THE EFFECT OF STATE AND MUNICIPAL STATUTES ON THE ANNEXATION PROCESS WITH A FOCUS ON ANNEXATION ACTIVITIES IN DELAWARE

by

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A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Master of Arts in Geography

Spring 2015

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ACKNOWLEDGEMENTS

This thesis could not have been completed without the help of a lot of different people. First, I would like to thank my advisor, Dr. April Veness, for being a great source of ideas on this topic, introducing me to Georgetown, Delaware, and being an amazing teacher. I would also like to thank my second committee member, Dr. Afton Clarke-Sather for his time in conceptualizing and testing the statistical portions of this thesis. My third committee member, Ed O’Donnell, provided great insight into the annexation process in Delaware through his many years of experience in municipal planning. I would also like to thank Joseph Booth and Allan Kujala, who were interviewed for this thesis and provided a lot of very useful information. In addition, I am in debt to Rosalie Walls, one of Georgetown’s true historians, who was my first contact during my research and introduced me to some of the town’s former politicians.

The University of Delaware Geography faculty, staff, and students were very supportive while I was a student. I am most thankful for my friendships with Andrew Benjamin, Chrissy Finan, Sean and Janice Hudson, Hannah Jacobson, Renato Kane, Tom Santangelo, Erika Schreiber, Derek Schroeter, and Zac Suriano. My parents, James and Linda, provided me with a lot of motivation and great advice. Finally, I would like to thank my fiancée Danielle Eddows for her daily support and love through these last three years.
# TABLE OF CONTENTS

**LIST OF TABLES** ................................................................................................................... vii  
**LIST OF FIGURES** ................................................................................................................... viii  
**ABSTRACT** ................................................................................................................................. ix  

## Chapter

1. **INTRODUCTION** ..................................................................................................................... 1  
   1.1 Introduction of the Thesis Problem ......................................................................................... 1  
   1.2 Three Research Questions .................................................................................................... 5  
   1.3 Summary of Chapters ........................................................................................................... 7  

2. **LITERATURE REVIEW** .......................................................................................................... 11  
   2.1 Introduction ........................................................................................................................... 11  
   2.2 Historical Context of Annexation ......................................................................................... 12  
   2.3 Motivations for Annexation ................................................................................................. 16  
   2.4 Fiscal Impacts of Annexation ............................................................................................... 19  
   2.5 Political Implications of Annexation .................................................................................... 21  
   2.6 Classification and Understanding of State Annexation Laws ............................................. 23  
   2.7 Relevant Case Studies ......................................................................................................... 30  

3. **METHODS AND DATA** ......................................................................................................... 38  
   3.1 Introduction ........................................................................................................................... 38  
   3.2 Literature Review of Methods .............................................................................................. 39  
   3.3 Analyzing State Annexation Laws and Activity at the National Level ................................ 43  
   3.4 Analyzing Municipal-Level Annexation Laws in Delaware ............................................. 49  
   3.5 Georgetown: A Case Study .................................................................................................. 53  

4. **STATISTICAL RESULTS: NATIONAL LEVEL** .................................................................. 56  
   4.1 Introduction ........................................................................................................................... 56  
   4.2 Statistical Results ................................................................................................................. 57  
   4.2.1 Statutes Designed to Constrain Annexation ................................................................. 57  
   4.2.2 Statutes Designed to Facilitate Annexation ................................................................... 67  

iv
4.2.3 Discussion of Wilcoxon Results........................................75

4.3 Re-Categorization of Annexation Statutes........................................77

4.3.1 Discretionary Power in the Hands of State/County.........................80
4.3.2 Discretionary Power in the Hands of Municipalities .....................81
4.3.3 Discretionary Power in the Hands of Property Owners/Developers ..................................................81
4.3.4 Overall Observations ...................................................................82

5 DELAWARE ANNEXATION ANALYSIS..............................................85

5.1 Introduction.........................................................................................85
5.2 Demographic and Geographic Characteristics of Delaware ...............87
5.3 State Annexation Law in Delaware ..................................................97

5.3.1 Delaware Comparison with Chapter 4 Analysis ..............................101

5.4 Wilcoxon Rank Sums Results for Delaware Municipalities ...............106

5.4.1 Statutes Designed to Constrain Annexation.................................107
5.4.2 Statutes Designed to Facilitate Annexation................................116
5.4.3 Discussion of Wilcoxon Rank Sums Test ......................................122

5.5 Re-Categorization of Municipal Annexation Statutes .......................124

5.5.1 Discretionary Power at the Municipal Level.................................127
5.5.2 Discretionary Power at the Individual Property Owner Level .......127
5.5.3 Overall Observations ....................................................................128

5.6 Geographic Analysis of Results.........................................................129

5.6.1 Evolution of Annexation Laws.....................................................130
5.6.2 Significant Annexation Laws .......................................................133
6 THE LARGE GEORGETOWN ANNEXATION OF 1989........................................139
6.1 Introduction to the Case Study.................................................................139
6.2 Introduction to Georgetown.................................................................140
6.3 History of Georgetown, Delaware 1791 - 1989.....................................143
   6.3.1 Change and Development in the 20th Century to 1985 ...............146
6.4 Georgetown’s Annexation Laws.............................................................153
6.5 The Large Georgetown Annexation of 1989........................................159
   6.5.1 Motivations for Annexation ..........................................................159
   6.5.2 Annexation Committee.................................................................163
   6.5.3 Public Information and Hearing .................................................167
   6.5.4 Public Referendum.....................................................................169
   6.5.5 After the Referendum.................................................................171
7 CONCLUSION................................................................................................174
   7.1 Review of the Three Research Questions .......................................174
   7.2 More Questions, More Studies .........................................................178
REFERENCES................................................................................................180
Appendix

UNIVERSITY OF DELAWARE INSTITUTIONAL REVIEW
BOARD APPROVAL LETTER FOR USE OF HUMAN SUBJECTS IN
RESEARCH (TWO PAGES).................................................................................190
LIST OF FIGURES

Figure 5.1: Population of Delaware Counties, 1970 - 2010 ...........................................88
Figure 5.2: Population Growth of Delaware Counties, 1970 - 2010 .................................89
Figure 5.3: Population in Delaware Incorporated Municipalities, 2010..............................91
Figure 5.4: Buffer Areas around Delaware Municipalities ..................................................95
Figure 5.5: Developed and Protected Lands in Sussex County, Delaware, 2008 ...........96
Figure 5.6: Annexation Statutes in Delaware Municipalities, 1981 ..................................131
Figure 5.7: Annexation Statutes in Delaware Municipalities, 1990 .................................131
Figure 5.8: Annexation Statutes in Delaware Municipalities, 2000 ..................................132
Figure 5.9: Annexation Statutes in Delaware Municipalities, 2010 ..................................132
Figure 5.10: Significant Annexation Statutes in Delaware Municipalities, 1981 ..........134
Figure 5.11: Significant Annexation Statutes in Delaware Municipalities, 1990 ..........134
Figure 5.12: Significant Annexation Statutes in Delaware Municipalities, 2000 ..........135
Figure 5.13: Significant Annexation Statutes in Delaware Municipalities, 2010 ..........135
Figure 6.1: 2015 Boundaries of Georgetown, Delaware .....................................................141
Figure 6.2: Zoning Map of Georgetown, September 2014 .............................................142
Figure 6.3: 1792 Plot Survey of Georgetown .................................................................143
Figure 6.4: 1868 Business Directory Map of Georgetown .................................................146
Figure 6.5: 1939 Sanborn Map of Georgetown, Delaware ..............................................150
Figure 6.6: Map of Parcels Annexed into Georgetown between 1986 and 1989 ........151
Figure 6.7: Annexation Activity in Georgetown, 1981 - 2010 .......................................153
Figure 6.8: Areas Annexed by Georgetown, Delaware on July 29, 1989 .....................166
LIST OF TABLES

Table 2.1  Annexation Activity by Decade in the United States, 1970 - 2010 ...........15
Table 2.2  Annexation Activity by Region in the United States, 1970 - 2010 ..........15
Table 3.1  Summary of State Annexation Statutes (from Facer II, 2006) .................46
Table 3.2  Summary of State Annexation Statutes (as of 2010) .............................47
Table 3.3  Summary of Delaware Municipal Annexation Statutes (1981 – 2010) .......52
Table 4.1  National Level Results, Annexation Acts .................................................59
Table 4.2  National Level Results, Annexation Extent .............................................60
Table 4.3  National Level Results, Average Annexation Extent Per Act ....................61
Table 4.4  Annexation Statutes Organized According to the Discretionary Power of the Stakeholder .................................................................79
Table 5.1  Statutes Included in Delaware Annexation Law ......................................103
Table 5.2  Annexation Activity During Two Time Frames of Delaware Annexation Law .........................................................................................104
Table 5.3  Effect of Municipal Statutes on Number of Annexations .........................109
Table 5.4  Effect of Municipal Statutes on Total Acres Annexed ..............................110
Table 5.5  Effect of Municipal Statutes on Average Size of Annexation ..................111
Table 5.6  Annexation Statutes Organized by Discretionary Power of Stakeholders ...126
Table 5.7  Results of Wilcoxon Rank Sums Test: Effect of Having All Four Significant Statutes on Annexation Activity ..............................................137
Table 6.1  Georgetown Charter Iterations Regarding Annexation Procedures ..........157
ABSTRACT

Annexation has become a common method that American municipalities have used to control growth, deal with changing economic and demographic characteristics, and provide services to their residents. Because of the frequency of annexation experienced in the United States, a large amount of land has changed political hands, which has significant implications as to how the land is being used. Many scholars have studied the motivations for annexation, how the annexation process is carried out, and the consequences of annexation for state and local governments as well as property owners. This study examined how state and municipal statutes in the United States affect the rate at which annexations are carried out and how much land is incorporated in those acts.

First, a Wilcoxon Rank Sums test was carried out on annexation data at the national level to determine if state statutes had an effect on annexation activity from 2001 to 2010. Second, a Wilcoxon Rank Sums test was carried out on annexation at the state level to determine if municipal statutes had an effect on annexation activity in Delaware from 1981 – 2010. Finally, a combination of document-based research and in-person interviews were carried out in order to understand the local factors that contributed to the passage of an annexation act in Georgetown, Delaware in 1989. The results of this study
indicate that statutes that give discretionary power in the process to property owners or developers have the greatest effect on annexation rates. In addition, the results demonstrate that public engagement is an important factor in the annexation process at multiple geographic scales.

This thesis contributes to the study of annexation in the United States in three key ways. First, it adds to the research on the political factors that could influence annexation rates at the state level across the United States by applying more recent annexation data to previously used methods. Second, this study provides a preliminary look at annexation activity among municipalities in the state of Delaware, a state in which there are no academic studies. Finally, because of the dearth of studies examining annexation at the individual municipal level, this study provides an example for further research into how local laws and politics affects annexation.
Chapter 1

INTRODUCTION

1.1 Introduction of the Thesis Problem

In recent decades, municipalities across the United States have been facing challenges such as controlling growth, dealing with changing economic and demographic characteristics, and providing services to their residents. While regional planning techniques (such as Smart Growth and Transfers of Development Rights) have become popular in many areas, annexation for municipalities has become a frequently-used method for meeting these challenges (Edwards, 2008). Annexation is the process by which land is transferred from one government to another, and in the United States it is practiced mainly through the addition of unincorporated county land into a municipality (Jackson, 1985). It is seen as a potential way for municipalities to expand their tax base, which in turn makes municipalities’ long-term growth more stable, and as a way for property owners located on the periphery of municipalities to gain access to municipal services such as police protection, water, and sewer.

The popularity that annexation has with local officials is underscored by the 94,352 annexation acts that were carried out in the United States between 2001 and 2010, an increase of over 7,000 from the previous decade.
Annexation is also very commonplace across the United States, with 45 of the 50 states annexing land between 2001 and 2010, the exceptions being Connecticut, Hawaii, Massachusetts, New Hampshire, and Rhode Island (U.S. Census Bureau, 2010). Therefore, it is important to understand why municipalities annex land and what factors make the annexation process easier. Geographers also have a vested interest in the subject due to the fact that annexation involves changes in political boundaries.

While many researchers have examined the economic, political, and demographic impacts of annexation, others have studied the frequency and geographical extent of annexation activity and how these are shaped by various political factors, particularly the laws that govern annexation. Given that municipal annexations follow procedures set by each state's statutes, with no two states providing for the same provisions (Palmer and Lindsey, 2001), assessing the impact of state statutes on the nature of the annexation is an important question. Scholars from a variety of disciplines have looked at the role of statutes in the way that annexation takes place, using a variety of approaches (MacManus and Thomas, 1979; Galloway and Landis, 1986; Carr and Feiock, 2001; Palmer and Lindsey, 2001; Steinbauer et al., 2002; Facer II, 2006; Edwards, 2011). The methods used in studies on this subject have changed over time. Studies carried out from the 1970s to the 1990s looked at categories of annexation laws and authority to assess the relationship between types of laws and types of annexation activity. However, this method was found to be a poor predictor of annexation activity (MacManus and Thomas, 1979; Galloway and Landis, 1986) thus the focus shifted to analyzing the effect of specific state statutes on annexation activity.
More recent studies have sought to determine whether certain state-level annexation statutes have facilitated or constrained annexation activity. Using data from 1990-1999, Carr and Feiock (2001) found that laws presumed by the authors to constrain annexation activity (such as public hearings and referenda of local residents) actually stimulated greater rates of annexation. Steinbauer et al. (2002) and Facer II (2006), using the same census data as Carr and Feiock, found that state laws such as a) having a referenda decide whether the annexation will pass, b) allowing property owners to initiate the annexation process through a petition, and c) requiring a service plan during the annexation process have a positive effect on annexation activity. Edwards (2011), employing the same data set as Facer II but focused on large urban areas, tested additional factors such as the role of population growth, and found similar results as Facer II in regards to specific state statutes. Although these studies were important in understanding the effect of state laws on annexation activity, they could not be used to evaluate more recent annexation activity due to the age of the data.

The research mentioned above was done using data from the 1970s through the 1990s because that was the most recent data available to said researchers at the time of their publications. With the release of the 2001 – 2010 U.S. Census annexation data in 2011, there is now an opportunity for researchers to compare findings from earlier years with what has been going on recently. Have annexations in the past 10-15 years also been shaped by the nature of the statutes that states use? That is, would researchers see patterns similar to those in their previous findings if they were to repeat their investigation using currently available census data? Is there a more statistically effective
method for deriving the results? Is the “constrainers versus facilitators” mindset the appropriate one when it comes to evaluating the possible role that state statutes play in the annexation process? And do the conclusions reached in at the national level remain constant once the scale changes to the individual state or municipal level, something seldom done among studies on this topic? These are the questions that this thesis will address.

