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ANOMIE IN THE OIL PATCH? AN EXAMINATION OF DURKHEIM'S ANOMIE
THEORY THROUGH A CASE STUDY OF THE BAKKEN REGION

by

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A Dissertation

Submitted to the Graduate Faculty

of the

University of North Dakota

In partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

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This dissertation, submitted by F. Matt Jones in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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F. Matt Jones
December, 2016

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Dedication

For Mabel and HB...I cannot wait to see what comes next!

ABSTRACT

Emile Durkheim serves as one of the seminal contributors to the field of sociology; his contributions to criminology are numerous as well. Many authors consider Durkheim's concept of anomie to be his most important contribution to the field of criminology (Lunden, 1972). Durkheim's anomie theory has been subject to extensive empirical examination, these efforts have resulted in disparate findings. Graeff and Mehlkop (2007) insist this lack of coherence is due to improper operationalization of Durkheim's anomie by some researchers. In particular, it is the utilization of cross sectional data in these previous studies which contributes to these disparate results. The current endeavor utilizes an opportunity for a unique natural experiment provided by the Bakken region in western North Dakota to test the empirical status of Durkheim's anomie theory.

The recent increase in oil production in western North Dakota has garnered a great deal of attention on both a national and international level. This most recent bout of drilling in the Bakken commenced in 2005, and began what Seifert (2009, p. 2) maintains is a "period of unprecedented growth in the oil industry". The breakneck pace at which the oil industry has expanded has led to "unprecedented growth" in multiple areas besides oil production, including population and economic prosperity for the region (Hodur & Bangsund, 2015). Disruptions associated with this expansion have drastically altered the realities for many communities in western North Dakota (Fernando & Cooley, 2015). This work presents an empirical assessment of Durkheim's theory with the Bakken region serving as a crucial test case.

Both quantitative trends in violent crime, suicide and worker deaths and qualitative accounts from Bakken residents offer support for theoretical predictions extrapolated from Durkheim's theory, and by extension his theory of anomie.

CHAPTER I

INTRODUCTION

Emile Durkheim serves as one of the seminal contributors to the field of sociology; his contributions to criminology are numerous as well. Many authors consider Durkheim's concept of anomie to be his most important contribution to the field of criminology (Lunden, 1972). The concept, in one form or another, is reflected in not only twentieth-century anomie theories but also other theories in the field (e.g. social disorganization and social control). Durkheim introduced the term "anomie" in *The Division of Labor in Society* ([1893]1984) and soon after used it extensively in *Suicide* ([1897]1951). Though Durkheim portrays anomie in multiple lights, it is deregulation which serves as a constant feature of anomie in his writings. More specifically, it is the lack, weakening or lagging of regulatory mechanisms in societies, due to some abrupt social change, which result in episodes of anomie.

While Durkheim's anomie theory has been subject to extensive empirical examination, these efforts have resulted in disparate findings. Graeff and Mehlkop (2007) insist this lack of coherence is due to improper operationalization of Durkheim's anomie by some researchers. In particular, it is the utilization of cross sectional data in these previous studies which contributes to these disparate results. According to Graeff and Mehlkop (p. 523), this approach is erroneous because it does not allow for the "anomic potential" of individual societies to be explored.

In his analysis of Durkheim's theory of homicide, DiCristina (2004) contends "distortions" and simplistic interpretations of Durkheim's theory are common in previous empirical assessments. According to DiCristina, the "fragmented nature" of Durkheim's theoretical exposition may be to blame for such flawed interpretations by previous researchers. Durkheim's is a "two-part theory involving both the level of societal development and the rate of social change, the former more significant than the latter" (p. 59). DiCristina maintains a trend arose in the empirical research which assumed a synchronicity regarding the effects of the level of societal development (modernization) and rate of social change (possible anomie) concerning homicide.¹ Durkheim argued that these two variables effected homicide rates; however, he maintained a negative relationship existed between level of societal development and homicide, while a positive relationship existed between rate of social change (i.e. anomie) and homicide. This nuance in Durkheim's theory appears to have been lost on many researchers in their tests of Durkheim's theory, and is one that plays a critical role in the current undertaking.

The recent increase in oil production in western North Dakota has garnered a great deal of attention on both a national and international level. However, the production of oil is not the only thing drawing attention to the area. Concerns over a range of social ills have accompanied the oil boom. This most recent bout of drilling in the Bakken commenced in 2005, and began what Seifert (2009, p. 2) maintains is a "period of unprecedented growth in the oil industry". According to statistics from the North Dakota Department of Mineral Resource (NDDMR), the Bakken region produced just over one million barrels of oil during the year 2005; as of June 2014 the Bakken was producing over one million barrels daily

¹ When Durkheim speaks of homicide in this instance, he is referencing unpremeditated murder (DiCristina, 2004).

(Dalrymple, June 17, 2014). The breakneck pace at which the oil industry has expanded has led to “unprecedented growth” in multiple areas besides oil production, including population and economic prosperity for the region (Hodur & Bangsund, 2015). This overwhelming expansion has also transformed the realities of many communities in western North Dakota (Fernando & Cooley, 2015). The Bakken region appears to provide an ideal case for a test of Durkheim’s anomie theory. This work presents an empirical assessment of Durkheim’s theory with the Bakken region serving as a crucial test case. This work looks to accomplish this task in the following manner.

The ensuing chapter offers a synopsis of Durkheim’s anomie theory as presented in *The Division of Labor in Society* ([1893] 1984), *Suicide* ([1897] 1951) and the “Preface to the Second Edition” of *The Division of Labor* ([1902] 1984). Following this synopsis, Durkheim’s influence on twentieth-century anomie theories is discussed. This discussion includes a comparison of Durkheim’s anomie theory with Merton’s (1938) and Messner and Rosenfeld’s (1993) anomie theories. The chapter concludes with a discussion supporting Durkheim’s theory as one that warrants as much (if not more) attention than Merton’s or Messner and Rosenfeld’s.

The subsequent two chapters offer reviews of topical literature. The third chapter is concerned with previous empirical evaluations of Durkheim’s anomie theory. Shortcomings and strengths of the studies drawn for this review are analyzed, specifically regarding issues concerning the operationalization of anomie. The fourth chapter reviews literature pertaining to boomtowns. A thorough review of earlier sociological assessments of boomtowns is accomplished using Finsterbusch and Freudenburg’s (2002) four stages of boomtown research. A fifth stage of boomtown research is proposed in this chapter to discuss research

efforts that have proliferated since the most recent energy boom which coincides with the Bakken oil boom.

Following the review of literature, the methods involved for this empirical assessment of Durkheim's anomie theory are presented in the fifth chapter. The chapter begins with a presentation of the research questions driving the project followed by a discussion of the case study and mixed methods approach, as well as their appropriateness for the task at hand. Theoretical predictions extrapolated from Durkheim's anomie theory are presented in this chapter as well. The practice of pattern matching, available data and the study's unit of analysis are then discussed before variables of interest are defined, and their sources specified.

The sixth chapter presents quantitative findings regarding indicators of rapid social and economic change along with coinciding rates of violent crime, suicide and oil worker deaths in the Bakken region during the years 1999-2014. Rates of violent crime and suicide from North Dakota absent the Bakken region and the nearby state of Iowa are used as points of comparison. Oil and gas worker deaths for the region are compared to those in Texas, the only state that produces more oil and whose industry is more established. The chapter concludes with a summary of pertinent findings.

Qualitative findings are presented in the seventh chapter. These data come from documentary evidence such as media accounts and qualitative studies concerning the Bakken region. Publicly available interviews and photographs also serve as sources of data. The use of qualitative information serves multiple functions in the current endeavor. First, it provides a deeper level of understanding and richer description of the variables of interest (violent

crime, rapid social change, unsafe working conditions, etc.); secondly, it serves to either corroborate or contradict the “official” quantitative data examined in Chapter six.

The final chapter discusses the empirical status of Durkheim’s anomie theory in light of the findings from the Bakken region. The status of each individual theoretical prediction is assessed and discussed, which includes both support and inconsistencies from the data. The chapter concludes with a brief discussion of alternative explanations for findings, along with a presentation of the research limitations.

CHAPTER II

DURKHEIM'S ANOMIE THEORY

This chapter serves as a synopsis of Durkheim's theory of anomie as presented in *The Division of Labor in Society* ([1893] 1984) and *Suicide* ([1897] 1951) as well as his influence on future anomie theorists. The opening section discusses Durkheim's theory of anomie as presented in *Book III* of *The Division of Labor*, the next section presents anomie as discussed in *Suicide*; following that, Durkheim's comments on anomie from the preface of the second edition of *The Division of Labor* are presented for consideration. After this discussion of Durkheim's anomie theory, the twentieth-century anomie theories of Merton (1938) as well as Messner and Rosenfeld ([1993] 2007) are examined with regard to Durkheim's influence. Finally, the applicability of Durkheim's anomie to the Bakken region is considered.

Anomie in *The Division of Labor in Society*

Before Durkheim's theory of anomie can be tested, it is important to address the differing uses of the term anomie by Durkheim himself. Durkheim introduced the notion of anomie in *The Division of Labor* ([1893]1984). Durkheim argues as society evolves the collective conscience² weakens due to the development of differing sentiments among

² Durkheim defines the collective conscience in *The Division of Labor* as the "totality of beliefs and sentiments common to the average members of a society" ([1893]1984, pp. 38-39). This serves to produce feelings of solidarity among group members. It is important to note, Durkheim insisted each

groups; these differing sentiments result from the increasing specialization of group members.³ The division of labor organizes the evolving specializations and gradually replaces the shared sentiments of “simpler societies” as the primary source of solidarity.

According to Durkheim, at first glance the critical function of the division of labor appears to be to improve “both productive capacity and skill of the workman” (p. 12); however, this inference is both shortsighted and superficial. The division of labor’s “true function is to create between two or more people a feeling of solidarity” (p. 17). In fact, Durkheim maintains, the effect the division of labor may have for economic concerns pale in comparison to the “moral effect” it has on society. The division of labor results in complimentary differences between groups producing solidarity through mutual dependence. By organizing differing specializations into a state of mutual dependence, “different occupations can co-exist without being forced into a position where they harm one another, for they are pursuing different objectives” (p. 209), and “each one of them can therefore reach his goal without preventing others from reaching theirs” (p. 209). In this way, the division of labor’s most “notable effect” is not an increase in productivity, but its ability to link different societal groups together (p. 21). It is this effect that Durkheim views as the ultimate role of the division of labor, i.e. solidarity not productivity. The influence of the division of labor is far reaching outside of “economic interests, it constitutes the establishment of a social and moral order sui generis” (p. 21).

society produces a collective conscience “sui generis” (of its kind), meaning each society produces its own distinct collective conscience.

³According to Durkheim, “the variety of environments in which individuals are placed gives rise among them to different aptitudes that determine their specialization” ([1893]1984, p. 206).

Durkheim believes what the division of labor produces are “functions, that is, definite ways of acting that are repeated identically in given circumstances” producing the scripts which regulate social interactions (p.302). However, he also discusses circumstances in which the division of labor does not produce solidarity because it emerges in an “abnormal form”, one of which is the anomic division of labor. If this is the case, “the division of labor does not produce solidarity because the relations between the organs are not regulated; ...they are in a state of anomie” (p. 304). It is during periods of anomie that “incoherency”, “disorder” and “disintegration” are likely to occur. When the division of labor is anomic, the scripts that guide interactions have lost their regulatory power, often times due to some lag between the collective conscience and new conditions caused by some rapid social change.

While any social arena may face episodes of anomie, Durkheim believed the sectors of business and industry were especially susceptible to this phenomenon. An anomic division of labor may arise when rapid industrialization occurs and with it, new conditions of economic life that “naturally require a new organization” (p. 306). He continues, “because these transformations have been accomplished with extreme rapidity the conflicting interests have not had time to strike an equilibrium” (p. 306). The scripts provided by the division of labor are produced only after ample repetition. Where such repetition is absent, it (the division of labor) can only “unite individuals for a brief space of time ... it could not give rise to any regulatory process” (p. 302). This lagging behind of regulatory practices and institutions is a principal source of anomie affirmed by Durkheim.

Another source of anomie addressed is the rapid expansion of a market. In his discussion concerning the progression of markets, Durkheim argued that when a branch of industry fails to coordinate its level of production with the corresponding level of

consumption, “this lack of regulation does not allow the functions to perform regularly and harmoniously” (p. 303). Following this logic, an immense and unpredictable market, such as an international market, is “so to speak, unlimited. Consequently, production lacks any check or regulation” (p. 305). In such a market, production “can only proceed at random” lacking any governance (p. 305); the lack of regulation in such a market represents another dimension of anomie.

While there are multiple sources of an anomic division of labor, Durkheim’s focal point regarding his theory of anomie in *The Division of Labor* centers on the regulation of interactions between different groups or “organs” that constitute society. By organizing specializations, the division of labor produces scripts that regulate the interactions within a society. When these scripts lose their regulatory authority, often times due to some cultural lag between the collective conscience and new social conditions, the interactions between different societal groups are inclined to fall into a state of deregulation that is anomie. This anomic state is likely to remain until new regulatory mechanisms are established.

Anomie in *Suicide*

In *Suicide*, Durkheim ([1897]1951) again utilizes the theory of anomie as an explanation for societal unrest that contributes to increased social disorder. In *The Division of Labor* anomie is described as a lack of regulation involving the interactions of different “organs” of society; however, in *Suicide* anomie results from the inability of a society to regulate the desires of its members. While deregulation remains the crux of anomie in both works, *what* is being regulated constitutes the major difference between these uses of the

term. To understand why it is critical for a larger “moral force” to regulate the desires of a populace, a brief discussion of Durkheim’s views concerning human nature is necessary.

In a word, Durkheim’s conception of human nature may be considered somewhat grim. According to the assessment conveyed in *Suicide*, Durkheim believes human desire is an “insatiable and bottomless pit” that “aspires beyond assignable limits and sets unattainable goals” ([1897]1951, p. 247-248). Therefore, human nature needs to be regulated by some force “superior” and “external” to the individual. The force to which Durkheim is alluding is society. According to Durkheim, human nature will lead only to “torment” and disappointment if left to its own inclination. Even when a goal is achieved, this satisfaction only “stimulates instead of filling needs”, causing any feelings of satisfaction or achievement to contribute to the “inextinguishable thirst” that is a “constantly renewed torture” (p. 248).

It is for these reasons that we require some external force to place a lid on the unattainable desires to which we are naturally inclined, according to Durkheim. As briefly mentioned earlier, “society can play this moderating role; for it is the only moral power superior to the individual, the authority of which he accepts” (p. 249). When society is able to regulate its members, “an end goal is set to the passions” (p. 250). Society can serve to ensure that man’s “needs are sufficiently proportioned to his means” (p. 246), by providing limits to desires. Though not “legally formulated”, society exerts its “collective authority”, an authority that “fixes with relative precision the maximum degree of ease of living to which each social class may legitimately aspire” and therefore places a practical limit on the aspirations of societal members (p. 249). This is not to say that Durkheim supported a caste system wherein members of different classes were disallowed to improve their lot in life; rather, this restraint would allow for men to be “content with their lot while stimulating them

moderately to improve it” (p. 250). From this restraint and gratification a culture of “calm, active happiness, the pleasure in existing and living which characterizes health for societies as well as for individuals” (p. 250) would result. Durkheim believed that with proper regulation society is able to compel people to focus on what they have, rather than allowing their infinite desires to pine for what they do not.

As Durkheim frequently noted, there are “disturbances of the collective order” (e.g. rapid economic change) that result in periods of decreased regulation in society and, thus, heightened states of anomie (p. 246). According to Durkheim, during these times society suffers from a multitude of social ills and “men are more inclined to self-destruction” (p. 246). Disruptions of the collective order may occur anytime “society is disturbed by some painful crisis or by beneficent but abrupt transition” (p. 252). When such an unanticipated transformation occurs in society, regulations often lag behind; regulations are rendered ineffective not only in guiding social interactions but also in placing limits on the goals and desires of societal members. While such disruptions can arise from multiple causes, in *Suicide* Durkheim again targets economic change as a crucial catalyst of anomie.

Though Durkheim briefly addresses the role of “economic disasters” as a source of anomie, he devotes more attention to the effects of “abrupt growth of power and wealth” bred by rapid economic growth (p.253). Durkheim points to the development of industry and the goal of “achieving industrial prosperity” as a source of deregulation (p. 255). This deregulation serves to enhance a reciprocal relationship involving increased rates of prosperity, market expansion, and human desires which heighten anomic tendencies in the economic sphere. It also forces other institutions that previously had some regulatory influence into positions of subservience to the pursuit of larger and richer markets. Where

religion and government used to serve as regulating forces, Durkheim holds that they now serve only as “tools and servants” of industry.⁴ Under these conditions, “all regulation is lacking ...the limits are unknown between the possible and impossible, what is just and what is unjust” (p. 253). Durkheim believed these conditions were “chronic” in the “sphere of trade and industry” in late-nineteenth century France (p. 254). Until society is able to restore some restraint to human desires, anomie will persist. However, given time Durkheim believed such regulation should eventually develop.

When anomie proves chronic, unlimited desires become so prominent that “society has grown to accept them and is accustomed to think them normal” (p. 257). For this reason, society assimilates the anomic tendencies of industry into other areas of social life (p. 256). This expansion to other areas of social life slows the development of future regulatory efforts. In fact, Durkheim suggests any application of restraint “seems like some sort of sacrilege” (p.255). Due to the infiltration of the modern economy into other parts of social life, “the doctrine of the most ruthless and swift progress has become an article of faith” not only for trade and industry but for other spheres of social life as well (p. 257).

While Durkheim devotes the majority of his attention to anomie’s effect on suicide rates, he briefly, though directly, addresses the possible effects of anomie on homicide. Durkheim believes that in individuals anomie produces “a state of exasperation and irritated weariness” (p. 357). Not only does anomie affect the individual by engendering these feelings, these feelings “may turn against the person himself or another according to

⁴ A similar sentiment is expressed by Messner and Rosenfeld in their anomie theory. Messner and Rosenfeld (2007) believe all institutions outside the economy have been forced into a role of servitude.

circumstances; in the first case we have suicide, in the second, homicide” (p. 357). Durkheim concludes, the same anomic conditions that increase the rate of suicide also increase the rates of homicide, thus anomie is viewed as one cause of homicide.

Anomie in the Preface to the Second edition of *The Division of Labor in Society*

In the preface to the second edition of *The Division of Labor in Society* ([1902]1984), Durkheim’s attention remains focused on the chronic state of anomie he believes to exist in the economic sphere of late-nineteenth century societies. Durkheim also devotes extensive consideration to the institution he proposes will eventually develop and serve to regulate the sphere of trade and industry. This institution, which Durkheim calls “professional groups” or “corporations,” is “constituted by all those working in the same industry, assembled together and organized in a single body” (p. xxxv).

Nearly a decade after the publication of the first edition of *The Division of Labor*, Durkheim held that anomic conditions continued to plague society. He states it is to this “chronic state” of anomie that “must be attributed the continually recurring conflicts and disorders of every kind of which the economic world affords so sorry a spectacle” (p. xxxii). This chronic state of anomie prohibited the creation of a system of “professional ethics” and because of this the pursuit of “success” forced many collective sentiments into subjugation; actions once considered “blameworthy” are pardoned in the name of achievement (p. xxxii). The “morality” that results from such a cultural practice “cannot constitute any kind of discipline. The upshot is that the entire sphere of collective life is for the most part removed from the moderating action of any rules” (p. xxxii).

According to Durkheim, with more and more of the populace working in an “industrial and commercial environment” lacking in ethics, many people are spending significant periods of their lives “without any moral framework” (p. xxxiv). Because of this, the anomic tendencies so prevalent in economic life cannot help but “spill over beyond the economic sphere, bringing with a decline in public morality” (p. xxxiv). Though the sphere of trade and industry remain in a state of anomie, Durkheim reminds the reader that this chronic state should not be blamed on the division of labor, a claim that has been unfairly aimed against it (p. xxxiv). This “sorry” state is “abnormal” and, most likely, temporary (although not brief). It is Durkheim’s solution to this abnormal division of labor to which we now turn our attention.

To counterbalance the state of anomie in the economic sphere, some regulatory force must evolve. For Durkheim, “professional groups” can fulfill this role, having done so in the past. Professional groups are able to produce “among workers a more invigorated feeling of their common solidarity” (p. xxxix). These groups serve to address the major forms of anomie, the lagging scripts and unregulated desires of societal members, for which larger “political society” has proven itself ineffective as a regulatory mechanism. These groups are able to fulfill this requirement because they are more familiar with the individual specializations than is the sphere of government.

Because professional groups are assembled from members of the same specialization, they possess a degree of understanding that better qualifies them as their own regulatory body (p. xxxv). According to Durkheim, historically this was the role professional groups fulfilled before their original collapse (p. xli). Thus, Durkheim believes professional groups, when properly operating, serve as an intermediary between the larger political society and

individuals. These two institutions should remain in close contact with each other but need to “remain distinct and autonomous; each has functions it alone can perform” (p. li).

Therefore, professional groups, as conceived by Durkheim, are not a new institution. Durkheim discusses the role of professional groups throughout history, and notes that these groups are often viewed simply as “a utilitarian body whose entire effect would be to improve the way in which we organize our economic interests” (p. lv). Durkheim believes this to be a narrow view of corporations which greatly limits their potential contribution to society. It was “towards the end of their former existence, intent above all on maintaining or increasing their privileges and monopolies”, that professional groups lacked any regulatory capacity (p.xxxix). It was this tendency which lead to their demise and delayed their future formation and utilization.

When operating correctly, professional groups are able to address the lagging scripts and unregulated desires that are the source of anomie. By supplying “precise” duties and expectations for all members of different specializations, professional groups are able to re-establish regulatory scripts that once served to guide social interactions. In this manner, not only are scripts, and therefore regulation, established between owners and workers but between the individual workers as well (p. xli). Though Durkheim never discussed the possibility of such scripts limiting desires of societal members, this logic could be extended to address this matter.

Another source of solidarity provided by professional groups flows from the group’s ability to limit “individual egoism” (p. xxxix). By relegating individual goals to larger group goals, professional groups are able to instill in members “some spirit of sacrifice and abnegation” (p. xli). These groups are able to compel members to sacrifice individual

ambition for the sake of larger group goals; “this attachment to something that transcends the individual...is the very wellspring of all moral activity” (p. xliii). This sense of shared sacrifice creates solidarity, and it is this solidarity that is the true function of professional groups, according to Durkheim. While professional groups are advantageous for the economic sphere, Durkheim maintains their greatest contribution is the “moral influence” they have on society.

For Durkheim, much effort was spent discussing how anomic tendencies may be restrained by professional groups; however, the most crucial point of this preface necessitates revisiting. Durkheim believes that under anomic conditions (especially in the economic sphere):

those actions most blameworthy are so often excused by success that the boundary between the permissible and the prohibited, between what is just and unjust, is no longer fixed in any way, but seems capable of being shifted by individuals in an almost arbitrary fashion (p. xxxii).

Any society operating under these conditions provides an ideal environment for disorder. This ends justifies the means mentality encourages not only corporate and environmental crime, but also social and environmental harms resultant from business practices considered legal. The manufacturing of commodities harmful to those involved in their production or consumption and larger environmental crimes are but a few examples of the conduct that may be excused, ignored or even legitimized if they produce large scale success and monetary reward.

Twentieth-Century Anomie Theories

Merton's Anomie

Merton's theory of anomie was first presented in his classic work "Social Structure and Anomie" (1938)⁵ and since has gone on to garner recognition as a major work in the anomie tradition⁶ as well as criminology in general. Aside from a brief acknowledgement in the footnotes, Merton's reference to Durkheim (in this specific work) is minimal, and while there appears to be some similarities with Durkheim's work, dissimilarities exist between the two theories which make them distinct from each other. Before discussing differences and similarities between the two theories, a brief review of Merton's theory of anomie is necessary.

Merton's (1938) major critique concerning earlier sociological theory is its tendency to view deviancy as resulting from a social structure's inability to control the biological impulses that are a part of human nature. According to Merton, this line of thought "provides no basis for determining the non-biological conditions which induce deviations from prescribed patterns of conduct" and relegates social structure to simply a device for "impulse management and social processing of tensions" (p. 672). Merton's goal in this work was to address deficiency in previous sociological thought by demonstrating how through social

⁵ Merton's anomie theory underwent multiple revisions (1949, 1957, 1968); however, it is the "concept of differential access to opportunities that has remained central to the Social Structure and Anomie paradigm throughout its evolution" (Merton 1995, p. 16), a concept that was originally presented in Merton's 1938 version.

⁶ See Cohen (1955) and Cloward and Ohlin (1960) for examples of theorists who expanded on Merton's original theory of anomie in their own work.

structures, the “basic values of cultures” actually compel some individuals into deviance (p. 675).

Culturally defined goals and culturally acceptable means to achieve these goals provide the foundation for Merton’s theory. For Merton, an “equilibrium is maintained as long as satisfactions accrue to individuals who conform to both constraints” (culturally approved means and goals) (p. 674). However, according to Merton, two major issues arise in American society which hinder this state of equilibrium. The first issue is the “disproportionate, at times, virtually exclusive” focus on the goal of monetary success which results in the devaluation of means and culminates in the normalization of an ends justifies the means ethos (p. 673); the second issue is the unequal distribution of access to legitimate means throughout the class structure in America.

Merton contends American society’s “extreme emphasis” on the pursuit of monetary attainment severely diminishes control over the means used to achieve these ends. Because of this, the “sole significant question then becomes which available means is most efficient in netting socially approved values?” (p. 674). Taking part in the culturally prescribed means that do not lead to “pecuniary gain” provides no satisfaction; meanwhile the opposite is true of pecuniary gain, absent the prescribed means. This circumstance results in the most “technically efficient means” being utilized regardless of their moral or legal status (p. 675). Acts of “fraud, corruption, vice, crime, in short the entire catalogue of proscribed behavior” are commonplace and normalized in this ends justifies the means environment (p. 675-676). Merton believes, “as this process continues, the integration of the society becomes tenuous and anomie ensues” (p. 674).

According to Merton, the disproportionate distribution of access to legitimate means is another major issue that leads to non-conforming behavior in pursuit of the goal of monetary success. While the goals associated with economic success “transcend class lines”, access to legitimate means is limited in some parts of the social structure (e.g., in the lower and working classes) (p. 680). This disjuncture between goals and means results in a “culturally induced intolerable situation”, referred to as “strain” that contributes to criminal behavior (p. 680). For this reason, deviant behavior should be more prevalent among groups exposed to the incompatible circumstances of the “structural inconsistency” between goals and means; this inconsistency “leads to anomie” (p. 682).

Merton’s Anomie and Durkheim’s Anomie

Both Durkheim’s and Merton’s notions of anomie concern the inability of a populace to achieve their goals/desires with the means available to them. However, the two theorists present differing ideas concerning both the origin of these goals/desires as well society’s interplay with these goals. For Durkheim, an individual’s desires are innate and naturally unattainable. Therefore it is up to the culture to place a lid on desires, and in this manner society manages the goals/desires of its members. This claim is in opposition to Merton’s view of an individual’s desires resulting from culturally defined goals. While Durkheim believed a problematic outcome of anomie resides in man’s pursuit of a goal which by its very nature is infinite, Merton appears to have accepted the vague goal of “accumulation of wealth” as an acceptable goal with the main issue being the means to achieve this less than definitive objective.

While the role of culture differs between Merton and Durkheim, both theorists agree trouble arises when an ends justifies the means ethos arises. Merton's (1938, p. 675) observation that the "entire catalogue of criminal behavior" is justified in pursuit of monetary gain mirrors Durkheim's ([1902]1984) claim from *The Division of Labor* wherein he contends, the extreme emphasis placed on "success" has resulted in the acceptance of unethical and illegal conduct in the name of achievement. This acceptance has blurred the lines between acceptable and unacceptable behavior. While the process that allows anomie to ensue differs between the two theorists, the end result is quite similar (i.e. an ends justifies the means ethos that promotes an environment conducive to non-conformist and criminal behavior).

Another aspect of Merton's anomie theory that embodies Durkheim's view concerns the effects of enduring a constant anomic environment. According to Durkheim ([1897]1951, p. 357)), such exposure results in "a state of exasperation and irritated weariness". This "state of exasperation", insists Durkheim, results in increased rates of both suicide and homicide depending on particular circumstances of the individual. Similarly, Merton (1938), p. 680) concludes that over-emphasis on economic success is associated with "exaggerated anxieties, hostilities, neuroses and antisocial behavior" in individuals. Again, while both theorists differ with regards to the path anomie takes in coming into existence, the effects of anomie according to both Merton and Durkheim are of a similar nature and lead to similar results.

The final parallel drawn between Merton and Durkheim focuses on the lack of consistency a society's populace faces in times of heightened anomie. Durkheim ([1893]1984) presents his argument for how social groups in modern societies are to be

regulated through the effective and spontaneous division of labor. However, during times of increased anomie, the division of labor's ability to regulate societal members is severely lacking due to the disruption of established scripts and the predictability they provide to societal members in their interactions. This disruption of scripts is comparable to the sentiment expressed in Merton's (1938) conclusion. He maintains that when the disjuncture between goals and means of a society exists in an "extreme" state, "predictability virtually disappears" and anomie endures (p. 682). Both Merton and Durkheim believe predictability is associated with the regulation of societal members and that predictability is either absent or greatly decreased when societies exist under acutely anomic conditions.

Messner and Rosenfeld's Theory of Institutional Anomie

Messner and Rosenfeld (2007), in their institutional anomie theory (IAT), focus on societal values and the ensuing pressures placed upon the populace by these values as the catalyst for crime. While Messner and Rosenfeld never offer an outright definition of anomie, perhaps the best clarification offered is their reference to Durkheim wherein "anomie refers to the social conditions that characterize... 'longing for infinity' " (p. 61).⁷ Like both Merton and Durkheim before them, Messner and Rosenfeld believe "cultural and structural organization" (p. x) in some societies foster an ends justifies the means ethos which "contributes to crime directly by encouraging people to employ illegal means to achieve goals..." (p. x). But unlike both Durkheim and Merton, Messner and Rosenfeld's IAT theory poses the notion that crime results "when societies function pretty much the way

⁷ "Longing for infinity" is from a quote attributed to Durkheim.

they are supposed to” (p. 74).⁸ The “American Dream” is the central concept of Messner and Rosenfeld’s theory. The American Dream is the notion that all individuals should strive for monetary success under the guise of individual and equal competition. While the ethos of “open competition” is central to the American Dream, like Merton, Messner and Rosenfeld contend that legitimate means to achieve monetary success remain disproportionately concentrated in the social structure. Again like Merton, Messner and Rosenfeld maintain the “American culture promises what the social structure cannot deliver” (p. 58).

Further, Messner and Rosenfeld discuss the American Dream’s sole focus on economic achievement. This myopic focus on economic achievement leads to devaluation of other major institutions (family, education, and polity) and their placement in a position of subordination. This process of subordination leads to what Messner and Rosenfeld feel is an institutional imbalance in which non-economic institutions are dominated by the economy. The economy maintains dominance⁹ through its ability to force other institutions to adopt and

⁸ Messner and Rosenfeld (2007) contend that the cultural ethos which allows for the myopic pursuit of economic prosperity (i.e. “The American Dream”) nullifies normative restraint producing an anomic state which most importantly allows for the unchecked pursuit of wealth. These sentiments are then transferred to “goals of any type” beyond monetary achievement producing increased rates of violent crime.

⁹ Messner and Rosenfeld conclude the economy establishes and maintains its dominance through conditions of devaluation, penetration and accommodation. For an in-depth discussion of this process, see Messner and Rosenfeld (2007, pp. 76-84).

conform to its values.¹⁰ Messner and Rosenfeld believe the disproportionate share of power the economy maintains is due to the conditions under which capitalism developed in America.¹¹ This power imbalance results in the inability of non-economic institutions to elicit significant control over the economy. The resultant balance of power forces non-economic institutions into a position of servitude, or renders them meaningless to the pursuit of the American Dream, i.e. attainment of wealth, by any means necessary.¹²

The institutional imbalance between the economy and other institutions results not only in the weakening of the institutions of family, education and polity, making them less able to regulate the economy. This imbalance also culminates in their inability to fulfill their traditional functions, especially socialization.¹³ The “anything goes mentality” prevalent in the economy results in a populace that “lacks a concern with citizenship and the performance

¹⁰ The values that form the American Dream are Achievement, Individualism, Universalism and Fetishism of money. For an in-depth discussion of these values, see Messner and Rosenfeld (2007, pp. 68-71).

¹¹ Unlike older countries where capitalism developed after other institutions were well established, capitalism developed alongside all other institutions in America without restraint (Messner & Rosenfeld, 2007).

¹² A consequence of this devaluation process, according to Messner and Rosenfeld, is the loss of appeal for roles in non-economic institutions, and thus non-economic institutions have difficulty attracting capable individuals to these positions.

¹³ Messner and Rosenfeld note similarity with Curry (1988) wherein not only do non-economic institutions suffer devaluation but their ability to fulfill their duties is greatly harmed by the “erosion” they experience due to the economy.

of political roles for furtherance of collective good” (p. 9). In this way, “anomic pressures inherent in the American Dream are nourished and sustained” (p. 67). In fact Messner and Rosenfeld argue, unlike Merton and Durkheim in their respective theories, “anomie is considered a virtue” (p. 87) in American Society.¹⁴

Institutional Anomie and Durkheim’s Anomie

Messner and Rosenfeld discuss the influence of both Merton and Durkheim on their theory of institutional anomie, and maintain that Merton had the key influence on their theory. Their institutional anomie theory no doubt bears Merton’s influence, however Durkheim’s influence seems equally important. Durkheim’s influence is apparent both directly and through his (underappreciated) influence on Merton’s work. The central tenets of Messner and Rosenfeld’s theory are 1) the dominance of all other societal institutions by the economy and 2) the ends justifies the means ethos which results from the pursuit of economic attainment, i.e. the American Dream. These key components, along with other aspects of Messner and Rosenfeld’s anomie theory, were discussed by Durkheim in both *Suicide* and *The Division of Labor* prior to Merton’s (1938) “Social Structure and Anomie”.

Messner and Rosenfeld maintain the pursuit of the American Dream “promotes and sustains an institutional structure in which one institution -the economy- assumes dominance over all others” (p. x). While Durkheim uses a different term, “industry”, he presents the same general belief. Due to the rapid economic growth which took place in France in the nineteenth century, other societal institutions (government and religion) lost the regulatory

¹⁴ Messner and Rosenfeld contend anomie’s virtuous status is evident in the ends justifies the means cultural ethos so prevalent in the United States, as long as the end being pursued is economic gain.

power they possessed previously and instead of “regulating economic life became its tool and servant” ([1897]1951, p. 255). Durkheim’s observations concerning the status of non-economic institutions as “tools and servants” also appears to be a precursor to Messner and Rosenfeld’s discussion concerning the penetration, accommodation and devaluation of non-economic institutions by the economy. The “anything goes” mentality, inherent in the American Dream and so crucial to Messner and Rosenfeld’s theory, was also previously brought to light in Durkheim’s work.¹⁵ In *The Division of Labor* ([1902]1984, p. xxxii) Durkheim declares, “those actions most blameworthy are so often excused by success that the boundary between the permissible and the prohibited, between what is just and unjust, is no longer fixed in any way”. Durkheim’s assertion seems to speak to the overemphasis on the goal of economic achievement fueling the anything goes ethos that is a driving force in both Messner and Rosenfeld’s and Merton’s anomie theories.

Messner and Rosenfeld also purport that because of the economy’s position of dominance, it is the institution to which “Americans tend to be most strongly attached” (p. 86). This attachment contributes to significant portions of the population being heavily influenced by the institution with the “least restraining qualities”. Durkheim ([1902] 1984, p. xxxiii-xxxiv) too expressed similar concerns that people “spend their lives almost entirely in an industrial and commercial environment. Hence it follows that, since this environment lacks anything save a slight moral tincture, most of their life is pursued without any moral framework”. Both Durkheim and Messner and Rosenfeld believe that most individuals spend

¹⁵ The “chronic state of anomie found in industry”, according to Durkheim, would eventually be reduced by professional groups. In their discussion, Messner and Rosenfeld (2007) maintain that Durkheim’s notion of anomie is in fact “the morality of modern capitalism” (p. 61).

a significant portion of their lives in the economic arena, and both agree it is an arena that can have a detrimental effect on individuals and in turn society at large.

