BARGAINING FOR RETENTION:
THE PERVASIVENESS OF SPECIFIC CONTRACT PROVISIONS AND THEIR BEARING ON TEACHER RETENTION IN HIGH SCHOOL DISTRICTS IN ILLINOIS

BY

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DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Education in Education Policy, Organization and Leadership
with a concentration in Educational Administration and Leadership
in the Graduate College of the
University of Illinois Urbana-Champaign, 2024

Urbana, Illinois

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ABSTRACT

In education today, qualified and experienced teachers are essential for student academic success. This dissertation explores the relationship between teacher retention, teacher working conditions, and school district demographics through the combination of the contents of virtually all high school district's collective bargaining agreements in the state of Illinois and various publicly available school district demographic data.

Through a comprehensive review of the available literature on teacher retention, this study identifies the factors influencing teacher retention with a focus on bargainable working conditions. I explore how factors such as workload, prep time, and collaboration opportunities combine to inform a teacher's decision to stay with or leave a school district. I utilize a mixed methods approach to investigate the content of contracts through document analysis combined with available district demographic and teacher retention data.

My results contribute to the literature by offering a rich data set of the content of actual contracts. I utilize this data set to examine the connection between the content of high school collective bargaining agreements in Illinois and teacher retention. Based on my results that showed few statistically significant correlations between bargainable working conditions and teacher retention, I encourage a more holistic approach to understanding the nuances of bargaining and teacher retention. Although my results do not support the inclusion or exclusion of any to the explored provisions, there are many other factors that should be considered.

ACKNOWLEDGMENTS

This dissertation would not have been possible without the support of many, some of which will go unnamed but were important to my success. First and foremost, I am most grateful to my wife, Nicole. I would not have taken the first step toward this dissertation without her in my life. I am grateful to my mother, brother, and sister for providing me with a model of what would eventually become the work ethic that would see me through this. Their unwavering belief in me has always been present and continues to propel me beyond anything I would have ever thought possible. I will be forever grateful to Dr. Paul Bruno for doubling as my advisor and my friend. His willingness to go beyond any reasonable expectations to ensure my success is the primary reason for my ability to see this project through to its successful completion. Lastly, I appreciate my friends and colleagues at Adlai E. Stevenson High School for their continued support throughout this journey.

Dedication

To my wife, Nicole, and my children; Nathanial, Grace, Elena, and Isabella,

Throughout this journey, you have been the ones who have given the most. Even with that, you have been unwavering in your support, encouragement, and love. Your limitless patience and understanding have kept me going through countless hours of research, writing, and revising. Nicole, your selflessness and constant belief in me and my abilities have been vital. In my most difficult moments, you have sacrificed to lift me up and keep me on the path that would eventually lead me here, to the successful completion of this dissertation. You have truly motivated me to endure through every challenge.

To my children, you have also given much, and for that, I am forever grateful. You have continued to be my greatest source of joy and happiness. Watching you all grow has been my motivation for completing this work. The time has flown by, and I look forward to enjoying time with you laughing and creating memories. My love for you is greater than I could have ever imagined.

Together, you are what I live for, and this work is wholly dedicated to you.

Your loving husband and father.

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Chapter 1: Introduction

The conversation surrounding a national teacher shortage in America began well before 2000 but seemed to accelerate with the publication of Ingersoll's landmark study in 2001 (Ingersoll, 2001a). It was reinvigorated with a 2016 Learning Policy Institute Report (Sutcher et al., 2016) and has garnered increased attention since (Dee & Goldhaber, 2017; García & Weiss, 2019; Schmitt & deCourcy, 2022; Sutcher et al., 2019). In Illinois last year, Illinois State Board of Education (ISBE) data shows that Illinois schools reported 3531 unfilled teaching positions as of October 2022 for the 2022-2023 school year (Illinois State Board of Education, 2023). Teacher retention is one way to combat this shortage, but teacher retention is complex and defies a universal solution, while the overall value of keeping employees is indisputable (Byerly, 2012). In a large-scale review of the research on teacher attrition and retention, Borman and Dowling came to the following conclusion: "The weight of evidence suggesting that alterable characteristics of teachers' work environments play an important role in attrition underlines the critical need for well-designed interventions and evaluations of initiatives to help retain teachers, especially in those schools that are most in need of improvement" (2008, p. 401).

In this mixed-methods study, I identify correlations between teacher working conditions, teacher contract provisions, and teacher retention rates in secondary school districts in Illinois. In the literature review, I explore the considerable research on teacher retention/attrition and working conditions that have been completed, focusing on what might be alterable through collective bargaining and policy. Though limited, I also explore the research on teacher collective bargaining. I seek to isolate alterable characteristics of teachers' work environments by considering how (if at all) collectively bargained-for working conditions correlate to teacher retention. I gather information about the actual contents of collective bargaining agreements

(CBAs) and analyze the corresponding districts' retention rates. An experimental design was not adopted to examine the relationship between contract provisions and teacher retention. It would be impossible, and possibly unethical, to randomly assign a district to bargain for or against specific contract provisions. However, I use regression modeling to determine the relationship between specific contract provisions and teacher retention in high school districts in Illinois to explore potential causal relationships that future researchers may choose to study further.

Rationale

Public policies are designed to provide specific functions and benefit stakeholders. Methods to ascertain whether these policies work are essential to decisions to continue, modify, or discontinue these policies (Fitzpatrick et al., 2011). Additionally, if the results of these evaluations are made public, it can impact public trust, which, in some cases, can be essential for funding. The collection and distribution of taxes into various categories is an understood and accepted public policy, and taxpayers should be attentive to where their tax dollars are allocated. Public schools account for one of the largest public tax liabilities, and teacher salaries are the largest single cost in the K-12 school systems (Digest of Education Statistics, 2022) and, by proxy, potentially the most deserving of taxpayer attention.

For school districts, the allocation of tax-funded revenue is somewhat determined through collective bargaining. Collective bargaining is a policy that is required by state law and is protected, to some degree, nationally. Although only part of the school funding equation, collective bargaining outcomes can have lasting effects on a teacher's working conditions and compensation, as these two categories have been established as mandatory subjects of bargaining by the Illinois Education Labor Relations Board (Booth, 2009). Changes in these two categories of bargaining could ripple through a community, as working conditions and compensation at the

local schools can affect the ability of a school to recruit employees and alter teacher turnover rates (Allen et al., 2005; Borman & Dowling, 2008; Goldring et al., 2014; Grissom et al., 2016; Podolsky et al., 2016). Over time, this can affect school ratings which have impacted home prices and, by proxy, property taxes collected (Kane et al., 2003; Ries & Somerville, 2010). A decrease in property taxes allocated to schools would affect a district's ability to recruit and retain teachers due to the lessened ability to improve wages and working conditions. This system can also work in the opposite direction when schools with better funding use that funding to increase salaries and improve working conditions, attract and retain the best teachers, which improves the educational environment and increases property values. This is a self-perpetuating cycle, for better or worse, that benefits from careful attention. In summary, CBAs are potentially important because they provide faculty and administration the opportunity to establish specific modifications to the school environment that have been shown to impact teachers' plans to stay in or leave a district and could have long-term effects on district finances.

General Statement of Purpose

Teacher quality has an outsized impact on student achievement. The average student with the most needs learns from the lowest quality teachers, with teacher quality measured by several metrics (Akiba et al., 2007; Goldhaber et al., 2018; D. N. Harris & Sass, 2011). In exploring California's public school system, Seebruck (2015) found that "a maldistribution of teachers based on teacher quality permeates California's unified school districts and is highly correlated with the racial composition of the student population: Districts with higher percentages of white, Asian, or Pacific Islander students, or that neighbor such districts, tend to employ a higher percentage of credentialed teachers." (p.75). Similarly, a study conducted by Knight (2020) on teacher quality found "inequitable access to the most qualified teachers in Texas results from

teacher and student sorting across districts" (p.457). This trend across school districts in America's two most populous states is alarming.

When the number of teachers employed in a district fails to meet the established student-teacher ratio for that district, causing a teacher shortage, it becomes even more unrealistic to imagine students of color having consistent access to a high-quality teacher (Ayala, 2020; Beilstein & Withee, 2022). This is especially relevant for this study as students of color are overrepresented in Illinois school districts reporting the most teacher vacancies (Bruno, 2023). This is an example of how the shortage of teachers across certain districts can work to disadvantage students of color disproportionately. In contrast, the ability to recruit and retain teachers in schools with predominately White and Asian students provides further advantages to this population of students, thus serving to widen the achievement gap (Geiger & Pivovarova, 2018; Papay & Kraft, 2016). With a significant, albeit uneven, teacher shortage, high-quality teachers are and will continue to be a finite resource for our most vulnerable student population.

Problem Statement

Although teachers have a substantial role in the education of a population and have an impact on almost every person transitioning from childhood to adulthood, this impact is complex and hard to quantify. Still, some seek to quantify their work, which requires much simplification. There are costs associated with worker attrition and cost savings associated with worker retention, regardless of the profession (Bassett, 1972; Younge & Marx, 2016). It is broadly true that the cost associated with worker attrition increases according to the status attributed to the employee being replaced (trainee, professional, managerial, etc.) (Darmon, 1990), with teachers requiring an advanced degree and therefore being potentially harder to replace than workers in other professions. That said, the cost associated with teacher attrition remains hard to quantify.

Assessing the value of a teacher is complicated by many factors. Primarily, education as a profession resists quantification because it is hard to isolate the product that is produced. The desire to quantify the cost associated with teaching has taken many different paths; economic, societal, psychological, and emotional (Busemeyer, 2012; Levin, 2005; Rouse, 2005). Although there is not yet a standard measure to quantify the cost of teacher turnover, Milanowski and Odden (2007) and Levy et al. (2012), in separate studies, combined several factors associated with the financial cost of teacher turnover in a school district, including the cost of separation, cost of replacement staffing, net replacement pay, cost of training, and the value of lost productivity (a particularly difficult thing to measure). The more conservative estimates range from $1,995 - $9,061 - ($2,622 - $13,332 in today's dollars when adjusted for inflation) and placed the estimates as high as $5,157 - $23,088 ($6,777 – $33,972 in 2023 dollars). Additionally, at the school level, increased turnover leads to an increased share of teachers with low levels of experience and without full licensure and certification in the given subject in subsequent years, leading to a negative effect on student learning as measured by standardized test scores (Ronfeldt et al., 2013; Sorensen & Ladd, 2020).

Despite considerable motivation for school districts to recruit and retain teachers, many teachers leave schools or the profession within the first five years (Goldhaber et al., 2011; Goldring et al., 2014). Further complicating the matter, the quality of replacement teachers can become a barrier to student achievement. In a recent literature review, Kini et al. (2019) found that teaching experience is positively associated with students' achievement and other measures of success beyond test scores. The financial cost of teacher turnover (Watlington et al., 2010), along with the lowered teaching effectiveness associated with replacement teachers often being early in their careers (Ladd & Sorensen, 2017; Podolsky et al., 2019; Rice, 2003, 2010), leave the

hiring body for every school district pressured to choose the correct candidate the first time and retain that candidate.

Although teacher shortages have been an area of focus for many years, they remain a problem (Beilstein & Withee, 2022; García & Weiss, 2019; Nguyen et al., 2022; Sutcher et al., 2016). If there is a wider current or impending teacher shortage, reducing teacher attrition would provide relief by keeping teachers in the profession longer and simultaneously reducing the need to replace teachers each year. For teachers, each decision to leave a school is motivated by different variables, and not all teacher turnover is undesirable. With that, more exploration is needed to determine what can be done to reduce undesirable teacher turnover, and many educational policies may factor into a teacher's decision to stay at a school, leave a school for another school, or leave the profession entirely.

There has been evidence that teacher working conditions might significantly impact teacher attrition and job satisfaction (Goldring et al., 2014; Ingersoll & Smith, 2004; Toropova et al., 2021). This dissertation focuses on the effects of teacher working conditions on teacher retention. I first seek to define teacher working conditions before I explore the broader research regarding how working conditions impact retention, with a specific focus on studies completed on teachers in the United States. I also explore how collective bargaining by teachers' unions impacts working conditions and teachers' retention. I highlight the theoretical and conceptual frameworks researchers have used to study these topics (teachers' unions, working conditions, and retention) and end by exploring high school contracts in Illinois for the presence of provisions associated with teacher retention.

Keeping teachers should be a priority, and understanding how district-level decisions may affect teachers is an area of interest. The specific problem I explore is how working conditions,

one part of the broader collective bargaining process, correlate to teacher retention. Teacher retention, working conditions, and collective bargaining have been explored more generally, but most of this research has been on large elementary (K-8) and unit (K-12) districts. A research gap exists regarding the effects of collectively bargained working conditions on teacher retention at the secondary school level.

The existing literature has two major limitations. First, a large portion of the research focuses on teachers' self-reported reasons for leaving (Ingersoll, 2001b; Kelly, 2004; Liu & Meyer, 2005; Liu & Ramsey, 2008; Perryman & Calvert, 2020; Räsänen et al., 2020). Although self-reported information can be valuable, it can be subject to bias, which I discuss more in subsequent sections. Nevertheless, working conditions have been established in survey results to be as important as other material resources (Borman & Dowling, 2008; Elfers et al., 2006; Hakanen et al., 2006; Ingersoll, 2003; Loeb et al., 2005). Second, as I stated, much of the existing literature focuses on elementary and unit districts. This study addresses both of these limitations and add to this existing literature by examining the CBAs of high school districts for specific contract provisions determining working conditions instead of relying on teacher survey data of their perceptions of the working conditions in their schools.

Purpose of the Study

The primary purpose of this study is to empirically evaluate whether provisions relating to working conditions present in a CBA predict teacher retention rates and whether CBAs differ by characteristics of the school district in which they are bargained (i.e., low vs. high poverty district, low minority vs. high minority district, etc.). In this study, I attempt to examine the relationship between collectively bargained-for working conditions and teacher retention rates in

all public secondary school districts in Illinois using publicly available data sources and a novel dataset of actual CBA contents I collected myself.

Research Questions

RQ1: What working conditions do high school district contracts contain, and how do they vary across public High school Districts in Illinois?

RQ2: How does the presence or absence of these contract provisions affect teacher retention rates?

Hypothesis

RQ1, Hypothesis 1. Although when isolating for high school CBAs, there may not be as many contract differences as you might find between unit districts, there are still variables between high schools that I anticipate creating differences in CBA provisions. For example, when bargaining, I anticipate district size, student demographics, standardized test scores, and district wealth as factors impacting school board and union priorities.

RQ2, Hypothesis 1. Teacher workload, prep time, and collaboration have been identified in the literature as working conditions that factor into a teacher's decision to stay or leave a district. Therefore, I hypothesize that contracts promoting working conditions related to decreases in teacher workload and increases in teacher prep time and collaboration will improve teacher retention. I also hypothesize that each of these components of a CBA - the presence of teacher workload, prep time, and collaboration time - matters, even if accounting for other contract provisions.

Chapter 2: Previous Literature

This literature review explores the existing research on the impact of working conditions and collective bargaining on teacher retention. A cursory exploration of the literature on the effects of teacher working conditions and collective bargaining on teacher retention, teacher attrition, and teacher turnover uncovers a lack of alignment on how to define working conditions, as well as on what working conditions matter when exploring teacher retention. I first seek to define working conditions, then take the reader through the standard terms in the literature studying teacher working conditions.

I distinguish between working conditions that routinely appear in the research, separating the psychological reactions among teachers to their working conditions from the conditions under which their work is carried out. This distinction is essential as it separates potential root causes of teacher turnover from more downstream effects of these root causes, which appear as psychological reactions to working conditions. Next, I examine how the existing literature has established connections between common working conditions and their effects on teachers. I end by exploring the research on the impact of collective bargaining by teachers' unions on teacher working conditions. Overall, I focus mostly on larger-scale quantitative studies, as these studies are similar to my proposed analysis, where I seek to identify patterns that can be generalized across multiple contexts. Additionally, it was helpful to compare and contrast my methods with the authors of these studies.

The Importance of Teacher Retention

Employee turnover is a long-standing problem. When it comes to teacher turnover and retention, there have been attempts at measuring the associated financial cost (Barnes et al., 2007; DeFeo et al., 2017; Synar & Maiden, 2012), but it is hard to measure the additional toll on

individuals who choose to stay in high-turnover schools (Fernet et al., 2013; Hakanen et al., 2006; Nieto, 2003). Before going any further, it is essential to clarify that teacher "attrition" and "retention" are referenced in the literature and will be used throughout this literature review when discussing teacher turnover. Focusing on one or the other may be useful sometimes, but I use them as exact opposites (often interchangeably).

A growing new teacher shortage has been the focus of researchers for several decades. Recent data shows a decrease in teacher preparation program enrollments, leading to a potentially significant teacher deficit in the future (García & Weiss, 2019; Nguyen et al., 2022; Podolsky et al., 2016; Sutcher et al., 2016). Because of the potential teacher shortage and the cost associated with teacher turnover, teacher retention is essential to offset the effects of fewer people pursuing the teaching profession (Barnes et al., 2007; Ingersoll, 2001a; Nguyen et al., 2020; Sutcher et al., 2016). Policymakers have begun to warn that action is required to increase teacher retention.

Research has shown that one potential reason high teacher turnover negatively affects student achievement is that less effective teachers are chosen as replacements (Hanushek et al., 2016; Sorensen & Ladd, 2020). Moreover, evidence shows that mitigating turnover and increased teacher experience increases student achievement. In a recent literature review, Kini et al. (2019) found that teaching experience is positively associated with students' achievement and other measures of success beyond test scores. The highly documented teacher shortage leads to the additional challenge of finding someone to fill each open position, regardless of quality or cost (Bleiberg & Kraft, 2022; Ingersoll, 2003; Nguyen et al., 2022).

Additionally, although much of the existing research is focused on how the lower quality of replacement teachers negatively impacts student achievement, turnover also affects the

remaining staff. In one example, Ronfeldt et al. (2013) provides evidence of turnover that impacts students (and the remaining teachers), independent of the difference between the quality of the outgoing teacher and their replacement. That is to say, there are negative achievement effects even on the students of the teachers who stayed. Although the authors cannot identify specific mechanisms, they were able to use longitudinal data to measure changes within classes between school years and between classes in the same school year to ascertain that the impact of teacher turnover might extend beyond the classroom of the teacher being replaced.

One reason teacher turnover may affect the teachers and students who remain in the same school is the impact on the organization's culture. Consistent teacher turnover makes it challenging to build an organizational culture or participate in a sustained collaborative effort that builds year upon year. Teaching is an occupation that benefits from employee collegiality and cohesion, both of which are disrupted by turnover (Allensworth et al., 2009; Hirsch et al., 2007; Ingersoll, 2001a; Podolsky et al., 2016). Evidence shows that high turnover rates impact continuity and cohesion and potentially negatively impact student learning (Carver-Thomas & Darling-Hammond, 2019; Keesler & Schneider, 2010; Ronfeldt et al., 2013; Sorensen & Ladd, 2020). Overall, the difficulties associated with finding a teacher, the decreased teaching effectiveness associated with replacement teachers, and the effects of teacher turnover on the remaining teachers and students increase the positive impact of reducing teacher turnover.

These challenges affect our low-income and minority students the most. Researchers have found that schools with high levels of teacher turnover and difficulty filling openings also have higher shares of minority, low-income, or low-achieving students (Borman & Dowling, 2008; Bruno, 2023; Clotfelter et al., 2007; Scafidi et al., 2007). Early researchers attributed turnover in these schools to teachers' discontent with the students these schools serve. Research

has recently used teacher survey data to explore this more deeply. It has become evident that working conditions play a significant role in teacher turnover decisions in all schools, including those serving minority, low-income, or low-achieving students predominately.

Ultimately, teacher retention is my outcome of interest due to the high cost of teacher turnover (Barnes et al., 2007; Levy et al., 2012; Sorensen & Ladd, 2020; Watlington et al., 2010), the connection between teacher retention, teacher quality, and organizational culture (Allensworth et al., 2009; Goldhaber et al., 2011; Hanushek et al., 2016; Podolsky et al., 2019; Rivkin, 2016; Wiswall, 2013), and the widely publicized teacher shortage increasing the difficulty replacing teachers who leave (García & Weiss, 2019; Nguyen et al., 2022; Podolsky et al., 2016).