The present study, then, examines the impact of state statutes or laws on annexation at the national, state, and municipal-level scales. Following on the ideas and approaches used by previous scholars, and using currently available data on annexation activity as well as an updated statistical method, this study will investigate whether some state statutes are more likely to contribute to greater frequency and geographical extent of annexation than other state statutes. To do this I will first test previously-created ideas and conclusions against a more recent dataset using a different statistical method while also applying those ideas and conclusions to a different geographic scale. First, I will study the role that certain provisions in state laws have on the frequency, the amount, and the geographical extent of annexation nationwide. From those nationwide results, I examine the changes in Delaware’s annexation laws and demographic profile to see whether they may correlate with annexation frequency, geographical extent of those annexations from 1981 - 2010. The study also looks a particular annexation event in Georgetown, Delaware in order to understand the local factors that contributed to its implementation.
1.2 Three Research Questions

With a focus on the annexation statutes that have contributed to the frequency of municipal annexation, this study has three main questions. First, which annexation statutes have significantly affected annexation activity in the United States within the last ten years? To answer this question, I draw from the theories and methods of the literature to empirically examine the annexation statutes that have been studied in the past. The data used in Chapters 4 and 5 is drawn from U.S. Census Bureau boundary change surveys as well as state statutes, data sets commonly used in this field of study. This work provides a sense of the political factors that play a significant role in this time period, information that will be used perform a similar analysis of Delaware’s annexation activity.

The second question asks: which municipal statutes have affected most of the annexation activity in Delaware over the last 30 years? To answer this question, Delaware’s state laws regarding annexation are examined in order to compare them to the trends found in the national-level analysis section. Although not indicative of causation, the results of this analysis can provide direction for more in-depth studies of annexation within Delaware.

The final question goes further into the process of annexation to ask: what are the particular factors that have shaped the nature of annexation in Delaware at the municipal level? That is, what factors contribute to a municipality undertaking annexation and do any of the aforementioned statutes mentioned in the national and state-level studies have
an impact on the decision to annex? To answer this question, I use a case study of Georgetown, Delaware to investigate an unusually large annexation in which a thousand acres were incorporated into the town in one act (the second largest in Delaware since 1970) in 1989. Using information obtained from interviews with community leaders at that time, I look at some of the possible reasons behind the 1989 annexation and ask what the impact of that decision has been on this small town in southern Delaware. The case study approach is an important addition to the study because the literature points out that not only are the enabling statutes guiding annexation activity quite different, the reasons why municipalities annex can be quite different. I examine the motivations behind the act, how it was carried out, and what the implications were for the town in the years following. This case study represents a path forward for future research into the motivations behind annexations at the individual municipal level.

This thesis will contribute to the research and discussion of municipal annexations in the United States in a number of ways. First, it adds to the research on the political factors that could influence annexation rates at the state level across America by applying more recent annexation data to previously used methods. This allows researchers to understand the patterns of annexation and how they have evolved over time. Second, this study provides a preliminary look at annexation activity in the state of Delaware, a state in which there are no academic studies. Interestingly, between 2001 and 2010 Delaware had the highest annexation rate proportional to its total area in the entire country at 1.36% (the national average was 0.342%), meaning that proportionally, Delaware annexes as much land as any state in the U.S.
This exploratory study will allow a pathway for future studies that detail the reasons behind the annexation patterns we have seen in Delaware.

Finally, because of the dearth of studies examining annexation at the individual municipal level, this study provides an example for further research into why a particular municipality chooses to annex land and how the process is carried out. As described in the Literature Review section of this thesis, there is a particular focus by researchers of annexation activities on large urban cities, with few studies focusing on small towns or rural areas. In addition, because of the differences in the size of the population between small towns and large cities it is important to note the ways in which laws influence the annexation process. The case study of Georgetown contributes to a solution for both problems.

1.3 Summary of Chapters

The three questions raised in the previous section are approached in six chapters. Beginning with this introduction, the thesis contains a literature review, a methodology section, a chapter for the national and state-level analysis, a chapter for the case study of Georgetown, and a conclusion chapter.

The literature review is both a historical survey of scholarly work on the motivations, laws, and implications of municipal annexation as well as a survey of theoretical work on the political and demographic factors influencing annexation. The chapter begins with a chronological overview of studies describing the economic, land use-related, and social
reasons for annexation. A following section summarizes the literature on state laws regarding annexation and how scholars have examined the effect of those laws on annexation activity in the United States. A closer examination of the literature on the effects of state laws on annexation activity will be covered in the methodology chapter. The chapter concludes with an examination of the fiscal, political, and social implications of municipal annexation. This chapter provides the previously-developed theories that are tested in the analysis and case-study chapters.

The third chapter details the methodology that is used in chapters four and five. The analyses of national and state-level annexation data are described insofar as the types of data used, their source, the statistical processes used, and case-study examples of their application from the literature. Specific attention is given to the literature using t-tests and multiple linear regression analyses using the JMP statistics program to determine the impact of political and factors on the frequency and amount of annexation among U.S. states. The next section describes the use of municipal-level census data to run Wilcoxon Rank Sums tests to assess whether or not specific political factors make a difference in a number of measures of annexation activity. In the final section, an explanation of the techniques used in the case study of Georgetown is provided, focusing on document-based research and interviewing.

The fourth chapter contains the analysis portion of this thesis. Here, an analysis of state statutes and annexation activity is completed using census data from 2001 – 2010. In this section, Wilcoxon tests are carried out analyzing separate provisions of state annexation laws and determine whether or not they make a significant difference in annexation
activity. A discussion then follows as to the significance of these measures and what they may indicate. The results of the analysis indicate that analyzing the statutes based simply on whether they are constrainers or facilitators does not produce any meaningful conclusions. An alternative method is then provided in which the statutes are re-organized based on which stakeholder (the state, the annexing municipality, or the affected residents) has discretionary power in the decision-making process.

The fifth chapter is devoted to the analysis of annexation activity in Delaware from 1981 to 2010. It begins with a look at the annexation laws in Delaware and how they have evolved over time. The Delaware state laws are examined for annexation provisions that indicators of annexation activity. A series of Wilcoxon tests are then carried out analyzing separate provisions of municipal annexation laws and their effect on annexation frequency and breadth. After a brief description of the results and their significance, the statutes are re-categorized based on which stakeholder has discretionary power in the process. The chapter concludes with an examination of the spatial distribution of the studied statutes in Delaware.

The sixth chapter is a brief case study of a specific annexation event in Georgetown, Delaware, which is located in the southernmost county in the state. This particular act in 1989 more than doubled the size of the town of more than 6,000 people (U.S. Census, 2010) and is the second largest annexation act in Delaware since 1970. A brief introduction to Georgetown and its history is provided, followed by a description of the annexations that took place in the town during the 1980s. Following that is a description of the laws related to annexation that Georgetown has had in its municipal charter.
between 1981 and 2010. The section then focuses on the origins and process of passing the Large Annexation of 1989. Through town council minutes, newspaper articles, and interviews with former town officials, the motivations behind the annexation are examined as well as the process of carrying out the annexation act itself. The chapter concludes with a brief look at the implications of this annexation, which contains a look at how the new land was zoned and how the town officials interviewed believe it benefited local residents.

Chapter seven, the final chapter, concludes the thesis. It provides some final thoughts about the previous three chapters, reviews answers to the three core questions, and discusses potential research paths to be taken in the future.
Chapter 2

LITERATURE REVIEW

2.1 Introduction

Annexation is or has long been a popular tool that U.S municipalities use to address growth and development issues. While annexation may be implemented at the local level, it is authorized and controlled by state laws. Thus what takes place at the local level is shaped by governing legislation at the state level and that legislation is not uniform across the country. This is seen in the variation in annexation activity between states and regions in the U.S. However, it is only in the past two decades that researchers began looking at the impact of state laws on annexation activity more frequently. These studies have utilized data up to 1999, thereby creating a need to examine more recent annexation data to see if the same patterns discovered in the historical data are found using more recent data. While a number of state-level annexation studies have been carried out in recent decades, there have been none that focus on Delaware.

But before trying to carry out a study on this topic, it is important to gain a clearer understanding of what municipal annexation is and how it has been studied in the past,
in particular how governing why communities annex land, what the process usually entails, and what the implications are for the annexing community. It is also necessary to understand the methods and conclusions reached by previous researchers as to how state laws affect annexation rates historically. This chapter will: (1) examine the historical context of annexation activity in the United States, with a focus on the years 1970 – 2010 using U.S. Census Bureau Data (2) look at how scholars have studied the motivations and implications of municipal annexation, and (3) outline the evolution of the studies on political factors that affect annexation rates in the United States. This chapter will conclude with an in-depth look at relevant case studies carried out at the state and municipal level. The information from this section guides the development of the national, state, and municipal-level studies utilized in this thesis.

### 2.2 Historical Context of Annexation

Throughout the history of the U.S., annexation has proven to be essential to the development of the country’s municipalities, particularly its central cities. Like most of the country prior to the mid-19th century, the major cities were small in terms of the number of people, and the areal extent of landholdings contained small populations and covered areas much smaller than their contemporary versions. For example, New York, Philadelphia, and Chicago had populations of 515,000, 121,000, and 30,000 people respectively in 1850, compared to 8,405,837, 1,526,006, and 2,695,598 in 2010 (Edwards, 2008, 120; U.S. Bureau of the Census, 2010). In the second half of the 19th
century, when immigration and increasing industrialization led to explosive growth in the size and number of cities, annexation became a way to expand the geographical extent of the city so that development could take place. Tax revenue could be generated as a means of providing enough land for rapid development. In addition, commercial and housing developments at the outskirts of major urban areas contributed to the need for increased access to urban services that annexation would bring. The largest increase in municipal area in U.S. history (in terms of percentage) occurred in 1854 when the City of Philadelphia consolidated with Philadelphia County, expanding from 2 to 130 square miles (Jackson, 1985).

A national decline in annexation activity in major cities was experienced at the turn of the 20th century, though scholars dispute exactly why this decline occurred. While a decline was noticed by Bromley and Smith (1973) at the turn of the 20th century at the national level, studies carried out by Bigger and Kitchen (1952) and Werba and Grunwald (1929) on annexation rates in Los Angeles and Milwaukee showed that there was no noticeable decline. In studying boundary changes in the late 19th and early 20th centuries, Bromley and Smith concluded that annexation activity can fluctuate due to a number of factors, including the age of the municipality, population growth, and restrictiveness of annexation statutes. They also point out that available resources for the expansion of municipal services can affect annexation rates. This is illustrated by the significant decline in annexation activity across the United States during the 1930s, likely caused by the Great Depression (Bromley and Smith, 1973)
After World War II, economic growth and increased suburban development led to many unincorporated pockets of development around major cities in the U.S. However, a lack of urban services in these developments led to some of these pockets being annexed into larger urban areas. Klaff and Fuguitt (1978) saw a 40% increase of urban land from 1950 to 1960 and a 44% increase from 1960 to 1970, while Miller (1984) noted a similar trend through the 1980s. Starting in the 1970s, the U.S. Census Bureau began tracking annexation events as part of its Boundary and Annexation Survey. The data collected included the number of annexation events and the amount of acres involved in each act, and this has been an important source of information in annexation studies since (Steinbauer et al., 2002; Facer II, 2006; Edwards, 2011; Pomeroy, 2012). Annexation activity at the national level from 1970 to 2010 showed a steady increase in the total number of acts carried out, though the areal extent of landholdings being annexed has fluctuated greatly. This change in annexation rates nationwide is illustrated or documented in Table 2.1, which displays the number of annexation events, the amount of land annexed in acres and square miles, and the average amount of land annexed per event from 1970 – 2010 in decades (U.S. Census Bureau, 1980, 1990, 2000, and 2010). There has also been a great deal of regional variation in annexation activity, with the Southern and Midwestern regions experiencing the most annexation acts and largest areal extent annexed from 1970 to 2010. The U.S. Census Bureau designates Delaware as being in the South (Table 2.2).
Table 2.1  Annexation Activity by Decade in the United States, 1970 - 2010

<table>
<thead>
<tr>
<th>Decade</th>
<th>Acts</th>
<th>Area (Acres)</th>
<th>Area (Sq Miles)</th>
<th>Area Annexed Per Act (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971 – 1980</td>
<td>61356</td>
<td>5613120</td>
<td>8770.5</td>
<td>91.48</td>
</tr>
<tr>
<td>1981 – 1990</td>
<td>75337</td>
<td>6077440</td>
<td>9496</td>
<td>80.67</td>
</tr>
<tr>
<td>1991 – 2000</td>
<td>87275</td>
<td>8103245</td>
<td>12661.32</td>
<td>92.84</td>
</tr>
<tr>
<td>2001 – 2010</td>
<td>94352</td>
<td>6368702</td>
<td>9951.09</td>
<td>67.49</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>318320</td>
<td>26162507</td>
<td>40878.91</td>
<td>83.12</td>
</tr>
</tbody>
</table>


Table 2.2  Annexation Activity by Region in the United States, 1970 – 2010

<table>
<thead>
<tr>
<th>Region</th>
<th>Acts</th>
<th>Area (Acres)</th>
<th>Area (Sq Miles)</th>
<th>Area Annexed Per Act (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>925</td>
<td>45966.8</td>
<td>71.82</td>
<td>49.69</td>
</tr>
<tr>
<td>South</td>
<td>143726</td>
<td>12608905</td>
<td>19701.41</td>
<td>87.73</td>
</tr>
<tr>
<td>Midwest</td>
<td>109709</td>
<td>5586110.7</td>
<td>8728.29</td>
<td>50.91</td>
</tr>
<tr>
<td>West</td>
<td>63960</td>
<td>1789359.2</td>
<td>12377.38</td>
<td>123.85</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>318320</td>
<td>26162506.8</td>
<td>40878.91</td>
<td>87.73</td>
</tr>
</tbody>
</table>


Note: States represented in each region using U.S. Census designations: Northeast: CT, MA, ME, NH, NJ, NY, PA, RI, VT. South: AL, AR, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV. Midwest: IN, IL, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI. West: AZ, AL, CA, CO, HI, ID, NV, NM, OR, WA, WY
2.3 Motivations for Annexation

In order to understand the historical and more recent patterns of annexation, it is important to know why municipalities annex land. The literature on annexation activity over the last 50 years has pointed to three particular reasons. First, according to many policy researchers, annexation is an important tool for municipal governments to increase their tax base by incorporating parcels of land that generate revenue to the municipality (Kunkel, 1960; Cho, 1969; Muller and Dawson, 1976; Mushkatel et al., 1978; Mehay, 1981; Breen et al., 1986; Gonzalez and Mehay, 1987; Park, 1994; Austin, 1999; Edwards, 1999; Liner and McGregor, 2002; Edwards, 2008; Edwards and Xiao, 2009). Growth management is a second reason, with municipal leaders looking to reduce political fragmentation and urban sprawl (Reynolds, 1992; Rusk, 1993; Orfield, 1997). The third major motivation is political, as selective annexation can be used to maintain or change the demographic or socioeconomic characteristics of a municipality and the surrounding areas in ways that solidify or fragment the political power of different constituencies. (Aiken, 1987; Austin, 1999; Feiock and Carr, 2001; Johnson et al., 2004).