The final parallel drawn between the two theories of Durkheim and Messner and Rosenfeld focuses on the process by which the economy maintains its dominant position. According to Messner and Rosenfeld, the economy 1) devalues non-economic institutions, 2) forces non-economic institutions into conditions of accommodation, and 3) penetrates non-economic institutions with its values and practices (p. 75). Of these three conditions Durkheim's work seems to foreshadow two, the devaluation of non-economic institutions and penetration of non-economic institutions by the economy. Concerning the devaluation of non-economic institutions, Durkheim ([1902]1984, p. xxxiii) maintains "science scarcely enjoys any prestige save inasmuch as it can be utilized in practical affairs, which means for the most part in professions relating to the economy". This is akin to Messner and Rosenfeld's proposition that institutions outside the economy are valued to the degree they benefit the economy. Durkheim ([1902]1984, p. xxxiv) also contends a constant state of economic anomie permeates other societal institutions, and such a domineering economy "cannot fail to produce effects that spill over beyond the economic sphere, bringing with it a decline in public morality". The "morality" that results from this penetration has a "bottom line mentality" that oftentimes has a dehumanizing effect in the name of efficiency, accomplishment or some other economically desirable outcome (Messner & Rosenfeld, 2007).¹⁶

¹⁶ Messner and Rosenfeld (2007) offer the examples of standardized testing and populist sentiments to run government like business (among others) as prime examples of the economy penetrating non-economic institutions (p. 82-83).

In summation, while Messner and Rosenfeld's theory of institutional anomie was influenced by Merton's (1938) focus on the ends justifies the means ethos put forth in "Social Structure and Anomie", this section offers insight into the crucial contributions of Durkheim's work that anticipated IAT. A previous section also suggested the possible indirect influence of Durkheim's scholarship on Merton's work and the concepts Messner and Rosenfeld view as deriving from Merton.

Anomie in the Oil Patch: Durkheim, Merton, or Messner and Rosenfeld?

This study focuses on testing Durkheim's anomie theory rather than Merton's or that of Messner and Rosenfeld for several reasons. First, detrimental outcomes of a society's inability to provide its members with means to achieve desired goals is a condition discussed by Durkheim more than 40 years before Merton's (1938) original "Social Structure and Anomie." Also, where Merton struggles to explain rising crime rates in an area experiencing economic prosperity, Durkheim excels. Merton contends that it is the lack of legitimate means to attain culturally defined goals which results in non-conforming behavior, of which criminal behavior is one kind. According to Merton, then, an area experiencing rapid economic growth and more opportunity, such as the Bakken, should not experience a major increase in criminal behavior; however, upon preliminary investigation this does not appear to be the case. The attention Durkheim ([1897]1951) dedicated to detrimental effects of "fortunate crises" in the economic sphere provides insight where Merton's anomie is lacking. Durkheim concludes, the "abrupt growth of power and wealth" that accompanies rapid industrialization removed the lid regulating mans' desires in late-nineteenth century France

(p. 254). And for Durkheim, it is during these times of heightened anomie “men are more inclined to self-destruction” and homicide (p. 246).

A major contention for the decision to test Durkheim’s theory rather than Messner and Rosenfeld’s is of a temporal nature.¹⁷ The economy’s dominance over non-economic institutions and the resulting “ends justifies the means” ethos, as discussed, serve as the linchpins of Messner and Rosenfeld’s anomie theory. However, as previously mentioned, Durkheim believed both these conditions were present and responsible for increased rates of social ills in late-nineteenth century France. Therefore, given its seminal status, Durkheim’s anomie theory is the preferred test theory in this study. Finally, as noted in Chapter 3, some empirical support exists for Durkheim’s theory. Despite being over a century old, it has not been falsified.

¹⁷ Thome (2010) contends Durkheim’s notion of chronic anomie can be viewed as anticipating both Merton’s structural anomie, and Messner and Rosenfeld’s institutional anomie theory.

CHAPTER III

EMPRICAL TESTS OF DURKHEIM'S ANOMIE THEORY

While Durkheim's anomie theory has been subject to numerous empirical evaluations, the complexity and splintered nature of his theoretical presentation has resulted in a great deal of disparity between operational definitions of anomie as well as other pertinent concepts paramount to Durkheim's work. These presentation issues also help to explain the common misinterpretation of his theory of homicide (DiCristina, 2004), and they likely play a major role in the discrepancy among the empirical findings (Graeff & Mehlkop, 2007). Issues of a methodological nature arise as well. For example, the use of cross-sectional data in the exploration of anomie, a phenomenon that is dynamic by its very nature, fails to account for the "evolution and organizational development of individual communities" in which Durkheim was interested (Webb, 1972, p. 654).¹⁸ The following literature review discusses the empirical status of Durkheim's anomie theory as it applies to rates of violent crime and suicide.

¹⁸ These cross-sectional studies usually compare different countries at different stages of development during the same moment in time. This too is problematic as Durkheim maintained individual societies established their own unique collective conscience ("sui generis"), and therefore anomie as a phenomenon can best be demonstrated through a longitudinal analysis within the same society and same collective conscience; rather than proposing different societies share the same collective conscience.

Crime

In a study evaluating the relationship between a Durkheimian model of the division of labor and international crime rates, Krohn (1978) reported that anomie did not have the expected significance in accounting for homicide rates. In fact, Krohn reports the amount of variance explained by the model increased when the anomie variable was removed. Though anomie did not contribute in accounting for the variance in international homicide rates, the author acknowledges that the operationalization of anomie used in this study is “less than adequate” and for this reason the findings are of minimal consequence (p.665).¹⁹

In another cross-sectional analysis, Webb (1972) reported a positive relationship between crime and a growing division of labor; however, anomie was found to have minimal predictive power. Webb too acknowledges methodological shortcomings regarding his cross-sectional data. Rather than examining crime rates for a fixed location over the course of industrialization, Webb’s “universe of several cities—of varying size, density, and diversity—at one point in time” was used as a substandard proxy (p. 654). Wasserman (1984, p. 854) maintains utilizing cross-sectional data does not capture significant changes to structural factors which may occur leading to misguided conclusions. This methodological shortcoming is a re-occurring theme in the literature.

¹⁹ Krohn utilized Feierabend & Feierabend’s (1966) measure of systematic frustration to operationalize anomie. This concept is created by comparing a nation’s social want to its social want desire. Accordingly, a nation’s social want consists of variables that represent availability of commodities with literacy rates serving as a proxy for a society’s level of social want desire.

While this cross-sectional approach produced findings that offered little support for anomie as a “cause” of increased crime rates, the approach renders the conclusions problematic because the operationalization of anomie fails in capturing an essential aspect of anomie, namely, its dynamic nature. Messner (1982, p. 233) calls attention to the “hazards” of using cross-sectional data in testing “developmental models”. Other studies which utilized a longitudinal approach were more likely to produce findings supportive of Durkheim’s theory of anomie. These longitudinal efforts yielded more appropriate operationalizations of Durkheim’s anomie, and were better able to distinguish between effects of development and structure.

A more plausible operationalization and test of Durkheim’s anomie theory is offered in a series of studies by Pridemore and colleagues (Pridemore, Chamlin, & Cochran, 2007; Pridemore & Kim, 2006; Pridemore & Kim 2007). In these works, the authors utilize the natural experiment that was Russian society during its rapid transition beginning in the late 1980s and early 1990s. During this time Russia underwent a rapid transformation in both its economic and political system. Concurrent with this rapid transformation, these studies found increased rates of homicide, suicide and alcohol related deaths. Pridemore et al. (2007) conclude there was no other “contemporaneous incident” that could account for the increased rates of “deviance” experienced in Russia during this time period (p. 289).

In their 2006 work, Pridemore and Kim explored homicide rates in Russia during political and economic crises following the disintegration of the Soviet Union. The authors maintain this rapid transformation provides an ideal example of an “acute political crisis” which Durkheim ([1897]1951) believed would produce heightened states of anomie and therefore increased rates of anomic homicide. This study found that regions in Russia

experiencing the greatest degree of political change, as evidenced by decreased support for the former political party, also reported increased rates of homicide when compared to regions with more homogenous political sentiments. Though the regions with greatest increases in homicide rates were also those with the strongest sentiments towards democracy, Pridemore and Kim (2006) do not believe these rates of violence are connected to democracy; rather, it is the sudden change in political system which appears to be the driving force behind this increase.

Pridemore and Kim (2007) explored the association between regional homicide rates and rapid “socioeconomic change”, operationalized as an index consisting of changes in population, unemployment, privatization and foreign investment. The authors found greater levels of “negative socioeconomic change were positively and significantly associated with greater increases in regional homicide victimization rate” (p. 236).²⁰ The study found regions in Russia that endured the highest rates of unemployment also encountered the highest increases in homicide rate. The authors maintain the unemployment endured in these regions interacted with the dissolution of the Soviet Union to produce higher homicide rates.

Pridemore et al.’s (2007) interrupted time series analysis examines rates of homicide, suicide and alcohol related deaths in Russia between the years 1956-2002. More specifically, the authors’ “research, which is also based on Durkheimian thought, seeks to examine the disintegrative effects of rapid social change on the social cohesion of complex social systems”, namely, rates of homicide, suicide and alcohol related deaths in early 1990s Russia

²⁰ See Pridemore et al. (2007) for a detailed description of the “unorthodox” method used to determine and calculate negative socioeconomic change.

(p. 271). Their analysis discovered “significant permanent increases in the level of homicides and alcohol related deaths” that are best attributed to the anomic conditions encountered by societal members in a time of political and economic upheaval (p. 284). The authors conclude that the increased rates of “deviant behavior” are associated with the downfall of the Soviet Union and their findings “provide considerable support for Durkheim’s deregulation hypothesis” (p. 288). These studies (Pridemore et al., 2007; Pridemore & Kim, 2006; Pridemore & Kim, 2007) provide a noteworthy test of Durkheim’s anomie theory and results that support his theory. They offer support for the idea that rapid change experienced in Russia weakened the “collective conscience” resulting in increased rates of suicide and homicide “via mechanisms described by Durkheim” (p. 95).

While most empirical studies utilize anomie as an independent variable, Zhao and Cao (2010) treat anomie as a strictly dependent variable in their analysis. Their study produces an anomie score based on respondents’ answers concerning “the legitimacy of five instrumental crime-related scenarios” in countries either undergoing rapid social change or not (p. 1217). The sentiment of legitimacy in Zhao and Cao’s work appears to be connected most directly with Durkheim’s notion of the collective conscience. For societal members to indicate it is acceptable to engage in behaviors of an illegal nature suggests a weakened collective conscience and therefore an increased state of anomie. Zhao and Cao found that societal members in countries currently undergoing some sort of rapid social change (transitions to democracy) were more likely to offer sentiments more in favor of engaging in illegal behavior. The authors conclude, “rapid social change...elevates the level of anomie among individuals” (p. 1223). These findings offer clear support for Durkheim’s theory of anomie.

Thome's (2010) work, exploring rates of violent crime in Imperial Germany, is particularly pertinent to the topic at hand. Thome employs assault and battery rates as an indicator of "the general level of crime" (p. 12), and maintains rates of assault and battery are more exhibitively of the "general level of crime" than are homicide rates in "smaller regional units" (p. 11). Thome found that "rapidity and intensity of population growth contributes to higher rates of violent crime" (p. 19). Where the rapidity and intensity of urbanization contributed to increased rates of violence, it was also discovered that indicators of urbanity (evidenced by expansion of service and trade industry) were associated with a decrease in violent crime. The use of assault and battery rates are likely more indicative of changing rates of violence within the Bakken region as well due to the "small regional unit" under analysis.

Suicide

The same issue which arises from the use of cross-sectional data exploring the relationship between anomie and crime is also present in many analyses concerning Durkheim's anomie theory and suicide. Cross-sectional studies substitute a static proxy for anomie, most often some indicator of economic development, and then explore rates of suicide for a given region.²¹ The nature of the data utilized for cross-sectional studies warrants note as other researchers (Graeff & Mehlkop, 2007) call attention to Durkheim's ([1897]1951) position that the effects of anomie on suicide are only noticeable over a period

²¹ Such findings are problematic given in that what is actually being measured is level of societal development and not in fact pace of societal development. It is the pace of development Durkheim maintained would affect rates of social ills. Durkheim maintained societal development actually served to reduce rates of suicide and homicide (DiCristina, 2004).

of time; therefore, cross-sectional data is likely to produce results with questionable validity, and for this reason cross-sectional studies receive only limited attention in this review.

Two cross-sectional studies that explore suicide rates and concurrent economic growth with conflicting conclusions are Quinney (1965) and Lester (2001). Quinney's findings support Durkheim's anomie theory. In his investigation of the relationship between economic development²² and violence (suicide and homicide), Quinney (1965) discovered a "fairly constant" linkage existed between the two. Quinney maintains, "suicide is thus a concomitant of structural changes that occur in the process of economic development" (1965, p. 405). Unlike Quinney, Lester found a negative relationship between economic development, as measured by real income per-capita, and rates of suicide across the entire population of his study.

In their analysis of anomic conditions and suicide, Graeff and Mehlkop (2007) explore differences in the geometric mean of Denmark's suicide rates for the years 1945-2005. Their conclusion is a unique one in that they attribute "deviations" of any nature (i.e. increases and decreases) from the geometric mean to anomic conditions endured by societal members.²³ The authors conclude that the expansion of economic opportunity during the

²² Quinney's operationalization of economic development was based on an urbanization and industrialization classification from United Nations *Demographic Year Books*. For more information, refer to Quinney's original article.

²³ Graeff and Mehlkop (2007) maintain that any deviation from the geometric mean is indicative of anomie. They argue that "decreasing rates of deviant behavior, therefore, hamper the reinforcement of norms and can reduce the bonding nature of the norm" (p. 526). Durkheim ([1895]1982) argued that

years 1980-2000 lead to an increase in “deviations” from the geometric mean. This expansion of economic opportunity is akin to the “fortunate crises” Durkheim believed would contribute to increased rates of suicide and deviant behavior.

Iga and Ohara (1967) applied Durkheim’s theory of anomie in their exploration of suicide rates in post-World War II Japan. The authors find it plausible to attribute “at least partly” the significant increase in suicide rates to anomic conditions present post World War II, the effects of which appear to be notably strong on Japanese youth whose rates of suicide nearly doubled in this post war period (p. 59). While the authors found increased rates of suicide during the post war period, they too hypothesized suicide rates would decrease as Japanese society adjusted to the post war conditions, and this is exactly what they found. Iga and Ohara found that, between the years 1935 and 1963, suicide rates peaked during the post war years of the late 1950s and recorded their lowest levels in 1963.

Lester (1997 (with Abe), 1998) produced multiple works exploring anomie, or some aspect of anomie, and its relationship to suicide with varying results. Lester’s work with Abe (1997) explored the role of family regulation and suicide in Japan for the years 1970-1989, and again no significant relationship was reported between familial regulation and suicide rates. While the first two works discussed by Lester found no relationship between societal or familial regulation and suicide rates, his 1998 work concerning suicide rates in Hungary did. In this time series analysis, Lester discovered that rates of suicide increased as divorce rates increased and marriage rates decreased. Lester implies the lack of regulation during times of

decreased rates of deviant behavior, at times, are the result of an overly repressive collective conscience which is actually the antithesis of anomie.

decreased marriages/increased divorces likely contributes to heightened states of anomie, and subsequently increased rates of suicide.

In his examination of suicide rates in the United States for the years 1964-1978, Wasserman (1984) found unemployment and divorce to have a significant (detrimental) effect on family networks. The author maintains these “altered” family arrangements result in “decreasing the regulation of the individual ego” contributing to increased rates of suicide (p. 853). Wasserman maintains his macro-level analysis, as would Durkheim, by insisting “it is not permissible to conclude from this study that divorced individuals are more likely to commit suicide. Rather, one can conclude only that shifts in divorce rate have a significant impact on the suicide rate” (p. 856). Wasserman’s discovery of a positive relationship between rates of unemployment and marital dissolution with suicide offer support for Durkheim’s anomie theory, in that employment and marriage are sources of regulations.

Another study’s findings which offers support for Durkheim’s anomie theory is provided by Stockard and O’Brien (2002). In their exploration of cohorts from “14 modern, western societies,” the authors conclude those cohorts enduring “relatively less (integration and) regulation” also experienced the highest suicide rates (p. 854). The authors used non-marital births to proxy regulation and found those cohorts experiencing higher rates of non-marital births (i.e. “non-traditional family structure”) also experienced the highest rates of suicide.

Condorelli (2013) offers mixed support for Durkheim’s social regulation hypothesis. First, through the utilization of Bayesian analysis, Condorelli validates Durkheim’s ([1897]1951) original findings concerning upswings in suicide. In her analysis of the same suicide data utilized by Durkheim ([1897]1951), Condorelli found “the most significant

‘waves’ of suicide occur exactly when the French sociologist had predicted even by using more rudimentary techniques” (2013, p. 1125). However, when Condorelli explored rates of suicide for Italy over the time period 1864-2004, she discovered the data supports Durkheim’s theory only up to 1961. During this time, both suicide rates and industrial growth were steadily increasing; however, “beginning in 1961, in connection to the Italian *economic boom*, suicide rates decrease, and they do not increase as expected from a Durkheimian theoretical perspective” (p. 1153).

In their respective studies, Minagawa (2012) and Pridemore et al. (2007) investigated rates of suicide in regions undergoing the same rapid social and economic change, the collapse of the Soviet Union, and both offer support for Durkheim’s theory. Though suicide was not their exclusive focus, Pridemore et al. found an increase in suicide rates which was “dramatic, though short lived” (p. 287). The authors contend the only attributable cause for this spike in suicide are the anomic conditions present at the time of the increase.

Minagawa’s (2012) investigation of suicide rates in Eastern Europe encompassed the years 1989-2006, divided into four time periods (1989-93, 94-98, 99-03 and 2004-06), and produced widely varied results for the different time periods. The “rapid and comprehensive structural change” (p. 1049) endured in this region is associated with increased rates of suicide for the first five years of analysis (1989-93). After this initial time period, it appears “the progress in structural reforms benefited population health” and rates of suicide decreased sharply for every subsequent time period (p. 1049). Initially, the “rapid social change disrupted macro-social order, gave rise to highly anomic conditions and inclined vulnerable individuals toward suicidal behavior” (p.1050-51); however, given time the region

appeared to establish new regulatory mechanisms to diminish the heightened state of anomie responsible for the spike in suicide.

Minagawa's (2012) findings offers especially compelling support for Durkheim's theory. Durkheim believed that rapid change disruptive to the collective conscience would result in initial increases in rates of suicide and deviant behavior. Given time though, a society's collective conscience would recover and develop new regulatory mechanisms that would curb anomic conditions along with the accompanying problematic social issues. In this manner, Minagawa's findings offer support for Durkheim's overall social theory. Minagawa maintains that "Durkheim's social control thesis remains powerful in predicting deviance at a time of drastic social change, even in the specific context that accompanies the fall of communism in Eastern Europe" (p. 1053).

The researchers included in this literature review hold rapid change, operationalized in a variety of ways, as the key component in their tests of Durkheim's theory. While support for this theoretical concept vary, it may be argued that those researchers with the most apt operationalizations of anomie (Pridemore and colleagues) reported findings in support of Durkheim's theory. Chapter 4 presents a review of boomtown literature, and this review finds that rapid social change is a constant theme. Though Durkheim appears to receive only token acknowledgement, if at all, in these works, an argument will be made that the rapid social change reported in the literature suggests that the Bakken region provides an ideal environment to serve as a critical case to test Durkheim's theory of anomie.

CHAPTER IV

BOOMTOWN LITERATURE

This chapter presents a review of boomtown literature beginning in the early 1970s and follows Finsterbusch and Freudenburg's (2002) four stages of boomtown research. In addition, a fifth stage of boomtown research is proposed, which coincides with the most recent energy boom that has been occurring since the mid- 2000s. Prior to the mid-1970s, published accounts of boomtowns focused on little outside the realm of economic benefit associated with energy extraction in boomtown settings. Accordingly, this "first stage" of boomtown research consisted mostly of industry publications and environmental impact studies with predictions of community prosperity which overlooked any possible detrimental effects generated by the project (Finsterbusch & Freudenburg, 2002). It was during the 1970s that a more critical eye was turned to the boom communities in the western United States. These early works (Kohrs, 1974; Little, 1976) were among the first to examine the hardships endured by individuals in boom communities, as well as question the economic benefit for all doctrine that had dominated earlier works.

Following these early examples, boomtown researchers delved into a wide range of issues: weakening of informal social controls (Freudenburg, 1986; Greider & Krannich, 1985), lag in infrastructure and societal institutions (Jacquet, 2014; Little, 1976; Ruddell, 2011; Seifert, 2009), increased rates of crime, violence, and child abuse (Cammasso & Wilkinson, 1990; Carrington et al., 2011; Freudenburg, 1986; Freudenburg & Jones, 1991),

difficulties for adolescent populations (Freudenburg, 1984; O'Connor, 2014), suicide (Seydlitz, Laska, Spain, Triche, & Bishop, 1993) and public health issues (Goldenberg et al., 2010). Many boomtown researchers have focused their attention towards crime. From the early works concerning boomtowns (Kohrs, 1974; Little, 1976) to the second and third generation of works analyzed by Freudenburg and Jones (1991) to the later works such as Carrington et al. (2010; 2011) and James and Smith (2014), the consensus among these works is that along with increasing rates of extraction activity come expanding rates of violent crime and a host of other social ills. This general consensus among previous boomtown researchers suggests the recent oil boom in western North Dakota is an appropriate environment with which to test Durkheim's anomie theory.

Stages of Boomtown Research

Finsterbusch and Freudenburg (2002) outline four "stages" of boomtown research. While there is some overlap in these non-mutually exclusive stages, each possesses its own unique characteristics and focus. The first stage of research concentrates almost exclusively on economic prosperity associated with boomtown development, and because of its almost total disregard for other social issues it is only briefly mentioned in this literature review. During the second stage of boomtown research, classical social theory is used as a lens to explore social "disruptions" blamed for an increase in rates of social ills. Much of the research from this second stage bears the influence of Durkheim and Tonnies, evidenced by its emphasis on the "disruptive consequences of rapid change" (Finsterbusch & Freudenburg, 2002, p. 412); while the influence is obvious, rarely are either Durkheim or Tonnies mentioned by name in these works. The bias in many of these second stage works is

acknowledged and is a reaction to the “excessively favorable perspective” of the previous stage (p. 412). Other likely factors contributing to this bias are the human service workers (counselors, social workers, etc.) who were publishing research while working directly with individuals dealing with the brunt of boomtown expansion.

Finsterbusch and Freudenburg maintain the third stage of boomtown research is best summarized as one which casts doubts on the findings from the previous stage. Many researchers question the findings and methods from the second stage, especially their reliance on large increases in rates of social ills based on small, in some cases virtually non-existent, base numbers. While the shortcomings of the second stage are often acknowledged by some of the researchers of that stage (Freudenburg, etc.), Finsterbusch and Freudenburg believe third stage researchers indicate an “overreaction” to the acknowledged “bias” present in the work of second stage researchers, much like the second stage overreacted to the first.

Beginning in the mid-1980s, the fourth stage of boomtown research provides a more “balanced and comprehensive assessment of social impact” (Finsterbusch and Freudenburg, 2002, p. 413). Work from this stage acknowledges that the “complex impacts” resultant from boomtown development are neither all good nor all bad; rather, varying populations within the dynamic environment of a boomtown have different experiences. Likewise, a call for longitudinal research was issued during this fourth stage to replace the cross-sectional analysis so prevalent in the previous stages. Where previous research tended to focus on (a snapshot of) the period of development (i.e. the actual “boom” phase), this longitudinal approach offered insight into the entire breadth of the boomtown phenomenon from planning through development to bust or the stabilization of the region. This longitudinal approach

offers a more complete picture of the boomtown phenomenon than previous cross-sectional efforts.

While Finsterbusch and Freudenburg's stages provide the basic framework for this section of literature reviewed, a fifth stage of boomtown research is proposed and discussed here as well. Works in this fifth stage of boomtown research are authored after 2005 and explore the newest wave of boomtowns in not only the United States, but Canada and Australia as well. Some of the characteristics indicative of this fifth stage are: a more critical perspective, viewing boomtowns through the lens of late modernity, thematic analyses, and a focus on public health issues. This new wave of boomtown research has also generated works which vary little from fourth stage research efforts, and are therefore categorized as late-fourth stage work. The following literature review is organized around the eras of boomtown research discussed by Finsterbusch and Freudenburg (2002), along with a discussion of the fifth era proposal.

First Stage

This stage of boomtown literature offers little to the discussion of social ills that may have accompanied the rapid economic expansion of boomtowns. As previously pointed out by Finsterbusch and Freudenburg (2002), the main focus of this stage was the economic benefit, whether real or imagined, that rapid industrial expansion afforded booming regions. One of the few exceptions during this time period was a study by Smith, Hogg and Reagan (1971), which challenged the unwavering acceptance of economic benefit. Although Smith et al. offered little scrutiny to social issues, they discuss the economic burden endured by community members due to lagging infrastructure. The community's unquestioning

willingness to allow a major construction project to move forward without “a careful balancing of benefits and costs” placed an unexpected economic burden on community residents when the project did not produce any economic benefit (Smith et al., 1971, p. 173). While Smith et al.’s work does not give any major attention to other social issues, it provides groundwork for future researchers to explore a wide range of complications and ills encountered by boom regions in place of the unflinching acceptance of promised economic prosperity.

Second Stage

Authors from the second stage focus the bulk of their efforts towards examining disruptions and ensuing detrimental effects endured by boom communities, resultant from rapid growth and social change. Though not mentioned by name in any of these early works, Durkheim’s influence, acknowledged or not, is apparent. These early endeavors embody Durkheim’s anomie theory as presented in *The Division of Labor* ([1893]1984) wherein Durkheim contends the major source of anomie is rapid social change that disrupts previously established societal arrangements contributing to an array of increased social ills. Reference is made to increasing crime rates (Colorado Department of Public Safety, 1981; Cortese & Jones, 1979), increased rates of mental health issues, substance abuse, and suicide attempts (Freudenburg & Bacigalupi, 1982; Kassover & Mckeown, 1981; Little, 1976), alienation (Freudenburg, 1981), vulnerability of particular groups (Freudenburg, 1979; Kassover & Mckeown, 1981; Little, 1976), neglect of non-economic concerns (Little, 1976), and “human casualties” (Kohrs, 1974). Social ills discovered by boomtown researchers of

this era are attributed to the disruptions incurred from the rapid development and change indicative of boom regions, often referred to as the “social disruption” model.

The shortsighted nature of environmental impact statements (EISs) and disregard of non-economic issues in boom regions is a topic first taken up during this era. Little (1976, p. 404) maintains “EISs often give undue attention to economic factors to the relative exclusion of equally important social factors”. Cortese and Jones (1979) echo Little’s sentiments, that is, the focus of most EISs of this time is on economic impacts of the proposed project with little attention to the toll such a project may exact from community members.

Freudenburg (1979, 1981) maintains the rapid and sizable population increase is the most poignant factor in accounting for the extent of disruption endured by a community. While he contends population influx is the major source of disruption, he is quick to assert growth is not intrinsically “evil”, it is the expeditious rate of growth in boom regions that results in human casualty. The rapid social change resultant from swift population increase serves to disrupt pre-existing social arrangements in multiple ways (Kassover & Mckeown, 1981). Cortese and Jones (1979, p. 11) report that the hasty influx of population results in a “whirling mass where everything seems subject to change”. Pre-existing social structures are often forced on new community members giving rise to a conflict producing disequilibrium (Little, 1976). At the same time, roles of established community members may be reduced, altered or all together eliminated (Cortesese & Jones, 1979; Kassover & Mckeown, 1981). Little (1976) maintains the disruption of these established community networks greatly diminishes informal social controls allowing social ills to flourish. Little also argues that “until a new equilibrium is attained” elevated states of disorder (i.e. crime, suicide, social ills) will continue (p. 406).

One social ill which received a great deal of attention from researchers during this era was escalating rates of crime and delinquency. There appears to be a general consensus among researchers of the era that boom development resulted in an increase in rates of crime, delinquency and child mistreatment. Multiple authors (Colorado Department of Public Safety, 1981; Freudenburg, 1979; Kassover & Mckeown, 1981) reported increasing rates of crime and juvenile delinquency in areas undergoing rapid social change and industrialization due to boom development. Along with crime and delinquency, Kassover & Mckeown (1981) reported increased rates of both child behavior problems and abuse against children.

Increased rates of child abuse calls attention to another topic from this era of boomtown research, the vulnerability of specific groups. The vulnerability of specific groups in boomtowns is mentioned by multiple authors (Freudenburg, 1979; Kassover & Mckeown 1981; Kohrs, 1974; Little, 1976). Kohrs (1974) contends poorer members of boom communities are more likely to experience deleterious effects. Children and adolescents are also found to be especially vulnerable in boomtown settings. Little (1976) reports adolescents face increased threats of violence in their schools as well as increased rates of sexually transmitted infections (STIs). Also, as introduced earlier, children are more likely to be victims of abuse in their home due to the stress and frustrations which accompany rapid social change (Kassover & Mckeown, 1981). Freudenburg (1979, p. 55) surmises that those in the most vulnerable situation to begin with suffer the most.

Researchers of this era also discovered adverse effects in matters of mental health and substance abuse in boom regions. In their work exploring mental health caseloads, Freudenburg and Bacigalupi (1982) reported an almost two hundred percent increase in the mental health caseload of a community mental health center in a Colorado boomtown. This

increase was “significantly” higher than the population growth experienced in the area, and the greatest increase in caseloads occurred concurrent to the “peak boom years” in the community. It is also important to note that the authors were able to determine it was not simply newcomers using the mental health center that caused this significant increase, but the established community members as well. Related to issues of mental health, multiple accounts reported escalated rates of substance abuse in boom communities during this era as well (Kassover & Mckeown, 1981; Little, 1976). Alcohol was proven to have a greater role in boomtown crime than in non-boom regions, as well as offenders having more substance abuse treatment needs (Colorado Dept. of Public Safety, 1981). Other “serious symptoms” found in boom regions included “alarmingly high rates” of divorce, depression and attempted suicide (Little, 1976).

In one of the earliest works from this era, Kohrs (1974) argues people are valued to the degree they are able to aid in expansion of the boom time industry, otherwise they are of little consequence. Little (1976, p. 404) suggests two reasons that issues of a non-economic nature may receive secondary importance: the first is the “American commitment to capitalism”, and the second is a lag between economic and social consequences. Little continues, while economic impacts are often instantaneously noticeable, non-economic impacts may “not be observed until sometime after the influx” of new population and industrial growth (p. 404).

The willingness of second era boomtown researchers to call attention to issues beyond the purview of economic incentives is invaluable. Though it came under condemnation from many third era authors, the groundwork was laid for future boomtown researchers to utilize and improve upon. Though not mentioned by name, Durkheim’s

([1893]1984) views are reflected in much of this second era work. That rapid social change results in disruptions to established social structures leading to increased rates of social harms is a conclusion of Durkheim's original anomie theory which predates this research by nearly a century.

Third Stage

The third stage of boomtown research began with the heavy criticism of the second's "undocumented assertions, questionable interpretations of evidence and superficial analyses" (Wilkinson, Thompson, Reynolds, & Ostresh, 1982, p. 275). Finsterbusch and Freudenburg (2002) argue Wilkinson et al.'s contentions made some fair points concerning the unchallenged acceptance of the absolute detrimental nature of boom development on communities; however, this review itself was subject to major criticisms. Later works from this era (Albrecht, 1982; Freudenburg, 1982; Freudenburg & Keating, 1982) provide a response to these accusations and suggestions for future research efforts on boomtowns.

Issues concerning method and statistical interpretation were a common theme among critical voices of this era. Wilkinson et al. (1982, p. 279) maintain that findings which offered a wide array of support for the 'social disruption hypothesis' were based on "small initial numbers" and therefore immense increases in rates of social ills were exaggerated.²⁴ In a similar work, Reynolds, Wilkinson, Thompson, and Ostresh (1984, p. 45) reported the same

²⁴ Freudenburg (1980) actually addressed this empirical issue in a piece from the previous era. He warned of composing analyses strictly on increased percentages based on small initial numbers; attention should be given to the "general pattern of findings" (p. 4-5). In his response to Wilkinson, Freudenburg (1982) declares it "unfortunate that Wilkinson and his colleagues neglected to mention the broader pattern of findings" (p. 325).

issues with “troublesome interpretations” from “small initial numbers” based on “generally inadequate research”. Summers and Branch (1984, p. 141) also insisted interpretations based on such small initial base numbers were blown out of proportion. They argue any rise in the rates of social ills are necessary in the name of economic growth, and therefore are simply the cost of economic progress.

Attention is also called to an “anti-growth bias” (Reynolds et al., 1982; Wilkinson et al., 1982) which authors contend ignores positive aspects of boom growth.²⁵ Wilkinson et al. (1982) believe this bias discounts “increased opportunities” experienced by individuals in these communities and favors “entrenched power figures” such as local leaders and politicians whose status is threatened by rapid economic development. Along the same line, Reynolds et al. (1982, p. 52) accuse previous social impact assessments of being “influenced by an antigrowth bias rather than substantial social theory”.²⁶

Rather than attributing rates of increased social ills to rapid social changes that accompany boom growth, multiple authors (Wilkinson et al., 1982; Wilkinson, Reynolds, Thompson, and Ostresh, 1984) attributed escalating rates of social ills to other causes. Such “compelling explanations” include trends from society at large, alterations in employment and makeup of residential population and more nuanced detection protocols (Reynolds et al., 1982, p. 52). According to Wilkinson et al. (1984, p. 241), “long standing structural problems” better account for levels of violent crime than do the “recent changes” related to

²⁵ Freudenburg (1979) addresses this critique in a work which predates Wilkinson et al. and Reynolds et al. Freudenburg assures the reader “there is nothing inherently evil about growth, provided it is a reasonable level of growth” (p. 56).

²⁶ Research from the second era (Freudenburg, 1980) claims the opposite issue (i.e. a conservative bias) exists in earlier social impact assessments.

growth of energy extraction activity. All in all, the findings from these works call into question the main thesis of the previous era, that rapid industrial growth results in increased rates of crime and social ills.

Wilkinson et al.'s (1982) article generated multiple replies. While these replies did acknowledge some shortcomings of second era works,²⁷ they also called the validity and method of these third era critiques into question. Multiple authors (Albrecht, 1982; Freudenburg, 1982) call attention to the "selective" nature of the literature reviewed in both Wilkinson et al. (1982) and Reynolds et al. (1982). Albrecht (1982) maintains the "lit review provided by the authors [Wilkinson et al., 1982] is somewhat selective and ignores several studies" (p. 298) that do in fact support the 'social disruption hypothesis. Along these same lines, Freudenburg (1982, p. 327)) accuses Wilkinson et al. of utilizing "what may be the only longitudinal study" where growth in crime rates was not greater than population expansion. Concerning the use of small initial base numbers, Freudenburg argues (1982, p. 326) that regardless of the initial numbers, "a 1000% increase" is worthy of "sociological attention", rather than being dismissed as a chance occurrence not worthy of recognition. Freudenburg (1982, p. 331) summarizes his (and others') disapproval of the works so highly critical of the second era by asserting that Wilkinson et al.'s (1982) work is "misleading, its conclusions inaccurate, and its tone of scientific certitude is inappropriate". Accordingly, the result is an analysis that appears convincing to those unfamiliar with boomtown research but erroneous to those more acquainted with the subject.

²⁷Freudenburg (1982) concedes the second era may have overstated the detrimental effects of boomtowns. Although he does maintain, "negative impacts do not appear to be overwhelming; they do, however appear to be both real and significant" (p. 331).

