distinct in populations and area characteristics. The description of births in unincorporated places provides one of the few snapshots of population-health outcomes in unincorporated communities. Population characteristics summaries elucidate the population composition in the four different place types, which can inform research, intervention, and health prevention efforts. Of concern is the high percentage births with inadequate prenatal care we observed in disadvantaged unincorporated communities. Inadequate prenatal care utilization is associated with adverse perinatal outcomes such as low birth weight (Yan, 2017; Zhang et al., 2011). Furthermore, there was a high proportion of births to birthing people born outside of the U.S. and birthing people with lower educational attainment in unincorporated disadvantaged places. Maternal education is associated with PTB and SGA (Yu et al., 2019).

Additionally, it is important to note the spatial distribution of birthing population groups by race and ethnicity to understand who is impacted by social conditions in unincorporated communities. For example, non-Hispanic white birthing people represented most births in unincorporated advantaged communities. In contrast, Hispanic birthing people were the majority in the overall sample and in unincorporated disadvantaged, incorporated advantaged, and incorporated disadvantaged places. Additionally, although Black, Asian and Pacific Islander, and other racial/ethnic categories represent a small proportion of overall births in the eight-county region, we observed different health risks within both population groups in advantaged and disadvantaged unincorporated communities compared to incorporated advantaged places. We recommend undertaking research to understand how racial and ethnic groups are being impacted in unincorporated advantaged and disadvantaged places to identify mechanisms that are restricting or facilitating opportunities to social conditions that could support perinatal health. Furthermore, our study contributes to the complexity of understanding which social conditions contribute to persistent Black infant health inequities by demonstrating vulnerabilities for Black populations in unincorporated advantaged communities in the San Joaquin Valley.

Similarly, our assessment of area characteristics by incorporation status adds an important layer of information for future research on birth outcomes in the San Joaquin Valley.

The goal of our area assessment was to describe and provide context for unincorporated places. San Joaquin Valley is home to one of the highest concentrations of environmental and social disadvantage in the state and is considered a non-attainment zone for air quality state standards (U.S. EPA, 2022). Disaggregating data by incorporation status and disadvantage status using place shapefiles optimized by CRC allowed us to provide a risk profile to environmental exposures that demonstrated the high number of births in unincorporated places that are located in the highest census tracts of pollution burden and population vulnerability. We found that one in six birthing people in the sample lived in an unincorporated community located in a census tract measured in the 90th percentile or above of pollution burden in the state. Many of the factors captured in CalEnviroScreen are known to be associated with poor infant health outcomes such as air pollutants (Morello-Frosch et al., 2010), lead risk, diesel particulate matter (Brink et al., 2014), water contamination, pesticide use, traffic impacts (Brauer et al., 2008), and toxic release. While we chose to highlight the potential environmental harm facing our birthing population sample, we did not use the CalEnviroScreen scores in our regression analysis as small area environmental health studies require additional mixed-level modeling and considerations not suited for this initial exploration of incorporation. However, in the future, we seek to better understand how incorporation and environmental harm are related and may account for some pathways to adverse infant health outcomes.

Additionally, most births to rural residents in our sample were to residents of unincorporated places. However, these births represented only 15% of the overall unincorporated birth population. While studies of birth outcomes in rural areas of California may be indicative of unincorporated areas, our study built on rural health studies by delineated health outcomes by a political determinant, incorporation status, to qualify births in rural areas (Kozhimannil & Henning-Smith, 2021).

Limitations

This study's limitations include known problems with birth records and census data. Birth records have limited information available and generally face challenges with missing data (Northam & Knapp, 2006; Pearl et al., 2007). Notably, studies have found that rural populations, which are nearly exclusively comprised of unincorporated residents in this study, are more likely to have unmatched birth records during geocoding processes and may be overrepresented in dropped birth records in infant health studies (Ha et al., 2016; Zhan et al., 2006). Likewise, the CalEnviroScreen score also has a significant amount of missing data for a portion of California census tracts (August et al., 2021). Furthermore, due to small sample size, Asian and Pacific Islander birthing people were grouped into one category for this initial exploration of incorporation status, although groups are heterogeneous with diverse histories and social and political experiences (Srinivasan and Guillermo, 2000). Aggregated data invisibilizes populations and limits our ability to understand the needs and vulnerabilities of the vast, diverse groups summated in the broad Asian and Pacific Islander category.

There were limitations and challenges in operationalizing (un)incorporation and (dis)advantaged status. Most studies, including this one, rely on the U.S. Census and ACS for identifying census places and census divisions hierarchies such as tracts, block groups, and blocks (Krieger, 2006; Krieger, 2019). However, census divisions are not meaningful jurisdictional divisions, while census places (i.e., cities, towns, townships, census designated places, and military bases) that distinguish between incorporated, unincorporated, and military

places are jurisdictionally distinct (Lichter et al., 2015). Census hierarchies, however, are an extra layer of spatial data that are not nested in census hierarchy geography data which can limit accuracy of place descriptions using census blocks, block groups and tracts. Furthermore, not all unincorporated communities are identified as a census-designated place elaborated earlier in the dissertation (Flegal et al., 2013). Identifying unincorporated communities in the San Joaquin valley was aided by supplementing our identification with the data provided by the University of California, Davis Center for Regional Change, including the identification of over 17,945 births (20.2% of the final unincorporated population sample) to disadvantaged unincorporated community residents that were not identified through census data.

We chose to omit the CES scores from our regression analysis because it was not the primary focus of our initial exploratory research questions and they are not sensitive to small area environmental health research as is the metrics are constructed at the census tract level (Lievanos et al., 2018; Korngiebel et al., 2015). Furthermore, as the metrics included similar variables already accounted for at the individual and area level through our data, we did not include them because of potential high collinearity like our county level variable (Johnston et al., 2017). However, we seek to pursue future research that explores how incorporation may produce adverse infant health through political structures that enable environmental exposures. Environmental factors are complex pathways from cumulative exposures to birth outcomes which can require comprehensive modeling and data collection techniques not a part of this study (Johnson and Cushing, 2020).

Additionally, we omitted the county variable from our final adjusted model because of the high collinearity between unincorporated and county-level variables. We hypothesize that being in an unincorporated community increases county policy effects on residents differentially from incorporated places, yet we were unable to examine this context in our study. In future studies, we will look to other methods such as multi-level modeling to allow us to explore the importance of county and unincorporated community. Future research using different areas for comparison and small data collection strategies can provide additional exploratory insights.

Conclusions

Given the health inequities within California's San Joaquin Valley region, this study contributes to understanding variations in the region associated with political jurisdiction and disadvantage. Additionally, as lack of incorporation status is a national phenomenon, our study contributes to the political determinants and place literature within health inequities research. This study contributes to the public health literature by exploring poorly understood political geographies in health equity research. It demonstrates the feasibility of using population-level data (linked vital statistics records) to understand health outcomes by incorporation status and advantage; in doing so, it makes visible a political determinant of health that is neglected mainly due to lack of data and lack of power in these communities (Gomez-Vidal & Gomez, 2021).

Figure 2. Flow diagram of study sample with exclusion criteria applied.

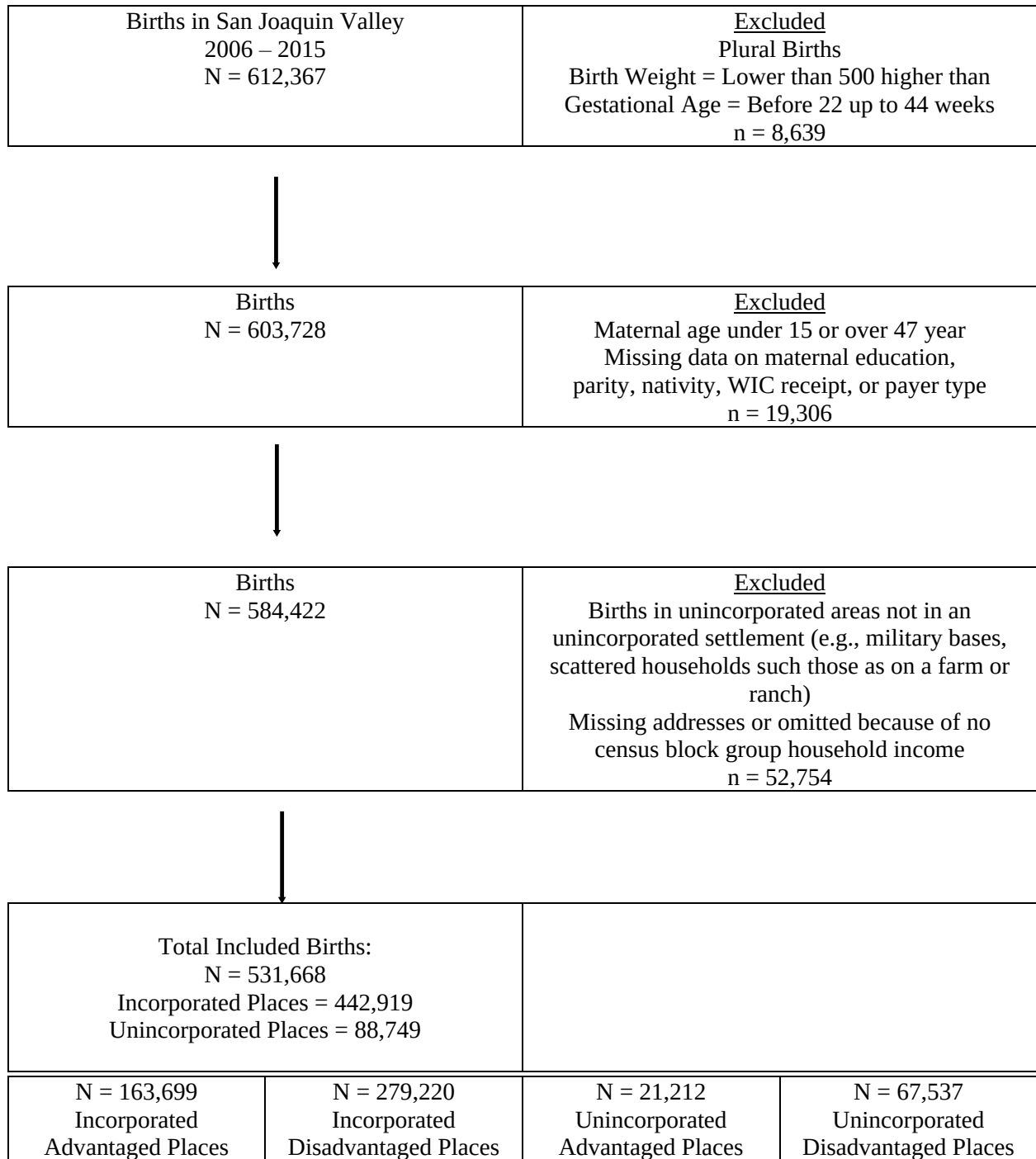


Table 2a. Area characteristics of births by incorporation status, San Joaquin Valley, California, 2006-2015

	Place Type by Incorporation Status		
	Incorporated	Unincorporated	Total
	<i>n (%)</i>	<i>n (%)</i>	<i>n (100%)</i>
<i>Births</i>	442919 (83.3%)	88749 (16.7%)	531668 (100%)
County			
Fresno	119505 (27.0%)	7350 (8.3%)	126855 (23.9%)
Kern	78382 (17.7%)	31954 (36.0%)	110336 (20.8%)
Kings	16747 (3.8%)	1590 (1.8%)	18337 (3.4%)
Madera	13813 (3.1%)	4409 (5.0%)	18222 (3.4%)
Merced	28198 (6.4%)	7782 (8.8%)	35980 (6.8%)
San Joaquin	80531 (18.2%)	11258 (12.7%)	91789 (17.3%)
Stanislaus	56689 (12.8%)	9852 (11.1%)	66541 (12.5%)
Tulare	49054 (11.1%)	14554 (16.4%)	63608 (12.0%)
Rural			
Urban	440492 (99.5%)	75567 (85.1%)	516059 (97.1%)
Rural	2427 (0.5%)	13182 (14.9%)	15609 (2.9%)
Median Household Income*	\$41000	\$35500	\$40000
<i>CalEnviroScreen 4.0</i>			
Cumulative Impact Score			
At 75th Percentile or Above	248079 (56.0%)	65599 (73.9%)	313678 (59.0%)
At 90th Percentile or Above	105815 (23.9%)	22742 (25.6%)	128557 (24.2%)
Pollution Burden Score			
At 75th Percentile or Above	168058 (37.9%)	35091 (39.5%)	203149 (38.2%)
At 90th Percentile or Above	53142 (12.0%)	13506 (15.2%)	66648 (12.5%)
Population Vulnerability Score			
At 75th Percentile or Above	255376 (57.7%)	60805 (68.5%)	316181 (59.5%)
At 90th Percentile or Above	142376 (32.1%)	27607 (31.1%)	169983 (32.0%)
<i>Note: *Median Household Income for the area by census block group was retrieved from the American Community Survey.</i>			

Table 2b. Area characteristics of births by incorporation status and advantage*, San Joaquin Valley, California, 2006-2015

	Place Type by Incorporation Status and Advantage				
	Incorporated		Unincorporated		Total
	Advantaged	Disadvantaged	Advantaged	Disadvantaged	
	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (100%)</i>
<i>Births</i>	163699 (30.7%)	279220 (52.5%)	21212 (3.4%)	67537 (12.7%)	531668 (100%)
County					
Fresno	36879 (22.5%)	82626 (29.6%)	2029 (9.6%)	5321 (7.9%)	126855 (23.9%)
Kern	30763 (18.8%)	47619 (17.1%)	7900 (37.2%)	24054 (35.6%)	110336 (20.8%)
Kings	6403 (3.9%)	10344 (3.7%)	144 (0.7%)	1446 (2.1%)	18337 (3.4%)
Madera	1981 (1.2%)	11832 (4.2%)	1872 (8.8%)	2537 (3.8%)	18222 (3.4%)
Merced	7941 (4.9%)	20257 (7.3%)	1924 (9.1%)	5858 (8.7%)	35980 (6.8%)
San Joaquin	37868 (23.1%)	42663 (15.3%)	3954 (18.6%)	7304 (10.8%)	91789 (17.3%)
Stanislaus	26880 (16.4%)	29809 (10.7%)	2851 (13.4%)	7001 (10.4%)	66541 (12.5%)
Tulare	14984 (9.2%)	34070 (12.2%)	538 (2.5%)	14016 (20.8%)	63608 (12.0%)
Rural					
Urban	162447 (99.2%)	278045 (99.6%)	17933 (84.5%)	57634 (85.3%)	516059 (97.1%)
Rural	1252 (0.8%)	1175 (0.4%)	3279 (15.5%)	9903 (14.7%)	15609 (2.9%)
Median Household Income**	\$66,600	\$31,500	\$64,700	\$31,500	\$40,000
CalEnviroScreen 4.0					
Cumulative Impact Score					
At 75th Percentile or Above	40878 (25.0%)	207201 (74.2%)	7943 (37.4%)	57656 (85.4%)	313678 (59.0%)
At 90th Percentile or Above	5951 (3.6%)	99864 (35.8%)	838 (4.0%)	21904 (32.4%)	128557 (24.2%)
Pollution Burden Score					
At 75th Percentile or Above	43412 (26.5%)	124646 (44.6%)	7623 (35.9%)	27468 (40.7%)	203149 (38.2%)
At 90th Percentile or Above	11655 (7.1%)	41487 (14.9%)	2810 (13.2%)	10696 (15.8%)	66648 (12.5%)
Population Vulnerability Score					
At 75th Percentile or Above	37259 (22.8%)	218117 (78.1%)	5351 (25.2%)	55454 (82.1%)	316181 (59.5%)
At 90th Percentile or Above	9838 (6.0%)	132538 (47.5%)	1174 (5.5%)	26433 (39.1%)	169983 (32.0%)
*Disadvantage is measured as being in a census tract that is at 80% or below state median household income. **Median Household Income for the area by census block group was retrieved from the American Community Survey.					