After WW II when areas outside of the city boundaries experienced rapid development due to suburbanization, tax revenues for the city declined (Rubin, 1982). To counteract this loss of revenue, municipalities annexed fringe areas to “acquire additional land, commercial and industrial development, and people, all of which generate new revenues to allow the city to keep pace with rising expenditures…which can help support the cultural, recreational, and other facilities in the local economy” (Edwards, 2008, 122).
According to Liner (1990, 82) “the predominant force driving annexations in cities during the 1960s was the attempts to preserve the revenue (tax) base and it is still the predominant force driving annexations today.” Meligrana (2004) echoes this sentiment by saying that annexation is often used to generate revenue through property tax to counteract municipal expenditures. In a case study on the annexation activity of Phoenix, AZ Heim (2012, 24) found that “the history of urban growth in Phoenix has been one of expansion onto inexpensive land from which tax revenues could be reaped as new areas were annexed. These fiscal considerations were an important motivation for annexation.” These studies indicate that across several time periods and locations, increasing and maintaining the tax base was an important factor in the decision by many municipalities to annex. Economic incentives in the form of improved access to public services can also motivate fringe residents to seek annexation. Research conducted by Kunkel (1960) showed that fringe residents outside of Flint, Michigan who were dissatisfied with the quality of their water and sewage services heavily favored the possibility of annexation by Flint (Kunkel, 1960). In fact, the costs of providing new residents with services, such as water, sewer, and police and fire protection, are often offset by the increase in tax revenue that new residents and businesses contribute (MacManus and Thomas, 1979; Breen et al., 1986; Liner and McGregor, 2002; Edwards 2001, 2008, 2009). However, Spain (1949) argued that annexation can be used to increase the tax base but not used for municipal growth needs.
Municipalities also use annexation as a way to practice growth management, with a couple of common methods at their disposal. The most common justification for growth management-related annexation is that it creates an orderly plan for gradual development in fringe areas (Reynolds, 1992). According to Kelly (2004), depending on the intentions of the municipality, annexation can be used to encourage or deter future development. Often times, developers looking to build on fringe areas desire to be annexed in order to obtain municipal services, such as water, sewer, and trash disposal. Limiting annexation can result in the developer being dissuaded from building in fringe areas, thus reducing suburban sprawl (Kelly, 2004). In other cases, other factors may come into play, such as the preference to avoid stringent development or environmental regulations (Cox, Jeremy 2015).

The third major motivation cited for annexation is for political reasons. Annexations are often done in order to compete with other municipalities over territory and services, a process called the *Territorial Imperative Theory* (Williams, 1971). According to Williams, this battle over territory is done to better plan for the expansion of infrastructure and services. Williams also says that annexation is an act that controls the lifestyle of the town, as it places place limits on which areas and which populations that can participate in civic life (Williams, 1971). Annexations can also be used as a defensive measure by municipalities “to thwart anticipated annexation by other municipalities or anticipated incorporation by town governments” (Edwards, 2008, 124). According to a number of studies, annexation is also used to maintain certain demographic or socio-economic characteristics of a certain municipality, engaging in a
sort of selective annexation (Murphy, 1978; Moeser, 1982; Aiken, 1987; Austin, 1999; Johnson et al., 2004). A particularly notable example of this occurred in 1970 when the city of Richmond, Virginia annexed 23 square miles of land, in which 97% of the new residents were white – an action that reduced the black population from 53% to 42% (Murphy, 1978). Other examples will be noted in the implications section.

2.4 Fiscal Impacts of Annexation

The literature on annexation activity has shown that as the geographical or areal extent of the land annexed, the number of people annexed, and degree of tax revenue change after annexation has many fiscal, political and social implications. However, a number of different studies have been conducted that show mixed results as to whether or not annexation represents a fiscal benefit to the town. There is a debate over whether an increase in the tax base through annexation can generate revenue for the community while still offsetting the costs associated with extending and providing services to newly annexed lands. The fiscal outcome of any annexation rests largely with the wealth of new residents, the success or failure of new businesses, how much of the annexed land is eventually developed, and whether the local government has excess or deficient capacity or services (Edwards, 2009). Studies on the fiscal impacts of annexation can be divided into two categories: studies involving certain municipalities and studies involving a large number of municipalities used to draw generalizations. The differences in the scale and
location of study areas has created mixed results among scholars as to whether annexation is fiscally solvent.

At the smaller scale, studies on the fiscal impact of annexation have examined a single or a small group of municipalities. Cho (1969), for example, concluded that select Texas annexations that occurred in the 1950s resulted in higher taxes and higher expenditures for police and fire protection, but a reduction in expenditures for highways and transportation. Hovey (1989) concluded that municipalities that with the ability to annex land were fiscally healthier than those that did not. He studied the expenditures and quality of services in aggressively annexing cities such as Columbus, Ohio and Kansas City, Missouri and compared them with older cities that did not annex as aggressively, such as Chicago and St. Louis. He concluded that municipalities that aggressively annexed land were fiscally healthier than those that did not (Hovey, 1993). An analysis of annexations in Richmond, Virginia by Muller and Dawson (1973) resulted in the creation of a surplus due to a decrease in operating expenditures that occurred only one year after annexation. An analysis of ten annexations that occurred in a Wisconsin city and town during the early 1990s, mixed results were returned, with no clear-cut benefit for either municipality (Edwards, 2001). Other case studies by Breen et al. (1986) will be discussed in the section on case studies relevant to Georgetown.

At the larger scale, a number of different studies sought to provide general answers about the fiscal impact of annexation activity based on analyses of several hundred municipalities. Gonzalez and Mehay (1987) analyzed over three hundred cities in the South and Midwest and found that cities with higher annexation rates often had higher
taxes and larger expenditures by the local government, a conclusion that was also reached by Mehay (1981) in his analysis of California. When MacManus and Thomas (1979) analyzed annexation data from 243 cities in the early 1970s, they came up with different results to Gonzalez and Mehay. They found a positive trend between the level of annexation activity and fiscal benefits, such as lower tax rates for residents (MacManus and Thomas, 1979). To try to find the balance between fiscal benefits and fiscal detriments, Liner and McGregor (2002, 1483), examined annexation data from the 1970s and found that there is a “U-shaped relationship between the rates of growth of per capita spending and taxes and annexation activity, suggesting that there is an optimal level of annexation activity.” What these studies (at both scales) indicate is that the fiscal impact of annexation cannot be adequately answered by one study of one place or a sample of places. Every municipality has different circumstances that lead to annexation and the fiscal results that come from it, such as the fiscal position of the municipality at the time of annexation, the local and state laws that govern the process, and the socio-economic characteristics of the population of the municipality.

2.5 Political Implications of Annexation

Studies on the political implications of annexation have focused on two aspects: (1) the reaction of electors to the prospects of annexation and (2) the distribution of political power within an annexation municipality. As mentioned previously, Kunkel (1960) concluded that due to their service needs, people on the urban fringe are much more
likely to approve of annexation than people who live within the central city (in this case, Flint, Michigan). The inclusion of residents that once were located beyond city boundaries can alter the voting population and increase the power of the electorate that would like to see greater time and energy spent on public works projects.

Interestingly, though, Kunkel’s research found that socioeconomic factors such as “income, occupation, education, and value of house owned do not significantly influence the strength of the postulated relationship” (Kunkel, 1960, 212). Thirteen years later, Mushkatel, Wilson, and Mushkatel (1973) created a model that categorized the responses of residents to annexation acts into three categories: (1) Exit (2) Voice or (3) Loyalty. The authors concluded that annexation will most likely lead to two outcomes: (1) residents will remain loyal to their neighborhood despite an increase in taxes or (2) newly annexed residents will either protest in public forum or make their opinions known with their votes. In a case study involving a city that was not specifically named, the authors noted that after the annexation, tax increase propositions were consistently voted down and the city lost revenue as a result (Mushkatel et al., 1973). These effects were also observed in a case study analysis of four annexations that occurred in the Eugene-Springfield region of Oregon (Mushkatel, 1978). These studies demonstrate the importance of residents' perceptions of annexation and how those perceptions could be an advantage or disadvantage to the annexing municipality. This was an important consideration for Georgetown, Delaware’s leaders during the 1989 annexation, as will be discussed in Chapter 6.
A number of studies since the 1970s have described the demographic changes that have resulted from annexation, creating political implications through the planned control of the electorate. As mentioned previously, the case of Richmond, Virginia was one of the first studies done that focused on the demographic changes that can occur due to selected annexation. By selectively annexing white-dominated fringe areas around Richmond, the government was able to significantly lower the black proportion of the city, an action that was ruled to be racially motivated by the United States Supreme Court (Murphy, 1970; Moeser, 1982). A case study carried out by Aiken (1987) found the same process occurring in the Yazoo Delta in Mississippi between 1940 and 1980. During that time period, selective annexation went around areas that had large concentrations of African-Americans, resulting in the majority of African-Americans being located just outside of most of the studied municipalities. Just like the Richmond case, disputes over the legality of the annexations have been taken to court because they violate the 1965 Civil Rights Act (Aiken, 1987). A similar process was found in a case study of Mebane, North Carolina, in which discriminatory planning practices, such as exclusionary zoning as well as rejection of annexation applications and the denial of services, were found to be widespread during the 1990s and early 2000s (Johnson et al., 2004).

2.6 Classification and Understanding of State Annexation Laws

Despite the motivations of the municipality to annex, annexation activity is greatly influenced by the policies at the state level. Every state approaches annexation in a

23
different way, with some giving more power to the municipal government and others allowing more involvement by local residents. While many scholars have researched the annexation laws of particular states (Sentell, 1967, 1970 and 1974; Palmer and Lindsey, 2001; Steinbauer et al., 2002; Smith and Willse, 2012), others have compared and contrasted the annexation laws of states across the United States. This has been done to better understand the impact that state annexation laws have on the frequency and areal extent of annexation activity. Over time, the studies on this subject have resulted in conflicting results, which is attributed to the differing methodologies. One of the first to compare annexation laws was Sengstock (1960) who created a classification system that continues to be widely used by many policy analysts to categorize annexation law. Under Sengstock’s typology, annexation laws are categorized into five categories:

1.  *Legislative Determination*: The state legislature deliberates each annexation proposal.

2.  *Population Determination*: Annexation decisions are made by local residents through referendum or petition.

3.  *Municipal Determination*: Municipal boundaries are expanded through the unilateral action of the local unit of government.

4.  *Judicial Determination*: The state’s judiciary decides whether or not an annexation should occur.

5.  *Quasi-Legislative or Administrative Determination*: An independent and non-judicial commission decides whether or not an annexation should occur (Sengstock, 1960).

Sengstock’s 1960 typology has been used widely as a heuristic device since it was put forward and has been used to analyze annexation in Alabama, (Hinton and Walker, 1977) and Tennessee (Hansen, 1980). McManus and Thomas (1979) conducted a study using
the Sengstock typology to determine the relationship between state annexation laws, specifically focusing on the difficulty of annexation and annexation activity in 243 U.S. cities. They found no relationship between the two factors, which led them to conclude "the legal difficulties/complexities of the annexation process may not be a very significant deterrent to municipal annexation" (McManus and Thomas, 1979, 26).

Dusenbury (1980) used the Sengstock typology to construct a three-dimensional index of state annexation activity that compared annexation activity with the legislative requirements regarding annexation and population growth, with a focus on the southern states in the U.S. His results conflicted with those of McManus and Thomas, saying that state law does affect how often and how much municipalities annex. In addition, the average size of the area annexed correlated with how restrictive state annexation laws were (Dusenbury, 1980). However, the studies by McManus and Thomas (1977) and Dusenbury (1980), both used the Sengstock typology as it existed in 1966 while using annexation data from 1970 to 1973. Both of these studies have been criticized for creating a study using an outdated typology and a small temporal range for making such broad conclusions (Galloway and Landis, 1986; Edwards, 2011). In addition, there is particularly glaring absence in Dusenbury’s study of any statistical tests used to support the study’s findings. While the Sengstock typology was an important first step in determining the effect of state laws on annexation, future studies would criticize the typology for being too broad, which led to the creation of more complex classification systems.
In an effort to determine how effective the Sengstock typology was at determining the level of annexation activity for each of its categories, Galloway and Landis (1986) tested the typology for its predictive power using population and annexation data from 1970 – 1979 to create two regression models that compared annexation activity in metropolitan areas and non-metropolitan areas. One model weighed the Sengstock categories by population growth while the other did not. They concluded that while state law does exert some influence on annexation activity within states, the models they created are poor predictors of the frequency and expanse of annexation. They believe this is due to a lack of attention to extra-legal factors that could not be easily included in their regression models—factors such as the size of the municipality, motivations to annex, and the actions of people outside of the confines of law. They also believed that the Sengstock typology over generalized elaborate and complex state laws and that more work was needed to create a more accurate model (Galloway and Landis, 1986). This last part is especially important to this study, as it underscores the importance of capturing the nuances of annexation law that cannot be accurately portrayed in statistical models.