Freudenburg and Keating (1982) offer a course of action for future work in boomtown studies in an attempt to address previous shortcomings of the field. The authors suggest longitudinal research efforts would be more valuable and result in a more telling analysis of boomtowns. Where most previous efforts had been either cross-sectional or focused on early development, this longitudinal approach would paint a more cogent picture from the inception of projects through development to either bust or stabilization of the project.²⁸

Fourth Stage

The fourth stage of boomtown research, which began in the mid-1980s, retained characteristics from previous eras while evolving towards a more “balanced and comprehensive assessment of social impacts” (Finsterbusch and Freudenburg, 2002, p. 413). Although works from this era continued to focus on the pertinent issues of rapid social change, disruption, and increased rates of social ills (England & Albrecht, 1984; Freudenburg, 1984; Freudenburg, 1986; Jobes, 1999; Smith and Krannich, 2001), these issues were no longer viewed as all good or all bad; rather, researchers (England & Albrecht, 1984; Freudenburg, 1984; Greider & Krannich, 1985; Hunter, Krannich & Smith, 2002; Smith, Krannich & Hunter, 2001) viewed the ordeal of boom growth as a complex phenomenon wherein different groups and individuals experience the boom phenomenon in a

²⁸ According to Freudenburg and Keating (1982, p. 72), another intended consequence of the shift from cross-sectional to longitudinal approaches is, respectively, the shift of attention from “attitudes toward development” to “measuring the consequences of development” (italics from author).

variety of ways. As important as any adjustment during this period was researchers' utilization of the longitudinal approach.

The longitudinal perspective suggested in the previous era (Freudenburg & Keating, 1982), and demonstrated by multiple authors (Brown, Dorius, and Krannich, 2005; Freudenburg, 1986; 1992; Hunter et al., 2002;) better lends itself to exploring the complex nature of boom regions where cross-sectional efforts were lacking (Freudenburg & Grambling, 1992). This longitudinal approach also offers a more complete account of boomtowns from inception to development on through to bust or stabilization. It was by way of longitudinal efforts that a "rebound" effect was discovered to take place in various boom communities.²⁹ This rebound effect was demonstrated by the subsidence of disruptive effects post boom (Smith et al., 2001).

Researchers found this "rebound" effect to occur in multiple arenas, including social disruptions (Smith et al. 2001), fear of crime (Hunter et al. 2002) and levels of general community satisfaction and integration (Brown et al. 2005). In their analysis of four rural communities, Smith et al. (2001, p. 446) concluded "although social disruption occurs in several dimensions of social well-being during boom growth periods, their effects are not permanent". Hunter et al. (2002) explored fear of crime and determined residents did experience a heightened fear of crime during boom times; however, most residents' fear of crime returned to pre-boom levels once the greatest period of transition had subsided. Levels of overall community satisfaction are also prone to this rebound effect. Brown et al. (2005, p.

²⁹ This "rebound" effect warrants mention due to its compatibility with Durkheim's larger social theory. Durkheim believed rapid social change would lead to an increase in social ills for a variety of reasons; he also maintained that given time new regulatory mechanisms would emerge and alleviate these ills.

45) discovered expeditious growth in population resulted in the deterioration of “social integration and community satisfaction”. However, over time, residents were able to “reconcile” their negative feelings toward their changed environment.

Other “complex patterns” discovered during this period of research include England and Albrecht’s (1984, p. 242) finding that “boomtowns do disrupt virtually all community services from amenities to informal relationships”, while at the same time well-established social ties were not impacted. Greider and Krannich (1985) discovered boomtown residents develop “multi-layered” relationships which serve to mend any damage that may have occurred to social networks due to rapid expansion. This same study reported that while harm occurs to informal communal networks, primary networks were not greatly affected by rapid population expansion (p. 66). Freudenburg’s (1986, p. 56) seminal work from this period (“The Density of Acquaintanceship”) concluded that rather than experiencing complete disintegration, many boom communities have experienced “something more like popping apart at the social seams”, meaning that communities have been affected by boom growth but have overall remained intact.

Another aspect of Hunter et al.’s (2002) work worth noting concerns the relationship between income level and social newness with fear of crime; both the level of income and time of arrival inversely influenced the level and duration concerning fear of crime.³⁰ The studies from this era demonstrate that it was not simply growth, but the interaction of multiple variables, producing increased rates of social ills in specific groups and that

³⁰ This finding emphasizes the complicated nature of boomtowns by offering evidence of factors both mediating and aggravating the social disruption associated with boom growth.

disruptions most likely will not lead to the total social devastation of areas as previously reported.

Throughout this era, multiple authors called attention to the specific experiences of distinct groups within the same boom environment. According to Krannich and Greider (1984, p. 550), analysis should be applied “across a variety of distinct sub populations” in boom communities. In doing so, researchers will be able to construct a more thorough “social reality in a rapidly changing community” (p. 550). In their work concerning the offshore oil industry, Seydlitz, Laska, Spain, and Triche (1993, p. 95) found women and children, along with newer residents, are most vulnerable to negative effects of boomtowns. Freudenburg (1984) found boomtown adolescents continued to be a particularly vulnerable group and, when compared with their adult counterparts, adolescents reported significantly increased levels of “alienation” and “hostile environments”. While adults were able to maintain their social networks through “buffering effects”, both adolescents and their social networks were more vulnerable due to the influx of new adolescents into the school system.

The assumed long term economic prosperity accrued by boomtowns came under scrutiny during this stage of research. This assumed prosperity was (and remains) the most popular justification for boomtowns to endure the increased rates of social problems. Freudenburg (1984, 1992, and 2002 (with Wilson)) calls the assumption of economic prosperity into question in multiple works. In his exploration of alienation among boomtown residents, Freudenburg (1984, p. 703) found “no evidence that rapid economic development would be experienced as liberating and beneficial by the persons who experienced it”. In a later work Freudenburg (1992) likened the situation of resource extraction communities to that of a drug addict, what he termed “addictive economies”. These communities focused too

heavily on the short term “shot in the arm” economic benefits while either ignoring or remaining unaware of long term consequences that often prove to be a “bitter pill to swallow” and are ultimately destructive to the area (p. 327).³¹ In this way communities chase after the “short term high” during boom times regardless of consequence. Freudenburg maintains this type of behavior “if seen in an individual rather than a community, would be taken as a classic sign of addiction” (p. 327).

In their examination of economic well-being among communities dependent on the mining industry, Freudenburg and Wilson (2002) found “no scientific basis for accepting the widespread, ‘obvious’ assumptions that mining will lead to economic improvement” (p. 549). In fact, the authors report “test results are strongly significant, statistically...indicating the adverse economic outcomes are significantly more likely in the accumulated research literature to date than are the positive ones” (p. 569). While economic prosperity is not unheard of, over the long term detrimental outcomes are more likely than the economic prosperity so often touted.

As mentioned above, social disruption remained a focal point for researchers in this fourth era. Numerous authors (Cammasso and Wilkinson, 1990; England & Albrecht, 1984; Freudenburg, 1984; Jobes, 1999, and Smith et al., 2001) presented findings which, to one degree or another, support the social disruption hypothesis. While many of these authors’ findings are noteworthy, perhaps the most consequential study from this stage is Freudenburg’s (1986) “The Density of Acquaintanceship: An Overlooked Variable in

³¹ Among these consequences are overadaptation evidenced by lack of a diversified economy and an imbalance in power between industry and community. For a more detailed discussion of these consequences, see Freudenburg (1992, p. 305).

Community Research.” Freudenburg defines the density of acquaintanceship as “the average proportion of people in a community known by the community’s inhabitants” (pp. 29-30). The density of acquaintanceship provides informal social controls for communities. It is during times of rapid growth that a community’s density of acquaintanceship is weakened, resulting in weakening of informal social controls that serve as controls for deviancy and crime.

Freudenburg (1986, pp. 30-31) believed multiple variables affected a community’s density of acquaintanceship, among them: population, length of residence, diversity and expected consequences.³² Consequently, the effects boom growth has on these variables shapes informal social controls exercised by communities, and in turn rates of social ills. Relaxing views from previous eras, Freudenburg maintains that boom growth has not resulted in the “atomization” of communities; it has, however culminated in something akin to, as previously mentioned, “popping apart at the social seams”, and “social buffering effects” allowing for the wellbeing of the community’s morale (p. 56). However, a community’s ability to monitor and control the behavior of adolescents, and care for vulnerable populations, still may be affected by a decrease in the density of acquaintanceship that accompanies the rapid social change in boom communities (p. 32).

While somewhat tempered in comparison to previous eras, increasing rates of crime, victimization, and suicide continued to be commonly reported as ensuing from boomtown social disruptions. As previously discussed, some researchers found specific groups to be

³² Here Freudenburg (1986) is referring to the “interpersonal agreements” individuals have with one another in achieving desired goals. These interpersonal agreements only come about through individuals being acquainted with one another (p. 31).

especially vulnerable in these communities. Freudenburg (1984), for example, found boomtown students to be much more likely to report feeling unsafe and being exposed to “hostility” in comparison to their adult counterparts. Cammaso and Wilkinson (1990) confirm increasing rates of “severe child maltreatment” appear to accompany energy development.

Still other authors found escalating rates of crime and victimization influenced the entire spectrum of community members. In reviewing previous boomtown studies Freudenburg (1986, p. 44) concluded that, “boomtown residents are experiencing significantly increased criminal victimizations”. Seydlitz et al. (1993), whose work explores the offshore oil industry in Louisiana, found a link specifically between increased rates of violence (homicide/suicide) and the level of rapid change experienced by a community. These same authors discovered the relationship between violence and rapid change was especially acute for areas with greater involvement in the resource extraction industry (p. 104). The final work reviewed from this era is Freudenburg and Jones’ (1991) and their investigation of boomtown studies whose central focus was rates of crime.

In their work, “Criminal Behavior and Rapid Community Growth: Examining the Evidence”, Freudenburg and Jones (1991) reviewed twenty three studies which explored the relationship between boom development and crime. Of these studies, the authors report that twenty-one found crime rate growth proportionately greater than population growth with an estimate “in the range of three to one or more” (p. 640). Third stage authors’ (Reynolds et al., 1982; Wilkinson et al. 1982) conclusions that boom communities’ crime rates are no higher than comparison communities continue to warrant response; Freudenburg and Jones affirm their findings offer more support that boomtowns do in fact experience increased rates of

crime compared to control communities. Freudenburg and Jones offer a concise summary of previous boomtown findings as well as a more tempered (though still supportive) account of the boomtown narrative.

This fourth era of boomtown research produced a more sophisticated account of the boomtown experience. While works from this era offered support for the social disruption hypothesis, the authors also reported a more complex pattern wherein “some areas of community life are disrupted, others are benefitted, and still others remain largely unchanged” (England and Albrecht, 1984, p. 237). Multiple studies from this era contain Durkheim’s view that social disruptions lead to increased rates of social harms. In fact Freudenburg (1984, p. 703) acknowledges his work “provides partial support for the Durkheimian expectation that development would change social patterns and be disruptive to local residents”. This fourth era of research was the final stage discussed by Finsterbusch and Freudenburg (2002), and since then a new wave of boomtown research has been underway beginning in the mid 2000’s and continuing to present day. Although these new works share characteristics with earlier research, they are also unique in many aspects and for this reason a fifth stage of boomtown research is proposed in the following section.

Fifth Stage

Works belonging to this proposed fifth stage bear the influence of previous analysis while also displaying unique characteristics including: a more critical examination of the boomtown phenomenon and resource extraction industry at large (Carrington, Hogg, & McIntosh, 2011; Carrington, McIntosh, & Scott, 2010; Carrington & Pereira, 2011; Kay, 2011; Richardson, 2009), thematic analysis (Anderson and Theodori, 2009; Braiser, Filteau,

McLaughlin, Jacquet, Stedman, Kelsy, & Goetz, 2011; Scott, Carrington, & McIntosh, 2011; Wynveen, 2011), issues of public health (Goldenberg, Shoveller, Ostry, & Koehorn, 2011; Parking & Angell, 2011; Shandro, Veiga, Shoveller, Scoble, & Koehorn, 2011), a cultural criminology approach (Carrington & McIntosh, 2010), and applying the lens of late modernity (Goldenberg Shoveller, Koehorn, & Ostry, 2010; O'Connor, 2014). There are also multiple works from this era whose topics differ little from the works of previous eras. These works explore issues of crime rates in boom regions (James & Smith, 2014; Kowalski, 2012), effects of social disruptions (Jacquet & Stedman, 2013; Park & Stokowski, 2008; Ruddell, 2011), instances of domestic violence (Ferrara, 2011; Lymn, 2015), and practical assessment of long term economic impacts (Jacobsen & Parker, 2014; Kay, 2011).

Researchers exploring the impacts of a booming resource extraction industry in Australia have made considerable contributions to the aforementioned critical perspective. In their qualitative assessment of social impacts in an Australian boom community, Carrington and Pereira (2011) found a community can struggle to pass effective policy that may regulate detrimental effects of expanding industrial interests due to “orestruck” local and national leaders. This “orestruck” state of leaders results in the subjugation of all other interests to “economic drivers” in boom regions (p. 18). Richardson (2009) called into question the dispersal of economic benefit beyond the mining industry and drew attention to those who must endure hardships due to mining expansion. The author maintains only the mining industry and those owning substantial shares of stock in mining companies incurred economic benefit while causing economic harm on a larger macroeconomic level.³³

³³ Richardson is referring to the “Gregory effect” (aka “Dutch Disease”) which occurs when an economy becomes dependent on one specific and at times fickle commodity. The result is the

Perhaps the most compelling work from this critical perspective, with respect to the Australian extraction industry, is delivered by Carrington et al. (2011). In their exploration of social ills that accompanied Australia's resource boom, Carrington et al. insist "post-industrial mining regimes serve to mask and privatize these harms and risks, shifting them on to workers, families and communities" (p. 335). The subjugation of all (individuals, institutions, etc.) to economic interests and functions has resulted in the placement of the "burden and locus of responsibility elsewhere" (p. 343). At the same time, the extraction industry has influenced a movement wherein individuals have been willing to exchange "rights, security and conditions for high wages" (p. 338). According to Carrington et al., the dominance of Australia's resource extraction industry over other institutions allows it to draw attention away from the alarming, both short and long term, social consequences for which it is responsible. At the same time, it is able to continue to engage in activity that is prosperous for a minority of the population at the expense of the larger population (Richardson, 2009).

Resource extraction industries in the United States have also been viewed through a critical lens. In an examination of regions in the Marcellus Shale experiencing extensive gas drilling activity, Kay (2009) calls into question the "economic prosperity for all" mantra that so often accompanies such expansions. Kay maintains the oft used "input-output" economic models are too simplistic to comprehend the complex nature of boomtown economic matters.³⁴ Rather than focusing on long term economic wellbeing, policymakers concentrate

weakening of all other aspects of the economy. For a more detailed discussion of this phenomenon, see Richardson (2009, p. 6).

³⁴ According to Kay (2009), such basic economic models "do not adequately explore several serious economic issues (i.e. pace/scale of drilling, how profits will effect regional spending patterns, etc.) that policy makers need to consider in crafting effective economic responses to gas drilling" (p. 31).

on short term financial incentives to the detriment of long term financial wellbeing, with the results being mismanaged and poorly distributed economic gains; the aftermath of which is akin more to “the flotsam left behind...(from) a flood than a rising tide” (p. 3). Likewise, multiple authors are quick to insist extractive industries are rarely held accountable for harms brought about through their activity (Bell, 2009; Carrington et al. 2010).

Thematic analyses comprise a substantial contribution to this generation of research. These works explore attitudes of boomtown residents on a variety of topics from feelings towards workers (Scott, Carrington, McIntosh, 2011), social disruptions (Theodori, 2009), safety (Carrington and Pereira, 2011), and improved economic opportunities (Forsyth and Luthra, 2007) among other matters. The themes which emerge from these analyses usually fit into one of three categories: economic, social, and environmental (Wynveen, 2011).

Scott et al. (2011) explored sentiments of established residents in an Australian boomtown concerning in-migrant workers (fly-in-fly-out workers/”FIFOs”). Established residents viewed FIFOs as “desperado” types who offered nothing to the community while also presenting a major threat to the established “gemeinschaft social order”.³⁵ Their dis-embeddedness also resulted in a situation where they lacked social control while being viewed as “morally inferior and deviant” to established residents (p. 163). While respondents consistently reported this depiction of FIFOs, the authors believe it to be an overgeneralization of the least desirable characteristics of a minor portion of workers.

³⁵ A concept introduced by Tonnies (1887), gemeinschaft social order is akin to Durkheim’s notion of a mechanical society. In a gemeinschaft society individuals’ interactions are based on likeness and familiarity.

Issues of a social nature were constantly alluded to by community residents. Residents from Carrington and Pereira's (2011) study "consistently highlighted" the excessive burden placed upon "local human, social, and medical services and infrastructures" alongside burdens of an economic nature (p. 13). The economic burdens were not simply due to inflation effects, but what respondents viewed as "greedy landowners and business owners" gouging prices of rents as well as other goods and services (p. 13). Theodori (2009) comments on the "paradox" discovered among respondents wherein the economic benefits are appreciated; however, many of the social and environmental harms endured by residents make them question these benefits.

A finding common to Theodori and multiple other authors (Anderson et al., 2013; Jacquet et al. 2013; Wynveen, 2011) concerns increasing rates of traffic, road deterioration and traffic accidents and fatalities. Reports of increased rates of traffic appeared concurrent with worry over environmental issues. Respondents in both Theodori (2009) and Anderson et al. (2009) expressed concern over the amount of freshwater being used in the fracking process with Anderson et al.'s respondents going even further, expressing concerns over well site safety on multiple occasions. These sentiments were echoed in Wynveen (2011) wherein respondents reported apprehensions over both safety and "general health implications" of the fracking industry.

The theme of economic impact makes a consistent appearance throughout works of this era and these thematic analyses are no exception. While both positive and negative economic themes emerged from these works, overall the assumption that boom growth, undoubtedly, results in economic prosperity remains largely unwarranted. Some of the more undesirable economic issues brought to light by respondents include lagging tax codes and

the economic burden they place on residents (Anderson et al., 2009) as well as the uneven distribution of economic benefit (Anderson et al. 2009; Wynveen, 2011). On a more positive note, respondents in Forsyth, Luthra and Bankston (2007, p. 297) reported that rapid growth in oil developments provided families with “immediate and higher socioeconomic status...and in time social capital and social mobility”.³⁶ Perhaps the most meaningful finding from these works is present in both Anderson et al. and Wynveen’s conclusions. The fact that economic advantages of boom regions are not distributed evenly throughout the population while the stresses and strains are (and often times more strongly experienced by those already on the economic losing end) again calls into question the “economic benefit for all” myth often advocated as justification for boom development.

Evidenced by its appearance in multiple works, the public health perspective emerged as a viewpoint through which rising rates of sexually transmitted infections (STIs), substance abuse, mental health and pregnancies could be examined. While STIs and issues of substance abuse have been discussed since the earliest works concerning boomtowns (Khors, 1974; Little, 1976), researchers from this era provide greater detail and propose specific sources of these problems via the public health perspective. Goldenberg et al. (2011) concluded the increased rates of STIs among youthful populations near remote oil extraction operations were the result of “four key mechanisms”. They determined the “mobility of oil/gas workers, binge partying, high levels of disposable income, and gendered power dynamics” provided the mechanisms which contributed to the increased STI rate found in their study’s population (p. 222). Meanwhile, in their exploration of substance abuse, Parkins and Angell (2011)

³⁶ The authors acknowledge the “boomtown social impact model simply may not be applicable to offshore oil” (p. 297). For a more detailed analysis, see Forsyth, Luthra and Bankston (2007).

found that variables similar to those mentioned in Goldenberg et al. are also responsible for increased rates of substance abuse.

In their examination of the relationship between public health issues (pregnancies, STIs, mine related injuries and mental health issues) and the boom-bust cycle of a mining community, Shandro et al. (2011, p. 178) found “overarching community health issues prominent during both boom and bust periods”. The established pattern includes increased rates of pregnancy and STIs during boom times followed by a rise in mental health concerns during down times (p. 178). Overall, the community’s health (and health facilities) face constant burden and suffering regardless whether boom or bust time.³⁷

Carrington and McIntosh (2010) illustrate elements of cultural criminology in their examination of violence and masculinities in an Australian boomtown.³⁸ The authors call into question the oft accepted assumption that increased rates of violence in a boom region are simply due to social disorganization, and the acts themselves are aimless. After a deeper investigation, Carrington and McIntosh discovered that violence in this particular community “sorts out hierarchical rankings, conflicts and disputes” (p. 409). The authors maintain that the region in this study (and most regions wherein rapid growth in resource extraction industries occur) already contained a “hyper masculine” subculture (“rural masculinity”)

³⁷ These findings seem quite relatable to an earlier work by Freudenburg (1992) wherein he likens boom communities’ destructive behavior and relationships with extractive industries to the destructive behavior of drug addicts in search of their next “fix”.

³⁸ Cultural criminology is “a wider cultural focus” that explores the ways in which “cultural practices intertwine with the practices of crime and crime control” (Ferrell in Blackwell, 2007, p. 892). The aim of cultural criminology is not to produce quantitative data to support or disprove a hypothesis; cultural criminology strives for what Ferrell calls “criminological verstehen” (Ferrell, 1997), an intimate understanding of “criminal” behavior, not just documenting the occurrence of such behavior.

which values both toughness and violence as a solution to conflict; at the same time, the oil and gas industry too maintains a culture of hyper-masculinity. The authors contend the convergence of these “subterranean value systems” contributes to increased rates of violence as much as any other aspect in this particular region (p. 407-409).

Late modernity is a critical element to cultural criminology (Ferrell, 2008), and its application to boomtown settings, though appropriate, has been somewhat limited.³⁹ An exception to this deficiency is O’Connor (2014) who documents the experience of boomtown adolescents and young adults through the lens of late modernity. O’Connor concludes “the only constant in Fort McMurray was rapid social change” which then became the guiding principle for “how community members understood and navigated the city” (p. 14). O’Connor found that overall adolescents reported more negative outlooks and experiences towards their community than did their adult counterparts.⁴⁰ The author maintains the adolescents’ lack of life experience is a crucial contributing factor to the more negative views, reported by adolescents, as it is life experience which aids individuals to navigate the ever changing environment of a (late modern) boomtown.

The final category of research discussed bears the most obvious influence of previous eras. Topics explored include the relationship between the resource extraction

³⁹ According to Ferrell (2008, p. 6), late modernity’s distinguishing characteristic is “a world always in flux”. In using late modernity to explore boomtown phenomena, O’Connor (2014, p. 2) describes it as “a time period where society is undergoing constant social change”. Late modernity provides an interesting way to view boomtown phenomenon as it places the dynamic and disruptive character of the boomtown within a larger society that is experiencing the “vertigo” associated with the late modern condition (Young, 2006).

⁴⁰ O’Connor acknowledges these findings echo Freudenburg’s (1984) findings concerning differences between adult and adolescent’s experiences in earlier boom settings.

industry and crime rates (James and Smith, 2014; Kowalski, 2012) and domestic violence (Ferrara, 2011; Lynn, 2014), lagging social functions due to rapid economic growth (Ruddell, 2011), and long term economic outlooks for boom communities (Jacobson and Parker, 2014). These works carry on the tradition of earlier research exploring and reporting boom effects from a quantitative perspective.

Just as many researchers before them, Jacobson and Parker (2014) found no support for the assumption that a resource boom leads to long term economic prosperity for the region. Echoing previous findings, the authors conclude that positive “short term effects” are followed by longer term economic misfortune, such as decrease in community wide per-capita income and increased rates of unemployment which do not return to pre-boom levels.

The quantitative examination of crime and disorder remain a fundamental issue for researchers. In his examination of crime rates over a twenty year period in Fort McMurray, Ruddell (2011) discovered the region’s crime rate grew “substantially” during boom times, and were as much as three times greater than Canada’s national average. Just as distressing as the crime rate is Ruddell’s discovery concerning Fort McMurray’s offense per officer rate, which was by far the highest in Canada for the entire time period. This continued high rate of offense per officer is an example of the lag so often experienced in boom communities between the recognition of economic benefit and the community’s non-economic needs, in this case ample police officers (p. 328).

Kowalski and Zajaz (2012) recorded no relationship between drilling activity in the Marcellus Shale and criminal activity (p. 10). The study utilized Pennsylvania State Police incident calls and UCR data as indicators of criminal activity, and when compared to the rest of the state the authors conclude “no clear association” could be determined between drilling

activity and crime rates (p. 10). These findings are in the minority however, as the majority of researchers do in fact find associations between resource extraction industries and criminal behavior.

One such finding of note concerns oil extracting regions that experience a downturn in production. Such a downturn has been associated with increases in incidents of domestic violence in both offshore oil drilling (Ferrara, 2011) and in the western region of North Dakota (Lynn, 2015). Another instance in which researchers determined there to be a significant and positive relationship between a booming oil extraction industry and crime rates was the study by James and Smith (2014). The authors report “statistically and economically significant increases in all types of crimes including assault, rape, murder, larceny, robbery, and auto theft” (p. 25).

Many of the most compelling themes reported by boomtown researchers: the problematic rapid expansion (Freudenburg, 1986; Little, 1976), disrupted scripts (Freudenburg, 1984), lagging institutions (Anderson, 2009; Ruddell, 2011) and subjugation of non-economic issues (Carrington et al., 2011, Carrington and Pereira, 2011) are issues Durkheim identified with heightened states of anomie. That Durkheim’s ([1897]1951) anomie theory discusses the detrimental effects of “fortunate crises” seems to make it all the more pertinent to the boomtown phenomenon. The following chapter discusses the methods proposed to test Durkheim’s theory of anomie with the Bakken region of western North Dakota serving as a critical case.

CHAPTER V

METHOD

The main purpose of this work, as introduced earlier, is the empirical assessment of Durkheim's anomie theory. According to Durkheim, rapid economic change contributes to a heightened state of anomie. This heightened state of anomie, in turn, is predicted to cause an increase in various social problems, including violent crime, suicide, and worker fatalities. This study explores these problems in the Bakken region of western North Dakota, during a time of rapid expansion for the oil industry. The general research questions driving this study are: *1) How have rates of violent crime, suicide and worker fatalities changed in the Bakken region, if at all, during this time of rapid economic change? And, 2) Are the findings of this study consistent with the predictions of Durkheim's anomie theory?*

Beginning with a brief discussion of the case study method, this chapter assesses its appropriateness for this project, and follows with a consideration of a mixed methods application and theoretical predictions. Available data, pattern matching and the unit of analysis are then discussed. Finally, variables of interest and their operationalization are considered before a critical summary offers a brief synopsis of the most crucial aspects of the methods used in this study.

Case Study Method

Since the current undertaking utilizes the case study method to test Durkheim's anomie theory, a brief discussion of this specific method is warranted. Yin (2003, p. 13) defines a case study as "an empirical inquiry that investigates a contemporary phenomenon

within its real-life context, especially when boundaries between phenomenon and context are not clearly evident”. Given the importance of contextual conditions for the task at hand, the case study method was selected for this undertaking. Case studies consist of any combination of qualitative and quantitative data or may be entirely composed of one or the other (Kaarbo and Beasley, 1999; Korzilius, 2010; Yin, 2003). Case study research differs from other methods in multiple ways; however, its capability to address “how” and “why” questions pertaining to contemporary events proves to be highly beneficial (Yin, 2003). Like other methods, case studies require a focused research question to guide the investigation and data collection to accomplish its intended goal (Korzilius, 2010).

According to Kaarbo and Beasley (1999), the research question guiding the case study should seek to bring to light the “causal nexus” between the suggested variables and circumstance to be explained. Because the case study is concerned with the “underlying process” of a limited number of situations, the generalizations with which the researcher is concerned are of an analytical rather than statistical manner. This narrow focus is a distinguishing characteristic of the method and its distinct position regarding external validity (i.e. generalizability). This narrow focus, and the ensuing inability to generalize findings to the larger population, serves as a source of constant criticism of case study research (6 & Bellamy, 2012). However, Yin (2003) addresses this issue in his discussion of “analytical generalizability”.⁴¹ Rather than trying to generalize findings to the larger population (i.e. statistical generalizability), analytical generalizability is the practice of relating findings to

⁴¹ According to Yin (2003), for analytic generalization a “previously developed theory is used as a template with which to compare the empirical results of the case study” (p. 32-33). Also, claims of replication may be made if multiple cases support the proposed theory.

theoretical propositions (e.g. those extrapolated from Durkheim's anomie theory).

Specifically, whereas statistical generalizability is best used where studies with larger samples are concerned, case study research strives for analytical generalizability.

Accordingly, applying case study findings to the population at large is a "fatal flaw" when using the case study method (Yin, 2003).

That findings from case studies are related back to theoretical assumptions makes theoretical development "essential" when using this particular method of inquiry. Theory plays a crucial role throughout the entirety of the case study process, and the "articulation" of theory is vital before the case study even begins (Yin, 2003). From deciding case selection, originating research questions and hypotheses, aiding in the operationalization of variables, through to interpretation and "testing" of findings, the chosen theory serves as the catalyst for the entire process.

According to Lijphart (1971), case studies may be used to either "confirm" or "infirm" a specific theory. The findings of the case study are a "test of the propositions" of the theory under analysis (p. 692); this "test" is the practice of "analytic generalization" proposed by Yin (2003) and defined earlier in this section. While case studies may confirm or infirm theories to varying degrees, some cases may present exceptionally compelling findings, and these cases have been termed "crucial" cases or experiments (Eckstein, 1975; Lijphart, 1971). It is possible the analysis of the Bakken region undertaken here offers such a "crucial" test of Durkheim's theory of anomie.

Mixed Methods Approach

According to Creswell and Plano-Clark (2007), mixed methods research consists not only of “methods of inquiry”, it also possesses its own unique methodology as well. It is not simply the combination of qualitative and quantitative inquiry, but the integration of these divergent approaches that allows a wider breadth of understanding than either quantitative trends or issues of a contextual nature can produce alone. In their quest for a definitive characterization of the mixed methods approach, Johnson, Onwuegbuzie and Turner (2007, p. 112) maintain “there might not be a single criterion for mixed methods research, but there are several important criteria” in the establishment of such a definition. After a thorough survey of 19 definitions of mixed methods, Johnson et al.’s study ultimately defines mixed methods as follows:

Mixed methods research is the type of research in which a researcher or team of researchers combine elements of qualitative and quantitative research approaches (e.g. qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purpose of breadth and depth of understanding and corroboration. (p. 123)

This definition provides both a straightforward and parsimonious synopsis of previous descriptive attempts while still encompassing the major aspects and goals of the mixed methods approach.

While there are numerous models within the mixed methods paradigm, only the triangulation model will be discussed with any depth.⁴² Triangulation is the most popular and

⁴² For a full review of these models, see Creswell and Plano-Clark (2011).

recognized mixed methods practice (Creswell & Plano-Clark, 2011), and the triangulation convergence model is utilized in the current endeavor. According to Morse (1991, p. 122), the objective of this model is to “obtain different but complementary data on the same topic”. In using the convergence model, quantitative and qualitative data are collected and analyzed separately then compared to each other (Creswell & Plano-Clark, 2011p. 65). In this way the convergent method allows qualitative findings to elucidate “behavior in context” (Cronbach, 1975), and provides a richer understanding of meaningful contextual factors so often neglected in strictly quantitative studies (Jick, 1979).

Jick (1979) maintains triangulation is based on the assumption that weaknesses associated with each method are compensated for by the strength of the other. In this way, triangulation makes “intuitive sense” if there are any doubts that one element of data may be in any way lacking, or when both approaches present as robust sources of data (Creswell & Plano-Clark, 2011). For these reasons, a mixed methods approach best capitalizes on the abundance of information that has been generated concerning the oil boom in western North Dakota. The goal is to explore rates of social ills, yet at the same time capture and convey the experiences, both positive and negative, of those individuals who otherwise would be “diminished” by quantification (Creswell & Plano-Clark, 2011).

Theoretical Predictions

Before theoretical predictions for the study are discussed, a brief recount of Durkheim’s anomie theory is warranted.⁴³ Durkheim believed societal “groups” provide a source of regulation to its members. In *The Division of Labor*, Durkheim ([1893]1984)

⁴³ For a more thorough review, the reader is encouraged to refer back to Chapter 2.

discusses the need for rules to guide the interactions of societal “organs” and by extension individuals. In *Suicide* ([1897] 1951), Durkheim’s anomie theory focuses on the infinite and insatiable desire associated with human nature and society’s role in regulating this nature, without which man would be condemned to constant torment. As previously mentioned, Durkheim ([1897] 1951, p. 249) believed this occurred when society “fixes with relative precision the maximum degree of ease of living to which each social class may legitimately aspire”, effectively regulating the desires of societal members. Anomie ensues when some “disturbance of the collective order” occurs and results in regulatory mechanisms being rendered ineffective (p. 246).

These disturbances of collective order result from some sort of rapid change (e.g. rapid industrialization) during which group members are more likely to engage in adverse behavior. In *The Division of Labor*, Durkheim argued that rapid economic change may result in increased anomie due to its disruption of established scripts between societal organs. In *Suicide*, Durkheim considers the role “fortunate crises” have in contributing to acute states of anomie by removing the lid, so to speak, from human desires. As previously discussed, while what is being regulated may differ, the crucial focus remains the same; previously established regulatory mechanisms have been rendered ineffective.

The following theoretical predictions are based on the current analysis of Durkheim’s anomie theory and provide the principle point of comparison for the empirical findings that result from this undertaking.

Theoretical Prediction 1. As oil production increases rapidly⁴⁴, rates of violent crime will increase in the region;

Theoretical Prediction 2. As oil production increases rapidly, rates of suicide will increase in the region;

Theoretical Prediction 3. As oil production increases rapidly, oil worker death rates will increase in the region.

Through triangulation, not only does the mixed methods approach allow for the scrutiny of the proposed theoretical predictions, it also allows for the possible “synthesis or integration” of multiple theoretical perspectives producing a more comprehensive explanatory model of the phenomenon of interest (Jick, 1979).

Pattern Matching, Available Data, and Units of Analysis

Pattern Matching

According to Hak and Dul (2009) the term “pattern identification” was introduced by Campbell (1975) as a method of theory testing when using a single case study design. Accordingly, Campbell proposed a robust test of a specific theory could be accomplished if the deductions gleaned from a specific theory were found to be present (without exception) in a given case. Campbell (1975, p. 182) insists “there are many aspects of the pattern demanded by theory”, so it is through the empirical evaluation of theoretically predicted patterns in selected cases that theories may be confirmed or infirmed.

⁴⁴ It is important to note it is not simply the escalation in oil production of the area, but the rapid escalation of oil production.

Like Campbell, Yin (2003, p. 116) believes pattern matching to be a highly effective practice for testing theories with the case study method and contends it is in fact one of the “most desirable techniques” for case study analysis. Yin’s description of pattern matching is akin to Campbell’s wherein pattern matching “compares an empirically based pattern with a predicted one. If the patterns coincide, the results can help a case study to strengthen its internal validity” (p. 116). Comparing the predicted pattern (theoretical predictions) with the empirically observed pattern serves to either substantiate or discredit the underlying assumptions of the theory in question (Hak and Dul, 2009). This comparison serves as the lynchpin between pattern matching and the previously discussed analytical generalization which bolsters a study’s claims of internal validity.

The current study looks to employ this practice of pattern matching to test Durkheim’s anomie theory. If Durkheim’s theory of anomie is correct and the Bakken region is in fact experiencing a heightened state of anomie, elevated rates of violent crime, suicide, and oil and gas worker deaths should be revealed through a search of the official records as well as numerous accounts of these social ills in other sources of evidence. Combined with documentary evidence, these trends in official rates of social ills provide the empirical evidence to be “matched” against the theoretical predictions extrapolated from Durkheim’s theory.

Available Data

Yin (2003, p. 83) lists six possible sources of evidence for case studies: documents, archival records, interviews, direct observations, and physical artifacts. Though prevalence of these different sources will vary from study to study, Yin stresses the importance of using multiple sources in an effort to achieve a “convergence of evidence” (p. 99). When

researchers are able to triangulate their data through multiple sources, their results are not only more persuasive, but the internal validity of the study is enhanced. The current study utilizes documents, archival records, and physical artifacts (in the form of photographs) in its attempt to achieve the aforementioned convergence of evidence.

