THE EFFECT OF WORKLOAD FORMULAS TO MEASURE PART-TIME FACULTY WORK IN RESPONSE TO THE PATIENT PROTECTION AND AFFORDABLE CARE ACT

A dissertation submitted to Edgewood College Doctor of Education degree program in Educational Leadership in partial fulfillment of the requirements for the degree,

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Abstract

The Patient Protection and Affordable Care Act (PPACA, ACA) stipulates a full-time employee, defined as one who works an average at least 30 hours per week, merits a prescribed set of insurance benefits. Higher education institutions must determine whether a part-time employee meets the ACA definition of a full-time employee by calculating the average weekly working hours. Although challenges exist when defining and measuring academic instructional work, the purpose of this quantitative study was to examine the effect of various workload formulas as a means to measure the average weekly working hours of part-time faculty and to compare the results to the ACA definition of a full-time employee. The results, grounded in the Parametric Estimating Model framework, indicated that if the ACA was in effect in FY2013 several part-time faculty members met the ACA definition of full-time employee at one institution when utilizing workload formulas as a means to measure instructional work. The three common salient characteristics of these part-time faculty members include that they were either potentially loaded greater than 50% of a full-time faculty workload, reported excessive hourly-compensated work, or worked during the summer term. An organization risks the potential financial penalty of $2,000 annually for each full-time employee employed when an ACA defined full-time employee is not offered healthcare benefits. Therefore, the study recommends that the organization create methods to control and monitor hourly work and course assignments particularly of those offered in the summer term in order to avoid the risk of the ACA penalty or alternatively, provide access to healthcare coverage that meets the ACA requirements to its part-time employees. Part-time employees, including part-time faculty play a critical and important role for institutions of higher education.

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Dedication

This research work is dedicated to my family. I could not have completed this dissertation without the unwavering support from my family. First, I dedicate this study to my incredible husband, Joe Reimer, who served as my sounding board and my rock from beginning to the end. Here is to making new dreams come true together. I also wish to acknowledge my children, Lisa, Kyle, Emily and Abby Kornetzke and Tess, Claire and Laura Reimer who in so many ways stood by my side and provided encouragement. Finally, I dedicate this work to my parents, Dennis and Mary Heitman, who instilled in me a strong sense of work ethic and the belief that anything is possible. Thank you to my family's love and support, I can attest that anything is possible.

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Chapter 1. Introduction to the Study

The intent and the spirit of the Patient Protection and Affordable Care Act envisioned widespread access to affordable health care coverage (American Federation of Teachers, 2013). The Patient Protection and Affordable Care Act (PPACA, further referenced in this study as the Affordable Care Act, ACA, or the Act) stipulates full-time employees merit a prescribed set of insurance benefits for a limited cost (Moran, 2013). ACA defines a full-time employee as an individual who works an average 30 or more hours per week in a given time period. In addition, if an employer, with a minimum of 50 employees, does not provide health care insurance coverage to a full-time employee that employer may pay a penalty (U.S. Internal Revenue Services, 2014).

The implementation of the law has raised a number of questions specifically surrounding part-time faculty within higher education institutions. One of the key questions that administrators of colleges and universities ask is whether the law considers a part-time faculty member as a full-time employee under the definition of the ACA. To comply with the federal law, colleges and universities leaders must calculate the average weekly working hours of part-time faculty. Many colleges and universities typically compensate part-time faculty on a *per-course* or *per credit-hour* basis rather than on an hourly basis, leaving the colleges and universities administrators perplexed on how to quantify the number of hours (AAUP, 2013; Curtis & Thornoton, 2013). Exacerbating the challenge, part-time faculty members typically are not offered healthcare benefits and therefore uncertainty exists as to their eligibility for healthcare benefits under the Act (Lipkin, 2013).

The Affordable Care Act defines a full-time employee as one who works an average of 30 hours or more of service per week but the law does not indicate a method to tally the hours of

service (NEA, 2013). The ACA rules require each higher education institution to develop and use a *reasonable and consistent* method for crediting hours of service for part-time faculty members (American Federation of Teachers, 2013). Although the ACA provides no required process for an institution to deploy for measuring techniques, one challenge for each higher education institution organization is developing a reasonable and consistent method to measure the average weekly working hours of part-time faculty. Given the number and diverse nature of higher education institutions, the American Association of Community Colleges (2013) predicted that individual institutions would deploy different approaches for determining what was reasonable. Given the lack of guidance and variety of approaches, colleges and universities leaders ponder how to comply with the requirements of the Affordable Care Act and how to determine whether their part-time faculty members meet the definition of a full-time employee.

Statement of the Problem

The implementation and compliance of the ACA for higher education institutions presents several challenges for higher education institutions. Some of those challenges include: the inability to measure effectively part-time faculty average weekly hours of work, the uncertain definition of *work*, the unclear measurement period for calculating averages, and potential expense associated with a part-time faculty meeting the ACA full-time employee definition. Through reviewing the literature on the topic, I found that most institutions of higher education are struggling with these issues.

First, for higher education institutions, the inability to measure effectively the average labor hours of part-time faculty defines the fundamental challenge of the Affordable Care Act. The American Association of Community Colleges argued, “It is simply not viable to count, and document, the hours that adjunct/part-time faculty work during the measurement period” (Baime,

2012, p. 1). While classroom hours for in-person courses could be documented and measured, other duties that are essential for teaching, such as assessment, preparation, student contact or online work are difficult to quantify and can vary based on several factors such as academic level, academic subject, mode of instruction and quantity of academic support (American Association of Community Colleges, 2013). The Internal Revenue Service responsible for oversight agreed with the challenge and provided some proposed regulatory guidance. The IRS stated in their January 2013 Notice of Proposed Rulemaking that the *hour of service measurement* does not adequately accommodate all workplaces or sectors (U.S. Department of Treasury, IRS, 2013). While some institutions have contracts or other means that specify hours that part-time faculty members be expected to work, many do not (American Association of Community Colleges, 2013).

The second challenge for high education institutions relates to establishing a definition for faculty work. This challenge is not isolated to solely the implementation of the ACA; rather defining faculty work is a historic dilemma. In addition to the hours in the classroom, part-time faculties also provide assessments, advise students, prepare for courses, develop curriculum, and participate in college activities and meetings. While not unique to solely part-time faculty members, what is *work* is subject to the discretion and interpretation of the individual faculty member. For example, if a part-time faculty member who is at home is contemplating how to create a learning activity, is that considered *work hours*? Bentley and Kyvik (2012) commented that the methodological challenge to define faculty work stems from the inclusion of tasks that are unpaid voluntary service, tasks at the discretion of the individual, and the individual's interpretation of whether the task is working time.

The third issue with the ACA for higher education institutions relates to calculating the average number of hours per week based on the measurement period. Specifically, would the number of hours be prorated to 52 weeks per year or to the number of weeks for the traditional fall and spring semesters for part-time faculty? What about summer session or winter break? What about non-traditional schedules? In other words, the measurement period to determine the average number of hours per week for the part-time faculty member is dependent upon each institution's academic definition of a term and the individual course schedule.

Finally, higher education institutions will be subject to financial penalties for failure to provide affordable healthcare coverage that meets a minimum standard to employees working an average of 30 or more hours per week (Moore, 2014). Because of the challenges of measuring part-time faculty work, combined with the potential financial implications for not providing health care coverage, higher education institution leaders are reacting with proactive measures and realignments (Moore, 2014). Administrators of colleges and universities are responding by limiting the number of courses or departments that part-time faculty work in order to keep the average hours less than 30 hours per week (Engelhardt, 2013; Huckbee, 2012).

Given this inability to measure effectively part-time faculty average weekly hours of work, the uncertain definition of faculty work, variable measurement periods for calculating averages, and the expense associated with a part-time faculty meeting the ACA full-time employee definition, higher education institutions will need to develop a method to determine the average number of hours of service for part-time faculty. Based on the ACA, the measurement technique must be reasonable and consistent. Therefore, to address these issues facing higher education institutions, this study examined various measurement techniques to calculate the average weekly working hours of part-time faculty.

Background of the Study

The Affordable Care Act stipulates full-time employees merit a prescribed set of insurance benefits for a limited cost. The Act defines a full-time employee as an individual who works an average of 30 or more hours per week in a given time period. The inability to measure the average labor hours of part-time faculty defines a fundamental challenge of the Affordable Care Act for higher education institutions. This challenge becomes exacerbated with the increasing use of part-time faculty in recent years as further described in Chapter 2. In sum, the use of part-time faculty accelerated beginning in the 1970s with the slowing of enrollments, declining financial support, and the need for a flexible academic workforce (Gappa, Austin, & Trice, 2007). Between 1975 and 2011, the number of part-time faculty appointments increased by more than 300 percent (Curtis & Thornoton, 2013).

Given the historic ambiguity of work and definition, higher education institutions have traditionally utilized workload formulas to measure the equitable distribution of work for faculty. Institutions have developed models, commonly referred to as workload formulas, to allocate and monitor academic work for faculty members both full-time and part-time (Kenny, Fluck, & Jetson, 2012; Yuker, 1984). According to Bleything's 1982 research, although several workload formulas attempt to measure precisely faculty work, "only one conclusion seems to fully substantiate: the total faculty work cannot be simply described nor easily measured" (p. 18).

Types of Workload Formulas

From simple to complex, various workload formulas are deployed as a means to predict a total clock hour week for higher education faculty (Bleything, 1982). Bleything (1982) suggests the design of the workload formula must include those generally accepted faculty related activities, take into account appropriate weighting factors, and simultaneously be uncluttered as a

formula to ensure that users endorse its application. Workload formulas convert tasks and activities into a percentage, a point-value, or other unit of measure to weight and allocate academic work (Eagleton, 1977). While some workload formulas are dependent on a single variable, other workload formulas account for multiple factors and considerations.

One Variable Workload Formula

A commonly accepted workload formula is typically based on a course's classroom contact time with students. The Internal Revenue Service (IRS), which is responsible for regulation and oversight of reported work/pay, acknowledged that many education institutions do not track work hours for part-time faculty and provided some guidance regarding alternative methods for measuring hours (American Association of Community Colleges, 2013). The IRS offers a single factor multiplier to the course contact time as a measurement technique (U.S. Internal Revenue Services, 2014). Specifically, the IRS suggests that 2.25 factor to account for the work outside of the classroom be multiplied by the course contact time as a measurement technique of part-time faculty work. For example, if a part-time faculty taught a 3-hour per week course, the IRS believes that that individual worked 6.75, the 3 hours per week multiplied by 2.25. Through review of the literature, no evidence was found to support the 2.25 factor as a common workload formula used to measure faculty work in higher education institutions. In the next section, the one-variable formula will be compared to a multi-variable workload formula.

Multi-Variable Workload Formula

The multi-variable workload formulas attempt to take into account more considerations than solely the contact hours of the course. These complex formulas provide for the inclusion of multiple variables such as type of course, contact class hours, duplicate courses, and number of students (Bleything, 1982). Many higher education institutions utilize complex workload

formulas with multiple variables to measure faculty work (Stringer, MacGregor, & Watson, 2009).

In general, there is no perfect model to measure part-time faculty work. Wacker, Hershauer, Walsh, and Shue stated that formulas lacked a qualitative perspective especially for work requiring creativity, innovation, and pioneering approaches, which are attributes of faculty work (2014). As a result, for the faculty profession, the challenge persists when attempting to quantify and measure this knowledge-based work.

Purpose of the Study

The purpose of this study was to examine the effect of applying various workload formulas to measure the average weekly working hours of part-time faculty and compare the results to the Affordable Care Act definition of a full-time employee. This study utilized a variety of measurement techniques to tally the hours of work of part-time faculty as required of higher education institutions by the new Patient Protection & Affordable Care Act. Based on the results of the study, with the use of the workload formulas as measurement techniques of part-time faculty work, higher education institutions can predict and assess the potential impact of a part-time faculty member meeting the ACA definition of a full-time employee.

Research Questions

The primary research question for this study is as follows: How do workload models as a measurement technique affect the number of part-time faculty considered as full-time employees as defined by the Affordable Care Act. The secondary research questions are as follows:

Q1: Specifically, if the Affordable Care Act was in effect in FY2013, how many part-time faculty members worked an average of 30 or more hours per week by

utilizing a multi-variable workload model as reasonable and consistent method to measure at one Midwestern community college?

Q2: How many part-time faculty members worked an average of 30 or more hours per week by utilizing the 2.25 factor recently suggested by the IRS?

Q3: What is the correlation between the results of the multi-variable method to measure the instructional work associated with a course compared to the contact time of the course?

Q4: By applying the multiple variable workload formula to a course, does a single factor exist that can be applied to the course contact time that can reasonably estimate the average number of hours per week that a part-time faculty works related to that course?

Significance of the Research

The Affordable Care Act affects all higher institutions that utilize part-time faculties; therefore, the impact potentially reaches all U.S. colleges and universities. To comply with the law, college and university staff members must calculate the average weekly working hours of part-time faculty. The inability to measure the average labor hours of part-time faculty defines the fundamental challenge of the Affordable Care Act for higher education institutions. Failure to offer healthcare benefits to full-time employees may lead to financial penalties and uncertainty exists as to whether a part-time faculty is considered full-time under the definition of ACA. This study analyzed the various workload formulas as a measurement technique to assist higher institutions comply with the ACA requirements. Three main benefits are expected from this research study.

First, without a methodology to measure part-time work, weekly hours of part-time faculty work could be under-estimated which would reduce the probability of a part-time faculty member meeting the definition of a full-time employee under the Act and therefore limit a part-time faculty member's access to affordable health care insurance. On the contrary, over-estimating the workweek of part-time faculty could result in the higher education organization realizing part-time faculty meet the definition of a full-time employee and therefore restrict the number of courses a part-time faculty teaches in order to manage the organization's healthcare expenses. The challenge of estimating average work hours per week as either too high or too low describes two diametric and opposing points of view, the perspective of the institution managing costs, and the perspective of the part-time faculty member desiring access to affordable health care insurance. Therefore, as an expected outcome, this study developed reasonable and consistent measurement techniques to ensure compliance to the ACA and equity in the application of a workload model.

Second, a gap in literature regarding measuring part-time work exists. Many studies focus on measuring full-time faculty work and productivity of scholarly research. Many studies looking at student outcomes related to part-time faculty exist but few studies focus on measuring part-time faculty work. Therefore, the study added to the body of literature.

The third benefit of this study is the testing of the application of workload formulas as a reasonable and consistent measurement tool. A plethora of researchers and studies support the development of mathematical measurement techniques to determine the work of faculty. Although many of the studies focus on full-time faculty, very few address the measurement techniques for part-time faculty. This study tested the application in a new and innovative way

serving as a framework for predicting the potential impact and factors related to a part-time faculty member meeting the ACA definition of a full-time employee.

The Theoretical Frameworks-Equity Theory and Parametric Estimating Models

Two theories served as the framework for this study. First, the foundational theoretical framework, the Equity Theory of Motivation developed by Adams postulates that employee motivation is dependent upon the individual's view of his or her outcomes to inputs (effort and skills) relative to others (Adams & Rosenbaum, 1962). In general, an individual is motivated when their work contributions are equitable as compared to others (Adams & Rosenbaum, 1962). In order to ensure equitable work, the second foundational framework served the need to quantify the work to confirm work is distributed equitably relative to others. Therefore, the second theoretical framework of this study was the Parametric Estimation Model. A parametric estimating model represents a mathematical relationship that provides a logical and predictable correlation between independent variables (input) and the output (Dysert, 2008). Specifically, applying these two theories to this study, faculty motivation and satisfaction stems from the Theory of Equity, which relates to faculty work being distributed equitably. Secondly, in order to demonstrate equity, faculty workload was measured by utilizing the Parametric Estimation Models commonly referred to as workload formulas.

Definition of Terms

Part-time Faculty

For the purpose of this study, part-time faculty include temporary faculty, who are individuals with limited-term appointments and receive no health benefits. Common designations include adjunct, contingent, contract, expendable academics, lecturer, instructor, non-tenure track (Lawrence & Galle, 2011). The American Federation of Teachers refers to

part-time faculty as *contingent* faculty (American Federation of Teachers, 2013). Referencing the Affordable Care Act, part-time faculty members are identified as variable-hour employees (Moran, 2013).

Faculty Workload

In 1996, Allen defined faculty workload as how much a faculty member has to do and this work is measured by the total amount of time per week faculty members devoted to teaching, research, administration, and public service (Boyer, Butner, & Smith, 2007). For the purpose of this study, faculty workload included the sum of all activities that take the time of a higher education faculty member, which related either directly or indirectly to the professional duties, responsibilities, and interests (Bleything, 1982; Yuker, 1984). These definitions are sufficiently broad to encompass the myriad tasks of faculty work (Boyer et al., 2007).

Summary

The Affordable Care Act stipulates full-time employees merit a prescribed set of insurance benefits for a limited cost. The ACA defines a full-time employee as an individual who works an average of 30 or more hours per week in a given time period. Part-time faculty members are often compensated on a per-course or non-hourly basis for instructional work. As a result, it is necessary to estimate the hours per week associated with the instructional work in order to determine if a part-time faculty member meets the ACA definition of a full-time employee and should be eligible for healthcare benefits. The inability to measure effectively the average labor hours of part-time faculty defines a fundamental challenge of the ACA for higher education institution leaders. Therefore, the purpose of this study was to examine the effect of applying various workload formulas to measure the average weekly working hours of part-time

faculty and compare the results to the Affordable Care Act definition of a full-time employee. Workload formulas were used as a means to estimate the number of work hours associated with an instructional course that was compensated on a per-course basis. Two types of workload formulas were explored: a single variable and a multi-variable formula.

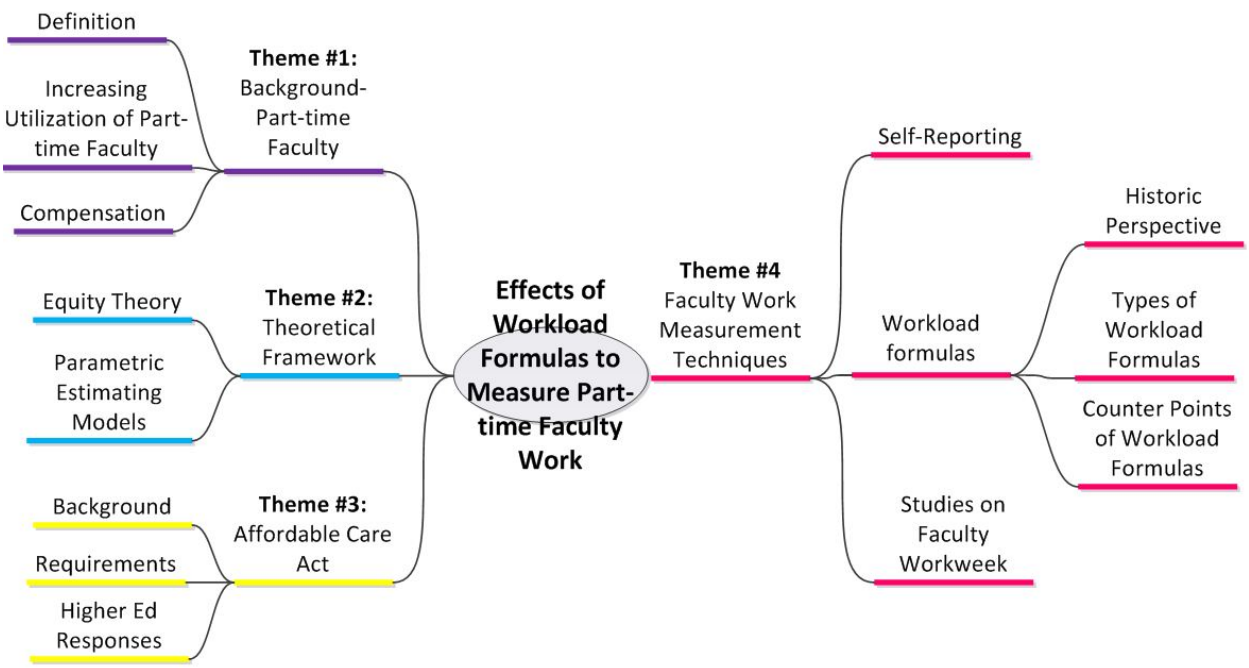
In order to address the research question about how workload formulas as a measurement technique affect the number of part-time faculty considered as full-time employees as defined by the Affordable Care Act, Chapter 2 provides a review of existing scholarly literature categorized into four major themes. The four major themes include the background of part-time faculty, the theoretical frameworks, the Affordable Care Act, and measurement techniques of faculty work.

Chapter 2. Review of Literature

The purpose of this study was to examine the effect of applying various workload formulas to measure the average weekly working hours of part-time faculty and to compare the results to the Affordable Care Act definition of a full-time employee. Workload formulas were utilized as a means to estimate the number of work hours associated with instruction that was compensated on a non-hourly basis. Frequently, part-time faculties are compensated for teaching based on a *per-course*, non-hourly basis. Part-time faculty members may be employed for additional assignments or other work duties for the organization, which may be compensated on an hourly basis. The total work of part-time faculty is the sum of the hourly and the instructional per-course work. Therefore, the purpose of this study was to examine the effect of applying various workload formulas to measure the average weekly working hours of part-time faculty and compare the results to the Affordable Care Act definition of a full-time employee.

Based on the literature, very few researchers have conducted studies regarding the number of hours per week of part-time faculty work and few have created mathematical models to estimate those part-time hours. In order to address the primary research question: How do workload formulas as a measurement technique affect the number of part-time faculty considered as full-time employees as defined by the Affordable Care Act, the literature was mapped and categorized into four themes. Four main themes including Background on Part-time Faculty, Theoretical Framework, The Affordable Care Act, and Faculty Work Measurement Techniques served as the major contextual areas highlighted in the literature review. Figure 1 contains the literature map, an illustrative model that shows the four major themes and the interconnected sub-topic areas used in this study.

Figure 1. Literature Map



Note: The Literature Map illustrates the connections of the four major themes related to the research topic, entitled The Effects of Workload Formulas to Measure Part-time Faculty Work in Response to the Patient Protection and Affordable Care Act.

Figure 1 as the literature map provided a guide to the contextual background for this study. The first theme provided the contextual background regarding part-time faculty within higher education institutions.

Theme 1: Background of Part-time Faculty

Defining part-time faculty.

For the purpose of this study, part-time faculty include temporary faculty, who are individuals with limited-term appointments and receive no health benefits. Common designations include adjunct, contingent, contract, expendable academics, lecturer, instructor, non-tenure track (Lawrence & Galle, 2011). The American Federation of Teachers refers to part-time faculty as contingent faculty (American Federation of Teachers, 2013). Referencing

the Affordable Care Act, part-time faculty members are identified as variable-hour employees (Moran, 2013).

Increasing utilization of part-time faculty.

The use of part-time faculty accelerated beginning in the 1970s with the slowing of enrollments, declining financial support, and the need for a flexible academic workforce (Curtis & Thornoton, 2013; Dedman & Pearch, 2004; Doe, et al., 2001;Gappa, Austin, & Trice, 2007). In 1970, 20 percent of faculty members were part-time and 80 percent were full-time (Gappa, Austin, & Trice, 2007). Between 1975 and 2011, the number of part-time faculty appointments increased by more than 300 percent (Curtis & Thornoton, 2013). Several authors supported the increasing use of part-time faculty due the application of their real-world experience in the academic environment, while others possessed contrary points of view based on the systemic institutionalizing of low pay and status. In response to criticism over the use of part-time faculty, Dennison (2012) argued the value of part-time faculty. Dennison stated, "a certain number of instructors appointed solely to teach enable the intuition to make use of people in the community with expertise who decline full-time appointments…or have no interest in research and other academic assignments" (2012, p. 300) rather than to increase the size of the regular faculty. Contrary to Dennison's view, Dedman and Pearch (2004) stated:

> Adjunct professors are seen as a reserve migrant work force to employ as needed, usually on a moment's notice. They (part-time faculty) have become the scapegoats of higher education-a cheap labor pool. The typical adjunct easily spends 60 hours a week at preparation, planning, teaching, and grading for fees that amount to something less than a living wage. (p. 28)

As Doe et al. (2001) stated, “What was once a stopgap response to a short-term labor problem is now a fully entrenched system of multi-tier faculty roles” (p. 429) essentially differentiating the role of full-time and part-time faculty members.

Compensation.

The *2012-2013 Annual Report on the Economic Status of the Profession* confirmed that part-time faculties typically are paid based on a *per-course* basis with the national median rate for a three-credit course at $2,700 (Curtis & Thornoton, 2013). In most cases, these part-time positions are not offered benefits (Curtis & Thornoton, 2013). For higher education institutions, the lower rate of pay as compared to full-time faculty and the lack of benefit costs resulted in a substantial savings at a time of increasing financial pressures (Dedman & Pearch, 2004). Dedman and Pearch (2004) claimed regarding part-time faculty members, “There are often no benefits, no job security, no office space, and no guarantee of future work…There may be little or no preparation time for teaching a course” (p. 24). As a result, whether or not part-time faculty are eligible for healthcare benefits under the Affordable Care Act becomes increasingly important in addition to concerns over advancement, salary equity, career ladders, etc. The understanding and clarifying the roles of part-time faculty in teaching, research, service, outreach, and administration is critical for analyzing the work of part-time faculty (Doe et al., 2001).

Defining instructor work.

In a qualitative study, Doe et al. (2001) concluded that part-time faculties increasingly participate in virtually all aspects of faculty work. Generally, faculty work is traditionally categorized in three activities: instruction, scholarship, and service. Scholarship often refers to research. Service falls into two sub-categories: institutional and professional. Institutional

service includes administrative tasks, committee work, and student advising, while professional service refers to work completed in support on one's academic discipline (Stringer, MacGregor, & Watson, 2009). For the purpose of this study, the definitions of faculty teaching, research/scholarship, and service developed by the Joint Commission of Accountability Reporting (JCAR) served as the foundation. JCAR, a collaborative effort of three major higher education associations included the National Association of State Universities and Land Grand Colleges, the American Association of State Colleges and Universities, and the American Association of Community Colleges (Townsend & Rosser, 2007). Although these definitions are not comprehensive, the general constructs provide more structure for analysis.

Teaching

The Joint Commission of Accountability Reporting (JCAR), formed in 1996 defined teaching as the direct and supporting activities as part of the teaching-learning process. Direct activities included class contact time for lectures, clinical, internships and laboratory work, while support activities included class preparation, assessments, curriculum development, academic and career advising (Middaugh, 2001). While JCAR included professional development as part of teaching, many other definitions included faculty professional development as part of scholarship or service. For the purpose of this study, faculty professional development was included in research or scholarship.

Research or Scholarship

JCAR definition of research or scholarship included a variety of activities including conducting scholarly research, creating artistic works, books or articles, developing grant proposals and attending professional development essential to keeping current and relevant.

Service

Often the term, *service* was used as a default category if the faculty activity did not fit as teaching or research/scholarship (Blackburn & Lawrence, 1995). Service included both internal work such as recruitment, committee work, and department administration and external activities including public service, promotional activities, and academic association work (Middaugh, 2001).

Within the last half of the twentieth century, the work of the part-time faculty has grown and has become increasingly more diverse than solely instructional work (Gappa, Austin, & Trice, 2007). Doe et al. (2001) concluded that part-time faculties increasingly participate in virtually all aspects of faculty work including research/scholarship and service.

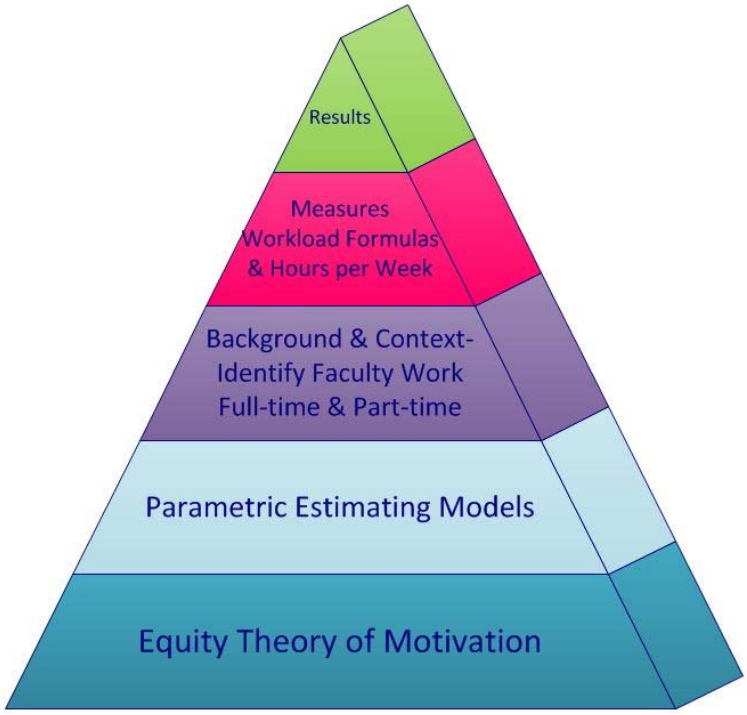
Theme 1 of the literature review highlighted key findings related to the background of part-time faculty. Highlights included the rise and importance of part-time faculty in higher education institutions and the definition of part-time faculty and faculty work. The second theme focused on the theoretical framework of this study.

Theme 2: Theoretical Frameworks

Two foundational theories served as the framework of this study. First, the foundational theoretical framework, the Equity Theory of Motivation developed postulates that employee motivation is a dependent on the individual's view of their outcomes to inputs (effort and skills) relative to others (Adams & Rosenbaum, 1962). In general, an individual is motivated when one's work contributions are equitable as compared to others (Adams & Rosenbaum, 1962). In order to ensure equitable work, the second foundational framework served the need to quantify the work to confirm work is distributed equitably relative to others. Therefore, the second theoretical framework of this study was the Parametric Estimation Model. A parametric

estimating model represents a mathematical relationship that provides a logical and predictable correlation between independent variables (input) and the output (Dysert, 2008). Specifically, applying these two theories to this study, faculty motivation and satisfaction stems from the Theory of Equity, which related to faculty work being distributed equitably. Secondly, in order to demonstrate equity, faculty workload was measured by utilizing the Parametric Estimation Models commonly referred to as *workload formulas*. The following illustration, Figure 2, shows the theoretical integration and contextual relationships utilized within this study.

Figure 2. Theoretical Framework- The Research Building Blocks



Note: The theoretical framework of this research study illustration depicts the stackable theories and contexts.

Figure 2 shows the Equity Theory of Motivation as the grounding theoretical framework. Given the Equity Theory as the foundation, the Parametric Estimating Models represent the second layer and served as the theoretical method to measure the equitable distribution of work.

Background and context of faculty work supported the theoretical foundation, which led to measures, formulas, and results of this study. The Equity Theory of Motivation served as the theoretical and grounding foundation.

Equity Theory of Motivation.

In the 1960s, Adams developed the Equity Theory of Motivation, also known as the Distributive Justice Theory, based on the premise that an individual's motivation is affected by his or her perception of being treated fairly in comparison to others (Al-Zawahred & Al-Madi, 2012; Cowherd & Levine, 1992). Adams and Rosenbaum (1962) concluded that an individual would be motivated when he or she perceived the level of input, such as effort and skills to reward, was equal to his or her perception of others' inputs and rewards. Therefore, equity exists when the individual perceives justice and fairness, whereas inequity occurs when the individual perceives injustice and unfairness. Al-Zawahred and Al-Madi (2012) postulated:

> One of the reasons why justice in the workplace is so important is that employees need to feel that they have some control over their future with their employer. An unfair system is one in which as a lack of predictability, so that arbitrary decisions are made and employees fear victimization. Unfair systems undermine the employees believe (*sic*) that efforts will result in valid outcomes. (p. 167)

Focusing on organizational types, Al-Zawahred and Al-Madi (2012) concluded that employees would feel a greater sense of job satisfaction and motivation when the perception of equity, fairness, and justice within the organization exists and this culture leads to greater organizational effectiveness. This Equity Theory applies to faculty members within higher education.

Adams' Equity Theory applies to higher education institutions related to faculty workload, theoretically defined as the individual's input. Faculty members perceive workload equity as a major factor related to job satisfaction (Durham, Merritt, & Sorrell, 2007). Street (2009) stated, "Equity can help close those gaps by rewarding all faculty members equivalently, in proportion to a full and fair assessment of their actual contributions" (p. 143). The Voignier, Hermann, and Brouse study (as cited in Durham, Merritt, & Sorrell, 2007) concluded, "That the development of a teaching workload formula improved faculty's perception of their workload as *more equitable and manageable*" (p. 185). Bleything (1982) agreed and concluded:

> Aside from essential managerial information realized from faculty load studies, there exist two underlying fundamental principles. First, equity is important, particularly equity among individual faculty members, among departments and among institutions; and that there is a relationship between workload and the quality of education. (p. 22)

Agreeing with Bleything, Quarshie-Smith and Watson (2000) concluded regarding specifically two-year community colleges, "Faculty working conditions do have a very direct impact on students, and …policy planners in community colleges do need to examine the political ramifications of the unequal opportunities that heavy teaching loads create for two-year college students" (p. 101).

Frequently cited researchers, Bellas and Toutkoushian (1999) stated, "Teaching and service loads should be equitably distributed within and among departments. Equity encompasses not only number of courses, but the number of course preparations, frequency of new courses, number of students" (p. 384) and consideration of other academic support. Bellas and Toutkoushian argued that the level of labor intensity varies based on level of course, course content that changes regularly and type of evaluation assessments. In addition, they contended

that equity in service must extend beyond solely counting the number of committees. Bellas and Toutkoushian concluded that administrators assigning faculty work need to take a comprehensive evaluation of the workload distribution to ensure that equity exists. Therefore, the theory of equity grounded this research and fostered the need for a methodology to measure work based on multiple inputs, building to the second level of theoretical framework, referring to Figure 2.

Parametric estimation models.

For this research study, the Equity Theory, as a grounding theoretical model, called for a need to measure equitably faculty workload. As a result, building upon the Equity Theory was the Parametric Estimation Models. A parametric estimating model represents a mathematical relationship that provides a logical and predictable correlation between independent variables and the output (Dysert, 2008). Dysert asserts that parametric estimating is objective in that the "parametric models require quantitative inputs that are linked to algorithms providing quantitative outputs" (2008, p. 1). The parametric estimation algorithms include either linear or non-linear relationships. Equation 1 provides the mathematical relationship of the Parametric Estimating Model.

Equation 1. Parametric Estimating Models

$$Output = a + bV_1 + cV_2 + \cdots$$

Linear Relationship

$$Output = a + bV1_1^x + cV_2^y + \cdots$$

Non-Linear Relationship

Where V_1 and V_2 are input variables; a, b, and c are constant coefficients; and x and y are exponents (Dysert, 2008).

Since 1919, higher education institutions have attempted to measure faculty work utilizing workload formulas based on parametric estimation models. Input variables often include course contact time, number of students, course level as Bellas and Toutkoushian (1999) recommended.

Objective measurement of faculty workload is a difficult task due to the challenges of measuring output and input variables (Ghobadian & Husband, 1990). In Sonmez's (2008) study of parametric and probabilistic estimation techniques, two major challenges of parametric estimation included the challenge of estimation the coefficients and the statistical analysis to determine the correlations (Sonmex, 2008). Ghobadian and Husband (1990) summarized the challenges:

- It is difficult to identify the inputs directly expended in the production of outputs.
- It is difficult to convert the wide variety of different inputs into a common unit of measurement and derive a single value for the inputs expended.
- It is difficult to recognize and take into account the qualitative changes inputs.
- It is difficult to keep input and output measurements unbiased and independent. (p. 1436)

Within this study, the application of Parametric Estimation Models was the grounding theoretical framework utilized to measure the work of faculty. The Parametric Estimation Models for measuring faculty work distribution supports the Theory of Equity in which faculty are productive and motivated when the perception of work distribution is fair. To this end, researchers studied and higher education institutions have developed several parametric estimation models to measure faculty work. This connection of the Theory of Equity linked with

Parametric Estimation Models served as the framework to measure part-time faculty work as required by the Affordable Care Act.

The contextual themes of Background of Part-time Faculty and the Theoretical Framework led to the third theme, which is the Affordable Care Act. This theme served as the foundation to address the primary research question: How do workload formulas, as a measurement technique affect the number of part-time faculty considered as full-time employees as defined by the Affordable Care Act?

Theme 3: The Affordable Care Act

The third theme focused on the background, requirements, and responses from higher education institutions related to the Affordable Care Act. In general, the ACA stipulates full-time employees merit a prescribed set of insurance benefits for a limited cost (Moran, 2013). ACA defines a full-time employee as an individual who works an average 30 or more hours per week in a given time period. Understanding the historical background provides context within this study.

Background.

Historically, United States has been the only industrialized county without universal health care coverage despite several political initiatives (Maniam, Black, & Leavell, 2013). The historical background to the development of the Affordable Care Act began in 1912 when President Theodore Roosevelt proposed health care for industry, when the term "socialized medicine" was first coined (Maniam et al., 2013). During the Great Depression, unemployment was high, medical costs were rising and sickness became a leading cause of poverty (Maniam et al., 2013). Like President Roosevelt, President Truman, after World War II, again attempted to ensure that all Americans had access to medical care; however, the American Medical

Association (AMA) fought this effort (Maniam et al., 2013). In the 1960s, President Lyndon Johnson succeeded with the implementation of Medicare and Medicaid, which provided medical funding for people over 65 and low-income groups (Maniam et al., 2013). Since Johnson's effort, Nixon and Clinton both failed at introducing universal medical coverage or any health care reform. From 2001 to 2005, the number of employees in private sector jobs with health coverage decreased by over 4 million (Skiba & Rosenberg, 2011). During this time, President George W. Bush was successful with the passing of a prescription drug benefit added to Medicare to improve access to healthcare (Maniam et al., 2013).

Skiba and Rosenberg (2011) reported, "Complex times call for complex measures. Without question, the cost of healthcare in the U.S. increasingly is having far-reaching consequences for workers" (p.11). Under President Obama, the Patient Protection and Affordable Care Act, H.R. 3590, a 989-page document, was signed into law on March 23, 2010, and was intended to provide affordable health insurance coverage to more Americans, thereby increasing access to health care (Maniam et al., 2013; AAUP, 2013). The Affordable Care Act has affected small businesses and private companies; however, there are additional challenges for institutions of higher education. What are the requirements of the Affordable Care Act and how does it affect higher education institutions?

Affordable Care Act requirements.

The Affordable Care Act stipulates full-time employees merit a prescribed set of insurance benefits for a limited cost. The Act defines a full-time employee as an individual who works an average 30 or more hours per week in a given time period. The Act levies a penalty to employers who do not comply (American Federation of Teachers, 2013). This researcher developed an illustration to depict the conditions in which an employee is eligible for healthcare

benefits. Figure 3 describes the three conditions in which an employer would be subject to an ACA penalty.

Figure 3. Conditions in which a Free Rider Penalty Applies

Note. This researcher created the Venn diagram to describe the conditions in which an employer would be subject to a financial penalty for failure to provide affordable health coverage that meets a minimum value for an employee.

Regarding Figure 3, the Act applies only if an organization has 50 or more full-time equivalent employees during a year. Referring to Figure 3, this condition is the Blue Zone. Second, the Act applies to individuals working an average of 30 hours or more per week and do not receive health insurance benefits. Referring to Figure 3, this condition is the Orange Zone. Third, the Act applies when a full-time employee that is not provided health insurance is eligible and purchases subsidized health insurance coverage through an exchange, also known as marketplace. The exchange/marketplace is the publically funded healthcare insurance. Referring to Figure 3, this is the Green Zone. The intersection of the three conditions is referred

to the Penalty Zone within this research paper. If the full-time employee is eligible and purchases subsidized health insurance within the exchange/marketplace, the employer with 50 or more full-time employees would pay a free rider penalty also known as *play or pay penalty* (Moore, 2014). Figure 3 denotes the intersection of the three conditions. The question for higher education institutions is determining who is in the Orange Zone. Specifically, does a part-time faculty, who typically is not offered healthcare insurance, work an average of 30 or more per week?

Referring to Figure 3, the financial penalties can be large if all three conditions are met. Two types of financial penalties may be assessed. One type of penalty occurs when the employer fails to offer healthcare coverage to 5% or more of the full-time employees and at least one full-time employee qualify for subsidized healthcare insurance. In this case, the employer would pay $2000 per full-time employee (U.S. Department of Treasury, IRS, 2013). For example, if an institution has 1000 full-time employees and 50 or more full-time employees do not receive healthcare benefits and at least one qualifies for subsidized healthcare insurance, the institution would be subject to an annual fine for $2 million (1000 employees multiplied by $2000). The second type of penalty occurs when a full-time employee receives subsidizes health insurance coverage through the exchange/marketplace. The institution would receive a $3,000 penalty for each full-time employee receiving subsidized health coverage (Gallagher Benefit Services, Inc., 2013). These penalties associated with the Affordable Care Act would be difficult for any college or university to predict and to plan for within their budgets. Referring to Figure 3, what are potential solutions for higher education institutions to determine who is in the Orange Zone and to predict what their exposure would be for the penalty?

Higher education responses to the Affordable Care Act.

Due to the uncertainty on how to measure part-time faculty work hours, given that many part-time faculty are compensated on a per-course basis, many higher education institutions are responding to the Affordable Care Act by setting limits on the quantity of work for the part-time employee. A headline in *The Chronicle of Higher Education* reads, "College Cuts Part-time Adjuncts' Hours to Avoid Provisions of Health-Care Law" as it describes the Community College of Allegheny County's policy to limit part-time faculty from 12 to 10 credits per semester (Huckabee, 2012). While another headline in the *Northwest Herald* reads, "McHenry County College Adjunct Faculty Worried about Health Care Law Changes" as the college set to limit adjunct faculty to 12 credit-hour course per semester and restrict the individual part-time faculty member to a single department (Engelhardt, 2013). While these efforts may reduce the amount of instructional assignments and contact time in the classroom, these measures may not affect the amount of work done outside of the classroom.

While Theme 1 focused on part-time faculty and defining instructor work and Theme 2 highlighted the theoretical framework of equity theory and parametric estimating models, Theme 3 provided the history, requirements, and responses from higher education institutions related to the Affordable Care Act. To comply with the law, colleges and universities must calculate the average weekly working hours of part-time faculty. Colleges and universities typically compensate part-time faculty on a per-course or per credit-hour basis rather than on an hourly basis (AAUP, 2013), leaving the colleges and universities perplexed on how to quantify the number of hours. Exacerbating the challenge, part-time faculty members typically are not offered healthcare benefits and therefore uncertainty exists as to their eligibility for healthcare benefits under the Act (Lipkin, 2013).

The proposed rules require employers to use a reasonable and consistent method for crediting hours of service for part-time faculty members (American Federation of Teachers, 2013). Therefore, the challenge for higher education institution leaders is developing a reasonable and consistent method for measuring the average weekly working hours of part-time faculty. This led to the fourth theme: Faculty Work Measurement Techniques.

Theme 4: Faculty Work Measurement Techniques

Given the increasing number of part-time faculty in higher education institutions, grounded in the theoretical framework of equity theory of motivation and the requirements of the Affordable Care Act, higher education institutions need to develop measurement techniques to measure part-time faculty work. Three critical concepts are addressed to support the faculty-work measurement techniques: challenges of self-reporting data, workload formulas as measurement techniques and studies regarding faculty weekly work hours.

Challenges of self-reporting data.

Several studies warn about the use of self-reporting time data. As background, higher education institutions compensate part-time faculty typically on a *per-course* basis and therefore typically no log of labor hours are required for payroll purposes. Mayes (1998) warns that self-reported time data was not a reliable source for analysis. The challenge of part-time faculty self-reporting was based on the inconsistent inclusion of tasks that are at discretion of the individual to consider this as working time. The potential problems of gathering self-reported estimates of time was based on the myriad definitions and concepts of *time worked*, *time for work*, *contractual time* and *time paid* (Robinson & Bostrom, 1994). From a historic perspective, Stecklein (1961) proposed "that it is not possible for a faculty member to recall exactly what he has done during a certain period of time, or to allocate his time accurately among the various

activities that he does each day" (p. 4). Robinson and Bostrom (1994) found systematic and statistically significant deviations from an individual's estimated number of hours of work in a week compared to the actual time devoted to work that were logged in time diaries.

Confirming Robinson and Bostrom's work, the reliance on self-reported measures of working time raised several methodological challenges (Bentley & Kyvik, 2012). First, self-reporting estimates of typical working hours were subject to errors of recall (Bentley & Kyvik, 2012; Kyvik, 2013). Bentley and Kyvik (2012) discovered that self-estimates of typical working hours have been found to over-represent working time for those reporting greater number of hours and at the same time under-represent actual working hours for those reporting fewer hours. As a result, self-reported hours will be always subject to greater error at the upper and lower extremes (Bentley & Kyvik, 2012). Secondly, the problem of separating work activities into the specific task category was a methodological challenge and therefore tasks and activities require consistent definitions (Bentley & Kyvik, 2012; Kyvik, 2013). Confirming Bentley and Kyvik, regarding the quantifying of faculty work, the Wisconsin Legislative Audit Bureau in Report No. 93-15 stated, "Confidence in self-reported information was so low that (other state) reports concluded additional information was required… and expressed concern regarding its reliability" (Wisconsin Legislative Audit Bureau, 1993, p. 11). Because of findings regarding self-reporting, this study did not evaluate self-reporting time data as a measurement technique of part-time faculty work. Rather, this study utilized workload formulas as a reasonable and consistent method to measure part-time faculty work.

Workload formulas as reasonable and consistent methods.

Given the ambiguity of work and definition, higher education institutions have historically utilized workload formulas to measure the equitable distribution of work for faculty.

Institutions have developed models, commonly referred to as workload formulas, to allocate and monitor academic work (Kenny, Fluck, & Jetson, 2012). The purpose of this study was to examine the effect of applying various workload formulas to measure the average weekly working hours of part-time faculty and to compare the results to the Affordable Care Act definition of a full-time employee. Workload formulas were used as a means to estimate the number of work hours associated with an instructional course that was compensated on a per-course basis. Various workload formulas have been proposed as a means to predict a total clock hour week for higher education faculty (Bleything, 1982). Bleything (1982) suggested that the design of the workload formula must include those generally accepted faculty related activities, take into account appropriate weighting factors, and simultaneously be sufficiently uncluttered as a formula that users endorse its use. Durham et al. case study concluded, "No workload formula can ensure equity for all faculty members" (2007, p. 188).

Mayes, in his 1998 study of the University of Kentucky Community College System, claimed, "The work of faculty has historically been difficult to assess" (p. 145). Mayes (1998) argued that higher education institutions must be able to measure the work of faculty in order "to assess the degree to which it is meeting its mission and goals" (p. 145). Mayes argued that data generated from faculty workload analysis could benefit both the faculty member and the institution. However, a perfect system for calculating faculty workload may not be possible (Mupinga & Maughan, 2008). According to Bleything's 1982 research, although several measurement techniques attempted to precisely measure faculty work, "only one conclusion seems to fully substantiate: the total faculty work cannot be simply described nor easily measured" (p. 18).

Nevertheless, a plethora of researchers and studies support the development of mathematical measurement techniques to determine the work of faculty. Although the ambiguity of work and unclear definition, higher education institutions have historically utilized workload formulas to measure the equitable distribution of work for faculty. Institutions have developed models, commonly referred to as workload formulas, to allocate and monitor academic work (Kenny, Fluck, & Jetson, 2012). From simple to complex, many multi-variable measurement techniques intend to account for faculty work.

Historic perspective of the development of workload formula.

According to Grams and Christ (1992), Koos in 1919 was one of the first researchers to investigate faculty workload in higher education. Koos was concerned that educational administration lacked the application of scientific measurements and that assignments were governed by non-standardized methods (Grams & Christ, 1992). During the 1960s and early 1970s, as the need for more accountability grew, workload formulas emerged and became more important to institutions and academic departments. Stecklein's 1961 paper, titled *How to Measure Faculty Work Load*, served as a foundational method to utilize course inventories and faculty reports to measure faculty work. After the affluent 1960s and 1970s, higher education institutions endured declining federal and state funds and decreasing enrollments, resulting in greater attention regarding faculty load (Laughlin & Lestrud, 1976).

By the 1980s, theorists were struggling to define workload categories and what activities to include in each. Dennison (2012) suggests, "To begin, one must first define the appropriate rations for the allocation of time to the contractual requirements of the faculty members" (p. 301). Policy-makers and commentators expressed concerns and critiques over faculty workloads

(Dennison, 2012). Retrenchment brought a need to adjust faculty workload, evaluate faculty productivity, set salaries, and analyze cost benefits.

Within the past decade, globally, higher education institutions faced increasing scrutiny regarding the traditional self-determination and autonomy over faculty working times (Bentley & Kyvik, 2012). Around the world, colleges and universities called to improve productivity, efficiency and accountability (Bentley & Kyvik, 2012; Kyvik, 2013). Kyvik (2013) coined the term *bureaucratization of academic work* to describe the wave for greater accountability and quality assessment.

While workload formulas were utilized since the early 1900s and since then applied globally, various forms and variables have influenced their development. Faculty workload policies and procedures became the tool used and reflected the organizational political, economic and value systems (Grams & Christ, 1992). Workload formulas should represent the mission of the institution and the discipline, the contractual obligations, department assignment, and the service obligations of the individual faculty member (Dennison, 2012).

Types of workload formulas.

Higher education institutions have developed workload formulas and methods in order to distribute equitably faculty work. "The prudent use of the (workload) formula provides guidance in making judgments about equitable workload assignments and contributions without assuming that one size will fit all", states Dennison (2012, p. 303). One workload formula using a point system addresses the diverse teaching loads and provides work credit for extra activities such as service and scholarship. However, no consideration was given for class size, new courses, course coordination responsibility, dissertation committee work, or independent study guidance

(Durham, Merritt, & Sorrell, 2007). To summarize, Laughlin and Lestrud (1976) stipulated that no workload measurement technique has been accepted as paramount.

Despite the challenges of defining academic work, many higher education institutions have developed workload formulas to allocate and monitor academic work. From simple to complex parametric estimating models, various workload formulas have been proposed to predict a total clock hour week for higher education faculty (Bleything, 1982). As a simple single variable formula, the IRS offers a single factor multiplier to the course contact time as a measurement technique. Specifically, the IRS suggests that 2.25 factor to account for the work outside of the classroom be multiplied by the course contact time as a measurement technique of part-time faculty instructional work (U.S. Internal Revenue Services, 2014). Contrary, the multi-variable workload formulas take into account more than solely the contact hours of the course. The complex formulas provide for the inclusion of multiple variables such as type of course, contact class hours, duplicate courses, and number of students (Bleything, 1982). Many higher education institutions utilize complex workload formulas with multiple variables to measure faculty work as a parametric estimating method (Stringer, MacGregor, & Watson, 2009).

The primary research question is as follows: How do workload formulas as a measurement technique affect the number of part-time faculty considered as full-time employees as defined by the Affordable Care Act. The secondary research questions are as follows:

> Q1: Specifically, if the Affordable Care Act was in effect in FY2013, how many part-time faculty members worked an average of 30 or more hours per week by utilizing a multi-variable workload model as reasonable and consistent method to measure at one Midwestern community college?

Q2: How many part-time faculty members worked an average of 30 or more hours per week by utilizing the 2.25 factor recently suggested by the IRS?

Q3: What is the correlation between the results of the multi-variable method to measure the instructional work associated with a course compared to the contact time of the course?

Q4: By applying the multiple variable workload formula to a course, does a single factor exist that can be applied to the course contact time that can reasonably estimate the average number of hours per week that a part-time faculty works related to that course?

This study will analyze the effects of utilizing a single variable and a multiple variable workload formula to measure part-time faculty work.

Single variable workload formula.

As a simple parametric estimating model, a single variable workload formula often utilizes class contact time for measuring faculty instructional work. Stecklein (1961) reported the studies of faculty workload were typically based on a single variable of either credit hours or class hours. As a simple single variable formula, the IRS offers a single factor multiplier to the course contact time as a measurement technique. Specifically, the IRS suggests that 2.25 factor to account for the work outside of the classroom be multiplied by the course contact time as a measurement technique of part-time faculty instructional work for the Affordable Care Act (U.S. Internal Revenue Services, 2014). They proposed this as a solution to estimate the work associated with instruction for faculty members who do not receive healthcare benefits. For example, if a part-time faculty taught a 3-hour per week course, the IRS believes that that

individual worked 6.75 hours per week, calculated based on the 3 hours per week multiplied by the 2.25 IRS factor.

However, solely class contact time per week as a measurement technique misrepresents the instructional work of instructors (Mupinga & Maughan, 2008). Stecklein (1961) argued that workload formulas based solely on class contact time provide an incomplete and distorted analysis of faculty work. Class contact time fails to recognize the amount of time instructors spend outside the classroom on preparation, conferences, grading papers and tests (Mupinga & Maughan, 2008; Stecklein, 1961). Devising a single formula for equitable faculty workload for higher education is difficult (Mupinga & Maughan, 2008). Although their sample data only included two weeks of faculty daily logs, Stringer et al. (2009) discovered that a single variable of class contact hours were weakly correlated to the total time spent in faculty work related activities. As a result, these researchers concluded that faculty work is too diverse to effectively measure with the single variable of class contact time. In general, no universal guidelines exist to determine the equivalency between course contact time and hours worked per week.

Multi-variable workload formula.

Instead of solely utilizing a course classroom contact-time as a measurement technique, multi-variable workload formulas take into account other factors that affect faculty work hours. Many universities no longer classify faculty work according to solely the number of classes taught but rather consider a variety of faculty activities that encompass faculty work. Many higher education institutions utilize complex workload formulas as a parametric estimating model (Stringer et al., 2009).

Higher education institutions benefit from a system to measure faculty work that involves multiple variables (Stringer et al., 2009). Dennison (2012) reported:

> Teaching involves more than time in the classroom since the faculty member must remain abreast of developments in the discipline, prepare for the class, …do additional preparation over the term of the course, meet with and counsel enrolled students, grade papers and evaluate other assignments, advise and mentor students in the major, and participate in department academic planning. (p. 301)

Within the traditional areas of teaching, research, and service, several other critical factors need to be addressed when equitably calculating the actual faculty workload (Mupinga & Maughan, 2008; Dennison, 2012). Experts argued the strength or weakness of formulas should be based on specified measurement variables such as credit hour formulas, contact hours, student-teacher ratios, average number of hours worked per unit of time or percentage allocation of time for different activities. The number of students enrolled in a course directly correlates to the amount of time faculty spend on instructional activities (Mandernach, Hudson, & Wise, 2013).

Independent variables that impact faculty work include discipline of study, types of course, level of instruction, instructional format, the number of students, type of technology, instruction design, student-student interactions and faculty experience (Mupinga & Maughan, 2008; Mandernach, Hudson, & Wise, 2013). Regarding the instructional format, Mandernach et al. (2013) contended that the time required to facilitate an online course was greater compared to the time for the traditional, face-to-face classroom. As a result, the instructional format of a course may serve as an independent variable in some institutional workload formulas. In general, this study analyzed the effects of utilizing a simple single variable and a multivariable workload formula to measure part-time faculty work.

Counter points on workload formulas.

Given a perfect system for calculating faculty workload may not be possible; several researchers disagreed with the use of workload formulas as a measurement technique of faculty work (Mupinga & Maughan, 2008). Ideally, a workload formula should measure the work accomplished instead of the amount of time spent. However, no simple method to assign a quantitative value to a particular activity exists without simply relating the work to a unit of measure of time spent rather than work accomplished (Eagleton, 1977).

Grams and Christ (1992) stated that use of a workload formula objectified and failed to measure the unique contributions of each faculty member. Grams and Christ (1992) concluded, "Challenges exist to beliefs that faculty work load formulas are a just and equitable way to determine faculty responsibilities; that faculty worth can be objectified, categorized, quantified, and measured" (p. 96). Grams and Christ argued that assigning course responsibilities based on a set standard for credit or contact hours, student faculty ratios, and classroom activities did not recognize the uniqueness of each faculty member involved. For example, the preparation for new courses and learning activities, which requires extensive student-teacher interaction, may or may not be considered in a workload formula. (Grams & Christ, 1992) Another consideration frequently neglected in workload formulas is the availability of other resources such as secretarial and administrative support to assist the faculty. The amount of support a faculty receives can influence the total amount of time a faculty works (Grams & Christ, 1992).

Grams and Christ identified two major weaknesses of the workload measurement variables. First, the variables lacked independence of each measure and second, formulas lacked a qualitative perspective (Grams & Christ, 1992). The knowledge-based variable represents a key factor to the application of a workload formula, in particularly work requiring creativity,

innovation and pioneering approaches (Wacker et al., 2014). Agreeing with Grams and Christ, the President of the University of Wisconsin System, Katharine C. Lyell responding to a 1993 state legislative audit of faculty work indicated that the audit only focused on the quantitative measures and did not include the qualitative measures and outcomes (Wisconsin Legislative Audit Bureau, 1993). As a result, the challenge exists when attempting to quantify and measure knowledge-based work.

Although challenges exist when developing workload formulas to account and measure faculty work, Bleything (1982) stated, "only one conclusion seems to fully substantiate: the total faculty work cannot be simply described nor easily measured" (p. 18). However, various researchers have conducted studies aimed at quantifying faculty weekly time commitments.

Studies on the faculty workweek.

Results of faculty workweek studies were essential data elements for this study, incorporating the various workweek values as part of this study's methodology. Specifically, if a workload formula results in a percentage or portion of a workweek, then the value of a workweek is needed as a means to estimate the hours of work. For example, if a part-time faculty instructional work sums to a 50% workload of a full-time faculty and assuming a workweek of a full-time faculty is 40 hours, then the estimated instructional work would equal 20 hours per week (40 hours multiplied by 50%). Given this estimating methodology, the value of the workweek becomes a critical value in this study's methodology.

Multiple studies investigated faculty time commitments of full-time faculty members. While the primary focus of this study was measuring part-time faculty average weekly time commitments, the results of the full-time faculty workweek studies were utilized as part of this study's methodology. Globally, many researchers studied the average workweek of full-time

faculty in higher education institutions. As background of the faculty workweek, this literature review focused on the purpose, results, methodology, and limitations of faculty workweek studies.

Purpose of faculty workweek studies.

Four main purposes of faculty workweek studies exist. First, some studies were designed to validate workload formulas as an appropriate parametric estimating model at an institution. Second, some studies were designed for global and national comparison of individual working time patterns of faculty from institutions with similar missions. Predominant researchers in global comparison studies include Bentley and Kyvik. Third, some studies were designed for a longitudinal historic comparison of faculty work commitments. Key authors include the U.S. Department of Education, Middaugh, Mayes, Gappa, Austin, and Trice. Finally, multiple studies were politically driven as pressures increased for greater accountability for public higher education institutions. Authors of these faculty workweek studies were often state legislature bureaus and higher education system offices. Because this study focused on the part-time faculty workweek, the results of these full-time faculty workweek studies, regardless of the specific study's purpose, served as a foundational element in this study's methodology. Specifically, an assumption within this study stipulated that a part-time faculty works a portion of a full-time faculty workweek. Therefore, the value of a full-time faculty workweek is an essential data element in the analysis within this study.

Results of faculty workweek studies.

The value of the full-time faculty workweek resulting from the numerous studies varied from 40-65 hours per week. Multiple published studies stipulated a workweek equals the contractual weekly work obligation for the full-time faculty member, typically a 40-hour

workweek. Other studies including case studies, longitudinal studies, and accountability-focused studies resulted in a specific value of full-time faculty workweek depending on the purpose and focus of the specific study.

As part of a study to validate the implementation of a new workload formula, the case study of Durham, Merritt, and Sorrell stipulated a 40-hour workweek for full-time faculty. Likewise, Dennison stipulated a 40-hour week for full-time faculty based on the contractual requirements of the full-time faculty member; however, indicated that surveys of time expended ranged from 55 to 65 hours per week, higher for faculty at research universities (Dennison, 2012). Bleything (1982) created faculty *load laws* and claimed that most faculties reported a 50 to 55 hour week and that total hourly workweek was not a factor of academic rank or level of instruction.

As part of a longitudinal study focused on two-year colleges, the U.S. Department of Education National Center for Education Statistics developed the National Study of Postsecondary Faculty (NSOPF), which collected data of faculty activity (Middaugh, 2001). The NSOPF segregated these data by the Carnegie institutional types including two-year colleges. In 1992, nearly 110,000 full-time faculty responded to the NSOPF from two-year colleges and the mean hours worked per week reported was 46.9 hours per week with 75% devoted to direct teaching activities including 16.3 hours in the classroom (Middaugh, 2001; Mayes, 1998). Faculty members who teach at two-year colleges have heavier teaching loads than those who teach at four-year doctoral and non-doctoral institutions (Boyer, Butner, & Smith, 2007).

As part of another longitudinal study regarding changes of faculty work, Gappa, Austin and Trice noted that on a national level, full-time faculty members work more average hours per week than in the past (Gappa, Austin, & Trice, 2007). The expanding scope of faculty

responsibility has led to the increase of the average number of hours per week that faculty work (Wimsatt, Trice, & Langley, 2009). However, empirical studies have not verified those faculties are working longer hours (Kyvik, 2013). Contrary to Gappa, Austin, and Trice, Kyvik references the work of Tight (2010) who discovered that United Kingdom faculty have not increased their weekly hours since 1970 but that the average balance of faculty work has changed in an undesirable way including increasing time spent on administrative tasks (Kyvik, 2013). By using time-series data, Kyvik concluded and confirmed the findings of United Kingdom's Tight (2010) and USA's Schuster and Findlestein (2006) that faculty do not work longer hours than previously and the average number of working hours was actually declining. These contrary conclusions regarding whether the trend of the workweek was increasing or declining provided evidence of the varying results of faculty workweek studies.

In the 1990s, responding to a focus for greater accountability, over 15 states, several systems, and three national studies examined faculty workload, activities, and work hours per week (Meyer, 1998). In 1993, the State of Wisconsin Joint Legislative Audit Committee conducted an evaluation study of the instruction workload for the University of Wisconsin System. The results indicated that in general, faculty were spending less time with undergraduates and teaching loads varied greatly throughout the 13 campuses and 13 centers (Wisconsin Legislative Audit Bureau, 1993). A 1998 study on faculty workload at fourteen institutions in the University of Kentucky Community College System discovered that typical faculty members worked about 48 hours per week with approximately 75 percent of their time devoted to instructional activities including classroom contact and advising students (Mupinga & Maughan, 2008).

As part of a global comparison study, Bentley and Kyvik concluded that full-time faculty at universities across all countries worked 48.4 hours per week during the teaching semester. Specifically within the United States, out of 687 survey participants, the mean weekly hours on academic activities when classes were in session were 20.7 hours in teaching, 14.6 hours in research; 8.0 hours in administration; 5.0 hours in service and 3.1 hours in other activities. The total weekly hours of work for full-time faculty within the United States universities summed to 51.4 hours (Bentley & Kyvik, 2012).

The purpose and results of faculty workweek studies varied from the stipulated contractual requirements to 65 hours per week for a full-time faculty time commitment. In sum, the values of the full-time faculty workweek ranged from the contractual requirements, 46.9 at two-year colleges, 48 hours in Kentucky, 48.4 hours globally, 51.4 hours in the U.S., 50-55 hours, and 55-65 hours. These varying results may be attributed to the methodology to gather the actual work hours and the associated limitations of these workweek studies.

Methodologies of faculty workweek studies.

Researchers investigated time commitments with the use of semi-structured interviews, focus groups, daily charting with sampling methods and short time series based on diary entries (Nadar, Pietschnig, & Voracek, 2012). In order to gather time allocation data, typically full-time faculty members were requested to respond to three basic survey questionnaires (Stecklein, 1961). One method included the faculty keeping diaries of their activities for a duration of time such as a week or two and a second method included faculty estimating their time in terms of number of hours per week, per semester or per quarter spent on various activities (Stecklein, 1961). The third method to gather time allocation data requested faculty to indicate a percentage of their total work distributed among various activities (Stecklein, 1961). Based on this survey

data from faculty, researchers have studied the workweek of faculty in higher education institutions. Because this study focused on the part-time faculty workweek, the results of these faculty workweek studies, regardless of the purpose and methodology, served as a critical element in this study's methodology to measure part-time faculty work.

Limitations of faculty workweek studies.

Researchers have identified limitations to these full-time faculty workweek studies. Similar to the *Challenges of Self-Reporting Data* section within this study, the challenges of these studies related to the inconsistent definition of work and the methodological limitations including the dependency of self-reported data and the academic work cycle. Bellas and Toutkoushian determined these faculty time studies have been limited in sample size, sample characteristics, and statistical techniques (Bellas & Toutkoushian, 1999). Questions arise to the validity of these studies.

The limitations of these workweek studies stem from the inconsistent or nonexistent definitions of work and the lack of consistent work measures (Meyer, 1998; Middaugh, 2001; Stringer, et al., 2009). Overall, faculty will differ in their personal definition of their weekly working time with inconsistent inclusion of tasks that were at discretion of the individual to consider this as working time. The methodological challenge was the inclusion of tasks that were unpaid voluntary service and the discretion of the individual to consider as working time. Stecklein (1961) claimed that many problems occur due to inconsistent measures and categorization of faculty activities such as administration, research, professional services, and counseling. Although studies have varied in results for hours per week, evidence suggests that unpaid overtime or professional commitments outside the institution have been included in these

results (Bentley & Kyvik, 2012). As a result, this inconsistent or unclear definition of work affects the comparisons and the use of findings from these faculty workweek studies.

Self-reporting hours and the varying institutional academic year represent limitations to faculty workweek studies. Because these studies frequently depend on self-reported time, Robinson et al. argued an upward bias in the reporting estimates (Robinson, Martin, Glorieux, & Minnen, 2011). Survey respondents self-estimate past hours and therefore these data were subject to error of recall (Mayes, 1998). The methodological challenge of studies concluding the number of work-hours per week generalized the typical weekly hours during teaching and non-teaching periods of the entire year (Bentley & Kyvik, 2012). The number of week of a semester can vary from 14-17 week teaching semester to three 10-week *quarters* for teaching. As a result, researchers often assumed classes were in session for two-thirds of the academic year, which could lead to challenges when comparing data across multiple institutions.

Given that studies related to faculty workweek demonstrated substantial limitations based on inconsistent methodologies, definitions, and scope such as including volunteered tasks or unpaid work, empirically reporting number of hours per week that faculty work was a challenge. However, various studies have investigated workload and faculty time commitments. In sum, the results of full-time faculty workweek studies varied from the stipulated contractual requirements to 65 hours per week. Specifically, the values of the full-time faculty workweek resulting from faculty workweek studies ranged from the contractual requirements, which is typically 40 hours to 46.9 hours at two-year colleges, 48 hours in Kentucky, 48.4 hours globally, 51.4 hours in the U.S., 50-55 hours, and 55-65 hours. The range of these full-time faculty workweek values were utilized within this study as a measurement technique of part-time faculty instructional work in response to the requirements of the Affordable Care Act.

Summary

The Affordable Care Act requires organizations to provide healthcare coverage to full-time employees, defined as one who works an average of 30 or more hours per week. As a result, ACA requires higher education institutions to measure the employee's average weekly hours. The purpose of this research was to examine the effect of various workload formulas to measure the average weekly working hours of part-time faculty and to compare the results to the Affordable Care Act definition of a full-time employee. Four main themes including Background on Part-time Faculty; Theoretical Framework; The Affordable Care Act; and Faculty Work Measurement Techniques served as the major contextual areas highlighted in the literature review.

Given the increasing number of part-time faculty in higher education institutions, grounded in the theoretical framework of equity theory of motivation and the requirements of the Affordable Care Act, higher education institutions need to develop measurement techniques to measure part-time faculty work. Three critical concepts were addressed to support the faculty-work measurement techniques: challenges of self-reporting data, workload formulas as measurement techniques and studies regarding faculty weekly work hours. From simple to complex, various workload formulas were proposed to predict a total clock hour week for higher education faculty (Bleything, 1982). In sum, part-time faculty members are often compensated on a per-course basis for instructional work. As a result, it is necessary to estimate the hours per week associated with the instructional work. Within this study, the workload formulas were used as a means to estimate the number of work hours associated with an instructional course that was compensated on a per-course basis. Two types of workload formulas were explored: a single variable and a multi-variable formula.

Using the literature review of Chapter 2 as a foundation, Chapter 3 describes the research methodology to examine the effect of various workload formulas to measure the average weekly working hours of part-time faculty and compare the results to the Affordable Care Act definition of a full-time employee. This study utilized a variety of measurement techniques to tally the hours of work of part-time faculty as required of higher education institutions by the new Patient Protection and Affordable Care Act.

Chapter 3. Research Design and Method

Introduction

The Affordable Care Act requires organizations to provide healthcare coverage to full-time employees, defined as one who works an average of 30 or more hours per week. As a result, ACA requires higher education institutions to measure part-time employee's average weekly hours. Part-time faculty members are typically not offered healthcare coverage and are compensated for their instructional work on a *per-course* basis, rather than on an hourly basis. Therefore, the challenge is determining the number of work hours associated with the course.

The purpose of this study was to examine the effect of applying various workload formulas to measure the average weekly working hours of part-time faculty and to compare the results to the Affordable Care Act definition of a full-time employee. Grounded in the Parametric Estimating Model framework, workload formulas were utilized as a means to estimate the number of work hours associated with an instructional course that was compensated on a per-course basis. Part-time faculty members may also provide other service to the organization, frequently compensated on an hourly basis. The total work of part-time faculty is the sum of the hourly and the instructional per-course work.

Despite the challenges of defining academic work, many higher education institutions developed workload formulas to allocate and monitor academic work. From simple to complex, higher education institutions proposed various workload formulas to predict a total clock hour week for higher education faculty (Bleything, 1982). As a simple single variable formula, the IRS offers a single factor multiplier to the course contact time as a measurement technique. Specifically, to account for the work outside of the classroom, the IRS suggests that 2.25 times the course contact time as a measurement technique of part-time faculty instructional work (U.S. Internal Revenue Services, 2014). Contrarily, the multiple variable workload formulas take into

account more than solely the contact hours of the course. The complex formulas provide for the inclusion of multiple variables such as type of course, contact class hours, duplicate courses, and number of students (Bleything, 1982). Many higher education institutions utilize complex workload formulas with multiple variables to measure faculty work (Stringer et al., 2009).

The primary research question for this study is as follows: How do workload models as a measurement technique affect the number of part-time faculty considered as full-time employees as defined by the Affordable Care Act. The secondary research questions are as follows:

Q1: Specifically, if the Affordable Care Act was in effect in FY2013, how many part-time faculty members worked an average of 30 or more hours per week by utilizing a multi-variable workload model as reasonable and consistent method to measure at one Midwestern community college?

Q2: How many part-time faculty members worked an average of 30 or more hours per week by utilizing the 2.25 factor recently suggested by the IRS?

Q3: What is the correlation between the results of the multi-variable method to measure the instructional work associated with a course compared to the contact time of the course?

Q4: By applying the multiple variable workload formula to a course, does a single factor exist that can be applied to the course contact time that can reasonably estimate the average number of hours per week that a part-time faculty works related to that course?

This study analyzed the effects of utilizing a single variable and a multiple variable workload formula to measure part-time faculty work. The research methodology included a quantitative analysis using the application of a consistent treatment using ex post facto data.

Chapter 3 includes a description of the research setting, the research process associated with the IRS single variable formula and the multiple workload formula, a description of the dependent and independent variables, and the data analysis techniques utilized in this study.

Description of the Research Setting

Nationally, community colleges have some of the highest teaching loads and the greatest number of part-time faculty (Lawrence & Galle, 2011). Therefore, a Midwestern community college set the stage for this study. The multi-campus Midwestern community college served 40,000 students annually, offering more than 140-degree credentials. This institution had a contractual agreement that identifies the average workweek as equal to 35 hours for a full-time faculty. The full-time faculties were loaded to 100%. The contract stipulated that each faculty member worked 70% for instructional purposes, 20% for service, and 10% for professional development. The college utilized a 3-variable workload model to measure instructional work on a *per-course* basis. The three variables included: (1) course contact time, (2) average student course enrollment to account for assessment and student contact work, and (3) credit value of the unduplicated course to account for course preparation time. Unduplicated course per semester was used as the preparation load for the course. For example, if an instructor taught two sections of one course, the preparation load would be lower as compared to an instructor teaching two sections of two different courses. The coefficients used within the Midwestern community college workload model was 3.65% per hour of course contact time, 0.1% per student for the average number of students in the course; and 0.5% per credit for unduplicated courses. This study applied the Midwestern community college's multi-variable workload for full-time faculty and applied this formula as a reasonable and consistent method to measure part-time faculty work as required by the Affordable Care Act.

Participants.

In FY2013, the Midwestern community college employed 1,068 full-time employees, all who were eligible for employer-provided health care benefits. The ACA assesses penalties as described in Chapter 2 based on the number of full-time employees and therefore the number of full-time employees was a critical data element in order to assess the implications described in Chapter 5. In addition, in FY2013, the Midwestern community college employed 2,401 part-time employees including part-time faculty, part-time support, and student workers. Of the 2,401 part-time employees, 890 part-time faculty members taught 3,473 courses. The 3,473 courses were compensated on a per-course basis. As a result, both estimating models, the IRS and multi-variable workload formula, was applied to these courses by individual in order to estimate the average number of hours per week associated with the instruction. These data records of the 890 part-time faculty members were the participants of the study.

Description of Method

This quantitative study gathered data related to part-time faculty including the individual's instructional courses and hourly work. Historically, Stecklein (1961) claimed regarding measures based on course inventories:

> Nearly every college and university lists, for internal use, all courses taught each quarter or each semester of the academic year, and tallies the names of the instructors, the credits offered, the size and type of classes, and the number of hours that the classes meet per week. These basic tabulations are a ready source of information for faculty load studies, which concentrate, only on the instructional functions of the faculty. (p. 4)

This study utilized data of course inventories as described by Stecklein for the workload analysis. Specifically, this researcher converted the individual part-time faculty member's instructional courses into an estimated instruction hours by using a workload method. The total work hours including hourly and estimated instructional work were divided by the number of weeks in the term resulting in the part-time faculty's average hours per week. Then, this result was evaluated to the ACA definition of a full-time employee. This process was repeated based on the different workload formulas. This general process answered the primary research question: How do workload formulas as a measurement technique affect the number of part-time faculty considered as full-time employees as defined by the Affordable Care Act? The general research process included data acquisition and accessing institutional instruments followed by a specific research protocol. This methodology could be replicated at any higher education institution.

Institutional instruments.

- Institution's workload formula to measure instructional work. Typically, a workload formula consists of coefficients and variables.
- Institution's definition of a 100% full-time faculty workweek, often stipulated in the institution's faculty contract. Repeated with results from various past studies on the numbers of hours per week of full-time faculty.
- Institution's academic calendar to determine the number of weeks in a term.

Figure 4 depicts the methodology map used for this study, denoting the inter-connections of the variables and calculations to answer the research questions. From the top, the potential influences on the attributes of a course that was tested included the type/level of course, the department or academic level, the division or school, and the academic cluster. Part-time faculty

taught individual courses during a term with each course having a specific classroom contact time, a course credit value and an average number of students. Within the course analysis portion, these variables were utilized to determine an estimated amount of hours associated with the teaching assignment. After the course analysis phase was completed, the study evaluated each individual by summing the estimated instructional work with any reported hourly work. The individual work data derived when the employee worked which was needed to determine the average hours per week.

Figure 4. Methods Map

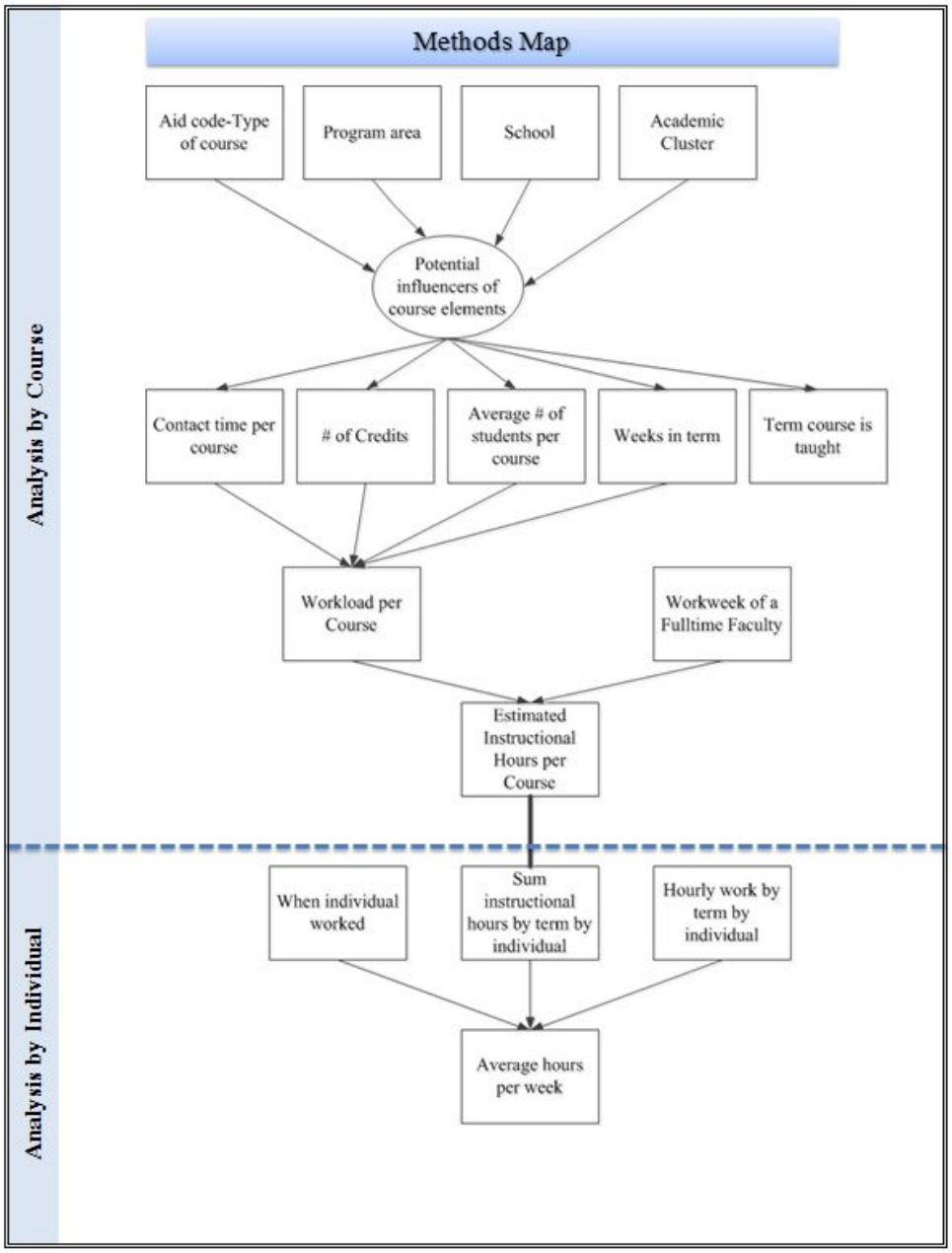


Figure 4 provides the methodology process used in this study. The following research protocol provides a systematic guide.

Research Protocol:

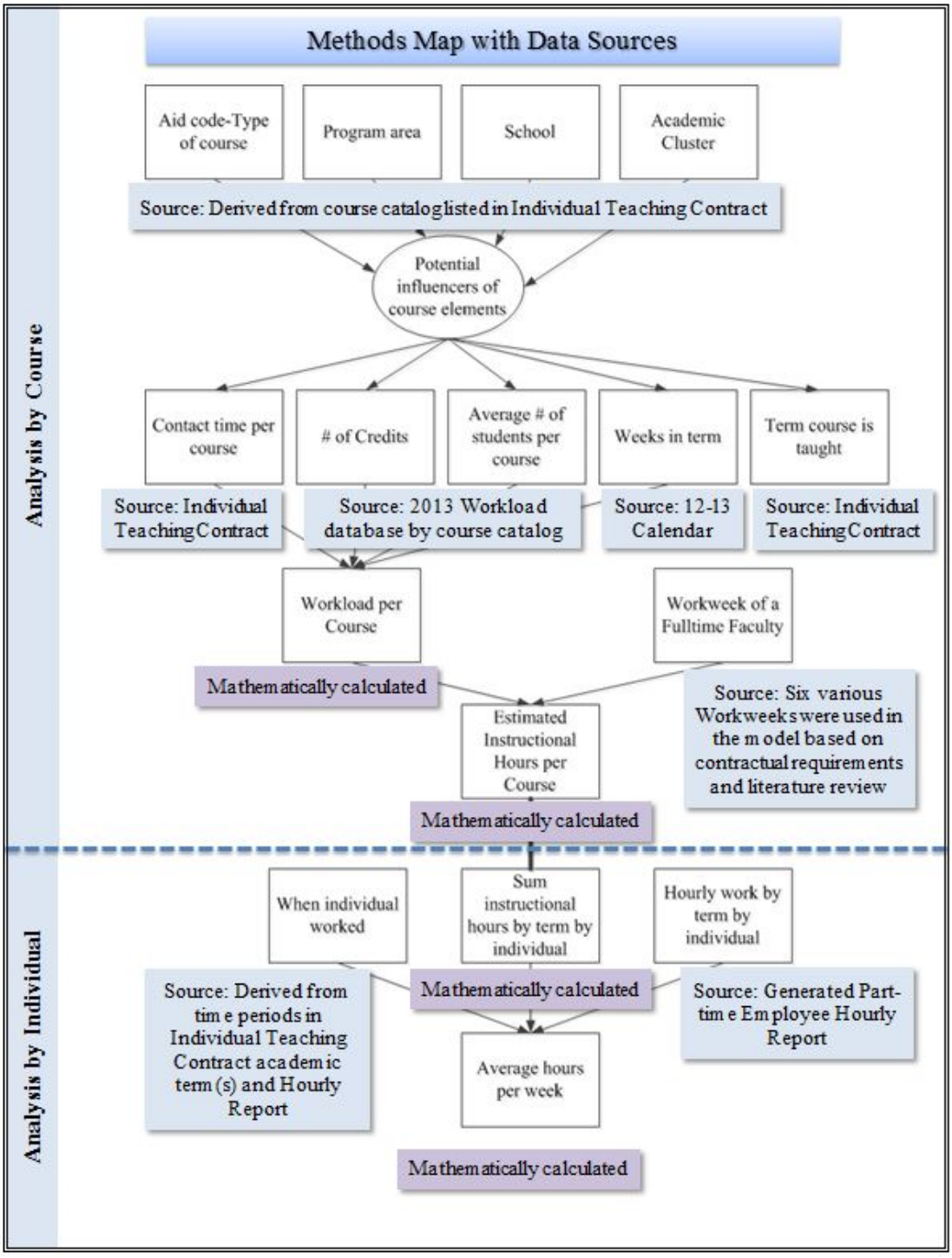
The methodology included 10 specific process tasks, which are briefly described below, followed by a detailed description of the methodology.

1. Gathered the list of courses, compensated on a *per-course* basis, denoted by course catalog number, taught by part-time faculty and term. Enter data elements into a database.
2. Gathered the course's workload variables, based on the institution's workload formula and by utilizing the course catalog number from Step #1. These variables could include for example contact time, average number of students, number of credits and/or mode of instruction.
3. Applied the institution's workload formula to the course by using the course's workload variables, Step #2 and the workload coefficients. Based on the workload formula, the result could be a percentage or a point system
4. Determined the estimated instructional hours per course based on the institutions definition of a 100% full-time faculty workweek. To determine the estimated instructional hours per course, prorate the result of Step #3 based on a 100% full-time faculty member workweek. For example, if a 100% faculty member works 40 hours per week, then a 10% course represents 4 hours per week of instructional work.
5. Multiplied the course's estimated instructional hours per week by faculty by term Step #4 with the number of weeks in the term, resulting in the course's total estimated instructional hours by faculty by term.

6. Summed the course's total estimated instructional hours by term, Step #5, by each faculty by term, resulting in the part-time faculty's estimated total instructional hours by term.
7. Gathered a list of hours worked, compensated on an hourly basis by part-time faculty by term.
8. Added the part-time faculty's estimated total instructional hours by term, Step #6 and the part-time faculty's hourly work by term, Step #7, resulting in the part-time faculty's total work hours per term.
9. Determined the part-time faculty's average hours per week by analyzing the part-time faculty's total work hours per term and divide by the number of weeks the faculty worked. For example, if the faculty member only worked the summer term, the total hours would be divided by the 8 weeks of that summer term. If the faculty member worked fall, spring and summer, then the total hours would be divided by 52 week.
10. Repeated with alternative workload formulas.

Figure 5, as a methods map, depicts the inter-relations of the variable and the data sources identified in the 10 systematic process.

Figure 5. Methods Map with Data Sources



In sum, part-time faculty members are often compensated on a per-course basis for instructional work. As a result, it is necessary to estimate the hours per week associated with the instructional work. The workload formulas were used as a means to estimate the number of work hours associated with an instructional course that was compensated on a per-course basis. The study explored two types of workload formulas: a single variable and a multi-variable formula.

Single variable workload formula.

The Internal Revenue Service (IRS) of the U.S. Treasury Department, responsible for oversight of the Affordable Care Act, proposes to higher education institution a 2.25 multiplier applied to the part-time faculty contact hours (U.S. Treasury Department, 2014). The IRS proposes this as a solution to estimate the work associated with instruction. Despite the literature findings that a single variable is not an effective measurement method, the IRS proposes a single factor model of course contact time multiplied by 2.25 to estimate the instructional work. Specifically, the IRS suggests that 2.25 factor to account for the work outside of the classroom be multiplied by the course contact time as a measurement technique of part-time faculty work (U.S. Internal Revenue Services, 2014). For example, if a part-time faculty taught a 3-hour per week course, the IRS believes that that individual worked 6.75, the 3 hours per week X 2.25. The following equation is a mathematic representation of the IRS 2.25 model.

$$\left\{\{sum\ of\ course\ contact\ time \times 2.25\} + sum\ of\ hourly\ work\right\} \Big/ number\ of\ weeks$$

Equation 2. Mathematical Representation of IRS 2.25 Model

$$Estimated\ Ave\ hours\ per\ week \triangleq \left\{\{[\sum_{t=0}^{t=n} x_t] \times 2.25\} + \sum_{j=0}^{j=m} y_j\right\} \Big/ k$$

Where the independent variables include:

x is the course contact time, taught by the individual during the performance measurement period.

t is the specific course identifier

n is the total number of courses taught by the individual during the performance measurement period

y is the number of hours compensated on an hourly basis per activity during the measurement period

j is the specific hourly activity

m is the total number of activities compensated on an hourly basis

k is the number of weeks during the measurement period

Figure 6 demonstrates how the single variable formula was modeled within the methodology map used in this study.

Figure 6. Methods Map for the Single Variable Formula

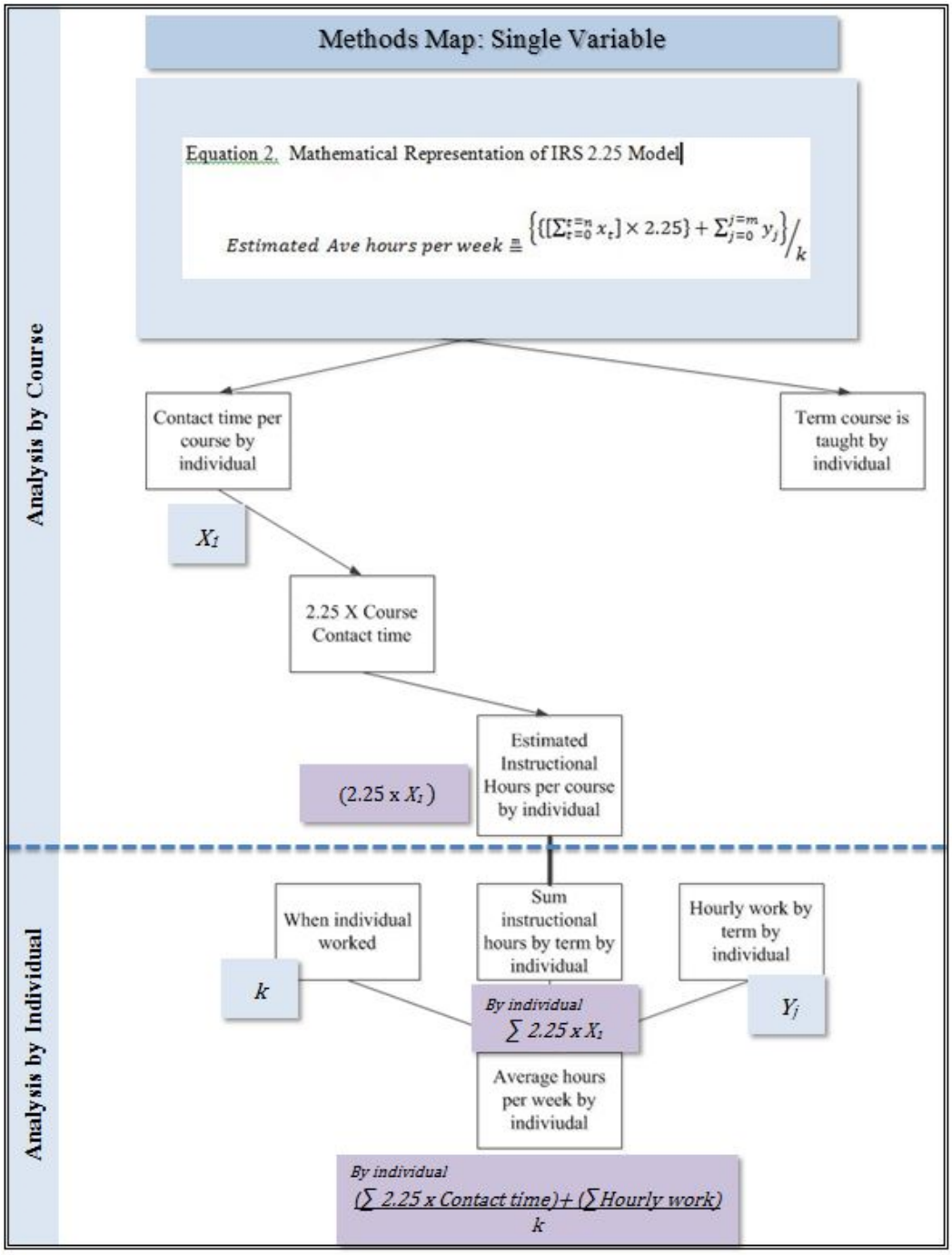


Figure 6 shows the single variable formula was relatively simple. Within this study, one of the challenges was determining the *When Individual Worked*, denoted by *k*. Seven conditions

exist in which determine the k value. An employee was categorized into one of the seven conditions based on the period of performance of the work record. Those categories include Summer Only, Fall Only, Spring Only, Summer and Fall terms, Summer and Spring terms, Fall and Spring terms and Year-Round. Each work condition corresponds to a number of weeks that the work was completed. This number of weeks (*k*) was the denominator when determining the average number of hours of work. Table 1 provides the various conditions of when an employee works and the corresponding number of weeks based on the institution's academic calendar for each term.

Table 1. Number of Weeks to When Employee Worked

When Employee Worked	**Weeks**
Summer Only	8
Fall Only	18
Spring Only	18
Summer and Fall Terms	26
Summer and Spring terms	26
Fall and Spring terms	36
Year-Round	52

Table 1 provides the conditions of when an employee works. The *Coding the Data* section within this study, provides more details on how to code and derive the condition for each individual part-time employee. With the *k* value, the average was determined for the single variable model.

Since multiple researchers discovered that the single factor model correlated weakly to faculty work, this study proposed an alternative estimating model to estimate the hours associated with part-time faculty instructional work.

Multi-variable workload formula.

This study analyzed the effects of utilizing a simple single variable and a multi-variable workload formula to measure part-time faculty work. The alternate workload formula to the single variable is the multi-variable workload formula. Using the multiple variable workload formula, the average number of hours per week of an individual part-time faculty member's instructional work was estimated by summing the multi-variable workload for each course taught and then prorating the results to the workweek of full-time faculty member. The multiple variable workload method estimates the instruction work associated with the part-time faculty. In addition, the hourly work of the part-time faculty, such as attending meetings, curriculum development, or other work compensated on an hourly basis, was summed to the estimated instructional work. Both the instructional work and the actual hourly work was summed and averaged over the number of weeks the individual worked. By using the multi-variable workload formula, the average number hours per week of the individual equals:

Equation 3. Description of Workload Model Method

$$\{\{sum\ of\ workload \times ratio\ to\ fulltime\} + sum\ of\ hourly\ work\} \Big/ number\ of\ weeks$$

Linking to the theoretical framework of Parametric Estimation Models, referring to Chapter 2, the linear relationship of the multiple Workload formula is based on:

$$Output = a + bV_1 + cV_2 + \cdots$$

Where V_1 and V_2 are input variables, and a, b, and c are constant coefficients (Dysert, 2008).

The mathematical model of an individual's average hours per week, as an output was estimated with input variables and constant coefficients. The mathematical representation is expressed:

Equation 4. Mathematical Representation of the Workload Model

$$Estimated\ Ave\ hours\ per\ week \stackrel{m}{=} \left\{ \left\{ \left\{ \left[\sum_{i=0}^{i=n} a_i \ x_i \right] \times \frac{b}{c} \right\} + \sum_{j=0}^{j=m} y_j \right\} \Big/ k \right\}$$

Where the independent variables include:

a is the coefficient of a specific instructional workload variable. The coefficients are given and often part of the contractual agreements.

x is the independent variable of the instructional workload during the measurement period, such as

n is the total number of independent variables in the instructional workload

i is the specific instructional workload variable identifier

b is the average number of hours of full-time faculty per week

c is the total workload allocation for a full-time faculty based on the workload formula

y is the number of hours compensated on an hourly basis per activity during the measurement period

j is the specific hourly activity

m is the total number of activities compensated on an hourly basis

k is the number of weeks during the measurement period

Within the multi-variable workload model, each course was converted into a workload percentage, which subsequently converted into an hourly basis based on the ratio related to full-time faculty. The converted-hours were summed with the hourly-compensated work to determine the average hours per week for each of part-time faculty participants. Figure 7 demonstrates how the multiple variable formulas were modeled within the Methodology map used in this study.

Figure 7. Methods Map for the Multi-Variable Formula

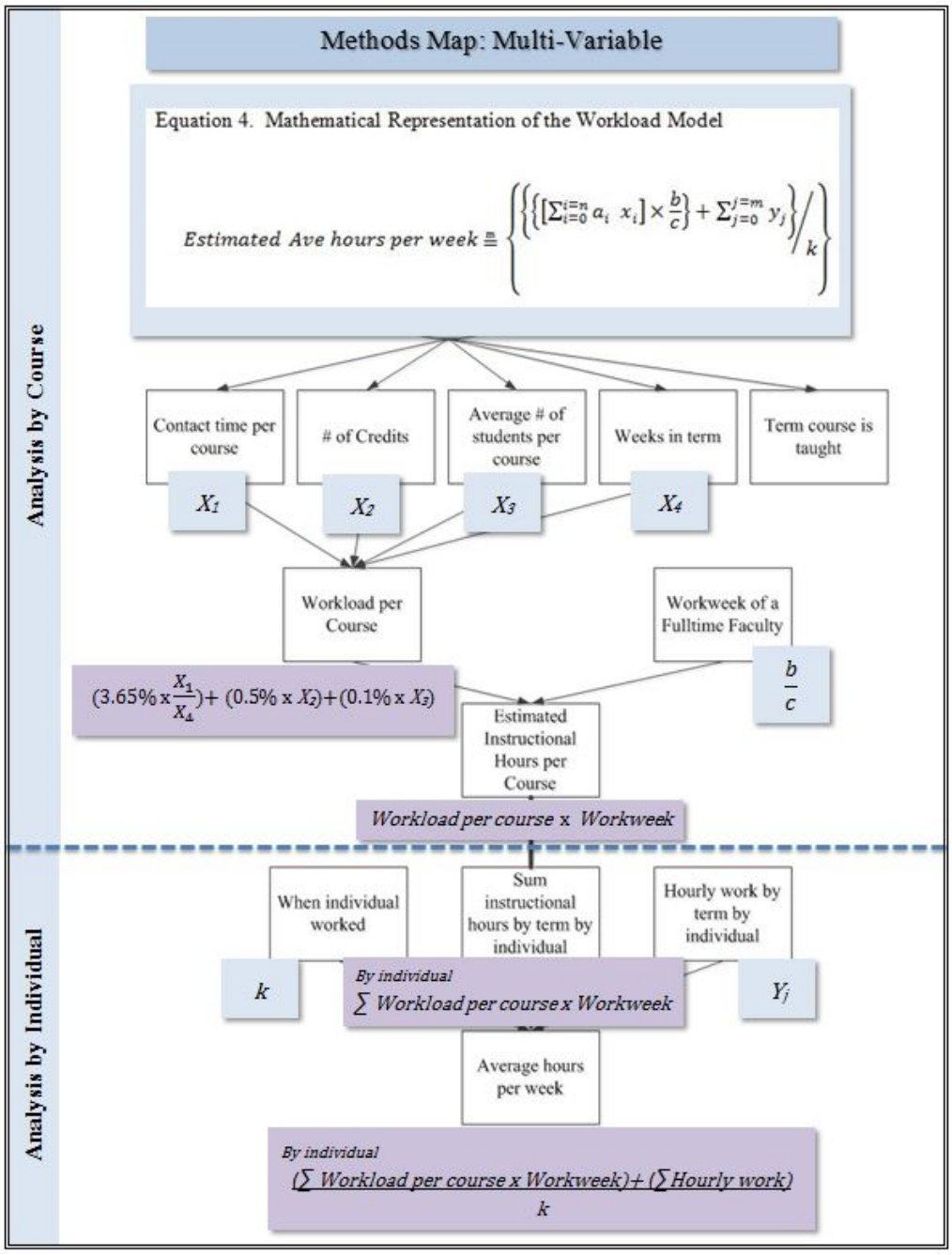


Figure 7 demonstrates how the multiple variable formulas were modeled within the methodology map used in this study. Like the single variable formula, the identical processed was used to determine the *k* value based on when the employee worked. The *Coding the Data*

section, within this study, provides more details on how to code and derive the condition for each individual part-time employee is provided. With the *k* value known, the average was determined with the multi-variable workload model.

Data sources.

Data acquisition for a specific time-period included a list of courses, contact hours by term and part-time faculty member, list of hourly work by part-time faculty member, and other data elements associated with the institution's workload variables. The Midwestern community college granted permission for this study (Appendix B). The multiple databases utilized for this research were retrieved from various sources including data records of the individual part-time teaching contract, the variable workload data elements, the academic calendar, values of the workweek and a report of hourly-compensated work. The following provides details and the respective database variable names.

The researcher retrieved payroll contract reports by individual part-time faculty. The data records included employee identification number, term, name, course catalog, course start date, end date and course contact hours. Figure 8 is a sample of the data elements retrieved.

Figure 8. Data Elements from Part-time Faculty Contract Report

Record Nbr	EmplD	WorkType	Term	CodedClass Nbr	CodedCatalog Nbr	Start Date	End Date	Course Contact Hr

First, from the *Coded Catalog Number* field of Figure 8, other data elements were determined including the program/department, school, and academic pathway cluster. Second, the *Coded Catalog Number* field also identifies the type/level of course based on an aid code. Specifically, some courses were college-level courses while some were student success, continuing education and hobby type courses. Third, the *Coded Catalog Number* was cross-

referenced to the 2013 Workload database including the course's number of credits and average number of students over the past two years. Figure 9 shows the database headings of the catalog number with the data elements of multi-variable workload formula.

Figure 9. Workload Data Elements by Catalog Number

CodedCatalog Nbr	QtyofCredits	AveStudents

In addition to the Individual Part-time Faculty Contract report, the academic calendar determined the number of weeks per term, needed in order to divide the course/classroom contact time over the length of the specific term. The summer term equaled 8 weeks, while both fall and spring terms equaled 18 weeks each.

Six values were utilized for the typical workweek of a full-time faculty. These data included the institution's contractual workweek of 35 hours per week for full-time faculty. In addition to the contractual requirements, literature and other research studies on full-time workweek determine additional values to consider in the analysis. Multiple studies referenced a 40-hour workweek. Bentley and Kyvik's (2012) work indicated that the global average for a full-time faculty workweek is 48.4 hours, while the U.S. average is 51.4 hours. Both of these values were modeled. Bleything (1982) indicated that the range for full-time faculty range from 50-55 hours per week. Both of these values were utilized in this study. Since the assumption stipulated the multiple workload formula measures work relative to a full-time faculty workweek, each of the six-workweek values resulted in a different estimated hours of instructional hours. As a result, six results were analyzed to answer the research questions.

The hourly work report by term was generated including part-time faculty and hourly employees. Figure 10 provides the database headings for the hourly-compensated work. Although not part of the scope of this study, the hourly report of the hourly-compensated employees enhanced the outcomes of this study.

Figure 10. Data Elements of the Hourly Compensated Work

Record Nbr	EmpID	WorkType	WorkType1	Term	TermCode	HrlyHrs

Figure 10 contains data elements referred to *WorkType1* and *TermCode* as variables to convert and code string variables into nominal data elements necessary for statistical analysis. The multiple databases utilized for this research were retrieved from various sources including data records of the individual part-time teaching contract, the variable workload data elements, the academic calendar, values of the workweek and a report of hourly-compensated work. The next step was to safeguard and code the database in order to conduct the data analysis.

Safeguarding data.

Approval from the sponsoring institution Human Participants Review Board, (refer to Appendix A) was received. In addition, permission was granted from the Midwestern community college to support this research study, specifically, consent to utilize stored records of part-time faculty employed during June 1, 2012 through May 31, 2013 (Appendix B). The required National Institutes of Health Office of Extramural Research certification for "Protecting Human Research Participants" was completed.

The collection of data involved gathering of stored data records that were collected solely for non-research purposes. The participants in this study included adult part-time employees

employed at the Midwestern community college from June 1, 2012 through May 31, 2013. The stored employee data records included employee ID, course catalog number, term, course contact time, and labor hours compensated on an hourly basis. After the collection of these data, various workload formulas were applied to these stored data in order to estimate the average number of hours per week. The college's stored records of the part-time faculty members served as participants of the study.

The risk to the participant for using stored records was minimal. The risk of exposure to the personal identification of the part-time faculty with the use of the stored records existed. Therefore, the research protocols were designed to protect the anonymity of the identification of the participants. Safeguards of this data were deployed. No real names, salary, pay rates, or other personal financial data information were accessed or utilized for this study. To further protect the anonymity, the employee identification number and course catalog number were coded with dummy data in order to protect and safeguard the individual's identification. Only the researcher and/or officials of the Midwestern community college have access to the cross-reference of the coded dummy data to the actual stored data files. The cross-reference data file was stored in a secure network within the appropriate research department, following the College's computer use policies. Any printing of this cross-reference data file was stored in a locked office and then shredded upon completion. This cross-reference database was the only link to the actual stored data records. Therefore, this data-file access restriction minimized the potential exposure of the identification of any individuals. The researcher utilized the coded dummy data records for the analysis portion of the research study.

Coding the data.

Prior to conducting the analysis, these data elements were coded in order to utilize the SPSS statistical software. Two inter-connected datasets were created. One dataset was based on the individual courses and the second dataset based on the individual's total work, derived by summing the individual's courses and hourly work.

On the individual's courses, the following codes of Figure 12 established the data values in order to convert nominal data from string variables.

Figure 11. Individual's Courses Coding of String to Nominal Data

Record Nbr	Emp ID	WorkType	Term	CodedClass Nbr	CodedCatalog Nbr	Start Date	End Date	Course Contact Hr
1-6164	1-2691	0=Hourly	1= Summer 2012	0=Hourly	0=Hourly	0=Hourly	0=Hourly	0-max
		1=Teaching	2=Fall 2012					
			3=Spring 2013					

To determine the individual's total work, the individual's courses taught and hourly work was summed by term. Figure 12 demonstrates the coding of the individual's total work. These data were derived by summing instructional work and hourly work by *Employee ID* code and by *Term ID* code.

Figure 12. Individual's Total Work Coding of String to Nominal Data

Record Nbr	Emp ID	Type of Emp	Type of Emp1	WereHrs-inSum	WereHrs-inFal	WereHrs-inSpr	When Code	WhenDescr	When Work1
1-6164	1-2691	Part-time Hourly	0	0=No Summer Work	0=No Fall Work	0=No Spring Work	100	Summer Only	1
		Part-time Faculty	1	1=Summer Work	1=Fall Work	1=Spring Work	010	Fall Only	2
							001	Spring Only	3
							110	Summer & Fall	4
							101	Summer & Spring	5
							011	Fall & Spring	6
							111	Year Round	7

As described early, the condition, noted by the *WhenWork1* variable label in Figure 12, was important as it related to the number of weeks the employee worked. This number of weeks the employee work value was needed as the denominator to determine the average weekly hours. By evaluating the individual's courses and hourly work by term, a determination was made as to whether work in the particular term existed. Specifically, the code for each term was determined by evaluating the work in each of the terms either as zero for no reported hours or one reported hours found in the database by *Employee ID*. Then each term was concatenated into a new variable called *When Code*, with the first digit representing the summer term, second digit denoting the fall term and third digit linking to the spring term . For example, with the *When Code* of 001, represents a Spring Only worker, coded as a "3" in the WhenWork1 variable. When a "3" is in the WhenWork1, the total work hours are divided by the 18 weeks of the spring only term. This coding proved to be critical in the analysis in order to answer the research question and conduct the data analysis.

Description of the Dependent and Independent Variables

The dependent variable in the study included the estimated average hourly work per part-time faculty after applying the IRS model and the multi-variable workload model. The dependent variables were derived through the independent variables within this study, which relate to the parametric elements necessary to measure equitably the average of work hours of part-time faculty. Independent variables in this study included course contact time by part-time faculty, credit value of the course, average number of students enrolled in the course, and the number of hourly labor hours per part-time instructor. Segregation of the independent variables between fall, spring, and summer semesters was necessary for the analysis; therefore, this study

considered when the course was taught as an independent variable. The following provides a detailed evaluation of each of the independent variables used within each of the two formulas.

IRS 2.25 model.

As described, the mathematical representation of the IRS 2.25 model is expressed as:

$$Est.\,Ave\ hours\ per\ week \triangleq \left\{\{[\sum_{t=0}^{t=n} x_t] \times 2.25\} + \sum_{j=0}^{j=m} y_j\right\}\Big/_{k}$$

The following table describes the independent variables.

Table 2. Independent Variables of the IRS 2.25 model

Constant	x_t	n	y	m	k
IRS 2.25	Class contact time per course	Number of courses	Number of hours for hourly-based activity	Number of hourly activities	Number of weeks in the reporting period

Constant Variable included the 2.25 multiplier of contact time to estimate the total work hours as suggested by the IRS.

Multi-variable workload model.

The alternate model considered multiple variables. Specifically, the multi-variable workload model is expressed as:

$$Est.\,Ave\ hours\ per\ week \triangleq \left\{\left\{\left\{\left[\sum_{i=0}^{i=n} a_i\ x_i\right] \times \frac{b}{c}\right\} + \sum_{j=0}^{j=m} y_j\right\}\Big/_{k}\right\}$$

The following table describes the unique independent variables associated with the multi-variable workload model.

Table 3. Unique Independent Variables to the Multi-Variable Workload Model

i	a	x	n	b	y	m	k
Workload variable[1]	Coefficient of Instructional Workload Variables	Actual data of Workload measure	Number of courses	Average hours per week of full-time faculty by utilizing data from multiple studies	Number of hours for hourly activity	Number of hourly activities	Number of weeks in the reporting period[2]

[1] For the purpose of this study, three workload variables are used
[2] The number of weeks in a reporting period is dependent when the instructor taught the course.

Within the workload model, the independent variables of Number of Courses (n), Number of hours for hourly-based activity (y), Number of hourly activities (m), and Number of weeks in the reporting period (k) are consistent as in the IRS 2.25 model.

Data Analysis

Step 1 answered the first secondary research question, Q1: If the Affordable Care Act was in effect in FY2013, how many part-time faculty members worked an average of 30 or more hours per week by utilizing a reasonable and consistent method to measure the non-hourly work at a Midwestern community college? The hypothesis stated that part-time faculty would be determined to be full-time employee based on the ACA definition. Specifically, 30 hours per week was equal or greater than the estimated average hours per week as measured by a multi-variable workload formula. The null hypothesis stated that part-time faculty would not be determined to be a full-time employee based on the ACA definition. Mathematically represented by the following equations:

Equation 5. Question 1 Hypothesis

$$H1\colon 30\frac{Hours}{Week} \geq Est.\,Ave\ hours\ per\ week \triangleq \left\{ \left\{ \left\{ \left[\sum_{i=0}^{i=n} a_i\ x_i\right] \times \frac{b}{c} \right\} + \sum_{j=0}^{j=m} y_j \right\} \Big/ k \right\}$$

Equation 6. Question 1- Null Hypothesis

$$H0\colon 30\frac{Hours}{Week} < Est.\,Ave\ hours\ per\ week \triangleq \left\{ \left\{ \left\{ \left[\sum_{i=0}^{i=n} a_i\ x_i\right] \times \frac{b}{c} \right\} + \sum_{j=0}^{j=m} y_j \right\} \Big/ k \right\}$$

The process included converting each course into a workload percentage, which subsequently converts into an hourly basis. This workload conversion utilized the independent variables and coefficients. The converted-hours sum with the hourly work to determine the average hours per week. The result was analyzed to determine how many part-time faculty worked 30 or more hours per week. The analysis included descriptive statistics of frequency of the outcome being equal to or greater than 30 hours per week. In addition to answering how many part-time faculty members worked 30 or more hours, the study evaluated the variables affecting the quantity of work. This evaluation aided in the formation of the recommendations found in Chapter 5. To expand the results and to provide a comprehensive recommendation from implementation, the study took into account hourly employees in addition to solely part-time faculty. Results were segregated by employee type including both part-time faculty and part-time hourly. After the completion of the secondary research Question 1, data analysis related to the multi-variable workload model, the Step 2 addressed Question 2.

Step 2 answered the second secondary research question, Q2: How many part-time faculty members worked an average of 30 or more hours per week by utilizing the 2.25 factor recently suggested by the IRS? The hypothesis stated that a part-time faculty was determined to be full-time employee based on the ACA definition. Specifically, 30 hours per week was equal to or greater than the estimated average hours per week as measured by a single variable of 2.25. The null hypothesis stated that part-time faculty was not determined to be a full-time employee based on the ACA definition. For this question, the process included estimating the average

hours per week by summing the instructional contact time, multiplied by 2.25, then adding hourly-compensated work, divided by the number of weeks the employee worked, as described:

Equation 7. Question 2-Hypothesis

$$H1\colon 30\frac{Hours}{Week} \geq Est.Ave\ hours\ per\ week \stackrel{m}{=} \left\{\{[\sum_{t=0}^{t=n} x_t] \times 2.25\} + \sum_{j=0}^{j=m} y_j\right\}\Big/_{k}$$

Equation 8. Question 2- Null Hypothesis

$$H0\colon 30\frac{Hours}{Week} < Est.Ave\ hours\ per\ week \stackrel{m}{=} \left\{\{[\sum_{t=0}^{t=n} x_t] \times 2.25\} + \sum_{j=0}^{j=m} y_j\right\}\Big/_{k}$$

To answer this question, the contact time per course was multiplied by the IRS constant of 2.25. The result was analyzed to determine how many part-time faculty worked 30 or more hours per week. The analysis included descriptive statistics of frequency of the outcome being equal to or greater than 30 hours per week. The number of part-time faculty averaging 30 or more hours per week was compared to the multi-variable workload method of Step 1. Like in secondary Question 1, (Q1), the study evaluated the variables affecting the quantity of work of the employees considered as ACA full-time employees. This evaluation aided in the formation of the recommendations found in Chapter 5. Both secondary research questions, Q1 and Q2 related to the employee and their total hours worked per term. Secondary research questions, Q3 and Q4 addressed the instructional work related to specific courses in order to determine if and what type of relationships existed between the variables in order to create a predictive model.

Step 3 answered the secondary research questions Question 3 and Question 4 related specifically to the work associated with the instruction of a course. The third secondary research question, Q3, is as follows: What is the correlation between the results of the multi-variable method to measure the instructional work of a course to the course contact time? The fourth secondary research question, Q4, is as follows: Based on the multi-variable workload model, does a single factor exist that can be applied to the course contact time that can reasonably

estimate the average number of hours per week that a part-time faculty works? For Step 3, the hypothesis stated that the ratio of the instructional hours of a course as measured by the multi-variable workload formula to the course contact time was constant. The null-hypothesis stated that the ratio was not constant. Mathematically expressed as:

Equation 9. Question 3- Hypothesis

$$H1: constant = \frac{\left\{\left[\sum_{i=0}^{i=n} a_i \ x_i\right] \times \frac{b}{c}\right\}}{x_1}$$

Equation 10. Question3- Null Hypothesis

$$H0: constant \neq \frac{\left\{\left[\sum_{i=0}^{i=n} a_i \ x_i\right] \times \frac{b}{c}\right\}}{x_1}$$

To answer the third and fourth secondary research questions, the ratio of hours associated with a course as measured by the multi-variable workload model to course contact time was analyzed using the appropriate statistical process to determine a correlation and predictive model. The analysis included the utilization of inferential statistical analysis to determine the strength of the relationship, the degree of correlation and linear regression analysis. The study utilized the mean of the ratio of estimated instructional hours based on the multiple variable workload formula to course contact time, referred to in this study as the *mean single factor* in the analysis. The variance of the results of using the mean single factor compared to the results using the multi-variable aided in the determination of the reliability of a single factor multiplier. In addition to the mean single factor, a linear regression analysis was completed with contract time and the results of the estimated instructional hours from the application of the multiple variable workload formula. The mean single factor and the linear regression results were then compared to the results of the secondary research questions, Q1 and Q2, which evaluated how many part-time employees met the ACA definition of a full-time employee. To support the

recommendations and institutional implications of Chapter 5, the study included an analysis of the potential correlations and common variables that contributed to the results of the number of part-time faculty meeting the ACA defined full-time employee status with the use of the mean single factor and the linear regression model as a predictor.

Appropriateness of Rationale for the Method

Due to the need for an analytical approach to measure part-time faculty work, a quantitative method served as the ideal research methodology. Three major assumptions and limitations apply to this research study.

The first assumption related to the relationship of full-time and part-time faculty work. The study assumed that part-time faculty instructional work was proportional to the instructional work of a full-time faculty member. Considering part-time faculty members are hired predominantly for instruction, it was assumed that the measurement of their work is estimated appropriately by using the workload formula applied typically to full-time faculty instructional work. Specifically, within this study, the assumption exists that part-time faculty instructional work was measured based on the individual's portion of a 100% full-time faculty. For example, if a part-time faculty had a 20% instructional Workload based on the application of the workload formula, it is assumed that the estimate of the part-time faculty member's instructional work equates to 20% of the instructional work of a 100% full-time faculty member.

The second assumption suggested that the workload formula measured the direct and indirect instructional activities that included roles and responsibilities that are assigned to all faculty members at the institution regardless of full-time or part-time status. The study assumed that the roles and responsibilities for instructional work were consistent for all faculty members.

For example, if the expectation was that faculty members assessed students' progress as part of instruction, the study assumed that the workload formula consistently accounted for this work.

The third assumption related to number of hours per week of a faculty member. This study assumed that a part-time faculty spent an equivalent proportion of time per week as a full-time faculty based on the percentage of the individual's total workload. For example, if the contractual workweek was 35 hours per week for a full-time faculty and a part-time faculty member was loaded at 20%, it was assumed that the estimated part-time faculty workweek would be 20% of 35 hours per week, equaling 7 hours per week of work. This result varied with the application of different full-time faculty work-hours per week values in this study.

Summary

The Affordable Care Act stipulates full-time employees merit a prescribed set of insurance benefits for a limited cost. The ACA defines a full-time employee as an individual who works an average of 30 or more hours per week in a given time period. Part-time faculty members receive compensation based on a per-course or non-hourly basis for instructional work. As a result, higher education institutions need to estimate the hours per week associated with the instructional work of part-time faculty. The inability to measure effectively the average labor hours of part-time faculty defines the fundamental challenge of the ACA for higher education institutions. Therefore, the purpose of this study was to examine the effect of applying various workload formulas to measure the average weekly working hours of part-time faculty and compare the results to the Affordable Care Act definition of a full-time employee. Workload formulas were used as a means to estimate the number of work hours associated with an instructional course that was compensated on a per-course basis. Two types of workload formulas were explored: a single variable and a multi-variable formula. The conversion from a

workload formula to an estimated average hourly workweek intends to meet the ACA requirement of a reasonable and consistent method to measure part-time faculty work applied at the Midwestern community college.

Chapter 3 included details regarding introduction of the description of the method including the research process associated with the IRS single variable formula and the multiple workload formula, followed by a description of the dependent and independent variables, the research setting and the coding process of these data, and finally the data analysis techniques utilized in this study. Based on methodology described in Chapter 3, Chapter 4 provides the results and key findings of this study.

Chapter 4. Results

Introduction

The purpose of this study was to examine the effect of applying various workload formulas to measure the average weekly working hours of part-time faculty and to compare the results to the Affordable Care Act definition of a full-time employee. The Affordable Care Act requires organizations to provide healthcare coverage to full-time employees, defined as one who works an average of 30 or more hours per week or pay a penalty. As a result, ACA requires higher education institutions to measure the employee's average weekly hours. Part-time faculty members typically are offered no healthcare coverage and are compensated for their instructional work on a per-course basis, rather than on an hourly basis. Therefore, the challenge is determining the number of work hours associated with the course.

Despite the challenges of defining academic work, many higher education institutions have developed workload formulas to allocate and monitor academic work. Grounded in the Parametric Estimating Model framework, described in Chapter 2, workload formulas were used as a means to estimate the number of work hours associated with an instructional course that was compensated on a per-course basis. Part-time faculty members may also provide other service to the organization, compensated on an hourly basis. The total work of part-time faculty is the sum of the hourly and the instructional per-course work.

The primary research question for this study is as follows: How do workload models as a measurement technique affect the number of part-time faculty considered as full-time employees as defined by the Affordable Care Act? The secondary research questions are as follows:

Q1: Specifically, if the Affordable Care Act was in effect in FY2013, how many part-time faculty members worked an average of 30 or more hours per week by

utilizing a multi-variable workload model as reasonable and consistent method to measure at one Midwestern community college?

Q2: How many part-time faculty members worked an average of 30 or more hours per week by utilizing the 2.25 factor recently suggested by the IRS?

Q3: What is the correlation between the results of the multi-variable method to measure the instructional work associated with a course compared to the contact time of the course?

Q4: By applying the multiple variable workload formula to a course, does a single factor exist that can be applied to the course contact time that can reasonably estimate the average number of hours per week that a part-time faculty works related to that course?

This study analyzed the effects of utilizing a single variable and a multiple variable workload formula to measure part-time faculty work. The research methodology included a quantitative analysis using the application of a consistent treatment using ex post facto data.

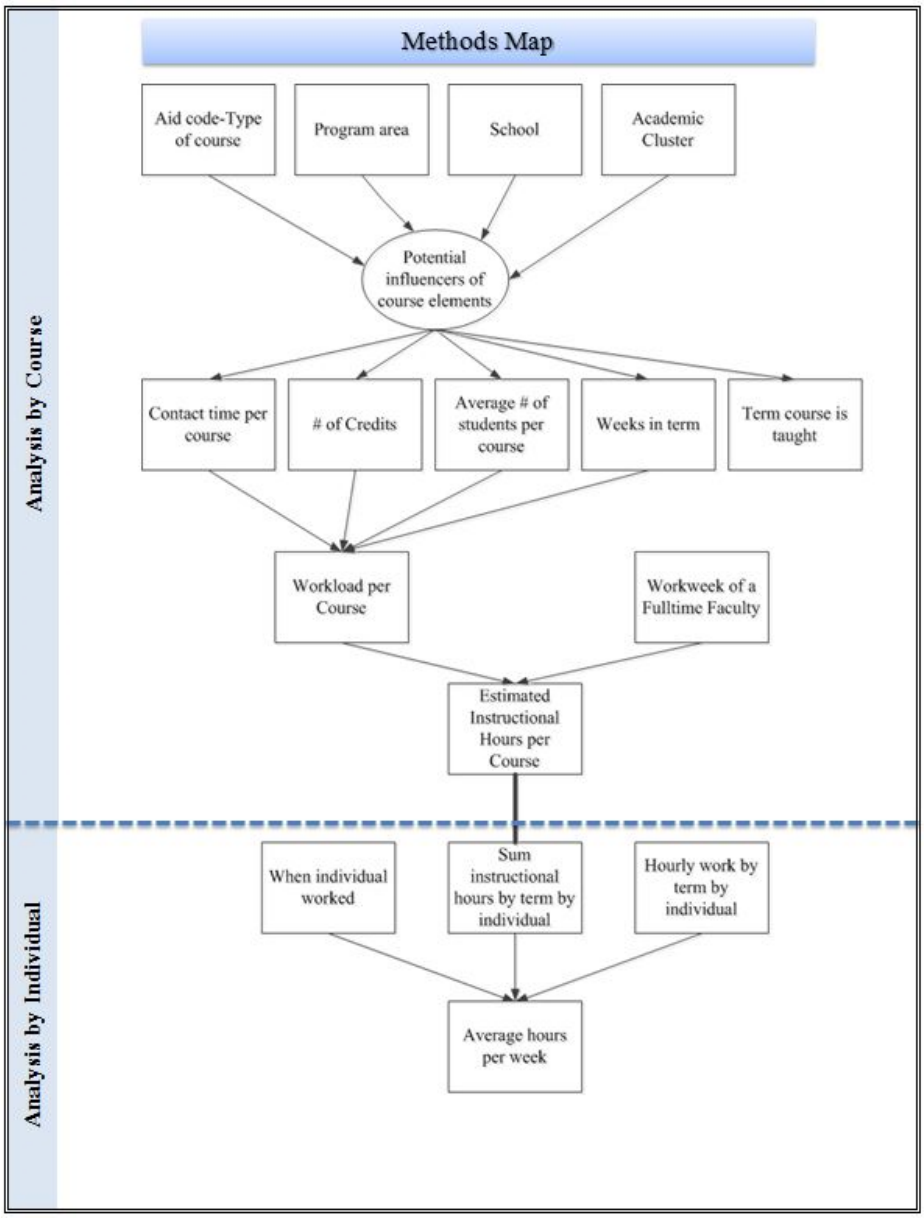
Chapter 4 is organized in three main sections including the review of the method, the results and the identification of key findings. The Review of the Method section provides the descriptive statistics of the multiple datasets utilized in this study including analysis of the individual part-time teaching assignments, the variables of the multi-variable workload formula, the categorical datasets, the hourly work database and determination of when the employee worked. The Result section is segregated based on the study's secondary research questions. Specifically, secondary research Question 1 (Q1) and Question 2 (Q2) relate to the number of part-time employees meeting the ACA definition of a full-time faculty if ACA applied in FY2013. The secondary research Question 3 (Q3) and Question 4 (Q4) look for predictive

values and correlations to aid in the forecasting to determine whether a part-time faculty meets the definition of full-time employee. The chapter concludes with a summary of key findings.

Review of Method

As described in Chapter 3, Figure 13 depicts the methodology map for this study, denoting the inter-connections of the variables and calculations to answer the research questions.

Figure 13. Methods Map



As described in Figure 13 from the top, the potential influences on the attributes of a course that was analyzed included the type/level of course, the department or academic level, the division or school and the academic cluster. Part-time faculty taught individual courses during a term with each course having a specific classroom contact time, a course credit value and an average number of students. Within the course analysis portion, these variables were utilized to determine an estimated amount of hours associated with the teaching assignment by applying various workload formulas. After the course analysis phase was completed, each individual was evaluated by summing the estimated instructional work with any hourly-compensated work. The individual work data determined when the employee worked which was needed to determine the average hours per week in which the employee worked.

The data elements were gathered directly or indirectly from a variety of sources. First, a report of the individual teaching contract assignments of part-time faculty included the course catalog number, contact time and term that the course was taught. From the catalog number, within the individual teaching contract, the level/type/aid code, program department, school and academic cluster was deducted. Appendix C depicts a sample of the Individual Part-time Teaching Assignments report. The second source of data included the course workload data, including the average number of students over the prior two years and the number of credits of the course taught. Appendix D highlights a sample of the 2013 Workload data of the coded catalog number. The following information describes the specific results from a descriptive statistics analysis of these database elements.

Individual part-time teaching assignment database.

A database was generated that lists the courses taught by part-time faculty that were compensated on a *per-course* basis. The coded data was cross-referenced in order to maintain

and protect anonymity. Data elements included coded course catalog number, term, instructional level of the course, academic department program area, institutional school and the academic pathway cluster. The Midwestern community college issued 3,473 course-teaching contracts part-time faculty from June 1, 2012 through May 31, 2013. Appendix C provides a portion of the database utilized in this study. To provide contextual background, the following figures and tables describe the four salient characteristics of those part-time teaching assignments from the database based on descriptive statistics. Four salient characteristics of the teaching assignments include when a course was taught, the school responsible for the course, the academic level denoted by aid code and academic pathway cluster were correlated to the employees meeting the ACA definition of a full-time employee. The results aided in the recommendations found in Chapter 5.

As one salient characteristic, when a course was taught, was an important attribute to the analysis. Figure 14, a pie chart of the 3,473 courses taught by part-time faculty that were compensated on a per-course basis, denotes the frequency by the three different terms of the academic year including summer, fall and spring terms.

Figure 14. Courses Taught by Part-time Faculty by Term

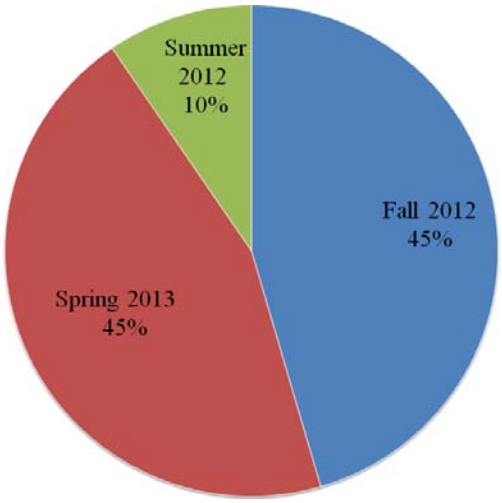
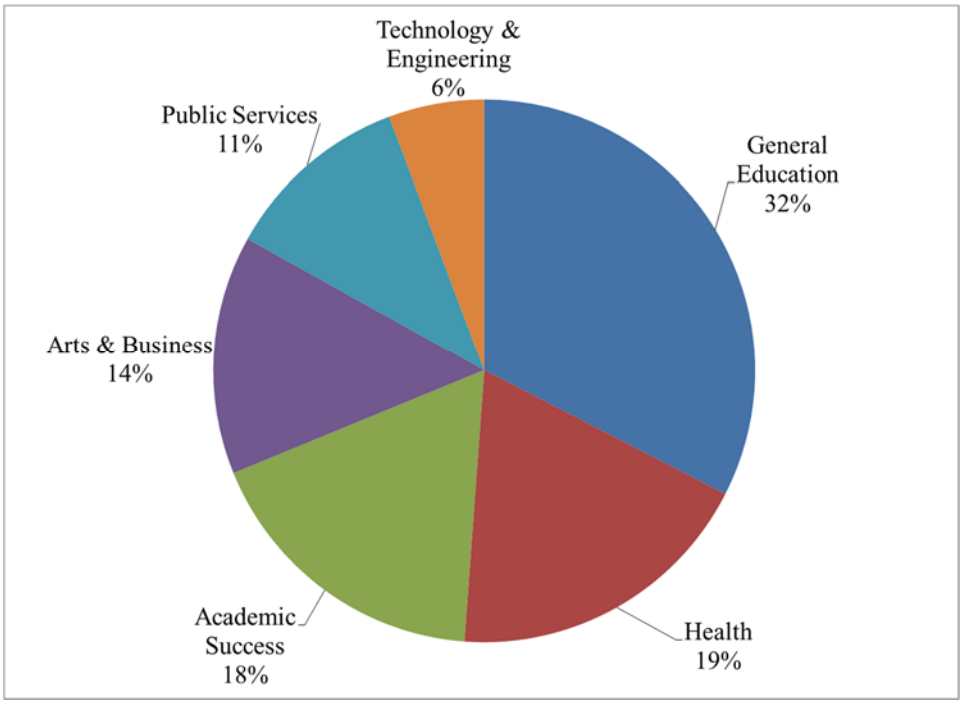


Figure 14 indicates that most courses that were taught by part-time faculty occurred during the fall or spring terms and that the number of fall courses taught by part-time faculty equals the number of spring courses. The number of courses taught during the summer term by part-time faculty was less than the fall and spring terms. The term was evaluated to determine if a correlation exists to the employees meeting the ACA definition of a full-time employee.

From June 1, 2012 to May 31, 2013, the Midwestern community college organized academic programs into six divisions, called "schools," which was a second salient characteristic of a part-time faculty course. The number of courses taught by part-time faculty, compensated through a course-basis, varied by school. Figure 15 demonstrates the distribution among the schools of the 3,473 courses.

Figure 15. Courses Taught by Part-time Faculty by School



From Figure 15, the Schools of General Education and Health account for slightly more than 50% of all part-time faculty-teaching assignments. The School of Technology &

Engineering issued the fewest part-time contracts from June 1, 2012 though May 31, 2013. The academic school was evaluated to determine if a correlation existed to the employees meeting the ACA definition of a full-time employee.

As the third salient characteristic, the type or level of the course taught by part-time faculty included a college level course or less than college vigor. Other course classifications include apprenticeship, continuing education, or hobby recreation courses. Table 4 presents the distribution of courses taught by part-time faculty, compensated on a per-course basis, by the academic level.

Table 4. Types of Courses Taught by Part-time Faculty

Type of Course/Academic Level	n	%
01 Miscellaneous	9	.3
02 Non-Postsecondary Remedial Instruction	1	.0
03 Non-Postsecondary Developmental Instruction	61	1.8
04 Non-Postsecondary Adult Secondary Education & Youth Options	16	.5
05 Non-Postsecondary English Language Learning	251	7.2
06 Non-Postsecondary Intermediate Adult Basic Ed	128	3.7
07 Non-Postsecondary Beginning Adult Basic Ed	122	3.5
09 Continuing Education-Vocation/Technical Professional Studies	159	4.6
11 Continuing Education-Basic Education, Citizenship	324	9.3
13 Apprenticeship	80	2.3
14 Postsecondary 2-Year Technical Diploma	26	.7
15 Postsecondary 1 Year Technical Diploma	106	3.1
16 Postsecondary Technical Diploma Short-term	328	9.4
17 Postsecondary-Liberal Arts Transfer	**769**	**22.1**
18 Postsecondary Associate Degree	**1093**	**31.5**
Total- Type of Course	3473	100.0

Table 4 shows that Postsecondary-Liberal Arts Transfer and Postsecondary Associate Degree type courses account for more than 50% of all part-time faculty assignments, while less than college level/preparatory level courses represent 17% of all courses taught by part-time faculty. In addition, Table 5 describes that the courses, taught by part-time faculty, correspond to an academic grouping or cluster as the fourth and final salient characteristic.

Table 5. Course taught by Part-time Faculty by Academic Career Cluster

Academic Pathway Cluster	n	%
Agriculture, Food & Natural Resources	46	1.3
Architecture & Construction	97	2.8
Arts, Audio/Video Tech & Communications	44	1.3
Business Management & Administration	239	6.9
Finance	43	1.2
General Education	**1743**	**50.2**
Health Science	543	15.6
Hospitality & Tourism	27	.8
Human Services	92	2.6
Information Technology	49	1.4
Law, Public Safety, Corrections & Security	455	13.1
Manufacturing	47	1.4
Marketing	24	.7
Transportation, Distribution & Logistics	24	.7
Total	3473	100.0

Table 5 shows that General Education courses account for slightly more than 50% of all part-time faculty assignments. Hospitality & Tourism, Marketing, and Transportation, Distribution & Logistics represent the fewest number of courses taught by part-time faculty. These four salient characteristics were tested for correlation when the individual part-time faculty member was identified as meeting the ACA definition of a full-time employee.

Multiple variable workload by coded catalog number database.

The second data source relates to the attributes of the course in relationship to the institution's workload model. The Midwestern community college utilizes a multi-variable workload formula to allocate equitably full-time faculty assignments. The workload formula utilizes the average contact time of a course over the term, the number of credits of the course and the average number of students in the course based on the past two years. Each course, cross-referenced to a coded catalog number, possesses specific workload attributes. The quantity of course credits and the average number of students were retrieved from a Workload database from Spring 2013 in order to analyze variables within the same period of performance as the part-time instructional assignments within time-period of this study. Appendix D displays a sample of the 2013 Workload data of the coded catalog number including the average number of students based on the prior two years and the number of credits. The third variable needed in the multiple workload formula, the course contact time in hours, represented the hours that the faculty was in the classroom and did not include the hours necessary for preparation, assessment, student contact and other activities associated with instruction. Instead of utilizing the course's historic course contact time from the 2013 Workload database, to be more accurate, for this study, the hours of contact time were retrieved from the individual part-time faculty member's teaching contract. The contract's course contact time reflects the part-time faculty's classroom

time obligation. Table 6 provides the statistical characteristics of the workload variables associated with courses taught by part-time faculty from June 1, 2012 to May 31, 2013.

Table 6. Characteristics of the Course Workload Variables (n=3473)

Workload Characteristics	Course Contact Hours	Quantity of Course Credits	Average Number of Students
Mean	49.1	2.37	16.3
Median	50.0	3.0	15.0
Mode	50.0	3.0	8.5
Std. Deviation	33.60	1.08	8.57
Minimum	2.0	0.10	1.0
Maximum	299.0	5.0	106.9

Note: Course Contact Hours are from the Individual Teaching Assignment contract while the Quantity of Credits and Average Number of Students were retrieved from the institution's 2013 Workload database.

Table 6 demonstrates the wide range of the three workload variables per course. Contact hours range from two hours to nearly 300 hours for a course, with a mean of 49.1. The credit values range from 0.1 to 5.0 credit courses, averaging 2.37 credits per course. The average number of students ranges from one to nearly 107 students. The average class size for courses taught by part-time faculty during the Summer 2012, Fall 2012, and Spring 2013 semesters was 16.3. An evaluation of the maximum ranges for possible outlier/error data-points was completed and concluded that these maximum data values were accurate since these data were associated with clinical work or large lecture courses.

Multiple variable workload calculations database.

Once the data sources were gathered, the next phase was to conduct the mathematical calculations to determine the estimated instructional work associated with the course. The

definition of a 100% full-time faculty workweek determined, in part, the estimated instructional hours per course. The workweek value was multiplied by the workload value of the course based on the institution's workload formula. For example, if a 100% faculty member worked 40 hours per week, then a 10% course represented 4 hours per week of instructional work. This step was repeated for six different workweek values based on the literature review from Chapter 2 Studies on the faculty workweek. The faculty workweek values utilized within this study included:

- 35- Current contractual Workweek at Midwestern community college
- 40 hour workweek-commonly used in Workload studies
- 48.4 Bentley and Kyvik (2012) globally
- 50 Bleything low range (1982)
- 51.4 Bentley and Kyvik U.S average full-time work week (2012)
- 55 hour workweek based on Bleything high range (1982)

Multiplying the course's estimated instructional hours per week by faculty by term with the number of weeks in the term resulted in the course's total estimated instructional hours by term. Equation 11 describes the mathematical calculation for the institution's multiple variable workload formula.

Equation 11. Estimated Instructional Hours per Course

$$\text{Estimated Instructional Hours} = \left((3.65\% \times \frac{X_1}{X_4}) + (0.5\% \times X_2) + (0.1\% \times X_3)\right) \times \text{Workweek}$$

Where: X_1 is the Contact time from the Teaching Contract

X_2 is the Number of Credits per specific Catalog Course

X_3 is the Average Number of Students per specific Catalog Course

X_4 is the Number of Weeks in the specific term course taught

The Midwestern community college's multiple workload formula, Equation 11, was applied to each of the 3,473 individual part-time teaching course assignments. Appendix D provides a sample of values of the multiple variable workload formula by coded course catalog number. The multiple variable workload formula utilized these values to estimate the instructional hours associated with teaching a course. Appendix E depicts a sample of the 3,473 individual part-time teaching assignments with the estimated total time by term calculated from the application of the multiple variable workload method. Resulting from a descriptive statistical analysis, Table 7 provides the Mean and Standard Deviation of the Estimated Instructional Hours by Total and by Term for each of the six workweek values of the 3,473 individual part-time teaching course assignments taught from June 1, 2012- May 31, 2013.

Table 7. Estimated Instructional Hours by Term by Workweek

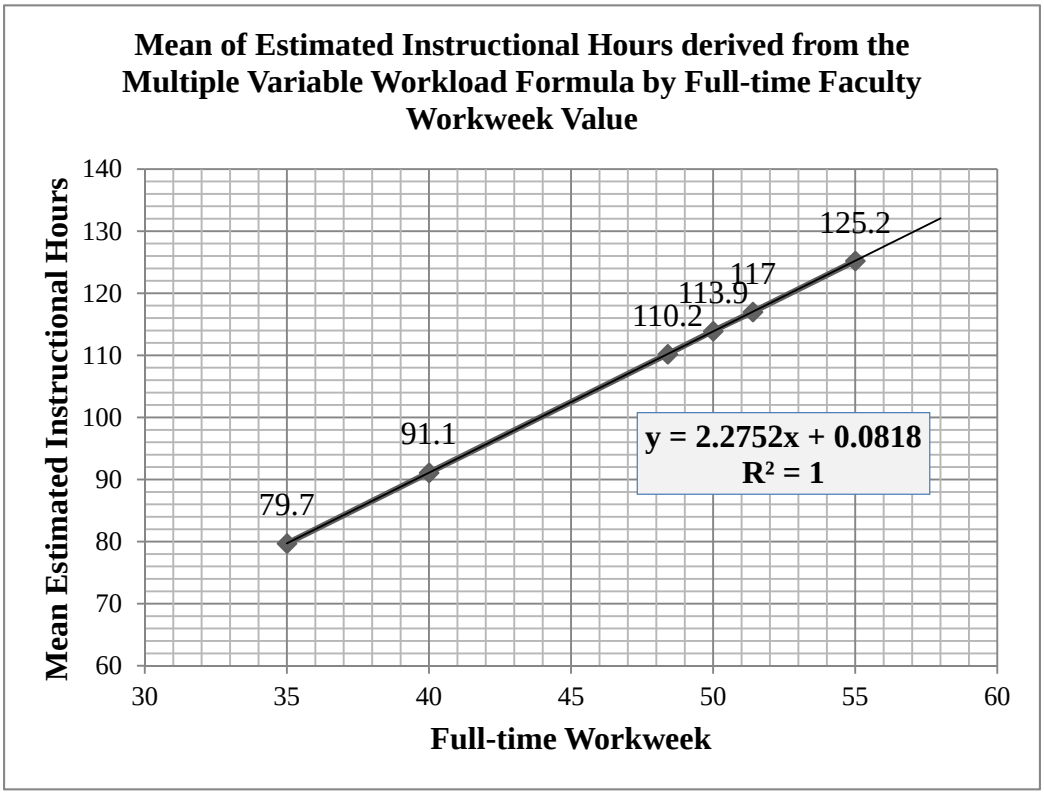
	Total n=3473		Summer 2012 n=332		Fall 2012 n=1579		Spring 2013 n=1562	
	M	(SD)	M	(SD)	M	(SD)	M	(SD)
Multi-variable workload								
Workweek 35 hours	79.7	(45.3)	48.5	(32.6)	82.6	(43.0)	83.5	(47.4)
Workweek 40 hours	91.1	(51.8)	55.4	(37.2)	94.2	(49.1)	95.5	(54.2)
Workweek 48.4 hours	110.2	(62.7)	67.0	(45.0)	114.0	(59.4)	115.3	(65.6)
Workweek 50 hours	113.9	(64.8)	69.3	(46.5)	117.8	(61.4)	119.3	(67.8)
Workweek 51.4 hours	117.0	(66.6)	71.2	(47.8)	121.1	(63.1)	122.7	(69.7)
Workweek 55 hours	125.2	(71.2)	76.2	(51.2)	129.6	(67.5)	131.3	(74.5)
Single Variable 2.25	110.6	(75.6)	73.2	(55.0)	113.0	(71.5)	116.0	(81.0)

Note: M is the mean value and (SD) is the Standard Deviation.

Results displayed in Table 7 indicate that the value of the workweek in the multi-variable workload model, directly influenced the estimated instructional hours associated with a course. Since the application of the multiple-variable workload formula to measure estimated

instructional hours varied by the value of the workweek, Figure 16 shows that the relationship was linear between the workweek value and the estimated instructional hours.

Figure 16. Mean of Estimated Instructional Hours by Workweek



The linear relationship in Figure 16 relates to Q3 and Q4 related to whether a single factor exists. The figure displays that for each workweek value increase, the value of the estimated instructional hours increased by nearly 2.28 hours per workweek value when using the multiple variable workload formula to estimate instructional hours. For example, if the results of the multiple variable workload formula given a 35-hour workweek equaled 100 hours of instruction and if the assumption of the workweek value changed to 55-hour workweek, then the estimated instructional hours at a 55-hour workweek value would be 145 instructional hours. In this example, the workweek value increased by 20 hours of workweek and therefore the 20 hours multiplied by 2.28 hour per workweek value equals a 45 hour increase. This linear workweek

relationship proved valuable to address secondary research question 4, Q4. However, in order to determine the average number of weekly hours of a part-time faculty member, in addition to the estimated instructional hours derived from the various formulas, the number of hours of work that were compensated on an hourly basis was generated.

Hourly work database.

Part-time faculties were compensated on an hourly basis for work activities such as attending meetings, creating curriculum and laboratory set-up. A report of all part-time employee hourly work was generated. A sample of the Hourly Work Database is shown in Appendix F. Although the study focused on part-time faculty work, the expansion to include hourly-compensated employees enhanced the recommendations of this study in Chapter 5.

When employee worked: Hourly and totals database.

From June 1, 2012 to May 31, 2013, the Midwestern community college employed 2,401 part-time employees who did not receive healthcare benefits of which 890 (37.1%) were part-time faculty and 1,511 (62.9%) were part-time hourly employees. From the individual part-time teaching assignment database and the part-time hourly database, a determination of when the employee worked was deducted and coded as described in Chapter 3, within the Coding the data section within this study. Seven possible when-conditions exist in which an employee could work. Each when-condition corresponds to a number of weeks as described in Table 8.

Table 8. Number of Weeks Based on When Employee Worked

When Employee Worked	Weeks
Summer Only	8
Fall Only	18
Spring Only	18
Summer and Fall Terms	26
Summer and Spring terms	26
Fall and Spring terms	36
Year-Round	52

The amount of weeks per when-condition of Table 8 determines the appropriate denominator to calculate the weekly average number of hours. Based on the individual part-time teaching assignments plus the hourly work report, Table 9 displays the populations by the employee types, including part-time faculty and hourly employees, by when the employee worked.

Table 9. Part-time Employees by Employee Type and When Worked

	Total		Part-time Faculty		Hourly Employee	
When employee worked	n	%	n	%	n	%
Summer only	214	8.9	13	1.5	201	13.3
Fall only	217	9.0	86	9.7	131	8.7
Spring only	316	13.2	96	10.8	220	14.6
Summer & Fall terms	140	5.8	17	1.9	123	8.1
Summer & Spring terms	31	1.3	10	1.1	21	1.4
Fall & Spring terms	754	31.4	414	**46.5**	340	22.5
Year-Round	729	30.4	254	**28.5**	475	31.4
Total	2401	100	890	37.1	1511	62.9

Table 9 indicates that 75% (46.5% +28.5%) of all part-time faculty members worked on an hourly basis either year-round or during the combination of the fall and spring terms. Figure 17 provides a pictorial of the population distribution of when part-time employees worked.

Figure 17. Part-time Employees Work Schedules

An added benefit of Table 9 and Figure 17 includes the differentiation of part-time faculty and part-time hourly in regards to the "summer term only" category and the Affordable Care definition of a "seasonal employee". The law permits seasonal employees to be excluded from consideration as a full-time employee (U.S. Department of Treasury, IRS, 2013). As a result, 201 part-time summer only employees may be excluded from consideration as an ACA defined full-time employee if their work meets the definition of seasonal work. The differentiation of employee types may be used for future studies.

From the hourly work database, Table 10 exhibits the mean and standard deviation of the hourly-compensated work by employee type and by when the employee worked.

Table 10. Hourly Work by Employee Type and When Employee Worked

	Total			Part-time Faculty			Hourly Employee		
Hourly work	M	(SD)	n	M	(SD)	n	M	(SD)	n
When employee worked									
Summer only	36	(62)	214	32	(85)	13	36	(61)	201
Fall only	32	(60)	217	5	(8)	86	50	(72)	131
Spring only	66	(94)	316	10	(16)	96	91	(103)	220
Summer & Fall terms	190	(223)	140	34	(56)	17	212	(228)	123
Summer & Spring term	60	(73)	31	62	(93)	10	59	(64)	21
Fall & Spring terms	147	(237)	754	29	(86)	414	291	(278)	340
Year-Round	392	(431)	729	93	(149)	254	553	(446)	475
Total	192	(313)	2401	43	(105)	890	280	(359)	1511

Table 10 demonstrates that year-round employed part-time faculty worked an average of 93 hours per year, however the data varied greatly by a standard deviation of 149. Based on the hourly work of part-time faculty, of the 890 part-time faculty members, 279 reported zero hourly work. Given this fact, 68.6% of part-time faculty reported hourly-compensated work from June 1, 2012 to May 31, 2013 although the amount of hourly-compensated work varied greatly.

Once the hourly-compensated work was gathered and analyzed, the next step tallied the estimated instructional hours and the hourly-compensated hours of the 890 part-time faculty members who taught courses which were compensated on a per-course basis. As discussed in the chapter's Multiple variable workload calculations database section, the value of the weekly hours of a full-time faculty workweek affected the results of the estimated instructional time associated with a course, however this relationship was linear from Figure 16. For the part-time hourly employees, the estimated instructional hours equals zero so therefore, the total hours of work did not vary by the value of the workweek of a full-time faculty member. Summing the

individual's hourly-compensated work as described in Table 10 with individual's estimated instructional hours based on the value of the workweek results in the total hours per part-time employee. Table 11 exhibits the mean and standard deviation of the total hours of part-time faculty segregated by when the employee worked and by the value of the workweek of a full-time faculty member related to the application of the multiple variable workload formula. Table 11 also shows the mean and standard deviation of total work time when the estimated instructional hour was estimated with the IRS single factor of 2.25 multiplied to the course's contact time. Appendix G provides a sample of the Total Work Hours portion of the database used in the descriptive statistics analysis to determine the mean and standard deviation.

Table 11. Mean and Standard Deviation of Total Hours of Part-time Faculty

Total Hours	n	35 Hr Wk M	35 Hr Wk (SD)	40 Hr Wk M	40 Hr Wk (SD)	48.4 Hr Wk M	48.4 Hr Wk (SD)	50 Hr Wk M	50 Hr Wk (SD)
When employee worked									
Summer only	13	111	(98)	122	(101)	141	(107)	144	(108)
Fall only	86	116	(59)	132	(67)	158	(81)	163	(83)
Spring only	96	139	(82)	158	(93)	189	(112)	195	(115)
Summer & Fall terms	17	212	(120)	238	(133)	280	(154)	289	(159)
Summer & Spring term	10	272	(167)	301	(179)	352	(201)	361	(205)
Fall & Spring terms	414	354	(169)	401	(189)	479	(222)	494	(228)
Year-Round	**254**	**541**	(267)	605	(295)	713	(345)	733	(354)
Total	890	354	(239)	399	(266)	473	(311)	487	(320)

Total Hours	n	51.4 Hr Wk M	51.4 Hr Wk (SD)	55 Hr Wk M	55 Hr Wk (SD)	2.25 M	2.25 (SD)
When employee worked							
Summer only	13	147	(109)	155	(111)	156	(113)
Fall only	86	168	(85)	179	(91)	154	(82)
Spring only	96	200	(119)	213	(126)	189	(124)
Summer & Fall terms	17	296	(162)	313	(172)	271	(139)
Summer & Spring term	10	370	(209)	391	(218)	353	(207)
Fall & Spring terms	414	507	(234)	540	(249)	477	(232)
Year-Round	254	751	(363)	**797**	(385)	722	(364)
Total	890	500	(328)	532	(348)	475	(324)

The results from Table 11 suggest that of the 254 year-round part-time employees the mean total hours worked ranges from 541 to 797 hours per year depending on the value of the workweek. Table 11 provides the mean and standard deviation of total work hours of part-time faculty including hourly and instructional hours, segregated based on when the employee

worked. The segregation proved to be critical in order to determine the average weekly hours as required by the ACA from the total hours depicted in Table 11. For example, if the faculty member only worked the summer term, the total hours would be divided by the 8 weeks in order to determine the average weekly hours. If the faculty member worked fall, spring, and summer, noted as "Year Round", then the total hours would be divided by 52 week. There are seven various conditions when a faculty works including: summer only, fall only, spring only, summer and fall terms, summer and spring terms, fall and spring terms and year-round.

Based on the results of Table 11, Table 12 displays the results of the average weekly hours of the 2,401 part-time employees who worked from June 1, 2012 to May 31, 2013. Appendix G, provides a sample of the Total Work Hours and Average Work Hours portion of the database used in the descriptive statistics analysis to determine the mean and standard deviation.

Table 12. Average Weekly Hours by Employee Type by Workweek

	Total		Part-time Faculty		Hourly Employee	
	M	(SD)	M	(SD)	M	(SD)
Multi-variable workload						
Workweek 35 hours	8.2	(7.1)	9.48	(5.8)	7.4	(8.0)
Workweek 40 hours	**8.6**	(7.4)	**10.7**	(5.6)	**7.4**	(8.0)
Workweek 48.4 hours	9.4	(7.9)	12.7	(6.5)	7.4	(8.0)
Workweek 50 hours	9.5	(8.0)	13.1	(6.7)	7.4	(8.0)
Workweek 51.4 hours	9.7	(8.1)	13.4	(6.9)	7.4	(8.0)
Workweek 55 hours	10.0	(8.4)	14.3	(7.3)	7.4	(8.0)
Single Variable 2.25	9.4	(8.0)	12.7	(6.9)	7.4	(8.0)

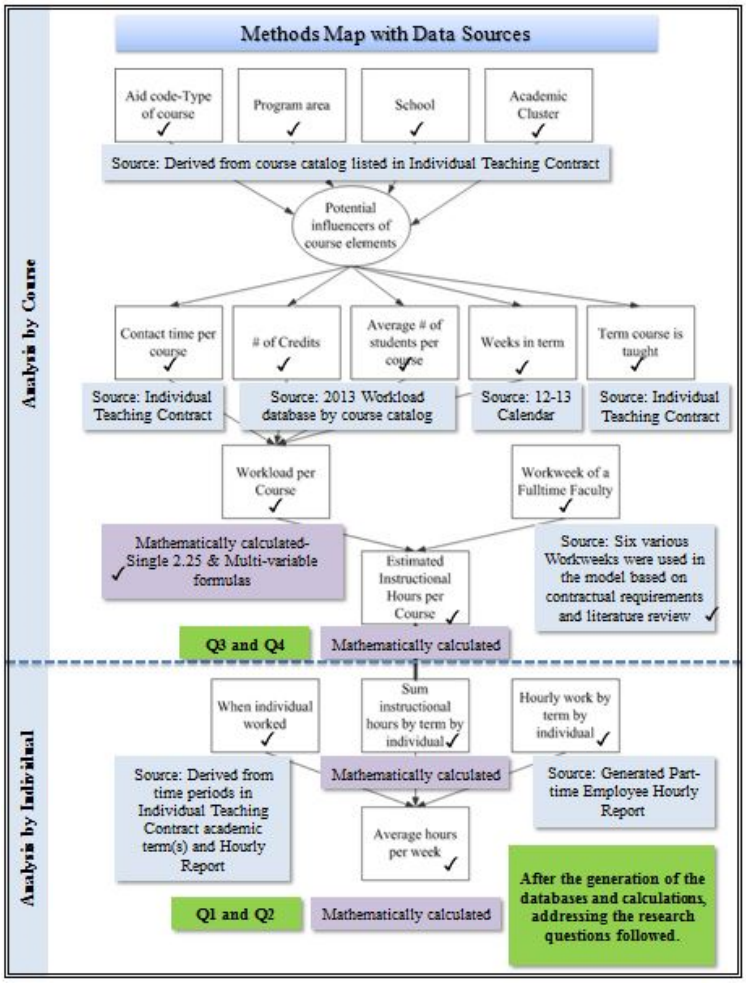
Note: Total Part-time Employee (n=2401), Part-time Faculty (n=980), Hourly Employee (n=1511)

Table 12 demonstrates, for example, that the mean of the average of weekly hours for a 40-hour workweek equals 8.6 hours with a mean average of 10.7 hours per week for part-time faculty and

7.4 hours for a part-time hourly employee. Table 12 reveals that the hourly-compensated employees mean average weekly hours did not vary by the value of the workweek. The mean weekly averages of part-time employees including part-time faculty and part-time hourly are below the definition of the Affordable Care Act definition of a full-time employee. However, Q1 and Q2 research questions were concerned with the frequency of the individual average weekly hours resulting in a value of 30 or more hours.

Concluding the Review of Method section of Chapter 4, Figure 18 demonstrates the variety of data sources and mathematical calculations generated in order to address the specific research questions.

Figure 18. Methods Map with Status



Based on Figure 18, these data were retrieved from the individual part-time teaching assignment contract, the 2013 Workload variable database, the IRS single 2.25 factor, the academic calendar, various values of a full-time faculty workweek, and a database of hourly work of part-time employees. Data were deducted based on the course catalog found in the teaching assignment contract to describe potential influencers of the teaching assignment including level of course and instructional area. Data were also deducted to determine when each part-time employee worked from the hourly report and the teaching term. Finally, mathematical calculations were conducted to estimate the number of hours associated with

instructional work, followed by the sum of the total hours including hourly and estimated instructional work, concluding with the average weekly hours of work for the part-time employee. Based upon the completion of the database generation and mathematical calculation from Figure 18, the following section provides the results and addresses each of the secondary research questions.

Results

The Affordable Care Act requires organizations to provide healthcare coverage to full-time employees, defined as one who works an average of 30 or more hours per week. As a result, ACA requires higher education institutions to measure the employee's average weekly hours. Part-time faculty members are typically not offered healthcare coverage and are compensated for their instructional work on a per-course basis, rather than on an hourly basis. Therefore, the challenge is determining the number of work hours associated with the course.

The primary research question for this study is as follows: How do workload models as a measurement technique affect the number of part-time faculty considered as full-time employees as defined by the Affordable Care Act. The secondary research questions are as follows:

> Q1: Specifically, if the Affordable Care Act was in effect in FY2013, how many part-time faculty members worked an average of 30 or more hours per week by utilizing a multi-variable workload model as reasonable and consistent method to measure at one Midwestern community college?
>
> Q2: How many part-time faculty members worked an average of 30 or more hours per week by utilizing the 2.25 factor recently suggested by the IRS?

Q3: What is the correlation between the results of the multi-variable method to measure the instructional work associated with a course compared to the contact time of the course?

Q4: By applying the multiple variable workload formula to a course, does a single factor exist that can be applied to the course contact time that can reasonably estimate the average number of hours per week that a part-time faculty works related to that course?

In general, this study analyzed the effects of utilizing a single variable and a multivariable workload formula to measure part-time faculty work.

Secondary research questions 1 and 2.

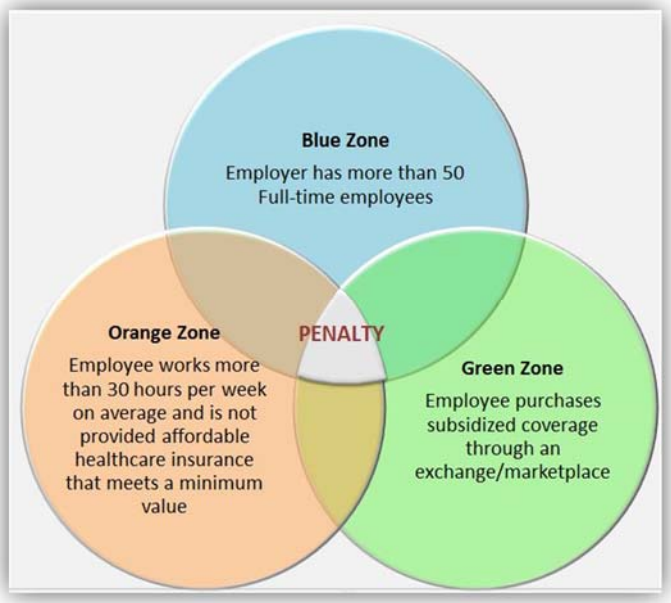
Q1: Specifically, if the Affordable Care Act was in effect in FY2013, how many part-time faculty members worked an average of 30 or more hours per week by utilizing a multi-variable workload model as reasonable and consistent method to measure at one Midwestern community college? Table 13 provides the frequency of the number of part-time employees that worked an average of 30 or more hours per week, meeting the Affordable Care Act definition of a full-time employee. Appendix G contains a sample of the database used to generate the results.

Table 13. Part-time Employees Considered Full-time: Multiple Variable Workload

	Total		Part-time Faculty		Hourly Employee	
Number of Full-time	n	%	n	%	n	%
Participants	2401	100	890	37.1	1511	62.9
Multi-variable workload						
Workweek 35 hours	38	1.6	4	0.4	34	2.3
Workweek 40 hours	39	1.6	5	0.5	34	2.3
Workweek 48.4 hours	42	1.7	8	0.9	34	2.3
Workweek 50 hours	45	1.9	11	1.2	34	2.3
Workweek 51.4 hours	46	1.9	12	1.3	34	2.3
Workweek 55 hours	53	2.2	19	2.1	34	2.3

The results of Table 13 present key findings. By using the multiple variable workload formula to measure instructional work and depending on the value of the full-time faculty workweek, four to 19 part-time faculty members met the ACA definition of a full-time employee. When adding the 34 part-time hourly employees, results indicated that 38 to 53 part-time employees potentially qualified for subsidized healthcare benefits. As described in Chapter 1, Figure 19 describes the conditions in which a penalty applies when a full-time employee is offered no health care benefits.

Figure 19. Conditions in which a ACA Penalty Applies



Note: This researcher created the Venn diagram to describe the conditions in which an employer would be subject to a financial penalty for failure to provide affordable health coverage that meets a minimum value for an employee.

Therefore, by using the multiple-variable workload formula to measure instructional work, the results suggested that if the Affordable Care Act was enacted from June 1, 2012 to May 31, 2013, 38 to 53 part-time employees, including 34 part-time hourly and 19 part-time faculty members, fall in the Orange Zone of Figure 19. The Orange Zone reflects the area in which an employee works an average of 30 or more hours per week and is provided no affordable healthcare insurance that meets a minimum value. As a result, if one of these 38 to 53 part-time employees qualified to purchase subsidized coverage through an ACA exchange/marketplace, noted in the figure as the Green Zone, this Midwestern community college would be subject to a financial penalty. These results of the number of part-time employees meeting the ACA definition of full-time employee when utilizing the multiple

workload formula as a means to estimate the instructional hours associated with a course varied as compared to utilizing the single factor multiplier suggested by the IRS.

The question of 'how many part-time employees meet the definition of a full-time employee if the instructional work was estimated based on the IRS 2.25 method rather than the application of a multiple variable workload formula' leads to the results for the secondary research question 2, Q2. Table 14 provides the results when the instructional work is estimated by multiplying the individual's course contact time by the IRS suggested 2.25 factor.

Table 14. Number of Employees Considered Full-time: Single 2.25 Factor

	Total		Part-time Faculty		Hourly Employee	
Number of Full-time	n	%	n	%	n	%
Single Variable 2.25	48	2.0	14	1.6	34	2.3

Table 14 shows the number of part-time hourly-compensated employees meeting the ACA definition had no variation compared to the number of part-time hourly employees when using the multiple variable workload formula. However, when using the 2.25 multiplied to the course's contact time as a means to estimate the instructional work associated with a course, 14 part-time faculty members met the ACA definition of a full-time faculty member. These 14 part-time faculty members who resulted from the IRS single factor multiplier fall within the range of the four-19 part-time faculty members meeting the ACA definition of a full-time employee who resulted when the multiple variable workload formula was used.

By addressing the secondary research question 1 and 2, the number of employees who met the definition of a full-time employee by using the single variable 2.25 formula or by using the multiple variable workload formula to measure instructional work were determined. In order to enhance the study's recommendations for implementation, the attributes of the individual

work records of these part-time employees were evaluated to determine the connections or patterns.

Attributes of part-time employees meeting definition of full-time.

Regardless of the full-time faculty workweek value or methodology to estimate the instructional hours associated with a course, 34 part-time hourly employees meet the ACA definition of a full-time employee. Although beyond the scope of this study, eight hourly part-time employees work summer only, therefore they may be considered as "Seasonal employee" and as a result are exempted from for the ACA requirement. Appendix H provides a list of the part-time hourly employees meeting the ACA definition of a full-time employee. Excluding these hourly part-time individuals from the population, an analysis was conducted to evaluate the correlation of the part-time faculty meeting the ACA full-time employee definition to specific attributes such as when the employee worked, the type of course, the school quantity of hourly work, quantity of course assignments and the term.

Potential overload and excessive hourly work definitions.

A supplemental data element identifies which of the part-time faculty members were potentially assigned to more courses than within the institution's guidelines. This Midwestern institution defines and sets limits of part-time faculty assignments as part of the agreement with the full-time faculty union. A preliminary estimate of the individual's total load per term was conducted and those part-time faculty members were coded as potentially exceeding the contractual load limits. The classification is only potentially exceeding as the exact load calculations to account for potential sharing of courses, duplicate courses during the term, and other factors that affect the exact load calculations, were not taken into account in the

preliminary faculty load calculations. As a result, the denotation of overloaded faculty may be overstated in this preliminary analysis.

In addition to the definition of a potential overloaded part-time faculty, defining excessive hourly work was paramount. Excessive hourly work was defined within this study and determined by evaluating the individual's average hourly work accounting for when the employee worked. For each of the 19 part-time faculty members who worked an average of 30 or more hours, their hourly work was considered excessive if their hours were greater than 30 hours less 50% of the workweek value. The individual part-time faculty hourly work was compared to the 30 hours less 50% of the workweek. As described, the total maximum workload allowed per term based on the institution's union contract was established at 50% Workload as described on page 120. Therefore, as an example, if the Workweek was 40 hours for a full-time faculty work week and the maximum part-time workload was 50%, equaling 20 hours of maximum instruction (40 X 50%), then any average hourly work values equaling to or greater than 10 (30 minus 20) would be considered excessive hourly work for the purpose of this study. This calculation was completed for each of the 19 part-time faculty members.

Determining the primary attributes associated with full-time status.

Table 15 displays each of the part-time faculty members who would have been considered full-time, including at what value of the workweek in the multiple-variable workload formula or by using the 2.25 single factor was the part-time faculty member considered full-time. In addition, Table 15 also includes, for each of the 19 part-time faculty members, data such as when the employee worked, what type of courses were taught, which school issued the teaching assignments, the academic cluster of the course(s), how many hourly compensated work hours

were reported and if the part-time faculty member was potentially overloaded during any of the terms in which they taught.

Table 15. Attributes of Part-time Faculty Considered as Full-time

ID	FT with Workweek or 2.25	When Worked	Description of Teaching Assignments			Total Hrly	Potential Overload
			Type	School	Cluster		
75	35/2.25	Year Round	Post	A&B	Human Services	1036	Yes
161	51.4/2.25	Fall & Spring	Non-Post	AS	Academic	75	Yes
293	48.4/2.25	Fall & Spring	Post	Health	Health	17	Yes
677	55/2.25	Fall & Spring	Post	PS	Human Services	21	Yes
900	50/2.25	Summer Only	Post	Health	Health	0	No
1183	55	Fall & Spring	Post	Health	Health	59	Yes
1193	35	Summer Only	Post	T&E	Mfg.	306	No
1213	55	Fall & Spring	Post	Health	Health	98	Yes
1280	55	Fall & Spring	Post	Health	Health	35	Yes
1443	48.4/2.25	Spring Only	Non-Post	AS	Gen Ed	25	Yes
1445	48.4/2.25	Fall & Spring	Non-Post	AS	Gen Ed	114	Yes
1547	55	Year Round	Non-Post	AS	Gen Ed	203	Yes
1574	50/2.25	Year Round	Post	Health	Health	29	Yes
2145	35/2.25	Year Round	Post	Gen Ed	Gen Ed	906	Yes
2161	35/2.25	Fall & Spring	Post	A&B	IT	843	No
2331	55	Year Round	Continue Ed	PS	Public Safety	329	No
2498	55/2.25	Spring Only	Post	Health	Health	17	Yes
2639	40	Fall & Spring	Post	T&E	Mfg.	873	No
2672	50/2.25	Year Round	Non-Post	AS	Gen Ed	221	Yes
	19						

Note: 19 part-time faculty members meet the ACA definition of a full-time employee when the Workweek value was 55.

As an example, based on Table 15, employee 75, a part-time faculty was considered as a full-time employee based on the ACA definition when the value of the faculty workweek was 35 hours per week within the multiple variable workload formula. Employee 75 was also considered an ACA defined full-time employee when the 2.25 single factor variable was used as a means to estimate the instructional work. Employee 75 worked year round, teaching at the post-secondary level. Employee 75 worked for the School of Arts and Business in the Human Services area. Employee 75 worked a total of 1,036 hours, which were compensated on an hourly basis in addition to the instructional work. Based on preliminary total workload calculations, employee 75 may have been assigned to more courses than within the institution's guidelines. This analysis was conducted for each of the 19 employees meeting the ACA definition as a full-time employee.

Based on Table 15, three attributes account for all 19 part-time faculty members meeting the ACA definition of a full-time employee including the quantity of hourly reported work, the quantity of course assignments and the summer term. Table 16 depicts the relationship of the employee attributes to the population that met the ACA definition of a full-time employee. Appendix I provides the details, which were summarized into Table 16.

Table 16. Three Attributes Contribute to Part-time Faculty as Full-time

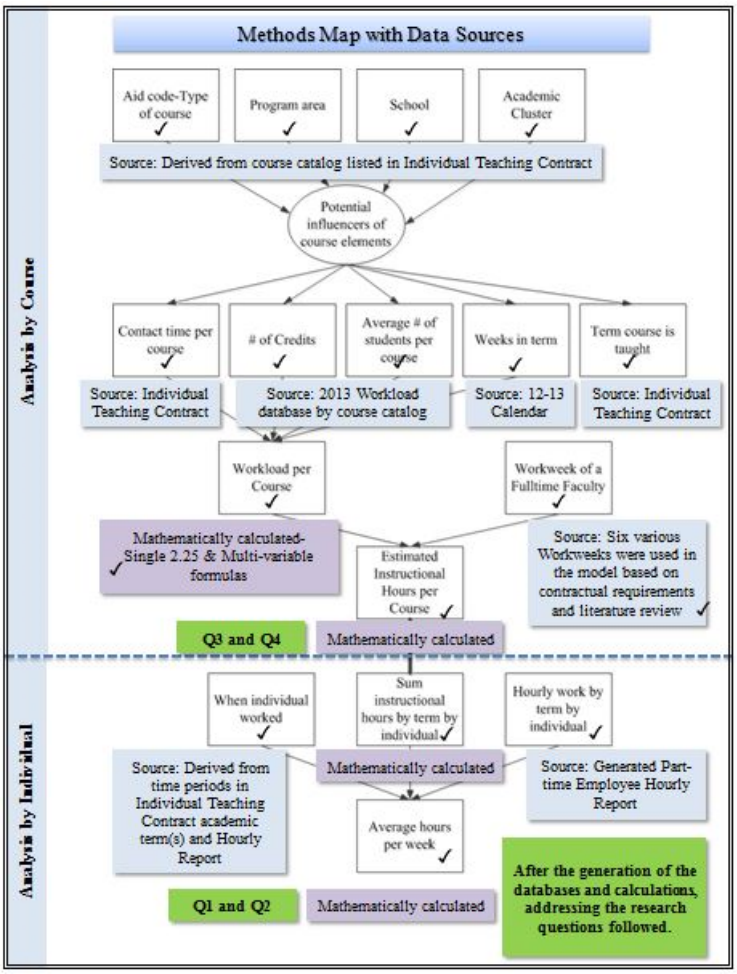
	Type of Course		School that assigned the part-time instructor						When Part-time Faculty Worked						
Controlling for Attributes	Post	Non Post	T & E	Gen Ed	H	AS	A&B	PS	Sumr Only	Fall Only	Spring Only	Sum & Fal	Sum & Spr	Fall & Spring	Year Round
Total Population	2322	1151	198	1130	647	613	496	389	214	217	316	140	31	754	729
Number Part-time Faculty 30 or Over	13	6	2	1	7	5	2	2	2	0	2	0	0	9	6
% of population FT by category	0.6%	0.5%	1.0%	0.1%	1.1%	0.8%	0.4%	0.5%	0.9%	0.0%	0.6%	0.0%	0.0%	1.2%	0.8%
Controlling for Excessive Hourly Work															
Excessive Hourly Work	46%	50%	100%	100%	14%	40%	100%	50%	50%	-	0%	-	-	33%	83%
Not Extreme Hourly	54%	50%	0%	0%	86%	60%	0%	50%	50%	-	100%	-	-	67%	17%
Controlling for Potential Overload															
Potentially Overloaded	69%	83%	0%	100%	86%	100%	50%	50%	0%	-	100%	-	-	78%	83%
Not Overload	31%	17%	100%	0%	14%	0%	50%	50%	100%	-	0%	-	-	22%	17%
Controlling for Excessive Hours or Overload															
Either Excessive Hourly Work or Overload	92%	100%	100%	100%	86%	100%	100%	100%	50%	-	100%	-	-	100%	100%
Alternative Reasons	8%	0%	0%	0%	14%	0%	0%	0%	50%	-	0%	-	-	0%	0%
Controlling for Summer Only															
Either Excess Hours/Overload or Summer	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	100%	-	-	100%	100%
Other Alternative Reasons	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	0%	-	-	0%	0%

Table 16 displays the three attributes of the part-time faculty meeting the ACA definition of a full-time employee. One attribute was the quantity of hourly-compensated work reported by part-time faculty. Of the 19 part-time faculty members determined to have worked 30 or more hours, nine reported hourly work that, based on this study, was considered excessive. The second attribute of part-time faculty meeting the ACA definition of a full-time employee relates to the potential overload of course assignments greater than the 50% Workload. Of the 19 part-time faculty members, 14 were determined to have been potentially overloaded. The third attribute connected to the 19 part-time faculty members relates to the summer only term, in which instruction and hourly work were compressed into eight weeks. Of the 19 part-time faculty members, two were determined to be Summer-only workers. The three attributes account for 100% of reasons that a part-time faculty member was considered an ACA defined full-time employee. These discoveries aided in the development of the implications and recommendations found in Chapter 5.

In addition to developing recommendations and implications for complying with the requirements of the Affordable Care Act, institutions desire efficient and effective methods to

predict proactively the number of part-time employees meeting the ACA definition of a full-time faculty. With the quest, secondary research question 3 and 4 evaluated the possibility of a proactive method to predict the estimated instructional time. While secondary research question 1 and 2 evaluated the total hours based on the individual on an after-the-fact basis, secondary research question 3 and 4 related to the estimated instructional hours on a course-basis as described in Figure 20 within the Analysis by Course section.

Figure 20. Methods Map with Status



Secondary research question 3.

Q3: What is the correlation between the results of the multi-variable method to measure the instructional work associated with a course compared to the contact time of the course? As

described in Figure 20, several nominal variables directly impact the calculated estimated instructional hours per course including the value of the workweek of a full-time faculty member, the classroom contact time, the number of credits of the course, the average number of students in the class and the number of weeks in the term in which the course was taught. Several categorical variables were tested to evaluate the effect to the estimated instructional hours per course when the multiple-variable workload formula was applied. Within the single variable of the 2.25 IRS factor, the only variable that impacts the results of the estimated instructional hours per course was the course contact time, therefore, this question focuses on the application of the variables associated when the multiple variable workload formula.

Correlation statistic of the course nominal data.

Equation 12. Estimated Instructional Hours per Course

$$\text{Estimated Instructional Hours} = \left((3.65\% \times \frac{X_1}{X_4}) + (0.5\% \times X_2) + (0.1\% \times X_3)\right) \times \text{Workweek}$$

Where: X_1 is the Contact time from the Teaching Contract

X_2 is the Number of Credits per specific Catalog Course

X_3 is the Average Number of Students per specific Catalog Course

X_4 is the Number of Weeks in the specific term course taught

The Midwestern community college's multiple workload formula, Equation 12 was applied to each of the 3,473 individual part-time teaching course assignments. Appendix D provides a sample of values of the multiple variable workload formula by coded course catalog number. The multiple variable workload formula utilized these values to estimate the instructional hours associated with teaching a course. As described in Multiple variable workload by coded catalog number database section within this chapter, Table 17 shows the wide distribution of values of the variables for the multiple variable workload formula.

Table 17. Characteristics of the Course Workload Variables (n=3473)

Workload Characteristics	Course Contact Hours	Quantity of Course Credits	Average Number of Students
Mean	49.1	2.37	16.3
Median	50.0	3.0	15.0
Mode	50.0	3.0	8.5
Std. Deviation	33.60	1.08	8.57
Minimum	2.0	0.10	1.0
Maximum	299.0	5.0	106.9

Note: Course Contact Hours are from the Individual Teaching Assignment contract while the Quantity of Credits and Average Number of Students were retrieved from the institution's 2013 Workload database.

Given the range of data as depicted in Table 17, Figure 21,

Figure 22, and Figure 23 demonstrate the relationship of the individual workload variables of course contact hours, quantity of course credits and average number of students to the estimated instructional hours as measured by the multiple variable workload formula. The multiple variable workload formula was applied to the 3,473 individual courses taught by part-time faculty from June 1, 2012 to May 31, 2013. Clearly, the scatter plots show a linear relationship of course contact time to the estimated instructional hours; however the graphs indicate little relationship to the average number of students and the number of credits with the estimated instructional hours.

Figure 21. SPSS Scatter Plot of Est. Instruct Hours by Course Contact Hours

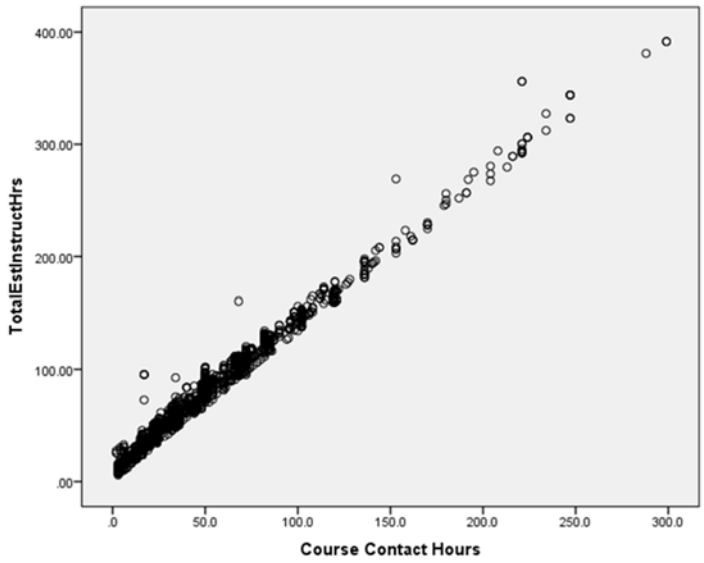


Figure 22. SPSS Scatter Pot of Est. Instruct Hours by Average # of Students

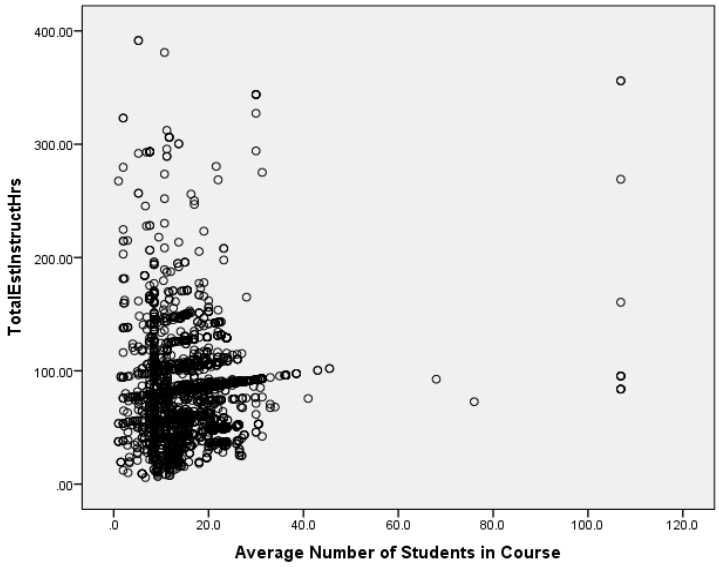
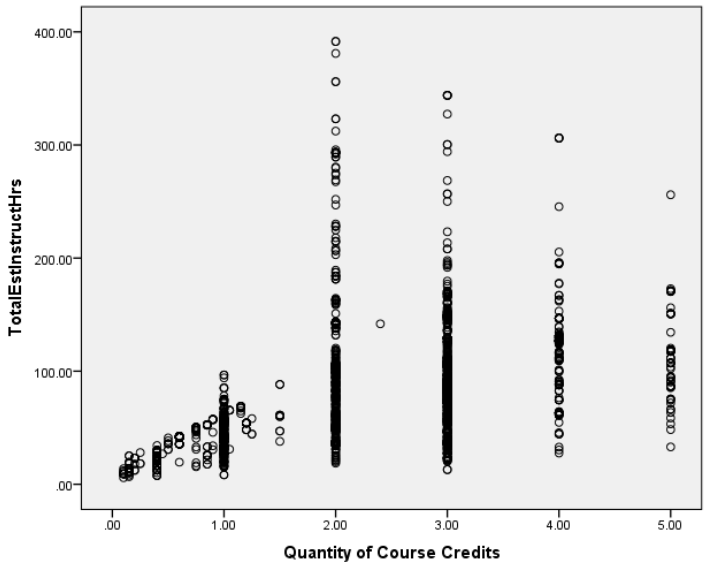


Figure 23. SPSS Scatter Plot of Est. Instruct Hours by Course Credit Value



Although the scatter plots indicate associations exist, the relationship between a course's estimated instructional hours as measured by the multiple variable workload formula and the course contact time, average number of students in the course and the number of credits of the course was investigated using Pearson product-moment correlation coefficient. Table 18 exhibits the results of the correlation bivariate statistical analysis of the course contact time, average number of students, number of credits of the course, and estimated instructional hours as calculated by the multiple variable workload formula.

Table 18. Correlations between Course Attributes and Estimated Instructional Hours

Measure	1	2	3	4
1. Course Contact Time	------			
2. Average Number of Students in Course	.012	------		
3. Number of Credits of the Course	.442**	.149**	------	
4. Estimated Instructional Hours	.989**	.131**	.514**	------

Note: ** coefficients are significant at $p < 0.01$ level (2-tailed).
n=3473 courses

Table 18 demonstrates a strong, positive, and significant correlation between the estimated instructional hours and course contact time, r =.989, p <0.01 for the 3,473 courses taught by part-time faculty. The course contact time helped to explain nearly 97.8% of the variance in the estimated instructional hours as calculated with the multiple variable workload formula. For each of those courses, less association with course credit value to the estimated instructional hours existed but the relationship is significant, r = .514, p <0.01. The course credit value helps to explain 26.4% of the variance in the estimated instructional hours. For each of those courses, a small, positive and significant correlation between the average number of students in a course and the estimated instructional hours existed, r = .131, p <0.01. The average number of students in a course helps to explain 1.7% of the variance of the estimated instructional hours. A positive, medium, and significant association exists between the course contact time and the number of credits, r = .442, p <0.01. The course credit value helps to explain 19.5% of the variance in the course contact time. The results also indicate that there is virtually no correlation nor significance associated with the average number of students and the course contact time. In general, the course contact time possesses the greatest correlation to the estimated instructional hours as measured by the multiple variable workload formula. The associations of course contact time and total estimated instructional time is further explored in response to the secondary research question 4.

Appendix J provides the syntax and SPSS results of the correlation statistical analysis of the three variables in the multi-variable workload formula, including course contact time, quantity of credits and the average number of students in the course compared to the total estimated instructional hours of the course. In addition to the nominal data elements of the workload variables, the associations of the categorical variables such as course level, academic

subject area, and division offering the course and estimated instructional hours were investigated as part of this study.

Correlation statistic of course categorical data.

The relationship between a course's estimated instructional hours as measured by the multiple variable workload formula and the categorical data of the course was investigated using Pearson product-moment correlation coefficient. The categorical data of the course included the academic level of the course, academic program, academic school responsible for the course and the career pathway cluster associated with the course. The categorical data elements were derived from the 3,473 coded course catalog numbers retrieved from the individual part-time faculty teaching contracts. Table 19 exhibits the results of the correlation bivariate statistical analysis of the course categorical data elements and estimated instructional hours as calculated by the multiple variable workload formula.

Table 19. Correlations: Course Categorical Data and Estimated Instructional Hours

Measure	1	2	3	4	5
1. Course Academic Level	------				
2. Academic Program	-.382	------			
3. Academic School	.422	-.409	------		
4. Career Pathway Cluster	-.136	.137	.476	------	
5. Estimated Instructional Hours	.112	.107	-.249	-.213	------

Note: All coefficients are significant at $p < 0.01$ level (2-tailed). n=3473 courses

Table 19 depicts a weak and significant correlation between the estimated instructional hours and the four categorical attributes of the course, including the course academic level, the academic program, the academic school and the career pathway cluster for the 3,473 courses taught by part-time faculty. The academic level such as secondary education level to college

vigor helped to explain nearly 1.25% of the variance in the estimated instructional hours as calculated with the multiple variable workload formula. For each of those courses, more association academic school to the estimated instructional hours existed, r = -.249, p <0.01. The academic school offering the course explains 6.2% of the variance in the estimated instructional hours. The results indicated that deriving a single factor multiplier that was applied to the course contact time, as part of the secondary research question 4, would not need to take into account the course categorical elements into consideration since the association to the estimated instructional time was weakly correlated. Appendix K provides the syntax and SPSS results of the Pearson Correlation

Secondary research question 3 inquired whether a correlation between the results of the multiple variable workload method to measure the instructional work associated with a course and the course attributes existed. Based on the Pearson Product-moment Correlations, a strong and significant association existed between the estimated instructional hours as measured by the multiple variable workload formula and the course contact hours. Equally as important, the discovery that no strong correlations existed among the academic level, academic program, academic school or career pathway cluster helps support the formation of a predictive factor independent upon the categorical course elements in response to the secondary research question 4. Given this relationship, the next question addresses the ability to utilize a single factor to predict the instructional hours associated with a course.

Secondary research question 4.

Q4: By applying the multi-variable workload formula to a course, does a single factor exist that can be applied to the course contact time that can reasonably estimate the average number of hours per week that a part-time faculty works related to that course?

Given the strong and significant correlation of course contact time as described in secondary research question 3, two methods were analyzed regarding the utilization of a single factor as a predictor to the estimated instructional hours associated with the course. One method included the use of the mean value of the ratio of the estimated instructional hours as measured by the workload formula relative to the course contact time. The second method included the linear regression modeling of the contact time to the estimated instructional hours as measured by the workload formula. As described previously, the estimated instructional hours were derived by workload formula, which results in a percentage of a 100% full-time faculty multiplied by the value of the workweek of the full-time faculty. This measurement technique estimates the instructional hours associated with a course. For an example, if a course has a workload value of 20% of a full-time faculty and the workweek is equal to 40 hours, then the estimated instructional hours related to the particular course would be eight hours (20% of 40 hours).

Mean single factor of estimated instructional hours to course contact time.

One method to evaluate whether a single factor exists, which predicts the estimated instructional hours related to a course, was based on the mean ratio of the estimated instructional hours to the course contact time. The IRS single factor method stipulates a 2.25 multiplier to course contact time. This similar approach was incorporated by taking the estimated instructional hours resulting from the application of the multiple variable workload formula, divided by the contact hours of the course for each of the 3,473 courses. Appendix L provides a sample of the 3,473 courses denoting the ratio of the estimated instructional hours divided by the course contact time for each of the six-workweek values including 35, 40, 48,4,50, 51.4, and 55

hours per week. Descriptive statistical analysis resulted in the mean and standard deviation of the ratio as depicted in Table 20

Table 20. Course Ratio Statistical Characteristics by Workweek

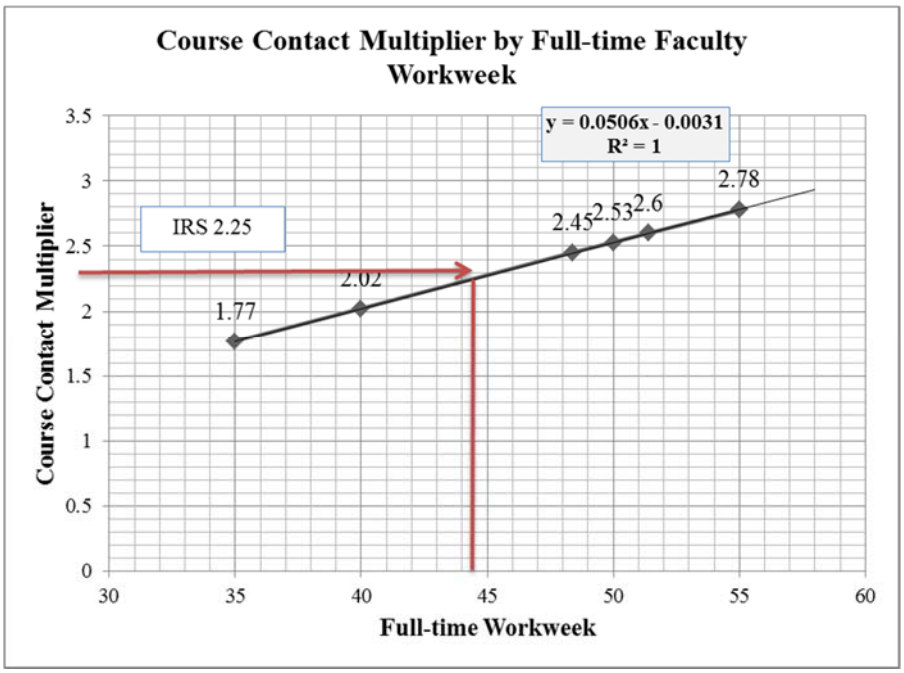
Course Ratio	Ratio 35 Hr	Ratio 40 Hr	Ratio 48.4 Hr	Ratio 50 Hr	Ratio 51.4 Hr	Ratio 55 Hr
Mean	1.77	2.02	2.45	2.53	2.60	2.78
Median	1.71	1.95	2.36	2.44	2.51	2.69
Mode	1.75	2.00	2.42	2.50	2.57	2.69
Std. Deviation	.54	.62	.75	.77	.79	.85
Range	5.72	6.54	7.91	8.17	8.40	8.98
Minimum	1.31	1.49	1.81	1.87	1.92	2.06
Maximum	7.03	8.03	9.72	10.04	10.32	11.04

Note: n =3,473 courses

Table 20 exhibits the variation of the mean ratio factor. For example, if the workweek value was 35 hours per week, the mean ratio of the estimated instructional hours to the course contact-time averages 1.77, the range of the ratios with a 35-hour workweek is from 1.31 to 7.03. As a predictive model, the 1.77 would be multiplied by the course contact time to estimate the average hours of week of work associated with the instruction of a course. The impact of this estimating methodology as a predictive model was compared to other estimating models including the IRS 2.25 single factor multiplier.

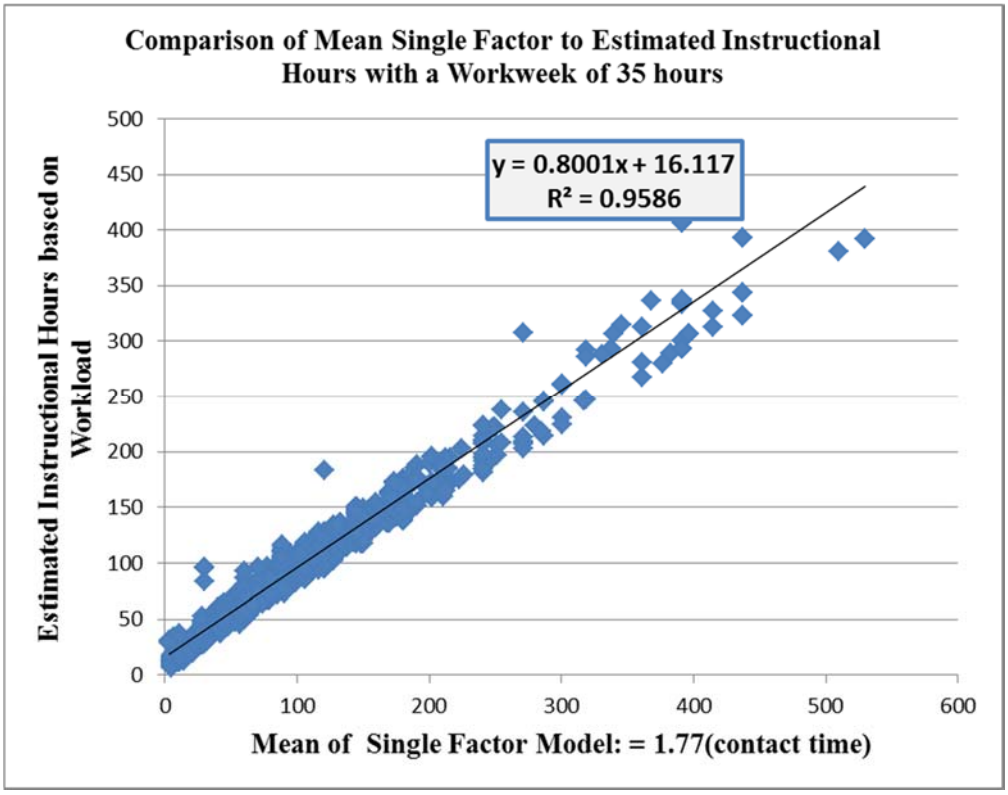
By plotting the mean derived single factor multiplier by the value of the workweek, Figure 24 shows the linear relationship of the mean ratio of the estimated instructional hours to course contact time to the value of the workweek. Also based on the linear interpolation, the 2.25 IRS factor equates to a 44.5 hour-workweek resulting assuming a multiple variable workload formula was applied. The 44.5 hour workweek result was calculated by using the $y = 0.0506x - 0.0031$ where y equals 2.25 and solving for x as expressed on the Figure 24 graph.

Figure 24. Single Factor by Workweek



While the single factor multiplier would be easy to use to predict the estimated instructional hours associated with a course, the degree of accuracy for this model is described in Figure 25.

Figure 25. Estimated Instructional Hours Predicted by Single Factor



Based on the results of Figure 25, the Midwestern community college could predict the value of the estimated instructional hours by multiplying the course contact time by 1.77 when the faculty workweek equals 35 hours per week. This single variable of 1.77 to contact time is significant (p <0.01) with 95.8% of the variance explained with this model. The rate of change of the x and y-axis in the scatter plot of the results of the two estimating models, which include the mean ration single factor model and the multiple workload mode, differ by have a coefficient of 0.8, indicating a variance in the outcomes. Given the potential financial ACA penalties of a part-time faculty member meeting the definition of a full-time faculty, as further explained in Chapter 5, a more accurate model was tested with the use of a linear regression analysis.

Regression analysis of contact time to multiple-variable workload.

The study answered the secondary research question 4, "Does a single factor exist multiplied by the course contact time that can predict the estimated instructional hours?" From the results of secondary research question 3, a strong, positive, and significant correlation between the estimated instructional hours and course contact time, r =.989, p <0.01 for the 3,473 courses taught by part-time faculty. The course contact time helps to explain nearly 97.8% of the variance in the estimated instructional hours as calculated with the multiple variable workload formula. To address the question of whether a single factor exists to predict the estimated instructional hours of a course, a multiple regression analysis was completed. The analysis evaluated the individual course contact time compared to the course's estimated instructional hours based on the multiple-variable workload formula. Table 21 provides the multiple regression results to predict the estimated instructional hours as measured by the multiple workload formula percentage to the faculty workweek value by the course contact time.

Table 21. Regression Analysis of Contact Time to Estimated Instructional Time

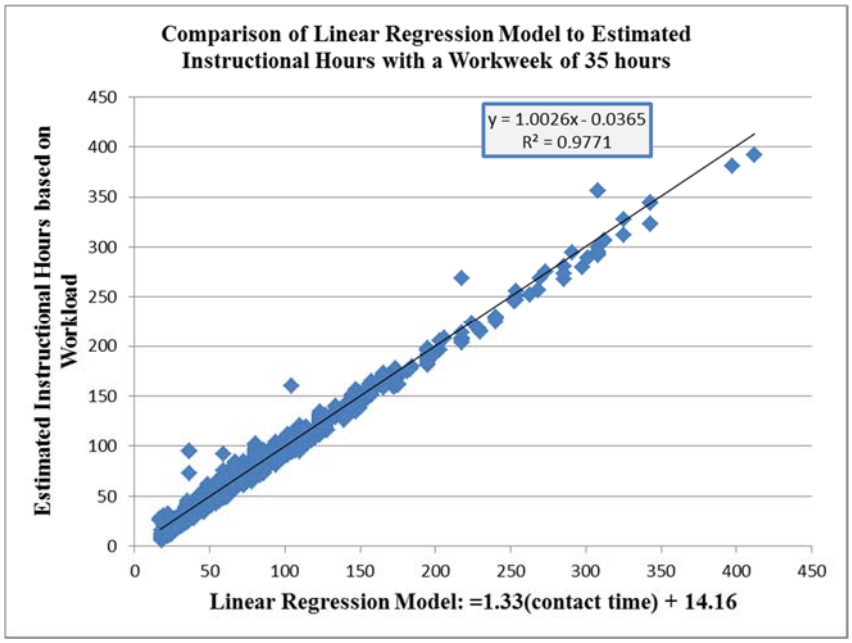
	Coefficients			
	Constant	Contact Time	SE B	Estimating Model for Instructional Hours of a Course
Multi-variable workload				
Workweek 35 hours	14.16	1.33	.003	y= 1.33(contact time) + 14.16
Workweek 40 hours	16.18	1.52	.004	y= 1.52(contact time) + 16.18
Workweek 48.4 hours	19.58	1.84	.005	y= 1.84(contact time) + 19.58
Workweek 50 hours	20.23	1.91	.005	y= 1.91(contact time) + 20.23
Workweek 51.4 hours	20.80	1.96	.005	y= 1.96(contact time) + 20.80
Workweek 55 hours	22.25	2.10	.005	y= 2.10(contact time) + 22.25
Single Variable 2.25	__	2.25		y= 2.25(contact time)

Note: R^2 = .977 (N = 3,473, p < .01). SE B is the Standard Error of the Coefficients

Table 21 provides the results and indicates that 97.7% of the variation of the regression model is explained by the course contact time, $p < .01$. For example, the mathematical formula for a workweek value of 35 hours is 1.33 multiplied by the course contact time plus a 14.16 constant. This finding means for every hour of contact, the estimated hours of instruction increases by 1.33. Appendix M provides the SPSS syntax and output of the linear regression and correlation statistical analysis.

From the 3,473 courses taught by part-time faculty, Figure 26 represents the results of a scatter plot of mathematical model derived from the multiple regression analysis to the estimated instructional hours, measured by the multiple variable workload formula based on 35-hour workweek of a full-time faculty.

Figure 26. Instructional Hours Predicted by Linear Regression Model-35 Workweek



Based on the results of Figure 26, the Midwestern community college could predict the value of the estimated instructional hours by multiplying the course contact time by 1.33 plus

adding a constant of 14.16 when the faculty workweek equals 35 hours per week. The rate of change of the x and y-axis are the nearly the same value with a coefficient of 1.0026 between the multiple variable workload model and the linear regression model. The linear regression model (n = 3,473) is significant (p <0.01) with 97.7% of the variance explained, which is greater than the estimating method using the mean single factor value. The use of the mean single factor could explain 95.8% of the variance. The linear regression model increased the accuracy as compared to the single mean factor method by nearly 2%.

Given the potential financial ACA penalties of a part-time faculty member meeting the definition of a full-time faculty, the results of a regression analysis prove to be more accurate but more complicated to implement, given the constant value in addition to the contact time multiplier as compared to the mean single factor method. Chapter 5 provides details of the financial impact related to the improved accuracy of the estimating prediction methods. Within this study, the outcome results were compared based on the implementation of the three models, including the single factor based on the IRS, the mean ratio, the linear regression model, and the multiple workload formula model to determine how many part-time faculty members met the ACA definition of a full-time faculty based on these various models.

Part-time employees meeting definition of full-time.

Specifically, if these methods, the mean ratio, the linear regression, and the multiple workload formula, were applied in FY2013, based on the secondary research question 1, how many part-time faculty would be considered as ACA defined full-time employee? Given the reported hourly work, the average ratio of estimated instruction time to course contact time used as a single factor multiplier, the linear regression model, and the multiple variable workload model, the number of part-time faculty members that meet the ACA definition of a full-time

employee varies. Table 22 displays the number of ACA defined full-time employees of the 890 part-time faculty members based on the using the mean ratio single factor, the linear regression model, and the results of the multiple variable Workload formula as a means to estimate the instructional work.

Table 22. Part-time Faculty Considered Full-time from Various Estimating Models

	Mean Single Factor			Linear Regression Model				Multiple Workload	
Part-time Faculty (n=890)	Multiplier	n	%	Constant	Multiplier	n	%	n	%
Multi-variable workload									
Workweek 35 hours	1.77	6	.7	14.16	1.33	2	0.2	4	0.4
Workweek 40 hours	2.02	10	1.1	16.18	1.52	5	0.5	5	0.5
Workweek 48.4 hours	2.45	25	2.8	19.58	1.84	7	.8	8	0.9
Workweek 50 hours	2.53	28	3.1	20.23	1.91	8	.9	11	1.2
Workweek 51.4 hours	2.60	32	3.6	20.80	1.96	9	1.0	12	1.3
Workweek 55 hours	2.78	42	4.7	22.25	2.10	11	1.2	19	2.1
Single 2.25 IRS factor	2.25	14	1.6	0	2.25	14	1.6		

Note: n represents the number of part-time faculty meeting the ACA definition of a full-time employee given the instructional hour estimating method

Table 22 provides supporting evidence that the value of the workweek affects the number of part-time faculty meeting the definition of a full-time employee. The varied results correspond to the estimating method and the value of the workweek. The number of part-time faculty members meeting the ACA definition of a full-time employee based on linear regression model more accurately aligns to the results of the multiple variable workload formula. As predicted by the R^2 value, the mean single variable as a measurement technique is less accurate than the linear regression model using the multiple variable workload as a baseline. The mean ratio single method as a measurement technique of instructional hours consistently results in a

greater number of part-time faculty meeting the ACA definition of a full-time employee as compared to the two other techniques.

What attributes contribute to a part-time employee meeting the ACA definition of a full-time faculty? Preliminary findings of the increase in the number of ACA full-time employees when using the mean single factor as a method to measure instructional hours was related to the part-time faculty member having course assignments potentially greater than 50% workload. Within this study, the Potential overload and excessive hourly work definitions section described earlier provides details of the potential overload analysis. Appendix N provides the attributes of the 42 part-time faculty members meeting the ACA definition of a full-time employee resulting when utilizing the 2.78-mean single factor multiplier, associated with the 55-hour workweek. This preliminary finding contributed to the recommendations resulting from this study found in Chapter 5.

In summary of secondary research questions 3 and 4, when the mean ratio single factor method was used based on the institution's definition of the full-time faculty workweek, the results of the number part-time faculty meeting the ACA definition of a full-time employee was higher than the results of the multiple variable workload formula or linear regression model. Referring back to the secondary research question 4, does a single factor exist to predict the estimated instructional hours as measured by the multiple variable workload formula, this institution could utilize for ease of application the mean ratio single factor as a means to predict the potential of a part-time faculty meeting the ACA definition of a full-time employee when assigning instructional work. With that said, the results may be over-stated as compared to the application of the multiple variable workload formula or the linear regression model. The

simplified process of the single factor could be conservatively used to proactively assess the potential risk to the institution of a part-time faculty member meeting the ACA definition.

Identification of Key Findings

Based on the results of the statistical analysis, the study revealed several key findings regarding the compliance to the requirements of the Affordable Care Act.

- Of the 2401 part-time employees in FY2013, 890 were part-time faculty and 1,511 were part-time hourly employees including support staff and student employees. Of the part-time hourly employees, 34 met the definition of full-time employee if the ACA was in effect in FY2013.
- The 890 part-time faculty taught 3,473 courses that were compensated on a per-course basis and 68.8% of part-time faculty reported hourly-compensated work in FY2013.
- Depending on the workweek value associated with a full-time faculty, by utilizing a multiple variable workload formula, four to19 part-time faculty members met the ACA definition of full-time employee if the Act was in effect in FY2013. The three attributes that were associated with these 19 part-time faculty members included that these individuals were either potentially loaded greater than 50% of a full-time faculty workload, reported excessive hourly-compensated work, or worked during the summer term.
- When applying the IRS single factor of 2.25 multiplier to a course's contact time as a measurement technique, 14 part-time faculty met the definition of an ACA full-time employee.

- A positive, strong, and significant correlation of a course's contact time to the estimated instructional hours existed; course credit value showed less of an association to the estimated instructional hours. The average number of students, academic level of the course, school issuing the part-time assignment and academic cluster correlated weakly to the estimated instructional hours.
- The mean ratio single factor method as a predictive model, derived from the ratio of the estimated instructional hours from the multiple variable workload formula to the course's contact time, resulted with a 95.8% accuracy. However, the results of the number of part-time faculty meeting the definition of a full-time employee using the mean single factor were higher than the results when the multiple variable workload formula was applied.
- The linear regression model as a predictive model improved the accuracy as compared to the mean ratio single factor method. The linear regression model accounted for over 97.7% of the variation. However, due to the multiplier of contact time and the sum of a constant the implementation and operationalization is more complicated as compared to the mean single factor method. There is a trade-off of accuracy and ease of implementation.

Summary

In summary, Chapter 4 provided three main sections of information including the Review of the Method, the Results, and the Identification of Key Findings. The Review of the Method section provided the descriptive statistics of the multiple datasets utilized in this study including analysis of the individual part-time teaching assignments, the variables of the multi-variable workload formula, the categorical datasets, the hourly work database, and the determination of

when the employee worked. The Result section was segregated based on the study's secondary research questions. Specifically, secondary research questions 1 and 2 relate to the number of part-time employees meeting the ACA definition of a full-time faculty if ACA applied in FY2013. Secondary research questions 3 and 4 looked for predictive values and correlations to aid in the forecasting to determine whether a part-time faculty meets the definition of full-time employee.

Based on these key findings, the foundational conclusions indicate that multiple techniques exist to measure the estimated instructional hours associated with course with varying results due to multiple factors. In order to create a predictive model to monitor and control the quantity of part-time faculty work, the three key variables include the number of weeks of a term, hourly reported hours and number of instructional assignments that drive the outcomes. The results of this study support the implications and recommendations of Chapter 5.

Chapter 5. Conclusions and Recommendations

The intent and the spirit of the Patient Protection and Affordable Care Act envisioned widespread access to affordable health care coverage (American Federation of Teachers, 2013). The Affordable Care Act stipulates full-time employees merit a prescribed set of insurance benefits for a limited cost (Moran, 2013). ACA defines a full-time employee as an individual who works an average of 30 or more hours per week in a given time period. In addition, if an employer, with a minimum of 50 employees, does not provide health care to a full-time employee that employer may pay a penalty. The implementation of the law has raised a number of questions specifically surrounding part-time faculty within higher education institutions.

One of the key questions that administrators of colleges and universities ask is whether the law considers a part-time faculty member as a full-time employee under the definition of the ACA. To comply with the federal law, colleges and universities leaders must calculate the average weekly working hours of part-time faculty. Many colleges and universities typically compensate part-time faculty on a *per-course* or *per credit-hour* basis rather than on an hourly basis, leaving the colleges and universities administrators perplexed on how to quantify the number of hours (AAUP, 2013; Curtis & Thornoton, 2013). Exacerbating the challenge, part-time faculty members typically are offered no healthcare benefits and therefore uncertainty exists as to their eligibility for healthcare benefits under the Act (Lipkin, 2013).

The purpose of this study was to examine the effect of applying various workload formulas to measure the average weekly working hours of part-time faculty and to compare the results to the Affordable Care Act definition of a full-time employee. Despite the challenges of defining and measuring academic work, many higher education institutions have developed workload formulas to allocate and monitor academic work. This study utilized workload

formulas as a means to estimate the number of work hours associated with an instructional course of part-time faculty, grounded in the Parametric Estimating Model framework, described in Chapter 2. In addition to instructional academic work, part-time faculty members may also provide other service to the organization, compensated on an hourly basis. The total work of part-time faculty equals the sum of the hourly and the instructional per-course work.

The primary research question for this study is as follows: How do workload models as a measurement technique affect the number of part-time faculty considered as full-time employees as defined by the Affordable Care Act. The secondary research questions are as follows:

Q1: Specifically, if the Affordable Care Act was in effect in FY2013, how many part-time faculty members worked an average of 30 or more hours per week by utilizing a multi-variable workload model as reasonable and consistent method to measure at one Midwestern community college?

Q2: How many part-time faculty members worked an average of 30 or more hours per week by utilizing the 2.25 factor recently suggested by the IRS?

Q3: What is the correlation between the results of the multi-variable method to measure the instructional work associated with a course compared to the contact time of the course?

Q4: By applying the multiple variable workload formula to a course, does a single factor exist that can be applied to the course contact time that can reasonably estimate the average number of hours per week that a part-time faculty works related to that course?

This study analyzed the effects of utilizing a single variable and a multiple variable workload formula to measure part-time faculty work. The research methodology included a quantitative analysis using the application of a consistent treatment using ex post facto data.

Main Conclusions

Based on the results of the statistical analysis of Chapter 4, the study concludes several key findings regarding the compliance to the requirements of the Affordable Care Act. First, of the 2401 part-time employees in FY2013 at the Midwestern community college, 890 were part-time faculty and 1511 were part-time hourly employees including support staff and student employees. Part-time faculty taught 3,473 courses that were compensated on a per-course basis. Second, depending on the workweek value associated with a full-time faculty, by utilizing a multiple variable workload formula, four-19 part-time faculty members met the ACA definition of full-time employee if the Act was in effect in FY2013. The three attributes that were associated with these 19 part-time faculty members included that these individuals were either potentially loaded greater than 50% of a full-time faculty workload, reported excessive hourly-compensated work, or worked during the summer term. Third, when applying the IRS single factor of 2.25 multiplier to a course's contact time as a measurement technique, 14 part-time faculty met the definition of an ACA full-time employee.

Further conclusions were derived regarding the existence of a predictive model to estimate the potential impact of the ACA on an institution of higher education. First, a positive, strong, and significant correlation of a course's contact time to the estimated instructional hours existed. The average number of students, academic level of the course, school issuing the part-time assignment and academic cluster correlated weakly to the estimated instructional hours. The mean single factor method as a predictive model, derived from the ratio of the estimated

instructional hours from the multiple variable workload formula to the course's contact time, resulted with a 95.8% accuracy. The linear regression model as a predictive model improved the accuracy as compared to the mean ratio single factor method. The linear regression model accounted for over 97.7% of the variation.

Based on these key findings, the foundational conclusions indicate that multiple techniques exist to measure the estimated instructional hours associated with course with varying results due to multiple factors. In order to create a predictive model to monitor and control the quantity of part-time faculty work in order for an institution to avoid a ACA penalty, the three key attributes variables include the number of weeks of a term, hourly reported hours and number of instructional assignments that drive the outcomes. With these key findings, the implications from this study fall into two primary categories including Financial and Quality.

Implications

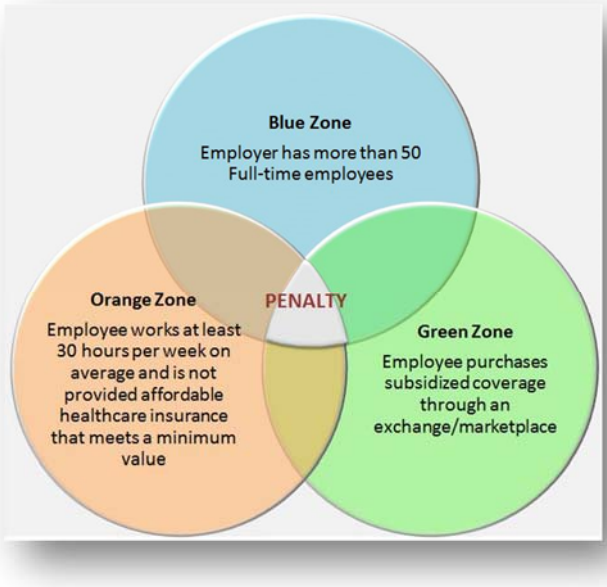
The study resulted in key findings, which support the identification of financial and quality implications for institutions of higher education in the U.S. Specifically, if the Affordable Care Act existed in FY2013, the Midwestern community college of this study would have a potential risk of over a $2 million annual penalty. Further details of the penalty are described in the Financial Implications section. As a precautionary and preventative measure, currently higher education institutions are limiting the work of part-time faculty as described in Chapters 1 and 2. As a result, the second implication of this study pertains to the impact of quality related to equity and access on higher education institutions.

Financial implications.

When a part-time employee who is offered no healthcare benefits meets the definition of a full-time employee, the organization becomes at risk for financial implications. According to

the final regulation published by the IRS of the ACA, two types of penalties, known as assessments, exists (U.S. Internal Revenue Services, 2014). One penalty relates to the lack of coverage, known as §4980H(a) and the second relates to the offered coverage not meeting the minimum requirements, known as §4980H(b). The Venn diagram of Chapter 2, shown below in Figure 27, depicts the conditions when the ACA penalty applies.

Figure 27. Conditions in which a ACA Penalty Applies



Note: This researcher created the Venn diagram to describe the conditions in which an employer would be subject to a financial penalty for failure to provide affordable health coverage that meets a minimum value for an employee.

Figure 27 indicates that an organization will be assessed a penalty when it employs over 50 full-time employees, have full-time employees who receive no healthcare benefits meeting the minimum standard and the full-time employee receives subsidized health care coverage.

The ACA regulation of the §4980H(a) subjects an employer employing more than 50 employees to a $2,000 annual penalty per each full-time employee regardless if a full-time employee receives healthcare benefits excluding 30 employees, when at least one full-time

employee, not offered healthcare benefits, receives government subsidized healthcare benefits (U.S. Internal Revenue Services, 2014). In this study, if the ACA was in effect in FY2013, the Midwestern community college, which employed 1,068 full-time employees would potentially be at risk for a penalty of over $2 million annually, the product of 1,068 full-time employees less 30 and $2,000 under §4980H(a).

As a relief to the §4980H(a), for 2015, the ACA regulations allow for a 95% margin of error. Specifically, the margin of error means that employer would not be assessed a penalty if the employer provides coverage to all but 5% of the full-time employees. If the ACA regulations applied in FY2013, the Midwestern community college, which employed 1,068 full-time employees, the margin of error would have equaled 53 employees (5% of 1,068 full-time employees). If 53 employees, or less, met ACA full-time employee definition and were offered no medical benefits, the Midwestern community college would be exempted from the 4980H(a) penalty of over $2 million annually. Given the various workload formula and workweeks as a measurement technique and including the part-time hourly employees, the college exceeded the margin of error limit in specific conditions. Table 23 shows how many part-time employees including hourly and part-time faculty who were offered no healthcare benefits and met ACA definition of a full-time employee.

Table 23. Total Part-time Employees Meeting Full-time Status

Part-time Employees (n=2401)	Mean Single Factor			Linear Regression Model				Multiple Workload	
Full-time Employees (n=1068)	Multiplier	n	% of FTE	Constant	Multiplier	n	% of FTE	n	% of FTE
Multi-variable workload									
Workweek 35 hours	1.77	40	3.7	14.16	1.33	36	3.4	38	3.6
Workweek 40 hours	2.02	44	4.1	16.18	1.52	39	3.7	39	3.7
Workweek 48.4 hours	**2.45**	**59**	**5.5**	19.58	1.84	41	3.8	42	3.9

Part-time Employees (n=2401) Full-time Employees (n=1068)	Mean Single Factor			Linear Regression Model				Multiple Workload	
	Multiplier	n	% of FTE	Constant	Multiplier	n	% of FTE	n	% of FTE
Workweek 50 hours	**2.53**	**62**	**5.8**	20.23	1.91	42	3.9	45	4.2
Workweek 51.4 hours	**2.60**	**66**	**6.2**	20.80	1.96	44	4.1	46	4.3
Workweek 55 hours	**2.78**	**76**	**7.1**	22.25	2.10	45	4.2	53	5.0
Single 2.25 IRS factor	2.25	48	4.5	0	2.25	48	4.5		

Note: % of FTE is calculated by dividing the number of part-time employees meeting the ACA definition of a full-time employee by the number of full-time employees, in this study, which is 1,068 for each of the instructional measurement techniques.

Table 23 indicates that if the organization utilized the multi-variable workload technique, the IRS 2.25 single factor, the linear regression model or used the mean ratio single factor when the workweek was 35 or 40 hours per week for a full-time faculty as a measurement technique for part-time instructional work, the Midwestern community college would be exempted from the risk for the 4980H(a) penalty. In these measurement techniques, the number of part-time employees meeting the ACA definition falls less than the 5% margin of error, 53 employees (1068 X 5%). However, Table 23 demonstrates that the organization would be at risk when the measurement technique utilizes the mean-ratio single factor derived from the mean estimated instructional time to the contact time when the workweek equaled 48.4 hours or more for a full-time faculty member. In these cases, the IRS would assess the Midwestern community college a $2 million annual if one of these ACA defined full-time employees received subsidized health care coverage.

Regardless whether the organization exceeded the 5% margin of error, the second type of penalty applies to the employer when the ACA defined full-time employee was offered healthcare benefits but the coverage did not meet the minimum ACA requirements. The organization would be assessed a $3,000 annual penalty per each full-time employee who

received health benefits that did not meet the minimum ACA requirements. Although outside the scope of this study, the ACA offers techniques to prevent the penalty for organizations to deploy called "Safe Harbor". This researcher developed a systematic guide, found at Appendix O to aid an institution's assessment of the potential financial implications of the ACA to their organization. In addition to the financial implication, a second implication relates to the quality of the organization.

Quality implications.

The second implication theme of this study relates to the impact of quality to equity and access on higher education institutions. Connecting to the Equity theory of Motivation as the foundational theoretical framework, Quarshie Smith and Watson (2000) wrote, "How should increasingly scarce resources be used in ways that do not undercut the quality of faculty work conditions and support meaningful student learning" (p. 103). This study suggests a proactive and thoughtful deployment strategy to comply with ACA in order to utilize limited resources optimally while continuing to serve students with quality learning opportunities.

The quality implications relate to perceived equity of part-time faculty work. For higher education institutions, the lower rate of part-time faculty pay as compared to full-time faculty and the lack of benefit costs result in a substantial savings at a time of increasing financial pressures but may have unintended quality consequences (Dedman & Pearch, 2004). Dedman and Pearch claimed, regarding part-time faculty members, "There are often no benefits, no job security, no office space, and no guarantee of future work" (p. 24). As Doe et al. stated, "What was once a stopgap response to a short-term labor problem is now a fully entrenched system of multi-tier faculty roles" (Doe, et al., 2001) essentially differentiating the role of full-time and part-time faculty members.

Given the work conditions of part-time faculty, including relatively low pay and lack of benefits, compared to their full-time faculty counter-parts, questions that leaders of colleges and universities ponder is how these conditions affect the student experience in terms of quality and organizational commitment. Based on the Equity Theory of Motivation from Chapter 2, if an organization employs rewards that are perceived to be equitable, the employees will be more motivated and therefore, theoretically improve the quality of service. The quality of service from the part-time faculty translates directly to the effectiveness of a college or university in facilitating student learning in ways that benefit society. Therefore, further research is recommended to evaluate fully the quality implications related to equity in the work environment of higher education institutions in conjunction with the Affordable Care Act.

In addition to perceived equity, the quality implications also relate to access to educational opportunities for students. Due to the uncertainty on how to measure part-time faculty work, many higher education institutions are responding to the Affordable Care Act by setting limits on the quantity of work for the part-time faculty. This limitation of part-time faculty work may affect the number of course offerings available for students especially in academic areas and geographical locations in which employing quality instructors is a historic challenge. Therefore, implications of this study relate to quality, the perceived equity in the work environment and access to learning opportunities.

Recommendations for Stakeholders

Given the potential financial and quality implications imposed on higher education institutions related to the Affordable Care Act and given the growing number of part-time employees, particularly of part-time faculty members, two main recommendations for institutions of higher learning result from this study. One suggestion proposes to reduce the

potential financial penalty. Another suggestion proposes techniques to measure part-time instructional work.

Suggestions to reduce financial penalties.

Colleges and universities administrators are contemplating ways to reduce the risk of financial penalties. The recommendations based on this study in order to reduce the risk fall into two categories. One recommendation suggests that higher education institutions offer access to healthcare benefits that meet the ACA minimum requirements to all part-time employees. The offering of access to healthcare coverage that meets the ACA minimum requirements enables the organization to be exempted from the §4980H(a) in which the organization would be penalized at a rate of $2,000 per full-time employee. The organization can explore the possibilities of financially subsidizing the healthcare benefits related to the affordability for the individual but the fact that the employee is offered access to healthcare benefits reduces the potential financial risk.

The second recommendation resulting from this study suggests that organizations reduce the risk of the part-time employee meeting the definition of a full-time employee. Based on the results, the study recommends threes strategies to reduce the potential of a part-time employee meeting the ACA definition of a full-time employee.

One strategy relates to controlling/limiting hourly work of part-time employees including part-time faculty. Creating an hourly limit per week for part-time employees based on instructional load, term, type of employee such as seasonal or student worker would aid in the formation of standard guidelines.

The second strategy relates to monitoring course assignments to part-time faculty. This study revealed that in FY2013, part-time faculties were assigned to courses resulting in

potentially over 50% of a full-time faculty workload. As a suggestion, further studies on the assignment process and proactive monitoring would ensure those part-time faculties are not inadvertently loaded to a full-time faculty workload.

The third and surprising strategy based on the results of this study relates to short-term courses such as summer term offerings. When contact time of a course are compressed into short-term or fewer weeks and the same competencies, learning outcomes are expected, the number of hours per week for instruction increases, resulting in higher average weekly hours. Specifically, the total estimated instructional hours are prorated over a shorter duration resulting in higher average weekly hours, which can result in a part-time faculty member meeting the ACA definition of a full-time employee. This study recommends that college and university administrators monitor the instructional assignments of part-time faculty to short-term sessions such as summer term courses. These three strategies would reduce the potential that a part-time employee would meet the ACA definition of a full-time employee.

In sum, two suggestions include offering access to healthcare benefits to all part-time employees and reducing the potential of a part-time employee meeting the ACA definition of a full-time employee. Both reduce the risk to a higher education institution of a financial penalty. The study also offers suggestions to higher education institutions regarding ideas to measure instructional work of part-time faculty.

Suggestions to measure instructional work.

The ACA requires institutions of higher learning to deploy a reasonable and consistent measurement technique to account for instructional work of part-time faculty. The IRS suggests a 2.25 multiplier to a part-time faculty's contact time as a means to estimate instructional work. This study utilized an institution's workload formula as a means to estimate the instructional

hours of a part-time faculty. To apply a reasonable and consistent measurement technique with the use of a multiple variable workload model, Durham, Merritt and Sorrell (2007) recommended the following strategies to implement a workload formula:

- Plan a process for collaboration that is efficient and inclusive in order to get 'buy-in' from faculty (p. 188).
- Identify traditions of the organization and determine which are valuable to maintain and which may need to be adapted or discarded (p. 188).
- Make faculty assignments transparent (p. 188).
- Implement a procedure for faculty accountability (p. 188).
- Recognize that no workload formula can ensure equity for all faculty members (p. 188).
- Designate a Workload Task Force to monitor and evaluate the equity of the faculty workload (p. 189).

Designing a workload formula is a challenge as noted from Chapter 2, Ghobadian and Husband (1990) summarized the challenges:

- It is difficult to identify the inputs directly expended in the production of outputs
- It is difficult to convert the wide variety of different inputs into a common unit of measurement and derive a single value for the inputs expended
- It is difficult to recognize and take into account the qualitative changes inputs
- It is difficult to keep input and output measurements unbiased and independent (p. 1436)

In this study, multiple methods were utilized to measure the estimated instructional hours of part-time faculty work. The recommendation to college and university leaders includes developing a reasonable and consistent method for estimating the instructional work based on methods from Durham, Merritt and Sorrell.

Given the recent Affordable Care Act regulations and the longstanding challenges of measuring faculty work, based on this study's recommendations and implications of financial and quality impacts, the researcher recommends further studies to add to the body of literature.

Recommendations for Future Research

The following five research topics would build on the foundational work of this study and further advance the background and compliance to the Affordable Care Act for institutions of higher learning. The five research topics include:

1. Assess the opportunity costs of the risk of penalty compared to offering healthcare benefits that meet a minimum value to part-time employees.
2. Evaluate the type of part-time hourly employees and whether those part-time employees meet the definition of seasonal or Federal Work Study student workers.
3. Measure the perceptions of part-time faculty related to workload and compensation/benefits
4. Measure the effectiveness of and validate the institution's workload model as a measurement technique to actual hours. Refer to Stecklein's 1961 foundational work titled, *How to Measure Faculty Work Load* and others including Stringer, McGregor and Watson (2009), Dennison (2012) for recommended processes and procedures.

5. Repeat this study to measure the results of FY2014 and beyond as a longitudinal study to measure the effectiveness and casual relationships of any deployed controls and limits.

Further studies can build on the foundational groundwork and the strengths and limitations of this study. Based on published journals and articles and the current Public Law of the Affordable Care Act, this study represents current issues affecting higher education and begins to fill a new gap in academic literature. Given the study's novelty, several strengths and limitations relate to this study.

Strengths

The strengths of this study relate to the innovation and application of techniques in novel ways. The innovations discovered and created through this study included both tangible and intellectual discoveries. The tangible discoveries include the creation of the Venn diagram to depict the conditions in which a penalty may be assessed, the techniques of mathematical coding and calculations, and the systematic guide to measuring potential financial risk. The intellectual discoveries include the development of a methodology that can be replicated with any higher education institution. The utilization of a full-time faculty workload formula applied to measure part-time faculty work was an innovative approach to meet the requirements of the Affordable Care Act. While the focus of this study pertained to measuring part-time faculty work, the inclusion of part-time hourly employees enhanced the results and therefore, the study could appropriately measure the potential financial penalty to the organization. These innovative discoveries relate to the strength of the study. Because of the innovation and novelty of this study, several limitations also applied.

Limitations

Several limitations relate to the measurement of instructional work. Although highly debated among academia, higher education institutions are defined within the service industry and classified as a professional service in which a high degree of interaction/variation and a high degree of customization and labor intensity exist (Wacker, Hershauer, Walsh, & Shue, 2014). As with any service industry, although each professional service organization is unique, workload measurement is critical in order to evaluate performance, plan for capacity and estimate cost (Wacker et al., 2014). The workload measurement enables improvement in resource usage, although faces challenges due to the complexity of the variables (Wacker et al., 2014).

The first assumption relates to the relationship of full-time and part-time faculty work. The study assumed that part-time faculty instructional work was proportional to the instructional work of a full-time faculty member. Considering part-time faculty members are hired predominantly for instruction, it was assumed that the measurement of their work is estimated appropriately by using the workload formula applied typically to full-time faculty instructional work. Specifically, within this study, the assumption exists that part-time faculty instructional work was measured based on the individual's portion of a 100% full-time faculty. For example, if a part-time faculty had a 20% instructional workload based on the application of the workload formula, it is assumed that the estimate of the part-time faculty member's instructional work equates to 20% of the instructional work of a 100% full-time faculty member.

The second assumption suggests that the workload formula measures the direct and indirect instructional activities that include roles and responsibilities that are assigned to all faculty members at the institution regardless of full-time or part-time status. The study assumes

that the roles and responsibilities for instructional work are consistent for all faculty members. For example, if the expectation is faculty members assess students' progress as part of instruction, the study assumes that the workload formula consistently accounts for this work.

The third assumption relates to number of hours per week of a faculty member. This study assumes that a part-time faculty spends an equivalent proportion of time per week as a full-time faculty based on the percentage of the individual's total workload. For example, if the contractual workweek is 35 hours per week for a full-time faculty and a part-time faculty member was loaded at 20%, it is assumed that the estimated part-time faculty workweek would be 20% of 35 hours per week, equaling 7 hours per week of work. This result varies with the application of different full-time faculty work-hours per week values in this study. Overall, the study resulted in key findings, identification of financial and quality implications, recommendations for institutions of higher learning and suggestions for further research based on the strengths and limitations of this study.

Summary

In sum, the Patient Protection and Affordable Care Act (PPACA, ACA) stipulates a full-time employee, defined as one who works an average of 30 or more hours per week, merits a prescribed set of insurance benefits. Higher education institutions must determine whether a part-time employee meets the ACA definition of a full-time employee by calculating the average weekly working hours. Although challenges exist when defining and measuring academic instructional work, the purpose of this quantitative study was to examine the effect of various workload formulas as a means to measure the average weekly working hours of part-time faculty and to compare the results to the ACA definition of a full-time employee.

The results, grounded in the Parametric Estimating Model framework, indicated that if the ACA applied in FY2013, by utilizing workload formulas, several part-time faculty members met the ACA definition of full-time employee at one institution. The three common salient characteristics of these part-time faculty members include that they were either potentially loaded greater than 50% of a full-time faculty workload, reported excessive hourly-compensated work, or worked during the summer term. The potential risk of financial penalties exists for an organization when an ACA defined full-time employee is not offered healthcare benefits. Therefore, the study recommends that the organization create methods to control and monitor hourly work and course assignments particularly of those offered in the summer term in order to avoid the risk of the ACA penalty or alternatively provide access to healthcare coverage that meets the ACA requirements to its part-time employees.

Time will tell regarding the overall implementation and requirements of the current rules and regulations pertaining to the Patient Protection and Affordable Care Act for institutions of higher education in the United States. In the meantime, very real and impactful consequences may occur to the organization, to the part-time employees and to the students' ability to access quality instruction. The study suggests a proactive and thoughtful deployment strategy to utilize limited financial resources optimally while continuing to serve students with quality learning opportunities. Leaders of colleges and universities need to balance the need for equity of working conditions and the access to learning opportunities for students given the constraint of financial resources. The Affordable Care Act created an opportunity for leaders of high education institutions to evaluate and quantify the work of part-time faculty. Part-time faculty members play an important role for colleges and universities in the U.S., filling a real need to support individual academic achievement.

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Appendix A
HPRB Approved

HUMAN PARTICIPANTS REVIEW BOARD

RULING FORM

TITLE OF PROJECT: **EFFECT OF WORKLOAD FORMULAS TO MEASURE PART-TIME FACULTY WORK IN RESPONSE TO THE PATIENT PROTECTION AND AFFORDABLE CARE ACT**

PRINCIPAL INVESTIGATOR: DENISE REIMER
HPRB PROPOSAL #: 832
DATE OF BOARD ACTION: 08/08/2014

Board Action:

- [X] Approved and Registered as Exempt Research
- [ ] Approved and Registered as a Quality Improvement Project
- [ ] Approved by Expedited Review
- [ ] Approved by Full Board Review
- [ ] Approved for Pending Recommended Modification(s)
- [ ] Not Approved (Note: May Resubmit with Revisions)

J David Lambert

Date: 08/15/2014

HPRB Co-Chairperson Signature

HPRB Co-Chairperson: J. David Lambert

Date for submission of progress report (1 year from date of HPRB approval) N/A

1

Appendix B
Midwestern community college IRB

[redacted] **College**
Institutional Review Board

EXPEDITED REVIEW OF RESEARCH FORM

__/____/____ **Date Submitted**

[redacted] **College**
Institutional Review Board

_____ **File Number**

Expedited Review of Research Form

EFFECT OF WORKLOAD FORMULAS TO MEASURE PART-TIME FACULTY WORK IN RESPONSE TO THE PATIENT PROTECTION AND AFFORDABLE CARE ACT
Title of Research Project

Denise Reimer- Dissertation Student	ASET	X4484	dmreimer@madisoncollege.edu
Principal Investigator/Project Director	**Department**	**Phone Extension**	**Email address**
Co-investigator/Student Investigator	**Department**	**Phone Extension**	**Email address**
Co-investigator/Student Investigator	**Department**	**Phone Extension**	**Email address**

Anticipated Funding Source: None. Part of requirements for Edgewood Doctoral Program

Projected Duration of Research: 12 **months** **Projected Starting Date:** 9/1/2014

Other organizations and/or agencies, if any, involved in the study: Edgewood College

Expedited Review Category (see categories on page 1–check one) 1☐ 2☐ 3☐ 4☐ 5X 6☐ 7☐

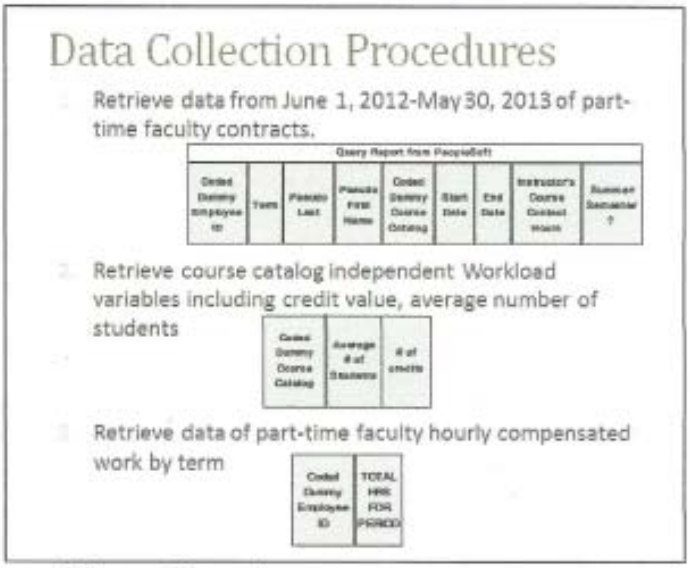
SUMMARY ABSTRACT: Please supply the following information below: BRIEF description of the participants, the location(s) of the project, the procedures to be used for data collection, whether data will be confidential or anonymous, disposition of the data, who will have access to the data. Attach copy of the Informed Consent Form and/or the measures (questionnaires) to be used in the project.

The purpose of Denise Reimer's dissertation is to examine the effect among various workload models as a *reasonable and consistent* method to measure the average weekly working hours of part-time faculty and compares the results to the Affordable Care Act definition of a full-time employee. This study will utilize a variety of measurement techniques to tally the hours of work of part-time faculty as required of higher education institutions by the new Patient Protection & Affordable Care Act.

Denise Reimer, as the Principle Investigator/Dissertation Student is seeking permission from N[redacted] College to support her research study. Specifically, she is

requesting permission/consent to utilize stored records of part-time faculty employed during June 1, 2012 through May 30, 2013.

The collection of data involves gathering of stored data records that have been collected solely for non-research purposes. The participants in this study include adult part-time faculty members employed at [redacted] College from June 1, 2012 through May 30, 2013. The stored employee data records that will be utilized will include employee ID, course catalog number, term, course contact time, and labor hours compensated on an hourly basis. The "Data Collection Procedures" image shows the data elements requested for this research project. (See Safeguarding Confidentiality of Information below) After the data is collected, various workload models will be applied to this stored data in order to estimate the average number of hours per week. [redacted] College's stored records of the part-time faculty members will be utilized as participants of the study.



The risk to the participant for using stored records is minimal. However, the risk of exposure to the personal identification of the part-time faculty with the use of the stored records will be minimized. Therefore, the research protocols will be designed to protect the anonymity of the identification of the participants. Safeguards of this data will be deployed. No real names, salary, pay rates, or other personal financial data information will be accessed or utilized for this study. To further protect the anonymity and identification of the participants, the employee identification number, course catalog number, and course description will be coded with dummy data in order to protect and safeguard the individual's identification

Only the researcher and/or [redacted] College Institutional Research Department will have access to the cross-reference of the coded dummy data to the actual stored data files. The cross-reference data file will be stored in a secure network within the College's Institutional Research & Effectiveness and following the College's computer use policies. Although it is not anticipated to print this cross-reference file, any printing of this cross-reference data file will be stored in a locked office and then shredded upon completion. This cross-reference database is the only link to the actual stored data records. Therefore, this data-file access restriction minimizes the potential exposure of the identification of any individuals.

The researcher will be using the coded dummy data records for the analysis portion of the research study.

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Denise Reimer** successfully completed the NIH Web-based training course "Protecting Human Research Participants"

Date of completion 01/06/2014

Certification Number 1350612

RESPONSIBILITIES OF THE PRINCIPAL INVESTIGATOR:

- Any additions or changes in procedures in the protocol will be submitted to the IRB for written approval prior to these changes being implemented
- Any problems connected with the use of human subjects once the project has begun must be communicated to the IRB Chair
- The principal investigator is responsible for retaining informed consent documents for a period of three years after the project.

Denise M Reimer 8/12/2014
Investigator/Project Director Signature

Co-Investigator/Student Signature (if appropriate)

Signature of IRB Committee Chair:			Date: 8/14/14
IRB Chair: Check 1 box:	☒ Approved	☐ Approved with Conditions	☐ Refer to Full Committee Review

Appendix C

Sample of Individual Part-time Teaching Contract with Course Attributes (n=3473)

Record Nbr	Emp ID	Work Type	Work Type1	Term	Term Code	Coded Class Nbr	Coded Catalog Nbr	Coded Aid Code	Coded Aid Code Description	Academic Program Area	Academic Program	Academic School	Acad Code1	Career Pathway Cluster	Career Pathway Cluster1	StartDate	EndDate	Course Contact Hr
11	7	Teaching	1	Spring 2013	3	369	16543I	16	Postsecondary-Technical Diploma-Short-Term 2-25 credits	543	Associate Degree Nursing/Nursing Assistant	Health	5	Health Science	7	3/14/2013	4/10/2013	45.00
13	9	Teaching	1	Spring 2013	3	979	17809I	17	Postsecondary-Liberal Arts	809	Social Science Psychology/Econ/Philosophy	Arts & Science	3	General Ed	6	1/14/2013	5/10/2013	50.00
14	9	Teaching	1	Spring 2013	3	2033	18809E	18	Postsecondary-Associate Degree	809	Social Science Psychology/Econ/Philosophy	Arts & Science	3	General Ed	6	1/14/2013	5/10/2013	50.00
15	9	Teaching	1	Spring 2013	3	1990	17809O	17	Postsecondary-Liberal Arts	809	Social Science Psychology/Econ/Philosophy	Arts & Science	3	General Ed	6	1/14/2013	5/10/2013	50.00
20	11	Teaching	1	Fall 2012	2	564	18831A	18	Postsecondary-Associate Degree	831	College Writing	Arts & Science	3	General Ed	6	8/27/2012	12/14/2012	50.00
21	11	Teaching	1	Fall 2012	2	2447	18831A	18	Postsecondary-Associate Degree	831	College Writing	Arts & Science	3	General Ed	6	8/27/2012	12/14/2012	50.00
22	11	Teaching	1	Fall 2012	2	2505	18831A	18	Postsecondary-Associate Degree	831	College Writing	Arts & Science	3	General Ed	6	8/28/2012	12/13/2012	50.00
24	11	Teaching	1	Spring 2013	3	167	18831A	18	Postsecondary-Associate Degree	831	College Writing	Arts & Science	3	General Ed	6	1/14/2013	5/10/2013	50.00
25	11	Teaching	1	Spring 2013	3	1254	18831A	18	Postsecondary-Associate Degree	831	College Writing	Arts & Science	3	General Ed	6	1/15/2013	5/9/2013	50.00
27	12	Teaching	1	Fall 2012	2	179	17809R	17	Postsecondary-Liberal Arts	809	Social Science Psychology/Econ/Philosophy	Arts & Science	3	General Ed	6	8/29/2012	12/12/2012	50.00
28	12	Teaching	1	Fall 2012	2	668	09307V	9	Continuing Education-vocation/technical designed to provide future employment or upgrade	307	Early Childhood Education	Human & Protectiv	6	Human Services	9	11/3/2012	11/3/2012	6.00
29	12	Teaching	1	Fall 2012	2	1027	09307R	9	Continuing Education-vocation/technical designed to provide future employment or upgrade	307	Early Childhood Education	Human & Protectiv	6	Human Services	9	9/8/2012	11/10/2012	45.00
31	12	Teaching	1	Spring 2013	3	344	17809R	17	Postsecondary-Liberal Arts	809	Social Science Psychology/Econ/Philosophy	Arts & Science	3	General Ed	6	1/16/2013	5/8/2013	50.00
32	12	Teaching	1	Spring 2013	3	630	09307R	9	Continuing Education-vocation/technical designed to provide future employment or upgrade	307	Early Childhood Education	Human & Protectiv	6	Human Services	9	2/9/2013	4/20/2013	45.00

Appendix D

Sample of Workload data Variables (n=3473)

Coded Catalog Nbr	Qty of Credits	Ave Students
01933A	3.00	30.00
02958N	2.00	5.00
03851M	2.00	18.40
03854M	2.00	6.00
03854N	2.00	7.40
03858L	2.00	1.50
03890F	3.00	13.70
04851L	2.00	6.90
04856A	3.00	11.70
04958A	2.00	9.50
05861AA	2.00	25.90
05861E	3.00	7.60
05861F	2.00	20.20
05861G	2.00	23.20
05861H	2.00	23.10
05861O	2.00	23.50
05861P	2.00	23.00
05861Q	2.00	23.00
05861U	2.00	21.60
05861V	2.00	21.20
05861W	2.00	21.20
05861Y	2.00	26.40
05861Z	2.00	26.00
06851H	1.00	8.50
06851I	2.00	5.20
06851J	2.00	19.80
06851K	2.00	10.70
06854G	2.00	6.50
06854I	2.00	20.20
06854J	2.00	11.20
06854K	1.00	6.30
06854L	2.00	20.10
06858H	2.00	26.00
06858J	2.00	10.60
07851B	2.00	2.00
07851C	2.00	22.20
07851F	2.00	17.60
07851G	2.00	7.60

Appendix E

Sample of Estimated Instructional Hours by Course by Workweek (n=3473)

Record Nbr	EmpID	Work Type	Work Type1	Term	Term Code	Coded Catalog Nbr	Est Inst Hrs Sum 35	Est Inst Hrs Fal 35	Est Inst Hrs Spr 35	Est Inst Hrs Sum 40	Est Inst Hrs Fal 40	Est Inst Hrs Spr 40	Est Inst Hrs Sum 48.4	Est Inst Hrs Fal 48.4	Est Inst Hrs Spr 48.4	Est Inst Hrs Sum 50	Est Inst Hrs Fal 50	Est Inst Hrs Spr 50	Est Inst Hrs Sum 51.4	Est Inst Hrs Fal 51.4	Est Inst Hrs Spr 51.4	Est Inst Hrs Sum 55	Est Inst Hrs Fal 55	Est Inst Hrs Spr 55
11	7	Teaching	1	Spring 2013	3	16543I	0.00	0.00	72.29	0.00	0.00	82.62	0.00	0.00	99.97	0.00	0.00	103.28	0.00	0.00	106.17	0.00	0.00	113.60
13	9	Teaching	1	Spring 2013	3	17809I	0.00	0.00	90.40	0.00	0.00	103.31	0.00	0.00	125.01	0.00	0.00	129.14	0.00	0.00	132.76	0.00	0.00	142.05
14	9	Teaching	1	Spring 2013	3	18809E	0.00	0.00	86.30	0.00	0.00	98.63	0.00	0.00	119.34	0.00	0.00	123.29	0.00	0.00	126.74	0.00	0.00	135.62
15	9	Teaching	1	Spring 2013	3	17809O	0.00	0.00	92.79	0.00	0.00	106.05	0.00	0.00	128.32	0.00	0.00	132.56	0.00	0.00	136.27	0.00	0.00	145.82
20	11	Teaching	1	Fall 2012	2	18831A	0.00	84.41	0.00	0.00	96.47	0.00	0.00	116.73	0.00	0.00	120.59	0.00	0.00	123.97	0.00	0.00	132.65	0.00
21	11	Teaching	1	Fall 2012	2	18831A	0.00	84.41	0.00	0.00	96.47	0.00	0.00	116.73	0.00	0.00	120.59	0.00	0.00	123.97	0.00	0.00	132.65	0.00
22	11	Teaching	1	Fall 2012	2	18831A	0.00	84.41	0.00	0.00	96.47	0.00	0.00	116.73	0.00	0.00	120.59	0.00	0.00	123.97	0.00	0.00	132.65	0.00
24	11	Teaching	1	Spring 2013	3	18831A	0.00	0.00	84.41	0.00	0.00	96.47	0.00	0.00	116.73	0.00	0.00	120.59	0.00	0.00	123.97	0.00	0.00	132.65
25	11	Teaching	1	Spring 2013	3	18831A	0.00	0.00	84.41	0.00	0.00	96.47	0.00	0.00	116.73	0.00	0.00	120.59	0.00	0.00	123.97	0.00	0.00	132.65
27	12	Teaching	1	Fall 2012	2	17809R	0.00	87.63	0.00	0.00	100.14	0.00	0.00	121.17	0.00	0.00	125.18	0.00	0.00	128.69	0.00	0.00	137.70	0.00
28	12	Teaching	1	Fall 2012	2	09307V	0.00	30.66	0.00	0.00	35.04	0.00	0.00	42.40	0.00	0.00	43.80	0.00	0.00	45.03	0.00	0.00	48.18	0.00
29	12	Teaching	1	Fall 2012	2	09307R	0.00	68.92	0.00	0.00	78.77	0.00	0.00	95.31	0.00	0.00	98.46	0.00	0.00	101.22	0.00	0.00	108.31	0.00
31	12	Teaching	1	Spring 2013	3	17809R	0.00	0.00	87.63	0.00	0.00	100.14	0.00	0.00	121.17	0.00	0.00	125.18	0.00	0.00	128.69	0.00	0.00	137.70
32	12	Teaching	1	Spring 2013	3	09307R	0.00	0.00	68.92	0.00	0.00	78.77	0.00	0.00	95.31	0.00	0.00	98.46	0.00	0.00	101.22	0.00	0.00	108.31
47	19	Teaching	1	Summer2012	1	17806Q	115.09	0.00	0.00	131.53	0.00	0.00	159.15	0.00	0.00	164.41	0.00	0.00	169.01	0.00	0.00	180.85	0.00	0.00
49	19	Teaching	1	Fall 2012	2	17806O	0.00	92.10	0.00	0.00	105.26	0.00	0.00	127.36	0.00	0.00	131.57	0.00	0.00	135.25	0.00	0.00	144.73	0.00
50	19	Teaching	1	Fall 2012	2	17806Q	0.00	128.00	0.00	0.00	146.29	0.00	0.00	177.01	0.00	0.00	182.86	0.00	0.00	187.98	0.00	0.00	201.15	0.00
51	19	Teaching	1	Fall 2012	2	17806Q	0.00	64.13	0.00	0.00	73.29	0.00	0.00	88.68	0.00	0.00	91.61	0.00	0.00	94.18	0.00	0.00	100.77	0.00
53	19	Teaching	1	Spring 2013	3	17806O	0.00	0.00	92.10	0.00	0.00	105.26	0.00	0.00	127.36	0.00	0.00	131.57	0.00	0.00	135.25	0.00	0.00	144.73
54	19	Teaching	1	Spring 2013	3	17806Q	0.00	0.00	128.00	0.00	0.00	146.29	0.00	0.00	177.01	0.00	0.00	182.86	0.00	0.00	187.98	0.00	0.00	201.15
55	19	Teaching	1	Spring 2013	3	17806Q	0.00	0.00	64.13	0.00	0.00	73.29	0.00	0.00	88.68	0.00	0.00	91.61	0.00	0.00	94.18	0.00	0.00	100.77
60	22	Teaching	1	Fall 2012	2	18007I	0.00	99.47	0.00	0.00	113.68	0.00	0.00	137.55	0.00	0.00	142.10	0.00	0.00	146.08	0.00	0.00	156.31	0.00
67	29	Teaching	1	Fall 2012	2	01933A	0.00	294.07	0.00	0.00	336.08	0.00	0.00	406.66	0.00	0.00	420.10	0.00	0.00	431.86	0.00	0.00	462.11	0.00
68	29	Teaching	1	Spring 2013	3	01933A	0.00	0.00	327.29	0.00	0.00	374.04	0.00	0.00	452.59	0.00	0.00	467.55	0.00	0.00	480.64	0.00	0.00	514.31
87	37	Teaching	1	Summer2012	1	16543I	62.79	0.00	0.00	71.76	0.00	0.00	86.83	0.00	0.00	89.70	0.00	0.00	92.21	0.00	0.00	98.67	0.00	0.00
88	37	Teaching	1	Summer2012	1	16543I	62.79	0.00	0.00	71.76	0.00	0.00	86.83	0.00	0.00	89.70	0.00	0.00	92.21	0.00	0.00	98.67	0.00	0.00
89	37	Teaching	1	Summer2012	1	16543I	38.52	0.00	0.00	44.02	0.00	0.00	53.26	0.00	0.00	55.03	0.00	0.00	56.57	0.00	0.00	60.53	0.00	0.00
91	37	Teaching	1	Fall 2012	2	16543I	0.00	72.29	0.00	0.00	82.62	0.00	0.00	99.97	0.00	0.00	103.28	0.00	0.00	106.17	0.00	0.00	113.60	0.00
92	37	Teaching	1	Fall 2012	2	16543I	0.00	72.29	0.00	0.00	82.62	0.00	0.00	99.97	0.00	0.00	103.28	0.00	0.00	106.17	0.00	0.00	113.60	0.00
93	37	Teaching	1	Fall 2012	2	16543I	0.00	72.29	0.00	0.00	82.62	0.00	0.00	99.97	0.00	0.00	103.28	0.00	0.00	106.17	0.00	0.00	113.60	0.00
94	37	Teaching	1	Fall 2012	2	16543I	0.00	27.58	0.00	0.00	31.52	0.00	0.00	38.14	0.00	0.00	39.40	0.00	0.00	40.50	0.00	0.00	43.34	0.00
96	37	Teaching	1	Spring 2013	3	16543I	0.00	0.00	46.74	0.00	0.00	53.42	0.00	0.00	64.64	0.00	0.00	66.78	0.00	0.00	68.64	0.00	0.00	73.45
97	37	Teaching	1	Spring 2013	3	16543I	0.00	0.00	72.29	0.00	0.00	82.62	0.00	0.00	99.97	0.00	0.00	103.28	0.00	0.00	106.17	0.00	0.00	113.60

Appendix F

Sample of Hourly Work by Employee Record (n=4083)

Record Nbr	EmpID	Work Type	Work Type1	Term	Term Code	Hrly Hrs
1	1	Hourly	0	Spring 2013	3	87.8
2	2	Hourly	0	Summer 2012	1	149.0
3	2	Hourly	0	Fall 2012	2	40.3
4	3	Hourly	0	Fall 2012	2	119.0
5	3	Hourly	0	Spring 2013	3	311.3
6	4	Hourly	0	Summer 2012	1	19.0
7	5	Hourly	0	Fall 2012	2	44.5
8	5	Hourly	0	Spring 2013	3	29.0
9	6	Hourly	0	Fall 2012	2	130.8
10	6	Hourly	0	Spring 2013	3	249.3
12	8	Hourly	0	Fall 2012	2	13.5
16	10	Hourly	0	Fall 2012	2	45.5
17	10	Hourly	0	Spring 2013	3	30.0
18	11	Hourly	0	Summer 2012	1	8.0
19	11	Hourly	0	Fall 2012	2	71.0
23	11	Hourly	0	Spring 2013	3	70.5
26	12	Hourly	0	Fall 2012	2	21.0
30	12	Hourly	0	Spring 2013	3	10.0
33	13	Hourly	0	Fall 2012	2	60.0
34	13	Hourly	0	Spring 2013	3	35.0
35	14	Hourly	0	Summer 2012	1	80.0
36	14	Hourly	0	Fall 2012	2	225.0
37	14	Hourly	0	Spring 2013	3	119.5
38	15	Hourly	0	Fall 2012	2	165.3
39	15	Hourly	0	Spring 2013	3	251.3
40	16	Hourly	0	Summer 2012	1	9.0
41	16	Hourly	0	Fall 2012	2	203.0
42	16	Hourly	0	Spring 2013	3	155.8
43	17	Hourly	0	Summer 2012	1	25.3
44	18	Hourly	0	Summer 2012	1	136.8
45	18	Hourly	0	Fall 2012	2	351.3
46	18	Hourly	0	Spring 2013	3	30.3
48	19	Hourly	0	Fall 2012	2	23.0
52	19	Hourly	0	Spring 2013	3	35.8
56	21	Hourly	0	Summer 2012	1	38.0
57	21	Hourly	0	Fall 2012	2	478.5
58	21	Hourly	0	Spring 2013	3	205.8
59	22	Hourly	0	Summer 2012	1	74.0
61	24	Hourly	0	Spring 2013	3	53.8

Appendix G

Sample of Total Hours and Weekly Averages by Employee (n=2401)

Record Nbr	EmpID	TypeofEmp	Type of Emp1	Were Hrs in Sum?	Were Hr in Fal?	Were Hr in Spr?	WhenCode	WhenDescr	WhenWork1	Qty of Weeks	Tot Hrs 35	Tot Hrs 40	Tot Hrs 48.4	Tot Hrs 50	Tot Hrs 51.4	Tot Hrs 55	Tot Hrs 2.25	Ave Wk Hr 35	30 or Over 35	Ave Wk Hr 40	30 or Over 40	Ave Wk Hr 48.4	30 or Over 48.4	Ave Wk Hr 50	30 or Over 50	Ave Wk Hr 51.4	30 or Over 51.4	Ave Wk Hr 55	30 or Over 55	Av Wk 2.25	30 or Over 2.25
1	1	Part-time Hourly	0	0	0	1	001	Spring Only	3	18	87.75	87.75	87.75	87.75	87.75	87.75	87.75	4.88	0	4.88	0	4.88	0	4.88	0	4.88	0	4.88	0	4.88	0
2	2	Part-time Hourly	0	1	1	0	110	Summer & Fall	4	26	189.25	189.25	189.25	189.25	189.25	189.25	189.25	7.28	0	7.28	0	7.28	0	7.28	0	7.28	0	7.28	0	7.28	0
4	3	Part-time Hourly	0	0	1	1	011	Fall & Spring	6	36	430.25	430.25	430.25	430.25	430.25	430.25	430.25	11.95	0	11.95	0	11.95	0	11.95	0	11.95	0	11.95	0	11.95	0
6	4	Part-time Hourly	0	1	0	0	100	Summer Only	1	8	19.00	19.00	19.00	19.00	19.00	19.00	19.00	2.38	0	2.38	0	2.38	0	2.38	0	2.38	0	2.38	0	2.38	0
7	5	Part-time Hourly	0	0	1	1	011	Fall & Spring	6	36	73.50	73.50	73.50	73.50	73.50	73.50	73.50	2.04	0	2.04	0	2.04	0	2.04	0	2.04	0	2.04	0	2.04	0
9	6	Part-time Hourly	0	0	1	1	011	Fall & Spring	6	36	380.00	380.00	380.00	380.00	380.00	380.00	380.00	10.56	0	10.56	0	10.56	0	10.56	0	10.56	0	10.56	0	10.56	0
11	7	Part-time Faculty	1	0	0	1	001	Spring Only	3	18	72.29	82.62	99.97	103.28	106.17	113.60	101.25	4.02	0	4.59	0	5.55	0	5.74	0	5.90	0	6.31	0	5.63	0
12	8	Part-time Hourly	0	0	1	0	010	Fall Only	2	18	13.50	13.50	13.50	13.50	13.50	13.50	13.50	0.75	0	0.75	0	0.75	0	0.75	0	0.75	0	0.75	0	0.75	0
13	9	Part-time Faculty	1	0	0	1	001	Spring Only	3	18	269.49	307.99	372.67	384.99	395.77	423.49	337.50	14.97	0	17.11	0	20.70	0	21.39	0	21.99	0	23.53	0	18.75	0
16	10	Part-time Hourly	0	0	1	1	011	Fall & Spring	6	36	75.50	75.50	75.50	75.50	75.50	75.50	75.50	2.10	0	2.10	0	2.10	0	2.10	0	2.10	0	2.10	0	2.10	0
18	11	Part-time Faculty	1	1	1	1	111	Year Round	7	52	571.57	631.86	733.16	752.45	769.33	812.75	712.00	10.99	0	12.15	0	14.10	0	14.47	0	14.79	0	15.63	0	13.69	0
26	12	Part-time Faculty	1	0	1	1	011	Fall & Spring	6	36	374.76	423.86	506.37	522.08	535.83	571.19	472.00	10.41	0	11.77	0	14.07	0	14.50	0	14.88	0	15.87	0	13.11	0
33	13	Part-time Hourly	0	0	1	1	011	Fall & Spring	6	36	95.00	95.00	95.00	95.00	95.00	95.00	95.00	2.64	0	2.64	0	2.64	0	2.64	0	2.64	0	2.64	0	2.64	0
35	14	Part-time Hourly	0	1	1	1	111	Year Round	7	52	424.50	424.50	424.50	424.50	424.50	424.50	424.50	8.16	0	8.16	0	8.16	0	8.16	0	8.16	0	8.16	0	8.16	0
38	15	Part-time Hourly	0	0	1	1	011	Fall & Spring	6	36	416.50	416.50	416.50	416.50	416.50	416.50	416.50	11.57	0	11.57	0	11.57	0	11.57	0	11.57	0	11.57	0	11.57	0
40	16	Part-time Hourly	0	1	1	1	111	Year Round	7	52	367.75	367.75	367.75	367.75	367.75	367.75	367.75	7.07	0	7.07	0	7.07	0	7.07	0	7.07	0	7.07	0	7.07	0
43	17	Part-time Hourly	0	1	0	0	100	Summer Only	1	8	25.25	25.25	25.25	25.25	25.25	25.25	25.25	3.16	0	3.16	0	3.16	0	3.16	0	3.16	0	3.16	0	3.16	0
44	18	Part-time Hourly	0	1	1	1	111	Year Round	7	52	518.25	518.25	518.25	518.25	518.25	518.25	518.25	9.97	0	9.97	0	9.97	0	9.97	0	9.97	0	9.97	0	9.97	0
47	19	Part-time Faculty	1	1	1	1	111	Year Round	7	52	742.29	839.94	1003.99	1035.24	1062.58	1132.89	981.25	14.27	0	16.15	0	19.31	0	19.91	0	20.43	0	21.79	0	18.87	0
56	21	Part-time Hourly	0	1	1	1	111	Year Round	7	52	722.25	722.25	722.25	722.25	722.25	722.25	722.25	13.89	0	13.89	0	13.89	0	13.89	0	13.89	0	13.89	0	13.89	0
59	22	Part-time Faculty	1	1	1	0	110	Summer & Fall	4	26	173.47	187.68	211.55	216.10	220.08	230.31	227.00	6.67	0	7.22	0	8.14	0	8.31	0	8.46	0	8.86	0	8.73	0
61	24	Part-time Hourly	0	0	0	1	001	Spring Only	3	18	53.75	53.75	53.75	53.75	53.75	53.75	53.75	2.99	0	2.99	0	2.99	0	2.99	0	2.99	0	2.99	0	2.99	0
62	25	Part-time Hourly	0	1	1	0	110	Summer & Fall	4	26	113.00	113.00	113.00	113.00	113.00	113.00	113.00	4.35	0	4.35	0	4.35	0	4.35	0	4.35	0	4.35	0	4.35	0
64	26	Part-time Hourly	0	1	0	0	100	Summer Only	1	8	3.00	3.00	3.00	3.00	3.00	3.00	3.00	0.38	0	0.38	0	0.38	0	0.38	0	0.38	0	0.38	0	0.38	0
65	27	Part-time Hourly	0	1	0	0	100	Summer Only	1	8	3.00	3.00	3.00	3.00	3.00	3.00	3.00	0.38	0	0.38	0	0.38	0	0.38	0	0.38	0	0.38	0	0.38	0
66	28	Part-time Hourly	0	1	0	0	100	Summer Only	1	8	16.50	16.50	16.50	16.50	16.50	16.50	16.50	2.06	0	2.06	0	2.06	0	2.06	0	2.06	0	2.06	0	2.06	0
67	29	Part-time Faculty	1	0	1	1	011	Fall & Spring	6	36	621.36	710.12	859.25	887.65	912.50	976.42	994.50	17.26	0	19.73	0	23.87	0	24.66	0	25.35	0	27.12	0	27.63	0
69	30	Part-time Hourly	0	0	1	1	011	Fall & Spring	6	36	311.50	311.50	311.50	311.50	311.50	311.50	311.50	8.65	0	8.65	0	8.65	0	8.65	0	8.65	0	8.65	0	8.65	0
71	31	Part-time Hourly	0	1	1	1	111	Year Round	7	52	182.75	182.75	182.75	182.75	182.75	182.75	182.75	3.51	0	3.51	0	3.51	0	3.51	0	3.51	0	3.51	0	3.51	0
74	32	Part-time Hourly	0	1	1	1	111	Year Round	7	52	133.50	133.50	133.50	133.50	133.50	133.50	133.50	2.57	0	2.57	0	2.57	0	2.57	0	2.57	0	2.57	0	2.57	0
77	33	Part-time Hourly	0	1	1	1	111	Year Round	7	52	1150.00	1150.00	1150.00	1150.00	1150.00	1150.00	1150.00	22.12	0	22.12	0	22.12	0	22.12	0	22.12	0	22.12	0	22.12	0
80	34	Part-time Hourly	0	1	1	1	111	Year Round	7	52	23.50	23.50	23.50	23.50	23.50	23.50	23.50	0.45	0	0.45	0	0.45	0	0.45	0	0.45	0	0.45	0	0.45	0
83	35	Part-time Hourly	0	0	0	1	001	Spring Only	3	18	59.00	59.00	59.00	59.00	59.00	59.00	59.00	3.28	0	3.28	0	3.28	0	3.28	0	3.28	0	3.28	0	3.28	0
84	36	Part-time Hourly	0	1	1	0	110	Summer & Fall	4	26	450.75	450.75	450.75	450.75	450.75	450.75	450.75	17.34	0	17.34	0	17.34	0	17.34	0	17.34	0	17.34	0	17.34	0
86	37	Part-time Faculty	1	1	1	1	111	Year Round	7	52	738.11	838.70	1007.69	1039.88	1068.04	1140.46	1030.75	14.19	0	16.13	0	19.38	0	20.00	0	20.54	0	21.93	0	19.82	0
100	38	Part-time Faculty	1	1	1	1	111	Year Round	7	52	648.30	737.13	886.36	914.79	939.66	1003.62	886.00	12.47	0	14.18	0	17.05	0	17.59	0	18.07	0	19.30	0	17.04	0

Appendix H

List of Hourly Employees Meeting ACA Full-time Employee Definition (n=34)

ID	Hrly	When Worked	Total
132	X	Year Round	1926
218	X	Year Round	1876
335	X	Summer Only	248
367	X	Summer Only	255
431	X	Year Round	1639
749	X	Summer Only	290
924	X	Fall & Spring	1527
1134	X	Year Round	1575
1243	X	Fall & Spring	1164
1267	X	Summer Only	323
1285	X	Year Round	1651
1313	X	Year Round	2022
1414	X	Summer Only	269
1659	X	Summer & Fall	1092
1686	X	Year Round	1974
1756	X	Summer	244
1804	X	Year Round	1714
1812	X	Summer & Fall	1129
1838	X	Summer & Fall	1166
1858	X	Fall & Spring	1650
1870	X	Year Round	1795
1901	X	Summer Only	317
1917	X	Summer Only	293
1926	X	Fall & Spring	1293
1934	X	Year Round	1798
1955	X	Spring Only	636
1971	X	Fall & Spring	1388
2028	X	Fall & Spring	1204
2047	X	Fall & Spring	1237
2057	X	Fall & Spring	1214
2360	X	Year Round	1765
2465	X	Year Round	1807
2555	X	Fall Only	616
2642	X	Year Round	1576
	34		

Appendix I

Part-time Faculty Employees Meeting ACA Full-time Employee Definition

Empl ID	At what level became FT	When Employee Worked	What type of course(s) taught	What School issued the assignement	What academic area are the courses	How many hours were reported		Potentially Overloaded	Average Hrly Work	Max if loadto50% during workweek that tipped to FT	Excessive Hourly
75	35	Year Round	Post	B&AA	Human Services	1036		1	19.92	12	1
161	51.4	Fall & Spring	Non-Post	Academic	Academic	75		1	2.08	4	0
293	48.4	Fall & Spring	Post	Health	Health	17		1	0.47	5	0
677	55	Fall & Spring	Post	HPS	Human Services	21		1	0.58	2	0
900	50	Summer Only	Post	Health	Health	0			0.00	4	0
1183	55	Fall & Spring	Post	Health	Health	59		1	1.64	2	0
1193	35	Summer Only	Post	AEST	Mfg	306			38.25	12	1
1213	55	Fall & Spring	Post	Health	Health	98		1	2.72	2	1
1280	55	Fall & Spring	Post	Health	Health	35		1	0.97	2	0
1443	48.4	Spring Only	Non-Post	Academic	Gen Ed	25		1	1.39	5	0
1445	48.4	Fall & Spring	Non-Post	Academic	Gen Ed	114		1	3.17	5	0
1547	55	Year Round	Non-Post	Academic	Gen Ed	203		1	3.90	2	1
1574	50	Year Round	Post	Health	Health	29		1	0.56	4	0
2145	35	Year Round	Post	A&S	Gen Ed	906		1	17.42	12	1
2161	35	Fall & Spring	Post	B&AA	IT	843			23.42	12	1
2331	55	Year Round	Continue Ed	HPS	Public Safety	329			6.33	2	1
2498	55	Spring Only	Post	Health	Health	17		1	0.94	2	0
2639	40	Fall & Spring	Post	AEST	Mfg	873			24.25	9	1
2672	50	Year Round	Non-Post	Academic	Gen Ed	221		1	4.25	4	1
								14	0.00		9

Empl ID	Post	Non-Post	Tech & Eng	General Ed	Health	Academic Success	Arts & Business	Public Service	Summer Only	Fall Only	Spring Only	Summer & Fall	Summer & Spring	Fall & Spring	Year Round
75	1						1								1
161		1				1								1	
293	1				1									1	
677	1							1						1	
900	1				1				1						
1183	1				1									1	
1193	1		1						1						
1213	1				1									1	
1280	1				1									1	
1443		1				1					1				
1445		1				1								1	
1547		1				1									1
1574	1				1										1
2145	1			1											1
2161	1						1							1	
2331		1						1							1
2498	1				1						1				
2639	1		1											1	
2672		1				1									1
	13	6	2	1	7	5	2	2	2	0	2	0	0	9	6

	Control: Excess Hourly Reported Hours															Control: Overload													
Empl ID	Post	Non-Post	Tech & Eng	General Ed	Health	Academic Success	Arts & Business	Public Service	Summer Only	Fall Only	Spring Only	Summer & Fall	Summer & Spring	Fall & Spring	Year Round	Post	Non-Post	Tech & Eng	General Ed	Health	Academic Success	Arts & Business	Public Service	Summer Only	Fall Only	Spring Only	Summer & Fall	Summer & Spring	Fall & Spring	Year Round
75	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
293	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0
677	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0
900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0
1193	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1213	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0
1280	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0
1443	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0
1445	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
1547	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1
1574	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1
2145	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2161	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2331	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0
2639	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2672	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1
	6	3	2	1	1	2	2	1	1	0	0	0	0	3	5	9	5	0	1	6	5	1	1	0	0	2	0	0	7	5
Total	13	6	2	1	7	5	2	2	2	0	2	0	0	9	6	13	6	2	1	7	5	2	2	2	0	2	0	0	9	6

	Control: Ex Hrly OR OvrLoad															Control: Ex Hrly, OvrLoad and Summer Only Term													
Empl ID	Post	Non-Post	Tech & Eng	General Ed	Health	Academic Success	Arts & Business	Public Service	Summer Only	Fall Only	Spring Only	Summer & Fall	Summer & Spring	Fall & Spring	Year Round	Post	Non-Post	Tech & Eng	General Ed	Health	Academic Success	Arts & Business	Public Service	Summer Only	Fall Only	Spring Only	Summer & Fall	Summer & Spring	Fall & Spring	Year Round
75	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
161	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
293	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0
677	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0
900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0
1183	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0
1193	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0
1213	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0
1280	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0
1443	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0
1445	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
1547	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1
1574	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1
2145	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2161	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0
2331	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1
2498	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0
2639	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0
2672	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1
	12	6	2	1	6	5	2	2	1	0	2	0	0	9	6	13	6	2	1	7	5	2	2	2	0	2	0	0	9	6
Total	13	6	2	1	7	5	2	2	2	0	2	0	0	9	6	13	6	2	1	7	5	2	2	2	0	2	0	0	9	6

	Type of Course		School that assigned the part-time instructor						When Part-time Faculty Worked						
Controlling for Attributes	Post	Non Post	T & E	Gen Ed	H	AS	A&B	PS	Sumr Only	Fall Only	Spring Only	Sum & Fal	Sum & Spr	Fall & Spring	Year Round
% of population FT by category	0.56%	0.52%	1.01%	0.09%	1.08%	0.82%	0.40%	0.51%	0.93%	0.00%	0.63%	0.00%	0.00%	1.19%	0.82%
Total Population	2322	1151	198	1130	647	613	496	389	214	217	316	140	31	754	729
Number Part-time Faculty 30 or Over	13	6	2	1	7	5	2	2	2	0	2	0	0	9	6
% of population FT by category	0.56%	0.52%	1.01%	0.09%	1.08%	0.82%	0.40%	0.51%	0.93%	0.00%	0.63%	0.00%	0.00%	1.19%	0.82%
Controlling for Excessive Hourly Work															
Excessive Hourly Work	46%	50%	100%	100%	14%	40%	100%	50%	50%	-	0%	-	-	33%	83%
Not Extreme Hourly	54%	50%	0%	0%	86%	60%	0%	50%	50%	-	100%	-	-	67%	17%
Controlling for Potential Overload															
Potentially Overloaded	69%	83%	0%	100%	86%	100%	50%	50%	0%	-	100%	-	-	78%	83%
Not Overload	31%	17%	100%	0%	14%	0%	50%	50%	100%	-	0%	-	-	22%	17%
Controlling for Excessive Hours or Overload															
Either Excessive Hourly Work or Overload	92%	100%	100%	100%	86%	100%	100%	100%	50%	-	100%	-	-	100%	100%
Alternative Reasons	8%	0%	0%	0%	14%	0%	0%	0%	50%	-	0%	-	-	0%	0%
Other reasons	8%	0%	0%	0%	14%	0%	0%	0%	50%	-	0%	-	-	0%	0%
Control for Summer Only															
Either Excess Hours/Overload or Summer	100%	100%	100%	100%	100%	100%	100%	100%	100%	-	100%	-	-	100%	100%
Other Alternative Reasons	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	0%	-	-	0%	0%

Appendix J

SPSS Syntax & Output: Correlation of Estimated Instructional Hours, Contact time, Average Number of Students and Credit Value

```
CORRELATIONS
  /VARIABLES=CourseContactHr AveStudents QtyofCredits TotalEstInstructHrs
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes

Output Created		15-FEB-2015 10:51:02
Comments		
Input	Data	C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav
	Active Dataset	DataSet1
	Filter	WorkType1=1 (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	3473
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=CourseContactHr AveStudents QtyofCredits TotalEstInstructHrs /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.06
	Elapsed Time	00:00:00.06

[DataSet1] C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav

Correlations

		Course Contact Hours	Average Number of Students in Course	Quantity of Course Credits
Course Contact Hours	Pearson Correlation	1	.012	.442**
	Sig. (2-tailed)		.470	.000
	N	3473	3473	3473
Average Number of Students in Course	Pearson Correlation	.012	1	.149**
	Sig. (2-tailed)	.470		.000
	N	3473	3473	3473
Quantity of Course Credits	Pearson Correlation	.442**	.149**	1
	Sig. (2-tailed)	.000	.000	
	N	3473	3473	3473
TotalEstInstructHrs	Pearson Correlation	.989**	.131**	.514**
	Sig. (2-tailed)	.000	.000	.000
	N	3473	3473	3473

Correlations

		TotalEstInstructHrs
Course Contact Hours	Pearson Correlation	.989
	Sig. (2-tailed)	.000
	N	3473
Average Number of Students in Course	Pearson Correlation	.131
	Sig. (2-tailed)	.000
	N	3473
Quantity of Course Credits	Pearson Correlation	.514**
	Sig. (2-tailed)	.000
	N	3473
TotalEstInstructHrs	Pearson Correlation	1**
	Sig. (2-tailed)	
	N	3473

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix K

SPSS Syntax & Output: Correlation of Categorical Course Elements to Estimated Instructional Hours

Correlations

Notes

Output Created		15-FEB-2015 12:55:33
Comments		
Input	Data	C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav
	Active Dataset	DataSet1
	Filter	WorkType1=1 (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	3473
	Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=CodedAidCode AcademicProgramArea AcademicSchool1 CareerPathwayCluster1 TotalEstInstructHrs /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.03

```
[DataSet1] C:\Users\dmreimer\Dropbox\Dissertation\ACA
Dissertation\Dissertation Data\WorkingDatafile_15.sav
```

Correlations

		Aid Code	Academic Program	Academic School
Aid Code	Pearson Correlation	1	-.382**	.422**
	Sig. (2-tailed)		.000	.000
	N	3473	3473	3473

	Pearson Correlation	-.382**	1	-.409**
Academic Program	Sig. (2-tailed)	.000		.000
	N	3473	3473	3473
	Pearson Correlation	.422**	-.409**	1
Academic School	Sig. (2-tailed)	.000	.000	
	N	3473	3473	3473
	Pearson Correlation	-.136**	.137**	.476**
Career Pathway Cluster	Sig. (2-tailed)	.000	.000	.000
	N	3473	3473	3473
	Pearson Correlation	.112**	.107**	-.249**
TotalEstInstructHrs	Sig. (2-tailed)	.000	.000	.000
	N	3473	3473	3473

Correlations

		Career Pathway Cluster	TotalEstInstructHrs
	Pearson Correlation	-.136	.112**
Aid Code	Sig. (2-tailed)	.000	.000
	N	3473	3473
	Pearson Correlation	.137**	.107
Academic Program	Sig. (2-tailed)	.000	.000
	N	3473	3473
	Pearson Correlation	.476**	-.249**
Academic School	Sig. (2-tailed)	.000	.000
	N	3473	3473
	Pearson Correlation	1**	-.213**
Career Pathway Cluster	Sig. (2-tailed)		.000
	N	3473	3473
	Pearson Correlation	-.213**	1**
TotalEstInstructHrs	Sig. (2-tailed)	.000	
	N	3473	3473

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix L

Sample of Course Ratio by Workweek (n=3473)
Estimated Instructional Time/Course Contact Time

Record Nbr	EmplD	Work Type	Work Type1	Term	Term Code	Coded Catalog Nbr	Course Ratio 35	Course Ratio 40	Course Ratio 48.4	Course Ratio 50	Course Ratio 51.4	Course Ratio 55
11	7	Teaching	1	Spring 2013	3	16543I	1.61	1.84	2.22	2.30	2.36	2.52
13	9	Teaching	1	Spring 2013	3	17809I	1.81	2.07	2.50	2.58	2.66	2.84
14	9	Teaching	1	Spring 2013	3	18809E	1.73	1.97	2.39	2.47	2.53	2.71
15	9	Teaching	1	Spring 2013	3	17809O	1.86	2.12	2.57	2.65	2.73	2.92
20	11	Teaching	1	Fall 2012	2	18831A	1.69	1.93	2.33	2.41	2.48	2.65
21	11	Teaching	1	Fall 2012	2	18831A	1.69	1.93	2.33	2.41	2.48	2.65
22	11	Teaching	1	Fall 2012	2	18831A	1.69	1.93	2.33	2.41	2.48	2.65
24	11	Teaching	1	Spring 2013	3	18831A	1.69	1.93	2.33	2.41	2.48	2.65
25	11	Teaching	1	Spring 2013	3	18831A	1.69	1.93	2.33	2.41	2.48	2.65
27	12	Teaching	1	Fall 2012	2	17809R	1.75	2.00	2.42	2.50	2.57	2.75
28	12	Teaching	1	Fall 2012	2	09307V	5.11	5.84	7.07	7.30	7.50	8.03
29	12	Teaching	1	Fall 2012	2	09307R	1.53	1.75	2.12	2.19	2.25	2.41
31	12	Teaching	1	Spring 2013	3	17809R	1.75	2.00	2.42	2.50	2.57	2.75
32	12	Teaching	1	Spring 2013	3	09307R	1.53	1.75	2.12	2.19	2.25	2.41
47	19	Teaching	1	Summer2012	1	17806Q	1.40	1.60	1.94	2.01	2.06	2.21
49	19	Teaching	1	Fall 2012	2	17806O	1.84	2.11	2.55	2.63	2.71	2.89
50	19	Teaching	1	Fall 2012	2	17806Q	1.56	1.78	2.16	2.23	2.29	2.45
51	19	Teaching	1	Fall 2012	2	17806Q	2.00	2.29	2.77	2.86	2.94	3.15
53	19	Teaching	1	Spring 2013	3	17806O	1.84	2.11	2.55	2.63	2.71	2.89
54	19	Teaching	1	Spring 2013	3	17806Q	1.56	1.78	2.16	2.23	2.29	2.45
55	19	Teaching	1	Spring 2013	3	17806Q	2.00	2.29	2.77	2.86	2.94	3.15
60	22	Teaching	1	Fall 2012	2	18007I	1.46	1.67	2.02	2.09	2.15	2.30
67	29	Teaching	1	Fall 2012	2	01933A	1.41	1.62	1.96	2.02	2.08	2.22
68	29	Teaching	1	Spring 2013	3	01933A	1.40	1.60	1.93	2.00	2.05	2.20
87	37	Teaching	1	Summer2012	1	16543I	1.43	1.63	1.97	2.04	2.10	2.24
88	37	Teaching	1	Summer2012	1	16543I	1.43	1.63	1.97	2.04	2.10	2.24
89	37	Teaching	1	Summer2012	1	16543I	1.54	1.76	2.13	2.20	2.26	2.42
91	37	Teaching	1	Fall 2012	2	16543I	1.61	1.84	2.22	2.30	2.36	2.52
92	37	Teaching	1	Fall 2012	2	16543I	1.61	1.84	2.22	2.30	2.36	2.52
93	37	Teaching	1	Fall 2012	2	16543I	1.61	1.84	2.22	2.30	2.36	2.52
94	37	Teaching	1	Fall 2012	2	16543I	2.76	3.15	3.81	3.94	4.05	4.33
96	37	Teaching	1	Spring 2013	3	16543I	1.87	2.14	2.59	2.67	2.75	2.94
97	37	Teaching	1	Spring 2013	3	16543I	1.61	1.84	2.22	2.30	2.36	2.52
98	37	Teaching	1	Spring 2013	3	16543I	1.61	1.84	2.22	2.30	2.36	2.52
99	37	Teaching	1	Spring 2013	3	16543I	1.49	1.70	2.06	2.13	2.19	2.34
100	38	Teaching	1	Summer2012	1	06854L	1.41	1.61	1.95	2.01	2.07	2.21
102	38	Teaching	1	Fall 2012	2	06854I	1.56	1.78	2.15	2.22	2.29	2.45
103	38	Teaching	1	Fall 2012	2	18801B	1.71	1.95	2.36	2.44	2.51	2.69

Appendix M

SPSS Syntax and Output: Regression Model of Contact Time to Estimated Instructional Hours

Regression

Notes

Output Created		15-FEB-2015 14:52:10
Comments		
Input	Data	C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav
	Active Dataset	DataSet1
	Filter	WorkType1=1 (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	3473
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT TotInstrt35 /METHOD=ENTER CourseContactHr.
Resources	Processor Time	00:00:00.37
	Elapsed Time	00:00:00.37
	Memory Required	3220 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet1] C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Course Contact Hours[b]	.	Enter

a. Dependent Variable: TotInstrt35
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.989[a]	.977	.977	6.85408

a. Predictors: (Constant), Course Contact Hours

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6971071.572	1	6971071.572	148388.916	.000[b]
	Residual	163061.973	3471	46.978		

	Total	7134133.545	3472			

a. Dependent Variable: TotInstrt35
b. Predictors: (Constant), Course Contact Hours

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.161	.206		68.713	.000
	Course Contact Hours	1.333	.003	.989	385.213	.000

a. Dependent Variable: TotInstrt35

Regression

Notes

Output Created		15-FEB-2015 14:55:50
Comments		
Input	Data	C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav
	Active Dataset	DataSet1
	Filter	WorkType1=1 (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	3473
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT TotInstrt40 /METHOD=ENTER CourseContactHr.
Resources	Processor Time	00:00:00.37
	Elapsed Time	00:00:00.37
	Memory Required	3220 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet1] C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Course Contact Hours[b]	.	Enter

a. Dependent Variable: TotInstrt40
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.989[a]	.977	.977	7.83324

a. Predictors: (Constant), Course Contact Hours

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9104851.492	1	9104851.492	148384.938	.000[b]
	Residual	212979.430	3471	61.360		
	Total	9317830.923	3472			

a. Dependent Variable: TotInstrt40
b. Predictors: (Constant), Course Contact Hours

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.184	.236		68.715	.000
	Course Contact Hours	1.524	.004	.989	385.208	.000

a. Dependent Variable: TotInstrt40

Regression

Notes

Output Created		15-FEB-2015 14:57:54
Comments		
Input	Data	C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav
	Active Dataset	DataSet1
	Filter	WorkType1=1 (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	3473
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT TotInstrt48.4 /METHOD=ENTER CourseContactHr.
Resources	Processor Time	00:00:00.37
	Elapsed Time	00:00:00.39
	Memory Required	3220 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet1] C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Course Contact Hours[b]	.	Enter

a. Dependent Variable: TotInstrt48.4
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.989[a]	.977	.977	9.47802

a. Predictors: (Constant), Course Contact Hours

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13330521.620	1	13330521.620	148392.428	.000[b]
	Residual	311809.984	3471	89.833		
	Total	13642331.604	3472			

a. Dependent Variable: TotInstrt48.4
b. Predictors: (Constant), Course Contact Hours

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19.582	.285		68.714	.000
	Course Contact Hours	1.844	.005	.989	385.217	.000

a. Dependent Variable: TotInstrt48.4

Regression

Notes

Output Created		15-FEB-2015 14:58:43
Comments		
Input	Data	C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav
	Active Dataset	DataSet1
	Filter	WorkType1=1 (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	3473
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.

Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT TotInstrt50 /METHOD=ENTER CourseContactHr.
Resources	Processor Time	00:00:00.41
	Elapsed Time	00:00:00.41
	Memory Required	3220 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet1] C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Course Contact Hours[b]	.	Enter

a. Dependent Variable: TotInstrt50
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.989[a]	.977	.977	9.79144

a. Predictors: (Constant), Course Contact Hours

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14226524.476	1	14226524.476	148390.444	.000[b]
	Residual	332772.550	3471	95.872		
	Total	14559297.026	3472			

a. Dependent Variable: TotInstrt50
b. Predictors: (Constant), Course Contact Hours

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	20.230	.294		68.717	.000
	Course Contact Hours	1.905	.005	.989	385.215	.000

a. Dependent Variable: TotInstrt50

Regression

Notes

Output Created	15-FEB-2015 14:59:24
Comments	

Input	Data	C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav
	Active Dataset	DataSet1
	Filter	WorkType1=1 (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	3473
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT TotInstrt51.4 /METHOD=ENTER CourseContactHr.
Resources	Processor Time	00:00:00.34
	Elapsed Time	00:00:00.37
	Memory Required	3220 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet1] C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Course Contact Hours[b]	.	Enter

a. Dependent Variable: TotInstrt51.4
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.989[a]	.977	.977	10.06600

a. Predictors: (Constant), Course Contact Hours

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15034401.030	1	15034401.030	148379.042	.000[b]
	Residual	351696.609	3471	101.324		
	Total	15386097.639	3472			

a. Dependent Variable: TotInstrt51.4
b. Predictors: (Constant), Course Contact Hours

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	20.796	.303		68.711	.000
	Course Contact Hours	1.958	.005	.989	385.200	.000

a. Dependent Variable: TotInstrt51.4

Regression

Notes

Output Created		15-FEB-2015 15:00:00
Comments		
Input	Data	C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav
	Active Dataset	DataSet1
	Filter	WorkType1=1 (FILTER)
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	3473
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT TotInstrt55 /METHOD=ENTER CourseContactHr.
Resources	Processor Time	00:00:00.44
	Elapsed Time	00:00:00.44
	Memory Required	3220 bytes
	Additional Memory Required for Residual Plots	0 bytes

DataSet1] C:\Users\dmreimer\Dropbox\Dissertation\ACA Dissertation\Dissertation Data\WorkingDatafile_15.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Course Contact Hours[b]	.	Enter

a. Dependent Variable: TotInstrt55
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.989[a]	.977	.977	10.77073

a. Predictors: (Constant), Course Contact Hours

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17214118.170	1	17214118.170	148386.471	.000[b]
	Residual	402666.118	3471	116.009		
	Total	17616784.288	3472			

a. Dependent Variable: TotInstrt55
b. Predictors: (Constant), Course Contact Hours

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	22.253	.324		68.714	.000
	Course Contact Hours	2.095	.005	.989	385.210	.000

a. Dependent Variable: TotInstrt55

Appendix N

Results using the Mean Ratio Single Factor of 2.78 at the 55 Hour Workweek

EmpID	Sum of Hourly Work	CodedAidCodeDescription	Academic School	Career Pathway Cluster	When Worked	AvWk when 2.78	30orOver 2.78	Accum LoadSum	Accum LoadFal	Accum LoadSpr	Count if Over 50%
29	0.00	Miscellaneous	Academic Advmt	General Ed	Fall & Spring	34.13	1.00	0.00	46.68	51.95	1
75	1036.00	Postsecondary-One-Year Technical	Business & Applied Arts	Human Services	Year Round	44.57	1.00	0.00	68.86	61.72	1
152	41.50	Postsecondary-One-Year Technical	Health	Health Science	Spring Only	31.96	1.00	0.00	0.00	45.26	0
161	75.00	Non-Postsecondary Intermediate A	Academic Advmt	General Ed	Fall & Spring	40.62	1.00	0.00	48.45	60.51	1
223	147.00	Non-Postsecondary Developmental	Academic Advmt	General Ed	Year Round	33.89	1.00	23.67	46.57	56.24	1
293	17.50	Postsecondary-Associate Degree	Health	Health Science	Fall & Spring	41.95	1.00	0.00	55.11	73.80	1
336	0.00	Postsecondary-Liberal Arts	Arts & Science	General Ed	Fall & Spring	31.51	1.00	0.00	47.14	48.33	0
359	83.00	Non-Postsecondary Beginning Adu	Academic Advmt	General Ed	Year Round	35.76	1.00	24.30	48.33	72.12	1
371	45.25	Postsecondary-Associate Degree	Business & Applied Arts	Agriculture, Food & N	Fall & Spring	35.39	1.00	0.00	40.17	61.61	1
607	132.25	Postsecondary-Technical Diploma-S	Health	Health Science	Year Round	32.80	1.00	31.59	63.46	50.28	1
677	21.25	Postsecondary-Associate Degree	Human & Protective Serv	Human Services	Fall & Spring	37.97	1.00	0.00	54.79	56.83	1
731	0.00	Postsecondary-Associate Degree	Health	Health Science	Spring Only	32.43	1.00	0.00	0.00	47.18	0
900	0.00	Postsecondary-Technical Diploma-S	Health	Health Science	Summer Only	42.40	1.00	29.44	0.00	0.00	0
906	5.00	Postsecondary-Technical Diploma-S	Health	Health Science	Summer Only	33.29	1.00	21.41	0.00	0.00	0
940	645.50	Postsecondary-One-Year Technical	Health	Health Science	Year Round	31.39	1.00	0.00	38.72	42.61	0
952	45.50	Non-Postsecondary English Langua	Academic Advmt	General Ed	Year Round	30.76	1.00	22.93	79.98	44.53	1
996	105.75	Non-Postsecondary English Langua	Academic Advmt	General Ed	Year Round	30.15	1.00	45.01	59.76	50.29	1
1093	10.50	Postsecondary-One-Year Technical	Health	Health Science	Fall & Spring	35.20	1.00	0.00	50.49	56.37	1
1175	0.00	Non-Postsecondary Developmental	Academic Advmt	General Ed	Fall & Spring	31.51	1.00	0.00	66.52	33.26	1
1183	58.50	Postsecondary-Associate Degree	Health	Health Science	Fall & Spring	33.75	1.00	0.00	50.49	53.02	1
1193	306.75	Postsecondary-One-Year Technical	ASET	Manufacturing	Summer Only	63.36	1.00	18.94	0.00	0.00	0
1213	98.25	Postsecondary-Associate Degree	Health	Health Science	Fall & Spring	35.01	1.00	0.00	54.53	48.59	1
1248	127.50	Non-Postsecondary Intermediate A	Academic Advmt	General Ed	Year Round	31.75	1.00	6.94	52.27	76.20	1
1280	34.50	Postsecondary-Associate Degree	Health	Health Science	Fall & Spring	34.32	1.00	0.00	56.31	50.31	1
1443	25.50	Non-Postsecondary Intermediate A	Academic Advmt	General Ed	Spring Only	47.60	1.00	0.00	0.00	62.15	1
1445	114.25	Non-Postsecondary Developmental	Academic Advmt	General Ed	Fall & Spring	42.56	1.00	0.00	62.87	54.55	1
1547	203.00	Non-Postsecondary Beginning Adu	Academic Advmt	General Ed	Year Round	35.07	1.00	13.93	50.10	79.07	1
1574	29.00	Postsecondary-Technical Diploma-S	Health	Health Science	Year Round	40.12	1.00	53.37	65.12	58.07	1
1664	103.50	Non-Postsecondary Beginning Adu	Academic Advmt	General Ed	Year Round	31.02	1.00	15.36	48.91	57.57	1
1730	124.75	Postsecondary-Technical Diploma-S	Health	Health Science	Year Round	31.27	1.00	30.37	56.68	55.35	1
1819	13.50	Non-Postsecondary Developmental	Academic Advmt	General Ed	Year Round	31.43	1.00	17.47	46.57	64.09	1
1974	32.00	Postsecondary-Associate Degree	Health	Health Science	Fall & Spring	35.48	1.00	0.00	56.31	48.59	1
2073	113.75	Non-Postsecondary Intermediate A	Academic Advmt	General Ed	Year Round	35.60	1.00	12.47	46.33	73.80	1
2145	906.50	Postsecondary-Associate Degree	Arts & Science	General Ed	Year Round	41.92	1.00	0.00	43.42	66.70	1
2161	843.25	Postsecondary-Associate Degree	Business & Applied Arts	Information Technolo	Fall & Spring	35.16	1.00	0.00	39.32	0.00	0
2289	0.00	Postsecondary-Liberal Arts	Arts & Science	General Ed	Fall & Spring	31.51	1.00	0.00	46.77	49.17	0
2338	390.00	Non-Postsecondary Intermediate A	Academic Advmt	General Ed	Year Round	35.25	1.00	16.00	46.50	49.57	0
2398	11.00	Postsecondary-Associate Degree	Health	Health Science	Spring Only	30.26	1.00	0.00	0.00	45.33	0
2498	17.25	Postsecondary-Associate Degree	Health	Health Science	Spring Only	37.10	1.00	0.00	0.00	55.97	1
2639	873.25	Postsecondary-Associate Degree	ASET	Health Science	Fall & Spring	34.76	1.00	0.00	15.79	15.59	0
2672	221.00	Non-Postsecondary Beginning Adu	Academic Advmt	General Ed	Year Round	37.50	1.00	24.74	51.05	76.20	1
2673	84.75	Non-Postsecondary Intermediate A	Academic Advmt	General Ed	Year Round	32.26	1.00	15.99	46.93	60.47	1
Count of Part-time Faculty Members meeting ACA Definition with the 2.78 multiplier (n=42) that were potentially overloaded											30

Appendix O

Recommended Step by Step Guide for Assessing Risk of Potential ACA Penalty

General			
Steps			*Enter number*
1		Number of full-time employees	
2		Number of part-time hourly employees	
3		Number of part-time faculty employees	
4		Number of student workers	
5		Number of Seasonal workers	
6		Estimated Workweek of Full-time Faculty if used in Measurement Technique	
7.		List of the Names of the Academic Terms	Number of Weeks in the Term
		1.	
		2.	
		3.	
		4.	
		5.	
		6.	
Database Generation			
	Check if completed		
8		Database of Hourly Employees and worked hours by period	
9		Database of Part-time faculty with courses compensated on a non-hourly basis including contact time and other Workload variables.	
10		Database of Part-time Faculty Hourly work	
Calculations			
11		Sum of hourly work of hourly employees by employee divided by number of weeks in the period excluding student and seasonal workers.	
12		Apply method to estimate instructional hours plus hourly work by part-time faculty by term divided weeks in the term.	
Counts			
13		Count number of part-time employees who worked at least 30 hours per week and were not offered health care benefits.	
14		Count number of employees who worked at least 30 hours per week and were offered health care benefits not meeting the minimum requirements.	
Potential Penalty Risks			
	4980H(a)		
15		Margin of Error 5%: Number of full-time employees. (0.05 X step 1)	
16		If step 15 is greater than 13, enter 0, otherwise, Potential risk is: the number of full-time employees less 30 X $2000	
	4980H(b)		
17		Apply the “Safe Harbor” techniques to measure the potential. $3000 annually	
18		**Total**	

Note: This researcher developed this Worksheet to assist institutions to monitor the potential risk of an ACA penalty. Use of this worksheet without permission is prohibited.