Liner (1990) later used the Sengstock typology to test the relationship between approach and annexation activity using data from 362 cities in 41 states with populations over 25,000 in 1960 that annexed land between 1960 and 1970. His findings led him to conclude that states under the “municipal determination” category had higher annexation rates than those that did not. This contradicted Galloway and Landis (1986) who found that annexation activity was not higher under “municipal determination” laws. Like Galloway and Landis, Liner believed that future research should consider dividing the
categories of state laws into smaller subdivisions in order to capture the various intricacies of annexation law (Liner, 1990, 92-93). The Sengstock typology tried to classify state annexation laws into five broad categories, which did not account for the various nuances that could have been present in each state’s laws. Because of this, the focus of studies on annexation laws shifted at the turn of the 21st century to account for these nuances.

By the late 1990s and 2000s, scholars began analyzing annexation data using specific statutes in state laws rather than the general categories of the Sengstock typology. During this time, the prevailing belief among scholars was that annexation laws with fewer constraints would result in more annexations (Reynolds, 1992; Feiock and Carr, 2001; Facer II, 2006). This would mean that these scholars believed that the motivation behind annexations lay with the municipality and not the private property owners. The study by Feiock and Carr (2001) conducted a state-level analysis from 1990 to 1999 to examine the effect of requirements in state law on the frequency of annexation. The five requirements hypothesized to act as constraints on annexation activity were: (1) public hearing (2) referendum and majority approval in city (3) referendum and majority approval in area to be annexed (4) approval of county governing authority required, and (5) referenda and concurrent majorities in city and area to be annexed (Carr and Feiock, 2001, 465). They found that rather than act as constraints (as they had hypothesized), these requirements actually stimulated annexation activity.

Two explanations were given as to why the results were counterintuitive to their hypothesis: “First, it is possible that these ‘constraints’ lead to greater numbers of smaller
annexations because the smaller proposals will encounter less resistance than proposals to annex large amounts of people and/or territory. Second, state laws often stipulate threshold levels that must be met before requirements for referenda are triggered. Thus, the fact that these ‘constraints’ are in place, particularly the referenda requirements, may stimulate greater numbers of annexations, as proponents opt for proposals small enough to avoid triggering a referendum on the proposed annexation” (Carr and Feiock, 2001, 468). These conclusions not only challenged the notion that exposure to public scrutiny negatively affected annexation but also provided a new way of analyzing it through a law-by-law basis. This new direction would be used by the recent research from which this study draws its methodology.

Facer II (2006) expanded on the research by Carr and Feiock by examining the effect of fifteen provisions in state laws on annexation activity at the state level from 1990 to 1999. The provisions tested in Facer’s study were obtained from Steinbauer et al. (2002) and were divided into constraints and facilitators of annexation. Some of the constraints included judicial oversight, service plans, and financial impact reports. Provisions hypothesized to facilitate annexation include municipality-initiated annexations, noncontiguous annexations, and cross-county annexations. Rather than measuring annexation through only frequency, Facer II included the “total acres annexed, total estimated population annexed, total estimated housing units annexed, average acres per annexation, average population per annexation, and density of estimated population annexed” (Facer II, 2006, 699). Using t-tests to determine whether there is a significant difference in annexation activity for states with and without these provisions, Facer found
that “laws designed to facilitate annexation are likely to be associated with high levels of annexation activity. On the other hand, laws thought to constrain annexation are not very likely to have lower levels of activity” (Facer II, 2006, 697). By adding more statutes and more measures of annexation activity to his analysis, Facer II was able to capture more of the nuances of annexation law that Feiock and Carr did not include.

Finally, Edwards (2011) expanded on previous research by including population factors in a series of models that examined the impact of state policies on annexation activity in the U.S. from 1990 to 1999. The study used some of the state provisions researched by Steinbauer et al. (2002) and utilized by Facer II (2006), such as the requirement for a public hearing, Annexation Overseen by Judiciary, and impact analyses. In addition, six population-based variables were used in the models: population density, median family income in 1989, percentage of land area in the county that is unincorporated in 1990, population change from 1990 – 2000, percentage of population under age 18 in 1990, and total population in 1990. But rather than analyze state-level annexation data, Edwards analyzed 952 cities containing at least 10,000 people that annexed land between 1990 and 1999. This was done due to the assumption that urban areas with that population threshold had annexation patterns that differed from those of small, rural towns. This was accomplished using a multivariate model that was replicated using three different independent variables: (1) the percentage of land area annexed, (2) the total number of acres annexed, (3) the number of annexations.

The results showed that nearly all of the state provisions affected the frequency of annexation. Fewer provisions were found to have affected the percentage of land
annexed, while only three of the twelve provisions studied were found to have affected the total number of acres annexed. Population growth, the percentage of county land incorporated, population change, and total population were found to affect all three independent variables (Edwards, 2011, 330 – 332). This was an important first attempt at factoring in conditions outside of law into the impact of state policy on local annexation activity.

The work of Edwards (2011) as well as Carr and Feiock (2001) and (Facer II (2006) were important steps in examining more of the specific attributes of annexation law that the Sengstock typology failed to account for. They introduced the possibility that one statute or one condition in a state’s annexation laws could influence the annexation activity of that state.

2.7 Relevant Case Studies

Studies of annexation in rural areas are few in number, with most scholars devoting their attention to annexations in urban areas (Breen et al., 1986). There is also a distinct lack of published research on annexation by geographers, a point bemoaned by Smith and Debbage (2007) who said that “this is all the more surprising, given the explicitly geographical dimensions of issues like metropolitan fragmentation, racial segregation, and land use patterns” (Smith and Debbage, 2007, 110). During the research for this literature review, only a handful of observed articles on annexation were done by geographers (Aiken, 1987; Cox and Jonas, 1993; Purcell, 2001; Smirnova and Ingalls,
lack of interest from geographers can be explained by three factors:

1. The fact that annexation has historically been mainly studied by public administration and political science scholars, thus creating a separation that makes interdisciplinary research on the topic exceedingly difficult.

2. Geographical variations in laws make research difficult at the national scale.

3. The complexity of state laws makes any comparison of them within one state a difficult task.

Despite the relatively limited interest in annexation in mainstream geography, as well as limited information about rural annexation, a small set of case studies was found that provide relevant context for the study of annexation activity in a small town such as Georgetown, Delaware. Breen et al. (1986) looked at the costs and benefits of annexation for the Village of Middlefield, Ohio by looking at tax yields for various land use types. Smith (2012) examined the intra-state variation in annexation methods and frequency within North Carolina and found that there were considerable inter-regional and inter-municipality differences within the state. Finally, Hooten (2002) examined the effect of state annexation statutes on property owners involved in annexations in North Carolina and concluded that the involuntary nature of annexations in the state gave a disproportionate amount of power to municipalities. This study displayed the impact of annexation statutes on residents affected by annexation, which was an important factor to consider when developing the Georgetown case study.

A helpful element of the Breen et al. (1986) study was their findings on the fiscal impacts of annexation at the municipal level. The authors performed a cost/revenue analysis on
the town of Middlefield, Ohio in order to understand whether or not a proposed
annexation would be a fiscally beneficial decision. This involved calculating the costs of
services that would be provided if the proposed annexation went through.

The process was used on services including water, sewer, police, street care, and general
administration. Those service costs were also calculated for each of the following land
use categories: following land use types: (1) Residential, (2) Commercial, (3) Industrial,
and (4) Private Open Space. These service costs were entered into cost/revenue tables
that included the property and income taxes calculated for Residential and
Commercial/Industrial areas. The authors’ calculations resulted in observations that
residential and private open space areas cost Middlefield more money to annex in the
long term than commercial and industrial land. According to their calculations, the
community would lose 75 cents for every dollar spent on residential areas and 81 cents
for every dollar invested in private open space. On the other hand, the community would
**gain** 87 cents for every dollar invested in commercial areas and 84 cents for every dollar
invested in industrial areas. Thus, the authors concluded that greater fiscal returns were
more likely for Middlefield if the town annexed more commercial or industrial land. This
would provide income taxes to the community as well as property taxes (Breen et al.,
1986, 168). Although the study provides a basic framework for analyzing the fiscal
impact of annexation for a rural town similar to as Georgetown, Delaware it is still a
relatively one-dimensional analysis. What the authors did not include in their study were
any qualitative analyses on the laws that governed annexation, who the major players in
the possible annexation process would be, or the reasons for why they would annex territory in the first place.

In a study that provided the framework for analyzing annexation activity among Delaware municipalities, Russell Smith (2012) provided an intrastate examination of the annexation methods used by different municipalities in North Carolina. His research focuses on two key issues: (1) identifying regional differences in annexation procedures within North Carolina (2) determining if the methods of annexation utilized by North Carolina municipalities were statistically different between 1990 – 1999 and 2000 – 2009”. North Carolina was chosen as the study area because of its high annexation activity in recent decades and its reputation as having very flexible annexation laws (Rusk, 2006). According to Smith, North Carolina has four annexation methods available to municipalities: (1) Legislative Approval from the General Assembly (2) Voluntary Contiguous Annexations (3) Voluntary Non-Contiguous Annexations and (4) Involuntary Annexations (Smith, 2012). Using Geographic Information Systems analysis and a Wilcoxon Signed Ranks Test, Smith mapped the spatial distribution of the different annexation categories and to examine whether a significant difference existed between annexation activity in the 1990s and the 2000s.

Smith (2012) found that between 1990 and 2009, the majority of all annexations performed in North Carolina were voluntary, with 65.7% of them being of the Voluntary Contiguous variety and 23.8% of them being Voluntary Non-Contiguous. Involuntary annexations only represented 9.3% of all annexations carried out. The higher number of Voluntary Contiguous annexations compared to Non-Contiguous can be explained by the
additional costs of providing services to an area farther from the municipal boundary.

Smith surmised that the low number of involuntary annexations is the result of the amount of reporting and money that is spent documenting and preparing an involuntary annexation. In addition, involuntary annexations also take a lot of time to complete as state law requires public meetings and public notice to be posted for these types of annexations (Smith, 2012, 170). Through the Wilcoxon Signed Ranks Test, Smith found that there was a significant increase in both contiguous and non-contiguous annexations from the 1990s to the 2000s. There was also a sharp decrease in the number of involuntary annexations taking place in the 2000s compared with the 1990s. Smith proposed that these patterns were largely the result of lawsuits brought against municipalities conducting involuntary annexations, resulting in a reduction of those annexations.

Smith also found that preferences of annexation techniques varied by region, with the coastal regions of the state practicing legislative annexation more often and involuntary annexations being practiced more by areas in the central and western portions of the state (Smith, 2012, 179). Smith’s study provides a great example of how annexation methods can vary within a state and how Geographic Information Systems can be used to carry out a descriptive analysis of that information. This study proved to be important when it came to analyzing the geographic patterns of different statutes among municipalities in Delaware. It was also one of the few studies found that examined intra-state annexation from a geographic perspective. While the study was extensive, it also did not look at
local political leaders or developers, nor did it look at land-use change, social impacts, or the fiscal health of the communities that he studied (Smith, 2012).

The final case study is one written by Julia Hooten (2002) on the impact of state annexation policy on the relationship between municipalities and the nearby unincorporated landowners. In particular, this study looked at how opposition to annexation has arisen in response to state annexation policies that give a lot of power to municipalities in terms of deciding whether or not an annexation will go through. The author contended that this “blatant favoritism for involuntary annexation allows municipalities to absorb boundary areas too easily” (Hooten, 2002, 2). It began with a look at how residents historically fought against involuntary annexation, showing how the new taxes associated with annexation were a major focal point in their cases. A description of the process of annexation as it was at the time of the writing of the article was given. During the process, the people of the area to be annexed had no legal authority (such as participation in referenda) over whether or not the annexation becomes official. Therefore, annexation actions are entirely decided by the governing body of the annexing municipality. Hooten also mentioned two “statutory remedies” for landowners who disagree with an approved annexation or feel that the local government has not kept up their end of the bargain in terms of providing services, neither of which were very effective in combating involuntary annexation.

However, Hooten (2002, 232-324) notes that, other than these remedies, “residents can do little but complain and waste time and resources battling the municipality in court” rather than challenge the annexation’s dissolution.” So because of the existing statutes in
North Carolina, residents have little or no say in the process of annexation and are largely powerless to reverse the decision made. Hooten concluded her study by examining the effect of long-standing beliefs of growth on the decisions made to annex. A constant in these court decisions is the 1959 Municipal Government Study Commission reasoning that annexation prevented the concentration of development and the creation of slums. Hooten believes that the ability to grow in this way may apply to large cities with large populations, but not to smaller towns in North Carolina. Referring to policy created in the 1950s to make decisions on boundary growth in the 21st century is of great disservice to property owners in North Carolina who were forcibly annexed into municipalities.

According to Hooten (2002), this long-standing belief, coupled with the lack of regard for public sentiment, creates a “get-rich scheme” for municipalities, who can simply annex land when faced with growth-related problems.

Hooten’s study is important for learning how state laws can affect the relationship between property owner and municipality in regards to annexation. In this case, state laws gave North Carolina municipalities a significant advantage in the annexation process by largely leaving the annexed property owners out of the decision-making process. This example of state laws can be used as a comparison for analyzing Delaware state laws. It can also be used as an example of the process of annexation at the municipal level, which can be compared with that of Georgetown’s in 1989.

Most importantly, this research helped to pave the way for understanding the effect of discretionary power in the annexation process, which is covered extensively in Chapters 4, 5, and 6. In Hooten’s study, discretionary power was held by the municipality rather
than the property owners, which led to unwanted annexations. While Hooten mentions frequently how easy the state statutes have made the annexation process, she does not talk about the frequency and extent of annexation activity in North Carolina. This could have been used as a way to examine how the state statutes could have led to an increase in annexation activity. Hooten also does not bring in municipal annexation policies as a potential influence in these cases.
Chapter 3
METHODS AND DATA

3.1 Introduction

Using a variety of data from government organizations, it is possible to determine the potential relationship between policy and annexation activity in the United States. Drawing off the ideas of Carr and Feiock (2001), Facer II (2006), and Edwards (2011), a few different approaches were used to accomplish this goal. This chapter will summarize the approach I used to answer the fundamental questions posed in the introductory chapter: (1) which annexation statutes correlate most significantly with annexation activity in the United States, (2) which annexation statutes correlate most significantly with annexation activity in Delaware, and (3) what factors appear to be correlated with the decision by a municipality to undertake annexation. Do the aforementioned statutes contribute to a municipality undertaking annexation and do any of the aforementioned statutes in the national and state-level studies have an impact on the decision to annex?
To answer these questions, this chapter is divided into several sections: the analysis of state annexation statutes at the national level, the analysis of municipal level statutes in Delaware, and a case study of Georgetown, Delaware. I will provide a description of the methods used within each section, the data utilized, and the literature that the methods were drawn from.

3.2 Literature Review of Methods

As demonstrated in the literature review chapter, a number of studies carried out in the last few decades have tried to analyze the role that state annexation laws have on the frequency and areal extent annexation activity at the national level. However, the results from these studies are inconclusive; they do not demonstrate that state policy affects annexation activity. This suggests that some of the basis for varying results may be due to the methods used in the investigation. In particular, Facer II (2006) and Edwards (2011) attribute this inconclusiveness to differences in the annexation measures used in the studies, as well as inconsistent schemes used to classify state annexation laws. Early studies carried out correlation analyses or difference of means tests using independently-determined classifications of state laws, the most notable being Dye (1964), Wheeler (1965), and McManus and Thomas (1979). Dye’s (1964) study of the difficulty of annexation in 213 central cities measured annexation activity by looking only at the percentage of the population annexed (whereas more recent studies used frequency, aerial extent, or number of people annexed). A scale of 1 – 10 measured the difficulty of
annexation and the means scores for each ranking were compared. Dye concluded that the difficulty of annexation according to his scale did not correlate with higher or lower levels of annexation. However, unlike later studies, Dye’s study was more descriptive than predictive.

Wheeler (1965) also ranked annexation difficulty on a sample of 248 central cities based on the number of annexation statutes that were present in the studied states’ laws. Whereas Dye’s analysis was more descriptive, Wheeler used a correlation analysis to determine the effect of state law on annexation activity. However, like Dye, Wheeler also chose to use one measure of annexation activity, the percentage of the city’s total land area annexed. Contrary to the results of Dye, Wheeler concluded that more restrictive laws could impede annexation. MacManus and Thomas (1979) constructed an index of 243 cities classifying the state annexation processes as simple, moderately complex, or very complex based on the number of annexation statutes that were present in the state laws. They then performed a correlation analysis, which determined that there was not a strong relationship between the complexity of the annexation process and annexation activity.

Later studies by Galloway and Landis (1986) and Liner (1990) used the Sengstock typology to categorize laws and tested that typology for its predictive power. Galloway and Landis used a regression model of each U.S. state from 1970 to 1979 to measure three “dimensions” of annexation activity to find any potential correlations between those dimensions and state law. Those dimensions were (1) the percentage of a state’s cities that annexed between 1970 and 1979, (2) the average number of annexations per city in a
state, and (3) the average extent of land annexed per municipality. They failed to prove
their hypothesis, which was that states categorized as having municipal determination
laws would have higher rates of annexation activity than the other categories. Liner used
the Sengstock typology to find out whether or not the typology could be associated with
both high and low annexation rates for each of its categories. Unlike Galloway and
Landis, Liner used data from 362 cities in 41 states with a population over 25,000
between 1960 and 1970. Using a regression analysis, Liner’s findings contradicted those
of Galloway and Landis by finding that states categorized as having municipal
determination laws were associated with higher annexation rates.

The common weakness in these studies was the use of broad categorizations for state
annexation statutes, whether it was developed for a specific study or was the use of the
Sengstock typology. Using a classification system that reduces complex systems of law
to three or five categories leaves out many of the unique attributes that could be present
in those systems, a point that made clear by both Facer II and Edwards. In his description
of the Sengstock typology, Facer II (2006, 698) said that five categories of annexation
law were not mutually exclusive and that the typology “does not account for multiple
annexation methods within a state, just the predominant method”. Edwards (2011, 328)
agreed, saying “the use of this broad typology masks some of the distinct provisions
among states that are identified as belonging to the same categorization under the
typology.” Facer II and Edwards would attempt to address these shortcomings in their
own research, which focused on determining the predictive power of individual statutes.
Instead of attempting to categorize states and municipalities based on their annexation laws, more recent studies have examined how individual statutes shape the frequency and areal extent of annexation. They have sought to determine the predictive power of more specific provisions in state annexation laws using regression analyses and t-tests. Carr and Feiock (2001) utilized a Poisson regression to determine whether or not certain constraints written into the annexation statutes affect the frequency and areal extent of annexation. In a similar way, Facer II (2006) used t-tests to determine whether differences in annexation frequency and areal extent between states could be attributed to the constraints written into the statutes. Using a sample of 42 states that annexed land between 1990 and 1998, Facer II compared the averages of seven annexation measures between states that did or did not contain certain provisions in their state laws and determine whether or not the differences were statistically significant. The choice of provisions and the state-level data that was utilized for this analysis was drawn from a descriptive study by Steinbauer et al. (2002). Using these t-tests enabled Facer to draw the conclusion that certain provisions meant to constrain annexation activity did not necessarily result in lower annexation rates. Recently, Edwards (2011) utilized a multiple linear regression analysis on a sample of over 900 U.S. cities with populations over 10,000 to determine if certain demographic factors and state laws had an effect on the frequency of annexation, the percentage of land annexed, and the total area annexed from 1990 – 1999. The large sample size allowed Edwards to create three models using each of the three annexation measures as the dependent variable while the eighteen state laws and demographic factors acted as the independent variables.
3.3 Analyzing State Annexation Laws and Activity at the National Level

A Wilcoxon Rank Sums test will be used for assessing the impact of statutes on annexation frequency and areal extent at the national level between 2001 and 2010, using annexation data from the U.S. Census Bureau. The Wilcoxon Rank Sums test asks whether a difference between the averages of two groups is likely to have occurred because of a random choice in the sample selection. The process can be used with ordinal data and involves ranking each data variable in the entire sample, then adding up the rankings for each of the two categories involved. A z-value is determined, which reflects the size of the difference between the total ranks of the two categories; the larger the z value (whether positive or negative), the less likely it was to have occurred by chance. In the case of this study, the two groups being assessed are states with a certain statute and ones that do not. Based on which annexation measure is being used (frequency, areal extent, and average annexation extent), the data points are placed in rank order. Then the rankings are added up, with a z-value being generated. If there is a significant difference between the means as a result of the tests, it indicates that there is a likely difference between the two groups caused by the difference in state laws.

This method is similar to the Independent Samples T-Test used by Facer II (2006), only the Wilcoxon test may be more suitable to the data being utilized. With an Independent Samples T-Test, the data used has to be normally distributed (or parametric), which means that the distribution of the data has to follow a bell-curve when displayed in a histogram or follow a diagonal line on a quantile-quantile plot. The Wilcoxon Rank Sums Test is used for the same purpose as the T-Test, only the data used in this test is not
normally distributed (or non-parametric), which means that the data is unevenly distributed. This is an important factor as the data from the U.S. Census on annexation frequency and areal extent is not normally distributed. Prior to carrying out either analysis, the distribution of annexation data for the 2001 – 2010 time period was assessed. In both cases, the data for all three measures was not found to be normally distributed and therefore a non-parametric analysis would be necessary. The histograms and quantile-quantile plots used to determine the distribution can be found in the index of this thesis. Therefore, the Wilcoxon Rank Sums test would be the more appropriate test to carry out for this study.

In this section of the thesis, fifteen common annexation statutes in state laws were analyzed for three measures of annexation activity in the 1990 – 1998 and 2001 – 2010 time periods. The three measures of annexation activity were the total number of annexation acts carried out (frequency), the areal extent of annexation in acres, and the average areal extent in acres per annexation act. The data used for the three measures of annexation in this study's analysis of annexation at the national level between 2001 and 2010 came from the U.S. Census Bureau’s Boundary and Annexation Survey (BAS). It includes all municipal annexations reported to the Census Bureau and is sorted into Microsoft Excel tables by state. Information reported on these surveys includes the municipality, the date of annexation, and the area of land annexed (measured in acres).
While it is possible that not all annexations in the U.S. during this time period were reported to the Census Bureau, the BAS data has been used by scholars as their go-to source for annexation information (Carr and Feiock, 2001; Facer II, 2006; Edwards, 2008, 2011; Pomeroy, 2012; Smith and Willse, 2012).

The fifteen state statutes chosen for both the Wilcoxon tests came from Steinbauer et al. (2002). Each of the statutes analyzed was separated into “Constraining” and “Facilitating” based on the categories used by Facer II (2006). For the tests involving the 1990 – 1998 period, the information on which states had each of the studied statutes also came from Steinbauer et al. (2002). The number of states with these statutes in this time period can be found in Table 3.1. For the period from 2001 – 2010, I accessed state government laws, which were available on official state websites. Once the state laws were accessed, I searched through them for the statutes that were used in this study. I ensured that the data being used was current to 2010 rather than 2014 when this thesis was written by looking up when these statutes were last changed and what changes were made to them. The states with these statutes are listed in Table 3.2.
Table 3.1: Summary of State Annexation Statutes (from Facer II, 2006)

<table>
<thead>
<tr>
<th>Legal Provision</th>
<th># of States With</th>
<th># of States Without</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Constraining Statutes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annexation Overseen by Judiciary</td>
<td>35</td>
<td>7</td>
</tr>
<tr>
<td>Annexation Preceded by Public Hearing</td>
<td>24</td>
<td>18</td>
</tr>
<tr>
<td>Annexation Approved by County Governing Authority</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Annexation Service Plan</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Public Referenda</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>Boundary Agency</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>Annexation Impact Report</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td><strong>Traditional Facilitating Statutes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Resolution Allowed</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td>Property Owner Initiated Annexation</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td>Cross-County Annexation</td>
<td>23</td>
<td>19</td>
</tr>
<tr>
<td>Annexation of Unincorporated Islands</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>Annexation of Municipally Owned Land</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Noncontiguous Annexation Allowed</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>Annexation due to Health and Safety Concerns</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>Legislatively Initiated Annexation</td>
<td>6</td>
<td>36</td>
</tr>
</tbody>
</table>

Sources: Steinbauer et al. (2002); Facer II (2006)
Table 3.2: Summary of State Annexation Statutes (As of 2010)

<table>
<thead>
<tr>
<th>Legal Provision</th>
<th># of States With</th>
<th># of States Without</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional Constraining Statutes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annexation Overseen by Judiciary</td>
<td>37</td>
<td>8</td>
</tr>
<tr>
<td>Annexation Preceded by Public Hearing</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>Annexation Approved by County Governing Authority</td>
<td>29</td>
<td>16</td>
</tr>
<tr>
<td>Annexation Service Plan</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Public Referenda</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>Boundary Agency</td>
<td>12</td>
<td>33</td>
</tr>
<tr>
<td>Annexation Impact Report</td>
<td>8</td>
<td>37</td>
</tr>
<tr>
<td><strong>Traditional Facilitating Statutes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Resolution Allowed</td>
<td>40</td>
<td>5</td>
</tr>
<tr>
<td>Property Owner Initiated Annexation</td>
<td>40</td>
<td>5</td>
</tr>
<tr>
<td>Cross-County Annexation</td>
<td>28</td>
<td>17</td>
</tr>
<tr>
<td>Annexation of Unincorporated Islands</td>
<td>23</td>
<td>22</td>
</tr>
<tr>
<td>Annexation of Municipally Owned Land</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>Noncontiguous Annexation Allowed</td>
<td>14</td>
<td>31</td>
</tr>
<tr>
<td>Annexation due to Health and Safety Concerns</td>
<td>7</td>
<td>38</td>
</tr>
<tr>
<td>Legislatively Initiated Annexation</td>
<td>6</td>
<td>39</td>
</tr>
</tbody>
</table>

Sources: Steinbauer et al. (2002); Facer II (2006), U.S. State Statutes
A spreadsheet was constructed using the annexation and statute data for each U.S. state that annexed land from 2001-2010, which is how long the Boundary and Annexation Survey was available. In Facer II’s study of 1990 - 1998, the seven states that did not have any of the studied statutes were omitted from the study (Connecticut, Hawaii, Massachusetts, New Hampshire, New Jersey, Rhode Island, and Vermont). The same requirement was also used in the 2001 – 2010 time period. This time, five states that did not have state annexation laws during that period (Connecticut, Hawaii, Massachusetts, New Hampshire, and Rhode Island) were omitted from this study, leaving 45 altogether.

Three columns were set up that noted the number of annexations carried out, the total area annexed, and the average area annexed per act. Under each annexation statute studied, a state received either a “Yes” or “No” indicating whether or not their state law contained said statute.

To conduct both the Independent Samples t-tests and the Wilcoxon tests, I used the JMP statistical software developed by the SAS software company. Using the “Fit Y by X” function, an annexation measure was modeled against the response for all states to one annexation statute. The resulting graph displayed the annexation on the Y axis while the “Yes or No” response to the specific statute was display on the X axis. The window also contained a menu presenting a list of options for further analysis. My first analysis was “Means and Standard Deviations” which determined the count, mean, and standard deviation of the states labeled “Yes” and “No”.

To conduct the t-tests, the variance of the data was determined using the “Unequal Variance” function. As in Facer II (2006), the Levene statistic was used to determine
which t-test to conduct. A Levene $p$ value greater than .25 meant that an equal variance t-test was used, while a $p$ value less than .25 meant that an unequal variance t-test was used. A $p$-value (between 0 and 1) was generated from each of these tests that describes the probability of seeing a difference between samples as large as mine due to sampling error. For the Wilcoxon Rank Sums test, the test was selected from a menu of non-parametric tests offered by the JMP software. In the case of both tests, the lower the $p$ value the less likely that it is that I would find a similar difference by chance. The significance level that was chosen for this study was 0.10, which means that any $p$-value below 0.10 was found to be significant and therefore, an indication that the particular state statute had an effect on annexation activity.

3.4 Analyzing Municipal-Level Annexation Laws in Delaware

To determine the possible effect of municipal-level annexation statutes on annexation activity in Delaware, the same statistical process was deployed on U.S. Census annexation information for municipalities in Delaware. Wilcoxon Rank Sums Tests were again used to assess the impact of particular municipal laws on the frequency and areal extent of fifty municipalities within Delaware. A significant difference between the means as a result of the Wilcoxon tests indicates that there is a likely difference between the means caused by the difference in state laws. Ten different provisions of state laws (listed in Table 2) were analyzed using Wilcoxon Rank Sums tests of each provision for three measures of annexation activity: annexation frequency, areal extent, and average
extent per act. However, unlike the analysis in the previous chapter in this thesis, data from 1981 – 2010 was used (the reason why is explained later in this section). As in the study of state-level statutes, the three measures of annexation activity were the total number of annexation acts carried out, the total area annexed (measured in acres), and average area annexed per act (measured in acres).

The study area and data in this analysis differ from that of the previous chapter and Facer II (2006) and Edwards (2011) due to the change in scale from national to state-level. Fifty of the state’s fifty-seven municipalities were used in this study. Because only municipalities with municipal codes containing annexation laws were considered, the seven municipalities without annexation laws were omitted (Arden, Ardentown, Ardencroft, Bellefonte, Fenwick Island, Little Creek, and Slaughter Beach). Because these Wilcoxon tests covered thirty years of Delaware annexation law, the process deviates from that of the previous section and Facer (2006) which both covered only ten years.

In the data-gathering stages, it was noticed that many municipalities in Delaware changed their annexation laws in the latter years of a decade (i.e. 1995 – 1999), meaning that a municipality’s annexation laws would end up being analyzed based on data that applied to previous iterations, leading to an inaccurate outcome. So rather than analyze the relationship between these statutes on a decade by decade basis, each version of a municipality’s annexation laws was analyzed individually from 1981 – 2010. For example, the laws regarding annexation in Georgetown (Sussex County) were revised twice between 1981 and 2010 (1986 and 1989). So when the Wilcoxon test was carried

However, this created an additional problem because the number of years each iteration was on the books varied drastically. For example, in the Town of Ocean View (Sussex County) one version of their annexation laws was in effect from 1981 to 2001 (twenty years), another one was in effect from 2001 to 2003 (two years), and yet another was in effect from 2003 to 2010 (seven years). To account for these variations, all three annexation measures were divided by the number of years that the particular version was in effect. So rather than “Ocean View, 1981 – 2001” being represented by four annexation acts, 560.9 acres annexed, and 140.225 acres annexed per act, that municipality was represented by 0.2 annexation acts, 28.045 acres annexed, and 7.011 acres annexed per act. The JMP statistical software was used and followed the same process as the one noted in the previous section.
Table 3.3  Summary of Delaware Municipal Annexation Statutes (1981 - 2010)

<table>
<thead>
<tr>
<th>Legal Provision</th>
<th>Iterations With</th>
<th>Iterations Without</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Constraining Statutes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Election</td>
<td>79</td>
<td>7</td>
</tr>
<tr>
<td>Public Hearing</td>
<td>46</td>
<td>40</td>
</tr>
<tr>
<td>Annexation Committee</td>
<td>38</td>
<td>48</td>
</tr>
<tr>
<td>Requirement of Petition of ALL Property Owners in Annexation Area</td>
<td>21</td>
<td>65</td>
</tr>
<tr>
<td><strong>Facilitating Statutes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allows Petition of Less Than All Property Owners in Annexation Area</td>
<td>44</td>
<td>42</td>
</tr>
<tr>
<td>Annexation Initiated by Local Government</td>
<td>38</td>
<td>48</td>
</tr>
<tr>
<td>Expediency if Petition Presented with All Property Owners in Annexation Area</td>
<td>26</td>
<td>60</td>
</tr>
<tr>
<td>Annexation Agreement</td>
<td>18</td>
<td>68</td>
</tr>
<tr>
<td>Annexation of State/Municipal Land Allowed</td>
<td>16</td>
<td>70</td>
</tr>
<tr>
<td>Annexation Determined by Local Government Resolution/Vote</td>
<td>12</td>
<td>74</td>
</tr>
</tbody>
</table>

Source: Delaware’s Town Charters (http://charters.delaware.gov/)
3.5 Georgetown: A Case Study

Finally, in an effort to address the limitations in the methodology and studies of annexation at the state and national level, I look at a large annexation carried out in July of 1989 by the Town of Georgetown, which is located in the center of Sussex County, Delaware. The case study documents the relationship between municipal laws and government actions in an effort to understand some of the possible motivation for town’s largest annexation in 1989. By examining a single act carried out by a single municipality, this study hopes to contribute to our understanding of the nuances in the execution of an annexation act that were not represented in the previous chapters. This represents a path forward in this line of research, as it is perhaps the best scale to fully understand the process behind the patterns seen in the previous section. A study of a particular annexation act can account for the factors that large-scale quantitative analyses cannot, such as the motivations for the annexation, actions of government officials and residents during the process, and the local geography. Although a fully developed qualitative analysis of every aspect of annexation was beyond the scope of this thesis, the process of annexation as it had been carried out by Georgetown in 1989 was selected for study. This annexation act was selected the second largest that any municipality in Delaware has carried out since 1970, and doubled the area of the town in a single act.

The Georgetown case study of its large 1989 annexation is divided into two main sections. First, a brief history of Georgetown using the available literature and media reports is laid out in order to provide context for annexation. Then, an examination of the large Georgetown annexation of 1989 was carried out, using a mix of primary source
documents, such as newspapers, and key informant interviews conducted with public officials who were in office at the time of the annexation. Two document sources of particular value were the Georgetown Town Council minutes from 1985 to 1989 and articles from the local newspaper, the Sussex Countian. The Town Council minutes detailed the nature of council discussions about the 1989 annexation and document public commentary that took place in public hearings prior to the public referenda and annexation. In addition, council minutes provided some historical context for the reasons behind the motivations for the annexation in the first place. Council minutes also provided parcel numbers of the annexed area, which was important when mapping areas around Georgetown annexed in this particular 1989 act. The Sussex Countian, a local newspaper covering events in Sussex County for over a hundred years, also provided important information about the historical context of the 1989 annexation. It was through issues of this newspaper that important dates, such as the public hearing and public referenda, were found. The newspaper also had a number of opinion pieces written on the topic of this annexation, including a four-part series written by then-mayor Joe Booth in which he laid out the reasons why annexation was advantageous to both the town and the property owners being annexed.

While these public documents nicely detail the processes and the laws governing this annexation, it was also important to gather information from the personal recollections of people involved in and impacted by the process. Therefore, I looked for key informants to interview in Georgetown, asking previously-established for assistance in contacting relevant stakeholders in this annexation. These connections were made during previous
research completed as part of a Blueprint Communities study in the town in 2013. Although most of the important players in Georgetown’s government during the 1989 annexation no longer lived in the area or had passed on, I was able to contact then-Mayor Joe Booth and then-Town Manager Allan Kujala, who both agreed to be interviewed for this thesis. Two semi-structured interviews of approximately 90 minutes were conducted with both interviewees, with a general set of questions being posed about: how the annexation itself was contemplated and presented to the public; how the process was orchestrated; how opposition was handled; and what the impact on the town has been conceived. Their insights brought forward details not given in the document sources while at the same time, confirming that the process was as it had happened in those sources.

While presented as a chronological story, the case study of the 1989 annexation also involves looking at annexation laws in Georgetown as they existed at the time and finding out how the statutes mentioned in the statistical analysis of Delaware. Each tested statute that was involved was examined and evaluated as to how they impacted the decision as to whether or not to go forward with this annexation. While that impact certainly cannot be measured empirically, the interviews conducted as well as the language used in the primary source accounts were used to come to a general conclusion. Although this case-study does not speak for the other municipalities that have performed annexations, it allows for a real life demonstration of the results reached in the statistical analysis that can be replicated in future research.
Chapter 4

STATISTICAL RESULTS: NATIONAL LEVEL

4.1 Introduction

This chapter covers the results of the Wilcoxon Rank Sums Tests carried out at the national scale for the fifteen statutes in state law to determine their possible effect on annexation activity. The objectives of this chapter are (1) describe the annexation statutes that were used in this chapter, (2) provide the statistical results of the Wilcoxon Rank Sums tests carried out for each of the studied statutes, (3) discuss the differences in results obtained by Facer II and the Wilcoxon tests, and (4) analyze the results. As mentioned in the previous chapter, the statutes were separated into two categories, Constraints and Facilitators, using the classification system used by both Facer II (2006) and Edwards (2011). While constraining statutes were expected to be negatively associated with annexation frequency and aerial extent, facilitators were expected to be positively associated with annexation frequency and aerial extent.

This chapter begins with a description of the annexation statutes, the statistical results from the tests, and the conclusions as to why certain statutes affect annexation activity.
To provide context from previous research, the results from Facer II (2006) are also listed for both constraints and facilitators. The section concludes with a brief discussion of the results of the statistical analysis as well as the questions that are immediately raised by doing so. Like Facer II (2006) and Edwards (2011), this analysis demonstrates that facilitator statutes are likely to be positively associated with annexation activity. On the other hand, statutes designed to constrain annexation activity are not likely to have lower levels of annexation activity. These results seem to indicate that the classification system used by these researchers does not produce meaningful results and that a new classification approach is needed. Rather than focusing on the ease of the annexation process, the suggested system categorizes the statutes based on the authority or power that is given by those statutes. From this re-categorization, the results seem to indicate that statutes that empower the municipality and the affected residents facilitate annexation activity more than those that empower the state.

4.2 Statistical Results

4.2.1 Statutes Designed to Constrain Annexation

Statutes that have been categorized as constraints to annexation are those typically designed to create procedural or bureaucratic hurdles, thereby increasing the difficulty of an annexation being passed. While these constraining statutes are all mandated by the state government, the power shifts inherent in these statutes can move governmental power from the annexing municipality to either a higher government authority (county,
Examples of statutes that give power to a higher government include requiring Annexation Overseen by Judiciary, and having a state-run boundary agency oversee the annexation process. These constraints can be used to curb the kind of involuntary annexations seen in Hooten (2002) by giving more of the deciding power to property owners and residents through required public hearings, and elections (Facer II, 2006).

This section describes the seven statutes categorized as annexation constraints and the results gathered from this analysis. They are arranged in order by how many states in the U.S. had the statute in their laws in the 2001 to 2010 time period, from most to least.

**Annexation Overseen by Judiciary.** According to Facer II (2006, 700), “involving the judiciary is an alternative to using an independent board, such as a boundary commission, for resolving annexation concerns.” In states such as Mississippi, the judiciary serves as the primary agent in the annexation process. Although judicial oversight may include statutorily designated judicial appeal, it does not follow that states listed as not having this statute have no recourse through the courts (Facer II, 2006).

In the 2001 – 2010 time period, 37 states had statutorily addressed judicial review. All three measures used in this study achieved statistical significance. States with judicial participation carried out 176% more annexation acts than those that did not according to the Wilcoxon test (p = 0.0021). Those states also annexed over 129% more acres than states that did not according to the Wilcoxon test (p = 0.0679).
### Table 4.1  National Level Results, Annexation Acts

<table>
<thead>
<tr>
<th>Statute</th>
<th>Mean: Yes</th>
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* Denotes Significance at p = 0.10
** Denotes Significance at p = 0.05
*** Denotes Significance at p = 0.01
Table 4.2 National Level Results, Annexation Extent

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* Denotes Significance at p = 0.10  
** Denotes Significance at p = 0.05  
*** Denotes Significance at p = 0.01
### Table 4.3  National Level Results, Average Annexation Extent Per Act

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* Denotes Significance at p = 0.10  
** Denotes Significance at p = 0.05  
*** Denotes Significance at p = 0.01
States with this requirement also had average annexation sizes that were 127% larger than those that did not according to the Wilcoxon test (p = 0.0665). What this seems to indicate is that having an outside party review the legality of an annexation, including the proper provision of services, increases the likelihood of an annexation being equitable for both property owner and municipality. Assured of this, property owners may feel more inclined to agree to an annexation initiated by a municipality or initiate one themselves.

**Annexation Preceded by Public Hearing.** Many states require public hearings prior to any decision being made on an annexation. Public hearings have been viewed by some as a way to limit annexations by opening up the process to greater scrutiny from local residents. Proponents of public hearings tout the benefits of allowing property owners, residents, and other concerned citizens to have input into the annexation process. It should be stressed that these hearings are not for the purpose of making decisions regarding annexations; they are simply a mechanism for hearing different perspectives (Facer II, 2006).

Contrary to what was expected, studies conducted by Carr and Feiock (2001), Facer II (2006) and Edwards (2011) found that that requiring a public hearing at the state level largely stimulated annexation activity. Using data from 1990, Carr and Feiock (2001) found that public hearings were statistically significant facilitators of annexation frequency in the twenty-seven states that had the statute at the time, contradicting their prediction that it would constrain annexation frequency. A possible explanation for this result was that having a constraining statute requiring public hearings resulted in a greater number of smaller annexations which made it less likely to resistance from large numbers.
of property owners (Carr and Feiock, 2001). In the 1990 – 1998 time period, twenty-four states required public hearings during any annexation process. In the study by Facer II (2006), one annexation measure was found to be statistically significant according to the t-test as states that required public hearings annexed nearly 65% more than states that did not (p = .092). None of the annexation measures used in the study by Edwards (2011) were found to be statistically significant.

As of 2010, thirty states require public hearings during the municipal annexation process. States that require public hearings had much higher levels of annexation activity for all three measures, and all three were found to be significant. States that required public hearings annexed 60% more frequently than those that did not according to the Wilcoxon test (p = .0809). Those states also annexed 180% more acres (p = .0031) and 159% more acres per act (p = .0136) than those that did not.

Rather than result in a greater number of smaller annexations, requiring public hearings in the 2001 – 2010 time period appears to have resulted in a greater number of larger annexations. A possible explanation of these results could be that a public hearing, while certainly a procedural hurdle, can also allow for property owners to become more informed of the potential benefits of the annexation. This could result in public opinion shifting towards favoring an annexation should a public referenda be held.

**Public Referenda.** One way states try to limit the ability of municipalities to annex property is by requiring the municipality to hold a referendum to decide whether or not an annexation can become official. The referendum could either be held in the area to be
annexed or it could be held in the municipality seeking annexation and can involve residents or property owners. This provision is important because it is designed to ensure that the interests of property owners and residents are protected. The number of states that have statutes requiring an election in the annexation process increased from fourteen in 1990 to twenty-nine during the 2001 – 2010 time period. On average, states with that statute annexed more frequently and annexed more acres than those that did not. However, none of the annexation measures were found to be significant using the Wilcoxon Rank Sums test in this thesis.

**Annexation Approved by County Governing Authority.** County governing authority approval grants the county governing authority approval or veto power over the annexation. For example, in the state of Delaware, municipalities with populations of over 50,000 need to gain county approval before posing the annexation to a local referendum (Del. Code tit. 22, § 101A). This county involvement is seen as a method of constraining municipal annexations by introducing a third party to the annexation process. The other two mechanisms are property owners and the annexing municipality (Carr and Feiock, 2001). Also, depending on the tax laws in certain states, an annexation could result in the loss of tax revenue for the county. Therefore, is assumed by proponents and opponents of requiring county intervention that “the number of annexations and the total acres annexed would be significantly less if counties had the ability to intervene in the process” (Facer II, 2006, 702).

The results of the Wilcoxon Rank Sums test of the county governing authority statute were inconclusive. In the 2001 – 2010 time frame, twenty-five states required county
government involvement in annexations and these states annexed less frequently, annexed fewer acres, and annexed fewer acres per act than those that did not. However, none of the measures were found to be statistically significant.

**Annexation Service Plan.** According to Facer II (2006, 701), “service plans are detailed outlines of goals for extending and providing services to areas proposed for annexation. In some states, annexations may not occur until services are extended. In other states, the extension of services may occur gradually. A formal plan, therefore, provides residents and property owners with a time frame for receiving municipal services.” A service plan, therefore, protects residents by ensuring that services agreed upon during the annexation process, or mandated by local or state law, are provided. This annexation provision may inhibit municipalities from annexing areas where they would be either unable or unwilling to provide services (Edwards, 2011).

In 2010, twenty-four states required service plans in their annexation statutes and two of the three measures were found to be significant using the Wilcoxon test. States that required service plans were found to annex over twice as much land overall than those that did not according to the Wilcoxon (p=.0222). On average, states that required service plans annexed more land per act than those that did not (p = 0.0779). This may indicate that because service plans ensure that services are provided in a timely manner, property owners are more likely to want to be annexed in the first place. Service plans may also result in larger annexations because the plans could provide clarity during the annexation process, making it more likely that the act would be approved by either the governing officials or the public in a referendum.
Boundary Agency. Boundary agencies are independent or state-run review bodies that oversee the annexation process, either by enforcing other annexation laws or by mediating disputes between government and land-owner (Facer II, 2006). These agencies can be formed out of concern that municipalities are annexing too much land, as was the case of California in the 1950s. During this time, a lack of state oversight and desire to increase municipal revenue bases led to cities annexing land haphazardly, leading to “premature, unplanned development and irregular city boundaries” (Aldrich, 2012, 1). Responding to this trend, the California state government created Local Agency Formation Commissions (LAFCOs) in each of the state’s fifty-eight counties, to act as watchdogs for the legislature on boundary change issues such as annexations, incorporations, and detachments. While these agencies have been hailed as suitable arbitrators in testy situations, opponents of boundary commissions suggest that they are overly expensive and inefficient; they are often dependent on the support of a majority of property owners in order to allow an annexation (Facer II, 2006; Aldrich, 2012). In the 2001 to 2010 time period, twelve states required that annexations be regulated through boundary agencies. However, none of the Wilcoxon Rank Sums tests reached statistical significance.

Annexation Impact Reports. Annexation impact reports generally require an assessment of the financial implication of the annexation, “including the estimated revenue that would be generated, as well as the estimated expenditures that result from the extension of services” (Facer II, 2006, 702). Usually, it is the state that requires an annexing municipality to complete an impact report before a decision on the act can be made.
These reports are meant to make decisions over the feasibility of annexation acts easier to evaluate. Usually, state laws require an impact report only when the act crosses some sort of threshold, such as the extent of the annexation, the land use currently designated for the annexed land, or the number of people that would be annexed (Facer II, 2006). This would mean that states requiring impact reports acknowledge that these acts influence a greater area of land, a larger number of people, or results in larger financial considerations. In the 2001 – 2010 time period, only eight states had an impact report requirement, and none of the measures reached statistical significance.

4.2.2 Statutes Designed to Facilitate Annexation

Statutes classified as facilitators are noted by both Facer (2006) and Edwards (2011) as being designed to make the annexation process easier for either the affected property owners or the municipality. These statutes have existed for a number of reasons, including ensuring that fringe residents could acquire public services and municipalities could annex land in special circumstances not usually addressed in state law. This section describes eight statutes that have been designated as facilitators according to both Facer II and Edwards and the results gathered from this analysis.

Local Resolution. Most states allow municipalities to initiate annexations through a local resolution or ordinance. How this statute is applied varies state by state. Some municipalities, such as Kentucky and Mississippi, only allow municipalities to initiate annexations. Many others, such as California and Georgia, allow annexations to be
initiated by either the municipality or property owners. Resolutions or ordinances that initiate annexations are seen by some as facilitators for the provision of services to fringe residents. Others believe annexation by local resolution constitutes a sort of “involuntary annexation” that allows municipalities to pick and choose which lands (usually the most desirable) to annex (Reynolds, 1992, 267-271). By providing an additional avenue for annexations to be initiated, one would imagine that annexation activity would increase.

The results of this thesis indicate that allowing annexations to be initiated by municipalities facilitated annexation activity. In the 2001 – 2010 time frame, 40 states had statutes that allow for annexations to be carried out using resolutions or ordinances. Those states annex 263% more frequently than those that do not according to the Wilcoxon test (p = .0148). They also annexed 316% more land than states that did not (p = .0148). In the states that gave municipalities the ability to initiate annexations, municipalities seem to have taken advantage of the opportunity to do so, as evidenced by the significant increases in annexation frequency and extent.

Municipalities, aware of the potential financial benefits to their tax base, could have annexed more frequently during the 2001 – 2010 time period because of the relative ease compared to waiting for a property owner to petition for annexation. This would especially be the case if state laws also allowed the municipality to decide whether an annexation would become official, rather than the state or local residents. The problem with these results is that they don’t categorize annexations into processes initiated by the municipality or the affected property owners. Only then could we know if having a statute allowing municipalities to initiate annexations facilitates annexation activity.
**Property Owner Initiation.** In many cases, state law can allow for a property owner to initiate an annexation, most often through petitions presented to the local government. “This method is seen as a key provision of self-determination, allowing those most affected by annexation to have a significant say in the annexation process” (Facer II, 2006, 703). Often times, the property owners are looking to become part of a municipality to gain access to services that the county or local municipality does not already provide (Edwards, 2008). As of 2010, forty states allowed property owners to petition local governments for annexation, and the largest difference between the means of states with and without this statute were found in these states. This led to two measures being found statistically significant despite the fact that nearly all of the states had this statute in their laws. States with this statute annexed 263% more frequently than those that did not according to the Wilcoxon test (p = .0036). They also annexed 316% more land than those that did not (p = .0098). This could be the result of contiguous property owners having the freedom to decide when they want to be annexed.

**Cross-County Annexation.** Cross-county annexation occurs when a municipality annexes land in an adjoining county, thereby increasing the number of governments affected by the municipality’s decision to annex. So this would occur in a municipality that either directly borders another county or shares territory with two counties. This creates a geographical dilemma for the counties and municipalities involved as to how to distribute county authority. In addition, the provision of services in the area can become complicated due to differences in county laws and tax regulations (Facer, 2006). However, statutes that allow for cross-county annexation can remove this geographic
obstacle to municipalities located on the edge of a county. During the 2001 – 2010 time period, seventeen states had statutes that allowed for cross-county annexation. None of the measures reached statistical significance, corroborating with the results of Facer II. The results of this study indicate that allowing cross-county annexation does not affect annexation activity. While annexation activity has not been affected by having this statute, future research should determine how many cross-county annexations have taken place and in which states they were most prominent.

**Annexation of Unincorporated Islands.** Unincorporated islands are unincorporated areas completely surrounded by one or more municipalities. Examples of these unincorporated islands can be found in Georgetown and Newark, Delaware. These islands are normally created when annexing municipalities encounter resistance to annexation from individual property owners. Property owners who do not wish to be annexed are bypassed by municipalities, creating an island in the process. While many states have laws that prevent annexations and incorporations that create these islands today, islands exist that were created in the past. To reach incorporated areas, service providers often have to re-route themselves in order to avoid unincorporated areas and other municipalities. This results in difficulties in providing services such as water, sewer, and police protection to areas currently within a municipality’s boundaries. In addition, residents of unincorporated islands may take advantage of municipal amenities such as parks or emergency services and not pay taxes to the municipality.

To reduce the number of unincorporated islands, many states have statutes that outline the process for annexing unincorporated islands (Sumner et al., 2014). Boundary
agencies, such as California’s Local Agency Formation Commission of Santa Clara County, have devoted resources to research and advocate for the annexation of unincorporated islands (LAFCO, 2014). By annexing unincorporated islands, municipalities hope to avoid complications in service provision and establish consistent government responses to certain areas or determining the proper government responses to property owner issues.

In the 2001 to 2010 time period, twenty-three states had statutes permitting annexation of unincorporated islands. Those states carried out 120% more annexation acts than states without the statute (p = .0018). They also annexed 146% more land than those without statutes (p = .0044). What this could mean is that states have recognized the problems inherent with having unincorporated islands within a municipality and have encouraged the annexation of those islands. With those statutes in place, increased overall annexation activity could be indicative of municipalities annexing their unincorporated islands. Future research should compile the number of annexations of unincorporated islands in a certain time period in order to determine whether that particular state statute encourages that type of annexation.

**Annexation of Municipally-Owned Land.** Municipalities often purchase land outside their boundaries for service development, such as sewage treatment or power plants. This sometimes results in these facilities not being under control of the municipality being served by them. Some states specifically address annexations of municipally-owned land as a way to ensure that municipalities being served by the facilities on this land have full control and are not hindered by other municipalities. While counties do
not receive tax benefits from municipally-owned land in unincorporated areas, they can become concerned about the ability of municipalities to side-step normal annexation requirements (Facer, 2006). Facer II believed that by allowing municipally-controlled land to be annexed, it increased annexation frequency. In the 2001–2010 time period, twenty-two states have laws that mention the annexation of municipally-owned land, and analysis shows that those states carried out 82% more annexations than states that did not according to the Wilcoxon test (p = .0445). What this could mean is that a large number of municipalities controlled land outside of their boundaries but did not officially incorporate the land until the last two decades. Future research should look into the number of annexations undertaken in a specific state or time period that involved annexing municipally-controlled land.

**Annexation of Noncontiguous Land Allowed.** Determining what land a municipality is allowed to annex has been an important facet in state annexation law as of 2010. “All states that have annexation procedures also have some type of contiguity requirement, meaning that the land annexed must be adjacent to or adjoining the municipality in some defined way” (Facer II, 2006, 705). However, some states allow for noncontiguous annexations if certain criteria are met. These criteria are fairly strict, to make sure that annexations of noncontiguous property are “intended to ensure orderly and regulated growth, affect the ability of municipalities to provide services in that area, and address the municipality’s ability to pick and choose developments with high tax revenue potential” (Steinbauer et al., 2002, 19). Some states require a 100 percent agreement
from the affected property owners while others require special acts from the state legislature (Steinbauer et al., 2002, 19).

The results of the Wilcoxon test performed for this thesis support the idea that allowing noncontiguous annexations facilitates annexation activity. As of 2010, fourteen states had statutes that allowed for noncontiguous annexations and two measures were found to achieve statistical significance. States that allowed for noncontiguous annexations annexed 158% more often than those that did not according to the Wilcoxon test (p = .001). Those states also annexed 101% more land than those that did not according to the Wilcoxon test (p = .0104). Requiring an annexation to be contiguous to the municipality greatly limits the available land to annex. So allowing land beyond the contiguous zone would likely result in more property owners being available to annex, opening up the opportunity for greater numbers of annexation acts and land annexed.

**Annexation for Health and Safety Concerns.** In some cases, land that a municipality wants to annex may be in a condition that could potentially affect the health and safety of the community at large. Several states have annexation statutes for extraordinary circumstances where the normal annexation procedures make it difficult to respond to critical situations (Facer II, 2006). In some cases, state and local environmental agencies can evaluate land intended for annexation and require that local municipalities remedy any hazardous conditions. These provisions in state statutes allow for both state and municipal interests to be satisfied: the municipality involved obtains new land and the state can remediate a hazardous site through the supervision of the local municipality.
However, these provisions are very rare, with only seven states having them listed in the 2001 – 2010 time period. Those states are Alabama, Arkansas, Illinois, Minnesota, New Mexico, Oregon, and Tennessee. In the 2001 – 2010 time period, states with this statute annexed 101% more frequently (p = .0541) and annexed 60% more land (p = .0373) than states that did not. What this could mean is that the states with this statute have municipalities located in areas that have had a number of environmental issues that need to be considered when annexing. With this statute in place, municipalities could be more comfortable with performing annexations in certain circumstances, increasing the number of acts carried out. However, this could not be verified without knowing the number of annexation acts that were carried out using this statute, a potential future step for researchers.

**Annexation Initiated by Legislature.** According to Facer II (2006, 705), “if the state legislature is specifically authorized to make changes to municipal boundaries through annexations, then the state is classified as having state legislature annexations.” This type of action takes the authority of annexation away from that of the municipality itself and places the outcome of any act at the discretion of the interests of the state, which may differ from that of the municipality itself (Steinbauer et al., 2002). As a result, certain annexations could take place that would not take place otherwise (Facer II, 2006). This type of statute is very rare in the United States, as only six states (Alabama, Alaska, California, Georgia, Maine, and Oregon) have statutes mandating legislative involvement in annexation in both the 1990 – 1998 time period and 2001 – 2010 time period. The reason it is utilized in so few states is that municipalities may want annexations to be
decided by people directly affected by the act, whether they be the property owners, the residents, or the local government rather than the state government. Those states that have legislative involvement may have done so as a way to control annexation activity carried out by municipalities that was previously seen as undesirable. In this study, while two out of the three measures were greater for states with legislative involvement in annexation during both time periods, none of them obtained statistical significance for either test. These results seem to indicate that whether or not the state legislation is involved does not have an impact on annexation activity and that other statutes described in this section do have an impact.

4.2.3 Discussion of Wilcoxon Results

The results of the 2001 – 2010 Wilcoxon tests that were carried out for this thesis seem to largely fall in line with Facer II’s main conclusions, which was that both facilitator and constraining statutes correlate with high annexation rates. Six facilitating statutes were associated with statistically significant higher levels of annexation activity. States that allowed noncontiguous annexations annexed more frequently and annexed more land than states that did not. States that allowed annexation of municipal or state-owned land annexed more frequently than states that did not. States that allowed municipalities to annex unincorporated islands, or had statutes that addressed annexations carried out for safety or public health reasons, annexed more frequently and annexed more land than states that did not. Finally, states that permitted annexations to be initiated by local
resolution or property owner petitions, annexed more land than states that did not. As Facer II concluded in 2006, this means that statutes that have traditionally been designed to facilitate annexation do what they are supposed to do, which is increase annexation numbers.

The results also corroborate with Facer II’s other key observation, which was that some statutes long-viewed as constraints of annexation constraints of annexation actually encourage more annexation at rates similar to the facilitator statutes. Four constraining statutes were associated with statistically significant higher levels of annexation activity, while none were found to result in lower annexation numbers. States that required service plans annexed more land and more land per act than states that did not. States with boundary agencies in place to regulate annexations annexed more land per act than those that did not. Interestingly, states that required annexations to go before judicial review annex more frequently and annex more land than those that don’t. What is perhaps most interesting is that states that require a public hearing during the annexation process annex more frequently, annex more land overall, and annex more land per act than states that do not. This could indicate that having the public more involved in the annexation process allows the public to become more well-informed and more likely to approve of any annexation acts. These results also indicate that the categories that were used may not be appropriate for analyzing annexation activity since so many “constraining” statutes were actually found to be facilitators. The next section details the new categorization of statutes developed that focuses on which level of government that is being empowered by the statute, rather than the ease of the process.
4.3 Re-Categorization of Annexation Statutes

This section is an attempt to sort annexation statutes into categories that may better explain why one statute may play a more important role in annexation activity. As shown in the results section, while all of the facilitating annexation statutes found to be significant did facilitate annexation, nearly every statute categorized as a constraint was found to facilitate annexation. A similar pattern was found in Carr and Feiock (2001) and Facer II (2006) in which many of the constraining statutes were actually found to facilitate annexation. Therefore, the old way of conceptualizing the problem and process is flawed may not be suitable for analyzing annexation statutes in state laws because nearly none of the statutes were found to be constraining annexation activity. Needed in studies of annexation is a different approach, one that moves away from unhelpful categorizations into enabling and constraining legislation to a categorization that pays attention to contextual factors such as who the legislation directly affects. The categories developed by previous scholars focused on the ease of annexation but did not examine for whom the process was being made easier or more difficult for.

The new categorization of statutes focuses less on the presumed ease of annexation and more on the actors for whom the statutes are designed. Specific statutes in previous studies applied to the state legislature (i.e. Annexation Initiated by State Legislature), municipalities (i.e. Annexation of Noncontiguous Land Allowed), or property owners and developers (i.e. Annexation Preceded by Public Hearing). In each of these cases, one
player in the annexation process was being given more control. So the question that arises is “does the political entity given control (local government, county government, state government) by each statute make a noticeable difference in the annexation activity (frequency, extent, average extent per act) in each act?”

To answer this question, the fifteen statutes used in the previous analysis were re-organized into three separate categories depending on scale, or what level of authority is prioritized in the process of annexation. The categories were “State/County Empowered”, “Municipality Empowered”, and “Property Owner/Developer Empowered”. The table with the listings of the statutes, their p values for the three annexation measures, and whether or not they resulted in more annexation is listed below. Following the table is an explanation of what each category is, why certain statutes were placed in each category, and how many of the annexation measures reached statistical significance in each category.
Table 4.4  Annexation Statutes Organized According to the Discretionary Power of the Stakeholder

<table>
<thead>
<tr>
<th>Statute</th>
<th>P Value: Acts</th>
<th>P Value: Extent</th>
<th>P Value: Average</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State/County Empowered Annexations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annexation Approved by County Governing Authority</td>
<td>.6396</td>
<td>.9363</td>
<td>.2395</td>
</tr>
<tr>
<td>Annexation Boundary Agency Involved</td>
<td>.8074</td>
<td>.8877</td>
<td>.0665*</td>
</tr>
<tr>
<td>Annexation Impact Report</td>
<td>.2179</td>
<td>.5428</td>
<td>.9645</td>
</tr>
<tr>
<td>Annexation Overseen by Judiciary</td>
<td>.0518*</td>
<td>.0679*</td>
<td>.3975</td>
</tr>
<tr>
<td>Annexation Initiated by State Legislature</td>
<td>.7259</td>
<td>.9335</td>
<td>.8282</td>
</tr>
<tr>
<td>Annexation Service Plan</td>
<td>.1303</td>
<td>.0222**</td>
<td>.0779*</td>
</tr>
<tr>
<td><strong>Municipality Empowered Annexations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annexation Due to Health and Safety Concerns</td>
<td>.0541*</td>
<td>.0373**</td>
<td>.6498</td>
</tr>
<tr>
<td>Annexation of Municipally Owned Land</td>
<td>.0445**</td>
<td>.3016</td>
<td>.5474</td>
</tr>
<tr>
<td>Cross-County Annexation</td>
<td>.1434</td>
<td>.1567</td>
<td>.9533</td>
</tr>
<tr>
<td>Annexation by Local Government Resolution</td>
<td>.0148**</td>
<td>.0148**</td>
<td>.2867</td>
</tr>
<tr>
<td>Annexation of Noncontiguous Land Allowed</td>
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<td>.0104*</td>
<td>.778</td>
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<tr>
<td><strong>Property Owner/Developer Empowered Annexations</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Annexation Initiated by Property Owners</td>
<td>.0036***</td>
<td>.0098***</td>
<td>.3571</td>
</tr>
<tr>
<td>Annexation Preceded by Public Hearing</td>
<td>.0809*</td>
<td>.0119**</td>
<td>.0136**</td>
</tr>
<tr>
<td>Annexation Decided by Election</td>
<td>.1043</td>
<td>.3251</td>
<td>.5144</td>
</tr>
</tbody>
</table>

* Denotes Significance at p = 0.10  
** Denotes Significance at p = 0.05  
*** Denotes Significance at p = 0.01  
.000 Denotes a Significant P Value for an Increase in Annexation Activity
4.3.1 Discretionary Power in the Hands of State/County

For analytical purposes, statutes initiated or overseen at the state or county level were labeled “County/State Empowered”. This includes “Annexation Approved by County Governing Authority”, “Annexation Boundary Agency Involvement”, “Annexation Overseen by Judiciary”, and “Annexation Initiated by State Legislature”. In addition, state statutes that require municipalities to perform studies or plans detailing the feasibility of an annexation were placed in this category. By requiring a municipality to perform a task before an annexation can be made official, the decision-making power in the process is taken away from the municipalities and property owners and transferred to the state. Therefore, two additional statutes, “Annexation Impact Report” and “Annexation Service Plan”, were also placed in this category. Since six statutes were placed in this category and three annexation measures were used for each one, there were eighteen p values generated. Of those p values, five (28%) reached significance; one for annexation frequency, two for annexation extent, and two for the average extent of each act. These findings indicate that statutes that give discretionary power to the state or county do not result in greater annexation activity. This contradicts the hypotheses of studies by Carr and Feiock (2001), Facer II (2006), and Edwards (2011) who believed that empowering the state/county results in greater annexation activity. As we’ll see in the next two paragraphs, discretionary power in the hands of the municipality or property owners seems to facilitate annexation.
4.3.2 Discretionary Power in the Hands of Municipalities

Statutes that allow municipalities to administer annexation acts, thus removing power from the state and the property owners, were labeled “Municipality Empowered”. These statutes include “Annexation by Local Government Resolution” and “Annexation Due to Health and Safety Reasons”. In addition, state statutes that allow municipalities more flexibility in terms of choosing which parcels of land to annex were placed in this category. Therefore, “Annexation of Noncontiguous Land Allowed”, “Annexation of Municipally-Owned Land”, and “Cross-County Annexation” were also placed in this category. Since five statutes were placed in this category and three annexation measures were used, there were fifteen p values generated. Of those fifteen p values, seven (46%) reached significance; four for annexation frequency and three for annexation extent. The fact that this category had a higher significance rate than the previous one falls in line with previous studies. Carr and Feiock (2001), Facer II (2006), and Edwards (2011) all believed that giving municipalities more control in the process would lead to higher annexation rates.

4.3.3 Discretionary Power in the Hands of Property Owners/Developers

Statutes that permit property owners, municipal residents, or property developers to participate in the annexation process were labeled “Discretionary Power to Property Owners/Developers”. These statutes were “Annexation Initiated by Property owner Petition”, “Annexation Preceded by Public Hearing”, and “Annexation Decided by
Election”. Each of these three statutes remove power from the state and municipality and empower local residents and developers by involving them in various stages of the annexation process. Since three statutes were placed in this category and three annexation measures were used, there were nine p values generated. Of those nine p values, five (55%) reached significance; two for annexation frequency, two for annexation extent, and one for the average extent of each act. This is a significant finding, for it contradicts the findings of previous scholars and the way they saw resident participation in the annexation process. A higher percentage of statutes in this category were found to be statistically significant than the previous two.

4.3.4 Overall Observations

The higher number of p values found to be statistically significant in the latter two categories seem to indicate that statutes that give more power to municipalities and property owners/developers are more likely to result in higher rates of annexation activity. The assortment of statutes in the “Discretionary Power to the Municipality” category that achieved significance (most notably “Annexation Allowed to be Noncontiguous” and “Annexation by Local Resolution ”) largely fell in line with what previous scholars believed were facilitators of annexation activity. In both Carr and Feiuck (2001) and Facer II (2006), statutes that facilitated annexation were those that allowed the municipality to decide where to annex and whether the annexation would
pass. So these results are hardly surprising given the previous results in this section and the assumptions of previous scholars.

The fact that the statutes that empower property owners/developers statistically affect annexation activity, however, is a new development. This could mean that when the public is informed of the details and implications of an annexation act, they are more likely to approve of the act. Therefore, a municipality that is looking to extend its boundaries (for whatever reason it may be) may look to more public participation in the process in order for annexations to occur. For states that require annexations to be decided through elections, public perception and opinion of annexation is very important since it is the public that is allowed to decide an annexation.

Something that previous researchers have seemingly ignored is the desire by property owners to be annexed into municipalities. Previous studies, such as Carr and Feiock (2001), Facer II (2011), and Edwards (2011) only seemed to view annexation as an action desirable by the municipality. The categorizations they developed were based on the assumption that resident participation would constrain annexation rather than facilitate it. They did not seem to account for the possibility that property owners and developers would want to be annexed, believing instead that municipalities were the drivers of annexation. The results of this re-categorization could indicate that the statutes were created to regulate a high demand for annexation by property owners. So rather than try to assign a motive behind each statute, this categorization treated the motives behind annexation as neutral, generating more meaningful results.
Although this analysis was a very useful way of exploring the role of laws on annexation activity in the U.S., more research is needed. The national-level analysis, while instructive, points out that while large statistical analyses are good starting points for trying to find any possible patterns related to laws and annexation, they do not paint the entire picture. This is a shortcoming that both Facer II (2006) and Edwards (2011) pointed out in their studies. Every state in the U.S. has different governmental structures that enforce different laws at different governmental levels, whether they are at the state, county, township, or municipality. As we have seen in this analysis, some states allow the annexation process to be started, presided over, or decided by either the state or municipal government. That means that municipal laws have varying amount of influence over the annexation process. The next step to understanding those differences is to examine the effect of municipal laws on annexation activity at the individual state level. To do this, an analysis of municipal laws in the State of Delaware was carried out in Chapter 5, using a process that was largely similar to the one used in this chapter.
Chapter 5

DELAWARE ANNEXATION ANALYSIS

5.1 Introduction

This chapter explores the impact of state and municipal laws on annexation activity in the State of Delaware from 1981 – 2010. Following on the national-level research conducted in the previous chapter, I will describe statutes governing annexation in Delaware that were in place during its recent history in order to demonstrate how much freedom the state’s municipalities have in determining the annexation process. I will then move in my analysis to determine how municipal statutes governing annexation in Delaware may shape the frequency, areal extent, and average annexation extent in order to determine which statutes seem to be allowing for greater annexation activity. This test will satisfy the second question of this thesis, which is whether or not municipal annexation statutes play a role in determining levels of annexation activity.

The chapter begins with a brief introduction of the state’s political geography (namely, the location and size of its municipalities) and demographics. This is followed by a description of the state laws that govern annexation in Delaware,
a listing of the statutes studied in the previous chapter that Delaware has in its laws, and a brief comparison of those statutes with the rest of the country. This demonstrates that the state laws governing annexation provide Delaware’s municipalities with a lot of flexibility in terms of how the annexation process can be carried out, facilitating the need for a separate statistical analysis of municipal annexation statutes. This is followed by the results of the Wilcoxon Rank Sums tests that were carried out for ten of the most common statutes in Delaware municipal charters in order to determine which statutes significantly affected annexation activity in the state from 1981 to 2010. The statutes used in the Wilcoxon Rank Sums tests are divided into categories on two different occasions. First, they are divided into “facilitators” and “constraints” based on the classification system used by previous scholars and the Wilcoxon tests in the previous chapter. Second, they are divided into two categories based on whether they empower the annexing municipality or the affected residents. By doing this, it is revealed that annexation activity (frequency, areal extent, and average annexation extent) is impacted more by statutes that allow for more public involvement in the annexation process.

The ten statutes are then mapped in order to demonstrate how annexation statutes evolved among forty-seven of the state’s municipalities, illustrating the fact that more of these statutes were adopted by municipalities across the state as time went on. It should be noted that the City of Wilmington was not included in the statistical or geographic analysis for this chapter because Wilmington’s annexations are entirely regulated by state rather than municipal laws. In addition, the geographic distribution of the statutes found to be statistically significant is illustrated, showing that these statutes were most
commonly found in the southern portion of the state. The results of the statistical and geographic analysis indicate that annexation activity in Delaware is impacted by statutes that allow for more public involvement in the annexation process and not necessarily by whether a statute is considered a “facilitator” or “constraint”.

5.2 Demographic and Geographic Characteristics of Delaware

Before examining annexation activity in the municipalities of Delaware, it is important to understand the demographic characteristics of those municipalities and how they vary across the state. In particular, it is important to point out differences between the three counties in terms of population and municipality size. Given that there is an uneven distribution of population in Delaware, with the largest concentration in New Castle County in the north, it is important to think about how population density and political geography may play a role in Delaware’s annexation activity. As of 2010, New Castle County’s population exceeded 530,000 people, more than twice the number of the other two counties combined (Figure 5.1). In 2010, 13% of the county’s population was concentrated within the City of Wilmington, which had a population of 70,851 (U.S. