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An Evaluation of Fingerprinting on
Registered Nurse Licensure Rates in the
State of Texas

John Lawson Bolton

Texas State University-San Marcos, Political Science Department,
Public Administration, john.bolton@bne.state.tx.us

**An Evaluation of Fingerprinting on Registered Nurse Licensure Rates in the State
of Texas**

**by
John Lawson Bolton**

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Faculty Approval:

Dr. Patricia M. Shields

Dr. Howard Balanoff

Mr. Jeff Lund

Abstract

The demand for nurses coupled with increasing numbers of applicants with criminal history records has led some state boards of nursing to look at fingerprinting as a method for eliminating some of the difficulty in reviewing nurse licensure eligibility issues. The Board of Nurse Examiners for the State of Texas is among the first states to implement mandatory fingerprinting as part of the initial licensure process. The purpose of this research is to determine whether fingerprinting for the purpose of obtaining criminal history record information has an impact on registered nurse (RN) licensure rates in the State of Texas.

The research hypothesis states that the fingerprinting program will have a negative effect on the number of licenses issued. To test this hypothesis, an interrupted time series regression is employed using monthly data points for the number of RN licenses issued before and after the fingerprinting program was implemented. The licensure data is provided by the Board of Nurse Examiners for the State of Texas. Quantitative analysis is used to determine the impact of fingerprinting on RN licensure rates.

Results did not support the hypothesis. The fingerprinting program was policy neutral.

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Chapter I - Introduction

The roles of nurses have changed remarkably since Florence Nightingale first encouraged the establishment of training programs for nurses in England. The public almost immediately saw the value of trained caretakers and began to embrace the role of the modern nurse. Over the years, the profession has transformed into a challenging position in a multitude of settings that requires an increasing level of education and skill. Nursing was among the first regulated professions in the United States and competent nursing has become a necessity in modern health care administration.

Fingerprint identification originated in around the same time period that the nursing profession was undergoing its transformation and has enjoyed increasingly more public acceptance. The development of fingerprinting and its utility in public protection has increased greatly since its inception. Fingerprinting is considered a vital part of law enforcement activities and has worked its way into many other facets of daily life, especially in the field of biometrics.

Research Purpose

Both occupational licensing and fingerprinting are largely taken for granted these days, but in the early twentieth century, these were new ideas that were heavily debated. This debate is fraught with difficult questions regarding civil liberties and the role of government. Based on public reactions to perceived encroachment on civil liberties in the name of protection and revised arguments regarding their flaws, these issues may be worth re-evaluating. Recent research indicates that traditional data may be “scientifically and statically wanting” (Economist 2000, 89). Additionally, there is a lack of research

regarding the integration of fingerprinting into the occupational licensure process, although the topic has been lingering about for some time.

Most government regulatory bodies were instituted to protect the public from harmful practitioners and the Board of Nurse Examiners for the State of Texas (BNE) is no exception. Texas was among the first states to implement fingerprinting in the initial licensure process for nurses and the development of future programs in other states will depend on the success of these forerunners. The general public expects competent practitioners and holds the BNE accountable for this assurance. Although the public expects competent practitioners, there is also a limit to the amount they can (or are willing to) sacrifice for this assurance. The purpose of this paper is to evaluate the impact of fingerprinting on initial licensure rates for Registered Nurses (RNs) in Texas.

Chapter Summaries

Chapter Two reviews the literature relating to nurse licensure and fingerprinting. It begins with the history of occupational licensing in the United States and the emergence of fingerprinting as a world wide criminal cataloging device. The chapter examines the relationship that fingerprinting and occupational licensing have had in the past and how it is now being transcended to the nursing profession. Advantages and disadvantages for each concept are discussed. Further, a hypothesis specifying the relationship between fingerprinting and initial licensure rates for Registered Nurses is developed.

Chapter Three focuses on the setting for this research. The origins of the Board of Nurse Examiners, its mission, and tasks are outlined in this chapter. Also, the foundations of fingerprinting as it relates to nurse licensure are traced through a history of relevant

amendments to the Nursing Practice Act, the statutes regulating the nursing profession in the State of Texas.

Chapter Four operationalizes the hypothesis and describes the methodology developed to address the research question. The research method used is an interrupted time series regression analysis. Existing data from the Board of Nurse Examiners for the State of Texas is utilized to conduct the statistical tests and measure the impact of the fingerprinting program on nurse licensure rates. Chapter Five discusses the results of the research and statistical procedures used. Results are presented in tabular form and then interpreted in the text. Chapter Six summarizes the results of Chapter Five. It includes suggestions for future research as well as how this paper will help to fill in the gaps of previous studies.

Chapter II – Literature Review

Purpose

This chapter examines the scholarly literature related to occupational licensing, fingerprinting, and the nursing profession. The purpose of this chapter is to review the development and later collaboration of occupational licensing and fingerprinting in the United States with the intention of demonstrating the need for an evaluation of fingerprinting and its effect on nurse licensure trends.

Occupational Licensing History

Occupational licensing is generally defined as

a process where entry into an occupation requires the permission of the government, and the state requires some demonstration of a minimum degree of competency. The state usually creates a nongovernmental licensing board with political appointees, public members and members of the occupation to oversee the regulated occupations. Generally, members of the occupation dominate the licensing boards. The agency must usually be self-supporting by collecting fees and registration charges from persons in the licensed occupations. Usually, members of the occupation provide technical support to the licensing agency (Kleiner 2000, 191).

Although this current model may be well-accepted, occupational licensing in the United States has undergone many changes since its origin. Before the late nineteenth century, only medicine, law, and theology were considered “learned professions” (Friedman and Kuznets 1945). The formation of many new professions such as teachers, engineers, dentists, and accountants as well as the transformation and development of older professions fueled the expansion of professionals in the United States. While in 1900, only about 4 percent of the labor force was considered to be employed in professional occupations, this number has steadily increased over the years (Law and Kim 2004, 2). Today, professional licensing directly affects 18 percent of U.S. workers,

which is more than the percentage affected by either minimum wage or unionization (Pagliero 2005, 2).

Professionals are different from other laborers in many ways. Professionals generally acquire more training and education, earn higher wages, and may also possess a higher status in society. In addition, the “entry into and standards of practice within professional occupations are regulated by professional societies and by government” (Law and Kim 2004, 2). Professional societies and licensing boards regulate their own practice by; determining standards of entry, ensuring continued competence, disciplining unlawful practitioners, and preventing unlicensed practitioners from operating in the profession. In the United States, professional licensure is primarily regulated by state governments. State legislatures establish the general statutes to guide occupational regulation, but “special administrative agencies or boards are given the task of interpreting and implementing state laws” to “protect the public from the untrained, the unqualified, and the incompetent” (Schneider 1987, 479). These administrative agencies put the policies into practice and determine guidelines for interpretation including the operationalization of concepts and determining thresholds for action.

Advantages of Occupational Licensing

The main benefits associated with occupational licensing involve improving quality for those persons receiving the service, but that is not to say there are no benefits for practitioners as well. Occupational licensure creates a greater incentive for individuals to invest in more occupation-specific human capital because they will be more able to recoup the full returns to their investment if they need not face low-quality competition (Akerlof, 1970; Shapiro, 1986).

The problem of corruption was not the foundational idea behind licensing. “The evidence from the Progressive Era suggests that regulation arose to improve markets as advances in knowledge and specialization made it increasingly difficult for consumers to judge the quality of professional services” (Law and Kim 2004, 1). The basic idea is that going to the doctor is inherently different than going to the department store. In the department store, the buyer makes informed decisions about products that are fairly easily understood, whereas most buyers do not have the training and understanding necessary for selecting a doctor. Although it is common for sellers of specialized services to be “better informed than buyers about the various dimensions of product quality” (Law and Kim 2004, 3), the buyer is not as adversely affected by a poor choice at a department store. Additionally, this example does not endanger the public welfare. The elimination of charlatans and quacks from a profession is a valid desire for both practitioners and consumers. (Law and Kim 2004, 8).

Occupational licensing also helps eliminate risks to the public at large. For example, “a doctor who makes a bad diagnosis may cause a widespread epidemic. A boilermaker who installs a furnace incorrectly may cause a building to catch fire, injuring or killing many persons (Kleiner 2000, 192). These are definite positive social payoffs that benefit the public and fall in line with the mission of most regulatory bodies.

Ultimately, the hope is that licensure policies lead to a high quality workforce, and at the very least, help ensure that unqualified candidates do not enter those occupations. Schneider (1987, 479) argues that “professional licensure is a vital element of a state’s policy-making activity. The regulation of professions and occupations is one of the primary ways that the states affect the everyday lives of their citizens.”

Disadvantages of Occupational Licensing

Although licensing agencies have many qualities that enhance the overall public welfare, many citizens claim that their interests lie in their pocketbook. Pfeffer (1974, 102) asserts that

underlying much of the discussion of the process of professionalization is the idea that many of the characteristics associated with professionalization, and particularly autonomy and self-regulation, may serve the economic and social status interests of the members of the profession. Indeed, it might be argued that professional associations are frequently formed in order to obtain control over the conditions of entry and professional practice, the intent of this control being to raise the incomes of persons already in the profession.

Some compare the modern licensing agency to the medieval guilds which attempted to monopolize professions and enrich those practitioners who formed or allowed others to join the guild (Vollmer and Mills 1956, 154). Others accuse occupational licensing organizations as using political processes to improve their own economic circumstances (Stigler 1971, 13).

This viewpoint may be more than a conspiracy theory. Pagliero (2005, 3) found that occupational licensing entrance “exam difficulty increases in periods of low demand and when the number of candidates and their quality increase.” In addition, the information in Pagliero’s study indicates that states with more and/or better candidates have more difficult examinations than states that have fewer and/or less viable candidates. Pagliero’s study on occupational licensing implies that the standards set by licensing boards are not absolute, and that minimum standards may be contingent on outside conditions. This may also be further proof that occupational licensing agencies do not exist to ensure minimum competency. In 1945, Friedman and Kuznets (20) alleged that

the formal premedical and medical training requirements are thus not the only, and may not even be the most important factor governing entry into medicine. The attitudes and actions of the American Medical Association and its Council on Medical Education, of individual medical schools and their national association, and of state boards of medical examiners and their national federation also play an important role, a role that in recent years has been to make entry more difficult.

It is difficult to judge the effectiveness of many occupational licensing agencies.

How does one evaluate doctors or lawyers? The question is even more difficult for other professions such as cosmetologists or barbers. Are public opinion surveys really capturing the whole picture? Hogan (1983, 121) argues that there has been little improvement in the quality of professional services from the actions of licensing authorities and that “even if licensing laws do assure competent practitioners, the price may not be worth it.” The effects are especially felt by the poorest people in society for whom the end result may be the unavailability of services. The notion of constricting services runs contrary to the stated mission of public protection touted by most regulatory bodies. Hogan also claims that disciplinary actions taken by licensing organizations are inadequate, as is the prevention of illegal practice. He is not alone in the belief that licensing organizations aim to eliminate competition and that competence is secondary to their primary motive. Pfeffer (1974, 104) agrees, stating that “the limited amount of empirical research reviewed is consistent with the idea that occupational licensing operates to restrict entry and enhance occupational incomes.” On the other hand, the earliest laws to regulate directly the medical profession were enacted in Virginia in 1639 (Derbyshire 1969, 2) and their purpose “was only to control the amount charged by practitioners, since so many complaints had been voiced about excessive fees” (Hogan 1983, 118). This information implies that the problem of excessive fees may not be a result of licensing per se, but perhaps an aspect of the profession itself.

In addition to driving consumers away, occupational licensing can have a negative impact on employers. Statistics on this point may be difficult to obtain, due to the unlikelihood that professional licensees will report their employers or themselves for breaking laws and/or rules. In her report on EMS licensing, Gainor (2004, 8) discussed the willingness of hospital staff members to violate the laws and/or rules governing emergency medical services in Idaho revealed to her via “unofficial feedback channels.” Allegations of deliberate illegal practice are disturbing for licensing organizations, but it is equally difficult to give credence to these “unofficial feedback channels” and use them as a basis for major changes. Gainor’s study also found that the licensing process may actually be burdensome for both the employers and consumers. She notes that the long processing times are “a common source of dissatisfaction and contention between state EMS staff and anxious candidates for EMS certification or the local EMS agency officials waiting to deploy the personnel” (Gainor 2004, 8).

One of the most overlooked ways that occupational licensing affects the community is that the people who are kept from entering a profession, must therefore, enter another profession (usually one that does not demand a license or has less restrictions on licensure). In one of his numerous studies on occupational licensing, Kleiner urges us not to forget about those who are denied eligibility for licensure (2000, 193). This can have a greater-than-expected effect on the supply and demand of a particular profession. Licensing frequently shifts the denied individuals to relatively similar professions without regulation. The impact of shifting people to other professions may be hard to gauge, but it is worth mentioning as it is a potential side-effect to denial of an occupational license.

In the end, “the benefits to public health and safety and service quality provided by occupational licensing needs to be weighed against the costs that licensing imposes on consumers relative to certification of competence” (Kleiner 2003, 3). The limitation of entry to an occupation offers many advantages, but it is not without danger. The opportunity for corruption is present and without caution, could end up causing more harm than protection.

Licensing organizations and professional societies, however, are not accepting this stigma without a fight. Most licensing organizations feel that they are motivated by the stated mission of “public protection” and the accusations that they are money-grubbing and monopolizing the profession are taken very personally. That (along with new efficiency initiatives) is one of the primary reasons more and more licensing organizations and professional societies are looking at objective measures to ensure fairness and effectiveness. Fingerprinting applicants for licensure is a fairly new method being used to inform the licensure eligibility process. Fingerprinting is being hailed (once again) as the answer to much of the problems associated with validation of records. There are definite advantages to having these facts and fingerprinting helps eliminate much of the guesswork associated with eligibility decisions because it provides clear information that is already categorized and prioritized for official use.

Fingerprinting History

As alluded to earlier, fingerprints have been the “answer” to many criminal problems in the past and their use has spread greatly since the first time a hand was dipped in ink.

For many years fingerprints have played an invaluable role in criminal and investigative work. For centuries man has utilized various systems of

identification such as branding, tattooing, distinctive clothing, photography and measurement. These systems, without exception, have not produced completely desirable results. Only fingerprinting, of all methods of identification, has proved to be both infallible and feasible (Collins 1991, 2).

The story of how fingerprinting became such a driving force in forensic science, is one that helps to explicate the limitations of previous identification systems and the advancements over time. Since the beginning of criminality, there was a suspicion that it “had an organic origin” and it must be “physically manifested in the body” (Cole 2001, 1). Until the industrial revolution, people relied on their personal knowledge of their community to determine citizens from crooks. This ability to distinguish friend from foe became increasingly difficult to apply in the framework of a large city or as a newcomer in any community. This problem was amplified by the rapid migration from rural areas to cities that took place during the industrial revolution (Cole 2001, 8-9). One of the most difficult social adjustments was the realization that “the most heinous criminal could appear in the most innocent guise” (Cole 2001, 2). The desire to identify and control criminals fueled the demand for identification technologies incorporating the most up-to-date inventions and science (Cole 2001, 3). Luckily, the industrial revolution helped spread the availability and usage of photography, which “began the development of modern methods of criminal identification” (Hoover 1929, 205). It was not until this time that one could distinguish repeat offenders from first-time offenders. Prior to the photograph, law enforcement agencies relied mostly upon the memory of the guards. “The French term *recidiviste* was coined in 1844 by Arnould Bonneville de Marsangy, whose seminal treatise, *De la recidive*, was probably the earliest European text to focus on the repeat offender” (Cole 2001, 15). Even with the snappy new name, recidivism information was hardly a science. The task of tracking recidivism using only memory is

one which is impossible for modern law enforcement officials to comprehend. There was basically no way of knowing or tracking criminals. With the newfound significance of recidivism, law enforcement agencies went about trying to track criminals.

There were two major identification systems that came about as a result of recognizing the recidivism phenomenon. “The first system of identification which made the photograph effective in large bureaus was the Bertillon system which derives its name from Alphonse M. Bertillon, a noted French anthropologist, who devised and perfected the system in 1882” (Hoover 1929, 205). The other was fingerprinting. Although fingerprinting may be the obvious choice for effective identification now, the Bertillon system was more widely accepted at first. The Bertillon system incorporated a wide array of measurements of the bony structures of the body (i.e., height, the length of the outer arms, trunk, head, ear, etc.) and gave official cataloging standards for the measurements (Hoover 1929, 205). The Bertillon system became the common method for criminal identification in Europe (especially France) and even in the United States.

The Bertillon system was a step in the right direction, but its disadvantages were also quite apparent. It could not be effectively used on children or the elderly because of their changing bone structure and there was a high propensity for operator error, based on who measured the criminal. Fingerprinting eventually proved to be a superior mechanism for criminal identification because they were less costly and time consuming. Studies also proved that fingerprints were quite durable. In an 1880 research study on fingerprints, Doctor Faulds, of the Tsukiji Hospital at Tokyo, Japan, “established that the varieties of individual fingerprint patterns were very great; that the patterns remained constant throughout life; and, that even after the removal of ridges by the use of pumice stone and

acid the patterns invariably grew out again ‘with unimpeachable fidelity’ to their originals” (Hoover 1929, 207).

It is not strange then, that the advent of fingerprinting seemed to be an answer to the prayers of many law enforcement workers dealing with the flawed reliance on memory, cataloging, calibration of instruments, and user error issues associated with the Bertillon system. Fingerprints, in fact, were readily hailed as part of a divine plan that both brought wide encouragement in the field of law enforcement and brought wide speculation from the general public. Chapel confidently remarked that “fingerprints are God’s own seals, given to us that we may know and recognize His greatest creation—man” (1941, 4). He also added that “no two fingerprints are ever alike” and “the great Architect of the Universe never made any two things exactly alike, whether they were men, women, dogs, horses, snowflakes, or fingerprints” (Chapel 1941, 149). This unflinching belief in the validity of fingerprints as a forensic tool has been a mainstay in our society for the past century. The zeal with which law enforcement agencies adopted fingerprinting was uncanny and their motives were often misinterpreted and mysterious to many citizens.

Fingerprinting Application, Validity, and Abuse

The beginning of fingerprinting is marked by the struggle to maintain large, ever increasing amounts of records. In the early days of fingerprinting, lack of cooperation between various law enforcement agencies was the chief obstacle to the expansion of fingerprinting as a tool for detecting and tracking criminals (Cole 2001, 234). Each police department or prison had their own fingerprint records and they each had a different method of storage, cataloging, and collection. Although some agencies collaborated

(mostly on the local level), the problem of data sharing was not really presented with a viable solution until the United States Department of Justice created a Bureau of Criminal Identification in order to provide a centralized reference collection of fingerprints in 1905 (FBI 2005). This action helped prevent migratory criminals from evading detection simply by hopping town (or state) (Cole 2001, 218).

The general public was both in awe and frightened by the idea that their identification could be ascertained from their fingertips. Although Americans were initially at peace with the notion of universal fingerprinting, J. Edgar Hoover “returned fingerprinting to its origins, as a mechanism for state monitoring and surveillance of citizens, especially those deemed foreign, politically radical, or otherwise dangerous” (Cole 2001, 247). The idea of universal fingerprinting brought on many fears throughout the citizenry and mobilized groups in opposition to the plans.

Universal fingerprinting struck a negative chord with citizens who feared that the government threatened their individual rights. The American Civil Liberties Union (ACLU) issued a formal stance on the universal fingerprinting of United States citizens. Their platform was that “there is no objection to fingerprinting when restricted to its legitimate uses—namely, in the cases of persons convicted of crimes whose records the police may properly keep; and those whose fingerprints are an essential means of identification in occupations licensed by public authorities” (Lehman 1938, 19). The ACLU asserted that “the causes of crime are deeply social, and cannot be approached by any such superficial measure as fingerprinting” (Lehman 1938, 14). This indicates the public’s recognition of the value of fingerprinting, in that there was not a call to eliminate the process altogether. The ACLU was even willing to concede that all those who possess

firearms should have their fingerprints registered as well as “pawnbrokers, private detectives, and those engaged in certain other occupations in which the public interest requires the issuance of licenses” (Lehman 1938, 10). Still the call to eliminate universal fingerprinting was strong.

The Federal Bureau of Investigation’s (FBI) position was hampered by the rumors that all persons in need of welfare or government assistance would lose certain civil liberties guaranteed under the constitution. The loss of civil liberties could include the right to vote as well as the registration of fingerprints. Even though the practice was against the law, transients were sometimes forced to submit to being fingerprinted before obtaining any assistance (Falk 1940, 53). The ACLU voiced the feelings of many citizens who were much more unaccustomed to government intervention in personal affairs. They employed scare tactics, stating that “under a reactionary or Fascist regime, under the guise of ‘national emergency’, it (universal fingerprinting) might lead to untold persecution. It might conceivably be used to destroy the secret ballot, by providing a post-election check” (Lehman 1938, 19). The FBI persisted and proponents argued that there was no “stigma attached to the act of fingerprinting” but universal fingerprinting was eventually dropped as a policy of the FBI (Chapel 1941, 3).

Even without universal fingerprinting, the implementation of fingerprints in United States law enforcement proved to be a giant leap forward. After World War II, fingerprinting became more and more common. Central fingerprint databases continued to collect fingerprints and the legal system (as well as the general public) have accepted the use of fingerprints as a practical identification method. There have been numerous court decisions that have strengthened the position of fingerprints as evidence throughout

the world and it goes without saying these days that fingerprints are accepted as a form of biological identification that has remained unsurpassed for many years (Cole 2001, 259). Fingerprinting has gained an impeccable reputation for identifying criminals and has become a mainstay in law enforcement agencies worldwide, but the comparison of fingerprinting techniques to more modern techniques, such as “DNA fingerprinting” is beginning to show some cracks. These technical flaws are gaining particular attention in light of a judgment in 1993 that “set standards for the admission of evidence in court” (Economist 2000, 89).

Licensing and Fingerprinting Nurses

The idea of fingerprinting for the purpose of issuing an occupational license has been considered for many uses in the past. Even though this is an old idea, it is still controversial. Calls to fingerprint professionals lead to concerns that their privacy is being invaded and they are suddenly less trustworthy. This was certainly the case when fingerprinting swept the teaching profession. In Maine, “most (teachers) seem to be opposed to fingerprinting” and they were certainly not in favor of the extra fee they were to bear for the service (Economist 2000, 29). Many exasperated teachers claimed that they would rather quit their job as a teacher than to submit to the fingerprinting because of their firm beliefs. The teachers’ frustration was only heightened by the familiar reply by the governor that “a small infringement of civil liberties is surely worthwhile if one child is saved” (Economist 2000, 29).

Licensing agencies must also balance their activities with funds available to accomplish their mission. Most of the time, government entities must choose one activity over another because one has more value. The licensing agency is no exception and must

try to engage in only those activities that bring the most value to the public (NCSBN 1996). Most state boards of nursing ask questions about criminal convictions on licensure applications, but applicants may not be motivated to be truthful if there is no way for the agency to find out about their previous criminal activity. Criminal background checks validate information on the application and may also lead to more truthful responses (NCSBN 2005, 53). According to the nurse investigators for the Disciplinary Division of the National Council of State Boards of Nursing (NCSBN), the numbers of fraudulent applications submitted to boards of nursing are increasing. People generally aren't forthcoming about their pasts, nor are they in a position to look at the incident objectively (O'Rourke-Langston 1997). O'Rourke-Langston emphasizes that "individuals refuse to take responsibility or be accountable for their actions because, from their perspective, the rule doesn't apply to them or their circumstances" (1997). This decline in accountability is also evidenced by reports from the California Board of Registered Nursing who experienced a significant increase in the number of self-disclosures after the implementation of fingerprint checks (Cooper and Sheets 1998, 39).

"Although the chances are relatively small that the nurse providing an individual's care is someone whose behavior may place the client at risk, incidents of serious incompetence or abuse traumatizes the victims and shakes public trust in care providers and organizations serving vulnerable populations" (Cooper and Sheets 1998, 37). Criminal background checks are aimed at placing obligations on licensing agencies and employers to protect children and vulnerable adults (NCSBN 2005, 49). The licensing process "provides a logical opportunity to identify concerns regarding the

qualifications of those who care for the members of society most susceptible to abuse” (Cooper and Sheets 1998, 39).

The purpose of these criminal background checks is to restrict the licensure of potentially unsafe nurses who have criminal records (Cooper and Sheets 1998, 39). One of the licensing agencies’ main thrusts behind this initiative is that criminal behavior is damaging to the public as a whole *and* that this behavior is predictable. Past actions can be a viable predictor of future behavior and “certain crimes such as sexual molestation have a high probability of repetition” (Patterson, 1998). Boards of nursing take many factors into account when making an eligibility determination, but one of the primary considerations is repeated patterns of criminal behavior. Repeated patterns of criminal behavior demonstrate that the person’s “thought patterns have not changed, and there is a high probability that there will be a new victim” (Cooper and Sheets 1998, 41). Boards of nursing realize that a lack of criminal history is no guarantee against future criminal acts, but “it is an indicator that the person is less likely to commit crimes in the future” (NCSBN 2005: 51).

The term, competence, is frequently brandished when referring to occupational licensing standards. The NCSBN has issued a formal definition of competence, which encompasses a vast array of regulatory ideas, but the most relevant portion of their definition to this study is that of *competence conduct*. “*Competence conduct* refers to health and conduct expectations which may be evaluated through reports from the individual practitioner, employer reports, and discipline checks” (NCSBN 1996). The public demands competent practitioners and holds the licensing agencies accountable for this safety.

Fingerprinting may make it easier to fulfill this aspect of protection, especially in light of the increased number of people reporting previous criminal behavior. Arizona reported a seemingly overnight increase in felony applicants for nurse licensure. They listed 4 felony applicants the entire year in 1995 and 52 for the year in 1996 (Cooper and Sheets 1998, 37). With reports that “more individuals with felony convictions are applying for licensure” and the fact that “increasingly, health care is provided away from traditional institutional settings,” the implementation of criminal background checks as a requirement for nurse licensure seems to be gaining more acceptance (Cooper and Sheets 1998, 37). Regulators face the dilemma of determining what percentage of violent crime victimization the public should absorb. Consumers needing health care are vulnerable; nursing is a stressful profession; and stress tends to cause bad habits to reappear (Cooper and Sheets 1998, 44).

The arguments for adding fingerprinting as a step toward licensing are basically the same as they are for criminal usage. In a recent presentation at the NCSBN Investigator and Attorney Education Workshop, Harris (2005) gave these reasons for conducting criminal background checks (via fingerprinting):

1. Saves time
2. Conserves agency resources – and the public health
3. Verify qualifications
4. Determine statutory eligibility (disqualification) for a license
5. Prevent future harm
6. Protect the public

It is no coincidence that these are very familiar ideas to both occupational licensing and fingerprinting. The listed reasons the inclusion of a criminal background check in the nurse licensure process are vaguely stated and offer only a glimpse into the future effectiveness of fingerprinting programs. Implementation is the place where these ideas become tangible and true evaluation can occur.

Hypothesis

According to the literature, it is hypothesized that the implementation of fingerprinting in the initial licensure process for Registered Nurses in Texas would result in a decline in the number of RNs gaining licensure in the state. The frequent allegation by those opposed to occupational licensing is that more restrictions to licensure lead to less professionals in the field. This seems to make sense on the surface, but the research conducted in this vein is rarely empirical. Previous studies claim that occupational licensing restrictions only increase over time to prevent more people from entering the profession and as a result, raise the incomes of individuals already established in the profession. The tone of this previous research seems to have a more political than scientific tone. This hypothesis will help to address whether this extra “restriction” has an actual effect on licensure rates. Table 2.1 illustrates the hypothesis and gives the sources used for its formation.

Table 2.1 - Hypothesis

Hypotheses	Supporting Literature
The implementation of fingerprinting in the initial licensure process for Registered Nurses (RNs) in Texas will have a negative effect on the number of initial licenses issued by the state.	Friedman, Milton and Kuznets 1945 Economist 2000 Hogan 1983 Kleiner 2000 Pfeffer 1974 Vollmer and Mills 1956

More state boards of nursing are beginning to require criminal background checks for licensure as a nurse. It is generally assumed that these criminal background checks will reveal information that would not otherwise be attainable, but will this newfound information come at the price of a declining workforce? Will the procedure intimidate nurses who were previously considering nursing as a career?

The Board of Nurse Examiners (BNE) for the State of Texas implemented criminal background checks for initial licensure of RNs in its 2004 fiscal year (September 1, 2003 – August 31, 2004) and it is one of the first states to implement this type of program. The hypothesis should assist in evaluating the relationship of fingerprinting to the overall entry of nursing professionals in Texas. It should also help in establishing the appropriate balance of public safety and licensure restriction. The BNE has a long history of regulation in the State of Texas. The ways in which nurses obtain licenses in the State of Texas have been in place for many years, but new requirements, such as fingerprinting, are shifts that shape the way the regulatory agency advances.

Chapter III – Setting

Purpose

The purpose of this chapter is to provide a brief overview of the emergence of the Board of Nurse Examiners for the State of Texas as well as a discussion of the methods for obtaining licensure as a nurse and the laws specific to the purpose of this manuscript.

Board of Nurse Examiners History

Formed in 1909, the Board of Nurse Examiners is the second oldest regulatory agency in the State of Texas. Formal nursing training programs started to appear in 1890 and hospitals, recognizing the benefits of an unpaid student workforce, began to establish nursing programs rapidly throughout the state (Handbook of Texas Online). The need to distinguish between formally trained “graduate nurses” and nurses who gained their knowledge through experience prompted the formation of the Graduate Nurses’ Association of Texas (now known as the Texas Nurses Association). This association helped drive the passage of the first Nursing Practice Act. The Nursing Practice Act, in addition to establishing formal laws regulating the practice of professional nursing in Texas, also created the Board of Nurse Examiners (BNE) as the state agency assigned to supervise the administration of these new laws

Licensure Methods

There are two methods of obtaining licensure as a nurse in the State of Texas. The first method is by endorsement. Endorsement is the method of licensure for nurses who have already passed the appropriate examination and have obtained licensure in another state or jurisdiction in the United States. The other method of obtaining licensure as a nurse is by examination. All new graduates of nursing programs who want to obtain

licensure as a nurse must pass the National Council Licensure Exam (NCLEX). After the candidate passes the exam, they are issued a license for the state in which they took the exam. There are several steps in both application processes that are in place to ensure that candidates for licensure have met the requirements of the State of Texas.

The BNE has approximately 250,000 active licensees, apprised of roughly 175,000 Registered Nurses (RNs) and 75,000 Licensed Vocational Nurses (LVNs). Both “RN” and “LVN” are protected titles and those professionals work under the provisions of the Nursing Practice Act. The primary differences between the two titles are the level of education and scope of practice.

Fingerprinting Legislation and Implementation

During the regular session of the 78th meeting of the Texas State Legislature, House Bill 2208 was passed to amend the Nursing Practice Act. This amendment gave the Board of Nurse Examiners the authority to collect fingerprints for the purpose of obtaining criminal history record information (Chapter 301.2511). The amendment also added that the Board could refuse to issue or renew a license if this condition was not met (Chapter 301.3011).

In Fiscal Year 2004 (September 1, 2003 – August 31, 2004), the BNE began mandatory fingerprinting for initial licensure RN candidates. Implementation of fingerprinting for LVN candidates was to begin two years later, in fiscal year 2006, after necessary funds and staff were obtained to facilitate the program. This time period presents a valuable opportunity for evaluation to determine the program’s impact on various aspects of nurse licensure.

Chapter IV – Methodology

Purpose

The purpose of this chapter is to show how the data for this study is gathered and the hypothesis tested. The hypothesis is operationalized by defining the dependent and independent variables. The sources of the data are also included in this chapter.

Operationalization

In determining whether the implementation of fingerprinting in the nurse licensure process has an effect on licensure rates, data must be gathered that takes several items into consideration. The dependent variable is the number of RN licenses issued both before and after the program. The data, taken from reports of licenses issued over time is supplied by the Board of Nurse Examiners for the State of Texas. These reports provide statistics for many of the Board's operations and are used by Board members and Board staff to evaluate efficiency. This data is the source of the dependent variable as well as an independent variable measuring changes in trends resulting from the fingerprinting program, since the data can be traced over a particular time period.

General population shifts can also have an effect on the number of initial licenses issued whether or not the population shift occurs because of changes in the profession. The number of LVN licenses issued will function as a covariant to control for general population shifts in the state as well as population shifts in the nursing profession. Since LVNs were not subject to fingerprinting for initial licensure during the two year period evaluated, it should serve this function well.

Data is collected for twenty-four (24) months prior to the fingerprinting program implementation and twenty-four (24) months after the fingerprinting program

implementation. Independent variables, dependent variables, and the covariant are defined in Table 4.1.

Table 4.1: Operationalization of the Hypothesis

Variables	Definition	Unit of Measurement	Hypothesis
Dependent			
Initial RN Licenses Issued	Number of first-time Texas RN licenses	Number of RNs licensed by exam + number of RNs licensed by endorsement	-
Independent			
Fingerprinting program	Enactment of a program to fingerprint all applicants for licensure as an RN in Texas	0 before the program, 1, 2, 3 ... to measure changes in the trends resulting from the program	-
Dummy	A variable to measure slope changes as a result of the program which is a dummy variable, 0 before the program, 1 after	0 = before the program 1 = after the program	-
Month	The months, including those before and after the program	1 - 48	-
Covariant			
Initial LVN Licenses Issued	Number of first-time Texas RN licenses	Number of LVNs licensed by exam + number of LVNs licensed by endorsement	constant

Design

An interrupted time series regression is employed to determine the relationship between the new fingerprinting program and the number of initial licenses issued. The interrupted time series design is a quasi-experimental design that examines whether and how an interruption (of treatment, program, etc.) affects a social process. This quasi-experimental design is considered strong because data is collected at multiple points both before and after the treatment, as opposed to the smaller numbers of data points

associated with simple pre-test post-test analysis. It eliminates the bias which can occur with only one observation. This design was chosen because regular data sets were available both preceding and following the fingerprinting program and other typical data collection instruments would not provide the most significant data for analysis.

There has been much speculation about the effectiveness of this fingerprinting program as it relates to nurse licensure, but empirical research on the subject is very limited.

Design Weaknesses

Although the interrupted time series design ensures a high level of validity, it does not measure a broad range of effects. It is specifically focused on one effect and takes several different variables into account when examining that effect. Its other weakness is that there is not a valid control group to compare the data. Even the prospect of a comparison group is tricky since many other states are now taking these same steps toward fingerprinting as part of the nurse licensure process (many implementing the change within the same time evaluated in this research). Since there is no perfect match to the group being evaluated, this form of design cannot be considered a true experimental design. Rarely can one obtain a true control group in social research due to availability of data, inability to randomize, or fairness of treatment issues inherent in the field. This type of research, however, is crucial to future study because it provides a foundation for further research. One cannot address other questions regarding the effectiveness of the fingerprinting program overall without first looking at fundamental factors such as its impact on initial licensure.

Human Subjects Issues

All the data for this research is taken from public records and cannot be traced to individuals. No sensitive information is revealed and the analysis only focuses on the effect of the fingerprinting program on the number of licenses issued to nurses. The purpose of this research is not to draw conclusions about effects of criminal history or behavior on licensure, but rather to look at the effect that *checking* criminal history has on the number of RN licenses issued.

Evaluation

A regression analysis is used to help describe the nature of the relationship between the dependent and independent variables and explain the direction of the relationship. This will help determine whether there has been a change in the number of initial licenses issued and whether or not that change can be attributed to the implementation of fingerprinting in the licensure process.

Chapter V – Results

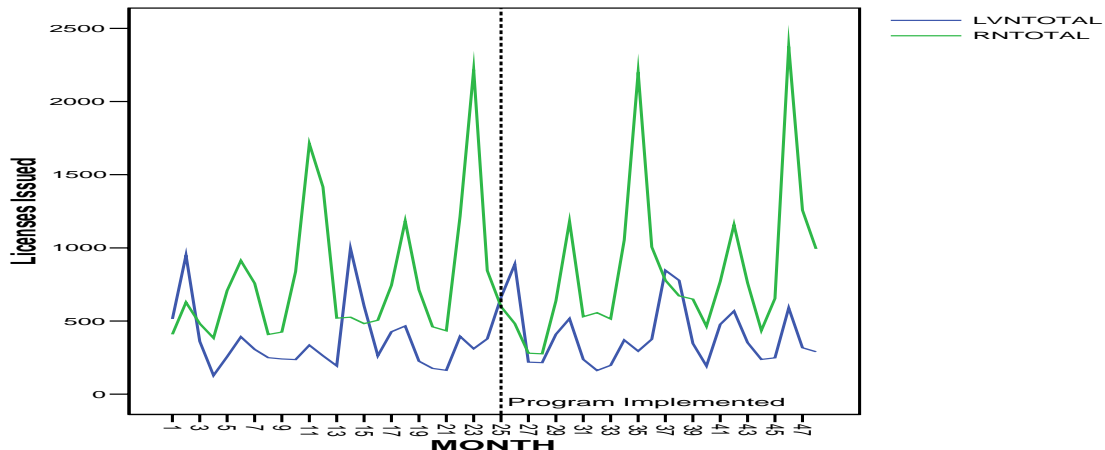
Purpose

The purpose of this chapter is to test the research hypothesis and present the results of the regression analysis for the interrupted time series regression. The results in this section will reveal whether the implementation of fingerprinting in the initial RN licensure process has an effect on the number of RN licenses issued.

Descriptive Statistics

Chart 5.1 shows the total number of RN and LVN licenses issued in Texas during the forty-eight months evaluated in this research. There are certain patterns that one may see in these licensure rates. The seasonal peaks and valleys are evident in the chart, but they are consistent. These peaks and valleys especially reflect the relationship between heavy graduation periods and heavy licensing periods. From the chart, there seems to be a decline in the number of licenses issued at the time the fingerprinting program was implemented, but the peaks still extend higher after the program's implementation. The regression analysis provides the most insight into whether the RN licensure rate was truly affected by the implementation of the fingerprinting program.

Chart 5.1



Regression Analysis

The results for the regression analysis are presented in both tabular and narrative forms. Table 5.1 shows the results of the analysis. The regression model for the interrupted time series model is not significant. There is very little relationship between the independent variables, fingerprinting program, and the RN licensure rate ($R^2 = .156$ and Adjusted $R^2 = .077$).

Table 5.1 - Regression

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	375.593	241.581		1.555	.127
MONTH	24.804	13.925	.711	1.781	.082
LVNTOTAL	.279	.323	.123	.863	.393
PROGRAM	4.487	19.564	.074	.229	.820
DUMMY	-605.913	275.368	-.627	-2.200	.033
F = 1.982					.114
N = 48					
Adjusted $R^2 = .077$					

a Dependent Variable: RNTOTAL

Although the regression model overall is not significant, there was one independent variable that turned out to be significant. The dummy variable that measures changes before and after the program indicates that there was a dip in the RN licensure rate immediately following the implementation of the program. After this brief dip, RN licenses were again issued at the same rate.

The results of the regression analysis do not support the literature that indicates occupational licensure restrictions result in a decline in the number of licenses issued. Although a portion of the results of this research partially support the contention that

fingerprinting has an effect on RN licensure rates, the results are not significant enough to support the hypothesis.

This research may have found that there was no relationship between the independent variables and the RN licensure rate; however, there are implications from this study that may be helpful for future research and policy-makers. The conclusion chapter focuses on the limitations of this research as well as how it may be used for future research.

Chapter VI - Conclusion

Research Summary

The purpose of this research was to evaluate the impact of fingerprinting on RN licensure rates in the State of Texas. Chapter One presented an introduction to the material and the research purpose. Chapter Two reviews the relevant literature and helped establish the hypothesized relationship between occupational licensing, fingerprinting, and the nursing profession. This chapter also introduces the hypothesis.

Chapter Three discusses the setting for the research—nursing in the State of Texas. This chapter contains a brief history of nursing in Texas and the formation of the Board of Nurse Examiners as well as the recent laws enacted regarding fingerprinting and obtaining criminal history record information on nurses. Chapter Four operationalizes the hypothesis and provides how the data was collected and the methodology used in the evaluation.

Chapter Five presents the results of the research. The results of the statistical methods employed are explained and interpreted in this chapter. The results of the interrupted time series design explain how the RN licensure rate was affected by the BNE's fingerprinting program. The results do not support the hypothesis that the fingerprinting program would have a negative impact on the number of licenses issued. There is no relationship between the implementation of the fingerprinting program and the number of licenses issued.

Although the regression model was not significant overall, it did provide one independent variable that had an effect on RN licensure rates. Even though the results indicate that there is no relationship between fingerprinting and RN licensure rates, there

are some limitations to this study. There may be some adjustments that can be made to the research design that better establish the nature of this relationship.

Limitations

One limitation of this study is that the month to month license tracking may not provide enough stability in data to evaluate effectively. Another limitation is that there was no control group used to measure changes against. Although this was partially covered by the covariant, a true control group always makes a program evaluation stronger. Another concept to consider is the demand for nurses. The demand for nurses may have played a role in leveling the hypothesized decline in the number of licenses issued.

Suggestions for Future Research

After more time has passed and data can be gathered in different increments, such as quarterly or yearly, the number of initial licenses issued may be smoothed and provide for more effective evaluation. It may also be helpful to look at only one type of initial licensure (i.e. Endorsement *or* Exam applicants). While this research looks at the total number of initial licenses issued, it would be interesting to see whether the rates are much different for endorsement versus exam applicants. There may also be differences in LVN licensure rates that would provide intriguing results. Due to the cyclical nature of exam applicants (due to major graduation dates at punctuated points during the year), endorsement applicants may provide a more steady linear relationship that has more relation to the independent variables in this research.

Suggestions for Policy-Makers

The discussion of occupational licensing and fingerprinting is one that has been around for a long time and will likely be around for a long time in the future. We are reminded of the relevancy from time to time, when we read a report of a supposedly upstanding citizen committing some heinous crime. Even nurses, who have an enduring reputation as noble workers, occasionally headline these same reports. Although this may prove that there should be some necessary preventative action, it may also prove that occupational licensing does not work as effectively as planned.

These assertions cannot be taken lightly, especially by occupational licensing agencies. Even though both occupational licensing agencies and fingerprinting have had much wider acceptance and helped establish modern professionals and law enforcement, they have also had negative associations and were sometimes used as methods of discrimination.

Regulatory agencies cannot simply look the other way when they see an increase in felonious applicants. These agencies must move quickly to prevent the possibility of these felonious nurses from endangering the patients they are mandated to protect. These agencies must also consider the consequences of unsuccessful innovation. “The media and opposition parties are always eager to expose public sector failures and pillory the public servants involved, with potentially disastrous effects on their careers” (Abramson and Littman 2002, 61). Clearly, there are consequences for all parties involved and it is in the interests of both the regulatory agencies and the licensees to have as much information about these programs when they are implemented.

Although this research found that there was no change in the RN licensure rate after the implementation of the fingerprinting program, the idea of fingerprinting is a sensitive issue that is worth examining further. The independent variable that measures changes after the program indicates a slight dip in the number of licenses issued immediately following the implementation of the fingerprinting program hints at the necessity for further research in this field. The BNE fingerprinting program has many benefits to determining eligibility for licensure as a nurse and this research suggests that the program has no impact on the licensure rate.

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