The presence and use of archival data varies among case studies; however, the current study relies heavily on archival data to test Durkheim's anomie theory. Archival data for the current study consists of quantitative data concerning oil production, income, population, violent crime, suicide and oil and gas worker deaths available from official records. And though quantitative data and analysis is not the most prevalent approach in case study research, the research questions guiding the current undertaking make it eminently appropriate (Korzillus, 2010). While official crime data has its shortcomings, it is widely accepted, and for this reason it is utilized as archival data for this study.⁴⁵

This archival data is supplied by the North Dakota Attorney General's Annual Crime Report, United States Census Bureau, AFL-CIO Annual Reports and the United States Bureau of Labor Statistics, the North Dakota Department of Health and North Dakota's Department of Mineral Resources. Respectively, these sources provide information regarding violent crime rates, population and income, worker death rates, suicide rates and rates of oil extraction. These archival data provide a constant and quantifiable description of the Bakken

⁴⁵ According to Loftin and McDowall (2010, p. 528) shortcomings include: lack of consistent definitions of crime and reporting practices across agencies, the underreporting of crime (i.e the "dark figure" of crime), bias in reporting agencies, incomplete and poorly documented missing data, lacking demographics, and the understanding that official data often represents the interests/focus of specific agencies. Another problem with official crime data is its inability to account for corporate crimes and harms.

region over the course of fifteen years (1999-2014), eight pre-boom (1999-2007) and seven boom (2008-2014) years. Thus allowing for comparison on pertinent variables (oil production, income, crime, suicide, etc.) between pre and boom years, and serving as a test of the theoretical predictions extrapolated from Durkheim's anomie theory, and previously proposed in this chapter. Rates of income, crime and suicide for the nearby state of Iowa are utilized as a comparison group for the Bakken region.⁴⁶ Alternative population figures, Bangsund and Hodur (2015), for the town of Williston are used to create alternative crime rates of the "epicenter" of the oil boom when available.

Documentary evidence is germane to almost every case study, with the current topic being no exception (Yin, 2003). The Bakken region has attracted a great deal of attention, and for this reason documentary evidence is plentiful. From agency and university studies to news articles and mainstream media accounts, sources of documentary evidence are both abundant and crucial for topics that are not easily quantifiable (e.g. working/living conditions) or where quantification may lag due to rapid changes in the social environment. Perhaps the greatest strength of documentary evidence lies in its ability to address issues that may be overlooked by official data sources as well as supplement the archival data by adding depth and detailed descriptions of specific instances of crime, worker harms, and possibly suicide. The current study gathers documentary evidence from newspaper articles, qualitative studies conducted by university and regional law enforcement agencies, mainstream media reports, and publicly available interviews.

⁴⁶ Rates of per-capita income are only available from the Iowa State Data Center for the years 2005-2014. Suicide rates for Iowa were only available for the years 2001-2014. Otherwise all other variables are available for the years 1999-2014.

Considered physical artifacts (Sandweiss, 2007), photographic images comprise this study's final source of evidence. Ferrell and Van de Voorde (2010, p. 36) believe the use of photography in criminology is both called for and "long over-due". Photographic documentation demonstrates the connection between "objective inquiry and subjective analysis" (p. 40) that has long been a source of debate in the field of criminology. The visual evidence utilized in this study is intended to add depth and meaning to the quantitative evidence, and is not intended as simply supplementary. This visual material looks to display both "human pathos and larger patterns of social harm" which may be present in the Bakken region, and that quantitative data is unable to capture (Ferrell & Van de Voorde, 2010).

An argument can be made that the Bakken region has reached somewhat of a saturation point concerning visual evidence. This inundation of evidence makes identifying the "decisive moment" (Cartier-Bresson in Ferrell, 2010, p. 46) a formidable undertaking, and one of which this work does not claim to be capable;⁴⁷ however, when combined with the other sources of evidence a sort of "instant ethnography" (Ferrell, Hayward, and Young, 2008) may be achievable, and this is the objective of the current study.⁴⁸ The visual evidence for this project was acquired from mainstream media sources, local newspapers and social media sites dedicated to the Bakken. Documentary evidence and physical artifacts are utilized to add depth to the quantitative archival data at the center of the analysis. The

⁴⁷ The Bakken is the subject of multiple Facebook and Twitter accounts, magazine pictorials and an entire art exhibit.

⁴⁸ Cartier-Bresson characterizes the decisive moment as "the simultaneous recognition, in a fraction of a second, of the significance of an event as well a precise organization of forms which give that event its proper expression" (Cartier-Bresson in Ferrell as cited in Van de Voorde, 2010, p. 46).

combination of these evidence sources complement each other while offering their own unique contribution.

Unit of Analysis

Yin (2006, p. 43) contends the “unit of analysis, though not necessarily the unit of data collection, holds a study together”. In an earlier work, Yin (2003) suggests the appropriate unit of analysis will present itself based on a well-founded research question. The current study adheres to this statement and for this reason determined the Bakken region of North Dakota between the years 1999-2014 serves as the primary unit of analysis, though not necessarily the unit of data collection. Within this primary unit of analysis are secondary units of analysis consisting of major cities and the counties of core economic activity within the Bakken region.⁴⁹ The term “region” or “regional” when used in analysis refers to pooling of data from the following counties: Williams, McKenzie, Dunn, Stark, Mountrail and Ward. Data concerning violent crime are available at the city and county levels, allowing for regional level data to be pooled. Due to issues of confidentiality, suicide data is available only at the regional level and data concerning worker death rates is available at the state level.⁵⁰ Appealing to clarity and simplicity, all documentary and visual data will be considered at the regional level to avoid confusion.

⁴⁹ The Federal Reserve Bank of Minnesota refers to: Dunn, McKenzie, Mountrail, Stark and Williams counties as comprising areas of core economic activity; Ward County, Minot specifically, is referred to as the “Gateway to the Oil Patch” and for this reason is included.

⁵⁰ Though death rates of oil and gas workers are recorded and presented here at the state level, drilling activity takes place almost exclusively in the Bakken region, and therefore warrants serious consideration as a regional statistic.

Major cities in the Bakken region along with the six counties of core economic activity serve as a secondary unit of analysis with regards to violent crime rate. Establishing violent crime rates for these major cities and counties along with pooling them into one regional rate generates more data to utilize in the pattern matching process which appeals to the internal validity of the model (Yin, 2003). Suicides rates were compiled from data provided by the North Dakota Department of Health, and due to reasons of confidentiality are presented only at the regional level. Though rates of oil and gas worker deaths are reported at the state level, the vast majority of these deaths occur in the region defined as the Bakken and for this reason should not prove problematic.

Variables

Dependent Variables

Rates of violent crime, suicide and worker deaths serve as the dependent variables of interest. Crime rates of one sort or another (e.g. homicide and assault) are well-established variables in tests of Durkheim's anomie theory (Krohn, 1978; Pridemore et al., 2007; Pridemore & Kim, 2006, 2007; Thome, 2010; Webb, 1972). Suicide is another mainstay that has been utilized in numerous studies (Condereli, 2013; Graeft & Mehlkop, 2007; Iga & Ohara, 1967; Minagawa, 2012; Pridemore et al. 2007; Quinney, 1965; Stockard & Brien, 2002; Wasserman, 1984) involving Durkheim's anomie theory. However, a variable that has not been explored in this arena is that of worker death rate. A search of the literature turned up no instances of worker death rates being utilized by any study in which anomie (Durkheimian or otherwise) is the theoretical engine. Given the connection between anomie

and the sphere of industry suggested by Durkheim in both *The Division of Labor* and *Suicide*, this variable seems intuitive for use in the present analysis.

Data concerning violent crime rates in the Bakken are provided by the North Dakota Attorney General’s Annual Crime Report. This report supplies raw numbers for both violent crime totals and populations for the counties and cities of interest. Rates of violent crime for the years 1999-2014 were figured for the counties and cities of interest.⁵¹ Murder/non-negligent manslaughter, forcible rape, robbery and aggravated assault constitute the category of violent crime from which rates were determined. Thome (2010, p. 11) maintains that simply utilizing the murder/homicide rate of “smaller regional units”—such as the area under examination—does not provide the most accurate indicator of the “general level of violence” that area is experiencing. Based on this recommendation, it was determined the inclusion of these crimes provided a more complete picture concerning rates of violent crime in the Bakken.

Concerns with “official” population estimates necessitate the use of a second, more generous and dynamic estimate. This estimate is provided by Bangsund and Hodur (2015) who specify the category of “service population” as a more inclusive grouping able to account for the individuals residing in non-traditional dwellings, which “official” estimates

⁵¹ Concerns with “official” population figures are recognized. State census population estimates (from the AG Crime Report) were used to calculate the crime rates for the Bakken region and North Dakota. Difficulties establishing a correct population are acknowledged due to the rapid influx of people into the area; however, given the circumstances this “official” estimate was deemed most appropriate if still lacking. Bangsund and Hodur’s alternative service populations were used to create alternative rates when available.

may overlook. Bangsund and Hodur created estimates for 2012 and 2014 for the “epicenter” of the Bakken region, Williston, North Dakota. Bangsund and Hodur’s estimates are used to create alternative rates of violent crime for the town of Williston for the years available. These rates will then be compared to current “official” rates as well as pre-boom rates.

As mentioned earlier, due to confidentiality reasons, suicide data are unavailable at the county level. However, when all counties were combined, the Department of Health was able to provide raw totals of the number of suicides for the Bakken region comprised of the counties of core economic activity.⁵² Rates of suicide were created from the same population estimates used to create violent crime rates. It should be noted that only individuals considered North Dakota residents are included in these rates. Individuals suspected of committing suicide but who are not North Dakota residents are not included in these rates. While it is purely speculative, this likely reduced the overall rate of suicide for the region as higher rates of suicide are associated with transient populations (Pierce, 1967).

Available data from the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) and Occupational Safety and Health Administration (OSHA) reports from the years 1999-2014 provide worker death rates for the final dependent variable. A brief search concerning oil and gas worker safety turns up many stories concerning the dangers of oil field work. As pointed out by Nichols (1986, p. 290), “it would be foolish to overlook that some work processes are inherently more dangerous than others”; however the objective in exploring rates of oil and gas worker deaths within North Dakota is to provide a comparison with worker death rates from the larger oil and gas industry in the United States.

⁵² Micki Savelkoul and Beth Carmell’s aid in accessing this data is much appreciated.

If oil and gas workers in North Dakota are experiencing substantially higher job-related death rates, not only would this support Durkheim's theory, but from a more critical standpoint these deaths may be considered to be as criminal or violent as those acts reported in the UCR. This would be the case if it is discovered that oil and gas companies are engaging in lobbying for regulations or engaging in business practices that de-emphasize or outright disregard worker safety. Also, a more critical interpretation is warranted if funding for the control of "typical" or "street" crime is increasing while at the same time regulation efforts concerning the safety of oil and gas workers is not receiving similar funding increases, or worse if there are legislative efforts to decrease regulatory efforts.

Explanatory Variables

Rapid economic change serves as the key explanatory variable and is operationalized through increases in barrels of oil produced (BBLs) in the Bakken region as reported by the North Dakota Department of Mineral Resources (NDDMR).⁵³ Rates of oil production were calculated using historical oil production records for each of the six counties between the years 1999-2014. The county totals were pooled together to create both annual totals and monthly averages for the "Bakken region" for the years of analysis as well as pre-boom and boom production rates for the region. Rapid economic change is viewed as the crucial explanatory variable in this analysis because, in Durkheim's work, it is the most prominent cause of anomie.

Population trends are also of interest to the current study and serve as indicators of rapid social change, and general trends in population will be examined. Concerns regarding

⁵³ This data is available at: <https://www.dmr.nd.gov/oilgas/stats/historicalbakkenoilstats.pdf>

an accurate population total are acknowledged; however, given the circumstances the “official” estimate was deemed most appropriate if still lacking. Population concerns stem from the “unprecedented growth” (Bangsund & Hodur, 2015) the Bakken region has experienced since the onset of the most recent oil boom. This difficulty establishing a reliable population is indicative of rapid social change in and of itself. This unprecedented growth yields unconventional living conditions (e.g. man camps, campgrounds, etc.) which do not allow for individuals to be counted in “official” population estimates. For this reason, Bangsund and Hodur (2013, 2015) created population models which accounted for many of these individuals living in some of these non-conventional dwellings. These “service population” estimates are more inclusive and therefore much more generous than official population counts. Use of these alternative rates were discussed previously in the dependent variables section.

Income is straightforward variable that warrant inclusion because of its relevance to Durkheim’s theory of anomie, and indicator of rapid economic change. Any significant increase in income for the region would be representative of the “fortunate crises” that Durkheim ([1897]1951) insists contribute to heightened states of anomie and subsequent escalations in social ills. Income data will be gleaned from state census data as well.

Anomie

Issues operationalizing Durkheim’s anomie are discussed in depth in Chapter III. In brief, due to its complicated nature and splintered presentation, operationalization has taken many forms. Having said that, the current study avoids one major pitfall of previous studies. The use of longitudinal, rather than cross-sectional, data within the same unit of analysis provides for an appropriate assessment of the dynamic nature of the theory. Also, that a

definitive cause of anomie is available for such a geographically isolated area constitutes a level of precision in the current study unavailable to many previous tests of the theory. Previous tests (Krohn, 1978; Webb, 1972) of Durkheim's anomie theory compared disparate regions simultaneously based on some measure of "anomie", most likely some indicator of economic development. This approach is problematic because, as previously noted, anomie is a phenomenon that occurs in the 'evolution and organizational development of individual communities' (Webb, 1972, p. 654). The comparison of mutually exclusive societies disallows for a true test of the theory. In contrast, the current undertaking's focus on a concise geographic area allows for a proper test of Durkheim's theory. In correlation to the view of Pridemore et al. (2007), concerning Russia in the early 1990's, it is difficult to think of any other precipitating event which might have led to major disruptions in the Bakken region of western North Dakota aside from the oil boom.

This project examines rates of the previously mentioned dependent variables (violent crime rates, suicide rates and worker death rates) in the context of rapid economic change (evidenced by increase in BLS and regional incomes). If a concurrent increase in both dependent and independent variables is detected, as predicted by theoretical propositions 1-3, it will be theoretically contended the expeditious expansion of the oil industry brought with it rapid social change resulting in heightened anomic states. If no such increase is detected, the study will provide no support for Durkheim's theory.

Critical Summary

As established, the current study involves an empirical assessment of Durkheim's anomie theory as it is presented in *The Division of Labor* and *Suicide*. To accomplish this task, rates of violent crime, suicide and worker deaths in the Bakken region are explored

between the years 1999-2014. As previously stated, the following research questions are asked: *1) How have rates of violent crime, suicide and worker fatalities changed in the Bakken region, if at all, during this time of rapid economic change? And 2) are the findings consistent with the predictions of Durkheim's anomie theory?* A mixed methods case study exploring rates of violent crime, suicide and oil and gas worker deaths concurrent to rates of increasing oil production will provide the evidence to answer these questions.

One unique contribution of the current work concerns the application of Durkheim's anomie theory to the area of worker safety. A multitude of works have applied Durkheim's theory to explorations of violent crime and suicide; however, no studies of worker death rates from a Durkheimian viewpoint could be located.

The case study's demand for multiple sources of data (Korzillius, 2010) means it naturally lends itself to a mixed methods design. The current investigation employs the triangulation convergence design wherein quantitative data serves to test a theoretical framework with qualitative data used to "corroborate" and add a deeper understanding to quantitative findings (Creswell and Plano-Clark, 2011). Based on proposed theoretical predictions, if the Bakken region is in fact experiencing an acute state of anomie, an upturn in the dependent variables will be evidenced through examination of both official statistics and concerns expressed in documentary evidence. Pattern matching serves to test theoretical predictions through the comparison of empirical findings with those predictions deduced from the theory of interest. The study employs variables (suicide, violent crime, rapid economic change) that have been utilized in previous works examining Durkheim's anomie theory; however, the investigation of worker harms is an area unique to this work. Findings are divided into two chapters, with quantitative findings being presented in Chapter 6 and

qualitative findings in Chapter VII. Chapter VI presents quantitative findings concerning oil extraction, income and population along with coinciding rates of violent crime, suicide and oil worker deaths in the Bakken region before and during its most recent oil boom.

CHAPTER VI

QUANTITATIVE INQUIRY

The following chapter presents quantitative findings from the Bakken region regarding indicators of anomie and coinciding rates of violent crime, suicide and oil worker deaths. Trends regarding oil production, income and population experienced by the Bakken region are discussed first and serve as indicators of rapid social change and sources of anomie. Next, findings concerning rates of violent crime from the Bakken region during the years 1999-2014 are offered, before rates from individual counties and cities of relevance within the region are presented. Subsequently, findings concerning the Bakken's suicide rate are examined. Lastly, death rates for oil workers in the region are submitted for consideration. As comparison, the Bakken's ordeal is also framed in a larger context, where trends concerning rates of violent crime and suicide for North Dakota absent the Bakken's (NDAB) influence and the nearby state of Iowa are explored. Death rates experienced by Bakken region oil workers are compared to Texas. Texas is the only state producing more oil than the Bakken region as of 2014, and has a more established oil industry. Tables and figures are utilized throughout the chapter to visually display imperative trends and findings.

Trends in Oil Extraction, Income and Population

Since its beginning in the early 1950s, oil production has maintained a constant presence in the Bakken region. While this presence has waxed and waned for more than fifty years, this most recent boom has brought with it unprecedented growth for the oil industry

(NDDMR) and the population in the region (Bangsund & Hodur, 2015). At the same time, the Bakken has seen both the median and per-capita income of its population grow at an expeditious rate. Population and income estimates from census data are employed in analysis.⁵⁴ These estimates are used to calculate changes in the variables between 1999 and 2014. Also, changes between the pre-boom (1999-2007) and boom (2008-2014) years' average incomes are calculated and reported. Trends concerning oil production for this time period are taken from the North Dakota Historical Monthly Production by County Reports available from The NDDMR. Increased yearly totals served as an indicator of growth in the oil industry as well as economic prosperity.

Oil extraction

Without question the seminal catalyst for this study and current state of the Bakken region is the rapid expansion of the oil industry. As previously mentioned, the oil industry has had a presence in North Dakota since the early twentieth century and has been extracting oil, to one degree or another, from the region since 1951 (Schaff, 1962). The current boom has resulted in unprecedented growth in the oil industry (Seifert, 2009), along with unheard of population growth and economic prosperity for the region (Bangsund & Hodur, 2013). Rates of oil production were calculated using historical oil production records for each of the six Bakken counties between the years 1999-2014, available from the NDDMR website. The county totals

⁵⁴ State census population estimates were used for this study. Difficulties establishing a correct population are acknowledged due to the rapid influx of people into the area; however, given the circumstances this “official” estimate was deemed most appropriate, if still lacking.

were pooled together to create both annual totals and monthly averages for the years of analysis as well as pre-boom and boom year production rates for the region.

Oil production in the Bakken region ranged from a low of 12.3 million barrels (BBLs) during the year 2005 to 355 million BBLs in 2014, a difference of 2,786%. These same years also provided the extremes for monthly average oil production with 2005 averaging just over 1 million BBLs monthly and with 2014 reporting an average of 29.65 million BBLs, a difference of 2,800%. Prior to the onset of the oil boom, around 2006, oil production experienced a slight decline for six consecutive years during 1999-2005; from 2006-2014 the region's oil industry experienced an annual growth rate of slightly over 45%. Finally, during the pre-boom years the region produced 1.24 million BBLs of oil per month on average, in comparison to 13.65 million BBLs on average a month, an increase of almost exactly 1000%. Given the breakneck increase in annual and average monthly BBLs of oil extracted from the region, it appears obvious there has been a rapid expansion of the oil industry in a short time. Expansion in oil production for the Bakken region is displayed in Figures 1 and 2. These figures display the rapid expansion the oil industry underwent beginning around 2008. This rapid expansion brought with it new economic conditions; conditions Durkheim maintained required new societal level regulatory mechanisms, without which increased states of anomie would occur.

Income

According to census data, the Bakken region has experienced an increase in median income of 140%, from \$30,916 to \$74,264, between the first and last year of analysis (1999 and 2014). Average median income for the pre-boom years of 1999-2007 was \$35,351 compared to \$61,222 for the boom years, an increase of 73.2%. An even larger increase was

discovered regarding per capita income. Average per capita income in the Bakken region during the pre-boom years was \$26,463 compared to the boom years' average of \$61,580, an increase of 132.7%. The most extraordinary difference is produced when the per capita income from 1999 (\$20,962) is compared to that of 2014 (\$83,157), an increase of 296.7%.

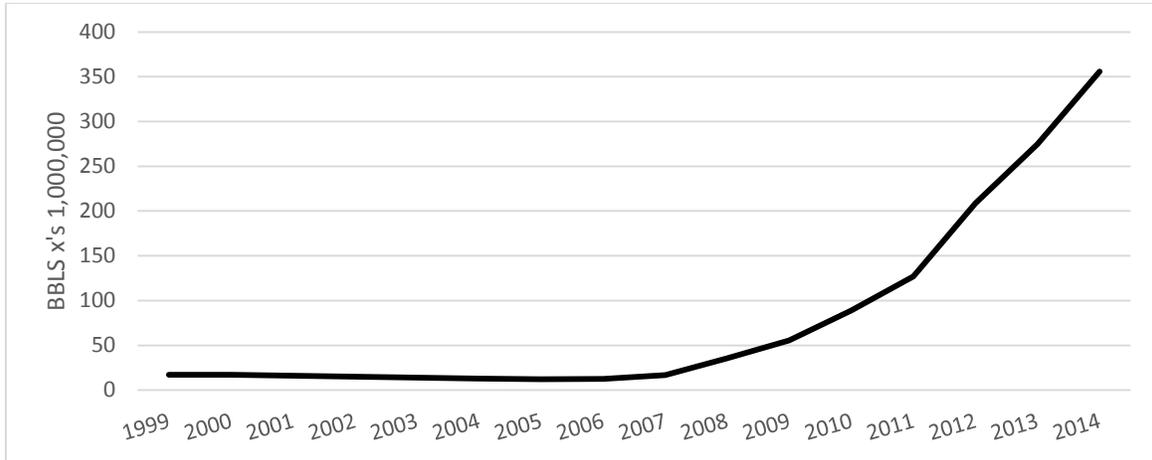


Figure 1. Annual oil production for Bakken region, 1999-2014

During this same time period North Dakota as a whole saw its median income increase 83.5% between 1999 and 2014, from \$32, 813 to \$60,227 respectively. Pre-boom median income averaged \$37,782 while the boom years' reported an average of \$52,3589, an increase of 38.6%. North Dakota also reported what appears to be a telling, though not as drastic, increase in per-capita income during this stretch of time. Per-capita income averaged \$29,211 during the pre-boom years while the boom years saw per-capita income grow to \$48,105, an increase of 64%. An overall of increase in per-capita income of 135.4% was found between the first and final year of analysis, from \$23,701 in 1999 to \$55,802 in 2014.

According to Iowa's State Data Center Program, median income ranged from

\$39,537 in 1999 to \$53,816 in 2014, an increase of 36.1%. It is important to note that Iowa's median income started out almost \$10,000 dollars greater than the Bakken's. However, by 2014 the Bakken's median household income had not only experienced a much greater increase than Iowa, but surpassed Iowa's median income by \$20,000 dollars.

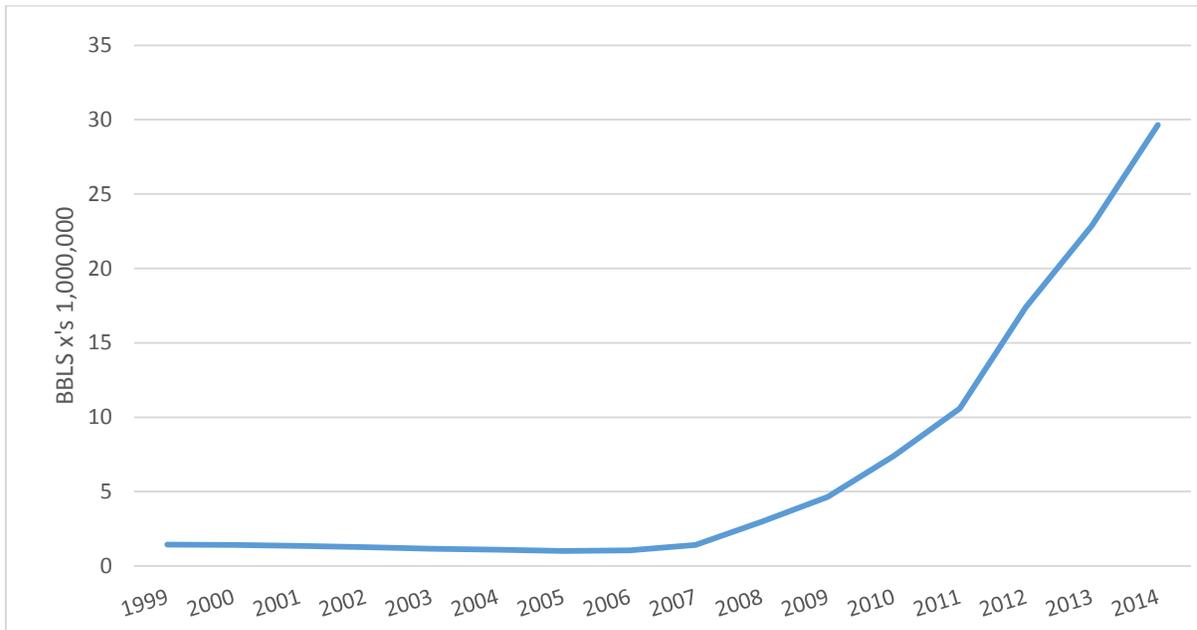


Figure 2. Average monthly oil production from Bakken region, 1999-2014.

While only available for the years 2005-2014, Iowa's per capita income tells an even more dramatic story when compared to the Bakken. Iowa reported an increase of over 20% in per capita income between 2005 and 2014. In contrast to the Bakken, the increase Iowa experienced in both median household and per capita income appears less remarkable.

Figures 3 and 4 display the increase in income for the Bakken region in comparison to the entire state of North Dakota and Iowa, together with the increase in oil production. The figures show that the Bakken region experienced the greatest increase in both per-capita and median household income between the three regions. Of the three regions, the Bakken began

the analysis with the slightest income and surpassed both North Dakota and Iowa during the boom years. The Bakken's per-capita income is greater than North Dakota's by more than \$25,000. Durkheim ([1897]1951) contends the abrupt growth of wealth, such as that of the Bakken region populace, can be a source of heightened anomie because it leads individuals to pursue the infinite.

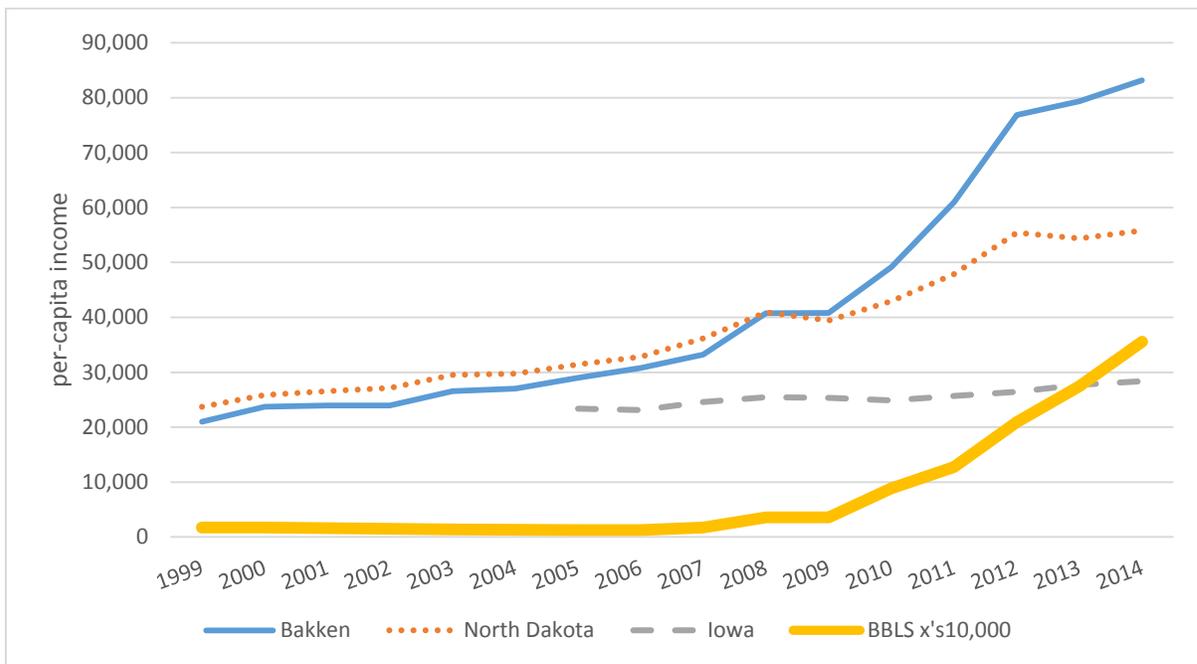


Figure 3. Per-capita income for the Bakken region, North Dakota and Iowa, 1999-2014

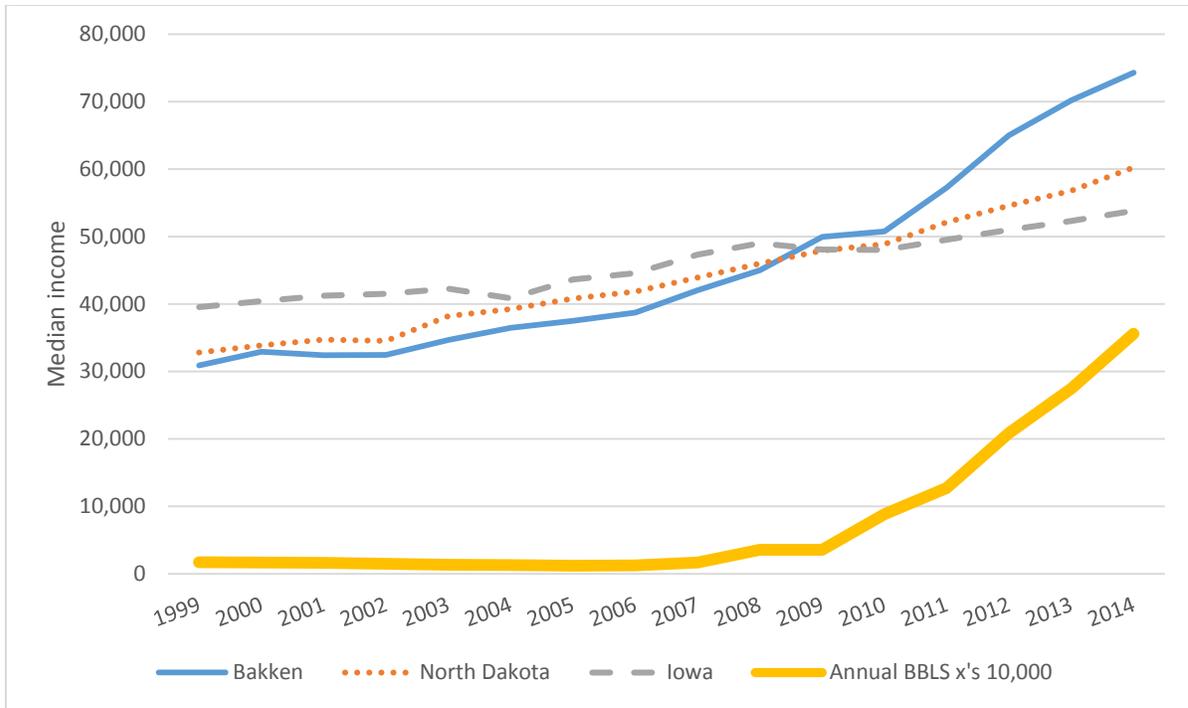


Figure 4. Median household income for the Bakken region, North Dakota and Iowa, 1999-2014.

Population

Population presents as the most troublesome variable of the three discussed in this section. As previously noted, multiple sources have referred to the unprecedented growth experienced in the Bakken region over the course of the current oil boom (Bangsund & Hodur, 2013/2015; MATIC & NDSLIC, 2012). The epicenter of the boom, Williston, is the fastest growing micropolitan area in the nation, according to the Williston Economic Development Department; and the United States Census Bureau confirms that Williams County was in fact the fastest growing county in the nation between the years 2010 and 2013.⁵⁵ It is also worth noting, according to official census records, the Bakken region was actually experiencing depopulation during the pre-boom years of analysis. Between the years

⁵⁵ The county in which Williston is located.

1999 and 2006, the region's population decreased 3.5%, from 116,639 to 112,628. Only after 2006 do census records show the region's population increase, concurrent with the earliest oil boom activity. According to census data, the region experienced an overall increase in population of 33% between the years 1999 and 2014. However, as previously noted, prior to the boom the region was experiencing depopulation, so the regional population was at its lowest in 2006. The change from this population low to the final year of analysis is 37.8%. The population of the Bakken region ranged from 112,528 in 2006 to 155,143 in 2014, with an average population of 114,703 for the pre-boom years and 130,209 for the post-boom years, a difference of 13.5%.

The rapid rate and dynamic nature of the population growth in the region (e.g. FIFO workers)⁵⁶ makes it difficult to produce an accurate population estimate. Having said that, Bangsund and Hodur (2013/2015) have set about trying to produce an estimate of the population in the region which includes many individuals ignored by official population estimates.⁵⁷ The authors' produce "service population" estimates for the city of Williston for the years of 2012 and 2014 of 25,915 and

⁵⁶ FIFO stands for 'fly in and fly out'. This acronym is commonly used in resource dependent areas to describe a workforce population that only resides in an area for work and 'flies out' to their home (often times many states away) during their off time.

⁵⁷ Bohnenkamp et al. (2011) discovered two major themes concerning population trends. Not only were populations growing at a tremendous rate due to rapid influx of new workers; just as important was the outmigration of established community members due to disruptions associated with the oil industry. While the influx of new residents provides an obvious source of community disruption, the outmigration of established residents means the weakening of pre-established institutions and any regulatory influence they might have offered.

31,143 respectively.⁵⁸ The difference between the ‘official’ estimates of 16,373 in 2012 and 22,699 in 2014 and these service populations is 58.3% in 2012 and 37.2% in 2014. These more generous service population estimates were used to create crime rates for available years, which are compared with rates created from “official” population estimates. Figures 5 and 6 display ‘official’ population estimates for the Bakken region and Williston with data on oil production included for comparison. Williston’s population is included because it is considered to be the epicenter of the oil boom. Rapid population turnover serves to heighten states of anomie because it provides an environment in which it is difficult to establish any norms and regulatory mechanisms. Durkheim ([1893] 1984) contends that societal scripts, which serve to regulate interactions, are only produced after ample repetition. When an area is sustaining rapid change and turnover in population, the repetition required for the creation of new scripts is unlikely to take place. It is possible that Bakken region found itself in these conditions during the boom years.

Violent Crime

Violent crime rates were created using the North Dakota Attorney General’s Annual Crime Report. Reports of homicide, rape, robbery and aggravated assault were used to calculate rates for each of these individual crime categories before being pooled to create an overall violent crime rate. Rates were created for the cities of Dickinson, Minot, Watford City and Williston; the counties of Dunn, McKenzie, Stark, Ward and Williams; and finally for the Bakken region as a whole. Rate change was calculated by comparing average rates of violent crime during the pre-boom years of 1999-2007 with the boom years of 2008- 2014.

⁵⁸ Service population estimates include those individuals who work in the area but live elsewhere and individuals who live in the area temporarily.

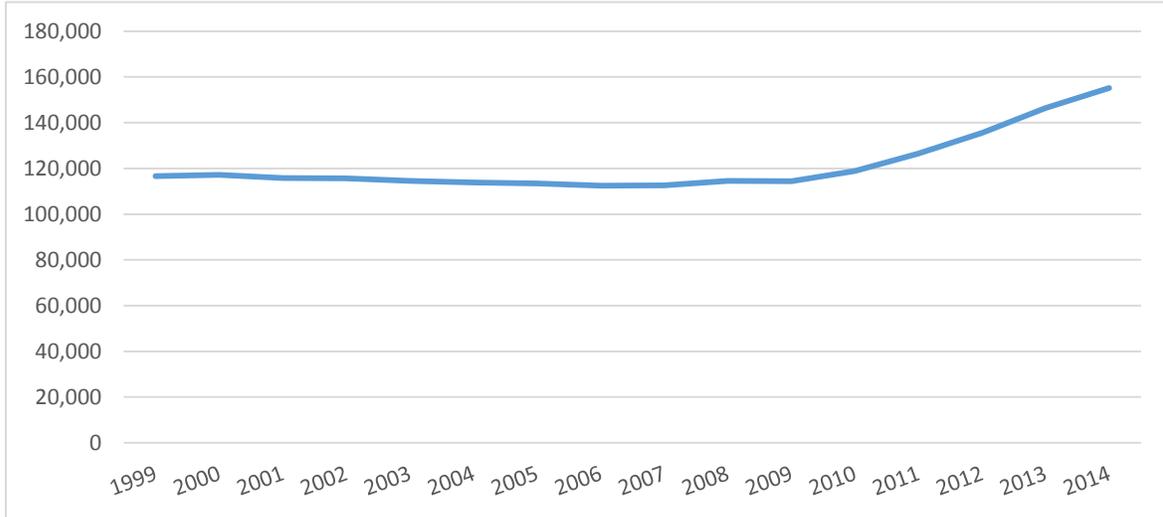


Figure 5. Bakken region Population, 1999-2014

Rate trends for the entire 15 year period along with rate changes for the pre-boom and boom years are presented. To provide two points of comparison, rates of violent crime were calculated for North Dakota absent the Bakken (NDAB) and Iowa for the same time period.