Table 3a. Demographic characteristics of birthing people by incorporation status, San Joaquin Valley, California, 2006-2015

	Place Type by Incorporation Status		
	Incorporated	Unincorporated	Overall
	<i>n (%)</i>	<i>n (%)</i>	<i>n (100%)</i>
Race/Ethnicity	442919 (83.3%)	88749 (16.7%)	531668 (100%)
Non-Hispanic Asian and Pacific Islander	39735 (9.0%)	3382 (3.8%)	43117 (8.1%)
Non-Hispanic Black	21777 (4.9%)	1991 (2.2%)	23768 (4.5%)
Hispanic	264224 (59.7%)	59570 (67.1%)	323794 (60.9%)
Other	10332 (2.3%)	1778 (2.0%)	12110 (2.3%)
Non-Hispanic White	106851 (24.1%)	22028 (24.8%)	128879 (24.2%)
Nativity			
Born in U.S.	321820 (72.7%)	57429 (64.7%)	379249 (71.3%)
Born Elsewhere	121099 (27.3%)	31320 (35.3%)	152419 (28.7%)
Age			
15-19	48646 (11.0%)	11239 (12.7%)	59885 (11.3%)
20-34	342200 (77.3%)	67357 (75.9%)	409557 (77.0%)
35-47	52073 (11.8%)	10153 (11.4%)	62226 (11.7%)
Education			
<High School	125380 (28.3%)	33252 (37.5%)	158632 (29.8%)
High School Diploma/GED	132859 (30.0%)	27927 (31.5%)	160786 (30.2%)
Some College	126909 (28.7%)	20815 (23.5%)	147724 (27.8%)
College Degree or More	57771 (13.0%)	6755 (7.6%)	64526 (12.1%)
Parity			
Nulliparous	152681 (34.5%)	29227 (32.9%)	181908 (34.2%)
Multiparous	290238 (65.5%)	59522 (67.1%)	349760 (65.8%)
Received WIC	265023 (59.8%)	59229 (66.7%)	324252 (61.0%)
Kotelchuck Index - Adequacy of Prenatal Care Utilization			
Inadequate	70639 (15.9%)	17564 (19.8%)	88203 (16.6%)
Intermediate	54519 (12.3%)	12630 (14.2%)	67149 (12.6%)
Adequate +	130816 (29.5%)	23103 (26.0%)	153919 (29.0%)
Adequate	186945 (42.2%)	35452 (39.9%)	222397 (41.8%)
Payer Type			
Private	154493 (34.9%)	23276 (26.2%)	177769 (33.4%)
Government	280751 (63.4%)	64002 (72.1%)	344753 (64.8%)
Other	7100 (1.6%)	1354 (1.5%)	8454 (1.6%)
None	575 (0.1%)	117 (0.1%)	692 (0.1%)

Table 3b. Demographic characteristics of birthing people by incorporation status and advantage*, San Joaquin Valley, California, 2006-2015

	Place Type by Incorporation Status and Advantage				Overall
	Incorporated		Unincorporated		
	Advantaged	Disadvantaged	Advantaged	Disadvantaged	
	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
<i>Births</i>	163699 (30.7%)	279220 (52.5%)	21212 (3.4%)	67537 (12.7%)	531668 (100%)
Race/Ethnicity					
Non-Hispanic					
Asian/Pacific Islander	20019 (12.2%)	19716 (7.1%)	1450 (6.8%)	1932 (2.9%)	43117 (8.1%)
Non-Hispanic Black	6010 (3.7%)	15767 (5.6%)	462 (2.2%)	1529 (2.3%)	23768 (4.5%)
Hispanic	71435 (43.6%)	192789 (69.0%)	8535 (40.2%)	51035 (75.6%)	323794 (60.9%)
Other	4542 (2.8%)	5790 (2.1%)	597 (2.8%)	1181 (1.7%)	12110 (2.3%)
Non-Hispanic White	61693 (37.7%)	45158 (16.2%)	10168 (47.9%)	11860 (17.6%)	128879 (24.2%)
Nativity					
Born in U.S.	134754 (82.3%)	187066 (67.0%)	17578 (82.9%)	39851 (59.0%)	379249 (71.3%)
Born Elsewhere	28945 (17.7%)	92154 (33.0%)	3634 (17.1%)	27686 (41.0%)	152419 (28.7%)
Age					
15-19	11674 (7.1%)	36972 (13.2%)	1686 (7.9%)	9553 (14.1%)	59885 (11.3%)
20-34	127931 (78.2%)	214269 (76.7%)	16587 (78.2%)	50770 (75.2%)	409557 (77.0%)
35-47	24094 (14.7%)	27979 (10.0%)	2939 (13.9%)	7214 (10.7%)	62226 (11.7%)
Education					
<High School	22225 (13.6%)	103155 (36.9%)	3495 (16.5%)	29757 (44.1%)	158632 (29.8%)
High School diploma/GD	42927 (26.2%)	89932 (32.2%)	6274 (29.6%)	21653 (32.1%)	160786 (30.2%)
Some College	56499 (34.5%)	70410 (25.2%)	7058 (33.3%)	13757 (20.4%)	147724 (27.8%)
College Degree or more	42048 (25.7%)	15723 (5.6%)	4385 (20.7%)	2370 (3.5%)	64526 (12.1%)

Parity					
Nulliparous	60495 (37.0%)	92186 (33.0%)	7765 (36.6%)	21462 (31.8%)	181908 (34.2%)
Multiparous	103204 (63.0%)	187034 (67.0%)	13447 (63.4%)	46075 (68.2%)	349760 (65.8%)
Received WIC	66227 (40.5%)	198796 (71.2%)	8919 (42.0%)	50310 (74.5%)	324252 (61.0%)
Kotelchuck index - Adequacy of Prenatal Care Utilization					
Inadequate	20559 (12.6%)	50080 (17.9%)	3033 (14.3%)	14531 (21.5%)	88203 (16.6%)
Intermediate	21437 (13.1%)	33082 (11.8%)	3025 (14.3%)	9605 (14.2%)	67149 (12.6%)
Adequate +	47387 (28.9%)	83429 (29.9%)	5612 (26.5%)	17491 (25.9%)	153919 (29.0%)
Adequate	74316 (45.4%)	112629 (40.3%)	9542 (45.0%)	25910 (38.4%)	222397 (41.8%)
Payer Type					
Private	93834 (57.3%)	60659 (21.7%)	11396 (53.7%)	11880 (17.6%)	177769 (33.4%)
Government	66909 (40.9%)	213842 (76.6%)	9392 (44.3%)	54610 (80.9%)	344753 (64.8%)
Other	2768 (1.7%)	4332 (1.6%)	402 (1.9%)	952 (1.4%)	8454 (1.6%)
None	188 (0.1%)	387 (0.1%)	22 (0.1%)	95 (0.1%)	692 (0.1%)
* Disadvantage is defined as a census tract that is 80% below state median household income.					

Table 4. Prevalence of infant health outcomes by incorporation status and advantage, San Joaquin Valley, California, 2006-2015

	Place Type by Status	Incorporation	Place Type by Incorporation Status and Advantage				
	Incorporated	Unincorporated	Incorporated		Unincorporated		Total
			Advantaged	Disadvantaged	Advantaged	Disadvantaged	
<i>Birth Outcome</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (100%)</i>
Small for Gestational Age	53124 (12.0%)	10671 (12.0%)	18364 (11.2%)	34760 (12.4%)	2316 (10.9%)	8355 (12.4%)	63795 (12.0%)
Preterm Birth	38142 (8.6%)	7804 (8.8%)	12554 (7.7%)	25588 (9.2%)	1581 (7.5%)	6223 (9.2%)	45946 (8.6%)
Very Preterm Birth	7925 (1.8%)	1609 (1.8%)	2561 (1.6%)	5364 (1.9%)	285 (1.3%)	1324 (2.0%)	9534 (1.8%)
Low Birthweight	27387 (6.2%)	5469 (6.2%)	9460 (5.8%)	17927 (6.4%)	1221 (5.8%)	4248 (6.3%)	32856 (6.2%)

* Disadvantage is defined as a census tract that is 80% below state median household income.

Table 5a. Unadjusted and adjusted odds ratios of small for gestational age outcomes comparing births by incorporation and advantage status in San Joaquin Valley, California, 2006-2015						
	Small for gestational age					
	OR	95% CI	p	AOR	95% CI	p
<i>Model 1</i>						
Unincorporated Places	1.00	0.98-1.03	0.804	0.98	0.96 – 1.01	0.141
<i>Incorporated Places (reference)</i>						
<i>Model 2</i>						
Unincorporated Disadvantaged Places	1.12	1.09 – 1.15	<0.001	1.05	1.02 – 1.08	0.002
Unincorporated Advantaged Places	0.97	0.93 – 1.02	0.192	0.95	0.91 – 1.00	0.043
Incorporated Disadvantaged Places	1.13	1.10 – 1.15	<0.001	1.06	1.04 – 1.08	<0.001
<i>Incorporated Advantage Places (reference)</i>						
Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.						
OR (Unadjusted Odds Ratio); AOR (Adjusted Odds Ratio)						

Table 5b. Unadjusted and adjusted odds ratios of preterm birth outcomes comparing births by incorporation and advantage status in San Joaquin Valley, California, 2006-2015

	Preterm birth					
	OR	95% CI	p	AOR	95% CI	p
<i>Model 1</i>						
Unincorporated Places	1.02	1.00-1.05	0.078	1.05	1.02 – 1.08	<0.001
<i>Incorporated Places (reference)</i>						
<i>Model 2</i>						
Unincorporated Disadvantaged Places	1.22	1.18 – 1.26	<0.001	1.13	1.09-1.17	<0.001
Unincorporated Advantaged Places	0.97	0.92 – 1.02	0.266	0.99	0.93 – 1.05	0.707
Incorporated Disadvantaged Places	1.21	1.19 – 1.24	<0.001	1.07	1.04-1.09	<0.001
<i>Incorporated Advantage Places (reference)</i>						
Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.						
OR (Unadjusted Odds Ratio); AOR (Adjusted Odds Ratio)						

Table 5c. Unadjusted and adjusted odds ratios of very preterm birth outcomes comparing births by incorporation and advantage status in San Joaquin Valley, California, 2006-2015

	Very preterm birth					
	OR	95% CI	p	AOR	95% CI	p
<i>Model 1</i>						
Unincorporated Places	1.01	0.96-1.07	0.627	1.03	0.98 – 1.09	0.272
<i>Incorporated Places (reference)</i>						
<i>Model 2</i>						
Unincorporated Disadvantaged Places	1.26	1.18 – 1.34	<0.001	1.13	1.05 – 1.21	0.002
Unincorporated Advantaged Places	0.86	0.76 – 0.97	0.308	0.86	0.76 – 0.97	0.018
Incorporated Disadvantaged Places	1.23	1.18 – 1.29	<0.001	1.05	0.99– 1.10	0.018
<i>Incorporated Advantage Places (reference)</i>						
Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.						
OR (Unadjusted Odds Ratio); AOR (Adjusted Odds Ratio)						

Table 5d. Unadjusted and adjusted odds ratios of low birth weight outcomes comparing births by incorporation and advantage status in San Joaquin Valley, California, 2006-2015

	Low birth weight					
	OR	95% CI	p	AOR	95% CI	p
<i>Model 1</i>						
Unincorporated Places	1.00	0.97-1.03	0.813	1.03	1.00 – 1.06	0.08
<i>Incorporated Places (reference)</i>						
<i>Model 2</i>						
Unincorporated Disadvantaged Places	1.09	1.05 – 1.14	<0.001	1.10	1.05-1.14	<0.001
Unincorporated Advantaged Places	1.00	0.94 – 1.06	0.894	1.01	0.95 – 1.07	0.777
Incorporated Disadvantaged Places	1.12	1.09 – 1.15	<0.001	1.07	1.04-1.10	<0.001
<i>Incorporated Advantage Places (reference)</i>	1.00	0.97-1.03	0.813	1.03	1.00 – 1.06	0.08
Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.						
OR (Unadjusted Odds Ratio); AOR (Adjusted Odds Ratio)						

Table 6a. Adjusted odds ratios of adverse infant health outcomes comparing advantaged places by incorporation in San Joaquin Valley, California, 2006-2015

	Small for gestational age			Preterm birth			Very preterm birth			Low birthweight		
	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p
Unincorporated Advantaged Places	0.96	0.92 – 1.01	0.097	0.96	0.90-1.01	0.127	0.84	0.74-0.95	0.008	1.00	0.93-1.06	0.914
<i>Incorporated Advantaged Places (reference)</i>												

Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.

Table 6b. Adjusted odds ratios of adverse infant health outcomes comparing disadvantaged places by incorporation in San Joaquin Valley, California, 2006-2015

	Small for gestational age			Preterm birth			Very preterm birth			Low birthweight		
	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p
Unincorporated Disadvantaged Places	0.99	0.97 – 1.02	0.593	1.06	1.03 – 1.09	<0.001	1.08	1.01 – 1.15	0.017	1.03	0.99 – 1.06	0.135
<i>Incorporated Disadvantaged Places (reference)</i>												

Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.

Table 6c. Adjusted odds ratios of adverse infant health outcomes comparing unincorporated places by advantage in San Joaquin Valley, California, 2006-2015

	Small for gestational age			Preterm birth			Very preterm birth			Low birthweight		
	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p
Unincorporated Disadvantaged Places	1.12	1.06-1.18	<0.001	1.17	1.09-1.25	<0.001	1.37	1.19-1.59	<0.001	1.10	1.03-1.19	0.008
<i>Unincorporated Advantaged Places (reference)</i>												

Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.

Table 6d. Adjusted odds ratios of adverse infant health outcomes comparing incorporated places by advantage in San Joaquin Valley, California, 2006-2015

	Small for gestational age			Preterm birth			Very preterm birth			Low birthweight		
	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p
Incorporated Disadvantaged Places	1.05	1.03-1.07	<0.001	1.10	1.07-1.13	<0.001	1.07	1.01-1.13	<0.001	1.10	1.07-1.13	<0.001
<i>Incorporated Advantaged Places (reference)</i>												

Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.

Table 7a. Adjusted odds ratios of SGA stratified by race/ethnicity group by incorporation and advantage status in San Joaquin Valley, California, 2006-2015

	Non-Hispanic Asian and Pacific Islander			Non-Hispanic Black			Hispanic			Non-Hispanic White		
	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p
Model 1												
Unincorporated Places	0.97	0.89 – 1.07	0.593	1.02	0.91 – 1.14	0.704	1.03	1.00 – 1.06	0.054	1.09	1.04 – 1.14	<0.001
<i>Incorporated Places (reference)</i>												
Model 2												
Unincorporated Disadvantaged Places	1.01	0.89 – 1.14	0.895	1.17	1.02 – 1.35	0.027	1.08	1.04-1.12	<0.001	1.17	1.09 – 1.24	<0.001
Unincorporated Advantaged Places	0.98	0.85 – 1.13	0.764	1.03	0.79 – 1.31	0.834	1.00	0.93-1.07	0.914	1.04	0.97 – 1.12	0.284
Incorporated Disadvantaged Places	1.04	0.99 – 1.10	0.135	1.16	1.07 – 1.25	<0.001	1.05	1.02-1.08	0.001	1.04	1.00 – 1.09	0.068
<i>Incorporated Advantage Places (reference)</i>												

Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.

Table 7b. Adjusted odds ratios of PTB stratified by race/ethnicity group by incorporation and advantage status in San Joaquin Valley, California, 2006-2015

	Non-Hispanic Asian and Pacific Islander			Non-Hispanic Black			Hispanic			Non-Hispanic White		
	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p
Model 1												
Unincorporated place	1.16	1.02 – 1.31	0.018	1.19	1.03 – 1.36	0.017	1.07	1.03 – 1.10	<0.001	1.08	1.02 – 1.14	0.008
<i>Incorporated place (reference)</i>												
Model 2												
Unincorporated Disadvantaged Places	1.44	1.23 – 1.68	<0.001	1.20	1.00 – 1.42	0.047	1.10	1.06 – 1.15	<0.001	1.18	1.09 – 1.27	<0.001
Unincorporated Advantaged Places	0.96	0.78 – 1.18	0.731	1.33	0.98 – 1.78	0.063	0.97	0.89 – 1.06	0.499	1.05	0.96 – 1.14	0.279
Incorporated Disadvantaged Places	1.13	1.05 – 1.22	0.002	1.04	0.94 – 1.15	0.451	1.02	0.99 – 1.06	0.173	1.08	1.02 – 1.13	0.004
<i>Incorporated Advantage Place (reference)</i>												

Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.

Table 7c. Adjusted odds ratios of VPTB stratified by race/ethnicity group by incorporation and advantage status in San Joaquin Valley, California, 2006-2015

	Non-Hispanic Asian and Pacific Islander			Non-Hispanic Black			Hispanic			Non-Hispanic White		
	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p
Model 1												
Unincorporated place <i>Incorporated place (reference)</i>	1.05	0.80 – 1.35	0.716	1.20	0.93 – 1.52	0.160	1.08	1.01 – 1.16	0.023	1.04	0.92 – 1.17	0.532
Model 2												
Unincorporated Disadvantaged Places	1.18	0.85 – 1.61	0.310	1.17	0.85 – 1.61	0.325	1.13	1.03-1.23	0.010	1.19	1.01 – 1.39	0.030
Unincorporated Advantaged Places	0.81	0.49 – 1.25	0.366	1.68	1.00 – 2.69	0.039	0.94	0.78-1.13	0.529	0.86	0.70 – 1.04	0.127
Incorporated Disadvantaged Places <i>Incorporated Advantage Place (reference)</i>	0.98	0.84 – 1.15	0.790	1.09	0.91 – 1.31	0.372	1.02	0.95-1.10	0.538	1.02	0.91 – 1.13	0.762
Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.												

Table 7d. Adjusted odds ratios of LBW stratified by race/ethnicity group by incorporation and advantage status in San Joaquin Valley, California, 2006-2015

	Non-Hispanic Asian and Pacific Islander			Non-Hispanic Black			Hispanic			Non-Hispanic White		
	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p	AOR	95% CI	p
Model 1												
Unincorporated place	0.97	0.84 – 1.11	0.631	1.02	0.88 – 1.18	0.806	1.09	1.05 – 1.13	<0.001	1.11	1.04 – 1.18	0.001
<i>Incorporated place (reference)</i>												
Model 2												
Unincorporated Disadvantaged Places	1.03	0.86 – 1.23	0.729	1.14	0.95 – 1.37	0.148	1.12	1.06 – 1.18	<0.001	1.20	1.11 – 1.31	<0.001
Unincorporated Advantaged Places	0.90	0.72 – 1.11	0.349	1.15	0.83 – 1.56	0.381	1.11	1.00 – 1.22	0.043	1.07	0.97 – 1.17	0.183
Incorporated Disadvantaged Places	1.02	0.94 – 1.11	0.619	1.17	1.05 – 1.29	0.003	1.03	0.99 – 1.08	0.095	1.06	1.00 – 1.12	0.044
<i>Incorporated Advantage Place (reference)</i>												
Note: Adjusted model covariates include age, nativity, educational attainment, parity, payer insurance type, and Kotelchuck Index - Adequacy of Prenatal Care Utilization.												

Chapter 5

“In Kettleman, you can turn a blind eye”: Resisting health threats in a policy void

Political institutions impact health through multiple mechanisms (e.g., policies and processes), including procedural decision-making (e.g., land use decisions, planning processes, and access to hearings and meetings) and distribution of resources (e.g., taxes and revenue allocations, agenda priorities, grants, infrastructure investment) (Mackenbach, 2014; National Academies of Sciences, Engineering, and Medicine, 2020). Within the U.S. federal system, subnational levels of government (i.e., state, city, townships, and county governments) represent multiple pathways through which the political reproduction of health inequities can be enacted (Dawes, 2020; Dawes et al., 2022; Grumbach & Michener, J., 2022; Rodriguez, 2018; Rodriguez et al., 2022). The recent COVID-19 pandemic and emerging threats from climate change have demonstrated the importance of local government institutional responses to a community's ability to navigate a health threat (Deslatte et al., 2020; Dzigbede et al., 2020; Gupta et al., 2021). During a health crisis, public officials can deploy resources embedded in government institutions, such as making emergency proclamations, conducting public health investigations, and distributing mitigating resources such as vaccines to address health threats. Since the 1970s, there has been a growing foothold in epidemiology to recognize political-economic factors as drivers of the social production of disease including the study of government institutions (Breilh, 1979; Doyle, 1971; Navarro, 1979). Still, pivotal questions persist about the role of government structures, policies, and power in maintaining and reproducing social inequalities that foster health inequities (Beckfield, 2018; Kickbusch, 2015). Notably, while there are increasing efforts to explore and understand political determinants of health associated with local government considering the COVID-19 pandemic (Deslatte et al., 2020; Mintrom & O'Connor, 2020) and climate disasters (Dzigbede et al., 2020), there has been little attention within public health research on the impact that lack of incorporation status might have for unincorporated community residents fighting a health threat without a proximal local government.

Government institutional arrangements have the capacity through political levers to "foster life or disallow it to the point of death" (Foucault, 1976, p.138). Local government disinvestment in communities can socially construct vulnerabilities to health threats and the choice to not act or use political power can lower life chances. For example, in Flint, Michigan, after distal state emergency management political actors connected resident homes to corrosive water supplies, public officials chose to not treat the contaminated water supply systems, contributing to the poisoning the city's families (Fasenfest, 2019; Fasenfest & Pride, 2016). Similarly, historical disinvestment by local government in the Lower 9th Ward constructed community vulnerability to Hurricane Katrina. Health threats were then compounded for Hurricane Katrina victims in the Lower 9th ward which were left largely unaided in the subsequent delayed, inadequate, and lack of compassionate response by political actors at multiple level of government (Denchak, 2018; Zakour & Gillespie, 2013a, 2013b; Zakour & Swager, 2018). Often the impacts of policy exclusion, as in Flint and New Orleans, are remain unseen or unaddressed until life is sufficiently harmed or lost enough to create political pressure to acknowledge known or hidden health threats (Cutter, 2006). Too often, government responses to health threats have been slower in poor communities of color, where aid and rescue efforts are delayed compared to their wealthier and whiter neighbors (Bullard & Wright, 2012; Michener, 2021). The tragic lack of adequate government response in Flint and the Lower 9th Ward demonstrate how structural racism is reproduced in the shadows of the deferred use of governmental power to preserve life.

While studies on political determinants of health have focused on policy actions that contribute to health outcomes, policy voids are less frequently examined and more difficult to

study empirically (Ackerman & Stanton, 2006; Limaaye et al., 2020; McConnell & 't Hart, 2014, 2019; Sanderson & O'Neill, 2020). *Policy inaction* is defined as "an instance and/or pattern of non-intervention by individual policymakers, public organizations, governments, or policy networks in relation to an issue within and potentially within their jurisdiction and where other plausible potential policy interventions did not take place (McConnell & 't Hart, 2019, p.648). Institutional inaction can be enacted through the constrained use of political power. Four forms of institutional power where inaction can be essential to the deployment of health protective resources include 1) the ability to participate in decision-making, 2) the ability to set (i.e., include or exclude items) the political agenda, 3) the "*shaping of perceived needs*" by elites through determining what is identified as a problem, its scope, cause, and its solution (McCullum et al., 2004, p. 208) and 4) legitimate power as "the ability to tell other people what to do with some degree of certainty that they will do it" (Dugger, 1980, p. 897) or "the capacity to produce intended, foreseen, and unforeseen effects on others based on ability to control access to valued resources (McCullum et al., 2004, p. 207)." While each form of power can promote life, their absence or lack of deployment can diminish or modulate life chances. Policy exclusion, the ability to override the deployment of resources for decision-making or policy inaction, deliberate or constrained inaction (McConnell & 't Hart, 2014), can emanate from institutional design or through government actors using their bureaucratic and political discretion not to act (McConnell & 't Hart, 2014). This study seeks to identify how the political arrangement associated with lack of incorporation status impacts the use of power by the county government to support or constrain unincorporated residents' perceived ability to address community health threats.

This qualitative study explores how living in a disadvantaged unincorporated community impacted Kettleman City residents' ability to address and resist an infant health threat. I argue residents perceived that they were insignificant to county policymakers and within the county government structure because they were unincorporated and a disadvantaged community of "poor mostly Spanish speaking farm workers." Furthermore, participants characterized the political arrangement as an impotent political landscape that constrains county government's ability and willingness to provide the unincorporated community with access to government-embedded resources that are health protective (Reynolds, 2021). Through inadequate governance and discriminatory political inaction, residents were largely left alone to face the uncertainty facing the community's children.

This study used qualitative methods through in-depth interviews to explore community residents' experience of navigating an infant health crisis shaped by living in a disadvantaged unincorporated community where the primary local political arrangement is county government. Furthermore, I apply an institutional and intersectionality lens to investigate power dynamics that shape relationships and possibilities between residents and county policymakers (Beckfield et al., 2015; Collins, P.H., 2017, 2019). The guiding research question of this study is:

How does living in an unincorporated community shape residents' experience and perception of their ability to address a health crisis impacting their community? Specifically, given that an unincorporated community is dependent primarily on the county for governance, what is the perception or belief of the limitations or opportunities afforded by residents through county government to address community health threats?

Intersectionality and Institutional Framework

This study applies an institutional and intersectionality lens to analyze how county governments' political arrangement for unincorporated communities as the community's primary form of local governance impacts residents' ability to address and resist health threats. The combined approach of applying intersectionality and institutional analysis as a bifocal research lens allows us to make visible institutions as neither neutral nor homogenous in their reproduction of health inequities for communities whose conferred identity is at the intersection of multiple systems of oppression (Gkiouleka et al., 2018).

Intersectionality provides a framework of critical inquiry into processes where power operates to subordinate and in locating the possibilities for where liberation can take hold (Collins, P.H., 2019). As mentioned in chapter 3, intersectionality enables an analysis of a political phenomenon as not isolated from the relationships between social actors and institutions and the complex intersectional power relations at play, but instead as integral to the reproduction of inequities. For our study, we address group-conferred and embodied power markers of race and ethnicity, class, urban-rural distinctions, and labor that co-constitute participants' perceptions and experiences of Kings County and Kettleman City.

An intersectionality framework grounds a researcher's gaze on the social categories within which individuals or groups are located that matter within the context of the research question (Yuval-Davis, 2006). I situate this study on the political arrangement between the unincorporated community, Kettleman City residents, and the Kings County government that serves as the community's primary form of general-purpose local government against the backdrop of California's San Joaquin Valley region. We further ground this analysis by examining perceptions and experiences as embedded in the temporal, historical, and social processes of the San Joaquin Valley and the larger political-economic paradigm of agricultural production in the region.

Furthermore, an institutional lens draws our attention to three critical facets of the institution; the structure, the agency of social actors as they interact with or within the structure, and the context within which the institution is located. In this study, structure refers to the political arrangement (i.e., government structures, policies, processes, characteristics, functions, practices, power, and relationships) for unincorporated communities (Beckfield et al., 2015). The primary focus is county government structure in relationship to the unincorporated community. Here, I want to distinguish the role of the county as the primary local representative body for unincorporated areas from its role in serving as an arm of the state to constituents of the county broadly (Anderson, 2009). As for agency, this study examines the actions of county elected administrators and employees within the institution and the agency exercised by constituents interacting with the institution. Finally, the institution's context refers to the broader social, historical, and temporal context within which the institution is examined. Therefore, this analysis attends to the context of California's constitutional and policy relationship to the county and the significant presence of agricultural and energy industries that have perpetuated a historically racial capital paradigm that has pervaded the region.

Combining intersectionality and institutional frameworks enabled an examination of how power operates within institutions to produce privileges and disadvantages that construct health inequities and diminish a population's ability to resist health threats. This includes an examination for political processes that exclude (Cole, P., 2022). Geography scholar, Tim Collins (2010) uses the terms marginalization and facilitation to describe how the same institutional structures, tools, and actors can manipulate or be manipulated to advantage or

disadvantage populations that navigate similar landscapes of risk. For example, zoning and infrastructure investments have enabled development in unincorporated communities, facilitating wealthier population developments on the fringes, often ignoring inner-city neighborhoods (Gottdiener & Hutchinson, 2006). In contrast, zoning laws and lack of infrastructure investment have marginalized historically low-income unincorporated communities of color from accessing adequate water and sewer services (Parnell et al., 2004). In my analysis, I paid attention to the county's role in producing and maintaining the decades-old environmental risk landscape (Morello-Frosch & Shenassa, 2006) and the facilitation of government-embedded resources that are health-protective. Link and Phelan (1995, 2010) contribute health inequities to a population's ability to access flexible resources (money, power, influence, beneficial social connections, and knowledge) that can be deployed to protect individual and population health (which I refer to as health-protective resources). In this study, I complicate this concept by interrogating how community members experienced government actors using their discretionary and government-embedded resources to facilitate or marginalize residents' access to public resources that are health-protective.

Intersectionality accounts for the reproduction of structural inequities at all levels of social relationships and institutions from personal interactions to that larger global public marketplace. However, using the framework we are able to better understand how power can be harnessed and deployed for a population's freedom from oppression. Institutionalism examines power as emanating from institutions and as a process for exercising control. This joint framework provides competing and complementary ways to examine power within the existing political arrangement for unincorporated communities. These concepts inform this analysis as I seek to understand how Kettleman City residents' relationship with their county government in the absence of a proximal local government impacted the unincorporated community's ability to address adverse social health conditions and health threats faced by the community.

Study Setting

Kettleman City, a disadvantaged unincorporated community founded in 1929, has been a pivotal hub for California's energy and food production ecology (White, 2016). The community was once one of the nation's largest oil producers with oil wells managed by Standard Oil and Chevron Corporation (Asmatey, 2013). Meanwhile, located adjacent to California's aqueduct, residents have been integral to the area's agriculture production, working picking crops such as onions and tomatoes or harvesting nearby almond trees owned by large farming corporations like the Wonderful Company (formerly Paramount Farms). Kettleman City is located at the crossroads of California's Highway 41 and Interstate 5, making it a central transportation hub for truckers and travelers between Southern and Northern California and those in the San Joaquin Valley traveling to coastal areas (Quesada, 2019). The large traffic flow, location, and low-cost unincorporated land have transformed a corner of Kettleman City into a small dense highway/interstate off-ramp of fast-food retail, including In and Out burger, a western-style gift and candy shop outlet run by Bravo Farms, and even a Tesla Supercharger Station. Despite its commercial success, tax revenues are routed to the county's general fund instead of the community because it is unincorporated. Despite the high volume of commercial activity, the small quiet residential community remains largely unnoticed, like a "ghost town" behind the green Sinclair Oil dinosaur statue that greets passersby who stop for gas or drinks on their way past the town.

The overlooked residential community of Kettleman City is located within a square mile area and is home to approximately 1600 residents (Quesada, 2019). The population is estimated to be 98% Latino. Residents are largely first- and second-generation farmworker families with immigration histories from Mexico. There are several families with three generations living in Kettleman City (Asmatey, 2013). Approximately 40% are monolingual Spanish speaking. Community members cite a lack of amenities and poor built environment conditions (Richter, 2018). Depressed housing prices in the area allow low-wage workers to find affordable living spaces in the community while also making it difficult to sell their homes and move to a nearby city. Residents born and raised in Kettleman describe the community as a "*small town*" where "*everybody pretty much knows everybody*." Residents are proud to share their closeness, hard work ethic, and familial ties with each other (Asmatey, 2013). They often refer to themselves as farm workers even if there are no immediate household members currently working in the fields. The residents are also predominantly low-income. For many residents, the shared socioeconomic location has led to a common way of supporting one another through their social network and relationships with a few non-profits that support them.

Kettleman City has been notably at the center of environmental justice efforts to fight environmental racism since the 1990's (Bullard, 1990, 2008; Cole, 1994; Quesada, 2019). A resident shared memories of seeing Former Senator Jesse Jackson, Jr. in their park when he came to support Kettleman city residents during the community's fight to keep an incinerator from being cited nearby (resident participant, Fabiola, 2022). Kettleman City has been the site of a Pacific Gas and Electric Company's gas compressor plant investigated for its wastewater disposal filled with hexavalent chromium (Fryzek et al., 2001). The Kettleman City area has failed to meet air quality standards as it exceeds acceptable rates of ozone emissions set by the National Ambient Air Quality Standards (Kings County, 2019). When looking at the air above them, residents can see the large electric transformers that flank their community, smog from trucks transporting food and goods, and crop dusters spraying adjacent fields with pesticides (Asmatey, 2013). In addition to poor air quality, Kettleman City's groundwater supply has had dangerous levels of nitrates and arsenic from 2006-2019, prompting residents to rely on limited bottled water (Kettleman City Community Services District, 2019; Kings County, 2019). In recent years, Kettleman City acquired funding from the State Water Resources Control Board, and the U.S. Department of Agriculture built a new water system, which it began to test in 2020 (California Water News Daily, 2020). The need for a new water system became a community priority after a congenital disability cluster of eleven infants was discovered.

Most notably, Kettleman City has been the long-term neighbor of the largest toxic landfill West of the Mississippi and the only site permitted to dispose of carcinogenic Polychlorinated biphenyls (Patrachari, 2017). For three generations, Kettleman City residents have been fighting alongside environmental justice organizations to combat the continued expansion efforts of the neighboring Class 1 hazardous waste landfill owned by Chemical Waste Management Incorporated (Chem Waste), a subsidiary of Waste Management Incorporated. Researchers flagged the facilities' failures to maintain proper safety conditions exposing hazardous waste in the community's groundwater and known carcinogens in the air as early as 1985 (Arata, 2016; EDF, 1985). In 1989, the U.S. EPA fined Chem Waste for multiple violations, which first alerted Kettleman City residents and advocates of environmental risks to the community (Cole, 1994; Cole & Foster, 2001). The Environmental Protection Agency has fined the landfill multiple times since 1983, totaling more than \$6, 954,108 in penalties, costs, and fines. Violations have included leaks contaminating groundwater and mishandling known carcinogens, including PCBs.

Chem Waste disposed of polychlorinated biphenyls (PCBs) until 2016 and was permitted once again in 2019 to resume storage, treatment, and disposal of PCBs even after being fined multiple times over decades for violations associated with disposal (Richter, 2018; U.S. EPA, 2020). Despite the multiple environmental violations, the Kings County Planning Commission and Board of Supervisors voted to approve expanding the landfill from 1600 to 2400 acres (Arata, 2016).

Kettleman City Birth Defect Cluster

In 2008, efforts to oppose Chemical Waste Management were spearheaded by the community non-profit El Pueblo Para el Aire y Agua Limpia (People for Clean Air and Water) (simply known as El Pueblo) and GreenAction. The experienced groups' strategies included multiple forms of civic resistance including using judicial tools and highlighting unjust and racist environmental practices (Arata, 2016; Quesada, 2019; Richter, 2018). For example, a Los Angeles-based consulting firm hired by the California Waste Management Board advised them that ideal locations for incinerators were "communities offering the least political resistance, which would be communities that are rural, poor, of low educational attainment, having populations under 25,000 residents, and communities largely employed in agriculture or other resource extraction" (Arata, 2016, p. 12, 13; Cerrell Associates, 1984). This evidence was used to make a legal case against the County and Chem Waste.

As Kettleman City has been under multiple environmental threats for over three decades, the environmental justice advocates conducted a door-to-door survey to identify possible adverse health outcomes in the community that could be identified to fight the expansion permit (Asmatey, 2013). Community advocates, including local teens, began knocking door to door and collecting voluntary information from households that would be willing to share their health concerns (Richter, 2018). A pattern emerged in the survey data as residents shared stories of their children being born with down syndrome, heart murmurs, and cleft lips or palates (Arata, 2016; Richter, 2018). El Pueblo and GreenAction organizers soon reached out to the local public health department, the county, and Chem Waste, who demonstrated little interest in examining the claims further. It was only until the community applied pressure through the media that residents got a state and then the local response (Richter, 2018).

Kettleman City residents depended on appeals to their sole local government representation, the Kings County government, and county public health officials to help address concerns that something in their community might harm their infants. State officials did not concede that there was an unusual health event until the community garnered press coverage and the attention of then-Governor Arnold Schwarzenegger (Leslie, 2010; Richter, 2018). Governor Schwarzenegger requested that the California Department of Public Health (CDPH) and California Birth Defect Monitoring Program (CBDMP) evaluate the cluster. The CDPH surveyed the mothers of the infants and compiled a report conceding a high number of abnormalities (CDPH, 2010). Formally, the state acknowledged a cluster of birth defects and infant deaths between 2007-2009. However, due to the small overall numbers of births in Kettleman City, variety of congenital disabilities, lack of biomonitoring, and the limited ability of the CDPH to identify causality due to statistical challenges posed by multiple adverse outcomes with potentially multiple exposures, CDPH could find no relationship between any specific contaminant and the birth defect cluster (CDPH 2010, CBDMP, 2011). This finding is consistent with the CDC's (1990) stance on cluster health events; "the unofficial consensus among workers in public health is that most reports of clusters do not lead to a meaningful outcome" (p. 2).

The community continued to fight the expansion of the landfill until it was finally approved and given the green light to proceed in 2014. Residents skillfully used multiple forms of public participation for over three decades. In the 1990s, the groups were able to thwart the installation of a large incinerator in the area. While not able to stop the landfill's expansion, advocates successfully settled with Cal EPA and Chem Waste to get concessions to set aside resources for the community.

Environmental Injustice and Collective Resistance

The unincorporated community, Kettleman City, was chosen for this study because it is both a typical and salient representation of a San Joaquin Valley disadvantaged unincorporated community and environmental racism in the region. While this study is not necessarily prioritizing generalizability, choosing Kettleman City, which is a typical legacy disadvantaged unincorporated community with a similar governance structure, typical socioeconomic characteristics, and typical relationship to the political economy of agriculture in the San Joaquin Valley, enables an analysis that can inform potential structural and relational similarities to other disadvantaged unincorporated communities (Flegal et al., 2013).

Kettleman City also has an established record of internal political efficacy over three decades. Environmental justice and public health scholars Cole, L. (1994), Asmatey (2013), Arata (2016), Richter (2018), and Quesada (2019) have highlighted Kettleman City residents and environmental justice advocates' use of community organizing, media, collaboration, and litigation to stop, delay or mitigate Chem waste environmental impact on Kettleman City. Cole, L. (1994) shared the small community organizing success in preventing the establishment of an incinerator on the Kettleman City landfill site that had been erected initially without the community's knowledge. Arata (2016) has demonstrated gaps in County and State public participation processes that disenfranchised residents from full knowledge and engagement. Richter (2018) and Quesada (2019) have demonstrated how environmental processes and decision-making are embedded in systems and logic that erase community agency and knowledge and perpetuate structural racism. These studies reveal that the community has a proven track record of deploying community advocacy through media, community organizing, collaboration, civic participation, and litigation to address perceived health threats from Chem Waste.

As there is empirical evidence for Kettleman city's ability for comprehensive collective political action, this study enables us to focus our questions on external political efficacy, which is the belief that one's government will be responsive to you (Davis & Hitt, 2017). While the county's lack of responsiveness to residents is well established during this health crisis, it is the goal of this paper to examine how lack of incorporation moderates the county institution's structure and political relationship and response to the community. It is here that this study seeks to add to the literature as the political arrangement for unincorporated communities has been little explored as apolitical determinants of health.

Methods

This study employs qualitative methods, employing a constructivist grounded theory methodological approach and reflective thematic analysis for exploring the political system associated with lack of incorporation status (i.e., policies, governance structures, decision-makers, and voters). Both constructivist grounded theory and reflexive thematic analysis

acknowledge and incorporate the contextualization of any research project as being constructed by the researcher, a priori knowledge, theory, and socio-historical temporal processes in which the research process occurs (Clarke & Braun, 2021; Charmaz, 2006; 2017). I adopted the theoretical assumptions and methods of constructivist grounded theory for the research design, data collection and coding process, and theoretical sampling.

In-depth interviewing served as the primary data which allows for clarification, thick description, detailed explanations, elaboration on meaning-making, actions, and topic exploration (Moore, 2014). The objective of in-depth interviews was to capture “insider” actor (resident) and “outsider” actor (not a resident) perspectives, meaning-making, and descriptions of how power operates in a community that lacks incorporation status and how that is experienced as Kettleman City residents sought to use political influence and processes to ameliorate perceived risks. While analysis was conducted throughout the research process, reflexive thematic analysis was applied for the final stages of data analysis. I use the approach of reflexive thematic analysis as I interpret and interrogate the data generated by participant narratives, discourses, and recollections. My analysis engaged with and against the theoretical frameworks, literature, and sociohistorical and political perspectives that inform my research questions and fields of study.

This study is part of a long-term research project of theory building on unincorporated community residents' ability to address health needs while living without direct local representation in their communities. This dissertation is the first study to our knowledge that provides initial exploration of the lack of incorporation status and residents' ability to address health threats.

Sampling and Recruitment

Sampling strategies were chosen in keeping with a constructivist grounded theoretical approach; the first phase used purposive and snowball sampling, followed by the second phase of theoretical sampling (Tweed & Charmaz, 2012). With constructivist grounded theory, as theoretical constructs emerge, confirmation and additional data are needed to fill gaps in search of refining emergent theories (Breckenridge & Jones, 2009). Theoretical sampling is thus the selection of participants who can best inform the gaps and refinements needed for theoretical construction (Tweed & Charmaz, 2012). The initial purposive sampling was criterion sampling, fitting participant selection to the sample criteria below. The sampling process allowed for a selection of resident participants whose experience and knowledge on the topic provided diverse, relevant perspectives while also allowing me to intentionally include participants who had not previously been represented in previous scholarship (Asmatey, 2013; Quesada, 2019; Arata, 2016) on the research phenomena of study. Purposive sampling and theoretical sampling for non-resident participants were used to add non-resident participants throughout the research process that could contextualize and add rich dimensions to the governance dynamic between residents and Kings County government from a non-community perspective. Additionally, snowball sampling was used throughout the recruitment process to build on the networks of participants.

Sample Criteria

This study's sample population consists of two groups. The first group of participants included Kettleman City *Resident Participants*. The small population of 1,648 residents is highly concentrated within a 0.2 square mile area, which includes approximately 300 residential units (CDPH, 2011). As a critical focus of this study is the community's meaning-making and

experience, multiple residential points of view provide different vantage points to the personal, social, and political events (Prilleltensky, 2003). The primary focal event includes the discovery of the birth defect cluster, identifying the health event, and responding to perceived infant health risks that included Chem Waste and the proposed expansion of their hazardous waste facility. To be considered a Kettleman City resident eligible for inclusion in this study, participants must be:

- Current and former Kettleman City residents who are currently over the age of 18.
 - For participants born prior to 2002, an additional requirement included that they have knowledge of and participate in youth participatory action research related to Chem Waste or other advocacy activities to be included in the analysis of the birth defect cluster.
- Resided in Kettleman City for at least 12 continuous months between 2006 and 2020. A period of 12 months demonstrates that one was not just living in the community in a transitional capacity. This may preclude residents that lived and worked seasonally in the area but did not consider themselves part of the community.

The second group of participants included individuals who could use their flexible resources (money, power, position, vote, knowledge, access, and influence) to help Kettleman City community due to their sociopolitical position (elected official, service provider, advocate, or voter), referred to as *Non-Resident Participants*. These are participants whose positionality was related to Kettleman City residents' ability to access resources that might help address a community health crisis. The sample pool of potential people who were eligible as non-resident participants included the following categories:

- Employees or business owners who worked in Kettleman City (e.g., minimarts, fast food restaurants, Chem Waste employees)
- Employees of non-profit, public, or private entities (e.g., news outlet, lawyer) that provided a platform for advocacy, technical assistance, or service (i.e., health, social, legal) to Kettleman City residents
- State and county employees and decision-makers for Kettleman City residents (e.g., elected and unelected government officials, such as the Kings County Board of Supervisors, city planners, and California EPA officials)
- Kings County voters not residing in Kettleman City (all county residents have an equal vote for what occurs in unincorporated community, even if they do not live there).

Recruitment

Through the background information collected, I identified potential participants who fit the sampling criteria. I identified a list of potential participants using public records, news and social media, academic articles, and professional and personal contacts in the county. Additionally, non-resident participants listed in publicly available documents who worked in non-profit organizations that served Kettleman City residents were also identified and recruited. I formulated a list of names and contact information and reached out to them through email, Facebook, and phone. Next, I contacted key informants that were identified in 2018 during a pilot study on the events of the Kettleman city birth defect cluster. Informants included three Kettleman City Residents and two non-resident participants. I used snowball sampling methods, asking key informants and interview participants for referrals to additional participants who met the research participant criteria. Furthermore, I drew on professional and personal contacts that lived and worked in Kings County for potential participants.

Through the theoretical sampling process, I refined my sample selection. As I sought resident participants that had not previously been included in prior scholarship on Kettleman City, I found that the participant narratives, in general, were less focused on Chem Waste's potential role in the congenital disability cluster and instead cited many potential environmental causes. As the interviews continued, I found that the sample of this study fit a specific profile that informed the scope and interpretation of the analytical themes. Third, I chose to interview more technical assistants with a working knowledge of unincorporated communities as non-resident participants for this study. I found that the term and concept of the unincorporated community were particularly abstract for non-resident and some resident participants. Therefore, by reflecting through theoretical sampling, I sought to increase the balance of knowledge between lived experience and knowledge of the political status of unincorporated communities by purposely seeking non-residents who navigated local and state issues associated with lack of incorporation.

Data Collection

This study uses 24 in-depth interviews to generate insights into residents' ability to address health threats while navigating health needs in unincorporated communities. In-depth interviews were conducted with participants representing both groups (Kettleman City resident and non-resident participants), using similar but separate semi-structured interview guides. Interviews lasted approximately 65 minutes (range 25 to 115 minutes). Participants were offered a \$45 gift card incentive. After consent was given, sessions were audio-recorded except for one participant who requested not to be recorded. While notes were taken during each interview, for the participant who did not wish to be interviewed, I took detailed notes and asked for additional clarifying questions to ensure I captured the intent of their words. Interviews took place over the phone or via zoom conference call. The initial interview guide asked open-ended questions focused on eliciting information about participants' experiences and meaning-making that pertained to their thoughts, beliefs, knowledge, and actions on the birth defect cluster. The interview guide was amended after three resident interviews to encompass the experience of navigating COVID-19 as it provided further elaboration on county governance during a health crisis (see Appendix). The interview guides included questions about political capital (i.e., money, power, influence, and access) that may have been deployed by themselves or others. Furthermore, I asked questions that elicited whether the role of lack of incorporation status for Kettleman City had any bearing on the experience and meaning-making of Kettleman City Residents or non-resident participants.

Data Preparation

All interview participants were assigned a descriptive code to de-identify them. Interviews were digitally recorded and imported into an encrypted, secure file on Cal Share. Recordings were professionally transcribed and reviewed for accuracy and de-identified when applicable. Transcripts were grouped by resident and non-resident participants and uploaded to MAXQDA, a software package for mixed methods research used in grounded theory analysis and reflexive thematic analysis.

There were exceptions and precautions for deidentification for this study. The name of the community, Kettleman City, is not de-identified, as attempts to conceal the community

would not be possible or prudent given the high odds of recognition due to the specific events being studied. Additionally, the community's small size makes the identification of resident, and some non-resident participants easily identifiable, with even a few data points of description and composite descriptions that can be read by Kettleman City residents as not credible. Furthermore, there are public documents with the identification of public officials, advocates, and some parents' names with quotes that identify key players. For this reason, I chose the following practices to deal with the high risk of identification.

- Community names (e.g., Kettleman City, Avenal, Hanford) and government public officials' names that are cited are not concealed. Informed consent for in-depth interviews with public officials reflected that they do not have anonymity in this study.
- In-depth interview consent forms for all participants explained a higher risk of deductive disclosure of this study due to the identification of community location.
- The description of participants in the study is parsimonious to limit threats to confidentiality. The procedures regarding anonymity take into account the highly publicized events of the birth defect cluster, including numerous documentations of people's words and actions in the media and public hearings (Arata, 2016; Leslie, 2010; Maxon, 2020). Furthermore, although this is not a community-based participatory research project, I used purposive sampling approaches and analytical techniques to center residents' voices and agency with the desire to minimize any potential harmful risk associated with being part of this project.

Data Analysis

Data collection co-occurred with coding (open coding, focused coding), memo-writing, and theoretical sampling—processes of constructivist grounded theory. I used an iterative process between data collection and analysis using systematic questioning throughout the analytic process (Charmaz, 2006, 2017). I also used regular memo writing, which was an essential component of the analytic process, capturing the synthesis of ideas throughout the study. During the process of memo writing, I examined and identified points of comparison, considered theories, and potential themes, as well as contradicting ones, as the process evolved. Additionally, memo writing acted as a reflexive exercise so that I remained aware of my own positionality and lens while also enabling an examination of how the historical and sociopolitical context of the moment, given that we were in the middle of the COVID-19 pandemic, which influenced me as a researcher and the research process.

Initial analysis of data was conducted separately for resident and non-resident participant groups. The first step of the analysis was initial coding, which entailed familiarization with the data through a close read of the data and listening to the transcripts. Transcripts were read and listened to throughout the data collection process multiple times to inform an initial coding scheme, and I used a line-by-line coding process. As data were interpreted, I used the initial codes to inform adaptations that needed to be made to interview guides. This included the inclusion of a few questions related to the COVID-19 pandemic, which were cited earlier.

During the second coding stage, I used focused coding to identify the topics and patterns within the data. Additionally, I used semantic and latent coding to provide a complimentary and integrated analysis on the political arrangement of Kettleman City (Clarke & Braun, 2021). I used comparative methods to identify what is distinct and familiar between data sources (Charmaz, 2006). During this stage, data from the two participant groups continued to be coded

separately. However, I began analysis and memo writing on the differences and similarities between group data to inform and generate initial themes. I analyzed the narrative construction and meaning-making from the positionality of the participants to inform my interpretation.

In the final stages of analysis, I drew on Reflexive Thematic Analysis, adapting the methodological approaches by Clarke & Braun, (2021). Thematic analysis generates interpretive stories by analyzing patterns and divergences in meaning-making in the data. Importantly, divergent from constructivist grounded theory, which emphasizes an emergence of theory, I conceptualized and constructed themes that best captured the story of the data considering my research questions.

Steps I took in my thematic analysis was to reexamine which codes were guided by deductive or inductive reasoning. I found that inductive coding was associated with examining concepts of power, resources, intersectionality, and institutional processes of marginalization. I identified my deductive codes, which captured notions of government arrangements as relationships, expectations of caring through institutional power, and a sense of residents as all alone and government as empty structures.

From this process I developed a matrix of themes and subthemes with accompanying data attached to identify which themes were well supported. I identified a few overarching themes such as political neglect, which seemed woven throughout the data,

Next, I did an iterative process of identifying and defining themes, drawing thematic maps, and writing conceptualizations, then shared themes with colleagues across theoretical orientations till I constructed my final three themes.

Reflexivity

This dissertation project is interpreted through the lens of the researcher and seeks to center the knowledge of those being researched. Acknowledging my positionality as a researcher is necessary as a scholar employing constructivist grounded theory and reflexive thematic analysis (Haraway, 2004; Charmaz, 2006; 2017). The following provides a brief description of who I am as relevant to the proposed research project.

I grew up in what was a small city in the San Joaquin Valley. This agriculturally rich area is filled with many contradictions of plenty and need. I worked within the 8-county region for 12 years, working in a Federally Qualified Health Center and on regional health initiatives, seeking to change health access and health adjacent policies. It was through my work coordinating community grants that I first was introduced to a small unincorporated community in Madera County: Fairmead. Through the community group (Fairmead Community and Friends)'s advocacy efforts to gain access to clean water and improve the quality of life for its residents, I became educated on the complexities of life in these communities and inspired by the passion for justice they embodied.

My experience and knowledge working with unincorporated communities grew while I was a trainer on health advocacy for a large foundation. This is where I met Kettleman City residents who, at the time, were working to prevent the expansion of Chem Waste, the hazardous waste facility that residents believed may be impacting infant health in the community. The anger, anguish, sadness, and resilience of Kettleman City residents and other communities like Fairmead informed my research interests and my commitment to include the voice of communities most impacted by the issues under investigation. Two key articles further moved me to pursue this line of research, Epidemiologist Krieger's (2005) *Embodiment: a conceptual*

glossary for epidemiology and Environmental Sociologist Lauren Richter's (2018) article, *Constructing insignificance: Critical race perspectives on institutional failure in environmental justice communities*. Krieger's (2005) concept of embodiment reverberated like a clarion call to not only better understand the context of where one is born when examining infant health, but also to uncover stories that may have been overlooked or only partially understood such as the stories told by 11 infants in Kettleman, whose stories were originally illegible because they were in an unincorporated community. Furthermore, Richter's (2018) title sparked my imagination, and I became compelled to pursue research that could contribute to deconstructing insignificance for those communities who are being made structurally vulnerable. While Kettleman City's story has been told poignantly in research (Arata, 2016; Asmatey, 2013; Quesada, 2019; Richter, 2018), I sought to better understand the political mechanisms that may be constructing insignificance for residents in Kettleman City which had not been fully explored- the precarity of living in a community that lacks incorporation status.

The research project uplifts the lives of those who live in unincorporated communities by making them visible. Krieger's (2005) concept of embodiment demonstrates how psyche, soma, and society are manifest through our bodies and that these bodies tell stories. In this project, infant bodies tell stories that may manifest as preterm birth, birth defects, and premature death. This study seeks to bring in focus the birth and death records that represent untold stories in unincorporated communities. Furthermore, this project undertook an in-depth exploration of one unincorporated community, Kettleman City, where eleven infants were born with congenital abnormalities. This project centers on how their health was understood, perceived, informed, and motivated (or not) the community members and those who had the power to provide resources to the community to mitigate any further adverse health outcomes.

Ethical Considerations

In keeping with UC Berkeley's standards for ethical research and the protection of human subjects, this project instituted several protections to ensure that personal and confidential information remains secured. This included the use of CalShare, which offers protection Level P4 (i.e., protection against a data breach which has a high risk of harm to participants). Laptop with secured audio recordings were protected by encryption and only used by researcher. Furthermore, pseudonyms were given to deidentify participants. The unique case of Kettleman City, the birth defect cluster, and the Chem Waste Landfill has garnered public attention through news media on a national level. Furthermore, public hearings on the Chem Waste expansion permit and a lawsuit filed by Kettleman City residents against Kings County, the California Public Health Department, and California EPA, both include many identifiable participants. Given the high chance for identification of some participants in this study, the researcher worked with UC Berkeley's IRB committee to ensure that appropriate protection is considered in this case. The study protocol, including exceptions from deidentification, was approved by the Committee for the Protection of Human Subjects at the University of California, Berkeley.

Participants

The total sample population consisted of 24 participants, including 13 resident participants and 11 non-resident participants (see Table 8). Among the sample, 9 participants of 24 were employed in public sector jobs which included city, county and state government

employees, and school district employees or served in an elected/appointed position. Of the 9, 6 participants were serving in elected or appointed positions at the time of the interview. There were 14 participants who worked in the nonprofit sector, including those who provided technical assistance, community development, child development, and family support. Four participants were employed in the private sector. All participants were over age 32, 15 identified as female, 9 as male. Of all participants, 21 were Latino, and 3 non-Hispanic White.

Resident participants were all over the age of 32 and Latino (Table 8). Almost all residents, 12 out of 13, lived in the community for more than five years. Four residents stated being in their childbearing years during the events surrounding the birth defect cluster (2007-2014). Overall, 8 resident participants shared they were partially care taking either a child or parent at the time of the interview. All but one resident participant reported that a family member was or had been a farmworker. Notably, 7 resident participants who had worked in either a public sector or non-profit workplace had technical knowledge of the political arrangement of being unincorporated in addition to their lived experience. Of non-resident participants, 9 out of the 11 participants had worked with, served in an agency that served, or knew someone who lived in Kettleman City (Table 9). Of the 11 non-residents, 5 had lived in an unincorporated community at some time in their life. There were 9 out of 11 non-resident participants that had technical knowledge of unincorporated communities through their workplace in the public sector or non-profit agency. All participants are over the age of 32. Tables 9 and 10 provide high-level information on each of the participants, including their pseudonyms that will be referenced throughout the results. Within the findings section, some participants' quotes were abbreviated for brevity.

Table 8. Characteristics of Participants in Semi-structured Interviews on Governance for Unincorporated Communities. (N=24)	
	N(%)
Participant type- Residents	13 (100%)
Participant occupation characteristics*	
Public sector	4 (31%)
Private sector	3(23%)
Non-profit sector	7(54%)
Elected/Appointed	3 (23%)
Technical expert	7(54%)
Race/Ethnicity	
Latino	13(100%)
Non-Hispanic White	
Gender	
Woman	11(85%)
Man	2(15%)
Lived in Kettleman City 5 or more years	12(92%)
Childbearing During Study Period	4(31%)
Caretaker (Parent or Child)	8(62%)
Family or self worked in agriculture	11(85%)
Age	
32 or above	13(100%)
Participant type- Non-Residents	11 (100%)
Participant occupation characteristics*	
Public sector	5(45%)
Private sector	1(9%)
Non-profit sector	7(64%)
Elected/Appointed	3(27%)
Technical expert	8(73%)
Race/Ethnicity	
Latino	8(73%)
Non-Hispanic White	3(27%)
Gender	
Woman	6(55%)
Man	7(64%)
Lived in an unincorporated community	5(45%)
Acquainted with Kettleman	9(82%)
Age	
32 or above	11(100%)
*Not mutually exclusive categories. Does not sum to 100%	

Table 9. Resident Participant Profiles

Residents	Extended Family Currently Living in an Unincorporated Community	Technical Knowledge About Unincorporated Communities Through Employment	Job Sector	Advocacy Experience For Kettleman City	Lived in Kings County for at least a year
Andrea	x	x	Public		
Carolina			Nonprofit		
Fabiola			Private		
Gloria	x	x	Non-Profit		
Guadalupe		x	Private/ Public		
James		x	Nonprofit	x	
Leoncio	x		Private		
Laura	x	x	Public		
Margaret	x	x	Public	x	x
Maribel	x		Nonprofit		x
Norma	x	x	Public		x

Table 10. Non-Resident Participant Profiles

Non-Residents	Lived Experience of Life in Any Unincorporated community	Technical Knowledge About Unincorporated Community Through Employment	Job Sector	Advocacy Experience For Kettleman City	Lived in Kings County for at least 1 year
Carla		x	Public		
Elizabeth			Nonprofit		
Francisco		x	Nonprofit		
Helena	x	x	Public / Nonprofit		
Jake	x		Nonprofit		
Jennifer	x	x	Nonprofit	x	
Joshua		x	Nonprofit	x	
Louisa	x	x	Nonprofit		
Marcus		x	Public	x	x
Solomon			Private		x
Thomas		x	Public		x

Findings

The experience of living in a disadvantaged rural community without incorporation status appeared as governmental neglect to most participants during the birth defect cluster events. For residents like Andrea, whose family has lived in Kettleman City for four generations, lack of government response to community residents' struggles against health threats left her feeling like the community does not matter and as if “*nobody cares, and nobody does anything for Kettleman.*” In this chapter, I share three facets of what I refer to as political neglect, including disconnected government, disenfranchising government structure, and marginalized invisibility.

"We don't know who to go to, who can represent us": Disconnected government

Emerging from the unincorporated community resident participants was a sense of disconnection from a local government representative who would be responsive to the community during the birth defect cluster. Residents' expectations of county government were not large in scope, as they primarily wanted authoritative information and guidance that was spatially and socially accessible. However, residents and non-resident participants described county public actors as being absent or distant despite facing an infant health crisis they believed warranted a prompt response. Moreover, residents cited multiple incidents where county public officials appeared to choose inaction and did not deploy their power to provide health-protective resources such as information, investigation, and agenda-setting that residents could use to address the existent health crisis.

The majority of resident participants expressed the need for a localized government response to community concerns about the events surrounding the identification of the birth defect cluster between 2007-2009. Resident participants cited numerous environmental conditions in the community they perceived as a potential threat to community health, such as “*contaminated drinking water,*” “*air pollution,*” “*pesticides,*” and “*oil under the ground.*” As there were various environmental hazards that were possible sources for the birth defect cluster in Kettleman, resident participants most consistently and vigorously argued for access to authoritative communication from a local government official to guide them through the uncertainties surrounding the health event. For example, Andrea, a long-term resident and public sector employee, summed up what other residents similarly expressed about their inability to identify a local government structure or individual they could reliably access to express and address any concern or health threat in the community.

We want to hear it from someone that really knows where they're getting this information from and if it's correct or not. I mean, if it's correct, not where people are making up stories, or people are making up, oh, you know, this. They're going to close this down or ... No, we want to hear from someone, like I said, a mayor. But I don't even know if we even have one here in Kettleman, to tell you the truth. I don't even know. I've never heard. We don't know who to go to, who can represent us. Nobody.

This excerpt embodies the fullness of this theme. Andrea expressed the need for a government embedded source of information to help sort through the rumors being spread throughout the community about possible causes of the birth defects given the wide possibilities from environmental threats. Information in this context was used to evoke legitimate and

technical knowledge that could help residents discern between facts and opinions and clarify the steps that the government was undertaking to address community concerns. On the surface, Andrea's comments could indicate her lack of knowledge about access to local government. However, Andrea's employment in the public sector gives her access to county government. Instead, Andrea's statements encapsulated resident participants' experience of feeling isolated within the governance relationship with the county.

Similarly, Gloria, another long-term resident and identified community leader knowledgeable about Kings County government structure, also stressed the need for government representation through a "local platform." Representation at its core is the act of making citizens "present" in political decision-making by centering citizen voices, concerns, and preferences (Pitkin, 1967). In the following excerpt, Gloria shares her belief that if the birth defect cluster had occurred in an incorporated town, residents would have had some place to go for guidance, and someone to go to who would represent the community's interests – something that was not available in Kettleman City:

I think they would have the same outcry that our community had, but I think because they have more local government that sort... Who did we have to represent us? For they do have their city council, their mayor, there is a representative. They do have that local platform where who did we have? Who did we go to? Who do we go to answer those questions and represent us.

Gloria shares her frustration that as an unincorporated community, Kettleman City residents do not have a local government official that lives within their community unlike neighboring cities and towns. Gloria outlines the extra layers of governance—a mayor, a city council—that afford city residents additional opportunities for relationship, representation, and communication. Here we see that residents are constrained in their access to participatory power symbolically and spatially. Like Andrea, Gloria spoke about the need for a place "to go," to be heard, and responded to. Furthermore, both women suggest a locally designated person that embodied the institution that could serve as a conduit between the community to the county. The absence of a relationship with someone who can access levers of government in local spaces added to a perception of being at a deficit politically.

An additional aspect of disconnection from the county government came from the community's perception that their county supervisor was not motivated politically to act on their behalf because he was not from the community. Laura, another long-term resident with extended family living in Kettleman City, was one of four resident participants who highlighted some responsiveness from their county supervisor. Laura highlighted the county as responsive by providing access to food giveaways once a month and the supervisor's advocacy for a much-needed pedestrian bridge for residents to walk safely across the busy highway that intersects the community. Still, Laura also described the desire for representation from someone who is not as politically and socially distant as county government.

I know we have our county supervisor, but if they were to assign somebody that lives in Kettleman or knows about the issues in Kettleman. And it's more central, like in the community, and then communicate that to the county. I think that would be good because the county supervisor, he gets scared and there he is. But I think it has to be somebody that knows the community that can advocate for what the people are asking for and stuff.

Laura shared her desire for a representative from the community who understands their needs from an insider perspective and has the boldness and buy-in to be an advocate. This echoes earlier excerpts from resident participants who expressed wanting someone who was accessible to the community culturally and spatially. In this excerpt Laura characterized her county supervisor as politically vulnerable to external pressure she attributed to Chem Waste's influence over the county. Through their narratives, Laura, Gloria, and Andrea expressed disconnection from their local government in a manner that emphasizes the need for a more responsive political relationship with an elected or appointed official. Notably, this desire for more localized leadership emerges from the vapid response from county government during the events of the health crisis.

For example, when asked how their local government responded to the birth defect cluster, resident participants recollected and interpreted county government actors as absent during the initial year or two after the cluster was identified. Margaret, who was amid her own childbearing years at the time of the cluster and worked with young children, spoke to the county's detachment, as demonstrated by the lack of official county involvement by the county public health department, and the information void left by their silence.

I would think that if anybody there (Kings County Health Department) reads an article about babies being born like that in a small community, it should bring-- like they should bring right away, you need to be like, "Wow, what's going on? Investigate more, find more information," but it didn't. It wasn't handled in that way... I think if the county would have been more like, 'What was going on?' Because, of course, they were the ones that have the records of how babies were born and what babies are born in what way. But I think that the health department should have acted more on their end as far as like trying to come out to the community and reach out and try to investigate versus waiting for the group (environmental justice advocacy groups) or the community to start being loud and trying to get the media involved in order for them to be heard.

Margaret shared her dismay that despite the gravity of the threat to the vulnerable infants in Kettleman City, county officials and the county public health department made no efforts to initiate an investigation or use their access to health records and surveillance tools until advocacy organizations applied media pressure. Similarly, Andrea, who was in her own childbearing years during the events, expressed that her pregnancy stress was magnified because of the lack of official information from the county. Andrea shared how she and community members were coming up with "their own theory" of what each of the families impacted had in common trying to discern potential contributing factors for the birth outcomes including "water," "air quality," or the "type of work" with which families were involved.

Or even if they didn't know, but just hoping for some kind of town hall meeting or acknowledgment. But I do remember a lot of media, a lot of news that highlighted it. But that triggered a lot to ask the questions to the local level, state level to really look into it. You hear from the news. But I just feel like that was the part, where the locally and statewide needed to come in to calm us, I think, during that time, because it was more of the media picking up on the story. And then that kind of forced them to address the issues.

Both Margaret and Andrea conveyed how the lack of official county response served to communicate a lack of care and increased residents' concerns and confusion. Both participants' statements are examples of the use of political power through omission. McCullum et al (2004) describe this as the institution's ability to shape perceived needs. The power to shape perceived need is the ability to choose which needs are made visible or added to the political agenda, including determining the scope and nature of the need and any solution or intervention. In these examples we see how government officials withheld official acts and government-embedded knowledge (acknowledgment of the birth defect cluster and initiation of a public health investigation) by failing to recognize the birth defect cluster for at least one year after it was initially discovered by environmental justice advocates. Prilleltensky (2014) posits that meaning making during a crisis often involves people's ongoing "struggle" for "mattering and thriving which entails fairness and wellness" (p. 151). Within the context of the birth defect cluster, residents communicated how political inaction by county government was demonstrative of the disconnect, reinforcing a perception that perhaps the community didn't matter if they would not even respond to a health threat to the community's infants

"And the answer in Kettleman is no": Disenfranchising Government Structure

Participant narratives highlighted the perception that the county governance structure disenfranchises residents as a representative body for unincorporated communities, unequipped to provide the support needed to mitigate a health crisis compared to city government structures. *Disenfranchisement* is defined as "the denying of a privilege, freedom, or power to a person or group resulting in a limited ability to actively and freely participate in everyday life" (McCullum et al., 2004, p.209). From the perspective of the majority of resident and non-resident participants who worked with or are knowledgeable of local county governments, the county governance structure is not designed to serve as a representative body for unincorporated communities. It reinforces political asymmetries that limit residents' power within the governance structure. Participants shared multiple perceived constraints (e.g., surveillance, resources, responsive leadership, organizational structure, and funding mechanisms) related to the county government's capacity and willingness to help unincorporated community residents address health threats compared to city governments in the region. Participants knowledgeable of county government processes delineated resident disenfranchisement as a result of 1) counties being primarily designed as an arm of the state with few legal obligations to unincorporated communities; 2) unincorporated community residents having diluted voting and agenda-setting power compared to more populous areas of the county; 3) limited financial power of residents due to revenue practices and limited county financial obligations or resources for unincorporated communities. Participants believed that without adequate political incentives in the governance structure, government actors would exercise their bureaucratic discretion not to act, resulting in practices such as "kick that can down the road."

Resident and non-resident participants were asked to imagine if the birth defect cluster had occurred in a nearby incorporated city or town (e.g., Hanford, Avenal, Lemoore, Coalinga, Visalia) would the response from their local government be different. Almost all participants communicated without hesitation that the local government response would have been "completely different." For example, Marcus, a non-resident participant and a former public sector employee, witnessed and participated in community efforts to elicit a response from Kings

County government to investigate the birth defect cluster. Marcus, who had witnessed and participated in community efforts to elicit a response from Kings County government to investigate the birth defect cluster, assertively responded to the question, “Would the local government response be the same in Visalia?”:

It would never happen in Visalia. Because just that as soon as there's a trend, I think it would be identified because of the resources here, because of leadership here, because of how organized it is as a city compared to as a county. And how much support there is through funding, through public housing, through the different kinds of funding that comes around here. It would get immediate attention.

*And in Visalia, of course, it affects a lot of people we know. And it would never happen, just because as soon as-- yeah, they would put an end to it, because they would identify it early. And I think that's the difference. Who is it affecting, and do we have the resources and leadership to address it? And the answer in **Kettleman is no**. And the answer to **Visalia is yes**. (Emphasis added)*

In this statement, Marcus indicated that the difference between Visalia (incorporated city) and Kettleman City (unincorporated community) government structures affected elected officials' capacity and willingness to respond to community residents, including the distribution of resources available to residents during a health crisis. Marcus's depiction illustrates Giddens (1984) two-sided coin imagery of institutions as co-constituted by both its structure and the agency exercised within the structure. Marcus attributed the shortcoming of the county's response compared to the imagined city response to the inadequate resources produced by the governance structure and not facilitated by the county public officials that have the dominant agency within the structure. Marcus highlighted a combination of institutionally embedded resources seen as necessary for addressing the infant health crisis that the county seemed to lack or were unwilling to provide- surveillance capacity, responsive leadership, organizational structure, and government funding mechanisms (i.e., infrastructure, emergency management, disaster response. These health protective resources can serve as either a form of prevention, mitigation, protection, or resistance to health threats for the community's health.

Furthermore, Marcus's critique of the county was not just that the county could not provide adequately for Kettleman City residents. Here, he alluded that officials could choose not to respond to residents because of their bureaucratic discretionary within the current governance arrangement for unincorporated communities. Marcus cited that he perceived Visalia residents as having the cultural capital to motivate decision-makers to use their agency to act on their behalf because policymakers “*know their (residents') names*.” However, he intimates that Kettleman City residents may be more susceptible to being marginalized because they do not have the same perceived social value to stakeholders in the region. Thus, with limited resources and incentive, county government actors are seen as less reliable than city government actors. As such, both the structure and agency within the political arrangement for Kettleman City reinforces the county government as a hollow form of governance to rely on during the infant health crisis.

Thomas, another public sector employee perceived by resident participants as a county government “insider,” reinforced the suggestion that the county's governance structure is not equipped and disincentivizes government actors from serving as a responsive local governing body for Kettleman City. In Thomas's narrative, he adds to this suggestion by describing the

governance structure as disenfranchising because of the limited political agency of Kettleman City residents because they are a negligible “voting bloc” in the county.

What you would normally see in the city, so I see where there's new growth, new development that actually builds that infrastructure as they're going along versus unincorporated communities that you're always going to be at a huge disadvantage on not having the funding, not having the program support, not having policy, and then not having the political will because your Board of Supervisors, in general, are elected by a larger expanse of territory with different communities and different voter interests of community interest. So that's what kind of disenfranchises the collective thought of really investing in key communities.

In this excerpt, Thomas shared his belief that unincorporated community residents have less political power than city residents. He refers to the political arrangement as disenfranchising because of 1) limited policy mandates or funding apportioned for unincorporated communities by the county or state and 2) reduced voter power and priority within a general county election. Thomas emphasized that the current political arrangement for unincorporated communities has few formal processes and protections for residents compared to those available in cities for their residents. Furthermore, the diluted political power and competing interests of more powerful voting blocs disincentivizes county government actors from providing a robust response to unincorporated community needs. Therefore, the unincorporated community is structurally positioned as being outside the traditional social contract between voters and their local government body as they do not have the voting power to hold their government accountable (Anderson, 2009; Maser, 1998). For Thomas, the county’s role as a locally represented body for unincorporated communities is structured to be a low priority compared to the county’s primary role as “an arm of the state.” In the following excerpt, Thomas further highlights how the structure for county governments was not designed as a local representative body substitute as evidenced by county staffing levels for the different functions.

When you're looking at 13 employees in comparison to another department that has 400. Uh, maybe that's it's a clear indication that the way that government, especially county governments, are structured and funded, and what the priorities are. The priorities are always shifted to those big departments and what you're looking into, which is Community investment, community, quality of life, community health, and that investment is not there in the county.

Here, Thomas compares departments whose functions are state-mandated, like the county sheriffs and human services departments, to the community development departments that can promote “quality of life, community health” for unincorporated communities yet are not mandated or funded except through the county’s limited general fund for the entire expanse of the county. As the county structure is funded to serve as an arm of the state, the staffing levels are in line with the fulfillment of that function. In contrast, as there is limited capacity to fund the functions that could bolster the county’s ability to serve as a political representative body, the county staffing levels for those functions are negligible. In these examples of voting and funding priorities, Thomas exposes power and resource asymmetries for unincorporated communities. Voters have limited agency over their community’s social conditions and the departments that

could exercise their bureaucratic power for the community's health, such as the community development department are not well supported within the existing structure. Thus, participants with technical expertise attributed the lack of county responsiveness as a byproduct of a governance structure not designed to be responsive.

Like Marcus and Thomas, Francisco, who provides technical assistance to unincorporated communities across the San Joaquin Valley, shared an example of how the lack of policy mandates and limited political capital of unincorporated communities impacts county government decision-making on addressing essential service needs such as water and sewage services that are necessary for community health. When asked about the future health of unincorporated communities like Kettleman City, in the face of ongoing health threats due to failing infrastructure for water and sewer and the ongoing punitive drought in the region, Francisco shared fears of community extinction.

You know it's up to the public works department, planning, and engineering departments to look at those essential services. You're relying on staff to look at what's failing and see what needs to be replaced. They will draw up a budget. If your budget gets reduced, then they "kick that can down the road" until it's an emergency. If it's an emergency safety issue, you are never going to get an adequate response; maybe a section of the road gets fixed. There are not enough resources, and a lot of these communities do not have enough of a voting block to move the political levers that move a project forward.

Here, Francisco gave an example of common practices within county departments that shows how county staff negotiate the scarcity of funds and decision-making support for improving unincorporated community conditions by delaying any infrastructure improvements until there is an emergency that cannot be ignored. Francisco shares that without sufficient voting power, unincorporated communities are at a deficit to move government actors. This creates a policy cycle built on scarcity that dominates several counties' governance of historically underrepresented unincorporated communities that are small and isolated in the San Joaquin Valley, like Kettleman. Francisco went on to explain that within this policy paradigm, communities believed to have little political power, and low density, yet exert "high costs" to be made into sustainable healthy communities are relegated to "later." Like other geographies on the periphery, unincorporated communities are often managed as "places that don't matter" compared to urban core regions (Rodriguez, 2018). Instead, Francisco added that the cost to "get the county to do something" is linked to tragedy. Francisco iterated that unless there is "something political" or someone is injured and gets "media attention," nothing is going to happen. Thus, we see that the levers of government can only move when the costs are high enough in a community that the county government will act. Francisco highlights how this is often when someone's 'safety or health' is compromised. However, as we saw in the first theme, residents stated that their community tragedy was not valued enough to warrant an adequate government response, even after a birth defect cluster of 11 was corroborated by the public health department.

Among resident participants who had technical expertise, there were mixed sentiments about the valuation of the county governance structure. Yet, all but two perceived that the county governance structure was less able to respond to residents compared to city governments. Most believed that residents are disenfranchised because of their reduced participatory and agenda-setting power within the county. Norma, a long-term resident participant, and strong community

leader expressed the county's will being constrained from investigating the birth defect cluster or listening to community concerns about the proposed Chem Waste expansion because of the county's dependence on Chem Waste revenues.

Why would the County bite the hand that feeds it? Because they would collect on the tonnage that was brought into waste management. So, there's the fee that got into the county's coffers. So again, the folks say, "Why would we trust who they appoint to this advisory committee?" They're going to support the expansion project because they're profiting off of the fees that they would collect.

Here Norma shares that many in the community believed that the county government is dependent on Chem Waste revenues and therefore would not oppose Chem Waste's business expansion which was in the county's financial interests. Instead, the community believed that the county would only appoint a community member to a planning advisory committee for the expansion that would support Chem Waste. Norma reiterates statements made by Thomas that the county is disincentivized to serve as the local representative body for Kettleman City because of the limited revenue options for the county. The power asymmetries within the governance structure extend beyond the community's lack of voting power, but also because of the limited county revenue sources that create dependency on business revenues from dirty industries like Chem Waste. Furthermore, Norma referenced one of the few participatory processes prescribed for unincorporated communities in the Chem Waste expansion permit process managed by the county planning department. She shared how one resident was meant to be appointed by the commission to serve as the community representative. Notably, Norma was not opposed to the Chem Waste expansion. But even with this view, she shared how she and others she knew believed that the community would be disenfranchised because the county and not the community had the power to select who served on the committee.

In the following passage, Norma additionally laments the reduced financial position of Kettleman City within the county structure where the unincorporated community does not have control over the revenues they generate.

We've talked about becoming an incorporated community. The county does not want it for obvious reasons. Because then we would have the right to say, "Sorry. You know that McDonald's money you get it's coming to Kettleman. That In and Out money. You know that waste management money; now it's going to come to Kettleman." I just think I counted in my head like ten restaurants and four gas, and the Tesla station. Summer months, those places are packed. We know they're bringing in revenue. And there's two hotels up there, you know. There's revenue coming in. And so, the county doesn't want to lose that. I mean, because they count that as general fund money. So, in the past, we're always like, "gosh! Why's that money not trickling back to us?"

In this excerpt, Norma outlined how the revenues generated by the local businesses off of Highway 5 are not controlled by the community and instead almost all become county revenues for the general fund because the community is unincorporated. Norma shared her belief that the current political arrangement for Kettleman City disincentivizes the county from supporting efforts for greater political agency for the community. This excerpt exemplifies how the current political arrangement further creates power differentials because unincorporated communities

have little power over how the revenue they generate is allocated. Compounded with the lack of electoral power, residents not only have less ability to address community health threats, but they are also at diminished influence over determining the type of industries generating revenues in their backyard. Norma and several other participants shared how Kettleman City adds value for the county. However, they similarly expressed that their value is not often seen by those in power.

"Because of who we are": Marginalized Out of Sight

Among participants that critiqued the lack of local government responsiveness to the health threats facing Kettleman City's infants, there was a largely shared belief that the community's intersectional identity was a factor in the county governments' vapid response. In this paper I refer to the community's intersectional identity as the conferred group's commonly shared identity that encompasses subordinated positionality within systems of oppression. For Kettleman City resident participants, their conferred and embraced intersectional identity was as a "small," "poor," "rural," "Hispanic," and "farmworker," town. While residents considered their identity as instrumental in obtaining a form of community cohesion, participants believed that it also contributed to being seen as politically irrelevant. Residents commonly expressed being "overlooked" and "forgotten" by the county "because of who we are."

"Overlooked" was the initial and measured word non-resident participant, Louisa, chose to describe county government's lack of responsiveness to the social conditions facing low-income Spanish-speaking unincorporated community residents in the San Joaquin Valley. Louisa has provided technical assistance to unincorporated communities on sustainability issues in the southern half of the Valley and has lived in an unincorporated community. When asked to elaborate on why she believed communities like Kettleman City are overlooked by government officials, she pointedly attributed the county's dismissiveness to the community's intersectional identity as "poor rural Latino farmworkers."

When I say that these rural unincorporated areas are often overlooked, I think everything matters. A few of those things we're talking about a population that is mainly Hispanic or Latino, very low income, most of them are farmworkers, people that are considered poor. Most of these communities are labeled as disadvantaged so you know they have very limited resources. So, because of that, I think sometimes elected officials don't pay as much attention to that area because they don't really have an incentive to do so. And it usually takes a lot more to get something done.

In this excerpt, Louisa shares her belief that elected officials discriminate and ignore communities like Kettleman City because residents have low socioeconomic status as farmworkers and because they are Latino. Here she draws a link between the dismissiveness by stakeholders and the communities oft cited intersectional identities that correspond to the community's membership associated with systems of oppression at the intersection of socioeconomic status, rurality, race and ethnicity, and extractive agricultural production and labor. The marginalization of groups because of their social location within political institutions corresponds to a key construct of intersectionality (Collins, P.H., 2021). Louisa also referred to county decision-makers as not motivated to use their political power for people living in "that area" (i.e., disadvantaged areas without incorporation). It is not merely that public officials

exercise their agency to discriminate because of who the population is, but officials are able to do so because of the discretion allowed through the precarious political arrangement of being in unincorporated.

This dynamic of Kettleman City being dismissed and neglected because of its intersectional identity, was shared by more than half of all participants and almost all non-resident participants. Participants described the county's relationship to the unincorporated community in explicit and implicit discourse that residents fell off the county's "*radar*," were not a "*priority*," and were "*forgotten*." In the previous theme, several non-resident participants, including Marcus, highlighted that residents in Kettleman City lack political capital because of how they are structured politically. Moreover, Marcus and several other non-resident participants that had technical knowledge of unincorporated communities further implied that political inaction was not just motivated by the structure, but also because of the perceived lower social value of the disadvantaged unincorporated community in the region. Here are two passages from Marcus, a public sector employee who worked with Kettleman City residents and once lived in Kings County, who tied the invisibilization of Kettleman City within the region's history of structural racism in the agricultural production of the San Joaquin Valley (Asmatey, 2013; Quesada, 2019). In the first passage, Marcus has just described as outlined in the theme 'Disenfranchising structure' how the response to a nearby would have been swift compared to the lack of response experienced by Kettleman City residents. This is followed by his elaboration on entrenched white hegemony in the region's local government structures which he hypothesized are associated with lackluster responses to communities like Kettleman City.

And plus, I think, [it's] the importance of who it's affecting. Because in Kettleman, you can turn a blind eye. Because who knows anybody in Kettleman, right?...

Positions of leadership were still being held by people of power, families of people, and the same players that had a lot of money were still making all the decisions. That didn't settle right with me. But that's what I noticed right off the bat...The same family names, the same matter of fact, the same kind of incumbency, if you will, still there. And yeah, it was still—for lack of a better term—white people were still in power.

In the statements above, Marcus shares his belief that because Kettleman City does not have social capital in the area, they are easy to dismiss politically. This he partially attributed to the disconnection between decision-makers who are predominantly from the same white wealthy families who have held positions of power historically who do not know or relate to the predominantly low-income Latino farm workers in Kettleman City. Marcus calls out Kings County's historical lack of "descriptive" representation on the Board of Supervisors as problematic. Descriptive refers to constituents and policymakers having a similar shared racial and ethnic identity (Badas & Stauffer, 2018). Marcus expressed how after being gone from the county for several years, he was dismayed by "*how the status quo*" persisted. In this context, Marcus is surfacing the embedded reproduction of power for white affluent and influential families in the county. While Marcus went on to speak about being grateful that there was one Latino supervisor on the Board, he highlighted the mismatch between the demographics of the county and those in decision-making power.

Most often when resident participants described the community with a variation of the "poor Spanish-speaking Hispanic farmworker families" identity, their discourse captured a sense of self-respect, dignity, and warm community bonds. For example, as several resident

participants described Kettleman as a "*hard-working farmworker*" community, they invoked childhood memories of feeling safe because everyone knew each other. Norma, a long-term resident, shared how she remembers how "*parents worked alongside each other*" and how her friends' "*fathers, mothers worked in the same fields, picking tomatoes or lettuce.*" Still, Norma named what many resident participants also recognized: that this same identification made them less valuable to others outside their community.

For example, Norma, who is a resident and works in the public sector, relayed details of the legal battles between environmental justice advocates who had successfully sued Kings County Board of Supervisors for failing to accommodate the unincorporated community's Spanish-speaking population's participation in planning meetings over land use decisions pertaining to Chem Waste's expansion.

If this community is going to be impacted by this, by the [Chem Waste] expansion, by more trucks coming through our community, you need to let us know in Spanish. Provide materials in Spanish and translate into Spanish at these meetings. Because you have very upset people. And we're very passionate, and we get angry. And if that's not being understood, the passion, and whatever the message is from a Latino father upset that their child has a cleft palate, you're just going to see an angry man. You're not going to hear the translation of, "I'm a hard-working father who provides for my family, and I can't explain why my baby has a cleft palate."

The lack of adequate translation in public hearings and documents made the anguish of an impacted father unknowable. Norma felt certain that the substance of what this Latino father was sharing was lost, not just in the lack of interpretation, but also because of widely held archetypes of angry men of color that make him dismissible to white populations. Culp (1997) noted that archetypes of people of color based on emotional expression serve to make illegitimate legal and political claims as just "passion" and "not substance." Furthermore, we see how political inaction by the county is deliberately operating to reinforce a subaltern status for Kettleman's Latino population. County decision-makers failed to use institutional tools to limit residents' public participation by refusing translation of technical and legal government documents, scheduling meetings during business hours or forty minutes from the community, and not providing interpreters or only one interpreter while making Spanish speaking residents stand in the back of long meeting halls while they held up in protest "*pictures of their babies*" who had been born or died with a congenital abnormality between 2007-2009. Through inaction, the county marginalized Kettleman City by creating barriers to exerting participatory power to protect the community's health.

Some participants made direct links between their marginalized structural position, their status as an unincorporated community, and their embeddedness within a larger region of extractive capitalist agricultural production that compounded their diminished power socially and politically. Participants believed that county policymakers used their discretion discriminatorily through inaction to the needs of the Kettleman City residents historically and in the face of a threat to the community infants' health.

While many participants noted the injustice of being marginalized based on the community's positionality in the county, narratives addressing the community's subordinated position within agricultural capitalist production demonstrate how intersections of power markers are not reducible to single categories or single forms of oppression (Collins, P.H., 2019).

For example, Louisa and a few of other non-resident participants who provide technical assistance to unincorporated communities highlighted how the agricultural industrial complex extracts heavy costs on the environment and health borne by those same communities who generate wealth for owners of production. Here, Louisa explicitly named the inequitable distribution of burdens and benefits among those who work in the fields and those who profit from their labor.

And why is the water contaminated? And why is the air polluted? It has a lot to do with the industries they're surrounded by. We're surrounded completely by ag. And unfortunately, farmers that are causing a lot of these conditions are extremely wealthy and making a lot of money off not only the bad health impacts, but also these are the folks that are working in their farms. These are the folks that are helping to make them more wealthy, you know?

Similarly, Thomas, a county insider and non-resident participant, shared that recommended improvements to curbs and gutters that would have protected against agricultural runoff in Kettleman City were turned down by county supervisors. Agricultural runoff generally refers to the polluted water from pesticides, pathogens, fertilizer, and irrigation water that overflows and without proper management seeps into ground water and residential areas in close proximity. County supervisors' response to staff suggestions was to assert, *"We don't do that in rural areas."*

To illustrate how the county discriminated in their treatment of different constituent communities, Laura, a former resident participant shared how living near pesticide spraying in Kettleman, *"you just get used to it."* However, as Laura explained, she had not realized that for other more socioeconomically well-off and whiter unincorporated communities, efforts were made to diminish their health burdens by addressing illegal pesticide spraying in a timely fashion. In this excerpt, Laura described how after she moved to a "better" unincorporated community (that is, more affluent, with more white residents) in the same county, she had been exposed to pesticide spraying behind her house when she was five months pregnant. Here Laura shared how surprised she was to get a quick response from the county and her supervisor when she complained compared to when Kettleman City residents complained.

They were spraying the field behind my house, and I'm like, "Oh my gosh, those are pesticides." You just know that when you live in this area, what a pesticide looks like. And I started freaking out, except that this time I was five months pregnant... But I saw how fast they got back to me. They were constantly calling me. They had the supervisor call me right away to talk about what had happened. And of course, the guys over the field got fined, and now they're so nice because they spray in the middle of the night. So, by the time we wake up, we don't smell it. If I were to live in Kettleman City, I'm pretty sure, I guarantee you, I would probably get a different response.

Here, Laura exposes what is possible in an unincorporated community when there is county political will. The response she received to protect her health required no greater effort from county government than it would have for them to respond to a spraying incident in Kettleman City which is in the same county. But Laura shared that she could not recall ever getting a similar response when living in the unincorporated community. When Laura navigates

between her new home and visiting her family in Kettleman City, she described feeling as if she is moving between “*two worlds*”. Here we see how the county has the bureaucratic discretion to act to diminish community suffering under environmental conditions. Instead, the inequitable exercising of political power reveals how bureaucratic discretionary power in unincorporated areas enables structural inequality for those whose intersectional identity is less favorable often through inaction.

Discussion

This study explored the political arrangement associated with lack of incorporation status by examining how the residents of the unincorporated community, Kettleman City, were supported or constrained in their ability to address an infant health crisis. We used an intersectional and institutional lens to examine how power was deployed or not on behalf of Kettleman City residents to understand better “How does incorporation matter for health?”

Through participant narratives, we find a general critique of the county's governance of Kettleman City as disconnected, disenfranchising, and marginalizing. Many participants noted their belief that county unresponsiveness was attributed to policymakers' indifference due to the community's intersectional identity as a “poor, rural, small, farmworker town.” Helpful to our analysis is the concept of political inaction when applied to the state as the power of government institutions and actors to act or not to modulate health risks and benefits through the deployment of policies, resources, finance, influence, and practices (McConnell and t'Hart, 2019). One of the most valuable ways to conceptualize power in this research study examining local government is to consider how the political arrangement for unincorporated communities offers access to health-protective resources that governments typically can only deploy to address a health threat.

The findings suggest that without a dedicated governance structure or locally dedicated government presence in an unincorporated community, a relational and political void exists between residents and their local government substitute- the county. Instead, political inaction was the prevalent perception of participants who assessed the county's response to Kettleman City community conditions and concerns during the birth defect cluster. Resident participants, for example, highlighted county actors who failed to acknowledge the existence of an infant health problem initially or to use their legal authority to call for a public health investigation or town hall meeting in the initial period after the birth defect cluster was identified. Other examples of political inaction were given, such as the failure to provide authoritative information or guidance so that residents had to rely on informal information networks. Similarly, we saw how resident participants highlighted the lack of facilitation to environmental reports in Spanish or the lack of adequate interpretation in public hearings hampering public participation. In the example cited by participants, we see how political inaction is practiced through the non-deployment of different forms of political power, such as agenda setting and the power to define needs (McCullum et al., 2003), agenda setting power (Aldrich & Battista, 2002; Cambell et al., 2002; Jenkins & Monroe, 2015), legitimated power (Dugger, 1980), and participatory power (Gallagher, 2008). In the case of Kettleman City, political inaction obstructed residents' access to government-embedded resources needed to begin to address the infant health threat.

Here, government-embedded resources are public resources that require government authority, regulation, or practice to access. Political inaction can be obstructive as it prevents a sequence of government actions that can unlock access to county, state, and federal resources that require an initial government validation. For example, an official acknowledgment that a

community health concern existed was the first step needed to get the county or state public health department to initiate an investigation. The deferred official act served to keep government action, agenda setting, or other government embedded resources from being deployed on the community's behalf. Consistently, unincorporated community residents depicted an absence of leadership in the community to provide institutionally legitimated knowledge that was health protective and could serve as a key to additional resources that could have been deployed for the community. This is not surprising, as studies informed by intersectionality have consistently shown that populations on the margins of society are politically excluded from mainstream political arrangements (Collins, P.H., 2021; Lurie, 2020). The obstructive disuse of power is highlighted and can result in unnecessary suffering or what Galtung (1993) describes as structural violence. Structural violence refers to the harm done to populations through everyday social structures, including political structures where populations are excluded from benefits of full legal and human rights resulting in avoidable forms of social suffering (Rylko-Bauer & Farmer, 2016). Policy inaction by the county was perceived as contributing to the poor community conditions and to the withholding of health-protective resources residents could have accessed to create a healthier community environment for Kettleman City infants.

While sociologist Patricia Hill Collins (2021) has argued that solutions that increase a population's interdependence with the government are contrary to a liberatory project, I contend that greater access to public resources embedded in the state is necessary for fostering health and equity. Residents expressed their desire for a locally accessible authoritative leader or a structure that would be responsive to the community. The community equated legitimacy with government-generated information. Residents expressed a desire for legitimate information from government sources, not because they would necessarily believe or trust the information provided. Instead, residents were both asking for a source of information that could be held accountable and that was responsive. The most (financially) affordable resource that the county government could offer Kettleman City residents is the one item most desired by the community: communication. Still, participants described county policymakers consistently failing to provide this essential and crucial resource.

Furthermore, particularly from non-resident participants' observations and expertise, we see that county actors operate within a structure that was not made to be a responsive, local government body for unincorporated communities. Some political scientists would argue that county actors behave rationally, given the state's constraints and structure (Thaler, 2017). In the theme of disenfranchised government, we see how unincorporated communities are structured on the periphery of county priorities and state-legislated mandates that could provide a framework for the deployment of power to promote health. Operating within this political void and lack of state provision, counties exercise "*kick that can down the road*" policies built on scarcity. Participants cited multiple forms of diminished positionality for the unincorporated community in their political relationship with the county. This included diluted voting power, lack of access to their revenues, lack of policy mandates that require county provisions for the community, competing county priorities, and dependence on external revenue sources such as Chem Waste. Furthermore, the county was depicted as being inferior to cities in their ability to access grant funding, provide leadership, and fund community development. The depiction of county government as inadequate or incentivized to serve as the primary representative body for unincorporated communities revealed a policy void that invisibilizes and disenfranchises residents. Therefore, policy inaction became the default position within the policy void, normalizing structural harm through policy omission. Furthermore, through an institutional lens, we see a

mismatch between the structure's form as a generalist political body and the function as a localized representative government for multiple unincorporated communities. Instead, we see the lack of state provision and equipping of counties to take on the role as the primary legislative representative body for unincorporated communities.

Moreover, we see how residents perceived the neglect by county actors as a response to the community's conferred and embraced identity as a "poor rural Hispanic farmworker" town. Public administration scholars have emphasized that one of the primary ways that structural racism operates in government is through administrative discretion (Blessett & Littleton, 2017). While county governance structure may constrain policymakers from being responsive to residents or incentivized public officials to dismiss unincorporated community residents, we also understand through an intersectionality lens that unincorporated communities do not universally experience political neglect. Instead, residents have identified how their lower social status incentivizes political neglect. Through an institutional and intersectional framework, we see how the institutional structure is productive in maintaining structural inequities. The large structural voids in the political arrangement for unincorporated communities magnify the social dynamics in systems of oppression that are not constrained by legal mandates but instead allowed to flourish in the void. In the case of unincorporated communities, if political neglect is the default byproduct of an inadequate governance arrangement, then structural racism can be perpetuated through the discriminatory facilitation of white and wealthier populations who live under the same governance relationship as described by Collins, T. (2010), which masks the racialized impact of lack of incorporation status from the public's way of knowing these settlements.

I posit that Kettleman city residents were subjected to political neglect that made government-embedded resources inaccessible or limited for addressing an infant health threat. I also posit that responsibility for political neglect is both at the county and at the state level, which has marginalized unincorporated community residents by not providing funded or policy mandates for the county that could serve as legislated or regulated protections that ensure government responsiveness and residents' agency over community social conditions. Broadly, unincorporated communities are stuck in a local governance policy gap where they have been largely forgotten. The policy regime for the unincorporated community of Kettleman City, which includes the resident's positionality with the county government, institutional structure, funding mechanisms, policies, practices, country electorate, and policymakers, is underdeveloped generating structural vulnerability to adverse health outcomes. Anderson (2007, 2009) has provided case study data to demonstrate that counties are deficient in providing resident mobility, habitability, and political access and representation. My research affirms similar political access and representation findings by demonstrating that participation and voting dilution diminish residents' voices. My findings build on this scholarship to demonstrate that not only are residents constrained in their political efficacy, but notably, that the county curtails political efficacy by not constructing a platform for communication, by using their power to circumvent participatory processes, and for using the absence of policy to justify inaction. Dye & Garcia (1978) have described policy as "what the government chooses to do or not to do." Increasingly social science scholarships have sought to build the evidence base for the outcomes of policy inaction, which has been shown as more complex to show (McConnell and t'Hart, 2014). Governance of unincorporated communities is an ideal political arrangement through which to examine the impact of policy inaction on multiple outcomes and, importantly, health. In particular, policy inaction has led to environmental injustice for low-income, disadvantaged unincorporated communities of color.

As a government body, there are resources accessible where local government is the gatekeeper and the one made responsible for the care of a constituent body. For Kettleman city, the county's inaction during the birth defect cluster was neither responsive to nor responsible for the caring of its constituents in the unincorporated community. It is difficult not to see this as emanating from patterns of structural racism that operate through spatial inequities and political discretion. Furthermore, the state structure for unincorporated communities and their neglect of this vital relationship for Kettleman City and other disadvantaged unincorporated communities enabled and incentivized county neglect.

Strengths and Limitations

Deploying a qualitative approach, this study provided contextual details of the political relationship associated with lack of incorporation that is not feasible using quantitative data (Lichtman, 2013). Instead of broad variables of association, qualitative work provides a breadth of detail regarding relationships within social processes (Lewis et al., 2014). Given the underdevelopment of incorporation status as a political determinant in health research, it was crucial to provide quantitative and qualitative findings that could expose different facets of infant health that one method alone could not provide.

Using a grounded constructivist approach and reflexive thematic analysis, I explored and interpreted participant narratives of social processes that did not necessarily fit into *a priori* definitions. This enabled a fresh perspective when analyzing the use of non-use of power and analyzing spaces of absence in the social interactions between residents and their designated local government representative body- the county. Furthermore, in constructivist grounded theory and reflexive thematic analysis, the researcher's construction in the analysis process is seen as integral to the analytical process and therefore informs and makes visible the researcher's construction process (Charmaz, 2006). Notably, constructivist grounded theory and reflexive thematic analysis allow critical inquiry to be elevated through the choice of methods and processes (Charmaz, 2017). Finally, examining power flows within political and social processes is not easily captured. This study's strength is that it examines how political and social processes operate in a disadvantaged unincorporated community through multiple perspectives of power, including its manifestation as government inaction (Conti & O'Neil, 2007).

The qualitative study also has several limitations. The first limitation is that the specified health event was unique, and its transferability of findings may be limited (Lichtman, 2013). Although the study can provide insights into how other unincorporated communities may struggle to access resources to address the health status of residents, multiple factors will be exclusive to Kettleman City. However, conceptual and thematic insights into social processes indicative of unincorporated communities are transferable to other contexts (Atkinson, 2017; Smith, 2018).

Chapter 6

Conclusion

"Remember to imagine and craft the worlds you cannot live without, just as you dismantle the ones you cannot live within."

-Ruha Benjamin

This multiple methods research project included two studies that explored the relationship between living in an unincorporated community and infant health. Unincorporated communities as a unit of study have been largely neglected in infant health research. Further, incorporation status and corresponding political arrangements have yet to be explored as political determinants of health. Motivated by ecosocial theory's fundamental tenet of embodiment—"bodies tell stories that people cannot or will not tell, either because they are unable, forbidden, or choose not to tell" (Krieger, 2005, p. 350)—this project sought to understand the stories told by infant bodies across unincorporated communities in California's San Joaquin Valley. This project's first study used regression analysis to examine the relationship between poor birth outcomes (SGA, PTB, VPTB, and LBW) and incorporation status in the eight-county region of the San Joaquin Valley in California. The second study used in-depth interviews to explore how the political arrangement in the disadvantaged unincorporated community of Kettleman City was perceived as impacting residents' ability to address and resist health threats in the face of a birth defect cluster. Together, these studies provide a preliminary understanding of how living in an unincorporated community in the San Joaquin Valley may impact infant health. As a project, this dissertation is one small step towards making visible political determinants that impact the social conditions in unincorporated communities where more than one in ten California San Joaquin Valley infants call home (CDPH, 2022).

Quantitative Findings

When examining the impact of incorporation status on adverse perinatal outcomes, these findings suggest an association between living in an unincorporated place and (PTB). The relationship between unincorporated place and PTB is complicated when assessing the relationship stratified by (dis)advantage status. Birthing people residing in disadvantaged unincorporated places (i.e., census-designated places and other unincorporated communities) had higher odds of PTB and VPTB than those in disadvantaged incorporated places. Meanwhile, comparing advantaged places, the odds of a PTB and VPTB trended in the opposite direction, with lower odds of an adverse birth event in advantaged unincorporated places compared to advantaged incorporated places (i.e., cities and towns).

There was heterogeneity in the relationship between the four infant birth events (SGA, PTB, VPTB, and LBW) and four place types, when stratified by race and ethnicity. Each analysis of birth outcomes provided additional detail on potential susceptibilities for four race and ethnic population groups (non-Hispanic Asian and Pacific Islander, non-Hispanic Black, Hispanic, and non-Hispanic White birthing people) by place type when compared to those of the same population group living in an advantaged incorporated place. To highlight one concerning finding that contributes to the literature on non-Hispanic Black birth health disparities, these findings suggest that the adjusted odds of a VPTB for non-Hispanic Black birthing people in unincorporated advantaged places were almost twice that of non-Hispanic Black birthing people in incorporated advantaged places. While the comparison was between two advantaged place types within the same racial and ethnic group, this finding stands in contrast to the lower odds of

a PTB for birthing people in unincorporated advantaged places when compared to incorporated advantaged places overall (before race/ethnicity group stratification).

These data describe characteristics of birth by incorporation status and found that most births in the San Joaquin Valley are in environmentally disadvantaged communities, as defined by the California EPA (OEHHA, 2019). Among those in disadvantaged unincorporated communities, at least one in five birthing people in the sample lived in census tracts with CES pollution scores at the 90th percentile or. Future studies examining perinatal outcomes in the region may benefit from further examination of the role of pollution and incorporation status for adverse birth events. Additionally, the birthing population characteristics in advantaged and disadvantaged unincorporated communities were different. In disadvantaged unincorporated communities, there was a higher percentage of births to birthing people born outside of the U.S. and with lower educational attainment compared to birthing people residing in advantaged unincorporated communities. Additionally, while Hispanic births represented the majority of births (75.6%) in disadvantaged unincorporated communities, non-Hispanic Whites represented the majority of births (47.9%) in advantaged unincorporated communities. These observations of the birthing population by place type provide additional information that can inform future infant policy, practice, and research.

Qualitative Findings

The qualitative study explored the ability to address a health threat in a disadvantaged unincorporated community, Kettleman City, as perceived by residents and non-residents. These findings suggest that residents of Kettleman City experienced political neglect during a health crisis by county actors, as structured by the current political arrangement for unincorporated communities. Political neglect was primarily experienced as county-level political inaction, including the examples given by participants, which included the delay of acknowledgment of the birth defect cluster; delay in initiating an official public health investigation; not providing translated government documents in Spanish; and not using the county's agenda-setting authority to prioritize the community's concerns about the birth defect cluster. The political inaction was perceived as a barrier to residents' ability to address the infant health threats facing their community in a timely manner. This study highlighted participants' perceptions of policy voids and political inaction due to a lack of a localized, responsive, and adequate institutional arrangement between the county and the disadvantaged unincorporated community. Further, this study suggests that neglect of Kettleman City is a form of structural racism, perpetuated by a lack of use of discretionary power by government officials to respond to community concerns and poor social conditions. This study contributes to understanding the nuances and possible shortcomings of the lack of local governance and reliance on the county to serve as the representative democracy for unincorporated community residents in the context of a health crisis.

Study Contributions

This exploratory research project provides a foundation for research on perinatal health in unincorporated communities in California. The first study examined the relationship between adverse birth outcomes by incorporation status. We observed a modest association between living in an unincorporated community and PTB in the San Joaquin Valley. The second study

provides insights into how the political arrangements of unincorporated communities may limit a community's ability to address an infant health crisis through political voids and inaction. Cummins and colleagues (2007) have emphasized that place research must not contain itself to ascribing health effects to place or people but must seek to understand them in relationship to one another. This dissertation project examined the relationship between place and people as shaped by the political arrangement of lack of incorporation status through the additional lens of economic disadvantage.

In addition, both studies suggest that different racial and ethnic birthing population groups have varied risks of experiencing or addressing an infant health threat in disadvantaged unincorporated communities. In the first study, we demonstrated that within racial and ethnic groups, there are heterogeneous risks of adverse perinatal events by unincorporated place types that can benefit from additional study. Place research has identified racialized processes such as segregation (LaVeist, 2011) and redlining (Nardone et al., 2020) as contributing to racial and ethnic perinatal health inequities. Still, research is needed to identify how infant health may be impacted by similar or different racialized processes in unincorporated communities that require intervention and disruption. The need for further research on racial and ethnic inequities is commensurate with a critical finding from the second study, that disadvantaged unincorporated community residents perceived the county government as unresponsive to the health threats facing their infants because of the community's intersectional identity as a "*poor, farmworker Latino community*." These findings suggest that structural discrimination was experienced as policy inaction in a disadvantaged unincorporated community of color. Together, these two studies highlight the need to better understand how incorporation may contribute to a population's exposure, susceptibility, or resistance to perinatal health risks and threats and contribute to racial perinatal health inequities.

Implications and Recommendations

Implications for future policy making and public health practice

This exploratory research project suggests that living in an unincorporated community can adversely impact infant health factors and health outcomes. Shortcomings were identified in the political arrangement for unincorporated communities, specifically for disadvantaged unincorporated communities. Our findings suggest that the county's role and capacity as an arm of the state is distinct from its role and capacity as a local representative government body for unincorporated community residents. The role of county government as a local representative for unincorporated communities constrains residents' ability to access health-protective resources embedded in government, such as adequate surveillance, funding, dedicated staff departments to improve community conditions, and forms of ongoing communication. Given the ongoing challenges to social conditions in disadvantaged unincorporated communities in the San Joaquin Valley (e.g., drought, contaminated water, pollution; London et al., 2018; London et al., 2021), state and county governments must address the limitations of the existing political arrangement.

Two major policy factors should be explored to improve residents' access to necessary, health protective government resources. The first policy recommendation is to assess and improve how government systems at the local, state, and federal level create barriers to government authority (e.g., emergency proclamations, agenda setting, public health investigations, land use decisions) and resources (e.g., grant and revenue funding streams, surveillance systems, infrastructure investment, and technical expertise) that unincorporated

community residents' need to prevent or address health threats. Currently, there are few policy prescriptions to ensure that unincorporated communities can access the same funding streams at the federal and state level as are typically accessible to cities and towns (London et al., 2021; Rivera, 2022). For example, while small unincorporated communities in the San Joaquin Valley like Tooleville are experiencing water wells that are going dry, state resources that could provide source water protection prioritize municipal service providers. This renders unincorporated communities that are highly impacted by drought ineligible to access these health protective resources (Dobbins, 2020). While the findings from this project did not identify any specific funding stream as inaccessible, participants identified the lack of county administrative infrastructure to secure funds. Therefore, an aspect of this recommendation includes evaluating how current state and federal funding sources can be made accessible through practices and policies within institutional regulations, documents, and processes at all government levels that also consider the administrative burden on counties. Increasing funding streams to counties and unincorporated communities that will improve community infrastructure, address health crises, and address environmental hazards in unincorporated communities must be made available.

A second recommendation is to instill policy mechanisms that improve residents' access to government resources by filling the policy void that leaves residents vulnerable to neglect. Given the distinct role of the county as a local representative body for unincorporated communities, state policymakers should create, evaluate, and implement policy incentives or prescriptions that secure more political capital and resources for unincorporated community residents and require and support county government responsiveness as a local representative body. One avenue of exploration is to identify current forms of unincorporated community governance, such as special districts and municipal area councils in California or other states such as Nevada, to understand current opportunities for better governance or improved public participation that can provide greater community agency over community social conditions and response to health threats. Furthermore, policy prescriptions should be identified that improve residents' access to health-protective resources embedded in local government and its authority that are currently not prescribed in policy or practiced. This should include funding support for county administrative functions that support unincorporated communities.

From a legal perspective, policymakers and legal advocates should consider court challenges to applications of *Reynolds v. Sims* (1964) that were meant to set a precedent of "one person, one vote" but instead dilute the vote for unincorporated community residents (Briffault, 1993). For example, *Avery v. Midland County* (1968) has held that each citizen in a county should have an equal vote. However, in application, this ruling disenfranchises unincorporated area residents by elevating the political capital of incorporated city or town residents (Anderson, 2009). For example, incorporated community residents, which typically outnumber unincorporated community residents of the same county, can vote for a tax to be implemented in unincorporated areas that they will never have to pay. As such, unincorporated communities' votes are diluted (Mayo, 2016). Identifying judicial or policy prescriptions to address the practical disenfranchisement of unincorporated community residents may increase their political power and ability to hold county government leaders accountable.

From a policy and practice perspective, one thread across resident participant interviews in the second study was the desire for better and more productive communication and responsiveness from a county government representative during a health crisis. County and state governments should evaluate their current communication systems and emergency management plans to assess if there are areas to improve capacity, efficiency, and responsiveness to

unincorporated communities. Additionally, one of the perceived paradoxes in this study is that although public health departments are a county population's sources of health support, the responsibilities to and for unincorporated communities still need to be clarified to residents. Greater exploration of policy and practices that can support unincorporated communities through county public health departments locally may help identify and address community needs that have been overlooked. One suggestion is that county public health departments provide disaggregated surveillance data for the infant health of unincorporated communities as part of their current efforts. Any assessment or partnership with county emergency management and public health departments should be done with consideration and in partnership with unincorporated communities.

Implications for Future Research

The elevated odds of PTB among birthing people residing in unincorporated communities raise the possibility that living in a community lacking incorporation status may pose perinatal health risks. Moreover, in the three models that compared living in a disadvantaged unincorporated place to living in advantaged unincorporated, advantaged, and disadvantaged incorporated places, there were also slightly elevated odds of a PTB. Further research should be undertaken to confirm the relationship between incorporation status and PTB by using different multiple and mixed methods while examining different regions apart from the San Joaquin Valley to identify if risks by incorporation status are observed elsewhere. Moreover, in this study, we examined both incorporation status and economic (dis)advantage. Future research should explore additional social and political factors (e.g., citing of dirty polluting industries, identifying segregation patterns, the existence of a particular district, or other community participatory avenues), which may be pathways to PTB and increase or decrease the impact that unincorporated status may have on maternal and infant health risks.

Additionally, as risk of adverse perinatal health outcomes varied within racial and ethnic groups, future studies should consider how different population groups experience living in a(n) (dis)advantaged unincorporated community. The qualitative findings of this project indicate that residents' experience as a "poor Hispanic farmworker" unincorporated community marginalizes residents and constrains their ability to address health threats. While there have been studies exploring mechanisms of residential segregation and neighborhood disadvantage in incorporated places and their relationship to health (Kane et al., 2017; Kane et al., 2018; Lu et al., 2010; Messer et al., 2006a, 2006b), there are few studies examining how segregation patterns associated with lack of incorporation status relate to infant health outcomes. There is evidence that the processes that produce and maintain residential segregation and neighborhood disadvantage operate and have different characteristics in unincorporated places compared to cities and towns (Lichter et al., 2015; Molina, 2014; Parnell et al., 2004). For example, racial segregation in incorporated places may be associated with high density, while density may not be a factor in unincorporated places. Furthermore, racial segregation in unincorporated places may best be identified by identifying spatial inequities compared to adjacent city areas or other unincorporated community settlements in the same county. Understanding how the social experiences of residents of unincorporated places vary by racial and ethnic identities can further inform how infant health inequities are produced in unincorporated communities.

It would be instructive to conduct further comparative research on unincorporated communities to identify if health inequities exist between unincorporated advantaged and disadvantaged places. This study included observations that living in an advantaged

unincorporated community may be a protective factor for some birthing population groups, except when stratified by race and ethnicity. Findings indicate elevated odds of adverse birth events for non-Hispanic Black birthing people in advantaged unincorporated communities. It would be instructive to conduct qualitative comparative research on unincorporated communities to identify how health inequities are socially constructed and experienced by examining and comparing advantaged and disadvantaged unincorporated places. This should include an examination of how advantaged unincorporated community residents are either marginalized or facilitated by county government to address community health threats given that they share the same political arrangement that disenfranchises disadvantaged unincorporated communities.

Lastly, this project's quantitative study was strengthened by using multiple geographic and population datasets for identifying disadvantaged incorporated and unincorporated communities. The use of CRC shapefiles to identify births was critical to the study and allowed examination of data that would have otherwise been omitted from the sample. Identifying how to scale the methods used by CRC beyond the San Joaquin Valley to other parts of California and the country can improve and provide more equitable health research for these communities. This approach will require funding and partnerships with local and state government agencies and community organizations that can provide insight into communities currently unaccounted for in Census and state maps (Flegal et al., 2013).

Conclusion

This dissertation provides a preliminary exploration of how political arrangements matter for perinatal health in unincorporated communities in the San Joaquin Valley. Using an exploratory approach, we identified a potential vulnerability for PTB to birthing populations in unincorporated communities. We also learned from personal recollections and perceptions of Kettleman City residents' lack of incorporation status could limit a community's ability to address infant health threats.

While this project offered an analysis of unincorporated communities between 2006-2015, the precarious political arrangement of unincorporated communities and the risks of adverse perinatal health events observed in our study have ramifications for the future of infant health in the San Joaquin Valley. Looking ahead, efforts to reduce health inequities in the region will require building communities' political power to change community conditions and grant greater access to health protective resources within government at all political levels. Importantly, disadvantaged unincorporated communities of color, which have been historically excluded from full political participation because they lack incorporation status must be centered in efforts to reimagine government systems that support and uplift the people's quality of life regardless of who or where they are.

Public health research in unincorporated communities can build on previous insights from researchers in other fields and social justice work. The fields of environmental sciences, geography, law, and urban planning have exposed social conditions in disadvantaged unincorporated communities as having some of the nation's worst environmental and infrastructure social conditions (Anderson, 2007, 2009; Bullard, 2001; Parnell, 2004; Purifoy, 2021; Rivera, 2022). Environmental justice and community advocates have shown the need for increased water access to meet the growing water disparities that threaten the existence of historically unincorporated communities of color (London et al., 2021). Additionally, a rich history of examining colonias across the U.S.-Mexico border provides a research base to

understand how unincorporated colonias are disenfranchised, understood, and are robust communities of value (Donelson & Esparza, 2016; Durst, 2018; Rivera, 2014; Salinas et al., 2015). This project built on these bodies of literature to foster public health research that examines unincorporated communities and the political determinants that shaped them.

We set out to learn from the situational knowledge of those living in disadvantaged unincorporated communities to reimagine our democracy as inclusive and health protective. As public health researchers advancing their understanding of how political determinants can support population health (Dawes, 2020; Dawes et al., 2022; Gemmill, et al., 2019; Rodriguez et al., 2022), this project can motivate future work on identifying how governance structures and democratic agency for unincorporated communities can be improved in ways that foster more excellent health.

Appendix

Interview Guides

Resident Participant Interview Guide

Statement of Purpose

Thank you for giving your consent to participate in this interview. The focus of this study is understanding how lack of incorporation status (e.g., not having local government, such as a mayor or city council) shapes Kettleman City residents' ability to address perceived health risks to the community. Specifically, I would like to hear your perspective about the community's experience during two different health crises – Covid-19 pandemic and the birth defect health crisis in 2007-2009. This includes the events that followed the birth defect crisis to better understand residents' concerns, beliefs, and actions surrounding the event. Also, I would like to hear about your personal experience and thoughts on residents' ability to address concerns over the Chem Waste expansion permit application process between 2007-2015. The Chem Waste facility was publicly identified in the news media and public records as a community health risk concern. Your input will provide valuable insight into the community's experience. The length of this interview will be approximately sixty minutes.

Interview Questions

Background information:

Length of Time Lived/Worked in Kettleman City:

Gender:

Race/Ethnicity:

Occupation:

Age:

Number of household members and their relationship to you:

Kettleman City

Could you tell me about your experience living in Kettleman City? Why did you move here?
How would you describe what it is like living in Kettleman City?

What would you say are some of the best things about living in Kettleman City?

What are some of the greatest challenges about living here?

General Health

Would you consider Kettleman City a place that helps you and your family live a healthy life?
Why or why not?

What do you think would make Kettleman City a healthier place for you and your family?

Covid-19 Pandemic

Could you tell me what have been some of the ways that your life has changed in Kettleman City since the onset of Covid-19?

What are some of the actions you have taken to address this health crisis? What are some of the ways that local leaders/government have addressed the health crisis?

What does the community need to be able to navigate the current Covid-19 crisis? Who do you think should be helping and how?

Birth Defect Crisis

If you can think back to the period between 2007-2009, can you share with me when and how you learned that there were infants who were born with health problems? (Who you heard it from? What stories did residents or coworkers share with you about what was happening and why it was happening?)

When residents spoke about what was happening to the children born with health problems, what or who did they believe was responsible for what was happening? What did you think was happening?

What did you hear or see was the response from public health officials? County governments? (Who responded and how did they respond to residents' concerns? Public Health? Waste Management company? EPA? Others?)

Did you or other residents you knew address any health concerns about risks to community health and if so in what ways did you or they try to address these issues? With nonprofit agencies? With public agencies? With waste management?

A. Who was Involved?

B. What did your friends, family, neighbors say about what was happening? Can you tell me what steps you saw or heard of what the residents took to try to bring attention to the issue?

Who outside of the community was trying to help residents address the infant health crisis? Agencies? Government officials? Advocates? Kings County residents? What did you think of their response?

What do you think the residents needed during that time to address their health concerns? Who or what could have helped?

Chem Waste

It was reported through the Hanford Sentinel, Mother Jones, and local news stations that some residents and parents of the children who were born or passed away with birth defects were concerned that Chem Waste may have been partially responsible for what was happening to the children and did not want to have their expansion permit approved between 2007-2015. Were you or people you knew concerned about Chem Waste or the expansion? Why do you think they were concerned?

Were there ways that public officials or the waste management company provided avenues for community residents to share their concerns?

What were some of the avenues people could take to address their concerns? Politically? How were those concerns received?

What were some of the barriers that you perceived kept people from advocating for their concerns? Barriers to being heard or helped?

Over time, how did you or the community in general feel about the county's response? How was that expressed?

From your experience, what do you believe could have been done differently to address this issue? (Community, organizations, government, company)

Political Capital and Incorporation Status

Can you tell me a little bit about how you think the events would have been different if you lived in a city like Avenal or Hanford? Why do you think it would be different or the same?

Who has the most political influence to make Kettleman City a healthier place for infants and their families?

Are there things that could be changed to give Kettleman City residents more power in shaping what happens in or near their community?

How do you think this community would change if it became a city and was not unincorporated? Is that something you would want or not?

Final Thoughts

Is there anything else you would like to share with me that we have not covered?

The Legal Reproduction of Infant Health Inequities in Unincorporated Communities Study
University of California, Berkeley 2020-08-13556

Non-Resident Participant Interview Guide

Statement of Purpose

The focus of this study is understanding how lack of incorporation status (e.g., not having local government, such as a mayor or city council) shapes Kettleman City residents' ability to address any perceived health risks to the community. This includes understanding how the experience and perception of a health crisis differs for people in Kings County, who do not live in Kettleman City. I want to ask you questions about two health crises- the Covid- 19 pandemic and the Kettleman City Birth Defect Crisis in 2007-2009. Specifically, I would like to hear from your perspective as someone who did not live in Kettleman City during the birth defect health crisis in 2007-2009- how you perceived the health crisis and Kettleman City resident's efforts to address perceived health risks. This includes hearing about your perceptions and actions towards residents 'ability to address concerns over the Chem Waste expansion permit application process between 2007-2015. The Chem Waste facility was publicly identified in the news media and public records as a community health risk concern. Your input will provide valuable insight into this experience.

The length of this interview will be approximately sixty minutes.

Interview Questions

Background information:

Length of Time Lived/Worked in/with Kings County:

Gender:

Race/Ethnicity:

Occupation:

City/Unincorporated Area where you lived during 2006-2015:

Age:

Relationship to Kettleman City residents:

Kettleman City

Could you tell me about your experience living in Kings County and/or working in or with Kings County residents? How would you describe your interactions, if any with the Kettleman City community?

How would you describe what it is like living in Kettleman City from what you have seen, heard, or observed?

General Health

Would you consider Kettleman City a place that helps families live a healthy life? Why or why not?

Would you consider Kings County a place that helps families live a healthy life? Why or why not?

What do you think would make Kettleman City a healthier place for families? What do you think would make Kings County a healthier place for families?

Covid-19 Pandemic

Could you tell me what have been some of the ways that your life has changed in Kettleman City since the onset of Covid-19?

What are some actions you have taken to address this health crisis? What are some of the ways that local leaders/government have addressed the health crisis?

What does the community need to be able to navigate the current Covid-19 crisis? Who do you think should be helping and how?

Birth Defect Crisis

If you can think back to the period between 2007-2009, can you share with me when and how you began to learn that there were infants that were born with health problems in Kettleman City? (Who did you hear it from? What stories did residents or coworkers share with you about what was happening and why it was happening?

If you ever discussed the events of the birth defect cluster in Kettleman City, what were people's perceptions about what was happening to Kettleman City children who were born with health problems? What or who did the people you spoke with believe was responsible for what was happening? What did you think was happening?

What did you hear or see was the response from public health officials? County government? (Who responded and how did they respond to residents' concerns? Public Health? Waste Management company? EPA? Others?

Can you share with me what steps you saw or heard regarding Kettleman City residents' response to the health crisis? Did you hear them try to bring attention to the issue? How do you think the community's concerns were received?

Did you or others you know address any of the community's concerns? In what ways did you or those you knew try to address these issues? With nonprofit agencies? With public agencies like planning? With waste management? Who was Involved?

What did your friends, family, neighbors say about what was happening in Kettleman City? Were you concerned that you or your family might be at risk for adverse health outcomes because of what happened in Kettleman City? Why or why not?

Did you know of anyone outside of the community that was trying to help Kettleman City residents address the infant health crisis? Agencies? Government officials? Advocates? Kings County residents? What did you think of their response?

What do you think the residents needed during that time to address their health concerns? Who or what could have helped?

Chem Waste

It was reported through the Hanford Sentinel, Mother Jones, and local news stations that some residents and parents of the children who were born or passed away with birth defects were concerned about Chem Waste being partially responsible for what was happening to Kettleman City infants. Furthermore, it was reported that some Kettleman City residents did not want to have Chem Waste's expansion permit approved between 2007-2015. Were you or people you knew concerned about the Chem Waste expansion? Why or why not?

Did you hear of any ways that county, or state public officials, or the waste management company provided avenues for community residents to share their concerns over the birth defects or the Chem Waste expansion? Could you share some details of those efforts?

Can you share what possible avenues you can think of that residents could have used to get their concerns over the birth defects addressed? Politically?

What were some of the barriers that you perceived might have kept Kettleman City from getting their issues addressed? Barriers to being heard or helped?

From your experience, what do you believe could have been done differently to address this issue? (Community, organizations, government, company)

Political Capital and Incorporation Status

Can you tell me a little bit about how you think the events would have been different if the birth defect cluster had happened in the city where you live? Why do you think it would be different or the same?

Who has the most political influence to make Kettleman City a healthier place for infants and their families?

Are there things that could be changed to give Kettleman City residents more power in shaping what happens in or near their community?

How do you think this community would change if it became a city and was not unincorporated?
Is that something you would want or not?

Final Thoughts

Is there anything else you would like to share with me that we have not covered?

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