Overview: Common Definitions of Working Conditions in the Literature

The broad categorization of working conditions

Although the literature has linked teacher working conditions to teacher retention (Ladd, 2011; Sims, 2020; Toropova et al., 2021), current literature fails to reach a broad consensus on a standard operational definition of teacher working conditions (Merrill, 2021). From the start, much of the available data on teacher working conditions comes from teacher surveys. The available teacher survey data has led to research outcomes built upon teacher perception, resulting in the common characteristics of teacher working conditions relevant to teachers that may be actionable, such as professional development and opportunities to collaborate, and some that are not directly actionable, such as leadership and job-related stress.

This is at least partially complicated by a broad definition of working conditions. Working conditions can be the bargained-for conditions under which work is carried out or simply the work environment created by the accepted culture of the larger community. This

means “working conditions” can include a wide range of factors. For example, in a 2003 study, the National Center for Education Statistics completed the Teacher Follow-Up report (a follow-up to the Schools and Staffing Survey), which published data from a nationally representative sample of 4400 public school teachers. The survey participants who listed 'dissatisfaction' as their reason for leaving teaching were asked to list up to 3 reasons for their dissatisfaction. The primary reason was poor salary, followed by student discipline problems, lack of support from the school administration, poor student motivation, and lack of teacher influence over schoolwide and classroom decision-making. The authors considered all these working conditions (Ingersoll & Smith, 2003). Another study conducted by Harris et al. surveyed teachers, administrators, and community members to quantify what degree they agreed with the statement regarding what the authors defined as teacher working conditions. They were asked to rate building leadership and resources, student behavior, community respect, teachers' evaluation, decision-making, professional development/other support, teacher preparation time, and compensation (2019). This list is one of the broadest in the literature and provides an excellent example of the vast array of characteristics that may fall under the umbrella of working conditions.

Furthermore, the research did not agree when attempting to determine what role resources may play in teacher turnover. For example, Podolsky et al. (2016) drew a connection between hard-to-staff schools and under-resourcing. They cited the four factors most highly related to a teacher's decision to remain in a given school as school leadership and support, opportunities to collaborate, high-stakes accountability systems, and resources for teaching and learning. However, while there appears to be a logical connection between resources and teacher retention, Carver-Thomas and Darling-Hammond (2019) did not find significant effects of

school resources on teacher turnover, and in reviewing the literature on teacher turnover, Nguyen et al. (2020) concluded that more research needs to be done before resources can be definitively connected to turnover.

Still, several characteristics of teacher working conditions consistently appeared in the literature. For example, factors associated with school leadership were commonly cited as working conditions that significantly impacted teacher retention. Additionally, professional development opportunities and teacher collaboration/collegial relationships were often identified as critical factors determining the likelihood of a teacher's plans to leave the profession. (S. P. Harris et al., 2019; Kraft et al., 2020; Nguyen et al., 2020; Podolsky et al., 2016). Furthermore, teacher collaboration/collegial relationships were often cited as positively affecting teacher retention. Although collaboration and collegial relationships were often cited separately, they were similarly defined throughout the literature as describing working relationships. With that, teachers are likelier to stay in schools where they have positive working relationships with their peers, including collaboration around teaching and learning, but not limited to these interactions (discussed in more detail below) (Allensworth et al., 2009).

Teachers' salaries were also frequently referenced in the literature on teacher working conditions, and the impact of a school district's resources on teacher salaries is strong. According to the literature, teacher salary was the most commonly cited factor for teachers contemplating quitting (Borman & Dowling, 2008; Guarino et al., 2006; S. P. Harris et al., 2019; Kersaint et al., 2007). There are two reasons salary, as it relates to teacher retention, is not a focus of this study. First, the relationship between teacher salaries and teacher retention has been widely studied (Borman & Dowling, 2008; Brill & McCartney, 2008; Feng & Sass, 2018; Hahs-Vaughn & Scherff, 2008; Hanushek et al., 2004; Ingersoll, 2001a; Ingersoll & Smith, 2003; Kelly, 2004;

Kersaint et al., 2007; Liu & Meyer, 2005; Stinebrickner, 2001). Second, salary is an economic condition, not a working condition, and this distinction will be discussed in more detail. There is general agreement that salaries have a role in teacher retention. Although salary is beyond the scope of this study, the importance of salary for retention in specific working conditions is reflected in my methods. I explore the research on the importance of specific aspects of working conditions in greater detail.

Overview of Specific Working Conditions

Research has shown a link between teachers' workplace conditions, satisfaction, and career choices (Hanushek et al., 2016; Ingersoll, 2001a). This literature review is focused on teacher collaboration/collegial relationships, teacher workload, professional development, and leadership when referring to working conditions. These factors were chosen as they were commonly discussed in the research as consistently correlated with teacher job satisfaction and retention. Also, exploring these factors may provide actionable results for teacher bargaining and retention, unlike factors such as community respect or student motivation that appear in many surveys about teacher working conditions but are not bargainable or otherwise amendable to direct intervention by the school administration.

The relationship between teacher working conditions and teacher retention

A large and growing body of research utilizes survey data to understand what causes teachers to leave schools (Allensworth et al., 2009; Boyd et al., 2011; Johnson et al., 2012; Ladd, 2011; Perryman & Calvert, 2020; Räsänen et al., 2020). Teacher working conditions correlate strongly with job satisfaction and career choices (Burkhauser, 2017; Johnson et al., 2012). Teacher turnover is particularly pertinent for traditionally hard-to-staff schools, which educate the highest proportion of minority, low-income, and low-achieving students who are also the

most in need of additional support and stability (Borman & Dowling, 2008; Clotfelter et al., 2007; García & Weiss, 2019; Hanushek et al., 2016; Scafidi et al., 2007; Sutcher et al., 2019).

A significant amount of the research regarding teacher turnover was built upon a landmark study by Ingersoll (2001a) in which the author explores the root causes of poor school performance. The author utilized a nationally representative dataset from the late 1980s and early 1990s collected by the U.S. Census Bureau with 6733 teacher responses in which he was able to identify several pertinent school characteristics such as size, location, and grades taught and tie these to teacher survey results and turnover rates. This study identified job dissatisfaction as a primary motivation for teacher turnover, highlighting low salaries, lack of support from school administration, student discipline problems, and lack of teacher influence over decision-making as the four main factors.

Other research also provides evidence of a link between working conditions and teacher recruitment (Rivkin et al., 2005) and retention (Geiger & Pivovarova, 2018; Johnson et al., 2012). Ample research shows that the turnover rate is reduced as teachers view working conditions more positively (Boyd et al., 2011; Ingersoll & May, 2011; Kraft et al., 2016; Podolsky et al., 2016). Podolsky et al. (2016) explored the working conditions specifically in high-poverty schools, which have 50% higher turnover compared to low-poverty schools. Unsurprisingly, schools with poor working environments often serve minority and low-income students (Allensworth et al., 2009; Boyd et al., 2011; Johnson et al., 2012; Ladd, 2011) and Podolsky et al. (2016) found that the teachers were leaving high-poverty schools because of concerns with the teaching facilities, textbooks, administration, and class sizes, not the students. This matters because the inability of early research to capture this important distinction in

working environments caused these results to focus on student characteristics rather than the underlying working conditions.

Additionally, Ladd (2011) found that working conditions can predict a teacher's intention to leave their current school, independent of other school characteristics such as the racial mix of students. Nguyen et al. quantified their finding in the following way, "…the odds of teachers leaving schools with better working conditions decrease by nearly 45 percent compared to schools with less favorable working conditions (2020, p. 9). Johnson and Birkeland (2003), utilizing interviews with 50 new teachers over four years in Massachusetts, found that teachers' "sense of success" (p.581) with their students was the most influential factor when making career decisions and that the environment of their school was the most significant factor in that success. Lastly, the findings by Hirsch and Emerick indicate a connection between teacher working conditions, teacher retention, and student learning (Hirsch et al., 2007). Findings for specific working conditions (teacher collaboration/collegial relationships, teacher workload, professional development, and leadership) were routinely referenced as working conditions in the research, and I explore them in more detail below.

How the relationship between working conditions and teacher retention has been studied

Much of the current research on teacher retention results from large-scale survey-based datasets. An advantage of utilizing large datasets to explore this topic is that it provides a broad overview of teacher sentiment relatively quickly and across many contexts. The field of education affects billions of lives worldwide, so broad findings that can help all learners can have significant impacts. With that, there are a few disadvantages when utilizing large datasets. First, the inability of the researchers or the end users (policymakers, other researchers, etc.) to account for the limitations of the data. For example, it is impossible, nor is it the aim, for a large,

nationally representative dataset to account for the nuances found at the local level of the education system. Second, in the case of Ingersoll (2001a), the follow-up survey of those who departed their schools was conducted using self-reported data that asked the participants to recall their reasons for leaving. Ingersoll states, "…such self-report data are also retrospective attributions, subject to bias and, hence, warrant caution in interpretation" (2001b, p. 12). Even with these notable limitations, the Ingersoll (2001a) study and follow-up studies have often been cited for their ability to peer into the teaching profession through the lens of a nationally representative sample of teachers.

The Ingersoll study, in particular, was instrumental in connecting survey results with the grade level of the survey participants. This was uncommon with such a large-scale dataset at the time, and exploring teacher retention factors by school type or grade level is still uncommon today. Identifying survey data with participant grade level allows for subsequent research to begin to identify differences that might exist between elementary and secondary school teachers. Hirsch et al. (2007) utilized a relatively large dataset disaggregated by the level of school taught (elementary, middle, and high school), allowing the authors to make school-age distinctions in their findings on the relationship between various working conditions and teacher retention. For example, empowerment was significantly correlated with turnover at the elementary and middle school levels but not at the high school level. Similarly, leadership was strongly correlated at all three levels, while facilities were only significant for middle school-level teacher turnover.

Furthermore, Ladd (2011) and Allen (2005) found differences in teacher retention when data were disaggregated into three levels (elementary, middle, and secondary). Ladd (2011) found insufficient time for planning and collaboration to be predictive of turnover at the elementary and middle school levels and expanded roles for teachers to matter only at the high

school level, while Allen (2005) found strong evidence of higher attrition among middle school teachers more generally when compared to their high school or elementary peers. This underscores the importance of isolating teachers by these three levels when studying working conditions and bargaining.

Conversely, most other authors provided the results of their research in aggregate. They displayed their results by combining all teachers in a given location without disaggregating by grade level taught (Goldhaber et al., 2011; Johnson et al., 2012; Rivkin et al., 2005), which, as was mentioned previously, does not allow for research to account for any differences in teaching environment due to the logistics associated with the age of students taught. Research on teacher turnover is often based on cross-sectional, large-scale, nationally representative surveys administered by governmental agencies such as the U.S. Department of Education that do not disaggregate for grade range, thus making it impossible to account for differences that may be linked to many working conditions associated with teacher turnover in the literature.

That is not to say that aggregate data is not useful. The research conducted by Ingersoll (2001a, 2002; Ingersoll & May, 2011) was the point at which teacher turnover research became about more than the traditional supply and demand model previously employed in the general economics conversations (Howsam, 1985; Schlechty & Vance, 1983; Weaver, 1978) and moved toward exploring working conditions as important. Traditionally, supply and demand models work to find equilibrium in a single product market (Whelan & Msefer, 2003). In the case of education in the United States, this is not a single market. Rather states govern education differently, and local conditions can change the teaching and learning conditions considerably and independently of other districts. This can look like the ongoing teacher shortage that, on the surface, appears to be affecting the entire profession but, in actuality, is affecting specific schools

and subjects much differently than others (Bruno, 2023; Nguyen et al., 2022; Schmitt & deCourcy, 2022). With that said, to the extent that there is a teacher shortage, teacher retention will decrease these shortages.

Although moving beyond simple economics and exploring working conditions as a potential source of teacher attrition was an important step, the question of how working conditions impact teacher retention can be complicated. Two broad themes from the literature provide a bridge from working conditions to teacher turnover: working conditions can contribute to (1) teacher burnout and (2) teacher job satisfaction. It is important to note that, although sometimes referred to in the same research as teacher working conditions, burnout, and job satisfaction are not teacher working conditions; instead, they are psychological reactions that are sometimes connected to working conditions. Moreover, interpreting the connection between working conditions and teachers' psychological reactions is complicated for two reasons. First, the existing research on working conditions and teacher retention is based mainly on survey data that, when interpreted, leads to correlations so that no definitive effects can be established (Carver-Thomas & Darling-Hammond, 2017; Nguyen et al., 2020; Sutcher et al., 2016). Second, much of the existing research is based on the teacher's perceptions of their working conditions or what teachers report as factors for leaving, which prevents researchers from controlling for participant bias (Ingersoll, 2001b). In the end, teacher retention is complicated and resists a simple solution, and any policies prescribed to lessen unwanted teacher turnover must be differentiated to be effective (Byerly, 2012; Perda et al., 2013). Since CBAs can be differentiated between districts, exploring the contents of CBAs might be an underutilized step toward attempting to find different solutions to increase teacher retention.

Specific Working Conditions That Affect Teacher Retention

Teachers' perceptions of working conditions identified in the literature as pertinent to teachers' plans to stay or leave a school are highlighted and explored. This provides an explanation as to why working conditions should be studied when exploring teacher turnover.

School Leadership

There is evidence that school leadership has the strongest correlation of any working condition to teacher retention (Allensworth et al., 2009; Boyd et al., 2011; Hirsch et al., 2007; Ladd, 2011). Unfortunately, the research is challenging to interpret and apply for at least two reasons. First, the research is commonly based on survey questions which, as I previously highlighted, lead to research outcomes built upon teacher perception, resulting in characteristics of teacher working conditions identified as relevant to teachers but not directly actionable. Second, existing research assesses school leadership in broad and ill-defined ways, similar to how working conditions appear in the literature.

Johnson et al. (2012) highlighted the relationship between a teacher's desire or decision to leave with how they viewed their peer relationships, school leadership, and school culture. Additionally, Ladd (2011) found that leadership (among other factors) was significantly associated with a teacher's decision to stay or leave a school. Boyd et al. (2011) focused more specifically on administrative support as a significant factor in a teacher's decision to leave, going even further to illustrate that leadership, among other factors, reduced (and sometimes erased) the effects of student body makeup on teachers decision to stay or leave high poverty/high minority schools. Allensworth et al. (2009) also found that leadership quality impacted teacher stability more than the qualities of the students or their fellow teachers. Numerous other studies cite school leadership as having a significant impact on teacher retention

(Carver-Thomas & Darling-Hammond, 2019; Guarino et al., 2006; Hirsch et al., 2007; Johnson et al., 2012; Toropova et al., 2021)

Unfortunately, defining school leadership has proven to be difficult. Boyd et al. (2011) based their measure of school leadership on the teacher responses to survey items such as whether an effective school discipline policy was in place, whether the school administration was viewed as supportive, whether the school administration was perceived as evaluating teachers fairly, and whether the school administration consulted with faculty before making decisions. The authors acknowledged that these survey items provide results that need more clarity to determine how or why school administration affects teacher retention.

Similarly, various leadership characteristics have been identified in the research as affecting teacher retention, but there has yet to be a consensus about what leadership characteristics are being sought after by teachers. Borman and Dowlings (2008) findings show that strategies that promote more genuine administrative support and collegiality among teachers may improve retention. Moreover, Nguyen et al. (2020), Worth (2020), and Allensworth et al. (2009) found that the extent to which administration grants teachers autonomy positively affects teacher retention. More specifically, the results of the Allensworth et al. (2009) study showed that teachers stayed when they viewed their principal as a strong instructional leader, had high levels of trust in their principal, and the teachers had influence over school decisions.

There is ample evidence that the combination of increased teacher autonomy and administrative support lowers teacher attrition and migration as well (Guarino et al., 2006; Hirsch et al., 2007; Perda et al., 2013). Guarino (2006) found that more teacher autonomy and administrative support led to higher levels of teacher retention. Additionally, Hirsch et al. (2007) found that leadership was the most strongly correlated to whether teachers intended to stay at

their current schools. Finally, Allensworth et al. supported school leadership's role in teacher turnover and identified teacher influence (another indication of leadership style) over school decisions. Concerning the impact of leadership on teacher turnover, Allensworth stated the following:

> "In both elementary and high schools, stability rates were at least five percentage points higher in schools with substantial teacher influence, compared to schools where teachers had little influence over their work environment. Teacher influence is largely dependent on school administration, and teachers' views of their leaders are strongly related to their likelihood of staying in their school. Teacher stability rates are about 4 to 5 percentage points higher in schools where teachers report high levels of trust in their principal and where they view the principal as a strong instructional leader, compared to schools serving similar students where few teachers report that they trust their principal or where they view the principal as a weak instructional leader." (p. 25-26)

This highlights the complex nature of leadership and the interdependence of supportive leadership and teacher influence. A significant takeaway from Allensworth et al. (2009) states that the quality of the leaders, not the qualities of students or fellow teachers, matters the most regarding teacher turnover. If the quality of leaders matters most, the research needs to be more definitive regarding the specific qualities of leadership and the accompanying leadership styles that impact teacher retention.

Teacher collaboration/collegial relationships

In Lortie's (2020) book *Schoolteacher: A Sociological Study*, initially published in 1975, the author identifies a shift from a system of schools in the United States organized around the separation of teachers to a school system reliant upon more teacher interdependence. That shift

began in the 1950s as the beginning of a call for teacher collaboration. Seventy years later, the research is still mixed, as Nguyen (2020), in a more recent review of the literature regarding teacher turnover, found only four studies that, in totality, did not seem to show a connection between teacher collaboration and teacher turnover. This unclear connection is partially due to a lack of clarity around what constitutes teacher collaboration across the discipline.

Teacher collaboration/collegial relationships were frequently referenced interchangeably as a working condition important to teacher turnover. This makes sense as teachers' collegial relationships at work and collegial relationships between people more generally allow interactions to proceed more smoothly. Often, the research broadly defines collegial relationships in ways that include professional collaboration opportunities. For example, Johnson and Birkeland (2003) listed 'structured explicit opportunities for collegial interaction', 'collegial support', and 'schoolwide collegial interaction' as factors that influence a teacher's likelihood of staying, yet these are also ways of defining teacher collaboration. Similarly, Simon and Johnson (2015) define collegiality as "support, rapport, trust and respect", all components of highly effective teacher collaboration. More recently, Podolsky et al. (2019) stated that 'collegial and collaborative efforts' are important for teacher growth, showing a willingness to use these terms interchangeably, thus making it necessary to combine the two for this review.

When teacher collaboration was referenced in the literature, it was found to have different definitions, which, by this point, is not surprising. The literature review by Reeves et al. (2017) identified four studies that examined how collaboration was defined. According to Reeves, there were "definitional inconsistencies (which) make it difficult to get a clear understanding of what mechanisms make teacher collaboration effective or ineffective" (p.228). These inconsistencies are problematic regarding the ability to confirm and build upon the connection between teacher

collaboration/collegial relationships and teacher turnover. However, it does not entirely negate that teachers repeatedly cited this factor as a primary consideration when deciding whether to stay or leave an organization.

Social connections generally improve job satisfaction (Reeves et al., 2017) and protect against turnover (Simon & Johnson, 2015). Simon and Johnson (2015) list collegial support (along with the quality of school leadership and school culture) as part of the combination of working conditions that impact teachers' job satisfaction and career decisions. Also, Reeves et al. (2017) found that observing other teachers increased job satisfaction in the United States. Lastly, Hirsch et al. (2007), in their study of teachers in North Carolina, found that the most important factors influencing whether they stay in a school are a positive, collaborative school climate and support from colleagues and administrators.

Allensworth et al. (2009) also found that teachers are likelier to stay in a school where their relationships are positive and trusting (collegial). Allensworth et al. found stability rates were 4-5 percent points higher in schools where teachers felt a shared responsibility to improve their school, particularly with teachers at the high school level. They go on to emphasize the importance of a collaborative work environment at the high school level with the following:

> It may be harder to establish collective responsibility in high schools, where teachers focus on teaching particular subjects and courses, than in elementary schools. However, it may be because it is more difficult to establish a shared commitment to school improvement that makes collaboration imperative in high school. In many high schools, teachers may feel alone in their teaching efforts and unsupported by their colleagues. Teachers are also somewhat more likely to remain in schools where there is a strong

> sense of trust among teachers and where there are positive efforts to include new teachers in the school's professional community. (p.25)

Here the authors specifically identify potential differences between grade levels, which is relevant for this study. Borman & Dowling's (2008) work affirmed this, as their meta-analysis of quantitative studies related to teacher attrition and retention showed that policies that support collegiality among teachers might improve retention. In support of collegial relationships, Johnson (2012) provided evidence that a teacher's desire or decision to leave can be explained mainly by their satisfaction with collegial relationships (collaboration opportunities were also mentioned), school leadership, and school culture. Research seems to support that school districts focusing on teacher collaboration might have reduced attrition rates.

Teacher Workload

Throughout the literature, a teacher's perception of their workload was indicated as a predictor of job satisfaction but less of an indicator of teacher turnover. Ferguson et al. (2012) found teacher workload to be a statistically significant predictor of anxiety. They list new curricula and initiatives as considerations regarding teacher workload factors that lead to teacher depression and anxiety. Ferguson also found that teachers' perception of their workload may be impacted by the lack of boundaries (role ambiguity) in teaching, making them feel like there is always work to do. This idea of a lack of boundaries and the feeling that there is always work to do appears to be a common theme in the literature regarding job demands placed upon teachers. These feelings have become more of an issue because teachers with unmanageably large workloads have lower job satisfaction (Butt & Lance, 2005; Higton et al., 2017; Jerrim & Sims, 2021; Liu & Ramsey, 2008) and lower job satisfaction is a factor in teacher turnover (Ingersoll, 2001a; Nguyen et al., 2020).

Liu and Ramsey (2008) found workload stress to be a function of the amount of work and the time provided to do the work. More specifically, they found that teacher unhappiness with their work conditions stemmed from a lack of planning time proportional to the amount of work they were responsible for during a typical week of school. Similarly, regarding the relationship between teacher time and teacher turnover, Hirsch et al. (2007) found that the amount of non-instructional time a teacher receives is significantly related to turnover. According to their estimation, for every ten percent increase in teachers agreeing they have sufficient time without student contact, there was a corresponding 0.6 percent decline in teacher turnover (Hirsch et al., 2007). This research implies that a relationship between the amount of work and the time provided to do this work might impact teacher burnout and attrition.

Professional Development

Interestingly, professional development has become more prominent in research exploring the cost associated with teacher turnover (Levy et al., 2012; Watlington et al., 2010). However, research has proven to be mixed or has shown only a weak connection between professional development and teacher turnover. Professional development (PD) is common in education and can be variable in format (duration of a single session, total contact time of all sessions, and presentational technique) (Kennedy, 2016). With that, some research cites high-quality professional development as a factor for teachers who stay in the teaching field (Nguyen et al., 2020; Simon & Johnson, 2015). More specifically, Nguyen et al. found that teachers with "good in-service professional development have 16 percent lower odds of leaving than those without" (p.9). This is a significant reduction in turnover, and adding or improving professional development opportunities would be a tangible change for school administrators and policymakers.

However, Allensworth et al. (2009) found that a teacher's decision to stay is not firmly related to whether they receive professional development to improve their teaching. The authors specifically emphasize teachers' perception of the quality of their PD as unrelated to teacher retention. With this, leaders should caution against increasing or improving professional development opportunities as the only reform instituted for an organization seeking to decrease teacher turnover.

How These Working Conditions Affect Teacher Retention

Teacher Burnout

One recurring theme in the literature was the close link between teacher turnover and stress levels, anxiety, and depression. There is clear evidence from U.S. and international studies that teacher working conditions, such as school climate (parental support, student behavior, facility conditions, and class sizes) and teacher autonomy, are associated with teacher stress (Grayson & Alvarez, 2008; Pearson & Moomaw, 2005). Liu and Ramsey (2008) studied large-scale teacher survey data and found teachers identified job exhaustion, another potential antecedent of teacher burnout, to be caused by leadership, student interactions, professional development opportunities, school resources, and other undefined working conditions.

Although working conditions remain ill-defined in the literature, Ferguson et al. (2012) found that improving working conditions may reduce teacher stress, depression, and anxiety, thus improving retention and teacher job satisfaction. They found the strongest link between increased unhappiness with workload and increases in stress, anxiety, and depression. Additionally, Brunetti (2001) found statistically significant links between teacher workload, teacher stress/burnout, and attrition, while Liu and Ramsey (2008) found similar links between teacher job satisfaction, teacher stress, and teacher retention.

Job Satisfaction

Teacher job satisfaction has also been mentioned as a significant source of teacher turnover (Ingersoll, 2001a). Nguyen (2020) found that teachers with higher job satisfaction have 15% lower odds of leaving their school. Job satisfaction could provide a great starting place for administrators and policymakers to make changes that would decrease teacher turnover rates in all schools if teacher job satisfaction were simple, but this is not the case. According to research by Liu and Ramsey (2008) on a nationally representative dataset, teachers have varying degrees of satisfaction with different aspects of their jobs. Their satisfaction can depend upon their gender, years of teaching, or minority status.

Organizational psychology refers to job satisfaction in terms of an employee's affective state resulting from their assessment of their job experiences (Liu & Ramsey, 2008). Suppose an employee's affective state resulting from their self-appraisal of their job experience can affect how satisfied they report being with their job. In that case, this provides a potential opportunity for school administration to leverage this research to guide teachers to focus on and change their perspective on challenges they may face in their specific school setting. This may look like regularly celebrating teachers' accomplishments and student progress (Childs-Bowen et al., 2000; Peterson & Deal, 1998). Another way job satisfaction appeared in the literature is through the theory of psychological distress, which states that a reasonable amount of stress may enhance performance. In contrast, an unreasonable amount can cause psychological distress (Ferguson et al., 2012), leading to a degradation in satisfaction with a person's situation. According to Mirowsky and Ross (as cited in Ferguson et al., 2012, p. 30), "Psychological distress is defined as a negative event over which a person has no control." There is a strong association between these psychological factors and teacher retention."

Teacher Retention and Working Conditions: Conclusion

This review makes several things clear. First, the existing literature points towards the importance of teacher working conditions for teacher turnover. Second, emerging research considers the psychology behind how teacher working conditions affect teacher retention, specifically teacher job satisfaction and teacher burnout. Overall, teacher working conditions, specifically teacher workload, prep time, leadership, and collegiality/collaboration, seem most important when exploring the literature on teacher turnover. As clear as the literature is regarding the importance of working conditions on teacher turnover, there needs to be more agreement on precisely what factors constitute working conditions and how their importance differs across grade levels.

Collective Bargaining, Working Conditions, and Turnover

This section examines the impact collective bargaining has on teacher working conditions and retention. It begins with a definition of collective bargaining before moving on to the importance of collective bargaining concerning teacher working conditions and turnover.

Collective Bargaining and Working Conditions

In the United States, labor unions collectively bargain for many factors that make up working conditions. These agreements have long touched many areas of the teacher work environment. Collective bargaining in education originated in labor and contract law and very closely matches the timeline of the federal government's private sector stance on labor, as well as 'employee' vs. 'employer' rights. Before the 1930s, although unions formed, they could not spark much change as the courts often blocked their ability to strike, picket, or boycott. In the case of working conditions, without the ability to utilize these strategies, they could not force their employer to bargain; thus, any change to working conditions continued to come at the employer's

will. Today, the threat of strikes plays an important role in bargaining, with over 23 major work stoppages (involving 1000 or more workers), including six K-12 teacher strikes, across the US, affecting more than 18,000 workers in 2022 (U.S. Bureau of Labor Statistics, 2023).

History shows a shift initiated by Congress in the 1930s with the passage of the Norris-LaGuardia Act, which favored unions. Although this was significant, unions became infiltrated with corruption. A series of amendments to the Norris-LaGuardia Act sought to balance employee-employer bargaining and protect employees from unfair union practices in the private sector (Alexander & Alexander, 2019), but the private sector differs from the public sector in ways that make balance more difficult. For example, when teachers decide to strike, there is sometimes a perception of selfishness, as adult educators choose their needs over those of the children and families of the communities they serve. This is not likely to be present in the private sector and can be used to the employer's advantage in bargaining. Additionally, the salary scale is often cited when referencing union bargaining and union strikes, but the salary schedule (along with other economic factors) is guided by the tax base in the public sector, which places a natural constraint on the extent of bargaining for salary. This has shaped collective bargaining agreements in public education to cover much more than compensation and is the primary reason bargainable working conditions would benefit from additional study.

The lack of the ability to strike in some states is critical when considering collective bargaining and teacher retention, as the right to strike in the private sector is guaranteed, but in the public sector has been limited and sometimes removed completely through state legislatures (Alexander & Alexander, 2019). Although there are laws governing mandatory, permissive, and unlawful subjects of bargaining in education, there are also laws governing when teachers can and cannot go on strike. Specifically in Illinois (the focus of my study), there is a lack of clarity

by the Illinois Legislature (the governing body that grants bargaining rights to public employees) around whether it is mandatory or merely permissible to bargain over teacher workload (Alexander & Alexander, 2019), a factor that the literature shows impact teacher turnover. This is relevant because when teachers are unhappy with their workload, bargaining is not mandatory, so there is no guarantee that workload issues will be addressed in collective bargaining. Although knowing if workload issues were bargained for in a given district is beyond the scope of my study, I did anticipate this as one factor leading to observable variations in the CBA contents of districts.

Collective Bargaining and Teacher Working Conditions in Public Education

According to the literature, most teacher unions bargain over three main issues: teacher compensation, teacher assignment, and criteria for tenure and termination (Hess & Loup, 2008; Moe, 2009; Strunk, 2012). However, there needs to be more current research on the nuanced impact of collective bargaining by unions on specific teacher working conditions and retention. Much of the available research on collective bargaining is dated, as it predates much of the updated policies regarding collective bargaining. There is evidence that when state policy changes create additional limits to bargaining, as can be found in the passage of right-to-work laws, unions cannot counteract the resulting reductions in working conditions, bringing to question the relevance of studies that predate current right-to-work laws as they apply to the focus of this study (Strunk et al., 2022).

A few studies of note include an initial study by McDonnell and Pascal (1979) and their follow-up study (1988) that examined 151 CBAs ten years apart. McDonnel found specific contract provisions inconsistent across districts and that few districts utilize provisions that would improve teacher working conditions. Strunk (2012) also highlights the complex nature of

CBAs in education. Her research showed that CBAs in hard-to-staff schools could contain very restrictive provisions while creating better working conditions and school culture. Additionally, Strunk et al. (2022) found that while policies implemented at the state level provide the greatest opportunity for changes to the CBA and have been shown to alter working conditions significantly, the school, district, and community stakeholders are likely to react to state-level reforms differently, making the eventual outcome somewhat unpredictable. These are examples of the conflicting nature of collective bargaining on teacher working conditions in education.

Another challenge to identifying the impact of collective bargaining by unions on specific teacher working conditions and retention is that policymakers and teachers' unions treat K-12 teaching as a single occupation, evidenced by the single contract that emerges from collective bargaining (Podgursky, 2011). This ignores important differences between grade levels, such as the unique academic preps for teachers in higher grades (elementary teachers do not typically have 1 unique academic prep, as they are responsible for all academic disciplines in their classroom), class size (younger students are often grouped into smaller class sizes), and subject-specific collaboration opportunities (elementary students do not typically have subject specific teachers). High school teachers may also have more prep time built into their day as the school day is segmented into periods where students transition between classes. Lastly, high schools are generally larger than elementary schools, and, in some cases, high school students require less supervision, potentially necessitating elementary teachers to participate in more adjunct duties to ensure adequate supervision. Furthermore, when exploring variations in teacher contract provisions, a product of collective bargaining, Chung et al. (2008) found differences between the elementary and secondary districts in the length of the school day and the amount of planning time provided to teachers, while Perie et al. (1997) showed that school characteristics influenced

teachers' job satisfaction differently, with elementary school teachers being more satisfied with their working conditions than secondary teachers.

The different characteristics found in the literature to be associated with grade level taught (i.e. prep time, subject-specific collaboration opportunities, etc.) significantly impact two factors that appear in CBAs and are associated with teacher turnover that have previously been identified: teacher workload and teacher collaboration. This is not to say either elementary or high school teachers are better or more than the other; instead, this is to highlight that, according to the literature, elementary and high school differ in fundamental ways when it comes to elements of the working environment that matter to teachers. These differences may lead to variations in teacher survey responses regarding working conditions associated with workload and collaboration. Generally, bargainable improvements in teacher working conditions would be a case where the interests of teachers' unions and schools overlap, as improvements in working conditions attract and retain better teachers (Moe, 2009), which leads to higher student achievement (Clotfelter et al., 2007; Darling-Hammond, 2000; Rivkin et al., 2005). All of this shows the need for more specific research on teacher working conditions that would provide the ability to explore data disaggregated by grade level taught.

Collective Bargaining and Teacher Turnover

Although there is little recent empirical research on how collective bargaining and union membership affect teacher turnover, the existing research does not show a difference in teacher turnover between school districts that collectively bargain and school districts that do not. Guarino et al. (2006) found no recent studies that reviewed unionism and teacher retention and were conducted with a minimum standard of rigor. They did cite one study by Rees (1991) based on grievance procedures in New York in the mid-1970s, which showed teacher turnover was

significantly lower in districts that had outlined grievance procedures. Although grievance procedures are part of every CBA and were once referenced when exploring teacher retention, attention on this relationship has faded as recent literature on teacher retention and working conditions has not referenced grievance procedures.

Nguyen et al. (2020) also conducted a literature review with criteria for inclusion that explored the relationship between union membership and teacher turnover. Of the three studies that met the criteria for inclusion, they found "the odds of turnover for teachers who are union members are 0.75 times the odds for teachers who do not belong to unions, but this result is only marginally significant." They state, "The studies in this category are important venues for understanding turnover, but more research is needed to conclusively determine their relationship with teacher turnover" (p. 10).

One relatively recent area of interest that has the potential to provide evidence of union membership or collective bargaining impact on teacher turnover would be comparisons of charter and public schools since many charter schools are not unionized and the turnover rate for charter school teachers is twice as high as for public school teachers (Stuit & Smith, 2012). Stuit and Smith (2012) explored this relationship using national survey data and found the following:

> The higher proportions of uncertified and inexperienced teachers in the charter sector and the lower rate of union membership were the most substantial contributors to the turnover gap. Charter school teachers were more likely to self-report that working conditions motivated their decisions to leave the profession or move schools, although we found no measurable evidence that the actual working conditions of charter and traditional public schools were different. (p.268)

This aligns with research that working conditions matter greatly, whether easily measured or not. Stuit and Smith also found that low unionization was the most significant factor in explaining teacher turnover rates in charter schools because of the decrease in job security compared to that of their public-school counterparts (2012), which is also relevant to this work.

Conclusion

In summary, directing attention to bargainable working conditions as an area to improve teacher retention is important (see Figure 1). Students who are most in need traditionally experience the highest teacher turnover rates, impacting student achievement and school culture. Additionally, teachers of the neediest students experience the worst working conditions, leading to high turnover in this cohort. Lastly, despite conflicting data regarding a national teacher shortage, there is a consensus that school districts that educate the most minority students and impoverished students are experiencing a significant teacher shortage.

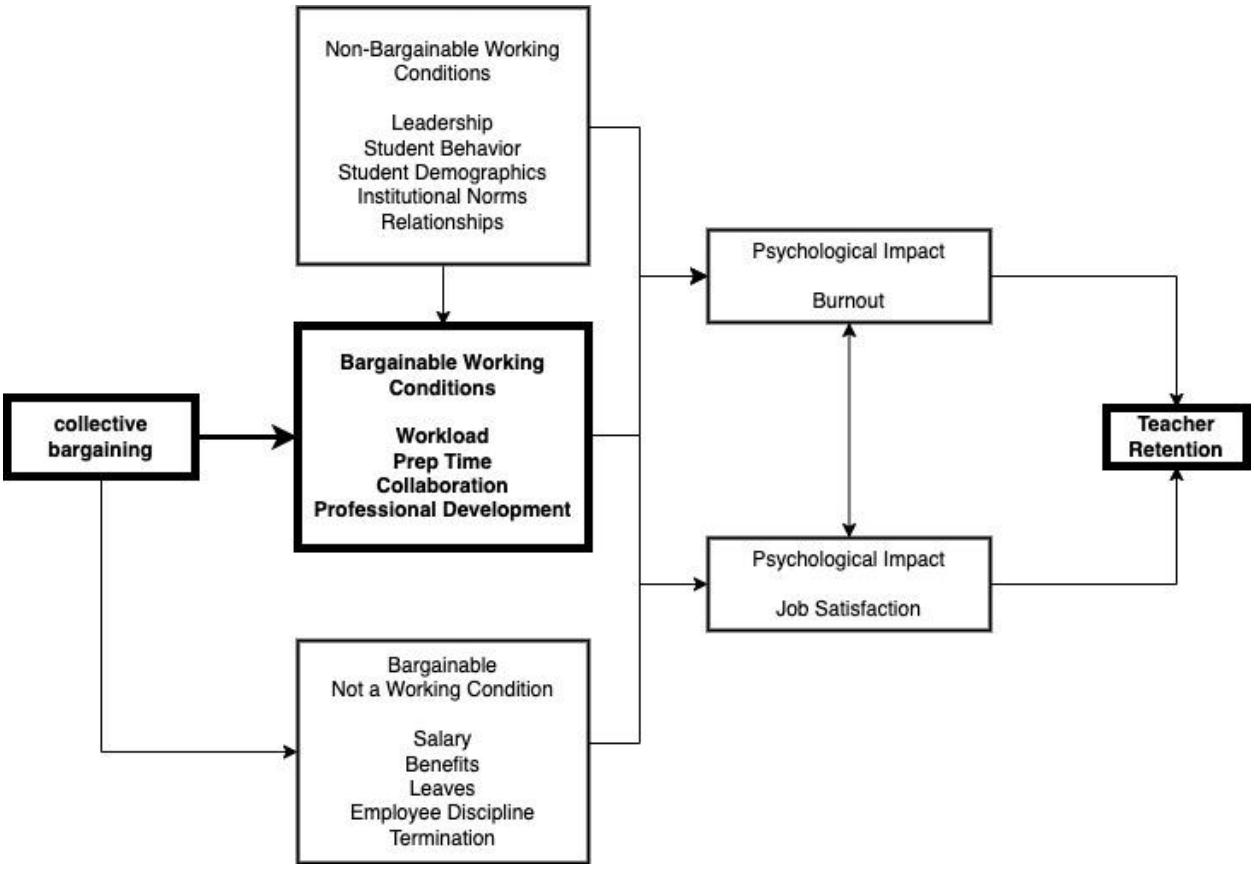
Although significant research is available on teacher retention and the reason for teacher turnover, there is a lack of research focusing on actionable items that administrators and policymakers can leverage to improve teacher working conditions. As you can see below in Figure 1, representing my conceptual framework, only some working conditions research has identified as important are bargainable, so focusing the attention of administrators and policymakers on these provisions is essential. By focusing on the identified, actionable provisions during bargaining, administrators and policymakers can focus on what teachers say matters, potentially leading to improved psychological impacts from the work environment, which research has shown leads to improved retention.

Given that there is a lack of current research on teacher retention that focuses on data disaggregated by grade level, this study, with its focus on high school districts, allows

policymakers to factor in the differences in school environments tied to the necessary distinctions that arise when accounting for the educational needs associated with the age of the children being taught. Focusing on the bargainable working conditions relevant to teachers and that factor in the nuances of the educational environment being bargained for is an important step toward improving teacher retention at all levels of K - 12 education.

Figure 1. Conceptual Framework.

Bargaining for Retention



Chapter 3: Data and Methods

In this chapter, I describe my approach to the analysis found in this dissertation. First, I will briefly introduce the quantitative research design utilized for the study. Next, I explore the rationale that matches the research design to the research questions. The strengths and limitations of this research approach will be included in the rationale.

Introduction to the Research Approach

For this study, I explore CBAs between teachers' unions and their school district boards of education in a mixed methods approach. I first utilize qualitative document analysis to capture the appearance of contract language linked with various working conditions shown in the existing literature to factor into teacher retention (Cardno, 2019; Morgan, 2022). I then utilize descriptive quantitative methods to test my hypothesis discussed above. According to Ary et al. (2019), "Quantitative research uses objective measurement in a controlled setting to gather numeric data that are used to answer questions to test predetermined hypotheses." (p. 10). Ary et al. goes on to say this type of descriptive research is designed to obtain information concerning the current status of phenomena (2019). Although there is evidence that CBAs remain largely unchanged over time (Cowen & Fowles, 2013; Ingle & Wisman, 2018; McDonnell & Pascal, 1979, 1988), Strunk et al. (2022) found that substantial changes to CBAs can be implemented with enough public support and state legislative reforms, such as right-to-work laws. This type of political motivation and public will have been present in some states and absent in others. The political landscape continually evolves, creating a fluid situation in the larger education bargaining landscape. In the case of this study, quantitative research is relevant as I desire to capture a snapshot of current trends in bargaining between high school teachers' unions and their school boards across the entire state.

Due to the laws governing which bargaining topics are required, permissible, and prohibited, rarely are teachers' contracts bargained in their entirety. Teachers and administrators review the contract's contents to identify negotiable provisions while prioritizing specific aspects of the contract to change based on what is allowed and critically important (Rebore, 2015). When deciding what to bargain for in the next contract, the items that are bargained for could be identified as friction points that have come up over the years of the current contract (through formal grievance or informal conversation), could be what is most relevant at the time of bargaining, or could be some combination of these two (Center for Advocacy, 2017). The use of empirical research to ensure the relevant items are being bargained to accomplish specific goals, whatever the goals might be, is noticeably absent.

In the case of education today, the absence of empirical research to help guide the bargaining process could be impacting the recruiting and retaining of teachers, which has implications for the widely publicized teacher shortage (Beilstein & Withee, 2022; García & Weiss, 2019; Ingersoll & Smith, 2003; Podolsky et al., 2016). There is some agreement in the literature beginning in the early 2000s that identified teacher job satisfaction as a strong predictor of a teacher's willingness to leave a school and possibly the profession entirely (Ingersoll, 2001b; Ingersoll & Smith, 2003). More recently, teacher job satisfaction has been linked to several factors associated with working conditions (Johnson et al., 2012; Ladd, 2011; Nguyen et al., 2020). Because of the need to retain competent teachers and the connection in the literature between teacher job satisfaction (and the associated working conditions) and teacher turnover, I explore CBAs for references to specific working conditions that commonly appear in the teacher turnover literature. I also explore relationships between school district teacher retention percentages and working conditions in the contracts to establish a possible connection. The

results of this study may help shape negotiations for high school districts in Illinois as school district administrators and union members may be able to identify specific provisions to focus on to prioritize teacher working conditions tied to teacher retention.

In line with the postpositivist philosophy, the following questions attempt to reduce the ideas associated with collective bargaining and teacher retention into a set of variables that can be studied. I use a correlational design to measure the degree or relationship between variables (Creswell & Creswell, 2018). In a regression framework, I account for some factors that might potentially explain such correlations. This process allows the determination, within a degree of probability, of how independent variables (the presence of language associated with teacher working conditions in a CBA) affect a dependent variable (teacher retention in the associated school district), albeit with the important limitations I discuss below. This research approach is useful for this study because the research seeks to explore variables that seemingly have a connection (namely, variables associated with teacher working conditions and teacher retention), yet there is a noticeable lack of research to confirm any beliefs. As discussed above, the effect of collective bargaining on teacher working conditions and retention has been studied to a limited degree but would benefit from additional empirical research.

Research Questions and Hypotheses

I consider two research questions related to the relationships between teacher working conditions found in CBAs and teacher retention by exploring data from high school districts in Illinois. Focusing on high school districts is important due to the differences in the working conditions found in elementary, middle, and high schools, as discussed in Chapter 2. Stated differently, we cannot assume that what has been observed in previous research based mostly on non-high school districts can be said about high school districts. Research on working

conditions, collective bargaining, and teacher retention mostly does not isolate (or even include) high school districts. Current research focuses on large districts, entire states, or the entire country. This might be because, from a broader research perspective, high school districts tend to be smaller than unit districts and states. In the case of Strunk (2012), she excludes districts with fewer than 4 schools because she is interested in teacher transfer data, which might be limited in smaller districts. This also limits the number of high school districts in her research as they tend to have fewer than 4 schools. Also, larger unit districts may naturally increase the number of research subjects, thus drawing more research attention as the findings might appear more generalizable or allow for greater statistical power.

Also, studies of CBAs commonly focus on student outcomes and so often utilize standardized testing data. Federal laws only require students to be tested once in high school, reducing the usefulness of high school data in this type of research. Whether it is because of some limitations of the study or the size of the pool of participants being sought, existing research does not isolate high school districts, and it is impossible to disaggregate results for high school districts if combined with other district types (e.g., unit districts). One example is the work of Hirsch et al. (2007) where data from a state-wide survey in North Carolina were utilized to explore the effects of teacher working conditions on student learning and teacher retention, amongst other things, but cannot provide grade-level specific results. Similarly, Ingersoll's (2001b) landmark study on teacher turnover and teacher shortages was notable because it was the first to use national survey data, but again does not disaggregate results by grade level.

RQ1: What working conditions do high school contracts contain, and how do they vary across public high school districts in Illinois?

My first research question is descriptive in that it will help answer what working conditions were accepted in the final CBAs of high school districts in Illinois. These results provide some of the first evidence on the contents of CBAs for high school districts specifically. Additionally, this provides context for interpreting the results of my second research question.

RQ1, Hypothesis 1. The chosen provisions discussed further below were selected because, as shown previously in the literature review, they were indicated as factors teachers consider when deciding to stay or leave teaching and, additionally, are bargainable in Illinois (Booth, 2009). With that, there are variations in the contracts regarding the specifics of these provisions, and not every provision will be present in every contract. Due to the known differences between the high school, middle school, and elementary school work environments and contract provisions, there is a need to isolate high school contracts to know what portion of the contracts reflect the priorities of the high school and understand high school bargaining behavior.

Although there may not be as many differences between high school CBAs as between CBAs generally, there are still differences between high schools that create variation in CBA provisions. District wealth and size likely impact school board policies and union priorities. Similarly, student demographics and student achievement are related to teacher retention and are explored. Consequently, when bargaining, I hypothesize district wealth, district size, student demographics, and student achievement as factors impacting school board and union priorities. We already know that teachers who transfer often do so by moving from poorer districts with high numbers of students of color to wealthier districts with a whiter student population

(Lankford et al., 2002; Simon & Johnson, 2015), with student achievement highly correlated to student demographics (Au, 2016; Good et al., 2003; Ladson-Billings, 2006). Regarding the content of CBAs, one of the aforementioned characteristics (student demographics) has been shown to impact the presence of specific contract provisions and lead to increases in contract restrictiveness, measured by the degree the CBA restricts administrators (Strunk, 2012).

RQ2: How does the presence or absence of these contract provisions affect teacher retention rates?

My second question will ask whether the provisions associated with working conditions in the CBA matter for district-wide teacher retention. Specifically, exploring the presence of these provisions is important because what is defined as teacher working conditions in previous research is wide-ranging or vague. This provides insight into what concrete factors in the teacher working conditions affect teacher retention.

RQ2, Hypothesis 1. As discussed above, teacher workload, teacher prep time, and collaboration have been identified in the literature as working conditions that factor into a teacher's decision to stay or leave a district. This is relevant because these do not only reflect a single underlying working condition. Therefore, I hypothesize that contracts promoting working conditions related to decreases in teacher workload and increases in teacher prep time and collaboration will improve teacher retention.

Data

In Illinois, there a three possible types of school districts (Elementary, Unit, and High School), I will focus on High School Districts in Illinois. According to 2022 Illinois School Report Card data, there are 102 High school districts in Illinois. The Illinois School Report Card is released annually by the Illinois State Board of Education utilizing data captured through

various data systems, including the state's Student Information System. Of the 102 high school districts serving students grades 9-12, there are 99 public school districts and three charter schools. The three charter schools do not have publicly available collective bargaining agreements, leaving 99 publicly available CBAs included in my study representing all traditional public high school districts in the state (98% of all high school districts in Illinois, including charter schools). Roughly half of these are outside the large metropolitan county of Cook (which contains the city of Chicago) and its collar counties of DuPage, Kane, Kendall, Lake, McHenry, and Will.

My outcome of interest is teacher retention, data which also comes from the 2022 Report Card Public Dataset. ISBE reports teacher retention as '…the three-year average percentage of teachers returning to work at the same school' (Illinois State Board of Education, 2022). Also, the makeup of the student body, including the size of the student body, the percentage of students identified as English learners, low-income, and White and/or Asian is significant because there is research to support student body makeup as a factor of teacher retention (Borman & Dowling, 2008) as well as research that refutes student body makeup as a factor of teacher retention (Simon & Johnson, 2015). Lastly, the average teacher salary is considered and controlled for as salary has been thoroughly studied and has been found to have at least some relevance to teacher retention (Borman & Dowling, 2008; Brill & McCartney, 2008; Ingersoll, 2001b; Ingersoll & Smith, 2003). This data was also collected from the 2022 Report Card Public Dataset.

Identifying Working Conditions

Teacher working conditions have been linked to teacher retention in the literature (Ladd, 2011; Sims, 2020; Toropova et al., 2021), but one challenge is that the current literature fails to reach a consensus on a standard definition for teacher working conditions (Merrill, 2021). Much

of the available data has been gathered from teacher surveys. This has led to results built upon teacher perception, which creates characteristics of teacher working conditions that are sometimes not directly actionable. For example, knowing that job-related stress predicts turnover does not guide the administration on actions to improve any specific aspects of teaching working conditions impacting job-related stress.

In addition, survey results could be prone to participant bias, which might result in teachers who are happy with their jobs more broadly responding positively to specific surveys about working conditions (Johnson et al., 2012). In contrast to relying on survey data, I take information directly from CBAs to draw concrete connections between specific contract provisions and teacher retention that will be actionable. I examine CBAs for evidence of the provisions identified in the literature and then combine the presence of these contract provisions with the teacher retention data found on the Illinois State Report Card. Lastly, other existing research does not treat working conditions as important on their own but rather treats working conditions (and other contract provisions) as reflective of one underlying factor, the union influence (Marianno et al., 2021; Strunk & Reardon, 2010). Examining CBAs directly for conditions associated with working conditions allows for more nuanced, actionable, and substantive results based on specific contract language.

Utilizing information found in CBAs

The presence or absence of contract provisions related to working conditions

One of the primary ways unions secure their interest and that of their members is through collective bargaining with employers. This study focuses on the actionable characteristics of working conditions by analyzing those conditions that are collectively bargained for and would be found in teacher CBAs. First, as discussed in Chapter 2, I use the literature to establish what

aspects of working conditions to look for in the contracts and assess whether the contents of these contracts match what the literature has identified as important to teacher retention. Then I utilize methods similar to those employed by Strunk (2012) and Strunk and Grissom (2010) to capture how the contracts address those specific working conditions.

The first step in identifying the contents of CBAs for the provisions related to working conditions is to survey each contract for the identified provisions and code each provision found in the contract. Strunk (2012) identified 95 contract provisions in her research that she was able to validate as indicators of union influence and determinants of district operations. These provisions govern several subareas of district operation, including compensation, evaluations, leaves, transfer and vacancies, class size, nonteaching duties and rights, and school calendar and year (Strunk, 2012), all of which were chosen for their ability, when viewed collectively, to represent the contents of the CBAs broadly and the influence of the teachers' union. Strunk shows that these provisions predict district policy and administrative flexibility that would, in turn, affect the district's ability to enact operational reforms. These include reforms necessitated by student achievement outcomes (i.e. curricular decisions, teacher-led additional supports, teacher assignment) and teacher pay discrepancies impacting teacher recruitment and retention. This suggests that the presence or absence of these 95 provisions can work to both restrict or broaden administrative influence over operational reforms and teacher working conditions (Strunk, 2012).

As I stated previously, my study differs in scope from those of Strunk because where she combined all contract provisions to provide evidence of one underlying factor (union influence), I treat these provisions as evidence of different contract conditions and thus of different specific working conditions for teachers. I only include those provisions identified by Strunk that relate

most directly to working conditions important for teacher retention, as identified in the literature review above. Specifically, I use 29 items identified by Strunk (Table 3) and I group them into three categories based on broad categories of characteristics identified in the research on teacher attrition: teacher workload, preparation time, and formal collaboration opportunities. During contract document analysis, there were cases where the presence of a provision was not unambiguous. In such cases, I apply the decision rules found in Appendix 1.

Based on the results from my literature review, teacher workload has been identified as a working condition that plays a role in a teacher's decision to stay in or leave a district (Butt & Lance, 2005; Ferguson et al., 2012; Hirsch et al., 2007; Liu & Ramsey, 2008). According to the literature, teacher workload affects teachers' job perception and satisfaction and is associated with teacher burnout. I explore contracts for the presence of specified adjunct duties, a duty-free lunch period, mandatory participation in faculty meetings, defined parameters for faculty meetings (number and length), class sizes, unique subjects taught per teacher, defined instructional minutes, and the total number of work days per year.

Teacher prep time has many similarities to teacher workload, including the same relation to teachers' job satisfaction and burnout, with a significant difference. Prep time is associated with mandated opportunities for teachers to complete their job functions, sometimes in the absence of students or other teachers. Prep time is distinct from duty-free time as providing teachers with duty-free time reduces workload, whereas dedicated teacher preparation time provides a different structure around their work day while maintaining the expectation of work. I explore contracts for both duty-free time and prep time separately.

Lastly, although mixed, the research identified collegiality as a factor for teachers' decision to leave a school. The research might be mixed because of how poorly collegiality is

defined in the literature, leading to a lack of uniformity in the results. I cannot measure collegiality (which comes up in the literature), but we can use professional relationships as a crude measure of collegiality, and opportunities to collaborate showed positive effects on teacher retention. For this study, I examine contracts for evidence of collaboration time set aside in the CBA. Examples of contract language associated with formal collaboration opportunities are collaboration, coordinated prep time, peer assistance, and peer review (PAR). All of the provisions I look for and their organization into categories of working conditions are presented in Table 1.

How CBAs are coded

I utilize document analysis to explore the content of CBAs and compare them to school district teacher retention data for verification of the results of past teacher retention studies (Bowen, 2009). More specifically, I analyze and code contracts for the presence or absence of provisions associated with 1) teacher workload, 2) preparation (prep) time, and 3) collaboration. These three categories are teacher working conditions associated with teacher job satisfaction or retention, as previously determined in the literature review. Additionally, no specific provisions I look for are formally dictated by state policy, and all are subject to the collective bargaining process in Illinois, allowing for district administrator and union bargaining control of their existence in a CBA.

Strunk and Grissom (2010) and Marianno et al. (2021) explored several hundred CBAs in California and identified 253 items in these contracts that plausibly indicated restrictions imposed by the union on district administrators. Both then reduced the number of items they would identify using alpha item analysis. They utilized a close document analysis of CBAs and a dichotomous coding system to create a measure of each contract related to their research focus. I

draw on the methods of Strunk and Grissom (2010) and Marianno et al. (2021) to identify specific provisions of CBAs based on whether they are present or absent. These studies are valuable because the authors were able to use CBAs to identify relationships between CBA provisions and real measures of union power and district operations.

However, while these authors look for contract provisions as a measure of contract "restrictiveness" and union strength generally and without giving specific meaning to any individual provisions in the contract, I extend this work by focusing on subsets of provisions that reflect working conditions that previous research says are important to teachers. That is, I consider the provisions as important in their own right because each provision has been separately identified in the literature as substantively important for teacher retention rather than merely indicating one larger characteristic of contracts, such as restrictiveness.

I identify the presence of these items through close document analysis of the publicly available CBAs of each Illinois high school district, with the only exception being three charter high school districts with no publicly available CBA. Once I code all available contracts, I reverse-code specific items so they all represent what the research above suggests are worse conditions and that I expect to predict teacher retention negatively. I code most of these items as binary, taking a value of 1 to signify the presence of the provision and a 0 to signify the absence. Furthermore, I collect additional continuous data to explore patterns for potential binary conversion. For example, when exploring teacher workload, one contract provision that was collected is 'teacher lunch period is protected from additional duties.' Although this data point is important on its own, if teacher lunch time is contractually protected from other duties, I also capture how much time is protected, if that was included. This information may lead to a better understanding of how the amount of time is distributed across the district. Whenever possible, I

make this data binary by calculating the average of all districts that have quantified this duty-free time and scoring each contract with a 0 if it is less than the average and a 1 if it is equal to or more than the average of all districts. Most of the continuous data proved to be difficult to consolidate for reasons that I will discuss later.

As I stated previously, I take 29 contract provisions, with very few adaptations, from the work of Strunk and Grissom (2010) and Marianno et al. (2021) because they have already been shown to capture the contents of contracts to identify relationships with real measures of union power and district operations. These items and how I code them are shown in Table 1. Together the presence of these items provides some evidence of what the research suggests are worse conditions and that I expect to predict teacher retention negatively. As I previously said, I code most of these items as binary. Once coded, I add the total number of present provisions to measure how district contracts reflect working conditions that teachers say matter when deciding to stay with or leave a district. In addition to an overall measure, I add the total provision within a category to measure the degree to which districts bargain for provisions associated with more specific categories of teacher working conditions (workload, prep time, and collaboration).

Of note, some broader provisions serve as gatekeepers to other provisions I expect to be associated with retention. For example, the provision accounting for the amount of prep time in a contract, measured in minutes, must always be preceded by the positive presence of a general 'prep time' provision, measured as a dummy variable. This is important because the provision acts as a gatekeeper; all associated provisions are automatically absent if it is absent. Gatekeepers can cause a potential overweighting of provisions with gatekeeper structures (because the same feature of the contract is coded multiple times), so any provision that serves as a gatekeeper would be overrepresented in my analysis. Since most subordinate provisions were

not able to be included due to the variance of contract language (discussed in depth in Chapter 4), I kept all provisions as binary without overrepresentation of any single provision.

How coding is verified

To ensure the reliability of the resulting coded contract data (i.e. that my coding is accurate), I 'team code' (Saldaña, 2016, p. 284) 10% of all contracts with 2 distinct coders (me and 1 other coder) who separately recorded the presence of the previously identified contract provisions found in Table 1. Coder #2 reviews purchasing contracts as part of their current employment. Although there are differences between CBA language and purchase contract language, this person possesses the ability and experience necessary to accurately verify the contents of contracts which is the skill necessary to serve in this capacity.

To team code CBAs for my study, I examined 5 randomly selected contracts (~5% of the total CBAs) and coded them, while coder #2 independently did the same. We then compared our findings and discussed discrepancies. After discussing and reconciling any discrepancies, we independently coded 5 different, randomly selected contracts and then compared and reconciled these results. From that point, I continued to code the remaining contracts independently, utilizing any information that may arise from team coding. This is similar to how previous researchers have checked the validity/reliability of their coding for a similar project (Marianno et al., 2021).

Methods

RQ1: What working conditions do high school contracts contain?

I use basic descriptive techniques to answer my first question, providing both visual (e.g., histogram) and summary statistical evidence about the provisions associated with working conditions that each CBA contains.

RQ1, Hypothesis 1. I hypothesize fund balance per student, student demographics, district size, and student achievement as factors impacting school board and union priorities. To test the hypothesis, I measure the effects of each independently and collectively by estimating the following regression models via ordinary least squares. I estimate variations of model 1 with each predictor by itself (percent white/asian, percent proficient Math, fund balance per pupil, and enrollment).

$$provision_d = \beta_0 + \beta_1 percent\text{white/asian}_d + \varepsilon_d \quad (1)$$

AND

$$\begin{aligned} provision_d = \ & \beta_0 + \beta_1 \text{meancentered} enrollment_d + \beta_1 enrollment_d^2 \\ & + \beta_2 perpercentwhite/\text{asian}_d + \beta_3 percentproficientmath_d \\ & + \beta_4 fundbalanceperpupil1000_d \\ & + \varepsilon_d \end{aligned} \quad (2)$$

In these models, provision ($provision_d$) is a dichotomous indicator of the presence in district *d* of each contract provision listed in Table 1. Therefore, the coefficient on each predictor variable estimates the difference in the probability that the provision is present associated with a one-unit change in the predictor.

As can be seen in the work of Podolsky (2016) and Ingersoll (2018), among others, and shown in my Framework (Figure 1) as 'non-bargainable working conditions', student demographics are a factor when teachers are teachers are deciding to stay or leave a district. Specifically, teachers are less likely to stay in districts and schools with greater proportions of minority and low-income students, making districts and schools with these characteristics particularly hard to staff which appears to have impacts on the contents of CBAs. According to Strunk (2012) and Moe (2009), these 'hard to staff' districts associated with specific student

demographics (i.e. percent white/asian and percent low income) may bargain differently, measured by the presence of provisions associated with contract restrictiveness in a CBA, but the relationship weakens when other district characteristics are controlled for (i.e. urban vs rural and elementary vs high school). This could be driven by the motivation of these districts to retain teachers, creating contracts that are more restrictive for administrators. Because these variables provide a proxy of underserved students, policymakers may explore these contract provisions as a way to ensure maximal reform options and students for whom an exploration of CBAs for provisions that improve teacher retention may benefit most.

While student racial demographics are often associated with harder-to-staff schools, that is primarily driven by groups that are not just a "minority" (i.e., non-white) but those that are educationally marginalized more generally (Bruno, 2023). That is better captured by isolating white and Asian students in my study than by white alone (*percentwhite/asian)*. This is explored in my model independently (model 1) and collectively (model 2). Based on the literature, I would expect that as the percentage of the group of minority students I am isolating increases, there will be an increase in the presence of specific provisions that I am exploring.

Additionally, students' academic performance is closely tied to student demographics (Au, 2016; Good et al., 2003; Ladson-Billings, 2006) and is included as the percentage of the student body proficient in math (*percentproficientmath*) according to the state-mandated standardized test data. This was also explored independently and collectively, but I predict that as student achievement increases, there will be an increase in provisions that reduce teacher workload as well as an increase in prep time and collaboration opportunities, or there will be no effect (Cowen & Strunk, 2015; Marianno & Strunk, 2018).

There is no direct measure of district wealth, but a district's fund balance divided by the number of pupils in the district is a good proxy (Bruno, 2019; Mann & Bruno, 2022). Much like a checking account, the fund balance a district has divided by the number of pupils in the district is a measure of how much extra money a district has to serve its students. District wealth (*fundbalanceperpupil1000)* will likely impact school board policies and union priorities. Specifically, due to the school funding system in Illinois, taxes collected form the majority of school district revenues (Fritts, 2021). District wealth likely tends to drive district decisions regarding many bargainable non-working conditions such as teacher salaries, benefits, and leaves (Figure 1), as well as bargainable working conditions that would appear in a CBA (workload, allotted teacher prep time, and collaboration time) due to the cost associated with these working conditions, but not in the way one might think. It is possible that teachers do not have to bargain for these provisions in districts where the fund balance per pupil is relatively high. Since considerable financial strength exists, teachers are provided these provisions without having to bargain them into the contracts (and give something else up). Conversely, in less affluent districts, the administration may seek to save money by adjusting some of these provisions in a way that is unfavorable to teacher working conditions (e.g., reducing teacher duty-free prep time), causing teachers to bargain protections into the CBA. Therefore, districts with higher fund balances will have few provisions associated with more favorable teacher working conditions in all three categories.

Similarly, district size (*meancenteredenrollment+*$enrollment^2$*)* affects the economies of scale (Hanson, 1964), which impacts district efficiency. District efficiency would impact district finances, affecting bargaining flexibility and contract negotiations. Up to a point, larger districts can take advantage of discounts on purchasing, fuller classes/buildings, and more efficient

transportation to theoretically obtain more material goods for each dollar spent. I include enrollment both as mean centered and as a squared term because, while it helps to have higher enrollment for the reasons mentioned above, the benefits of being a larger district get smaller the larger the district is. Since district enrollment can vary considerably, it can be difficult to appreciate the impact of one student, as one student in a school district would produce a very small effect. I mean center enrollment to facilitate interpretation of regression coefficients. As I explore teacher working conditions more specifically through the presence of specific contract provisions, it is important to account for fund balance per pupil and district enrollment as they appear linked to working conditions. Thus, my hypothesis for district enrollment is similar to fund balance for similar reasons.

Table 1 provides summary statistics for all control variables and teacher retention for the high school districts included in this study. Given what others have seen, I expect harder-to-staff school districts to have more provisions signifying CBAs that define working conditions that are more unfavorable to teachers. The additional cost associated with providing more favorable working conditions may prove to be a barrier in the bargaining process and may limit the ability to provide improved working conditions in a poorer district (measured by fund balance per pupil). Also, concerning all of the aforementioned characteristics, I did not include them simultaneously in the model if two or more of these variables are too highly correlated (i.e., pairwise correlations greater than r=.7). ε is an error term in all models, and in all models I estimate the heteroskedasticity-robust standard errors.

Table 1

Summary of control variables

	N	Mean	SD	Min	Max
Percent White Asian	99	63.49%	26.46%	0.00	97.60%
Percent Proficient Math	99	26.51%	16.24%	0.00	72.90%
Mean Centered Enroll (x100)	99	-0.00	23.79	-23.45	97.63
Fund Balance/Pupil ($1000)	99	20.45	13.40	0.00	83.34
Retention	99	91.28%	8.73%	50.00%	100.00%

RQ2: How does the presence or absence of these contract provisions affect teacher turnover rates?

RQ2, Hypothesis 1. Teacher workload, teacher prep time, and collaboration have been identified in the literature as working conditions that factor into a teacher's decision to stay or leave a district. Contracts promoting working conditions related to improvements for teachers in any of workload, prep time, or collaboration will improve teacher retention. For policymakers, school boards, and unions, the total contract provisions associated with working conditions may show the importance of viewing contract negotiations broader than compensation. To test this hypothesis, I begin by estimating model 3:

$$retention_d = \beta_0 + \beta_1 totalprovisions_d + \beta_2 avgsalary_d + \beta_3 avgexp_d +$$
$$+ \beta_4 \text{enrollmentchange}_\text{d} + \beta_5 percent\text{white/asian}_d +$$
$$\beta_6 percentproficientmath_d + \beta_7 \text{meancentered}enrollment_d + \beta_8 \text{enrollment}_\text{d}^2 +$$
$$\beta_9 fundbalanceperpupil1000_d + \varepsilon_d \quad (3)$$

In model 3, retention represents a 3-year average percentage of teacher retention taken from the Illinois School Report card data. My predictor of primary interest, '*totalprovisions'*

provides a count of the number of provisions present of the total of all 29 provisions of interest found in the CBA.

Teacher turnover might be affected by many factors that are also associated with contract provisions. These could bias my estimates of the effects of the provisions. I, therefore, include several control variables in model 3. In addition to the characteristics associated with the student body and the school finances that may affect the presence of contract provisions, described in the discussion of models 1 and 2, certain characteristics of the teaching workforce have been shown to impact teacher retention. Specifically, '*avgexp*' reflects the average teaching experience of all teachers in the district, as teachers tend to leave within the first few years or toward the end of their careers (Guarino et al., 2006). Lastly, as I referenced in the literature review and in my framework (Figure 1), compensation is a factor in teacher retention, though not the focus of this study, and is reflected through the incorporation of the average teacher salary for all teachers in the district (*avgsalary*).

The report card data includes other district characteristics I use as predictor variables. These data include district enrollment change disaggregated by year. This is relevant firstly because the most recent district enrollment figure could affect teacher retention due to budgeting efficiencies associated with the economy of scale (discussed previously). For the purpose of my study, the change in enrollment (*enrollmentchange)* is measured by subtracting 2019 district enrollment from 2022 district enrollment, then dividing this number by the 2019 enrollment. These 3 years are utilized to match how teacher retention data is represented (as a 3-year average of teacher retention in a school district). This can provide context for the retention or attrition of teachers in a given district based on changes in student enrollment (Ingersoll, 2001b; Mont & Rees, 1996).

It is worth noting that there are 28 multi-school high school districts in this dataset, 28.28% of the 99 districts that are included in the study. In one of these multi-school high school districts, a teacher can transfer between schools and not be reported as retained in the ISBE data, yet they remain in the same district and operate under the same CBA. This complicates my analysis because my study examines the connection between teacher retention and specific contract provisions. If a teacher transfers between schools in the same district, they are counted as not retained by the state, yet this does not reflect the contents of the CBA as they continue working under the same contract. Although many other working conditions might factor into this type of transfer, it would be difficult to measure the relevant working conditions by the contents of the CBA. Because of this, multi-school districts may overestimate contract effects on teacher turnover, but there should only be a problem if districts have more schools, more attrition, and different differences in their contracts. To account for this possibility, I try the model including and excluding all multi-school districts. With few differences and none that rose to the level of significance or altered my results, I chose to focus my results on all 99 high school districts.

RQ2, Hypothesis 2. The presence of teacher workload, prep time, and collaboration time in the CBA is each independently important. In the following equation, I examine the relationship between the teacher working conditions that are the focus of this study (workload, prep time, and collaboration) and other factors associated with teacher retention, but this time independent of each other.

$$retention_d = \beta_0 + \beta_1 workload_d + \beta_2 collaboration_d + \beta_3 preptime_d + \beta_4 avgsalary_d +$$
$$\beta_5 avgexp_d + \ + \beta_6 \text{enrollmentchange}_\text{d} \ + \ \beta_7 percentwhite/asian_d +$$
$$\beta_8 percentproficientmath_d + \beta_9 meancenteredenrollment_d + \beta_{10} \text{enrollment}_\text{d}^2 +$$
$$\beta_{11} fundbalanceperpupil1000_d + \varepsilon_d$$

(4)

The number of CBA provisions associated with teacher workload (*workload)*, teacher prep time (*preptime)*, and teacher collaboration opportunities *(collaboration)* that are present are counted and examined for their impact on teacher retention *(retention)*. Considering teacher workload when bargaining can provide another meaningful lever, but it is easy to imagine each working condition being bargained for separately. Thus, it may be useful to ascertain if one working condition is more impactful in relation to teacher retention. Model 4 estimates the effect on retention of an additional provision in a specific area of working conditions, after accounting for the presence of provisions in other areas. This knowledge could provide useful information for all sides in conjunction with district resources and other district factors.

Highly Correlated District Characteristics

As I stated previously, there are many district characteristics that have been researched and are important to isolate to account for other factors that might bias my results. In utilizing many of these characteristics, there was a potential for a high degree of correlation between them. Table 2 presents the results of the pairwise correlation, utilized to identify any characteristics that would have a pairwise correlation greater than r=.7, to inform the reader why some logical predictors are not found in the models I utilize for my study. Three pairs were identified as too highly correlated and were explored at length in Chapter 3.

Table 2:

District Characteristic / Control Variable Correlations

	Avg Salary ($1000)	Avg Experience	Teachers Masters	Percent White Asian	Percent Low Income	Percent Proficient Math	Mean Centered Enroll	Enroll Squared	Fund Balance / Pupil
Avg Salary ($1000)	1								
Avg Experience	0.522***	1							
Teachers Masters	0.795***	0.469***	1						
Percent White/Asian	-0.294**	0.191	-0.322**	1					
Percent Low Income	-0.298**	-0.360***	-0.322**	-0.467***	1				
Percent Proficient Math	0.573***	0.450***	0.455***	0.405***	-0.777***	1			
Mean Centered Enrollment	0.632***	0.212*	0.555***	-0.344***	-0.0847	0.311**	1		
Enrollment Squared	0.446***	0.171	0.364***	-0.191	-0.0251	0.232*	0.919***	1	
Fund Balance /Pupil	-0.0189	0.0858	0.0131	-0.0314	0.0115	-0.157	-0.211*	-0.146	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Teachers' salaries and levels of education are logically highly correlated, as teachers' pay scales are often bargained to reward continuing education as well as years of experience. With this in mind, I decided to retain average teachers' salaries and exclude the percentage of teachers with a master's degree, as they show a pairwise correlation of approximately .8. As I highlight in my literature review, salary has been shown many times to be highly correlated to teacher retention, so it must be factored into any study focused on teacher retention, such as this one.

Additionally, student math proficiency on the SAT and the percentage of low-income students proved to be highly correlated with approximately .8 pairwise correlation. Although the

research also supports this finding, it continues to be a deeply troubling statistic. In this case, I decided to continue to factor student math proficiency on the SAT into my study while leaving off the percentage of low-income students**.** Again, because my focus is on teacher retention, and with the increased pressures of standardized testing being a self-reported consideration of teachers when deciding to stay or leave a district, teachers may be more interested in standardized testing scores (and the employment implications associated with high-stakes testing) than they are with the number of low-income students in their school (Kersaint et al., 2007; Piscitella, 2016; Thibodeaux et al., 2015). It is worth acknowledging that research has shown a correlation between the low-income student population and teacher attrition, as schools with higher percentages of low-income students as part of the total student population also show higher teacher turnover rates. At this point, the cause of this correlation is unclear. Some researchers have hypothesized that teachers leaving schools with high levels of low-income students may say something about the difficulties associated with teaching low-income students; other researchers have hypothesized that this correlation may be linked to the environments found in school schools with high percentages of low-income students. (Johnson et al., 2012; Johnson & Birkeland, 2003).

Research Positionality

A growing body of evidence cites a worsening teacher shortage in school districts with specific characteristics (lower achieving students, a high percentage of low-income students, a larger share of traditionally marginalized students) and high-need subject areas (science, technology, engineering, math, and special education) potentially due to an increase in positions rather than a reduction in the teaching force (Bruno, 2023; Carver-Thomas & Darling-Hammond, 2019; Dee & Goldhaber, 2017; Nguyen et al., 2022). Regardless of the cause, the current teacher

shortage does not show signs of easing and may further damage the attractiveness of the teaching profession and contribute to increasing the shortage. As a current hiring administrator in a high school in Illinois, the willingness of high-quality teaching candidates to enter and remain in the teaching profession is paramount to me.

Due to this close connection to my topic of interest, I need to remain aware and avoid letting my strong desire to identify actionable solutions to the teacher shortage cause me to overemphasize the impact of the provisions identified in my study on teacher retention. As I mentioned, I have worked to mitigate potential bias by double-coding approximately 10% of contracts to ensure the accuracy of the coding process. Additionally, I prespecified regression models and statistical tests to ensure the analytical methods are chosen before seeing the data, negating the ability to perform multiple analyses and then choosing the method that provides the most favorable result. Lastly, I articulated the limitations in advance (see below).

Limitations

Although including many districts in Illinois provides a large sample of data, the external validity of the results is hard to assess. First, Illinois would be considered a union-friendly state where it is likely to include bargaining provisions that other, less union-friendly states may prohibit. These results are confined to high school districts in Illinois, where nearly all teachers in traditional public school districts are covered by a CBA and are represented by some of the strongest teachers' unions in the nation (Winkler et al., 2012). My results in Illinois may not generalize to other states where not all teachers are represented by a union, the scope of collective bargaining differs, or schools are funded differently. In the absence or presence of the ability to bargain for certain provisions, unions may find other ways of bargaining that would not fit the results of this study but may better suit their bargaining environment. Also, my coding

might not capture the important working conditions or how I think they appear in contracts due to some underlying assumptions (e.g., provisions in the CBA accurately represent how work is carried out in the schools) that must be made due to limitations associated with the construct validity of my study. Most of the information taken from contracts is associated with 3 main topics from the literature; workload, prep time, and collaboration. Although all provisions are taken from previous work (with slight adaptations), other provisions may be associated with working conditions that were not included in the previous work or were not included in my study.

Additionally, more current research on the impact of collective bargaining by teachers' unions on teacher working conditions across the nation would help generalize these results. It is important to note that much of the educational decision-making in the United States (school finance, curricula, etc.) is left to each state legislature, and there is a lot of discrepancy from state to state. Due to the educational environment in each state that affects everything from teacher pay and school funding to what can and cannot be taught, there are major working conditions differences. These differences make it challenging to draw broad conclusions from state-specific datasets. However, state-specific studies are still valuable because other researchers can build on this research by exploring similar data from different states in similar ways.

Second, I only measure teacher retention concerning the specified contract provisions, raising questions of internal validity, another limitation of this study. I am not assuming CBAs serve as a proxy for the totality of the actual working conditions in school. This ambiguity around whether a lack of significant results means the content of the CBA does not matter for retention. However, I am using CBAs as measurable evidence of working conditions that were bargainable, were bargained for, and were included in the final CBA. The degree to which the

content of CBAs impacts the daily operation of a school district is an open question. These contract provisions are undoubtedly part of a larger work environment that cannot be fully captured by the binary methods I utilized for this study.

It is possible that the uncaptured aspects of the work environment could play a role in teacher retention. For example, collegiality (teachers work with their peers) was identified in the literature as a factor associated with teacher retention. We cannot measure collegiality, but we use professional relationships as a crude measure of collegiality and record 'Collaboration Time' as a representation of opportunities for professional relationships. This study also has a timing component, as I only examine the current contracts. Changes during the current bargaining cycle may influence retention in a given district and may take some time to impact teacher retention numbers district. For example, the contract salary schedule may have shifted to become more frontloaded or backloaded. The provisions associated with teacher workload captured in this study might be recent additions without the total amount of time to affect teacher retention data. Although I do not feel this is a likely limitation, as contracts remain mostly unchanged over time (Cowen & Fowles, 2013; Ingle & Wisman, 2018; McDonnell & Pascal, 1979, 1988), it is still worth considering.

Finally, as with most previous research on these topics, I cannot rule out the possibility that unobserved factors bias my results, and I caution against any strong causal inference from this study. For this study, I can only see the contents of the contracts, so any institutional norms present that do not appear in the contract yet have been shown to impact teacher retention cannot be accounted for. I also cannot capture the differences associated with each unique working environment. Some differences could lead to teachers caring about some provisions more than others or some provisions not at all. Generally, these results provide an understanding of how

collectively bargained-for working conditions impact teacher retention in high schools in an environment where unions are afforded a large scope for collective bargaining negotiation in a labor-friendly state.

Table 3

Provisions Associated with Working Conditions

Final Provisions	**Reverse Code**	**Workload**	**Type of Score**	**Keywords**
Final Data Set		**CBA SPECIFIES THAT MEMBERS ARE EXPECTED TO PARTICIPATE IN ADJUNCT DUTIES?**	Binary	Extra Duty, Extended Employment, Miscellaneous Super (-vision, -visory) Working Assignments, Responsibilities, Work Load, Supplementary Duties, Co-curricular, extracurricular, parental collaboration, parent-teacher conferences
Final Data Set		**Does CBA outline specific hours or #s of events/ activities in which members are expected to serve without extra compensation?**	Binary	Same As Above
		How many hours/# of events?	Continuous	
Final Data Set		**Does CBA outline specific assignments? (Club Sponsor, Coaching)**	Binary	Same As Above
		Does CBA quantify extracurricular involvement expectation?	Continuous	
Final Data Set	Reverse Code	**TEACHER LUNCH PERIOD IS NOT PROTECTED FROM ADDITIONAL DUTIES**	Binary	Teaching Hours, Assignments, Release, Lunch, Duty Free, time not assigned
		How many minutes?	Continuous	
Final Data Set		**THE CBA REQUIRES TEACHERS TO PARTICIPATE IN FACULTY MEETINGS?**	Binary	Meetings, Training, Institute
Final Data Set		**CBA does not place time constraints on faculty meetings?**	Binary	
		Max length of faculty meetings (minutes)?	Continuous	
Final Data Set	Reverse Code	**CBA DOES NOT CONSTRAIN THE NUMBER OF FACULTY MEETINGS**	Binary	Meetings, Training, Institute

Table 3 (cont.)

		How many faculty meetings/ year?	Continuous	
Final Data Set		**Can administrators call additional faculty meetings in case of emergencies?**	Binary	
Final Data Set	Reverse Code	**CBA DOES NOT CONSTRAIN NUMBER OF STUDENTS / TEACHER**	Binary	teaching load, class sizes
		Max students per teacher?	Continuous	
Final Data Set	Reverse Code	**CBA DOES NOT CONSTRAIN NUMBER OF UNIQUE SUBJECT TAUGHT.**	Binary	teaching load, subject preparations (preps)
		Max unique subjects taught per teacher?	Continuous	
Final Data Set		**THE CBA SPECIFIES A GIVEN LENGTH OF THE SCHOOL DAY IN INSTRUCTIONAL MINUTES OR HOURS?**	Binary	Teaching Hours, Assignments, Release, Work Day, Days
		How many minutes?	Continuous	
Final Data Set		**TOTAL NUMBER OF WORK DAYS IN THE SCHOOL YEAR IS DEFINED (i.e. total number of calendar days in work year)**	Binary	Work Year, School Year, School Term
		How many days/ year?	Continuous	
		Prep Time		
Final Data Set	Reverse Code	**PREP TIME NOT SET ASIDE IN THE CBA**	Binary	Teaching Hours, Assignments, Release, Duty Free, Prep, Preparation, Teaching Periods, Planning
		How many minutes?	Continuous	
Final Data Set		**MEMBERS ARE REQUIRED TO ARRIVE BEFORE THE START OF THE SCHOOL DAY**	Binary	School Day, Duty, Duties
		How many minutes before class / day?	Continuous	
Final Data Set		**MEMBERS ARE REQUIRED TO STAY AFTER THE END OF THE SCHOOL DAY**	Binary	School Day, Duty, Duties
		How many minutes before class / day?	Continuous	
		Collaboration		
Final Data Set	Reverse Code	**COLLABORATION TIME NOT SET ASIDE IN CBA (separately from prep time?)**	Binary	Collaboration, Coordinated Prep Time, Peer Assistance, Peer Review (PAR), Course Team meeting, PLC, PLP, Common Planning Time
		How many minutes per week?	Continuous	

Chapter 4: Results

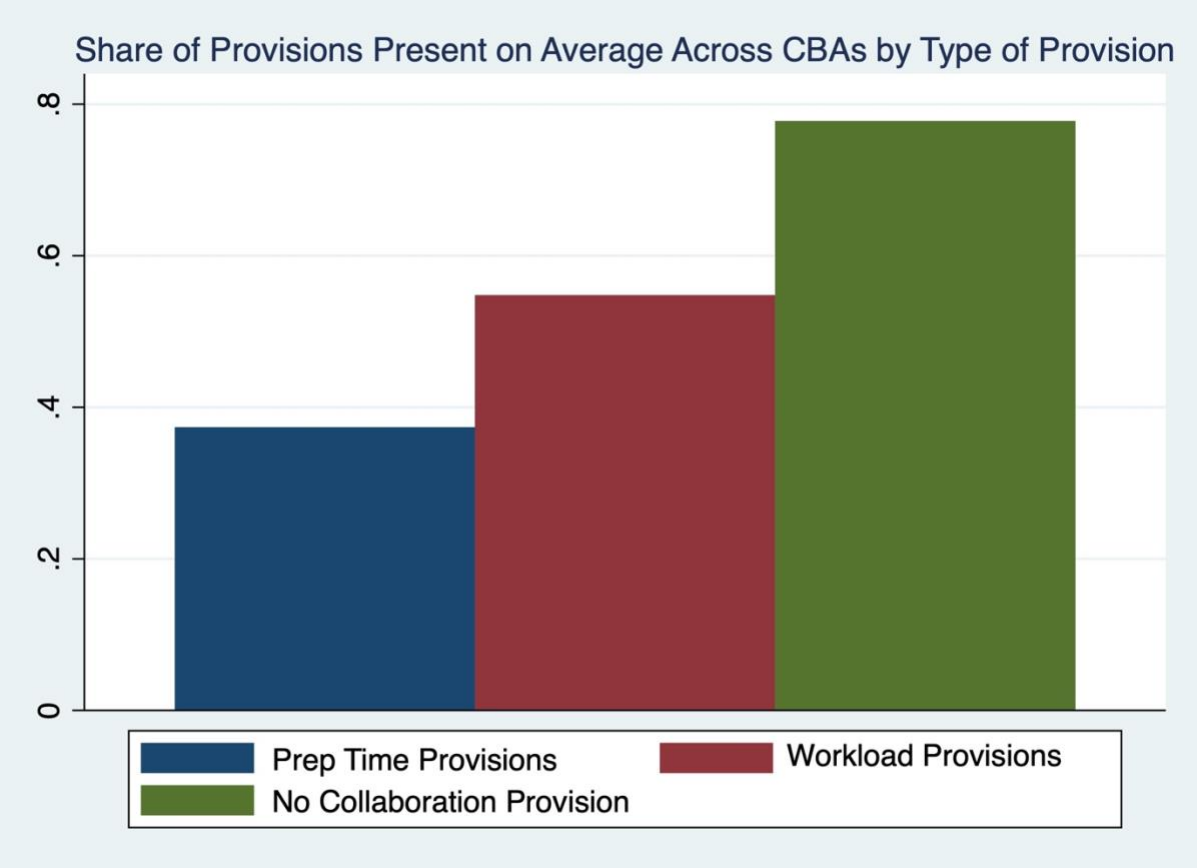
RQ1: What working conditions do high school contracts contain?

The purpose of this study was to review the contracts of all public high school districts in Illinois for the presence of 29 separate provisions associated with teacher retention according to the literature on the impact of teacher working conditions on teacher retention. These 29 provisions were grouped by theme into 3 distinct categories: teacher workload, teacher prep time, and teacher collaboration, which together form a partial picture of the teacher working conditions that have been bargained into each contract.

Although data was collected for all 29 provisions that were identified, I reduced the number of items included for analysis based on the ability to utilize a standard measurement (discussed in detail below), narrowing the set of provisions used in my study to 16. The average workload provisions comprised 12 different contract provisions, with the average CBA containing 55% of these provisions. The average prep time provisions comprised 3 different contract provisions, with the average CBA containing 38% of these provisions. In the case of collaboration, only 1 contract provision was considered, so in terms of the presence of collaboration provisions in contracts, only 22% of districts protect collaboration time. Another way of thinking of this is that in the average high school district contract explored for this study, there were 6.58 contract provisions associated with teacher workload, 1.12 provisions associated with prep time, and .22 provisions associated with teacher collaboration. Figure 2 below shows the average presence of these contract provisions by category, all of which the previous research suggests are important working conditions contributing to teacher retention.

Figure 2:

Share of provisions present in each contract on average, by category



During my data collection process, the presence of contract provisions was recorded, regardless of whether they were expected to be positively or negatively correlated with teacher retention based on the research in my literature review. Recall that for this analysis, all recorded contract provisions were reverse coded as needed to indicate what I hypothesize would have a negative correlation with teacher retention because they make the CBA less teacher-friendly. Consequently, Figure 2 (above) can be interpreted as the rate at which contract provisions that have been found to be important for teacher retention are present.

For example, I reverse-coded 'length of faculty meetings' because I was able to identify the presence of contract provisions that placed limits on faculty meetings (length, time, or

quantity), but the presence of this provision would theoretically improve teacher working conditions, as restrictions on faculty meetings are what appear in contracts. So, after tallying the presence of contract provisions associated with constraints on faculty meetings, I reverse-coded them to reflect the absence of contract provisions limiting faculty meetings. I similarly reverse-coded the presence of a limit on students per teacher, subjects taught per teacher, a guarantee of a duty-free lunch, defined prep time, and defined collaboration time.

Although Figure 2 represents the 3 broad categories of my study, the presence of collaboration time is a reflection of 1 contract provision, so it provides a clear example of how the reverse coding process is presented in the final data. When recording the data from contracts, 22% of contracts had some mention of time protected specifically for teacher collaboration. Another way of saying this is that 78% of districts do not have protected teacher collaboration time written into the contract. The lack of collaboration opportunities is mentioned in the teacher attrition research as a reason teachers leave their schools, and 78% of districts do not have protected teacher collaboration time. This is reflected by the height of the green bar in Figure 2. Given the previous literature, this may indicate that this important working condition is not widely protected in high school teacher contracts.

When looking at all provisions collectively (TOTALPROVISIONS), all district CBAs have at least some contract provisions associated with teacher working conditions that I considered for this study (Table 4). Provisions that make up these results include all provisions that serve as barriers (i.e. gatekeepers) to other provisions. As I stated previously, counting gatekeeper provisions and their associated provisions created the potential for an overweighing of provisions with gatekeeper structures because the same contract feature would be counted multiple times. After collecting the data, I decided only to count gatekeeper provisions and

exclude all other associated provisions. Although I was initially concerned that these provisions would lead to the overrepresentation of gatekeeper provisions in my analysis, my final decision was also driven by an inability to compare the associated provision data that was in various nonstandard formats due to the lack of a standard unit of measurement across CBAs.

One example of a lack of standardization of the associated continuous provisions data is when gatekeeper provisions that utilized time constraints were present, the specifics of the constraint were not always uniform. A more specific example can be found in the time constraints on faculty meetings in CBAs, which were counted utilizing a dummy variable for their presence and served as a gatekeeper for the specific information regarding how many minutes faculty meetings are restricted. Unfortunately, contracts that had clear time restrictions on faculty meetings sometimes defined the time restraint differently. One CBA defined the constraint by stating that faculty meetings must not be held past 4 p.m.; a constraint on the time of day, but not the length of the meeting. A different observed constraint was the length of the meeting cannot exceed 120 minutes, which is a constraint on the length of the meeting that does not account for the time of day the meeting is held. Still, another constraint was 10 hours of faculty meetings per school year; neither a restraint on the length of individual meetings nor time of day. This is an example of how the nuances of CBAs can reflect differences associated with the history, location, population, and other factors specific to the districts in which they are bargained. Some of these differences cannot be readily reconciled between CBAs to make informative general comparisons.

While exploring the broad categories of provisions (i.e. workload, prep time, and collaboration) is useful for understanding the balance of contracts overall, by focusing exclusively on gatekeeper provisions identified in this study (16 of the 29 provisions), you can

Table 4:

Broad Category Summary Statistics

	N	Mean Number of Items Present	SD	Min	Max
WORKLOAD	99	6.58	1.80	2	11
PREP TIME	99	1.12	0.99	0	3
NO COLLABORATION	99	0.78	0.42	0	1
TOTAL PROVISIONS	99	8.47	2.03	4	13

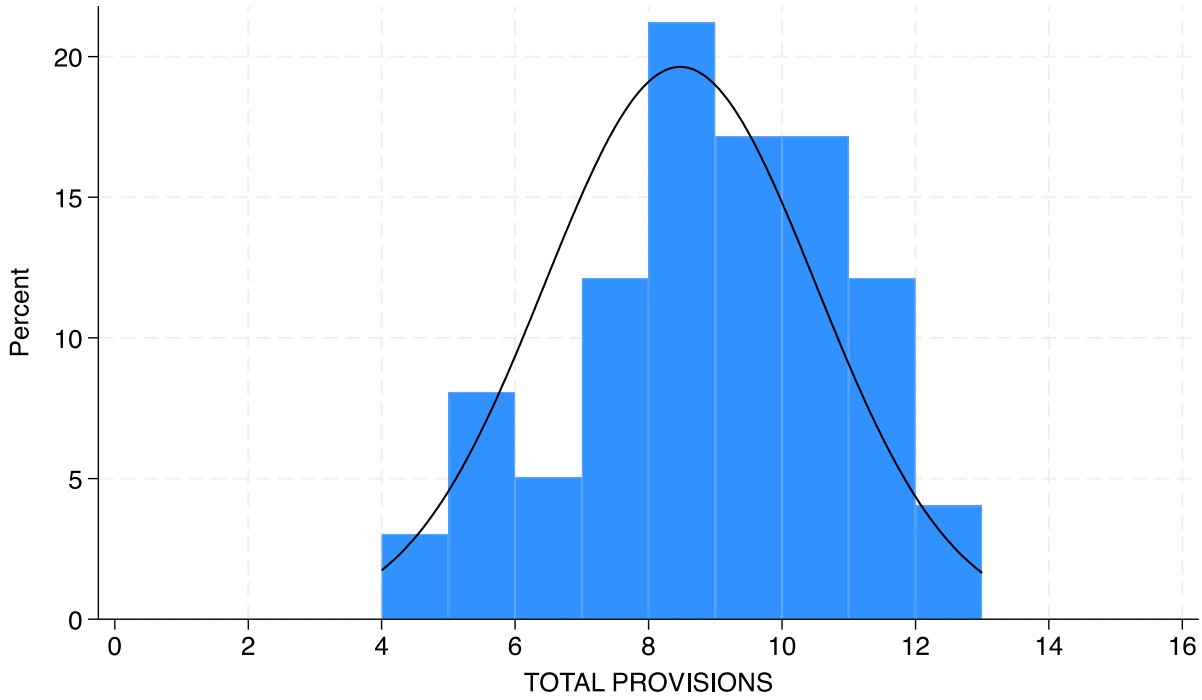
begin to understand the wide differences in bargaining associated with teacher working conditions across contracts. For example, I found at least 4 provisions and as many as 13 provisions across all CBAs. Furthermore, a maximum of 13 were found in only 2 CBAs (2%), while a minimum of 4 contract provisions were found in 3 CBAs (3%).

This lack of extremes (e.g., zero or all provisions) is interesting in that there is no obvious reason, laws or otherwise, that would preclude a district from having none of the provisions or all of the provisions. Half of the districts have between 7 and 10 total provisions and of the 99 high school districts explored in this study, all fell between 4 and 13 provisions. Additionally, the slightly negatively skewed distribution, as seen in Figure 3, shows a greater likelihood of more than half of the possible contract provisions being present in a randomly selected contract, such that districts are slightly more likely to be above the mean number of total contract provisions. Since I hypothesized all of these provisions to be linked to negative teacher retention, this result would imply slightly more contract restrictions in most high school districts in Illinois, leading to lower teacher retention in the average district. This could lead to teachers looking to migrate towards certain districts and away from others with more teacher-friendly contracts. My second

research question investigates this possibility further. It is worth noting that because there are almost exactly 100 districts, the percentage of districts in Figure 3 closely approximates the number of districts.

Figure 3:

Percent of Contracts by Total Number of Provisions Present



*The Black Line Represents a Hypothetical Normal Distribution

Districts also vary substantially in the working conditions they explicitly protect for teachers. None of the gatekeeper provisions I consider were universally present in my contract sample, and some are much more common than others. The two most common provisions were workload provisions (Table 5); 'teachers expected to participate in adjunct duties' (91% of CBAs) and 'the number of days in a work year is defined' (82% of CBAs).

Table 5:

The Presence of Specific Contract Provisions

	N	Mean	SD	Min	Max
ADJUNCT DUTIES	99	0.91	0.29	0.00	1.00
SPECIFIC HOURS OR EVENTS	99	0.70	0.46	0.00	1.00
SPECIFIC ASSIGNMENTS	99	0.17	0.38	0.00	1.00
FACULTY MEETINGS REQUIRED	99	0.78	0.42	0.00	1.00
NO TIME CONSTRAINTS ON FACULTY MEETINGS	99	0.52	0.50	0.00	1.00
NO LIMIT ON NUMBER OR LENGTH OF MEETINGS	99	0.61	0.49	0.00	1.00
ADMIN CAN CALL EMERGENCY MEETING	99	0.37	0.49	0.00	1.00
NO LIMIT ON STUDENTS/TEACHER	99	0.69	0.47	0.00	1.00
SUBJECT TAUGHT UNLIMITED	99	0.66	0.48	0.00	1.00
NO DUTY-FREE LUNCH	99	0.28	0.45	0.00	1.00
SCHOOL DAY DEFINED IN INSTRUCTIONAL MINUTES	99	0.08	0.27	0.00	1.00
WORK DAYS IN SCHOOL YEAR IS DEFINED	99	0.82	0.39	0.00	1.00
PREP TIME NOT DEFINED	99	0.23	0.42	0.00	1.00
ARRIVE BEFORE START OF DAY	99	0.46	0.50	0.00	1.00
REMAIN AFTER END OF DAY	99	0.42	0.50	0.00	1.00
NO COLLABORATION	99	0.78	0.42	0.00	1.00

The next 2 most prevalent provisions include ‘defined prep time’, a prep time provision, and ‘mandatory participation in faculty meetings,’ another workload provision, both of which were found in 77% of CBAs. With regard to these 2 provisions, it may be that uninterrupted time for planning is very important to teachers, which could speak to teacher workload issues I outlined in Chapter 2, and thus part of the bargaining for most high school districts in Illinois. Attendance at faculty meetings, on the other hand, might be more of an administrative priority. With potentially few opportunities to meet across curriculums and/or buildings, it would be logical that it would be important to the administration that all relevant stakeholders are present for the content of these faculty meetings, thus worth bargaining for.

Although my methods do not allow me to definitively establish why some provisions are more common than others, in the case of both of these provisions, there is a component of this that shows that neither the administration nor the faculty would greatly object to the position of the other side. Otherwise, it would not be bargained into contracts at such a high level. Overall, there seems to be a focus on workload provisions in high school CBAs, as at least 66% of the provisions associated with teacher workload (8 of the 12 possible workload provisions) were found in more than half of the contracts.

The least prevalent contract provisions included ‘length of the school day defined in instructional minutes’ (8% of CBAs), ‘teacher assigned to coach or sponsor as sport or club’ (17%), ‘defined collaboration time’ (22%), ‘defined number of students per teacher’ (30%), and ‘defined number of unique subjects taught’ (34%). Additionally, Figure 4 provides a view of the stark contrast between the contract provisions associated with teacher workload, while Figure 5 highlights the differences in the presence of provisions associated with teacher prep time and defined opportunities to collaborate. This provides potential insight into contract provisions that

may be more widely acceptable as part of a CBA due to pattern bargaining and others that may be more nuanced and district-specific.

Pattern bargaining involves union negotiations that are sequential and build upon the results of an initial contract negotiation that sets the 'pattern' for all ensuing negotiations (Marshall & Merlo, 2004). An example of potential pattern bargaining might be teacher prep time being protected. As I highlighted in my literature review, there has been a focus on teacher workload increasing for several decades. As researchers continue to attempt to identify the causes of this increase in teacher workload reported by teachers, national teacher unions have rallied around several solutions, one of which is increases in planning time (Walker, 2023; Weingarten, 2022). This could lead to the similarities in teacher prep time provisions found in contracts across districts. Admittedly, there is a similar call from these organizations for teacher collaboration time, but this is not reflected in the contracts at a similar level to prep time based on the number of provisions present. With prep time being a factor personal to each individual teacher's schedule, it would be easier to adjust each teacher's schedule to fit into a typical school day while allowing for flexibility in class scheduling. Collaboration, on the other hand, requires specific groups of teacher teams to have common time off to meet, which might complicate building-wide scheduling efforts. Another possibility is that teachers do not value collaboration time as much as they (or their representative union) say they do. I can only hypothesize as my data does not allow me to make firm conclusions.

Figure 4:

Average Presence of Provisions Associated with Workload

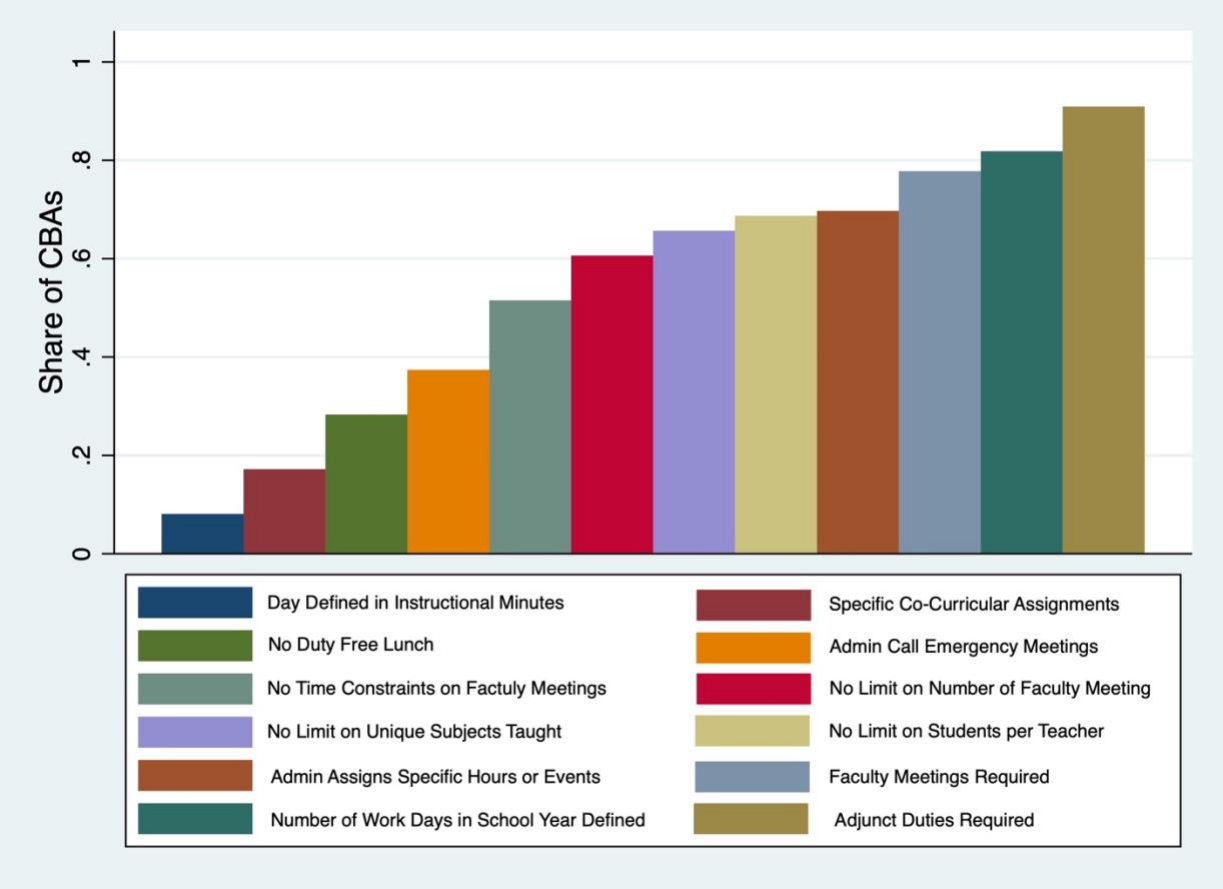
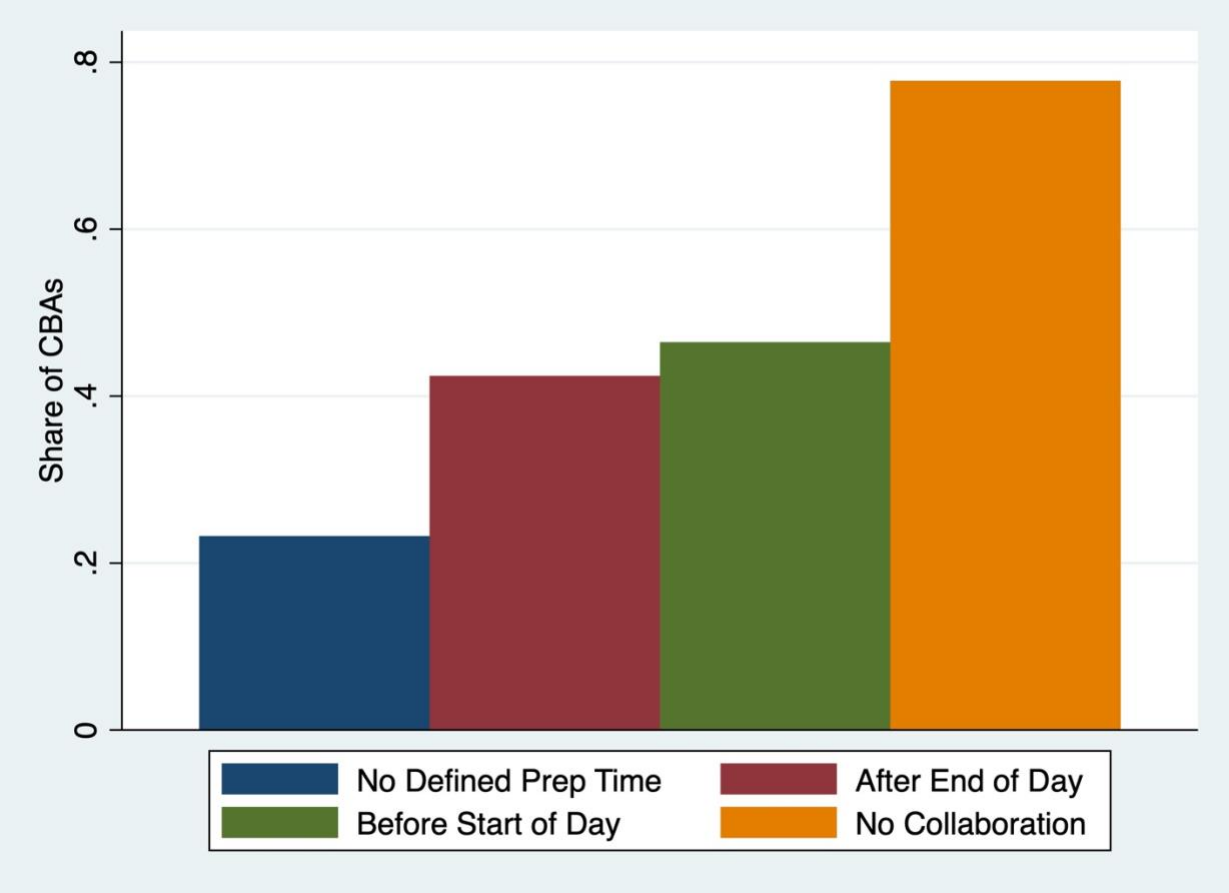


Figure 5:

Average Presence of Provisions Associated with Prep Time and Collaboration



The least represented provisions were provisions requiring teacher duties outside of the teaching day (e.g., mandatory athletic coaching position, mandatory club sponsorship). As shown by the red bar in Figure 4, 'specific assignments' did not appear in many district CBAs. 'Specific assignments' is a reflection of contracts that assign teachers to duties outside of the teaching day, which may be an example of a nuanced district need to support student interests without matching faculty interests. For example, 'specific assignments' such as assigning a teacher to coach a sport might happen when a school has a sport with student interest, but no adults in the building or surrounding community are interested in the specific coaching assignment. This may only become a district priority (leading to its presence in the CBA) in school districts with a high

level of consistent student interest in athletics, especially in small rural communities where there are not many adults who are available and willing to fill these roles. To be clear, excluding these provisions from most contracts could be a product of pattern bargaining as well.

Although I cannot make definitive conclusions about specific causes, Figures 4 and 5 highlight big between-district differences in whether provisions are present and relatively large differences between provisions in terms of their prevalence (provisions represented in less than 10% of contracts and provisions with more than 90%). When compared to similar work by Strunk (2012), there are some similarities and some noticeable differences. Examples of provisions that were less prevalent in CBAs explored for this study than in those of the Strunk study were 69% of CBAs in this study versus 83% of CBAs in the Strunk study specified a given class size, and 46% versus 58% stated teachers must be present before the start of the class, and 8% versus 42% of CBAs specified the length of the school day in instructional minutes.

Additionally, the following provisions were more prevalent in CBAs explored for this study than in those of the Strunk; provisions that required teachers to participate in adjunct duties were present in 91% of CBAs in my study versus 78% of the CBAs in Strunks work, 72% versus 19% had provisions protecting a duty-free lunch period, and 42% versus 32% contained a provision stating a teacher must be present after the school day. Lastly, 52% of CBAs in both studies had no time constraints on faculty meetings, and 78% of CBAs in both studies stated districts must provide prep time for teachers.

It is important to note that my study was isolated to 99 CBAs from high school districts in Illinois in 2022-2023, whereas the work of Strunk was conducted on 465 school districts (elementary, K-12, and high school) in California in 2005-2006. Although my study and that of Strunk were taken from different states and based upon the content of contracts 18 years apart,

there were many similarities, with only two substantial variations between our findings. When exploring some of the more significant variations, districts that define the day in instructional minutes vary greatly, with a 34 percentage point decrease in the presence of that provision in my study from that of Strunk. One reason might be that defining the day in instructional minutes could be helpful for school districts with multiple schools that have some variation in their bell schedules. Without a standardized bell schedule across all schools in a district, as might be seen in a K-12 district, there may be a need to ensure a standardized teacher workday. A major difference between the work of Strunk and my study is that I isolated for high school districts, making the need for different bell schedules less likely. Having a duty-free lunch was also significantly different, with a 53% increase in contracts in my study containing this provision. Duty-free lunch periods appear to have been written into the Illinois school code in 1961, so this might be an outdated provision that is a carryover from contract to contract.

Hypothesis 1: Predicting the presence of contract provisions

Tables 6, 7, and 8 present results from models predicting the presence of contract provisions as a function of school district teacher and student demographics.

Table 6

Regressions Predicting the Presence of Workload Provisions

	(1) WORKLOAD	(2) WORKLOAD	(3) WORKLOAD	(4) WORKLOAD	(5) WORKLOAD
Percent White Asian	0.016*				0.012
	(2.46)				(1.20)
Percent Proficient Math		0.021+			0.013
		(1.88)			(0.86)
Mean Centered Enrollment			-0.015		-0.0089
			(-0.77)		(-0.30)
Enrollment Squared			1.50e-08		9.33e-09
			(0.76)		(0.29)
Fund Balance/Pupil ($1000)				-0.004	-0.0031
				(-0.30)	(-0.22)
Constant	5.53***	6.03***	6.41***	6.66***	5.43***
	(12.03)	(17.60)	(22.35)	(20.06)	(9.36)
N	99	99	99	99	99
R^2	0.059	0.035	0.006	0.001	0.070

Note. t statistics based on heteroskedasticity-robust standard errors in parentheses
+ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 7

Regressions Predicting the Presence of Prep Time Provision

	(1) PREP TIME	(2) PREP TIME	(3) PREP TIME	(4) PREP TIME	(5) PREP TIME
Percent White Asian	-0.0012				0.0013
	(-0.27)				(0.23)
Percent Proficient Math		0.0062			0.0022
		(1.01)			(0.24)
Mean Centered Enrollment			0.02^{+}		0.021
			(1.92)		(1.61)
Enrollment Squared			-1.86e-08^{+}		-1.94e-08^{+}
			(-1.73)		(-1.90)
Fund Balance/Pupil ($1000)				-0.00045	0.0025
				(-0.06)	(0.35)
Constant	1.19***	0.96***	1.33***	1.13***	1.15***
	(4.54)	(4.99)	(8.53)	(6.16)	(3.75)
N	99	99	99	99	99
R^2	0.001	0.010	0.037	0.000	0.042

Note. t statistics based on heteroskedasticity-robust standard errors in parentheses
$^{+}$ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 8

Regressions Predicting the Presence of Collaboration Provisions

	(1) NO COLLAB	(2) NO COLLAB	(3) NO COLLAB	(4) NO COLLAB	(5) NO COLLAB
Percent White Asian	0.0029^{+}				0.0032
	(1.80)				(1.32)
Percent Proficient Math		-0.0059*			-0.0064
		(-2.31)			(-1.57)
Mean Centered Enrollment			-0.012**		-0.0062
			(-2.82)		(-0.95)
Enrollment Squared			6.46e-09		2.63e-09
			(1.51)		(0.43)
Fund Balance/Pupil ($1000)				-0.00014	-0.0027
				(-0.04)	(-1.00)
Constant	0.60***	0.93***	0.71***	0.78***	0.77***
	(5.51)	(11.83)	(11.35)	(10.10)	(5.57)
N	99	99	99	99	99
R^2	0.032	0.052	0.138	0.000	0.177

Note. t statistics based on heteroskedasticity-robust standard errors in parentheses
$^{+}$ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

Contrary to my hypotheses, I find few significant correlations between the school district teacher and student demographics gathered for this study and the contract provisions associated with teacher workload and teacher prep time. Although it is true that I do not find many systematic differences between districts, to illustrate the purpose of this table and expand upon some of the research previously cited in this paper, I will walk through the relationships observed with district characteristics, all of which I hypothesized would impact the presence of contract provisions.

First, the percentage of White and Asian students taken as part of the entire district enrollment (percentwhite/asian) is a district demographic that has been shown to be related to the presence of contract provisions. As a reminder, work by Podolsky (2016) and Ingersoll (2018), among others, shows that teachers are less likely to stay in districts and schools with greater proportions of minority and low-income students, making districts and schools with these characteristics particularly hard to staff. According to Strunk (2012) and Moe (2009), these 'hard to staff' districts may bargain differently, measured by the presence of provisions associated with contract restrictiveness in a CBA. Specifically, Moe concluded that 'the impact of collective bargaining is especially negative for schools that are "relatively" high minority,' (2009, p. 173) while Strunk found 'the most restrictive provisions are often found in some of the hardest-to-staff districts (2012, p. 540).' I hypothesized a statistically significant correlation between the presence of contract provisions and district demographics associated with being classified as a hard-to-staff district, but there was no evidence of these demographics being correlated with contract provisions in the high school districts in my study.

In fact, results indicate very small and statistically insignificant relationships between student demographics and the total number of contract provisions. Specifically, each additional percentage of White and Asian students in a district predicts between .001 and .012 additional provisions for workload (Table 6, Column 5), collaboration (Table 8, Column 5), and prep time (Table 7, Column 5), when considered along with other district characteristics. This implies that even a 100-percentage point change in the White/Asian population predicts only an additional one-tenth of one prep time provision, three-tenths of one collaboration provision, and 1.2 workload provisions, on average. When considered independent of other district characteristics, the results are similar, with each additional percentage of White and Asian students in a district

predicting between .001 and .16 additional provisions for workload (Table 6, Column 1), collaboration (Table 8, Column 1) and prep time (Table 7, Column 1).

Workload results were significant at the .05 threshold, and collaboration results were significant when adjusted to the .1 threshold, with still very small effects that render them substantively insignificant. To highlight this point further, if the percentage of White and Asian students were zero in a district (as is reflected by the constant term on all three tables above), the district CBA would be expected to have between 5 and 6 contract provisions associated with the workload. Adding 1 percent of white and Asian students would only yield .003 more provisions associated with teacher workload. This result does not align with my hypothesis that an increase in the percentage of the underrepresented minority student population (associated with hard-to-staff schools) would correlate with an increase in the presence of contract provisions associated with negative teacher working conditions, as it is both small and insignificant.

Although there is evidence, which I highlighted in my literature review, that teacher contracts in hard-to-staff school districts 'contain provisions that may make them easier to staff by giving teachers extra benefits and protections that make their working conditions and school culture better,' (Strunk, 2012, p. 540) teachers are less likely to stay in districts and schools with greater proportions of minority students. I hypothesized that there would be a positive correlation between student minority percentage (i.e., neither White nor Asian) and the presence of contract provisions measured in this study, and this was not the case.

Also, as I previously highlighted, district wealth likely drives district decisions regarding many of the working conditions that would appear in a CBA, due to the cost associated with these working conditions. I hypothesize that the school district fund balance per pupil and district enrollment would correlate to working conditions due to district efficiency (economies of scale)

and bargaining flexibility associated with district finances. Again, although research appears to suggest a theoretical link, the relationships I estimate are very small and insignificant. One thousand dollars in additional fund balance per pupil, which is a considerable amount compared to a mean of approximately $20,000 (Table 1), only predicted an increase of .003 provisions associated with teacher prep time (Table 7, column 5) but also a decrease of .003 in provisions associated with teacher workload (Table 6, column 5) and collaboration opportunities (Table 8, Column 5), and all were statistically insignificant. When considered independent of other district characteristics, $1000 in additional fund balance per pupil predicted an increase of .0005 provisions associated with teacher prep time (Table 7, column 4) but also a decrease of .004 in provisions associated with teacher workload (Table 6, column 4) and .0001 collaboration opportunities (Table 8, Column 4), and all were statistically insignificant.

Increases in enrollment also have very small and statistically insignificant correlations to working conditions, similar to fund balance, a small increase in prep time provisions, and a small decrease in workload and collaboration provisions when explored alongside other district characteristics (Column 5) and independently (Column 3). It is noteworthy that enrollment is measured in 100 students, so the effect size is noticeably minuscule. Fund balance and enrollment correlations moving in the same direction align with my hypothesis that these district characteristics are closely linked, but these results, more broadly, are not supportive of my hypothesis.

'Enrollment Squared' is a control variable that was included to show the changing impact of enrollment growth on contract provisions, teacher retention, and other district characteristics. The squaring allows the relationship between enrollment and a given outcome to shrink (or grow) as enrollment changes (Imazeki & Reschovsky, 2006; Slate & Jones, 2005). In this case, I

do not find evidence that the relationship between enrollment and contract provisions matters much overall or differently across districts of different sizes. When the threshold level of significance is adjusted to .1, the results suggest there is a level of significance in the relationship between enrollment squared and prep time provisions. This result appears to be sensitive to the relatively small sample size of my study (n=99), which is complicated by the relatively large number of control variables for my sample. These two factors (sample size and number of variables) combine to make the statistical significance of .05 more difficult (Table 7, Column 5). In this case, enrollment squared has a slightly negative coefficient, indicating that enrollment is associated with fewer prep time provisions as districts get larger. When considered independent of other district characteristics, the enrollment squared coefficient is positive and remains insignificant in relation to workload and prep time (Column 3). 'No Collaboration' remains small but is negative and significant at the .01 threshold. (Table 8, Column 3) signifying as enrollment increases, there is a slightly greater chance of the presence of a contract provision protecting teacher collaboration time.

Lastly, I predicted students' math proficiency on the SAT (percentproficientmath) could be potentially too closely correlated with the student body's racial demographics, but that was not the case. It was found to be too closely related to the district percentage of low-income students, which ended up being excluded from my results. I also hypothesized that as student achievement increases, there would be an increase in provisions that reduce teacher workload as well as increases in prep time and collaboration opportunities, or there would be no effect. The results were, again, small and insignificant when considered along with other district characteristics, with each percentage point increase in students who are proficient in math corresponding to a .002 - .013 increase in the presence of prep time and workload provisions, respectively, and

a .006 decrease in the likelihood that collaboration opportunities would not be included in the CBA (Column 5).

When considered independent of other district characteristics, each percent increase in students who are proficient in math corresponds with a .006 (Table 7, Column 2) and .021 (Table 6, Column 2) increase in the presence of prep time and workload provisions, respectively, and a .006 decrease in the absence of provisions associated with teacher collaboration. The .02 increase in workload provisions for districts with a higher number of students proficient in math was statistically significant when the threshold level of significance was adjusted to .1. When considered independently, the 'no collaboration' results were significant and showed a negative relationship, which means as student achievement scores increase, the presence of teacher collaboration provisions in a district CBA increases to a very small degree (Column 2).

To summarize, teacher prep time provisions seem mostly unrelated to district characteristics, as all relationships between prep time provisions and the district characteristics explored were small and statistically insignificant both individually and net of other factors. The relationship between White and Asian students and teacher workload provisions was small but significant when explored independently of other district characteristics but lost significance when explored along with other district characteristics. All other relationships between district characteristics and workload provisions were small and insignificant. Defined and protected teacher collaboration opportunities appear significantly related to district characteristics, with the exception of Fund Balance, when explored independently and when the significance threshold is relaxed to .1. These results are all very small and lose significance when explored together with other district characteristics.

RQ2: How does the presence or absence of these contract provisions affect teacher turnover rates?

I do not find evidence that teacher turnover is affected by the presence of the contract provisions counted in my study. I explore categories of provisions both together (Model 3) and independently (Model 4). I explore these relationships, controlling for the same district characteristics from my first question and additionally for average teacher salary and average teacher experience.

RQ2, Hypothesis 1

Teacher workload, teacher prep time, and teacher collaboration opportunities have been identified in the literature as working conditions that factor into a teacher's decision to stay or leave a district. However, the total number of contract provisions (totalprovisions) is not a statistically significant predictor of teacher retention in my models (Table 9, columns 1 & 7). This is not in line with the research showing teacher workload, teacher prep time, and teacher collaboration are working conditions that teachers say factor into their decision to stay or leave a district. This is also in contrast to my hypothesis that contracts promoting working conditions related to improvements for teachers in any workload, prep time, or collaboration category will improve teacher retention. When total contract provisions are explored independent of other school demographic data, my results show a .39 percentage point increase in retention rates for each additional contract provision associated with teacher attrition (Table 9, column 1). In other words, one additional provision in any of the workload, prep time, or collaboration categories would yield a .39 percentage point increase in teacher retention, contrary to my hypothesis.

Also, when taken to its extreme, my results show a 3.51 percentage point increase in teacher retention for districts with 13 contract provisions (the maximum identified) over districts

with 4 (the minimum identified). Given that, due to my coding system, the presence of any provisions is considered unfriendly to teachers, an increase in these provisions was predicted to yield a decrease in teacher retention, the opposite of what I found.

These results are not statistically significant, or, more specifically, 'total provisions' is not significantly related to teacher retention. At its core, my results show an increase or decrease in contract provisions cannot be used to predict teacher retention reliably. Additionally, very little can be predicted about districts' retention rates using total contract provisions alone. With an R^2 = .008, only .8% of the variation in teacher retention can be explained by the provisions present in a high school contract in Illinois. This was surprising given the literature on teacher attrition discussed in Chapter 2, indicating that teacher workload, prep time, and collaboration are categories of consideration for teachers when deciding to stay or leave a district. However, much of the evidence comes from large-scale teacher surveys, and unobserved differences in the participants themselves may, therefore, bias results.

To control for other factors that might bias my estimates, I include all the aforementioned control variables known or likely to be correlated with the teacher retention rate, specifically average teacher salary (in thousands of dollars), average teacher experience, and 3-year enrollment change. As I previously stated, the percentage of teachers with a master's degree, although significantly correlated with teacher retention, was dropped due to it being too highly correlated with the average teacher salary.

Unsurprisingly, teacher salary is positively related to teacher retention and retains significance when all district and contract characteristics are considered. Specifically, for every $1000 teachers are paid, there is a corresponding .17 percentage point increase in teacher retention when accounting for other teacher and district characteristics (Table 9, column 7).

Furthermore, when considering 'average teacher experience,' my results showed an expected increase of .63 percentage points in teacher retention for every 1 year of experience. This is considerable as 1 year is a relatively small amount of time to create such a sizable teacher retention increase, 3.66 times the expected increase of $1000 additional dollars to a teacher's salary. When viewed as the impact of each additional full year of teacher experience, there is an expected teacher retention increase of 2.52 percentage points by the time a new teacher receives tenure if they stay in the same district (approximately 4 years).

All other district characteristics showed very small changes in teacher retention, and most of them moved in a direction consistent with the previous literature (Table 9, column 7). For example, for every additional percentage of White and Asian students in a district, there is a predicted .067 percentage point increase in teacher retention. In terms of a 100-percentage point change in the White/Asian population, this would predict a 6.7 percent increase in teacher retention. Although the average teacher turnover rate in high school districts in Illinois is 8.7%, and 6.7% would make a large difference to the average high school district, this would take a complete transformation of the school district's student demographics. Which, although possible, is well beyond a typical demographic shift.

For every additional 'percent enrollment change,' which represents the percent change in district student enrollment from 2019 to the 2022 school years, there is a .005 percentage point increase in teacher retention. As you may recall, teacher retention is reported as a 3-year average, so the change in district enrollment over the same 3-year period would seem to relate to this teacher retention percentage closely. 'Mean Centered Enrollment' and 'Enrollment Squared' had an even smaller relationship with teacher retention. Lastly, for every additional 'percent proficient in math,' there is a .003 percentage point decrease in teacher retention. This value is

also not large in absolute terms; however, unlike the other variables I consider for my study, it is not in line with my hypothesis that a higher percentage of students proficient in math would lead to an increase in teacher retention percentage.

These results should be interpreted cautiously because, with the exception of 'Teacher Salary,' these results are not statistically significant, or, more specifically, 'total provisions' is not significantly related to teacher retention when other relevant district characteristics variables are isolated. Again, fundamentally, my results show that an increase or decrease in contract provisions cannot be used to predict teacher retention reliably when other district characteristics are considered. Additionally, very little can be predicted about districts' retention rates using total contract provisions along with district characteristics. With an R^2 = .126, only 12.6% of the variation in teacher retention can be explained by the provisions present in a high school district contract in Illinois when relevant district characteristics are controlled for. Although this is a considerable increase in the R^2 value in relation to when 'total provisions' was considered in isolation, this remains a relatively small value.

RQ2, Hypothesis 2

The presence of teacher workload, prep time, and collaboration time in the CBA are not independently statistically significant factors when exploring teacher retention. The presence of each additional workload provision predicts a .36 percentage increase in teacher retention when utilizing a bivariate analysis in relation to teacher retention (Table 9, Column 2). Also, Prep Time provisions predict a 1.02 percent increase in teacher retention (Table 9, Column 3), while the absence of defined teacher collaboration time predicts a 3.06 percentage point decrease in teacher retention (Table 9, Column 4). Again, these results should be interpreted cautiously as

none of these categories, when explored independently of each other, appear to be significantly correlated with teacher retention rates.

When considered in relation to the other working conditions categories ('Prep Time' and 'No Collaboration'), the presence of each additional provision associated with teacher workload predicts a .34 percentage point increase in teacher retention but falls short of being statistically significant (Table 9, Column 5). Likewise, the presence of additional teacher prep time provisions is associated with a .74 percentage point increase in teacher retention rates but also fell short of statistical significance at conventional levels. In contrast to those results, contract provisions associated with teacher collaboration time are associated with teacher retention rates at a statistically significant level. The absence of contract provisions associated with protected formal teacher collaboration time was associated with a 2.56 percentage point decrease in teacher retention.

Collaboration time protected in the CBA was the only category of CBA provisions that rose to the level of statistical significance in my models. The significance of collaboration time in my results, coupled with the negative correlation to teacher retention, is in line with my hypothesis that these categories are independently significant and that contracts promoting working conditions related to defined and protected time for collaboration will improve teacher retention. 'No Collaboration' had one provision, measuring the presence of contract language that protected teacher collaboration time separately from teacher prep time. As you may recall, the primary difference between prep time provisions and collaboration provisions would be that prep time is time provided and protected from student contact and other duties with the expectation that teachers use this time for work-related activities of their choosing. This may include meetings with others but can be individual time as well. Collaboration time is different in

that working with others is the expectation and typically was identified as formal meeting time in the CBA. With that, this result loses significance and shrinks substantially in magnitude when school district teacher and student demographic factors are considered (Table 9, Column 6). This is worth noting because the relationship can easily be explained by other factors which raises doubts about whether even the effect of collaboration time on teacher retention is supported by the data.

Table 9

Contract Provisions and Teacher Retention

	(1) Retention	(2) Retention	(3) Retention	(4) Retention	(5) Retention	(6) Retention	(7) Retention
TOTAL PROVISIONS	0.39						0.068
	(1.23)						(0.39)
WORK LOAD		0.36			0.34	-0.15	
		(0.87)			(0.80)	(-0.67)	
PREP TIME			1.02		0.74	0.83	
			(1.40)		(1.05)	(1.16)	
NO COLLAB				-3.06*	-2.56*	-0.70	
				(-2.37)	(-2.16)	(-0.58)	
Avg Salary ($1000)						0.17**	0.17**
						(3.15)	(3.24)
Avg Experience						-0.60	-0.63
						(-1.04)	(-1.09)
Percent White Asian						0.069	0.067
						(1.01)	(1.00)

Table 9 (cont.)

Percent Proficient Math						-0.0072	-0.0039
						(-0.13)	(-0.07)
Enrollment Change						-0.0054	0.0058
						(-0.03)	(0.03)
Mean Centered Enrollment						-0.121	-0.095
						(-1.58)	(-1.42)
Enrollment Squared						9.45e-08	7.28e-08
						(1.53)	(1.40)
Fund Balance / Pupil ($1000)						0.0083	0.016
						(0.15)	(0.31)
Constant	87.94***	88.92***	90.14***	93.66***	90.20***	81.97***	81.30***
	(26.85)	(28.55)	(59.27)	(139.87)	(30.23)	(15.70)	(15.51)
N	99	99	99	99	99	98	98
R^2	0.008	0.005	0.013	0.021	0.033	0.141	0.126

Note. t statistics based on heteroskedasticity-robust standard errors in parentheses
$^{+}$ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

Chapter 5 - Discussion

Much has been made about the teacher shortage nationwide. While this narrative as it pertains to the teaching profession overall is, at best, incomplete and, at worst, misleading, there are significant shortages that persist. Much of the shortage seems to be targeted at districts with specific characteristics (e.g., a high percentage of low-income students), towards specific subjects (e.g., special education and computer science), or towards specific states (e.g., Florida and Mississippi). Illinois is no exception. The number of unfilled teaching positions per year has risen steadily since 2017 with the exception of 2021, but rose again in 2022 and to its highest level in 2023 of 3558, a 208% increase from the 2021 total of 1703 (Illinois State Board of Education, 2023).

There is extensive literature that shows working conditions are worth considering for their effects on teacher turnover. Large-scale teacher survey results have shown a few common themes have emerged in a teacher's decision to stay or leave a district, some of which can be bargained for as part of the collective bargaining process. As can be seen in my framework (Figure 1), collective bargaining in Illinois is a complicated process. The list of categories and bargaining topics found in Figure 1 is not meant to be exhaustive but provides a framework for how to consider working conditions and other factors that matter when considering the impact of the content of CBAs on teacher retention.

With unfilled teaching positions increasing, teacher retention is arguably more important now than it has ever been before. When considering how to decrease the number of unfilled teaching positions each year, attracting new teachers as well as keeping them from quitting are both important. When exploring teacher attrition, there is evidence that student demographics and standardized testing have an impact on teachers' decisions to stay or leave a district. These

results are two examples of hypotheses that are supported by data, but research is far from unambiguous and those factors are largely out of district control. The importance of teacher pay has also drawn significant attention and is supported by existing literature, but this only provides one option for districts and unions to bargain over when the literature shows there are more considerations for teachers when deciding whether to remain in a district, move to a new district, or leave the profession altogether. Although many bargainable contract provisions may come with a cost, bargaining for these changes might prove easier than simply increasing teacher pay (whether through merit pay, traditional raises, or some other direct cash incentive). Improving teacher working conditions provides districts with more options as part of the broader collective bargaining process. Additionally, focusing on teacher working conditions may escape public scrutiny and thus prove to be less controversial, as average teacher pay is a public record and is often scrutinized by the media.

Much of the existing literature on teacher job satisfaction and job change decisions, and thus many of its conclusions, are based on teacher survey data. This has led to research outcomes built upon teacher perception which are not always substantiated by actual teacher attrition rates. In my research, I utilize the results of this survey data to focus on contract provisions identified in teacher surveys as mattering in teacher decisions to stay or leave a district. I then partially address the gap in the literature by exploring recent contract data from high school districts in Illinois to shed light on the prevalence of the contract provisions identified in the survey data. Moreover, I compare the content of contracts with retention data to understand the consequences of incorporating working conditions provisions into the CBA.

My results provide some of the most detailed data based on the contents of actual high school contracts. By directly exploring virtually 100% of the contracts for high school districts in

Illinois, the potential biases associated with surveys (e.g., participation and nonresponse bias) are eliminated as I am able to determine the actual content of contracts in almost every Illinois high school district. Other studies have looked at contracts, but, to my knowledge, no study in at least the past 30 years has explored the contents of school district CBAs in Illinois, and studies in other states have generally not included many high school districts. In the only study I found, the author was exploring the contents of contracts of K-12 districts and not isolating for high school districts as I do in my study (Delaney, 1986).

My results show virtually no statistically or substantively significant relationship between the identified contract provisions and school district characteristics. Defined and protected teacher collaboration opportunities were an exception as these results were significantly related to district characteristics, with the exception of Fund Balance, when explored independently and when the significance level is adjusted to .1. These results are all very small and lose significance when explored together with other district characteristics. Also, when investigating these data, there was also a noticeable lack of extremes (e.g., contracts with zero or all provisions). This is interesting in that there is no obvious reason, laws or otherwise, that would preclude a district from having none of the provisions or all of the provisions. Half of the districts have between 7 and 10 total provisions and of the 99 high school districts explored in this study, all fell between 4 and 13 provisions (Table 4).

Additionally, my results show virtually no statistically or substantively significant relationship between the identified contract provisions and teacher retention. Defined and protected teacher collaboration opportunities were a small exception, as this provision rose to the level of statistical significance in my models. With that, this result loses significance and shrinks

substantially in magnitude when school district teacher and student demographic factors are considered.

When exploring the literature on working conditions that matter to teachers who are considering whether to stay in or leave a district, there are many factors that teachers may consider, and my study sought to capture the impact of one part (Figure 1). There are bargainable non-working conditions that have been identified but were excluded because they fell outside the scope of my work. Additionally, there were working conditions that are considered by teachers but are not bargainable, so they were also excluded from my study. My study was limited to bargainable working conditions and any impact their presence may have on teacher retention. According to the literature, these categories (non-bargainable working conditions, bargainable working conditions, and bargainable non-working conditions) work together and have psychological impacts that are not directly measured in my study, but come together as factors for a teacher's ultimate decision to stay in or leave a district.

There was a considerable amount of variation observed in which provisions were more likely to be in CBAs. Since these contract provisions were chosen based on the research on what teachers say are important factors when deciding to stay or leave a district, I would expect these variations to be related to teacher retention. I do not find these results. Also, the slightly negatively skewed distribution of the number of contract provisions present in CBAs (Figure 3), shows a greater likelihood of more than half of the possible contract provisions being present in a randomly selected contract, such that districts are slightly more likely to be above the mean number of total contract provisions. This was also not in line with my hypothesis that more provisions would lead to lower retention. With the teacher shortage that seems to be targeted to specific districts, districts that experience higher than average rates of attrition or have unfilled

teaching positions might have looked into these provisions as a way to attract and retain more teachers. Although my results do not support the inclusion or exclusion of these provisions, there are many other factors that should be considered (Figure 1) and I explore some important limitations to my work.

Limitations

One important limitation of my study is much of the bargaining process cannot be observed by the methods I employ. Document analysis is limited to the contents of the document being analyzed, so the results of this study are limited to the outcome of the bargaining process, but what happens during the bargaining process is not captured. There is no way of knowing if the unobserved factors are the most important ones, so my results cannot directly inform the bargaining process. An example of an unobserved yet important factor would be bargaining norms between the union and the administration. Any bargaining norms could dictate what the bargaining parties deem necessary to bargain over. More specifically, if it is always assumed that teachers will coach a sport if there is a need, there is no need to bargain that into the contract. If, instead, the culture amongst the union members shifts, and there is a need to compel teachers to coach, this may create the need to bargain over this provision that was not previously present. Also, there could be times when contract provisions are bargained for, but, as bargaining unfolds, it is mutually decided that certain items, although important to both parties, may need to wait until another time. These items may be paused but not forgotten as part of that larger bargaining process, and would not make it into the final CBA. Since most school district bargaining takes place in closed sessions, this would be a logical limitation if exploring my results for ways to inform the bargaining process.

Also, even with what I could observe, some teacher priorities are not bargainable and, thus cannot be captured in my study (Figure 1). As I stated previously, there is evidence that school leadership has the strongest correlation of any working condition to teacher retention (Allensworth et al., 2009; Boyd et al., 2011; Hirsch et al., 2007; Ladd, 2011). Although researchers do not have a common definition of leadership, it is identified as important to teachers, but it is not bargainable. Student achievement and student demographics are also mentioned in the research as relevant for teachers, neither of which are part of the bargaining process (Au, 2016; Good et al., 2003; Ladson-Billings, 2006; Lankford et al., 2002; Simon & Johnson, 2015). Also, professional and personal relationships between the faculty have been shown to impact teacher retention, but would not be measurable in my study (Allensworth et al., 2009; Borman & Dowling, 2008; Hirsch et al., 2007; Johnson et al., 2012; Simon & Johnson, 2015).

Additionally, institutional norms, like an invisible hand, steer the behaviors of the people who carry out work in school buildings (Kruse et al., 2009; McLaughlin & Talbert, 2001). Norms are particularly challenging in this research as they would not clearly be found in a CBA, but will impact a teacher's experience at their school. They may be different between districts, between schools in the same district, and be interpreted differently between teachers in the same school. The impact of building norms on teacher working conditions (e.g., informal collaboration) would be outside of the scope of my study but may informally show in the number of contract provisions that were present in the CBAs.

Since I coded for the presence of any contract provision to work against teacher retention, there may be a connection between an increase in the presence of contract provisions and the increase in the district norms that would be considered to negatively impact teacher working

conditions. Class size in some districts might be the norm because class sizes in the schools have fallen outside of the acceptable limit for either the administration or the union. Again, this is simply conjecture and well beyond the scope of my study.

When considering factors outside of the school walls that were not part of my study yet may be important, board policy stands out. This policy guides all operations of the school that are not superseded by any individual contract provision. These policies are influenced by state and federal laws and court rulings and are meant to reflect local community values. Board policy is part of the democratic process, with formal adoption only by the vote of the school board, while the CBA is a bilateral agreement that is later ratified (or rejected) by a board vote. Board policy items do not need to be part of the CBA process, and as long as these policies are not bargained for, the board policy stands to dictate much of a teacher's working conditions. If a board policy has become part of the CBA, the contents of the CBA will supersede the board policy unless it is against the law, thus making the associated working conditions bargainable.

Furthermore, one limitation I had not anticipated was the inability to utilize most of the continuous data I gathered for my study. During the initial qualitative document analysis, I captured and recorded nuanced explanations of how specific contract provisions would be enforced (i.e., specific amount of prep time afforded by the CBA) which resulted in capturing continuous data. These provisions did not appear across contracts in a uniform way (i.e., minutes vs. class periods). The lack of uniformity made it impossible to include these results in my study with one exception. Although not uniform, I was able to measure the presence of one continuous provision (specific hours or events that would count toward adjunct duties), make this binary, and include it in my results. Outside of this, the presence of unstandardized continuous data provisions was excluded.

Implications for Research

My study suffers from several limitations that must be acknowledged for their potential impact on future research. First, the lack of a standardization method to capture the nuances of the broader contract provisions was a significant limitation This information could add relevant context to any results, but the challenges of quantifying this data were beyond the scope of my study. Future researchers would benefit from exploring resources beyond the CBAs to add that missing context. For example, my study was based exclusively on the content of CBAs, but by adding resources outside of CBAs (e.g., bell schedules, school calendars, professional development agendas, etc.), the researcher may gain insight into how the contents of CBAs work in the day-to-day operation of the schools.

Also, teacher priorities that are not bargainable are still important. My study was limited to bargainable working conditions and isolated only to the final content of CBAs. Future research may be able to utilize other sources of information to capture teacher voices. For example, the data I collected could be combined with the results from the 5 Essentials survey; a rich data source for teacher voice when it comes to working conditions. The survey categories are; Effective Leaders, Collaborative Teachers, Supportive Environment, Involved Families, and Ambitious Instruction. Effective Leaders and Collaborative Teachers are directly mentioned in the literature and contracts were explored for the presence of defined and protected teacher collaboration time.

Finally, a building-level survey of teachers could provide nuance that I was unable to capture. For example, professional development was mentioned in the research but proved difficult to identify in the CBA. One thought is that some faculty meeting time is utilized for professional development but is placed under the broad term ‘faculty meeting’ and was counted as such in my

results. How faculty meeting time can be interpreted to include professional development speaks to the norms of the building and how the teacher and administrators work together to combine the results of the bargaining process with the realities of their day-to-day experiences. This type of building-level nuance may be a valuable addition to the data I have collected as part of my study.

Implications for Policy and Practice

Although I would be cautious about making too many claims due to the lack of statistically significant results and the limitations listed above, my research was able to yield a unique data set of the contents of high school contracts in Illinois. One use could be for district administrators to compare their data with that of like districts. I could imagine how exploring district data of a familiar nearby district (and potentially one which you are competing with for teachers) and comparing it to this data could provide both teachers and administrators insight into how the contents of the CBA can be leveraged in future contract negotiations. Teachers and administrators working in similar areas with similar student demographics may be interested in bargaining for similar working conditions.

Considering the high levels of attention that have been paid to the national teacher shortage, and the attention given to teacher workload, teacher pay, and teacher burnout, it is surprising that previous research has not explored the content of collective bargaining agreements for these categories previous to this study. Although my results were unable to provide evidence that the content of CBAs has a meaningful or substantive effect on teacher retention outside of teacher pay, that is not to say that teacher working conditions do not matter. The content of CBAs, although a relevant part of the broader teacher retention conversation, is only one part of a much bigger story. This data set, if broadened or coupled with additional survey information, may lead

to results that can inform what to include in future CBAs and how these directives need to be implemented inside of schools. Even modest improvement in teacher working conditions and teacher retention rates could have large aggregate benefits for teachers, students, and school districts, and this topic is worth further exploration.

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Appendix A

Provisions with Decisions Rules

CBA SPECIFIES THAT MEMBERS ARE EXPECTED TO PARTICIPATE IN ADJUNCT DUTIES?	**THE CBA REQUIRES TEACHERS TO PARTICIPATE IN FACULTY MEETINGS?**	**Max students per teacher?**	**THE CBA SPECIFIES A GIVEN LENGTH OF THE SCHOOL DAY IN INSTRUCTIONAL MINUTES OR HOURS?**	**How many minutes?**
Binary	Binary	Continuous	Binary	Continuous
Encouraged paid supervision counts as an expected adjunct duty	If teachers are not required to attend faculty meetings, I will not track time constraints on meetings.	Used # of Students per day vs per class (daily load)	Only counted if in minutes or hours can be found in the contract, not if merely a reference to periods taught	Changed weekly prep time minutes to a daily average given a 5 day week.
College recommendations and Junior Description Forms are required and compensated with personal leave time (on a point system)			Changed weekly instructional minutes to a daily average given a 5 day week.	
When supervision is prorated by work status (full/part), I will track based on full time status.				
Exclude non-tenured teachers, onboarding				
Whenever there are inconsistencies between schools, I go with the parameter that applies to most. If there is a even number of schools representing each parameter, go with the least favorable.				

If there could be a change in the contract that is not documented in the contract, and the change could not have been initiated until after fall of 2022, then I will accept current contents of contract				
When personal leave is not allowed during meeting time, code yes for 'attendance required'.				