The Bakken

Overall trends concerning violent crime rates (overall violent crime, homicide, rape, robbery and aggravated assault) during the years 1999-2014 for the Bakken region are shown in Table 1. Given the small initial base numbers of violent crime in the Bakken region, rate trends were determined to be as important as overall rate changes, an approach both used and advised by previous generations of boomtown researchers (Freudenburg, 1980/1982). Changes in rates of violent crime appear to demonstrate a substantial increase for the region during this time period; an increase of almost 445% in overall violent crime rate was found.

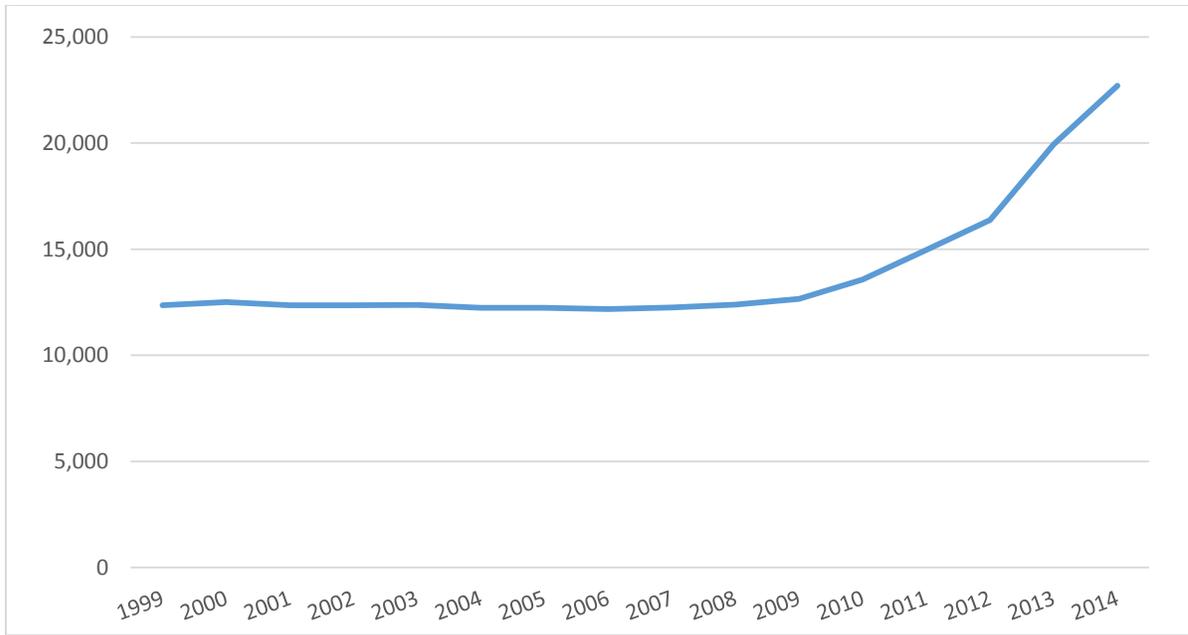


Figure 6. Williston Population, 1999-2014.

between the first (1999/53.99) and final year (2014/294.12) of the study.⁵⁹ Figures located throughout this chapter indicate that the most drastic increase in violent crime rates began around 2008. The Bakken region’s violent crime rate averaged 92.16 during the pre-boom years while the boom years produced an average of 228.45, an increase of 147.88%.

All categories of violent crime examined in the current analysis experienced an increase between the pre-boom and boom years, with aggravated assault incurring the most dramatic upsurge. During the pre-boom years, the Bakken region averaged a rate of 50.55 aggravated assaults while the boom years averaged 180.45, an increase of over 250%. Rates of aggravated assault ranged from a low of 24.19 in 2001 to a high of 228.33 during 2014. While rates of homicide remained well below the national average, there was an increase of

⁵⁹ All violent crime rates are per 100,000 inhabitants

over 100% during the boom years from 1.27 to 2.95. Table 1 displays rates of overall and individual categories of violent crime for the Bakken region for the years 1999-2014.

Table 1. Violent Crime Rates for Bakken region, 1999-2014.

Bakken	Overall Violent Crime	Homicide	Rape	Robbery	Aggravated Assault
1999	53.99	1.71	18.85	8.57	24.85
2000	83.69	0.85	32.45	7.69	43.55
2001	58.75	0	23.73	11.23	24.19
2002	78.62	0.86	31.10	8.64	38.02
2003	98.86	1.81	41.72	13.60	41.72
2004	122.21	0.91	42.86	14.59	63.84
2005	111.89	1.76	33.48	7.93	68.72
2006	89.79	0.89	23.11	11.56	54.23
2007	128.62	2.66	23.95	6.21	95.80
2008	152.78	0	36.67	5.24	110.87
2009	186.30	1.80	31.50	11.70	141.30
2010	199.91	3.47	35.55	11.27	149.12
2011	249.90	5.70	26.05	6.51	211.64
2012	245.02	4.43	33.21	8.86	198.52
2013	271.15	2.05	25.27	20.49	223.41
2014	294.12	3.23	40.64	21.93	228.33
pre/boom*	92.16/228.45	1.27/2.95	30.14/32.7	10/12.29	50.55/180.45
%change**	147.88	132.88	8.49	22.9	256.97

*pre-boom average compared to boom years' average

** Percent difference between pre-boom (99-07) and boom years' (08-14) average

North Dakota absent the Bakken (NDAB)

Violent crime trends for NDAB offer both telling and interesting results. NDAB also endured an increase in population for the time period 1999-2014, though proportionally not as severe as that of the Bakken. NDAB experienced an overall increase in population of 15.3%, from 517,361 in 1999 to 596,632 in 2014. In addition, similar to the Bakken region, NDAB saw an increase in all categories of violent crime for the years of interest; however, while NDAB possessed a higher overall violent crime rate during the pre-boom years (97.79), it recorded a smaller rate (182.14) and increase (86.26%) for the boom years of

analysis. As was the case in the Bakken region, aggravated assault was the category of crime that experienced the greatest increase. From a pre-boom average of 59.73 to 130.47 during the boom years (ranging from a low of 36.34 in 1999 to a high of 143.7 in 2013), the region experienced an increase of 118.6% between pre-boom and boom averages. An interesting and possibly confounding finding shows this region had the greater increase in rate of both rape and robbery, while producing the slighter increase in rates of overall violent crime. It appears anomic conditions may not have been contained strictly within the Bakken region. For information concerning rates of all violent crime in the NDAB region see Table 2.

Table 2. Violent Crime Rates for NDAB, 1999/2014

NDAB	Overall Violent Crime	Homicide	Rape	Robbery	Aggravated Assault
1999	73.84	1.74	24.16	11.60	36.34
2000	88.35	1.33	25.89	10.10	51.03
2001	85.94	1.73	25.44	11.18	47.60
2002	89.07	0.96	25.26	11.76	51.10
2003	74.50	1.91	18.53	7.64	46.41
2004	85.53	1.71	25.59	6.29	52.00
2005	107.53	2.39	26.93	8.40	69.90
2006	135.04	1.34	32.28	11.27	90.215
2007	140.30	2.56	33.18	11.57	93.10
2008	163.23	0.86	34.16	12.34	115.97
2009	169.99	2.43	31.91	16.61	119.10
2010	168.02	1.36	32.53	12.95	121.30
2011	186.40	1.43	31.19	14.80	139.00
2012	198.29	2.58	35.99	18.60	142.11
2013	201.20	1.99	34.66	20.97	143.67
2014	187.88	2.34	31.40	22.00	132.10
pre/boom*	97.79/182.14	1.7/1.8	26.37/33.11	9.99/16.9	59.73/130.47
% change**	%86.26	5.88	25.56	69.17	118.43

*Pre-boom average compared to boom years' average

**Percent difference between pre-boom (99-07) and boom years' (08-14) average

Comparison of Trends from the Bakken region, NDAB, and Iowa

Both the Bakken and NDAB appear to have endured substantial increases in violent crime rate. The Bakken region recorded the lower rate of overall violent crime (92.16) for the pre-boom years; however, it experienced both a greater increase and reported a higher rate for overall violent crime (147.88/228.45) during the boom years. With regards to homicide, the Bakken region experienced an increase of almost 130%, from 1.27 to 2.95 during the boom years, ranging from a low of .86 in 2002 to a high of 5.7 in 2011, compared to the NDAB's increase of only 5.88% from 1.7 to 1.8.

Rates of rape and robbery gleaned from the two regions produced somewhat unexpected results. While the Bakken region reported the higher rate for rape (30.14) during the pre-boom years, it ended up reporting both the lower overall rate (32.7) and increase (8.49%) between the two. While the difference between the rates was negligible, less than 1 per 100,000, what is surprising is the difference between the rise in rates experienced by the different groups. While the Bakken region experienced an increase in the rape rate just below 9%, NDAB reported an increase of 25.56%. That the rate of rape increased for North Dakota when the Bakken region was removed is an interesting and confounding finding. And again as was the case with rape, the region constructed of NDAB reported the greatest rise in robbery rates with an increase of almost 70% during the boom years. While the two regions reported identical rates of robbery for the pre-boom years, 9.9/10, the Bakken region had an average rate of 12.29 for the boom years, an increase of 22.3%. NDAB reported a robbery rate of 16.9, an average boom-time increase of 69.17%.

The final category of violent crime for which rates were calculated and compared is aggravated assault, which experienced the greatest increase in both regions, and also appears

to have had the greatest impact on overall crime rates for the regions as well. While both the Bakken and NDAB saw a notable escalation in assault rates during the boom years, the Bakken region's increase of 256.97% far surpasses NDAB's increase of 118.43%. The Bakken region's assault rate ranged from a low of 24.19 in 2001 to a high of 228.33 in 2014. As was the case with overall violent crime rate, the Bakken region recorded the lower rate of assault for the pre-boom years followed by a higher rate during the boom years. Figure 7 shows aggravated assault rates in the Bakken region and NDAB.

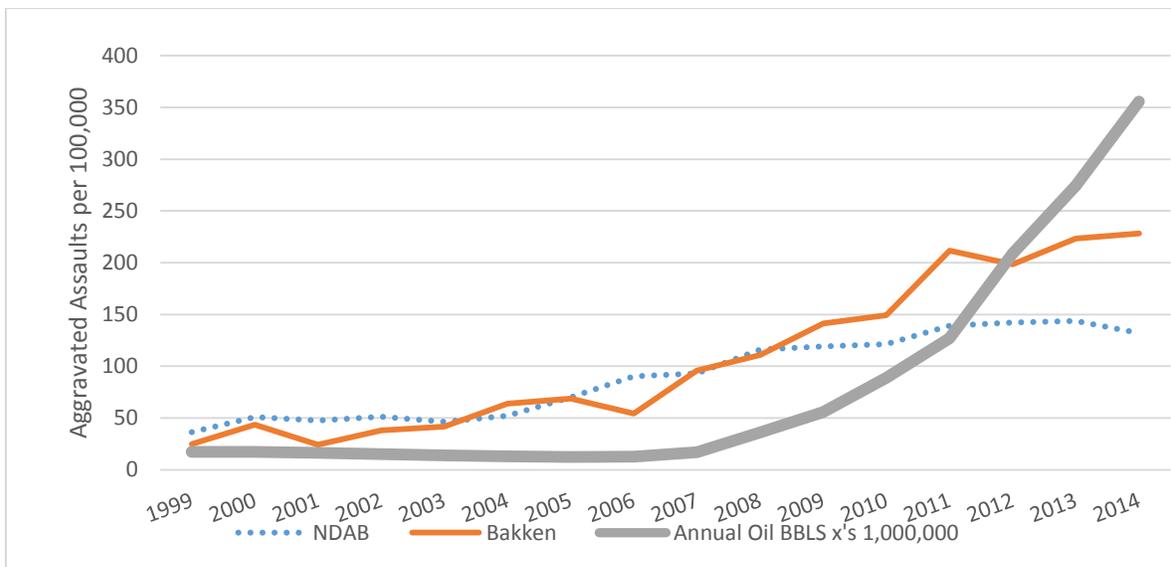


Figure 7. Rate of aggravated assault in the Bakken region and NDAB, 1999-2014.

Iowa. Trends concerning violent crime in the nearby state of Iowa provide a different narrative from that of Bakken region and NDAB. While Iowa's violent crime rate started out substantially greater than either the Bakken or NDAB, it experienced a decrease of 3.69% in average overall violent crime rate using the same pre-boom/boom years divide. The Bakken region's overall violent crime rate surpassed Iowa's in 2013 and continued to do so in 2014. Iowa reported increases in homicide (3.9%) and rape (6.25%) during the years 2008-2014, while reporting decreases in robbery (-14.79%), aggravated assault (-4.16%) and as already

mentioned, overall violent crime rate. Rates for overall violent crime rate, homicide, rape, robbery and aggravated assault are displayed in Table 3. Iowa’s overall violent crime rates are displayed for comparison alongside the Bakken region and NDAB in Figure 8. This figure shows that, of the three regions, the Bakken region experienced by far the greatest increase in overall violent crime rate during the years 1999-2014. Figure 8 shows Iowa’s crime rate fluctuated very little over course of the years under analysis. Meanwhile, both the Bakken and NBAD encountered telling increases in rates of violent crime. In comparison to NDAB and Iowa, both income (indicator of anomie) and rates of violent crime appear to be much greater for the Bakken region. That the Bakken region has experienced such a telling increase in rates of violent crime, especially in comparison to the rest of North Dakota and Iowa, during a time of rapid social change hints at the possibility pre-existing regulatory mechanisms no longer serve to regulate the behavior of the region’s populace, offering initial support for Durkheim’s anomie theory. Rates and trends in overall violent crime, homicide, rape, robbery and aggravated assault between the pre-boom and boom years for the six counties and four major cities that comprise the Bakken region are discussed in the following section.

Table 3. Violent crime rates for Iowa, 1999-2014.

Year	Overall Violent Crime	Homicide	Rape	Robbery	Aggravated Assault
1999	280.00	1.50	27.20	36.60	214.70
2000	266.40	1.60	23.10	36.60	205.10
2001	268.20	1.70	22.10	39.40	205.10
2002	285.70	1.50	27.10	39.80	217.20
2003	277.90	1.70	27.10	38.40	210.70
2004	287.80	1.50	26.50	39.30	220.60
2005	293.00	1.30	28.60	38.90	224.50
2006	285.70	1.80	29.20	43.90	210.80

Table 3. cont.

2007	300.20	1.30	32.50	44.40	222.00
2008	288.10	2.60	31.20	41.60	212.80
2009	282.10	1.30	29.60	39.90	211.30
2010	268.50	1.20	28.90	33.20	205.20
2011	257.30	1.40	28.30	26.90	200.70
2012	263.90	1.50	28.30	31.30	202.80
2013	273.00	1.30	28.20	30.30	204.80
2014	273.50	1.90	26.60	33.60	201.60
pre-boom*	282.77/272.34	1.54/1.6	27.04/28.73	39.7/33.83	214.52/205.60
% change**	-3.69	3.90	6.25	-14.79	-4.16

*Pre-boom average compared to boom years' average.

** Percent difference between pre-boom (99-07) and boom years' (08-14) average.

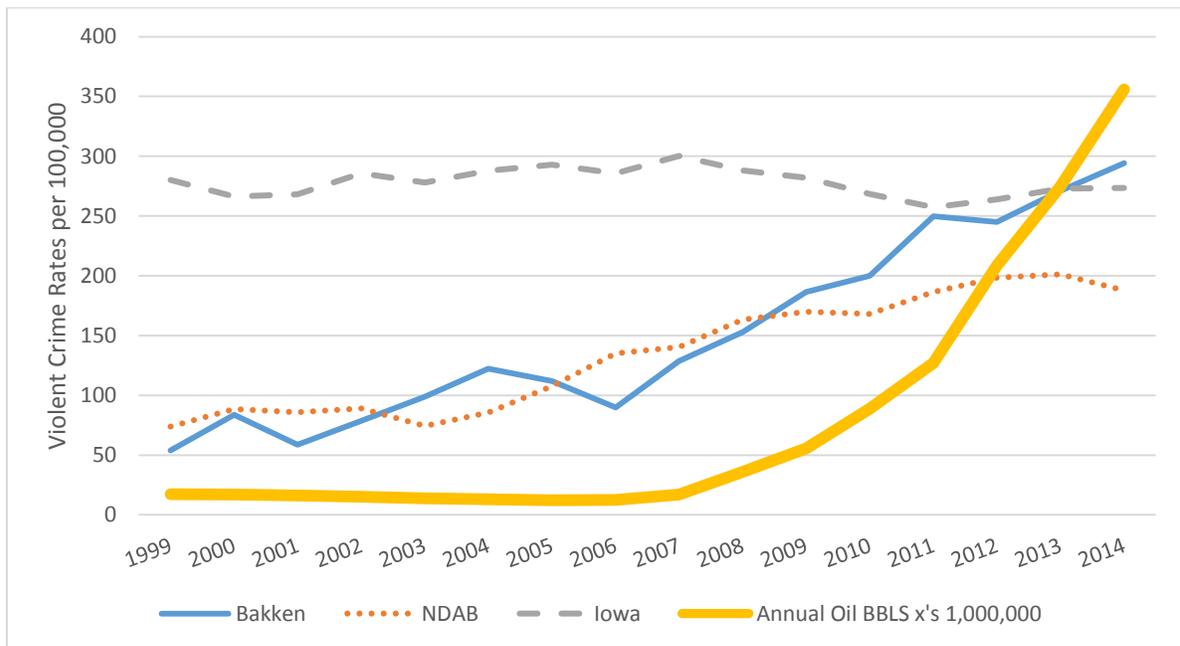


Figure 8. Violent crime rates for the Bakken, NDAB and Iowa, 1999-2014.

Bakken Counties.

Overall Violent Crime. According to the Minneapolis Federal Reserve, the counties of “core economic oil activity” include Dunn, McKenzie, Mountrail, Stark and Williams.

Ward County, specifically the city of Minot, serves as the “gateway” to the oil patch.⁶⁰ Rates of overall violent crime, homicide, rape, robbery and aggravated assault were examined for these counties during the years 1999-2014. Average rate of overall violent crime, pre-boom versus boom years, for the counties saw increases ranging from 76.23% (Ward) to 634.38% in Mountrail County. This finding demonstrates the aforementioned need for discretion when interpreting changes in rate. While Mountrail County endured an escalation in violent crime rate, it averaged only seventeen violent crimes per 100,000 inhabitants during the pre-boom years, while recording a rate of 124.4 for the boom years, while actually reporting zero violent crimes for multiple years of analysis (2006, 2007, and 2010). Dunn County reported zero violent crimes for almost a ten year span from 1999-2008, making calculating a rate change impossible.

Though it did not experience the greatest percentage increase, Williams County reported the highest overall violent crime rate during the boom years with an average of 335.22 and a high of 490.46 in 2014. Williams County’s rates far exceed Ward County’s boom average of 216.5 and McKenzie County’s 2014 rate of 388.9 as the next closest overall violent crime rates. During the pre-boom years, Williams County reported an average overall violent crime rate of 85.45 which results in an increase of 292.3% during boom years. Ward County, which registered the highest average crime rate during the pre-boom years, experienced the smallest increase, 75.23% in average crime rate for the boom years of the six counties. Expanding Durkheim’s theory of homicide to all instances of violent crime, especially aggravated assault, the rise in rates of violent crime for the Bakken counties is to be expected. It appears that increases in oil production and income have produced new

⁶⁰Available at: <https://www.minneapolisfed.org/publications/special-studies/bakken/oil-production>.

conditions of social life for which previous regulatory mechanisms have been rendered ineffective. Established scripts that once served to guide interactions are no longer effective and have resulted in escalated rates of violent crime.

Violent crime rates for all counties are summarized in Table 4, and displayed in Figure 9. During the pre-boom years, five of the six counties reported overall violent crime rates below 100. All counties under examination appear to have experienced a dramatic increase in violent crime rates during the boom years. As shown in Table 4 and Figure 9, the most dramatic increase in violent crime occurred subsequent to growth in the oil extraction industry and continued growing throughout boom years. Individual categories of violent crime are discussed in the following section.

Homicide. For the majority of the Bakken Counties rates of homicide either remained low or proved problematic for the years of analysis. These problems stem from a small population and one major outlier in Mountrail County in 2012. Of the six counties, 5 reported homicide rates of 0 for the majority of the years 1999-2014. As was the case with overall violent crime rate, Williams County reported the highest average rate of homicide for the boom years of 3.6, and experienced an increase of 227% during boom years. However, Stark County had the greatest rise in the homicide rate between pre-boom and boom years, 500%, increasing from .5 to 3.

Again, caution is urged in placing too much emphasis on large increases in rates of homicide due to the rare nature of its occurrence both pre-boom and boom, especially pre-boom. As previously noted, Thome (2010) maintains for this reason aggravated assault is the best indicator of overall violence for smaller regional units. Increases in homicide also occur subsequent to growth in oil production, i.e. post 2008.

Table 4. Violent crime rates for Bakken counties, 1999-2014

Year	Dunn	McKenzie	Mountrail	Stark	Ward	Williams	Annual Oil BBLs x's 1,000,000
1999	0	0	15.19	61.89	62.25	50.00	17.20
2000	0	104.62	15.08	83.94	96.96	75.90	17.09
2001	0	17.43	15.27	40.25	79.21	56.34	16.20
2002	0	0	61.09	58.16	103.38	71.75	15.07
2003	0	***	15.33	85.82	113.82	122.83	13.83
2004	0	***	15.42	85.79	162.10	98.23	13.02
2005	0	90.60	15.26	63.07	159.48	87.89	12.32
2006	0	53.70	0	40.82	127.45	93.47	12.61
2007	0	17.46	0	49.42	201.13	112.62	16.93
2008	0	14.38	46.28	159.98	168.64	209.47	35.84
2009	0	0	45.80	149.46	222.75	229.77	55.63
2010	0	33.17	0	209.52	225.45	229.86	88.86
2011	0	231.95	94.95	227.58	245.63	333.72	127.05
2012	236.53	320.34	205.24	190.22	190.75	437.20	208.74
2013	71.31	363.84	236.72	269.27	214.56	416.04	274.63
2014	206.85	388.92	242.88	186.14	247.91	490.46	355.77
pre/boom*	0/73.53	40.54/193.23	16.96/124.55	63.24/198.88	122.86/216.52	85.45/335.22	
%change**	****	376.64	634.38	214.48	76.23	292.30	

*Pre-boom average compared to boom years' average.

** Percent difference between pre-boom (99-07) and boom years' (08-14) average.

*** Data missing.

****Unable to calculate.

Rape. Four of the six counties experienced an increase in rape rate, while interestingly two counties saw a decrease in the rate. It warrants pointing out that three of the counties reported a minimal number of rapes during the pre-boom years. Because of this, pre-boom rates for McKenzie and Mountrail are comprised from one reported rape for each of these years, while Dunn County did not report any occurrences of rape outside the year 2012. Likewise, during this time Stark and Ward counties reported decreased rates of rape of 95.42% and 16.17% respectively. Stark County did not note any instances of rape beyond 2008, after reporting an average rate of 12.4 rapes for the pre-boom years.

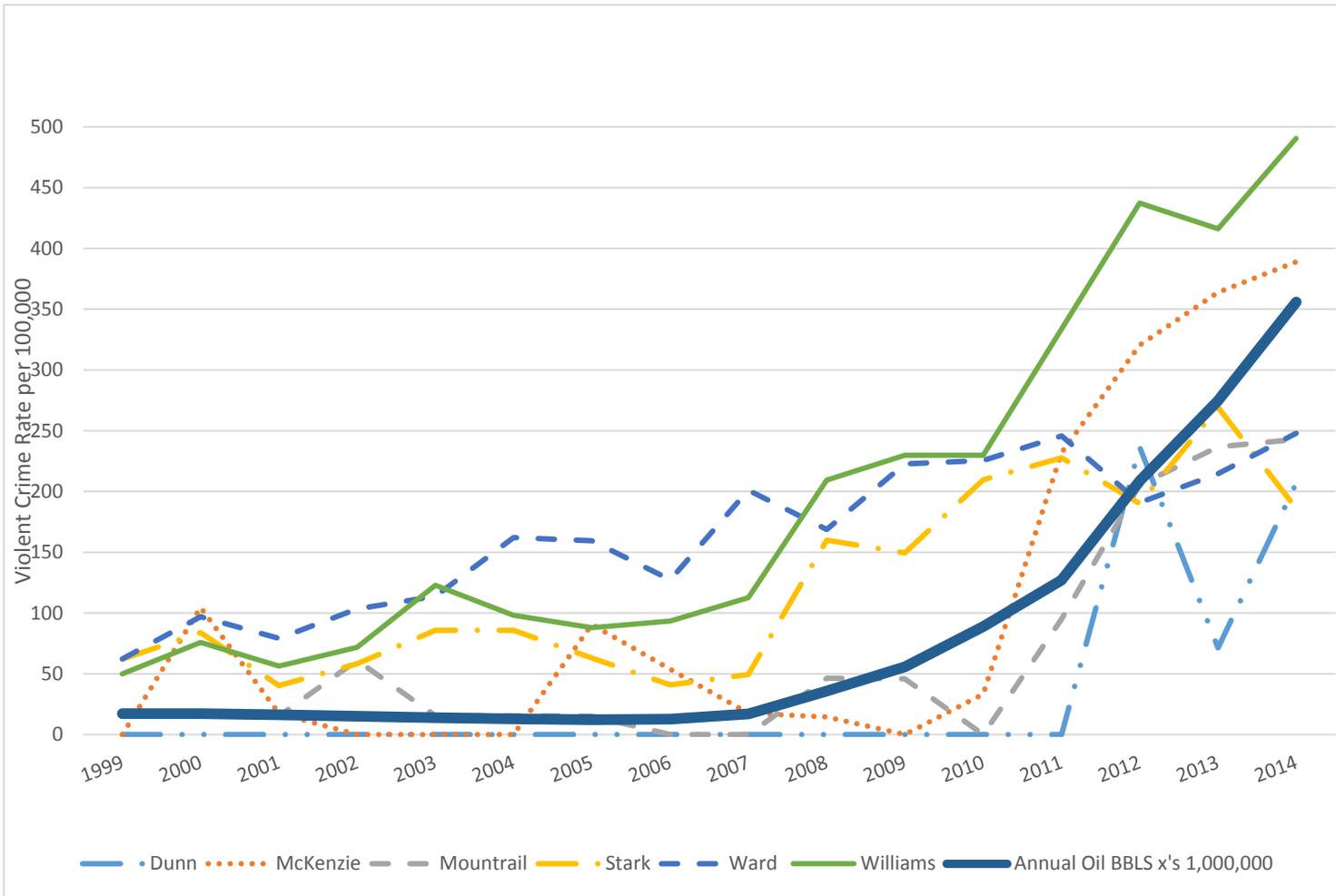


Figure 9. Bakken counties overall violent crime rate, 1999-2014.

For those counties that did experience an increase in rape rate, once again the most dramatic rise appears to ensue after rapid expansion in oil production. Rates of rape from the Bakken counties are summarized in Table 5.

Table 5. Rates of rape for Bakken Counties, 1999-2014.

Year	Dunn	McKenzie	Mountrail	Stark	Ward	Williams
1999	0	0	0	17.68	25.76	15.00
2000	0	0	0	26.51	42.53	30.31
2001	0	17.43	0	4.47	27.55	46.10

Table 5. cont.

2002	0	0	15.27	8.94	41.35	46.13
2003	0	***	0	22.59	47.28	71.65
2004	0	***	0	13.55	70.48	15.52
2005	0	18.20	15.26	9.01	53.16	25.84
2006	0	0	0	4.40	32.31	36.35
2007	0	0	0	4.49	39.86	20.48
2008	0	0	0	4.44	44.85	81.74
2009	0	0	0	0	32.08	84.92
2010	0	0	0	0	49.91	56.29
2011	0	46.39	0	0	19.14	74.65
2012	52.26	13.93	0	0	38.15	68.19
2013	0	56.85	21.52	0	19.37	58.94
2014	0	68.06	20.24	0	44.42	72.31
pre/boom*	0.00/7.47	5.09/26.46	3.39/5.97	12.4/.63	42.25/35.42	34.15/71.01
% change**	****	419.84	76.111	-94.92	-16.17	107.94

*Pre-boom average compared to boom years' average.

**Percent difference between pre-boom (99-07) and boom years' (08-14) average.

***Data missing.

****Unable to calculate.

Williams County recorded the highest rate of rape during the boom years, 71.01, and showed an increase in rate well over 100%. The greatest rate change occurred in McKenzie County which endured an increase of almost 400%; however, its overall rate of 26.4 per 100,000 was well below Williams' rate of 71.01. Table 5 shows that 3 of the counties documented considerable increases in reported rapes during the boom years. Regardless of the rate discovered, it is important to note that reports of rape were almost non-existent in three of the counties (Dunn, McKenzie, and Mountrail) prior to the boom. Rape is notoriously under-reported both in general, and especially in mainstream crime reports (DeKeseredy, 2000). The findings and interpretations here in no way assume that rape did not occur in the Bakken region prior to the oil boom, or after as is the case with Stark County.

Robbery. Four of the six counties encountered increased rates during boom years. Williams County reported the highest overall average rate of robbery during the boom years at 17.1 in comparison to 3.82 during the pre-boom years, an increase just short of 350%, the largest rate increase of the six counties. Mountrail County documented the highest yearly average of any county with 40.48 per 100,000 for the year of 2014. At the same time, Stark County recorded a decrease in robberies of just under 50% for the boom years decreasing from 17.45 robberies to 8.76. One county, Dunn, reported zero instances of robbery for the entire analysis.

Trends concerning robbery appear to show a steady rise in robbery rates for the majority of the counties. While reports of robbery remain absent in Dunn County the entire time, McKenzie County did not report any occurrences of robbery prior to the boom year of 2012. Meanwhile, Mountrail County’s robbery rate in 1999 and 2001 were each based on one report of robbery, otherwise there were zero robberies recorded outside the final two years 2013 and 2014. Rates of robbery for all counties are displayed in Table 6. The timing of robbery rate’s appearance and growth suggests a correlation with increasing rates of oil production.

Table 6. Rates of Robbery for the Bakken region counties, 1999-2014.

Year	Dunn	McKenzie	Mountrail	Stark	Ward	Williams
1999	0	0	15.19	17.68	8.59	35.00
2000	0	0	0	8.84	11.91	0
2001	0	0	15.27	22.36	12.05	0
2002	0	0	0	22.37	6.89	5.13
2003	0	***	0	27.1	14.00	5.12
2004	0	***	0	36.12	14.10	0
2005	0	0	0	13.52	8.86	5.17
2006	0	0	0	9.07	17.95	5.19

Table 6. cont.

2007	0	0	0	0	9.06	10.24
2008	0	0	0	4.44	5.38	10.22
2009	0	0	0	8.79	12.47	19.98
2010	0	0	0	21.83	8.61	14.07
2011	0	0	0	4.06	7.98	8.78
2012	0	13.93	0	11.65	9.16	8.02
2013	0	11.37	10.76	7.10	26.82	27.74
2014	0	0	40.48	3.45	27.23	31.44
pre-boom*	0/0	0.00/3.61	3.38/7.32	17.45/8.76	11.49/13.95	7.32/17.18
% change**	0	****	116.57	-49.8	21.14	134.7

*Pre-boom average compared to boom years' average.

** Percent difference between pre-boom (99-07) and boom years' (08-14) average.

*** Data missing.

****Unable to calculate.

Aggravated assault. All counties experienced a compelling rise in average rate of aggravated assault between the pre-boom and boom years. That aggravated assault showed the greatest increase is an important finding. While the homicide rate is the variable most often employed by criminologists as comprehensive measures of violence for large geographic areas, aggravated assault is a better indicator of general level of violence for smaller regional units (Thome, 2010). The slightest increase occurred in Ward County where an increase of 143.4% (67.7/191.7) was recorded, the other counties experienced escalated assault rates ranging from 388.2% to 922.5%.

As was the case with every other crime category, Williams County reported the highest average rate for the boom years at 243.41, and the highest overall rate of 380.42 in 2014. While Williams County recorded the highest rate, Mountrail County experienced the

highest rate increase at over 900%.⁶¹ Dunn County did not report a single instance of an aggravated assault prior to 2012. Nonetheless, that aggravated assault has gone from a rare or un-reported anomaly to establishing a constant presence is as important as change in rate. Rates of aggravated assaults for all counties are displayed in Table 7. Figure 10 displays trends in aggravated assault for the Bakken Counties, and presents the increases incurred by the counties over the years of analysis.

Table 7. Aggravated assault rates of Bakken region Counties, 1999-2014.

Assault	Dunn	McKenzie	Mountrail	Stark	Ward	Williams
1999	0	0	0	26.53	27.47	35.00
2000	0	87.18	15.08	48.60	42.53	45.54
2001	0	0	0	13.42	39.61	10.24
2002	0	0	45.82	22.37	55.14	20.50
2003	0	***	15.08	36.14	50.80	40.94
2004	0	***	15.42	36.12	75.77	82.77
2005	0	72.48	0	40.55	93.92	56.85
2006	0	53.70	0	27.22	77.19	46.74
2007	0	17.46	0	44.93	146.77	81.90
2008	0	14.78	46.28	151.10	118.4	117.51
2009	0	0	45.80	127.48	178.2	124.88
2010	0	33.17	0	183.33	163.9	154.80
2011	0	185.56	94.95	219.46	208.95	250.29
2012	183.93	278.56	156.95	178.57	143.44	356.98
2013	71.31	295.62	204.44	262.18	168.37	318.96
2014	206.85	320.86	182.16	179.24	173.39	380.42
pre/boom*	0/66.01	32.97/161	10.2/104.4	32.9/185.9	67.7/165	46.72/243.4
%change**	****	388.99	927.26	465.42	143.68	421

*Pre-boom average compared to boom years' average.

** Percent difference between pre-boom (99-07) and boom years' (08-14) average.

*** Data missing.

****Unable to calculate.

⁶¹ Again, it must be noted the increased rate of aggravated assault in Mountrail is largely due to the minimal rates gleaned from the pre-boom years, many of which were based on a singular occurrence.

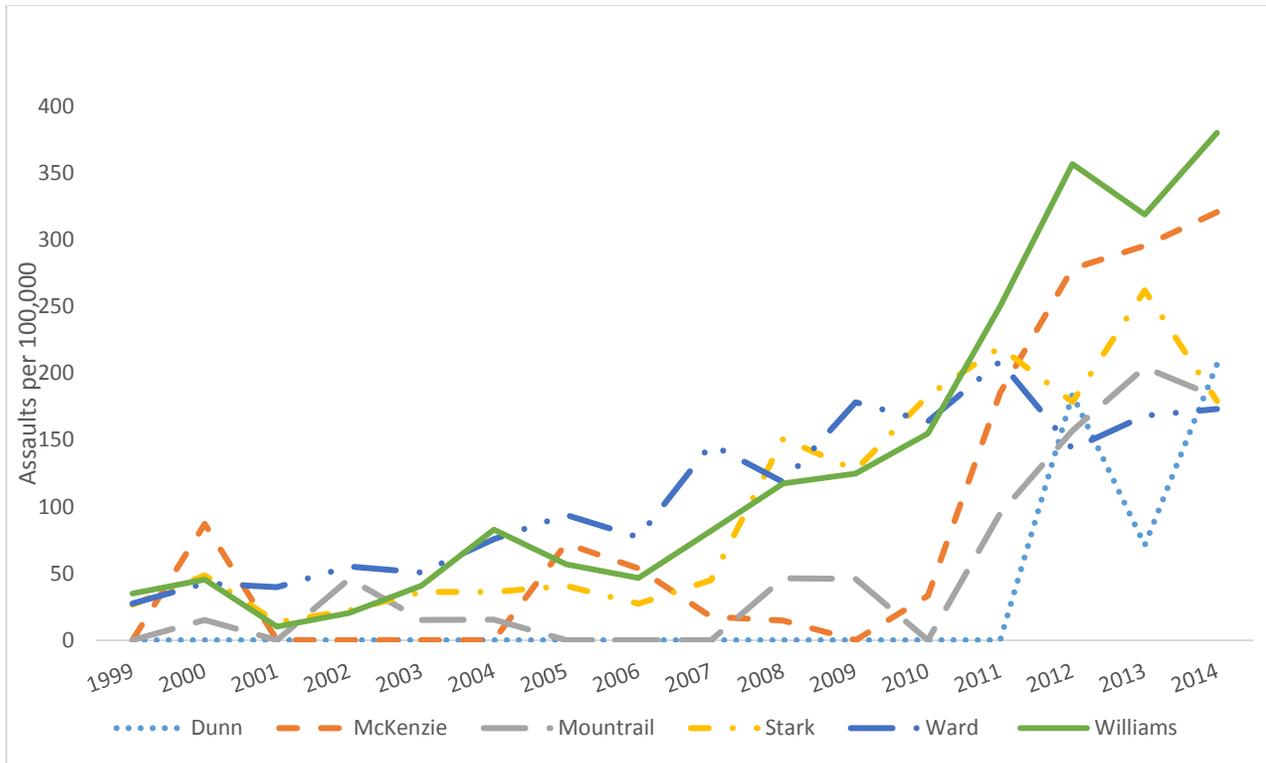


Figure 10. Rates of aggravated assault in Bakken Counties, 1999-2014.

Bakken Cities

Overall Violent Crime. Dickinson, Minot, Watford City and Williston are the major cities in the Bakken region and all appear to have endured a compelling increase in overall violent crime rate during the years 1999-2014, especially since the onset of the recent oil boom. Williston saw the highest average overall rate of 356.28 for the boom years. While Watford City recorded the two highest overall rates, 762.59 in 2012 and 596.16 in 2014; Minot experienced the smallest increase, 66.42%, in overall violent crime rate during boom years. The other three cities showed an increase greater than 215%, with Watford City’s increase of 319.74% being the largest.⁶²

⁶² Pre-boom rates for Watford City were constructed using minimal, less than five total, occurrences of violent crime for each of the pre-boom years.

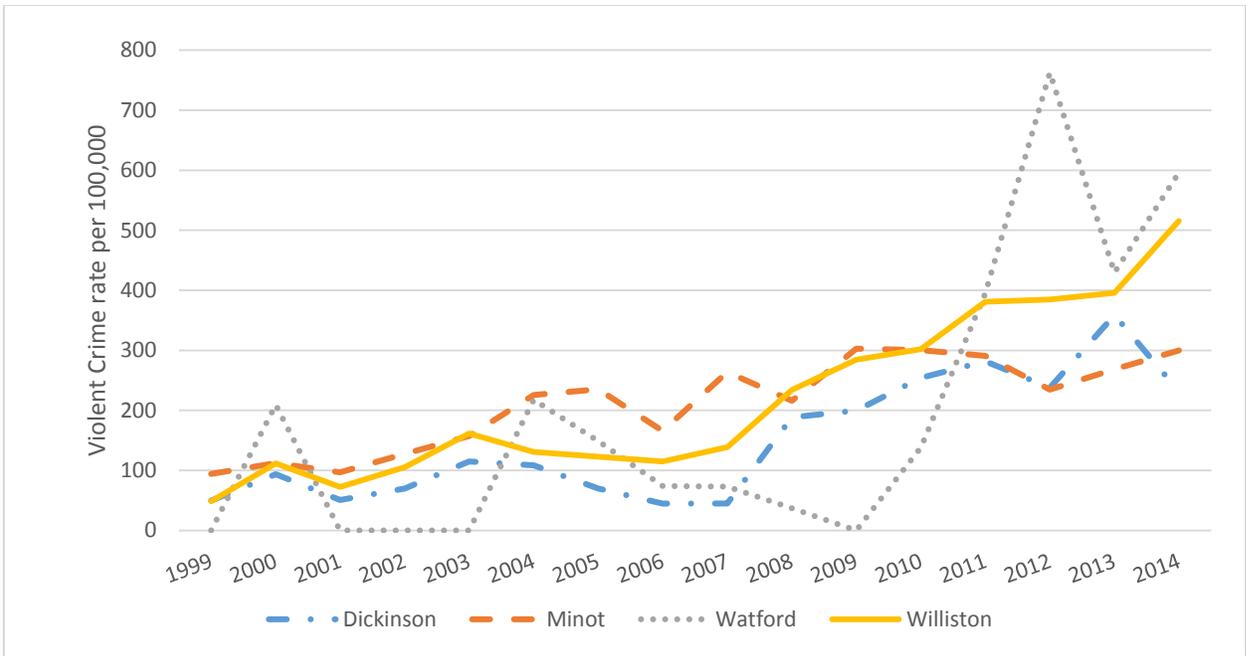


Figure 11. Overall violent crime rates for Bakken cities, 1999-2014.

Regardless of pre-boom rates or raw totals, all cities in the Bakken appeared to experience an uptick in violent crime during a time of rapid expansion for the oil industry. Rates and trends for overall violent crime are displayed in Figure 11 and Table 8. Individual categories of violent crime are presented in the following sections. Homicide is not included in this section due to its scarcity of occurrence. The major cities in the Bakken region saw an increase similar to the Bakken counties and the region as a whole. Rapid social change that has accompanied the breakneck expansion of the oil industry has likely disrupted regulatory mechanisms in place prior to the oil boom, the result being a marked increase in rates of violent crime.

Table 8. Violent Crime Rates for Bakken Cities, 1999-2014.

Violent Crime Rate	Dickinson	Minot	Watford	Williston
1999	49.67	94.18	0	48.52
2000	93.69	112.14	209.06	111.89

Table 8. cont.

2001	50.58	96.88	0	72.72
2002	69.59	127.42	0	105.24
2003	114.86	157.30	0	161.66
2004	108.31	225.68	217.86	130.78
2005	69.87	235.31	148.70	122.56
2006	44.74	166.00	73.80	114.97
2007	44.89	263.90	72.94	138.67
2008	188.55	216.37	37.02	234.12
2009	199.46	302.81	0	284.36
2010	254.17	300.58	137.93	302.17
2011	281.98	291.01	394.81	380.87
2012	237.78	234.70	762.59	384.74
2013	358.80	268.80	429.65	395.95
2014	231.35	299.87	596.16	515.39
pre/boom*	71.8/250.3	163.31/273.45	80.26/336.88	111.89/356.71
% change**	248.61	66.42	319.74	218.8

*Pre-boom average compared to boom years' average.

** Percent difference between pre-boom (99-07) and boom years' (08-14) average.

Rape. Findings related to rape among the four cities present as somewhat confounding. While Watford City and Williston experienced telling increases, Dickinson and Minot report decreases during the boom years. In fact, Dickinson reported the complete absence of reported rape during the boom years, while Minot reported a decrease of almost 20%, from 54.83 to 44.15 during boom years. Williston's average boom years rate of 91.67, an increase of 95%, was greater than Watford City's rate of 52.88. Watford City recorded the highest single year rate during the boom years of 155.52 in 2014.

Perhaps the most telling finding concerns the sudden appearance of reported rapes in Watford City. Prior to 2011, no cases of rape were reported by Watford City. Following this absence appear rates of 56.4, 50.8, 107.4, and 155.4, all well above national average. It is worth repeating that rape is a notoriously underreported crime for a myriad of reasons. While official findings report the absence of rape during pre-boom years the assumption that rape

did not occur either pre-boom in Watford City or during boom years in Dickinson is questionable at best. However, the oil boom is correlated with increased reporting and/or occurrence for one reason or another in two cities. Escalated rates of reported rapes appear to follow after the rapid increase in rates of oil extraction. Complete rates for rape rate for the Bakken cities are displayed in Table 9.

Table 9. Rape rates for Bakken Cities, 1999-2014

Rape	Dickinson	Minot	Watford	Williston
1999	6.21	28.54	0	24.27
2000	31.23	43.76	0	47.95
2001	0	33.22	0	56.56
2002	6.32	44.32	0	64.76
2003	25.52	61.80	0	97.00
2004	12.74	95.91	0	26.14
2005	12.70	85.05	0	24.52
2006	6.39	45.79	0	49.27
2007	0	55.10	0	32.63
2008	0	56.94	0	113.02
2009	0	33.96	0	118.49
2010	0	71.82	0	81.07
2011	0	16.84	56.40	106.91
2012	0	46.02	50.84	73.28
2013	0	26.88	107.40	65.16
2014	0	56.62	155.52	83.70
pre-boom	11.23/0	54.83/44.15	0/52.88	47.01/91.67
% change	***	-19.48	***	95

*Pre-boom average compared to boom years' average.

** Percent difference between pre-boom (99-07) and boom years' (08-14) average.

***Unable to calculate rate change.

Robbery. Three of the four cities sustained increased robbery rates during the boom years. Williston experienced the greatest increase with a Pre-boom average of 4.52 to 23.76 during boom years, an increase of 425%. Dickinson saw its robbery rate decrease almost 50% during boom years from 24.63 to 12.22, while Minot showed an increased robbery rate of 19.99% from 16.9 to 19.99. Robbery rates displayed in Table 10 depict the increase in

robbery rates encountered by the cities of Williston and Minot, while Dickinson actually saw its rate decrease. Watford City reported zero instances of robbery for the entirety of the analysis.

Table 10. Robbery rates for Bakken cities, 1999-2014.

Robbery	Dickinson	Minot	Watford	Williston
1999	24.84	14.27	0	0
2000	12.49	19.15	0	0
2001	31.61	16.61	0	0
2002	31.61	11.08	0	8.10
2003	38.29	19.66	0	8.08
2004	50.97	19.75	0	0
2005	19.06	11.34	0	8.17
2006	12.78	25.76	0	8.21
2007	0	14.50	0	8.16
2008	6.29	8.54	0	16.15
2009	12.47	14.15	0	31.56
2010	29.56	13.30	0	22.11
2011	5.53	12.03	0	13.36
2012	15.85	13.81	0	12.21
2013	9.80	40.32	0	40.10
2014	4.63	37.75	0	30.84
pre/boom*	24.63/12.2	16.9/19.99	0	4.52/23.76
% change**	-51.2	18.28	0	425.67

*Pre-boom average compared to boom years' average.

** Percent difference between pre-boom (99-07 and boom years' (08-14) average.

Aggravated assault. As was the case at the county and regional level, aggravated assault is the category of crime in which cities saw the greatest increase. Watford City reported the highest boom years' average of 271.62 along with the highest single year rate of 660.9 in 2012, while enduring an overall increase of 274.54%. Dickinson saw its pre-boom average, 35.23, increase 567% to 234.99. Minot's rate increased from 90.04 to 206.57 during the boom years, an increase of 129.42% and was the smallest rise incurred by any of the four cities. Williston's rate rose by almost 300% during boom years, from 59.64 to 238.34. As

has been the case with other categories of violent crime, the increase in aggravated assault rates appear subsequent to the rapid expansion in the oil extraction industry. Full rates and trends displayed in Figure 11 and Table 11 show the increase in aggravated assault sustained by the Bakken cities. These trends offer support for Durkheim’s theory of anomie as it has been described for the current undertaking.

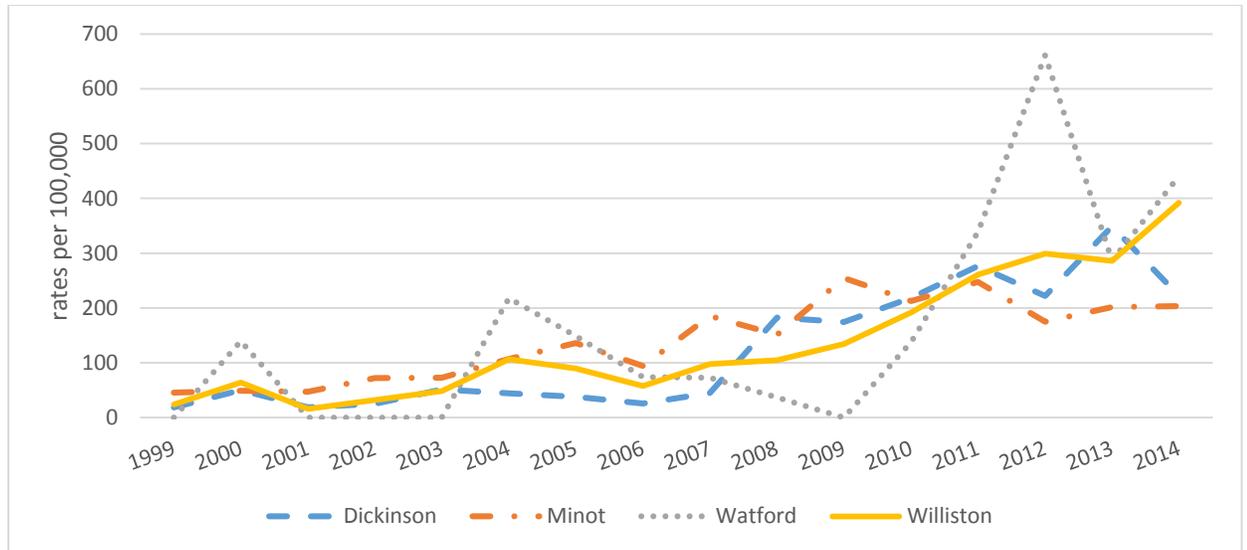


Figure 12. Aggravated assault rates for major cities in the Bakken, 1999-2014.

Table 11. Rates of Aggravated Assault for major cities in the Bakken region, 1999-2014.

Year	Dickinson	Minot	Watford	Williston
1999	18.63	45.66	0	24.27
2000	49.97	49.23	139.37	63.94
2001	18.97	47.06	0	16.16
2002	25.30	72.02	0	32.38
2003	51.05	73.03	0	48.50
2004	44.60	107.2	217.86	106.26
2005	38.11	136.08	148.70	89.90
2006	25.51	94.45	73.80	57.48
2007	44.89	185.6	72.94	97.89
2008	182.27	150.89	37.02	104.95
2009	174.52	254.7	0	134.28
2010	218.71	212.8	137.93	191.62
2011	276.45	247.72	338.41	260.60
2012	221.93	174.88	660.91	299.24
2013	348.97	201.6	286.43	285.68
2014				

Table 11. cont.

2014	222.1	203.41	440.64	392.04
pre/boom**	35.23/234.99	90.04/206.57	72.52/271.62	59.64/238.34
% change**	567.02	129.42	274.54	299.63

*Pre-boom average compared to boom years' average.

** Percent difference between pre-boom (99-07) and boom years' (08-14) average.

Alternative violent crime rates

In an attempt to address concerns with population estimates, Bangsund and Hodur's (2015) "service population" estimates for the city of Williston were employed for available years. Bangsund and Hodur produced service population estimates for the years 2012 and 2014 of 25,915 and 31,143 respectively, compared to the official estimates of 16,373 and 22,699. These service population estimates were used to calculate an overall violent crime rate of 243.2 compared to 384.8, the "official" crime rate, in 2012 and 375.6 (515.4) in 2014. These alternative population estimates create markedly lower rates; however, they are still more than 100% greater than the pre-boom average of 111.89, and surpass the violent crime rates, by far, for any pre-boom year. Along with the overall violent crime rate, alternative rates were created for rape, robbery and aggravated assault. These rates are summarized in Table 12 alongside "official" rates for comparison.

Table 12. Alternative violent crime rates with official crime rates, 2012 and 2014.

Bangsund and Hodur	Violent crime	Rape	Robbery	Aggravated Assault
2012 Census	384.74	73.28	12.21	299.24
2012 Alternative	243.20	46.32	7.72	189.14
%difference	-36.79	-36.79	-36.77	-36.79
2014 Census	515.39	83.70	30.84	392.04
2014 Alternative	375.60	61.00	22.50	285.70
%difference	-27.12	-27.12	-27.04	-27.12

Bangsund and Hodur's (2015) service population estimates result in rape rates of 46.32 for 2012 and 61 for 2014. 2012's alternative rate is slightly below Williston's pre-boom average (46.8), while 2014's alternative rate surpasses the pre-boom average. For the years 2012 and 2014, Williston experienced robbery rates of 12.21 and 30.84 respectively, while alternative rates are 7.72 and 22.5 comparatively. Both of these alternative estimates surpass the average pre-boom robbery rate, with 2014's alternative rate of 22.5 far exceeding the pre-boom average. Official aggravated assault rates for Williston from the years 2012 and 2014 were 299.3 and 391.6. Comparatively, alternative rates are 189.1 for 2012 and 285.7 for 2014, a difference of 36.8% and 27% respectively. While alternate population estimates produce aggravated assault rates noticeably lower than official estimates, these smaller rates still surpass pre-boom rates of aggravated assaults recorded for Williston. So while Bangsund and Hodur's service populations produce more conservative violent crime rates, these estimates still surpass pre-boom rates of violent crime for Williston.

Violent Crime Summary

First and foremost, the Bakken region experienced a notable increase in rates of overall violent crime for the years 1999-2014, an increase that appears to coincide with the rapid expansion of the oil industry. Different locales within the region appeared to have a rise in rates of violent crime to varying degrees, but overall every city and county included in this study experienced an increase in overall violent crime rate. The region consisting of NDAB too underwent a conspicuous, though not as severe, increase in rates of violent crime as well. Some of this increase is likely associated with the oil boom, as the boom's effects were likely not confined strictly to the oil producing counties of western North Dakota. In comparison,

the most telling finding may come from the nearby state of Iowa. Iowa's violent crime rate fluctuated little over the years of analysis, and actually showed declining rates. So while the Bakken and NDAB present increases in average violent crime rate of 147.88 and 86.26%, Iowa reported a decrease of 3.69%.

Every county and city in the current analysis experienced a considerable increase in violent crime rate between the years 1999-2014, both overall and in a comparison of pre-boom and boom averages. Three of the four cities saw an escalation in overall violent crime rates greater than 200%; at the same time 5 of the six counties also endured an increase over 200%. Pre-boom violent crime rates for many of these communities were very small, and for some literally non-existent. For this reason, caution is warranted when confronted with what at first seem to be overwhelming increases; however, that violent crime went from a virtually un-reported occurrence to a constant happening and concern for these communities is a telling finding, and one reported in previous generations of boomtown research (Freudenburg, 1982). That alternative crime rates calculated from Bangsund and Hodur's (2015) more generous population estimates far exceed pre-boom violent crime rates provides reassurance that the increases in violent crime found in official statistics, though somewhat inflated, are not artificial.

Multiple counties and cities presented confounding findings regarding rates of rape and robbery. Stark County exhibited a decrease in rates of robbery and rape between pre-boom and boom years, meanwhile Ward County also reported a decrease in rape rate between the two time periods. Among the four cities, both Minot and Dickinson reported decreases in rates of rape while Dickinson saw its robbery rate decrease. One explanation for this inconsistency may have to do with the extension of Durkheim's anomie theory to the

crimes of rape and robbery. The only crime Durkheim ever discussed at any depth is homicide. The extension of his theory from homicide to aggravated assault appears very logical, while this same extension may not be as seamless to the crimes of rape and robbery. The further Durkheim's theory is extrapolated from his original statements regarding homicide, the less consistent the findings appear to be. It is also worth noting that the cities and counties that reported decreased in rape and robbery are geographically located on the periphery of the Bakken region. For these reasons, inconsistencies in this area do not offer a substantial challenge to Durkheim's theory. Meanwhile, rates of aggravated assault discovered in the region appear to offer substantial support for Durkheim's anomie theory.

Results concerning rates of violent crime appear to support Durkheim's theory of anomie. Regarding homicide, Durkheim ([1897] 1951) directly addresses anomie as a cause of homicide. He maintains that during times of heightened anomie individuals experience increased levels of "exasperation" and "irritated weariness"; accordingly individuals may turn these feelings towards others resulting in increased rates of homicide. It should be noted that Durkheim never discusses the possible effect states of anomie may have on rape. However, Durkheim's views regarding human nature, specifically its unlimited desires that are only capable of being restrained by larger moral forces coupled with anomie's rendering these larger moral forces obsolete, could be extrapolated to account for the increased rate of rape discovered in some areas of the Bakken. An ends justifying the means mentality so often associated with rapid industrial expansion could be called upon to account for the increased rate of robbery found to exist overall in the Bakken region. Durkheim ([1902] 1984) insists such a mentality exists in industry under conditions of anomie, and these conditions are likely to "spill over" into other areas of social life.

Perhaps the most pertinent finding concerns the increased rates of aggravated assault found to exist in the Bakken and its communities. The proposition that escalated rates of aggravated assaults are due to heightened states of anomie come directly from Durkheim's theory of homicide. Durkheim ([1897] 1951, p. 357) contended that during times of heightened anomie individuals existed in "a state of exasperation and irritated weariness" (p. 357). This condition resulted in an increased inclination towards homicide, the current study argues this same sentiment would also result in increased rates of assault and this is the case for the Bakken region.

Suicide

Suicide rates are comprised from data supplied by the North Dakota Department of Health (NDDH) for the years 1999-2014. Due to issues of confidentiality, suicide data were not available at the city or county level. Because of this, suicide rates are presented only at the regional and state levels. The NDDH supplied raw numbers for the total number of suicides that occurred in the Bakken region, comprised of the previously listed counties, and North Dakota for each year of analysis. These data were divided into the same pre-boom and boom years as violent crime rates for comparison. Official population estimates from the six counties under analysis were used to create a suicide rate for the Bakken region. Suicides rates were created for NDAB by subtracting suicides and county populations used to create the Bakken region's suicide rate. Suicide rates for the nearby state of Iowa were created using raw numbers of suicides provided by Iowa's Department of Health and official population estimates. Iowa's suicide data is only available beginning in the year 2001.

The use of official population estimates is not as problematic in establishing rates of suicide as it is for rates of violent crime. Only suicides attributed to North Dakota residents

are included in the raw numbers reported, unlike occurrences of violent crime in which state of residency is irrelevant to this matter. The transient workforce that causes issues with other “official” statistics is generally excluded from both suicides and the population estimates used to establish suicide rate.

The suicide rate fluctuated in the Bakken from a low of 7.69 in 2000 to a high of 26.57 in 2012. The Bakken region reported an increased average rate of suicide of 77.2% between pre-boom and boom years’ averages, 11.29 compared to 20.01. In comparison, the NDAB region reported a higher suicide rate (13.11) for the pre-boom years, though experienced a markedly smaller increase (14.34%) and overall rate (14.99) during the boom years in comparison to the Bakken. Iowa endured an increase similar to NDAB. Iowa’s pre-boom rate, 11.02, rose to 12.81 for an increase of 16.24%. Based on available data, it seems apparent the Bakken region has sustained the most telling change in suicide rate. Suicide rates for the three regions are displayed in Figure 13 which shows the Bakken region reporting a lower rate of suicide for the majority of the pre-boom years, and then far surpassing either NDAB or the nearby state of Iowa. Findings concerning suicide in the three regions offer substantial support for Durkheim’s theory of anomie.

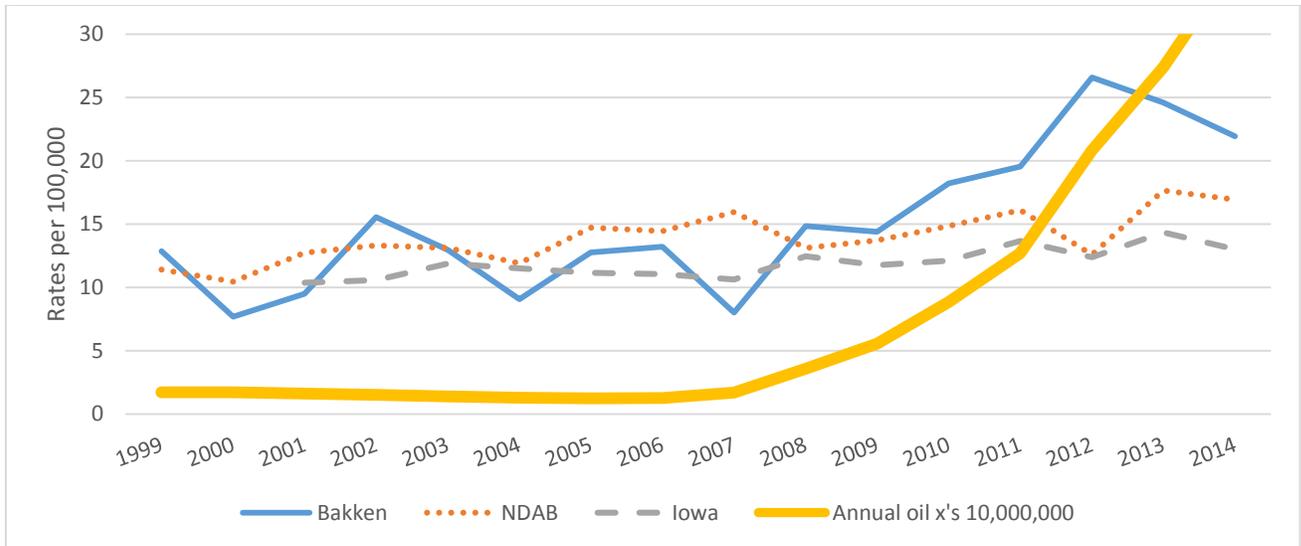


Figure 13. Suicide rates for the Bakken, NDAB and Iowa, 1999-2014.

Trends in Oil and Gas Worker Death Rates in the Bakken

Since the onset of the boom, North Dakota has seen its overall worker fatality rate more than double while national rates have remained stable; during this same time period fatality rates directly related to North Dakota’s oil and gas industry are reportedly four times higher than the national rate (AFL-CIO, 2015).⁶³ AFL-CIO reports North Dakota’s worker death rates reached 17.7 in 2012, one of the highest rates ever recorded. In consecutive reports, the AFL-CIO maintains North Dakota is an “exceptionally dangerous” (2014) and “continues to be an exceptionally dangerous” (2015) state to work in, with an overall worker death rate four to five times greater than the national average.

The crux of this section focuses on the rate of deaths experienced by oil field industry employees on the job. To assess the danger faced by oil and gas workers in the Bakken, available rates for oil and gas worker death were accessed through the Federal Bureau of

⁶³ Information on how these rates are calculated is available at:

<http://www.bls.gov/iif/oshwc/foi/rate2013nd.pdf>.

Labor Statistic's Injuries, Illness, and Fatalities Program (IIF). Due to the recent nature of the oil boom, as well as convoluted reporting practices, data concerning oil and gas workers presents with its own set of problems. Occurrences of death and injury are likely under-reported due to practices concerning record keeping. Perhaps the most glaring example of this involves "independent contractors" who service wells not being included in oil and gas extraction fatality counts; rather, their deaths are diverted to other categories such as "special trade contractors not elsewhere specified" (Industry Hygiene News 2005). This practice of larger companies (e.g. Haliburton) "leasing" sites to smaller companies who are exempt from many safety regulations, and sign indemnity clauses, results in unsafe working conditions, injuries and possibly deaths being under reported. Having said that, these difficulties are assumed to occur equally across the oil industry and for this reason a comparison between the Bakken and the leading oil producing state, Texas, is appropriate.⁶⁴ Also, raw numbers of oil worker deaths are compared to raw numbers of homicide in the Bakken region for the same time period to see which resulted in more deaths.

IIF records from the Bureau of Labor Statistics were available back to 2003 and reported no deaths in North Dakota connected to the oil and gas industry prior to 2009. Table 13 displays occurrences of oil and gas worker deaths compared to reports of homicide for the years 2009-2014. The total number of deaths attributed to the oil industry in the Bakken region is more than double the number of deaths due to homicide during the same time period, fifty compared to twenty three. Additionally, more deaths were associated with the oil and gas industry between the years 2009-2014 than homicides (thirty six) in the

⁶⁴ Texas is the only U.S. state that produces more oil than North Dakota.

counties of core economic activity in the Bakken for the years 1999-2014. An even more revealing finding concerning oil workers in the Bakken concerns the rate of death they face in comparison to oil workers in Texas. Though the data is sparse, the story it tells is alarming. Worker death rates in the Bakken far exceeded those discovered in Texas by over 500% for the three years the Bakken reported worker death rates. Rates for the Bakken and Texas are summarized in Table 14.

Rapid expansion in the oil industry without simultaneous expansion in regulatory agencies, coupled with industry practices that allow evasion of already weak regulations, provides fertile ground for advanced conditions of anomie. The oil industry is already acknowledged as a highly dangerous industry in the best conditions (Nichols, 1986) and, as documented, leads to anomic conditions producing an alarmingly high rate of worker deaths. Such appears to be the case for oil workers in the Bakken region.

Table 13. Oil and Gas Worker Deaths compared to Homicides in the Bakken, 2009-2014.

Oil Workers vs Homicide Victims		
	Oil Workers	Homicide
2009	4	2
2010	0	4
2011	11	7
2012	15	6
2013	12	3
2014	8	1
total	50	23

Table 14. Oil and Gas Worker Death Rates North Dakota vs Texas, 2010-2013.

Oil Worker Death Rate	North Dakota	Texas	% Difference
2010	0	10.70	**
2011	92.20	14.30	544%
2012	104.00	16.60	526%
2013	84.70	11.20	656%

Summary

Based on trends uncovered, it seems obvious the Bakken region has endured a compelling increase in rates of violent crime, suicide and worker death rates over the course of 1999-2014, and most dramatically since the onset of the oil boom in 2008. The Bakken region underwent this rapid increase in crime rates during a time when crime was generally decreasing across the United States. It also appears that oil and gas workers in the Bakken are confronted with greater occupational danger and risk of death than their counterparts in other oil producing regions of the United States. Oil worker deaths are a relatively new phenomenon for the region; however, rates recorded thus far greatly exceed industry rates in other areas, namely Texas. Quantitative findings offer support for the theoretical predictions stated in Chapter 5. Those predictions, generally stated, that the Bakken region would experience increased rates of violent crime, suicide and oil worker deaths during a time of sudden change, change attributed to the rapid expansion of the oil industry. These changes appear to have had the most dramatic increase in the boom years of 2008 to 2014. The rapid change and economic prosperity the Bakken region is experiencing appears to have brought with it an increase in rates of violent crime, suicide and worker deaths. Rate trends presented

in this chapter offer support for Durkheim's theory of anomie. The Bakken finds itself under new social and economic conditions that were rapidly thrust upon it. It has been unable to reorganize and establish new and appropriate regulatory mechanisms for its populace, with the result being increases in rates of violent crime, suicide and oil worker deaths. Chapter 7 introduces qualitative evidence for consideration. Qualitative data are utilized in an attempt to add depth and richer descriptions to the quantitative findings presented in this chapter.

CHAPTER VII

QUALITATIVE INQUIRY

This chapter presents qualitative findings pertaining to the Bakken region. Personal accounts concerning rapid social change, perceptions of opportunities and frustrations by both new arrivals and long term residents, concerns over violent crime and safety and lastly, dangerous conditions encountered by oil field workers coalesce to create a narrative which adds depth to the quantitative findings discussed in Chapter VI. Personal accounts presented in this chapter provide real life examples of the anomic conditions individuals are enduring in the Bakken, as well as a deeper understanding of the theory. These accounts add not only depth, but validity to the previous chapter's quantitative inquiry which uncovered a marked increase in rates of violent crime, suicide and oil worker deaths during the oil boom. Photographs are exhibited throughout this chapter and serve to add a more subjective understanding of both the qualitative statements presented here, as well as quantitative findings reported in the previous chapter. In this way, photographic evidence is used in conjunction with other data in hopes of creating an "instant ethnography" (Ferrell, Hayward & Young, 2008) for the Bakken region during the oil boom.

Evidence in this chapter was collected from regional newspaper articles, mainstream media accounts, university studies whose focus is the Bakken region, documentaries and publicly available interviews from sources such as National Public Radio (NPR) and Public Broadcasting Service (PBS). Thoughts, feelings and insights from individuals enduring the oil boom in the Bakken region are submitted in the following paragraphs. Accounts

concerning rapid social change are presented first. Next, denizens' reflections pertaining to perceptions of opportunities and frustration in the Bakken region are introduced before inhabitants' impressions of safety and violent crime during the oil boom are revealed. Finally, insights regarding dangerous working conditions for oil field workers are presented for consideration.

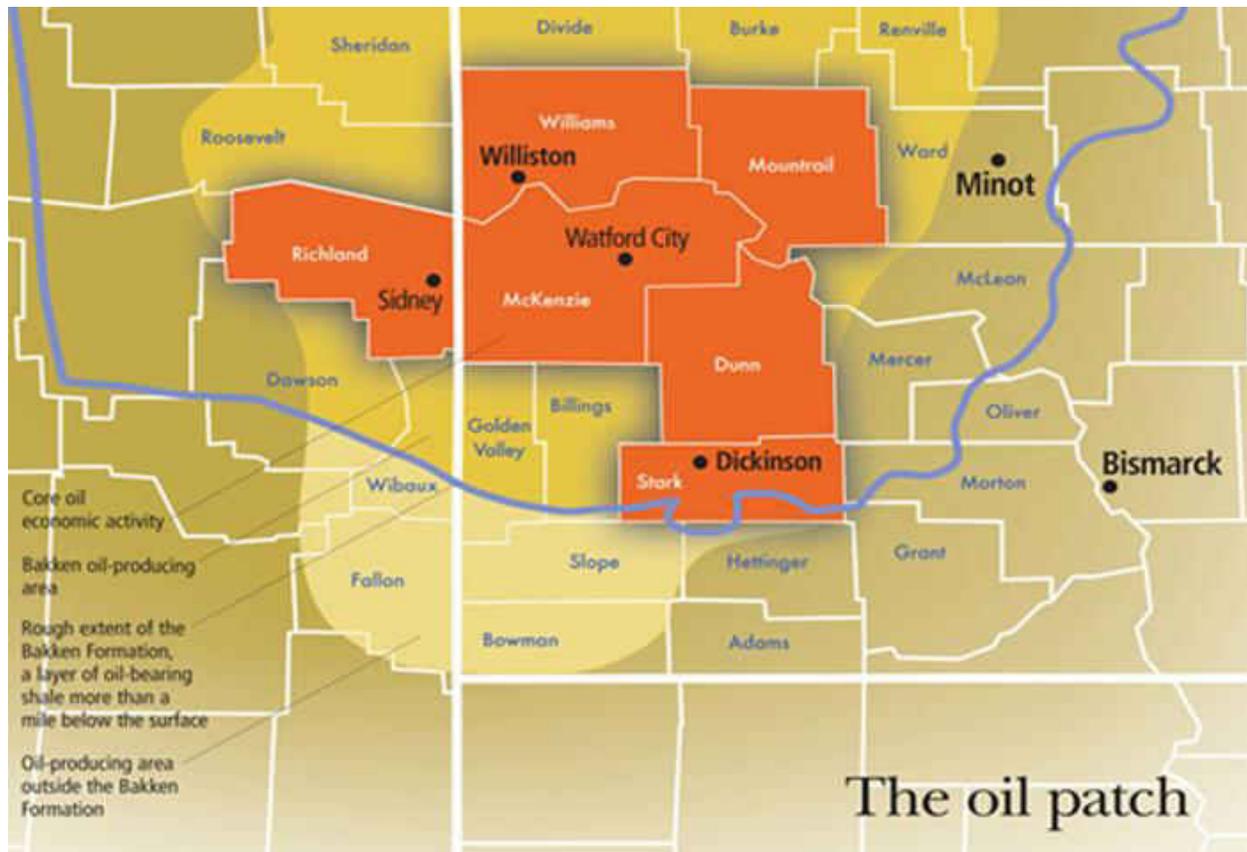


Figure 14. Map of the Bakken Oil Patch. Map courtesy of the Minnesota Federal Reserve.

Perceptions of Social Change in the Bakken region

“Overwhelmed” is an oft used word by individuals in the Bakken region when discussing the rapid social change that has accompanied the oil boom. In Archbold (2013, p. 20) one police officer states, “We are overwhelmed. Change is occurring fast in our city, too fast for us and as a

result, we are always playing catch up. Some days I feel like the dam broke”. Another officer maintains “there are no locals left here. We seem to only deal with the new people. The locals have moved away” (p. 25). One respondent insists long term residents have been forced to adjust their lifestyles and have become less active in their communities because they simply “do not want to deal with the out of state people” (p. 33). According to these officers’ judgments, the oil boom has brought with it an unfamiliar population that has made their job more complicated and dangerous. Police are not the only residents who feel this way.



Figure 15. Trailers serving as long term residence for oil field workers. Note structures built alongside trailers in bottom right of pictures. From *The Atlantic*, photo credit: Jim Uquhart, Reuters.

A Watford City emergency room doctor has seen a major increase in emergency room patients during the boom. He reports prior to the oil boom “I was seeing half a patient per day in the emergency room. So I’d see fifteen patients in the emergency room in a month [pre-boom]...my last shift I saw thirty one patients [in one day]” (Al Jazeera, 2015a). A Watford City council member also feels the recent social change happened suddenly. While he sees some

of the change as daunting, he views the economic growth as beneficial. He lauds the economic growth, “Now we have a Cash Wise, Tractor Supply, Taco John’s, Red Wings Shoes”; however, he goes on to say, “we have been overwhelmed,...it’s just a huge transformation for rural America, Holy Hannah this is fast” (Gahagan, 2014).

One longtime Williston resident and business owner echoes the previously mentioned council member. This resident maintains, “we welcome change, I wish it would slow down, everyone wishes it would slow down” (PBS, 2012b). Another longtime Williston resident does not appear to share these glass half full sentiments. He simply states, “the change is come, it came drastic...what should we say? It just happened” (PBS, 2012a). Ward Koeser served as Williston’s mayor both prior to and during the oil boom. In Archdeacon and Swezy’s (2013) documentary, Koeser shares his thoughts on the rapid expansion of the oil industry in Williston:

We were obviously looking forward to increased oil activity, I don’t think anybody dreamed it would happen as rapidly as it has or has as great an impact as it has there. Where it’s been a challenge there’s just, there’s an intensity here that exists only in Williston, North Dakota.

This “intensity” alluded to by Koeser appears to have resulted in lag between previously established regulatory mechanisms (e.g. police agencies) and new found social arrangements. A member of the Williston Police Department maintains “the boom hit so fast, the city’s still catching up” (PBS, 2012b).

Many individuals bemoan the loss of tranquility that was indicative of western North Dakota prior to the oil boom. A longtime Watford City resident laments “the quiet peaceful country life as we know it is a thing of the past” (Blake, 2011). One woman who has spent the

majority of her life living on a reservation in the western North Dakota and reports that many of the long-time residents are leaving the reservation to live in areas not inundated by the oil industry, residents say “we just don’t want to put up with the dust, the traffic, the people. So [the oil rush] has definitely changed the lifestyle” (Brady, 2014). One rancher expresses a similar sentiment, “I just think that if people ever came here and looked at it—what it was before



Figure 16. Photograph of ruts created in the streets of Williston, North Dakota by oil trucks and increased traffic in 2010. Taken from “Bakken Oilfield Fail of the Day” Facebook posted May 15, 2016.

and what it is now—they’d be concerned. It’s a unique area, changed forever [for the worse] now, probably” (Brady, 2014). Awareness regarding detrimental effects of the expanding oil industry on communities in Bakken expands beyond long-time residents. One new resident who

came to the Bakken to drive a truck in the oil patch is thankful to be employed but maintains, “I think we’ve [oil industry] ruined their town, it was a nice little town and now it’s just crazy” (PBS, 2012b).

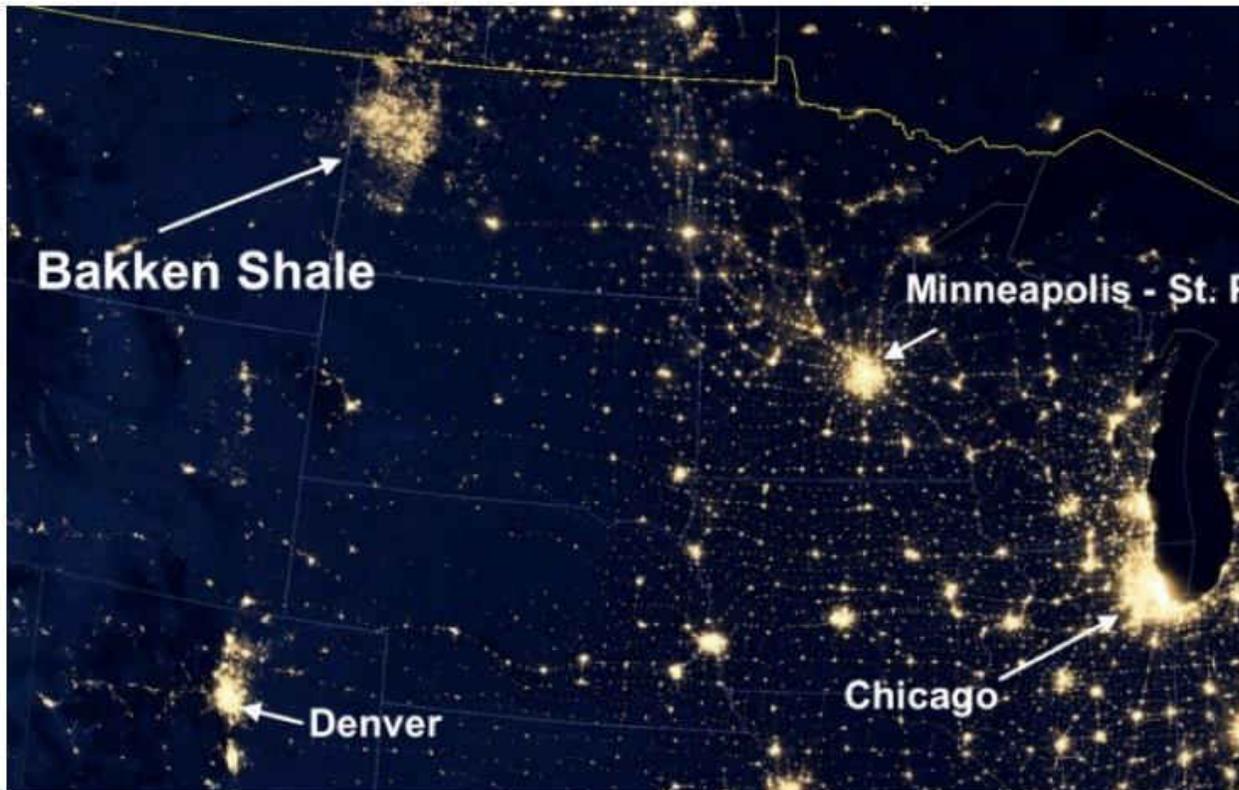


Figure 17. Satellite image of the Bakken region compared to other major metropolitan areas in 2014. The lights displayed in this image are from flares and other lighting associated with drilling and oil production. Courtesy of *The Washington Post*.



Figure 18. New residences being constructed in Williston, 2012. From *The Atlantic*, photo credit: Jim Urquhart, Reuters.

One long-time resident and the Williams County Sheriff Scott Bushings offer opposing yet appropriately conclusive remarks to summarize this locals’ perception regarding the recent social change. In a letter to the *Williston Herald*, the resident contends “they [locals and long-time residents] are leaving because they have lost their cherished lifestyle, their peace of mind, their safety—they have lost their western North Dakota” (December 4, 2012). Meanwhile, Bushings, while acknowledging the change and hardships endured by those in the region, argues “[the] town’s never going to be the same, accept that, grab on, hold on and go for the ride...once you grab that concept, then you try to make the best out of what it’s going to be” (PBS, 2012a). The following section moves on from perceptions of social change to perceptions of opportunity and frustrations encountered by individuals in the Bakken region.

Perceptions of Opportunity and Frustration in the Bakken region

The recent oil boom in the Bakken region has been likened to a modern day gold rush (NPR, 2014). This modern day gold rush has brought about economic fortune for many, hardships for others, and a large number of individuals seeing the boom as a double edged sword that includes both benefit and cost. The following section presents observations from the Bakken region concerning both opportunities and frustrations encountered during the boom. These observations are arranged around the following emergent themes: opportunities and second chances in the Bakken, gold rush mentality, general frustrations, paradox between cost and benefit, greed and the destruction of a previous way of life.

Though a supporter of the growing oil industry, Williston Mayor Ward Koeser admits: “there’s a human cost in this whole process [oil expansion], just the stress that is raised. You know North Dakota has always been known as a stress free state. And I don’t know that Williston would be considered that right now” (PBS, 2012c). Another longtime resident offers a less diplomatic view on the Bakken’s current condition:

We’re frustrated with lack of housing. We are frustrated with lack of services. We are frustrated with traffic. We are frustrated with driving. We are not alone. And I don’t care whether you have been here a long or a short time. We all are. There’s not enough police. There’s not enough ambulance. There’s not enough fire. There’s not enough restaurants. There’s not enough anything (PBS, 2012c).



Figure 19. Truck parked in Wal-Mart parking lot in Williston, North Dakota. From Bakken Oilfield Fail of the Day Facebook page, June 2, 2012.

This response appears to be more emblematic of long time locals. In Archbold (2013, pp. 28-29) one respondent reports, “People are planning to move...Most are not happy...The long term residents are pissed”. Another officer contends, “Local people have become bitter. They do not like the oil people coming in. It creates fights in bars. They want their small town back. They are frustrated with all the traffic” (p. 29). Locals have commonly expressed mixed emotions in response to the oil boom. A local business owner offers one such example, “At first, we were excited about the prospect of bringing in new people and new money...but it slammed us so hard, in such a little time that a lot of locals now are kind of resentful...now we want our town back”. He goes on to say: “business-wise, it’s been great—the cash has been rolling in” (Ellis,

2011a). This paradox between cost and benefit of the oil boom was mentioned by multiple individuals when discussing the oil boom, insights regarding this paradox are presented in the following paragraphs.



Figure 20. Truck Traffic in the Bakken. Taken from: <http://thebakken.com/articles/684/matters-of-perception>.

An individual who moved from Florida to the Bakken region in search of opportunity reports feeling “very lonely” and admits that making it in the Bakken is “not easy”, though he insists that “if you have the ambition, the plan, the skills, you will make it here. It’s really up to

you” (Sheerin & Bressanin, 2014). Cost of living is a major strain on individuals in the Bakken region as well, one respondent in Fernando and Cooley (2015) reports:

The negative side of it [working in the Bakken] to me is cost of living. It’s expensive to live here. I wish it was more even, where everybody could say I do have an opportunity to financially advance myself because of the opportunities the oil is providing, but really a lot of people don’t have extra money. It costs that much to live. It’s a stress for people because they look at that and say well I’m making more money but I’m not really taking and putting more money away.

One member of the Three Affiliated Tribes speaks to the double edged sword of oil development on tribal lands in western North Dakota. He contends “people are benefiting from it [oil development on the reservation], socio-economic status for tribal members is raising”. However, with this increased prosperity comes issues regarding regulation of the influx of non-tribal members on tribal lands. He continues, “on the reservation we don’t have the codes specific for non-tribal members...we’ve had an influx of non-tribal members on reservations that we cannot cite” (Public Broadcasting Services, 2012). He implies the economic benefit allegedly being incurred by the tribal population comes with a drawback, that being an influx of individuals, and an entire industry, beyond the reach of any tribal regulation with regards to criminal or environmentally detrimental activity.

Perhaps the most telling insights regarding the paradox concerning benefit and harm come from Bakken oil field workers. One worker featured in the documentary *The Overnighters*

left his family in Wisconsin to work in the Bakken oil fields.⁶⁵ When speaking of the Bakken, he says:

It pisses me off, I go to North Dakota and it's a shitty ass place and yeah, there's a lot of money, but I'd love that more than anything, to be able to work in Wisconsin and make the kind of money I was making there.

Two other oil field workers share their sentiments regarding their circumstances in the Bakken (Archdeacon & Swezy, 2013). One reports, "I'm making real good money, as much money as I've ever made in my life, I'm blessed. Place to stay, place to eat, can't be more satisfied"; however in the same breath he also states, "I hate it [being in the Bakken], I'm not going to be here long". This worker maintains it's the "only thing I can do to make money here". When asked for his thoughts concerning the Bakken the other worker is more direct, "No, I'm never happy that I came out here, but there's money here".

"You really have to move to North Dakota or someplace that has a boom, like the boomtowns of Williston" (Wall Street Journal, 2012) exclaims another new transplant. This respondent moved her family from southern California to Williston after both she and her husband lost their real estate jobs. She and many others are exemplary of the individuals described by Bohnenkamp et al. (2011, p. 15):

Many are coming from depressed economies elsewhere. [They] have sold everything they have except the clothes on their back and the stuff in their car. Promise of the American Dream is bringing them here. What they hear is jobs.

⁶⁵ He suffered severe injuries in a car accident traveling back to Wisconsin to see his family. His quote was given after he had returned home to Wisconsin and had suffered his accident.



Figure 21. Recently arrived individuals camp out in Wal-Mart parking lot in Williston, North Dakota. From CNN Money, photo credit: Blake Ellis.

It seems the word opportunity has become almost synonymous with the Bakken region. Russ Bankin, a regional manager for a Bakken oil company, insists “The Bakken oil boom is kind of a shining light to the rest of the county” (Wall Street Journal, 2012). Another couple who moved to the Bakken from North Carolina came to the Bakken because “we want to be debt-free, so we came here to play catch-up”...“but when I came here, I thought I was on Mars. It's just so crazy that the rest of the country has no jobs, and here's this one place that doesn't have enough people to fill all the jobs” (Ellis, 2011b). Another in-migrant was considering retiring from truck driving before he moved to the Bakken region. Once he arrived he discovered, “You can make at least a thousand dollars a week more here than anywhere else in the country”. In fact, this individual is so confident in the oil boom’s potential he maintains, “there’s not a business you can start in North Dakota right now that wouldn’t make it”. One previously quoted recent arrival to Bakken

reports he has in fact found the American Dream in the Bakken, “absolutely the American Dream is here. That’s why I am here. And so far it’s happening. Absolutely” (Sheerin & Bressanin, 2014).

For many individuals the Bakken oil boom presents an opportunity for a second chance. A local preacher feels that “coming to Williston represents an opportunity to try something again on a new playing field, with new opportunities” (Moss, 2014).⁶⁶ One such recent arrival believes the Bakken offers a place for people to start anew as well, he contends the Bakken “is definitely the place for a second chance” (Moss, 2014).⁶⁷ That opportunities are abundant in the Bakken oil fields seems apparent, such an opportunistic environment is likely to have contributed to the gold rush mentality reported by many denizens in the Bakken. Individuals’ accounts of this gold rush mentality are now presented for consideration.

A recent transplant from Tennessee, owns and operates a mobile kitchen on Highway 85.⁶⁸ When asked why she came to the Bakken, she replies “I’m digging for gold like everyone else...I’m going to name it [Highway 85] the highway of hope” (Melby, 2015). A former teacher is yet another example of someone who traveled to the Bakken in hopes of striking it rich. A teacher from southeast Wyoming, Brock left his job to move to the Bakken and does not regret it, “it’s way worth it...nothing like doubling your money first year out”. Similar

⁶⁶ This minister of a church in Williston offered his church as something of a shelter for new arrivals in Williston searching for work in the oil fields. His efforts are subject of the documentary *The Overnights*.

⁶⁷ Graves is quoted prior to 2014, and too was a prominent figure in the previously mentioned documentary *The Overnights*. Since then he has been arrested, convicted and sentenced to thirty-three years in federal prison for sex trafficking and methamphetamine possession and trafficking.

⁶⁸ Highway 85 is a major highway in the Bakken region connecting Williston and Watford City.

sentiments were echoed by the general manager of a truck stop in Stanley. He contends, “it’s just like a gold rush up here” and “we’re fortunate to have this type of environment, economically at



Figure 22. Oil field worker residing in his van. Photo credit: David Samson, The Forum.

least” (PBS, 2012). The latter part of his comment draws interest. When he says the region is lucky to have its current environment “economically at least”, it may imply that there are other spheres of the “current environment” that may be suffering due to the “gold rush” mentality so pervasive in the Bakken. Other participants speak more directly to the detrimental effects of this mentality.

In Bohnenkamp et al. (2011), greed associated with a gold rush mentality is decried by multiple municipal officials. Officials acknowledge that rapid growth is to blame for some of the increase in cost of living; however, one county commissioner insists “they say economics drives

it and yes, that's true, but greed has absolutely to do with it" (p. 16). Another economic official maintains "[the] oil has started to come hit us more now in the past couple of months and it's starting to make community members become more greedy and it's kind of making them forget where they came from" (p. 16). It is not only long-time residents who maintain that a sense of greed fuels the Bakken. A transplant from the east coast insists there is "too much anger in this town [Williston], too much fear, it's the epitome of greed" (Moss, 2014).

A tribal leader in the region understands the oil industry has taken hold and is not likely to be going anywhere anytime soon. However, she calls for a more tempered approach opposed to current ends justifying the means environment. She asserts, "yes we can extract oil, yes we are going to exploit the oil, but do we have to exploit the people, do we have to exploit the land and the water in the process"? (PBS, 2012b) This more tempered approach would likely aid in what has been perceived by many as the severe disruption, even loss, of a peaceful rural way of life cherished, and lost, by many of the Bakken's inhabitants.

Many long-time residents in the Bakken region have spent a majority of their lives investing in a peaceful rural lifestyle; the disruption and loss of this lifestyle is a frequently occurring theme in interviews and documentaries. One long-time resident professes, "It's heartbreaking to me to see my plains, my prairies destroyed, the wildlife destroyed, the water destroyed...it's not my home anymore". She continues "they [oil industry] have no intention to build anything here, they rape, pillage and burn" (Moss, 2014). One longtime rancher maintains North Dakota seems beholden to oil companies and exasperatedly attempts to describe the Bakken's current state of existence: "Now? I don't know how you'd describe it, it is... a mess, an absolute chaotic mess". She continues, "I am going to a state who values people more than money" (PBS, 2012b). This rancher's sentiments are echoed by another long-time farmer who

insists, “It’s [oil industry] destroying the way of life in this part of the state, and they [oil industry] don’t care...it’s not all good...the way the state of North Dakota is in bed with the oil companies” (Melby, 2015).

Based on accounts uncovered, the ample opportunity for economic prosperity in the Bakken region has brought with it a corresponding amount of frustrations. While opportunities seem to be most heavily touted by people who have moved to the Bakken and frustrations by those residents in place prior to the boom, both groups voiced positives and negatives about the boom. Many respondents viewed the oil boom as something of a paradoxical situation wherein economic prosperity was viewed favorably but this prosperity comes at a cost. Another long-time rancher offers a succinct summary on the topic when she opines “oil is great, if you have it...it seems like you always have to give something up to get something else and that’s kinda where we are now”. She continues, “if you’re not getting a check from the company then you can bitch, but if you are...” (PBS, 2012b). A major frustration briefly alluded to in this section involves concerns regarding violent crime and safety. Attention is now turned to Bakken inhabitants’ insights and accounts concerning violent crime and safety during the oil boom.

Perceptions of Violent Crime and Safety

Issues discussed in Chapter VI regarding population estimates allow for some debate regarding increases discovered in violent crime rates. While quantitative estimates of violent crime may be called into question, the qualitative feelings of the Bakken’s inhabitants offer some support. Generally, it seems Bakken denizens maintain violent crime has increased which has led to anxieties over general safety. Meanwhile, many officials maintain that while the overall occurrence of crime has increased, proportionately violent crime rates have not changed or that

violent crime rates are, now, no greater in Bakken communities than other metropolitan areas of North Dakota. Regardless of any quantifiable assessment, many individuals in the Bakken feel more vulnerable to violence and less safe in their communities during the oil boom.

Observations concerning violent crime are organized around the following themes: increases in violent crime, issues of proportionality, the appearance of new or changes in violent crime, women's feelings of safety and general safety.

Multiple police officers in Archbold (2013) conclude an increase in violent crime has accompanied the oil boom. Multiple law enforcement officials report the increase has not been limited to violent crime. One Williston police detective reports crime has increased across the board, "pretty much everything has greatly increased" (Good, 2013). As shown in Chapter 6, Dunn County reported zero instances of aggravated assault prior to the year 2012. Since then Dunn County Sheriff Don Rockvoy reports, "we're seeing lots of assaults, [aggravated] assaults" (Melby, 2015). Meanwhile, a sheriff's deputy relates "weapons calls have increased drastically" (PBS, 2012b) in Williams County.

Just across the North Dakota-Montana state line in Richland County, Montana Sheriff Brad Raisch has also seen the increase expand beyond just violent crime. "I don't think it's just one particular area of crime that has increased...but everything has increased" (PBS, 2012a). Meanwhile, Williston's mayor offers a more diplomatic take on the crime issue. Koeser insists, "Is there more crime than we'd like? There certainly is"; "[however] Our [Williston's] crime rate isn't really much different than the larger cities in the state, I feel good about that" (Good, 2013). Comparisons to more populated areas, claims regarding proportionality and exaggerated fears due to anecdotal observations were common responses when discussing violent crime.



Figure 23. Williston’s new jail that opened in 2009 increased total number of beds from 37 to 132 and is already over capacity. Photo credit: George Steinmetz, Fortune.

From Archbold (2013, p. 31), one Bakken police officer insists:

Some of the residents believe that the crime increase is directly related to oil, especially the high profile cases they see on the news. This is a knee jerk reaction to the crime increase and the need to blame it on something or someone. There will be a period of adjustment needed for the residents. Some of the residents are able to see the positive aspects of the boom. One positive aspect includes more businesses for shopping opportunities.

In a 2012 column, *Williston Herald* editor Jacob Brooks expresses his skepticism, “I know that things have changed in Williston in the recent years, but I refuse to believe that Williston is

unsafe”. Scott Bushings, Williams County Sheriff, also maintains that concerns over violent crime may be overstated. Bushings insists:

it’s not the wild west, this isn’t Dodge City, we’re not having shoot outs on the street, it’s just a lot busier than it used to be, and its different and yeah I wanted my old town back but it’s not going to happen, its nots going back the way it used to be. I think we’re going to have a few tough years and then things will start to come together (PBS, 2012a).

Multiple respondents alluded to the increase in crime as simply being due to increasing population. Meaning that while total occurrences of violent crime may be increasing, rates were still similar to their pre-boom levels. A police officer from Archbold’s (2013) study insists long-term residents’ fears regarding violent crime is due to a misunderstanding. This officer acknowledges, “now there is more crime”, however, “it is just increasing with the population, but it scares them” (p. 30). Brad Raisch supports this notion, he maintains “it’s just with this amount of people everything goes up” (PBS, 2012a). North Dakota Attorney General Wayne Stenjeham attributes concerns over crime to difficulties in tracking the rapidly expanding population, and the increase in occurrence rather than rate of violent crime. Stenjeham acknowledges “it is certainly accurate that crime is up and up in a worrisome way in some of those counties in the oil patch”. However, he contends “the likelihood of being a crime victim out there [Bakken region] isn’t really not that much greater than it is in any other part of the state” (Melby, 2015). So while differences of opinion exist concerning increases in violent crime (i.e. occurrence versus rate), many respondents clearly believe law enforcement was dealing with violent crime with which they were unaccustomed during pre-boom years.

Along with the disruption of tranquility, the loss of the bucolic sense of existence has been seriously disrupted during the oil boom. Former United States Attorney for North Dakota Tim Purdon insists “It’s not Mayberry anymore” (Williston Herald, January 24, 2015) referring to increased crime in the Bakken region. Multiple individuals report they do not let their children roam freely as they did prior to the oil boom, and especially as they, the parents, did when they were children and adolescents in these same communities. A respondent in Fernando and Cooley (2015) reported that “prior to this time [the oil boom], your wife and your kids could go out and play virtually any time of the day without any problem. But now you realize that things are not the way they used to be”. One Bakken business owner concludes that while the boom has been great for his business it has come at a price, “we’re used to letting our kids run to downtown to the movie by themselves. And now all of a sudden we’re carrying mace to go into the grocery store” (PBS, 2012a).

While the appearance of violent crime was in no way a wholly new phenomenon in the Bakken, multiple respondents report an increase in its frequency and severity during the boom. The police chief of one major Bakken city tells the *Williston Herald* (January 24, 2015), “this department wasn’t used to dealing with major crimes involving weapons. In the past, it used to happen once every four to six months. Now it’s once a week”. Mark Long, Montana’s Department of Justice Narcotics Bureau Chief, maintains many of the small agencies in the Bakken are facing new problems. “They’ve [Bakken law enforcement agencies] never had to deal with some of these problems. Some of these counties haven’t had a homicide in twenty years. Now they’re getting them” (*Williston Herald*, January 24, 2015).

The changing nature and frequency of bar fights is a phenomenon mentioned by multiple law enforcement personnel. What were once mundane events have turned into more alarming

occurrences. One officer explains “bar fights are a lot scarier now because there are more people fighting” (Archbold, 2013, p. 16). Another respondent echoes this statement, “the bar fights used to be one person against one person. Now it is a bunch of people against a bunch of people. It is more of a group fight”. This respondent also claims, “there are a lot more bar fights...the fights seem to be much more physical and violent” (p. 33). This increase in violence associated with bar fights is echoed by a Williston Police officer, “it’s rare that we go to a bar fight where it’s just people fighting with their fists, it’s knives, guns...” (PBS, 2012). Law enforcement officials are not the only ones who have experienced a change in their environment, many female respondents expressed concerns for their safety during the oil boom.

One such woman who is concerned for her safety is a transplant from Florida, who tells one documentarian, “I’d love to make a home here and put down some roots, but not with the boom going on”. She continues:

It’s a scary place out here for women. These guys will take advantage of you. I have more weapons in my vehicle than the gun shop down the road here. I carry a twenty-two, I have an eight inch blade, and a tazer, and pepper spray. I don’t leave home without one of them. Ever. (Melby, 2015)

Another female respondent who works alongside her husband as an independent contractor feels the environment in the Bakken is much less safe than her previous environment :

I’m not scared to go anywhere in Bozeman. But things going on here, the kind of people that you see around...they look kind of shady, so it’s kind of scary as a woman...the crime does scare me around here...If I do go the bathroom, I tell him [my husband]...just cause of where we’re at” (PBS, 2012a)

Safety concerns extend beyond women in the Bakken. Many residents voiced distress over the loss of a general feeling of safety during the oil boom. These sentiments are shared among both the general population and some members of law enforcement trying to maintain the public's safety.

One law enforcement official expressed such concern for the Bakken's population in Archbold (2013). This respondent insists, "Most of the locals are naïve to what is really going on—they don't see what I see everyday at work. People are monsters. They don't really care about the town and they don't care about other people" (p. 25). Another officer tells Archbold:

You have to lock your doors and lock your car. You cannot leave your keys in the car. You cannot trust hitch hikers any more. Neighbors are more cautious now.

You cannot walk down a dark alley at 2:00 am anymore and feel safe (p. 29)

Multiple respondents mentioned the effect safety concerns have put on their routine activities.

"We used to be able to move around more freely, but not anymore. It is not safe anymore" (p.

25) exclaims a respondent in Archbold (2013). Re-visiting concerns involving the safety of

women, this same officer reports "I have a younger sister and I will not let her go to the store by herself" (p. 25).



Figure 24. A recent female arrival from Florida shows a handgun she uses for protection along with her dog. She reports she “never” leaves her house without a weapon. Screen shot from Melby, 2015.

It is not only law enforcement officials worrying about the safety of a “naïve” population in the Bakken. Numerous residents conveyed apprehensions about their changing environment, and with it concerns regarding their general level of safety. One such long-time resident laments “It’s not a safe place to raise your kids” (PBS, 2012). Although troubled by the lack of safety, one longtime local, and waitress, manages to attach a silver lining to her anxiety, “It used to feel safe just walking wherever...People don’t really feel safe to come out anymore...I just take advantage of it [the money] while it’s here” (PBS, 2012a). Another group taking advantage of the money while having to deal with worrisome safety conditions are the oil and gas workers of the Bakken region. It is to these workers, oil field officials and other relevant individuals to

which attention is now turned for their accounts of dangers faced by oil field workers in the Bakken.

Perceptions of Working Conditions for Oil Workers

While views concerning conditions faced by oil field workers vary, the prevailing sentiment is best summarized as economic interests trumping safety concerns. Though oil field officials acknowledge dangers faced by oil field workers, they offer little insight as to why the Bakken is more deadly than other oil fields. Medical personnel in the Bakken speak to the results of unsafe working conditions, again with minimal insight as to why injuries are so prevalent. Meanwhile, oil field workers are more plainspoken regarding safety concerns. And finally, friends and family members of oil field workers who have died while on duty in the oil field echo this sentiment the loudest. Observations concerning worker safety are arranged around the following themes: oil field officials and medical personnel, inadequate regulations and rapid development of the industry, and finally economic interests trumping safety in the oil fields.

EMTs in the Bakken are constantly called to oil field sites. One EMT shares some of her personal experiences concerning oil workers and their working conditions. She expresses her concerns for oil field workers, “the crews aren’t safe there. The employees aren’t safe there. It’s just scary there...amputations, crushes, burns, lots of burns, it’s just the nature of the beast” (Melby, 2015). A Watford city emergency room doctor who earlier discussed the exponential increase he has seen in emergency room admittance during the oil boom reports:

On an average day, we have oil field traumas of some sort. It’s usually extremity, muscular injuries—people who lose a finger or smash a hand or break an arm or leg or cut themselves...its usually minor oil field accidents. But we certainly do have our share of big traumas that come in every week (Al Jazeera, 2015).



Figure 25. Aftermath of deadly explosion in the Bakken. Photo credit: OSHA.

OSHA director for the Dakotas Eric Brooks reports “we’ve seen a dramatic increase in number of fatalities due largely to dramatic increases in the oil and gas work” (Melby, 2015). Brooks contends the characteristics associated with workers play a major role in the majority of oil field fatalities, “You have a lot of new workers, a lot of new workers, a lot of young workers that are associated with the accidents,” says Brooks. “We have found training and communications violations, not universally, but consistently, among the accidents” (Melby, 2015). Fatality rates among Bakken oil field workers have drawn attention from national administrators as well. Regional OSHA director Greg Baxter reports, “my folks in Washington are essentially asking

me, what's going on? How can you have that many fatalities?" (Melby, 2015). While Brooks offers minimal insight into why the Bakken region is enduring such high rates of worker fatalities, other individuals maintain weak regulations may play some role. In an industry that is notoriously under-regulated, the booming nature of the Bakken region may amplify pre-existing regulatory issues contributing to the acutely high rates of oil and gas worker deaths found in the Bakken region.

In Soraghan (2014), Regional OSHA Director Brooks argues the "lack of regulatory protection has contributed to higher numbers of deaths and injuries in this [the oil] industry". A similar sentiment underlies Bakken safety official Dennis Schmitz's sentiments, "it's mind boggling to me how many safety standards they're [oil industry] exempt from" (Soraghan, 2014). Soraghan goes on to outline federal safety standards from which the oil and gas industry are exempt:

OSHA: process safety management of highly hazardous and explosive chemicals, includes provisions on welding and hydrogen sulfides, benzene general exposure limit—1 part per million, noise rules—oil and gas is exempt from monitoring and testing requirement, and lockout-tagout (requires that the power be cut to machines being serviced; Environmental Protection Agency (EPA): Clean Air Act rules requiring a risk-management plan for sites with "extremely hazardous substances, Clean Water Act spill control provisions requiring chemical storage tank facilities to be fenced and locked; Department of Transportation (DOT): drivers of vehicles used exclusively to service oil and gas wells are not required to count waiting time at the well site toward their on-duty hours for hours of service regulations.



Figure 26. This oil field worker (on the right) lost both legs in the explosion that killed another worker, and eventually killed himself in 2013. Courtesy of Reveal News, photo credit: Jebediah Standfill.

Based on accounts uncovered, officials appear to believe federal regulations for the oil and gas industry are inadequate. Some officials believe the rapid and recent expansion of the industry in the Bakken may contribute to greater regulatory issues for the Bakken. In reference to the North Dakota's formidable death rates for oil workers, CDC epidemiologist Kyla Retzer maintains "different states have different levels of maturity when it comes to safety and health for this [oil industry] workforce" (Gollan, 2015b). In a letter to the president's chief domestic policy advisor, Regional OSHA director Baxter too points to the rapid expansion of the Bakken's oil industry as a major reason for the multitude of Bakken oil worker deaths; in it Baxter states

“worker safety is all too often left out when an industry or technology grows rapidly” (Melby, 2015). Given the weak presence of regulatory efforts, oil field workers report that even those regulations that are in place do little good, or are rarely enforced. In the *Wall Street Journal*, Berzon (2015) reports that North Dakota has not added any federal OSHA inspectors to the eight they had prior to the oil boom. This same article points out that even if there were a suitable amount of inspectors the oil and gas industry utilizes a wide array of exemptions and loopholes to bypass the more stringent safety standards of other industries. ⁶⁹One such oil field worker who agrees with this point of view is “Jon”.

“Jon” has worked in the Bakken oil field for four years and recently lost a friend in a welding accident. Concerning OSHA regulations, on the “hundreds” of well sites he has worked, he reports “I’ve never seen OSHA come out”. He continues, “Everybody knows about OSHA, but everybody just does the bare minimum to get by... You look at all the safety violations and wonder, when is it going to happen to me?” (Al Jazeera, 2015). One of the most concerning findings “Jon” reveals concerns the amount of hours individuals are working in the Bakken. He discloses, “the longest I’ve ever been on a job site is sixty-nine hours straight...it’s a ticking time bomb, something could have definitely happened all the times I fell asleep in the crane while running it” (Al Jazeera, 2015). Just as alarming, is the fact that OSHA does not limit the amount of hours an individual may work. When directly asked if OSHA places any restrictions on the

⁶⁹ Soraghan (2014) explains that the oil and gas industry is exempt from many OSHA rules concerning worksite safety created in the early 1980s. While many laws were passed the oil and gas industry was exempt in lieu of a “pending oil and gas rulebook”. However, this rulebook was never created leaving the oil and gas industry exempt from important regulations concerning worker safety, EPA guidelines and DOT guidelines for drivers.

total number of hours an individual may work in the oil field, and elsewhere, Eric Brooks plainly states, “OSHA does not have hourly work limitations” (Al Jazeera, 2015). With minimal legislative efforts made to address issues of worker safety, the argument may be made that economic benefits associated with the oil industry trump worker safety concerns.⁷⁰ This is a sentiment expressed by multiple individuals in their accounts of the Bakken. Stories of economic incentive trumping safety concerns come from not only officials and the friends and family of individuals who have died in the oilfield. Just as important are the insights expressed by workers who willfully expose themselves to perilous working environments in exchange for generous salaries. Observations from all of these groups regarding worker safety are presented below.

While “Jon” previously shared some concerns for his safety, in the same breath he argues “it’s hard to complain about the hours you work when you’re making that kind of money”. He continues, “it makes it really hard to complain to management that you’re working too many hours when there are a lot of people who would love to be in my position” (Al Jazeera, 2015). Jon exemplifies the pressure reported by multiple workers in the Bakken when it comes to their safety. Another oil field worker insists “You never want to be the guy who turns down work, or who doesn’t do something”; [however], “It’s also that kind of attitude that makes things dangerous sometimes, right”? (Melby, 2015) Safety official Dennis Schmitz maintains the unrelenting focus on oil production has resulted in issues of worker safety being neglected, “over the past five or six years, there’s been a culture that’s primarily focused on the production

⁷⁰ One legislative effort was made in 2011 in a proposed bill that would disallow the practice of larger companies (e.g. Haliburton) forcing smaller local companies to sign indemnity clauses which protect larger leasing companies from legal and civil responsibility when workers are hurt or killed on their sites. This was a measure heavily backed by the insurance lobby but was voted down by the North Dakota legislature.

side...there's been a culture of getting it done" (Gollan, 2015a). "Jon" attests to this excessive supply side focus, "the more jobs you complete, the more money you make. The faster you complete 'em, the faster you can get to the next job. If you'd be safe, I bet you'd cut my pay in half". This myopic pursuit of profit has resulted in what many individuals consider to be the dehumanization of oil field workers.

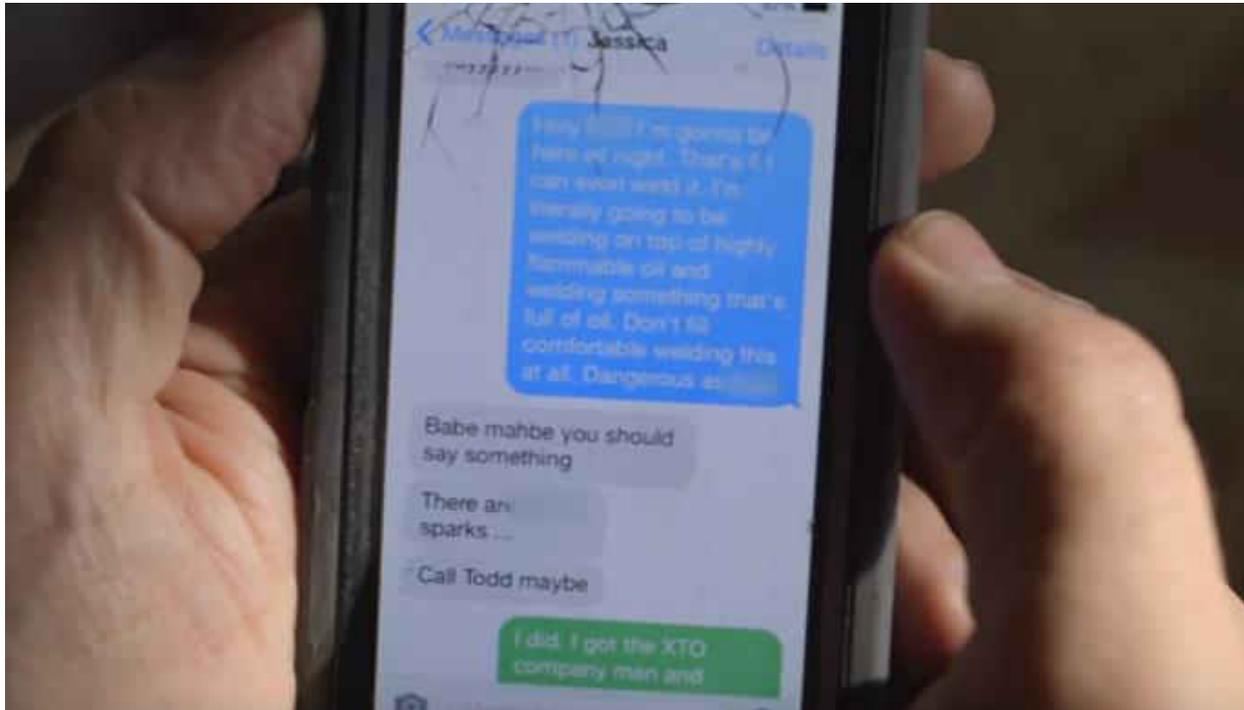


Figure 27. Screenshot of an oil worker's phone voicing concerns over his working environment to his girlfriend. This worker was killed when the oil tanker he was welding exploded (Al Jazeera, 2015).

A father whose son died in an oil field explosion in 2011, whose aftermath is presented in an above picture, insists, "to them [oil companies] there's just dollar signs coming out of the ground. I don't think they have any regards to how they're getting it, and I think they should be responsible for the well-being of the people working their site" (PBS, 2012c). When visiting the site of his friend's, one oil worker concludes "It's all about profit" when asked why the Bakken is such a dangerous place for oil field workers. He continues about his friend's death, "they've

probably just forgot and moved on about it. Hell, the caution tape ain't even up [anymore]. Just someone to replace” (Al Jazeera, 2015).

Perceptions from the Bakken and Durkheim’s Anomie Theory

Like the quantitative findings from Chapter VI, qualitative data from the Bakken offers support for Durkheim’s anomie theory. Accounts from Bakken denizens create a narrative which tells the story of an area experiencing heightened states of frustration during a time of rapid social change fueled by monumental opportunities. Durkheim’s theory of anomie is supported by the qualitative accounts presented here. Theoretical insights are discussed in the following order: perceptions of social change, opportunity and frustration, violent crime and safety and, finally, workers’ conditions.

Durkheim ([1897]1951) insists regions that experience a “beneficent but abrupt transition” are prone to heightened states of anomie, and according to responses from Bakken residents this appears to be the case. Multiple individuals reported the rate at which change occurred in the Bakken region left pre-existing social institutions lagging behind new social arrangements. Police officers from multiple sources (Archbold, 2013; PBS, 2012b) maintain they are constantly trying to “catch up” to their new conditions due to the rapidity of their onset. Meanwhile multiple long-time residents (PBS, 2012a&2012b) reported the breakneck speed at which social change occurred disrupted pre-existing scripts and expectations which Durkheim ([1893]1984) believed would limit “incoherency”, “disorder” and “disintegration”. The rapid social change endured in the region is resultant from the economic opportunities, both real and imagined, associated with the Bakken region. However, as recounted by both long-time residents and new arrivals, these opportunities have brought with them an array of frustrations.

According to Durkheim ([1897]1951, p. 248) human nature's naturally insatiable appetite means "satisfactions received only stimulate instead of filling needs". So while multiple individuals allude to the economic benefit incurred in the Bakken region, at the same time they discuss frustration. While many long-time residents express their resentments toward new conditions that have resulted from rapid growth of the oil industry, the "irritated weariness" Durkheim ([1893] 1984) maintained as indicative of heightened states of anomie is also exhibited by oil field workers. In Archdeacon and Swezy (2013), two oil field workers profess their delight regarding their income before one reports "I hate it" while the other admits "I'm never happy". So while opportunities abound it appears they have done little to satisfy oil workers' desires; this added to long-term residents displeasure concerning new social arrangements suggests anomic conditions exist in the Bakken. The "disorder" and "irritated weariness" uncovered in the Bakken, and which Durkheim insists accompany heightened states of anomie, appear to have manifested in higher incidences of crime to which we now turn Durkheim's lens.

Increased reports of violent crime and safety concerns voiced by those in the Bakken followed a rapid change associated with the oil industry. The kinds of crime experiencing major upsurges in the Bakken are themselves indicative of the "irritated weariness" and exasperation Durkheim ([1897]1951) believed would flourish in anomic environments. Aggravated assaults and bar fights were mentioned by multiple law enforcement personnel as having increased dramatically (Archbold, 2013; Melby, 2015; PBS, 2012a). While alcohol has a significant place in these events, previous researchers (Carrington & McIntosh, 2010) insist there is more to these bar fights than meaningless drunken violence. Previous researchers (Carrington, McIntosh & Hogg, 2010) found bar fights also serve to re-establish hierarchal arrangements that were

disrupted or destroyed due to rapid change in boom regions. In Durkheimian terms, bar fights may serve to re-establish scripts and expectations disrupted during the oil boom. Also, the state of “irritated weariness” in which individuals exist in the Bakken results in individuals being more apt to engage in destructive behavior. Durkheim’s anomie theory has been used by multiple authors in explorations of violent crime and other social ills. An area unique to the current work is the application of Durkheim’s theory to unsafe working conditions in a rapidly expanding industry and region.

Anomie, which includes the lack of safety regulation mentioned in multiple accounts (Melby, 2015; Soraghan, 2014), likely contributes to the dangerous working conditions and high rate of oil worker deaths. Durkheim’s ([1893]1984) contention that an ends justifies the means ethos exists in the industrial realm is supported by qualitative accounts of worker safety. Multiple individuals offered sentiments akin to Durkheim’s, either justifying their dangerous working pace or conditions with high salaries (Al Jazeera, 2015) or insisting individual workers’ wellbeing is ignored in the name of profits (Al Jazeera, 2015; PBS, 2012c). Conditions Durkheim believed would prevail in areas experiencing heightened states of anomie are present throughout qualitative accounts of the Bakken region.

Summary

Qualitative accounts from the Bakken appear to coincide with quantitative data presented in Chapter VI, with both offering support for Durkheim’s anomie theory. Individuals in the Bakken overwhelmingly report feelings of frustration. Even officials who support the oil industry report that the rapidity with which change has occurred has been detrimental at times. While opportunity is acknowledged, many long-time residents simply wish the boom would

cease. Meanwhile many workers who celebrate their economic benefit also bemoan the social and working conditions they must endure in order to obtain their inflated salaries. Chapter VIII provides conclusions and compares findings to theoretical predictions extracted from Durkheim's theory of anomie and presented in Chapter V.

CHAPTER VIII

DISCUSSION AND CONCLUSIONS

Given the rapid rate of growth in the oil industry coupled with evident increases in population and income, the Bakken region provides the setting for a unique natural experiment that allows for the empirical assessment of Durkheim's theory of anomie.⁷¹ The longitudinal approach utilized in the current undertaking avoids a prevalent pitfall encountered by previous authors (Krohn, 1978; Lester, 2001; Quinney, 1965; Webb, 1972) whose utilization of cross sectional data is problematic due to its inability to account for changes over time, ignoring the dynamic nature of Durkheim's conception of anomie (Graeff & Mehlkop, 2007). Where cross sectional data regarding multiple locales fails to account for change in one individual community, the current work frames the evolution of a specific area over the course of fifteen years, the last half of which were defined by unprecedented economic and population development, thereby capturing effects of development as opposed to structure which is the case with the previously mentioned works. The longitudinal approach also answers the call put out by Freudenburg and Keating (1982), who maintain cross sectional data provides an incomplete picture of the boomtown phenomenon. Qualitative accounts concerning social change,

⁷¹ Similar sentiments are expressed by Pridemore and Kim (2007) in their work exploring rates of homicide amidst rapid social and economic change in early 1990s Russia.

opportunities and frustrations, violent crime and workers' safety aim to add a subjective understanding to quantitative findings.

This chapter is organized around the three theoretical predictions originally presented in Chapter V and proceeds in the following manner. First, each prediction is individually revisited and its theoretical basis briefly rehashed. Next, the predictions' status in regards to the current undertaking's findings are discussed, followed by support from prior research. Following the examination of the theoretical predictions, the current study's findings are briefly compared with previous boomtown literature. Next, possible alternative explanations are presented for consideration. Finally, limitations of the current study are discussed.

Theoretical Predictions

Before theoretical predictions for the study are discussed, a brief recount of Durkheim's anomie theory is warranted.⁷² Durkheim believed societal "groups" provide a source of regulation to its members. In *The Division of Labor*, Durkheim discusses the need for rules to guide the interactions of societal "organs" and by extension individuals. In *Suicide*, Durkheim's anomie theory focuses on the infinite and insatiable desire associated with human nature and society's role in regulating this nature, without which man would be condemned to constant torment. As previously mentioned, Durkheim ([1897] 1951, p. 249) believed this occurred when society "fixes with relative precision the maximum degree of ease of living to which each social class may legitimately aspire", effectively regulating the

⁷² For a more thorough review, the reader is encouraged to refer back to Chapter 2.

desires of societal members. Anomie ensues when some “disturbance of the collective order” occurs and results in regulatory mechanisms being rendered ineffective (p. 246).

These disturbances of collective order result from some sort of rapid change during which group members are more likely to engage in adverse behavior. In *The Division of Labor*, Durkheim argued that rapid economic change may result in increased anomie due to its disruption of established scripts between societal organs. In *Suicide*, Durkheim considers the role “fortunate crises” have in contributing to acute states of anomie by removing the lid, so to speak, on human desires. As previously mentioned, while what is being regulated may differ, the crucial focus remains the same; formerly established regulatory mechanisms have been rendered ineffective. Attention is now turned to theoretical predictions.

Theoretical Prediction 1: As oil production increases rapidly, rates of violent crime will increase in the region

Durkheim ([1893]1984; [1897]1951) insisted regions undergoing rapid social change would have difficulty regulating the behavior of its members. This difficulty arises due to disturbances of pre-existing regulatory mechanisms resulting in some sort of “disorder”, disorder which manifests as increased rates of destructive behavior (e.g. violent crime). Oil production in the Bakken region increased 2,786% over the course of 1999-2014. Along with this expeditious expansion of the oil industry came major social and economic changes for the Bakken region as well. Both quantitative and qualitative findings presented in this study appear to support the idea that the Bakken region encountered heightened conditions of anomie during the recent oil boom. These conditions are seemingly reflected in the increased rates of violent crime and qualitative accounts from Bakken residents that coincide with the rapid expansion of the oil industry.

Anomic conditions in the Bakken arguably contributed to an increase in average overall violent crime rate of almost 150% between pre-boom and boom years, compared to an 86.26% increase incurred by the state of North Dakota. It is likely conditions responsible for increased violent crime rates in the Bakken spilled over beyond the Bakken, contributing to the increased violent crime rates reported by North Dakota as a whole. Perhaps the most telling finding comes from the Bakken's increased violent crime rate when compared to the nearby state of Iowa. Iowa experienced a decrease of 3.69% in overall violent crime rate while the Bakken endured its substantial upsurge.

As mentioned earlier, Thome (2010) insists aggravated assault serves as the best indicator of general violence. The Bakken region reported an increase in average rate of aggravated assault over 250% during the boom years, with multiple localities experiencing increases far beyond the regional increase. It appears the "exasperated weariness" Durkheim believed to exist among the populace in anomic environments has resulted in greatly increased rates of aggravated assault in the Bakken.

Quantitative findings report official increases in violent crime while qualitative accounts provide insight regarding rapid change and disruption which led to these increases, as well as a deeper understanding as to how these changes have effected individuals. In Archbold (2013), multiple officers report rapid change has left them constantly trying to catch up to an ever-changing environment. Other residents allude to the rapidity of the change (PBS, 2012a; 2012b), while Williston's mayor makes reference to the "intensity" of change. These qualitative accounts are indicative of lagging social institutions that have been rendered unable to regulate new societal arrangements. The consequence of this lag appears to be both increased rates of violent crime, as well as increased concerns for general safety.

Findings from the current study echo those of previous authors (Pridemore & Kim, 2006; 2007; Pridemore, et al., 2007) who uncovered increased rates of violence existed in regions experiencing some sort of rapid social change. The most telling finding concerning the Bakken region concerns increases in rates of aggravated assault. While homicide is the prevailing measure of violence in most empirical examinations of Durkheim's anomie theory, most of which take place on a national or international level, this work employs Thome's (2010) suggestion that aggravated assault is the best indicator of violent crime in smaller regional units. Trends derived from the Bakken appear to coincide with those discovered by researchers who have examined the status of Durkheim's anomie theory through longitudinal data and an appropriate operationalization of anomie.

Theoretical Prediction 2: As oil production increases rapidly, rates of suicide will increase in the region

The unprecedented economic opportunity in the Bakken seems to have provided the "fortunate crisis" Durkheim ([1897]1951) maintained would lead to the large scale deregulation of individuals' desires. The promise of economic benefit, coupled with rapid industry expansion, has unleashed previously regulated desires. Desires which are unquenchable, and result in the "longing for infinity", ensue when individuals were left to regulate their own desires. This pursuit of unachievable (i.e. immeasurable) goals results in constant "torment" and a "state of perpetual unhappiness" in the population at large, and is evidenced by increased occurrence of suicide (p. 248).

It is likely that the rapid social change associated with the oil boom contributed to the increased suicide rate for the Bakken during boom years. The rapid rise in oil extraction during boom years coupled with the telling and concurrent increase in suicides coincide with Durkheim's belief that economic change is a compelling catalyst for anomic conditions,

conditions in which individuals are more prone to suicide. This combination of economic opportunity and rapid social change in the Bakken, during boom years, embodies the characteristics of Durkheim's ([1897] 1951) notion of anomic suicide:

With increased prosperity desires increase. At the very moment when traditional rules have lost their authority, the richer prize offered these appetites stimulates them and makes them more exigent and impatient to control. The state of de-regulation or anomy is thus further heightened by passions being less disciplined, precisely when they need more disciplining (p. 253).

Just at the time Bakken denizens are in need of regulatory forces to manage appetites whetted by increased economic opportunity, rapid social change has rendered pre-existing forces ineffective. Heightened states of anomie could be the cause of the marked increase in suicide rate discovered in the region during boom years.

Quantitative findings show an increase in the average suicide rate for the Bakken region of 77.2% during the boom years. This increase appears telling in and of itself; however, when compared to NDAB's increase of 14.34% and the nearby state of Iowa that experienced an increase of 16.24% this rise becomes even more evident. While quantitative data offer a succinct summary concerning suicide, qualitative accounts are not as direct. Many individuals alluded to feelings of isolation (Archdeacon & Swezy, 2013), frustration (Moss, 2014; PBS, 2012a) and alienation (Sheerin & Bresanin, 2014) while constantly pursuing the infinite goal of economic prosperity. As was the case with escalating rates of violent crime, rising suicide rates too correlate with increases in both oil production and income.

Prior efforts in testing Durkheim's anomie theory through the examination of suicide rates in rapidly changing regions parallel the current undertaking's results. In a series of articles, Pridemore and Kim (2006; 2007) and Pridemore et al. (2007) found regional increases in rates of suicide in Russia during a time of rapid change in its political and economic system. So too did Minagawa (2012) who discovered disruptions in the "macro-social order" contributed to increased suicide rates in regions of Eastern Europe during the early 1990s. While rapid social change in the Bakken is of a different nature, and on a smaller scale, the disruption it has caused to pre-existing social arrangements has contributed to heightened suicide rates.

Theoretical Prediction 3: As oil production increases rapidly, oil worker death rates will increase in the region

Though never addressed by Durkheim, the connection between industry and anomie makes worker safety an appropriate topic to be analyzed from a Durkheimian perspective. The "chronic" ([1897]1951) state of anomie under which industry operates cultivates an environment where the ends justifies the means. In the current case, the ends is expanding profits for oil companies and higher salaries for oil workers, while the (justified) means is unsafe working conditions. Durkheim ([1893]1984, p. xxxii) argued "those actions most blameworthy" were excused in the name of profit. Based on quantitative data for worker death rates and qualitative accounts regarding oil workers practices and conditions, this certainly appears to be the case in the Bakken. The march towards an infinite goal undertaken by both the oil industry and oil workers in the Bakken has produced working conditions much more dangerous than other oil producing regions with the result North Dakota being the deadliest state for oil workers, as well as the general workforce (AFL-CIO, 2015).

North Dakota reported zero deaths associated with the oil industry prior to 2011.⁷³ Beginning in 2011, however, oil workers in North Dakota encountered death rates more than 500% greater than their counterparts in Texas. While quantitative findings are limited, qualitative accounts create a telling narrative regarding anomic conditions in the oil field. In Soraghan (2014), OSHA administrators concede its lacking regulatory ability contributes to the astronomical rate of death faced by oil workers in the Bakken. Soraghan goes on to list many of the exemptions that hinder OSHA's already limited regulatory authority. Oil field workers too notice the lacking regulatory authority of OSHA, and believe this to be a main instigator of dangerous working conditions (Al Jazeera, 2015; Melby, 2015). This lacking regulatory authority is coupled with the gold rush mentality embodied by the oil field workers who insist their substantial salaries justify their unsafe work practices and discourages them from complaining about dangerous conditions (Al Jazeera, 2015). Both quantitative trends and qualitative accounts from the Bakken support this final theoretical prediction.

A search of academic literature exploring worker death rates from a Durkheimian perspective turned up no results, and literature concerning worker death rates in boom regions was lacking. However, industry literature concerning rates of oil and gas worker deaths reveal how dangerous North Dakota is for oil and gas workers. Mason, Ritzer, Hill and Lincoln (2015) found over the time period 2003-2013 the national average fatality rate for oil and gas workers decreased by 36.3%. Meanwhile Hill, Retzer, O'Connor, Lincoln,

⁷³ Two issues warrant mention: 1) Data concerning worker injury and death in North Dakota from the Federal Bureau of Labor Statistics were available back to 2003; 2) Previously mentioned issues in Chapter 6 likely result in the underreporting of oil field deaths in "official" statistics.

and Gunter (2014) recorded an average death rate of 27.1 (per 100,000) for oil and gas workers nationally between the years 2003-2010. In this light, death rates faced by oil and gas workers in the Bakken seem perilous. Due to exemptions from OSHA standards (Soraghan, 2014), the oil and gas industry is excused from many regulations other industries are not, and due to the rapid expansion in the oil industry in the Bakken, what regulations do exist are difficult to enforce (Johnson, 2014). In their discussion concerning the “neo-liberal” assault on worker safety regulations in Britain, Whyte and Tombs (2010) maintain regulation (both safety and otherwise) of businesses are viewed simply as burdens, resulting in a breakdown in enforcement of regulatory efforts. Similar circumstances may be at work in the Bakken oil fields where rapid expansion and lacking regulation has resulted in, by far, the highest oil and gas worker death rate in the country.

Theoretical Prediction Conclusions

The recent economic growth, and accompanying rapid social change in the Bakken region, appears to have brought with it some unintended consequences. Durkheim’s anomie theory lays out an auspicious framework through which findings of increased rates of violent crime, suicide and oil worker deaths may be viewed. Social disruptions resultant from the rapidly expanding oil industry appear to have produced the “incoherency”, “disorder” along with the “state of exasperation and irritated weariness” which Durkheim ([1893] 1984; [1897] 1951) claimed would result in increased rates of social ills. Durkheim’s speculations on the myopic pursuit of “industrial prosperity” and the effect of the “fortunate crisis” are especially pertinent to the task at hand. The rapid increases in oil extraction and income experienced in the Bakken region over the past fifteen years coupled with increases in rates

of violent crime, suicide and oil worker deaths coincides with Durkheim's ([1897]1951) belief that economic change is a compelling catalyst for anomic conditions, conditions under which individuals are more prone to engaging in destructive behavior (p. 246).

Durkheim ([1897]1951, p. 357) insists the state of anomie present in areas experiencing rapid social change produce in individuals feelings of despair and irritation. Further, these feelings may result in individuals acting out in harmful ways toward either themselves or others. Durkheim concludes the same anomic conditions that increase the rate suicide also escalate the rate of homicide. This study has extended Durkheim's argument to include all violent crime as well as suicide and worker deaths.⁷⁴

Something akin to the "chronic" state of anomie in which Durkheim believed the sphere of industry existed in late-nineteenth century France may also be present in the current day Bakken region. Durkheim ([1897]1951, p. 256) held that this chronic state coupled with the vast exposure of individuals to these chronic conditions resulted in the anomic tendencies of industry to permeate, "spill over" to other areas of social life. In the Bakken where a rapidly expanding, and likely anomic, industry is ever present in the lives of all community members, the likelihood exists for feelings of constant irritation, which Durkheim ([1897] 1951) insisted would result in men acting out violently towards themselves and others.

Following Yin's (2003) guidelines, the theoretical predictions discussed above provide the basis to test the current undertaking's analytical generalizability. The change in rates and overall trends of violent crime, suicide and oil worker deaths discovered substantiate all three theoretical predictions. Rates of violent crime and suicide begin their

⁷⁴ A similar approach regarding violent crime was used by Thome (2010) in the author's exploration of aggravated assault rates in Imperial Germany.

most conspicuous increase concurrent to rapid increases in oil extraction which began around 2008 according to NDDMR. Rates of oil and gas worker deaths were absent prior to the oil boom, and when they appeared were substantially greater than those reported from the country's leading oil producer, Texas. The core arguments from both *The Division of Labor* and *Suicide* provide an impressive lens with which to account for the rising rates of violent crime, suicide and worker deaths discovered to exist in the Bakken region since the beginning of the oil boom. Empirical evidence presented in the previous two chapters offer support for the all three of the theoretical predictions, and by extension Durkheim's theory of anomie.

Boomtown Studies

The consensus among boomtown researchers is that with increased rates of resource extraction so too come increased rates of social ills; the current undertaking provides further validation for this consensus. Both quantitative and qualitative findings create a narrative of a region experiencing rapid change accompanied by increased rates of social ills during a time of exponential growth in resource extraction. That escalations in rates for all violent crime categories (homicide, rape, robbery, aggravated assault) were discovered in the Bakken is of little surprise. In their meta-review concerning violence and boomtowns, Jones and Freudenburg (1991) found over 90% of previous studies concerning crime and boomtowns found that boomtowns experienced proportionately greater increases in crime compared to population. In fact their "best available estimate" found boomtowns experiencing growth in crime rates three times greater than population.

Two more contemporary works, James and Smith (2014) and Ruddell (2011), also found significant increases in violent crime in boom regions, James and Smith in “shale rich counties” across the United States and Ruddell in Canada’s Fort McMurray. Trends uncovered, in these previous works, appear to be analogous to those in the Bakken region currently. Reports of disruption which were prevalent in previous boomtown research appear to be present in the current day Bakken region as well. The current work draws from a theoretical stance of earlier generations of boomtown researchers who relied heavily on classical sociological theory, especially Durkheim (and Tonnie)s (Finsterbusch and Freudenburg, 2002).

Alternative Explanations

It is maintained that Durkheim’s anomie remains the most fitting overall theory in accounting for increased rates of violent crime, suicide and oil worker deaths discovered in the Bakken. However, other explanations exist that may also aid in accounting for these increases. The following four theories are presented as complements to Durkheim’s theory of anomie, and offer possible further explanation for the increased rates of social ills uncovered in this study. Carrington et al.’s (2010) exploration of assault in Australian mining boom region offers one such alternative perspective regarding aggravated assaults. Messerschmidt’s (1993) *Masculinities and Crime* discusses the role violence plays in achieving masculinity and again presents insight on the increased rates of violence. Engel’s (1845) theory of social murder and Reiman and Leighton’s (2013) notion of the “carnival mirror of crime” are the final alternative explanations and both allow for a more critical

interpretation concerning worker death rates. Reiman and Leighton's carnival mirror is discussed at greater length as it serves as the basis for future endeavors.

Carrington et al.

In Carrington et al. (2010) the authors challenge the readily accepted notion that increased rates of assaults so often discovered in boomtowns are due simply to disruptions or attributed to excessive alcohol use. In their examination of an Australian mining boomtown, the authors show violence between males serves to re-establish damage done to pre-existing social arrangements. Carrington et al. take into account the wider cultural climate of both the region experiencing the boom, as well as the resource extraction industry. The researchers maintain most regions hosting resource booms are rural areas that tend to have pre-existing hyper-masculine cultures, aka "rural masculinity".

According to the authors, the resource extraction industry also fosters a hyper masculine culture. Accordingly, when two cultures who value toughness and violence as an appropriate means to solve conflict are forced to coexist in a disrupted community, the result is an acceleration in interpersonal violence. Carrington et al. affirm increased rates of violence are not aimless acts due to social disorganization or excessive alcohol use, rather they serve to re-establish disturbed hierarchical arrangements. Similar circumstances may play some role in the escalated violence discovered in the Bakken.

Messerschmidt: Masculinity and crime.

Messerschmidt's (1993) masculinity theory presents another alternative theory to account for the rise in violent crime found in the Bakken. Messerschmidt contends there are both legitimate and illegitimate means available for men to achieve masculinity. Such

legitimate means include success in academics, earning a substantial salary or providing for a family. Messerschmidt insists that when such legitimate means are unavailable, men resort to other “masculine validating resources” (p. 83), such as violence.

Given both official and anecdotal accounts regarding the ratio of young and single men to women in the Bakken (New York Times, 2013), at first it appears that many young men would be able to achieve masculinity through legitimate avenues, specifically their high salary status. However, given the hyper masculine culture that resides in the resource extraction industry (Carrington et al., 2010), income does not appear to fulfill this role. Also, it should not be assumed that everyone in the Bakken region is making a fulfilling salary. There are multiple accounts, most notably in Moss (2014), of men arriving in the Bakken region only to discover they are unable to attain the massive salaries for which they hoped. Given that multiple avenues of achieving masculinity, e.g. lack of willing and available female sexual partners and high salaries, are inaccessible to many individuals in the region the uptick in violence may be indicative of men attempting to achieve masculinity through violence.

Engels: Social murder.

Engels (1845) introduces his notion of social murder in his discussion of the conditions faced by England’s working class in the mid-eighteenth century. Engels insists that by knowingly exposing workers to dangerous, life shortening conditions caused by capitalist culture and economic arrangements, the bourgeois should be held as culpable as someone who commits murder in the eyes of the law. Engels argues the bourgeois have degraded workers to “mere objects” and ignore concerns of safety and wellbeing in lieu of money. Engels found that when an accident occurs the blame most often falls on the worker.

He reports the “recklessness of the miner is blamed” when an explosion takes place; this is a sentiment reported by at least one OSHA administrator concerning the Bakken who informed that the characteristics of oil field worker often contributes to accidents. Engels insists that many of these explosions could be avoided if the bourgeois would supply a safer working environment. This is a sentiment also expressed by multiple Bakken safety officials who claim that if regulations were created to create safer working environments, worker fatalities would decrease.

According to Engels, not only should the conditions faced by workers be viewed as criminal, these unjust conditions also contribute to the criminal behavior of workers. From the brutal conditions and bourgeois attitudes, sentiments arise in the worker who “sees in his neighbor an enemy” (p. 143). Some of the increase in rates of violent crime in the Bakken may have to do with new conditions of want that have appeared since the onset of the boom. Engel’s theory of social murder and accompanying thoughts relating to conditions faced by the working class in mid-eighteenth century England seem to be applicable to findings from the current day Bakken.

Reiman and Leighton’ Carnival Mirror

Reiman and Leighton’s (2013) notion of “The Carnival Mirror” of crime provides another critical lens through which increased rates of worker deaths may be viewed. Reiman and Leighton (2013) contend the “greatest threat to which we are exposed” (p. 71) comes not from the “typical” criminal action often associated with street crimes, but from the “dangerous acts of the rich” (p. 65). While the authors offer various examples of these “dangerous acts”, this work focuses on the discussion undertaken by Reiman and Leighton concerning unsafe working conditions and the resulting deaths and injuries encountered by

workers.⁷⁵ That these acts are considered noncriminal or justifiable speaks to the authors' belief that the "reality of crime" is created rather than an objective account of acts which produce the greatest harms. Accordingly, this reality is created by what and who is determined to be criminal, decisions made by those in positions of power (p. 67). Not only do these decisions favor the powerful in their daily goings on, but the authors suggest a more dire consequence lies beyond the obvious motive of monetary attainment.

Reiman and Leighton's intention is not to belittle the seriousness of "street" crimes (e.g. murder, assault, rape etc.), rather, they insist it is appropriate to label the harmful acts of individuals as crimes. However, the authors take exception when harmful acts of rich and powerful, which take place on a much larger scale, are not viewed as or treated as equally criminal (p. 74) – specifically, if and when corporate executives place priority on profits rather than the safety of workers with the result being injury or loss of life to workers. The question is posed by the authors: who is a greater risk to society, the individual who harms another in a bar fight, or the executive who ignores, denies, or outright refuses to provide a safe working environment in the name of profit margins, and in doing so places many more individuals in harm's way? It is argued the business executive who makes a calm and rational decision to disregard safety in the name of profits is acting with greater malice than the individual who attacks another on the interpersonal level. Are not both these actors engaging in "intentional" acts that produce harm? These intentional acts undertaken by the powerful are labeled "crimes by other names" by Reiman and Leighton (p.86).

⁷⁵ For a full discussion of these "dangerous acts" refer to pp. 65-117 in Reiman and Leighton (2013).

Reiman and Leighton maintain these harmful acts of the powerful are not considered criminal because of “common moral notions” endorsed by “The Defenders of the Present Legal Order” (The Defenders) (pp. 78-79).⁷⁶ The first “common moral notion” applicable to the current task at hand condones harmful acts of the powerful as long as they are committed in pursuit of legitimate economic goals and the actor did not intend to harm the individuals. This widely-held ideology results in those who fall victim to unsafe, yet avoidable, working conditions most often being viewed as unfortunate casualties, rather than victims of violent crime. Another assumption that allows acts of the powerful to escape criminal consideration revolves around the notion of consent. The Defenders assert that individuals who fall victim to unsafe working environments have “consented” to the dangers they face in their chosen occupation.⁷⁷ Also of interest is the commonly held assumption that the workers’ own “carelessness” played a role in their misfortune.

In challenging these assumptions Reiman and Leighton question the validity of the widely-held ideology which allows these acts to be considered something other than criminal. The authors’ commentary concerning executives whose calm calculative decisions result in death and injury to workers provides the first reply to The Defenders (p. 82). Simply

⁷⁶ The Defenders are those powerful members of society who profit from the arrangement of current conditions within the legal system. Given their position of authority, they are able to influence ideology on a larger scale and influence general sentiments concerning safety and criminal behavior on a large scale. For further discussion concerning “The Defenders” see Reiman and Leighton pp. 78-79.

⁷⁷ This is opposed to having a violent crime thrust upon a non-consenting victim (e.g. murder, mugging, rape, etc.) see Reiman and Leighton pp.84-85.

because the executive is driven by profit, does this make her or him any less culpable for the consequences of his or her actions? That the workers “consent” to the dangers of their occupation also draws criticism from Reiman and Leighton. Many of these dangers are suppressed and minimized by industry executives making it difficult if not impossible to consent, and do workers not deserve protection from such actions? In responding to the “carelessness” of victims that is believed to play a role in injury and fatalities, Reiman and Leighton contend this is “about as helpful as saying that some of those who died at the hands of murderers deserved it” (p. 90).

While the preceding paragraphs focused on harms often ignored by the criminal justice system, equally important in creating the “Carnival Mirror” are those crimes upon which the criminal justice system does focus. The criminal justice system concentrates on crimes of an interpersonal nature, and disproportionately on the crimes of the poor. Due to larger structural issues, for *the same* criminal behavior individuals of lower socio-economic status are more likely to be both apprehended and proceed further through every portion of the criminal justice system than are members of the middle and upper classes (p. 119). This focus on the crimes of the poor coupled with the purposeful disregard of the previously mentioned “crimes by other names” produces a “carnival mirror” effect resulting in the belief that crimes committed by the poor and transient populations are a greater threat than the crimes of the powerful.

This results in the previously mentioned “dire consequence” wherein attention is drawn away from the crimes of the powerful and focused on the crimes of the poor, allowing the powerful to act with near impunity. In the case of the current undertaking, this results in the majority focus being placed on crimes of an interpersonal nature, often attributed to a

transient workforce, while oil companies may provide dangerous working environments responsible for just as much (if not more) death and injury with minimal scrutiny. A major reason for this lack of scrutiny pertains to the lagging regulatory efforts in place.⁷⁸ These perspectives offer deeper insight, and pick up where Durkheim's anomie leaves off. To reaffirm, these "alternative" explanations may add some theoretical depth to the findings; however, Durkheim's anomie provides the primary theoretical framework to account for the increased rates of violent crime, suicide and oil worker deaths discovered in the Bakken region during its most recent oil boom.

Limitations

There are some limitations to consider from the current undertaking. The first relates to the limited nature of available crime data from the Bakken region prior to 1999. With few exceptions, data was not readily available for the majority of the counties and cities which comprised the Bakken region prior to 1999. This lack of data is the reason analysis was limited to the years 1999-2014. While the data is limited, the story it tells appears to be obvious. Perhaps the most compelling concern with the study pertains to population estimates. While official estimates were deemed appropriate as they were the only ones available for the entire range of years, more generous alternative population estimates (Hodur & Bangsund, 2015) were available for the "epicenter" town of Williston for the years 2012 and 2014. These alternative figures were used to create crime rates which were then

⁷⁸ While law enforcement agencies in the Bakken have received funding and legislative support, the North Dakota legislature has voted down the one effort concerning safety in the Bakken. This was an anti-indemnification bill brought before the legislature in 2011.

compared to those created from “official” population estimates. While these crime rates were less substantial, the story they told was akin to that of “official” crime rates, resulting in rates that double and triple from pre-boom years.

The limited and convoluted data collecting practices regarding worker death rates proved to be another issue in the current study. Convoluted nature of death statistics for oil workers presented in Chapter VI likely results in the under-reporting of deaths attributed to the Bakken oil industry. The limited nature, only five years, of oil worker data is not sufficient to draw long term conclusions; however, the findings from available years remain quite alarming. Also, control variables were not utilized for the case of the Bakken region, but control groups were employed to place findings from the Bakken in a larger context. Finally, this work supports the theoretical argument that increased rates of violent crime, suicide and worker deaths are caused by heightened anomic conditions. However, there was no direct measure of anomie, only analytical generalizations drawn from findings which serve as indicators of anomie.

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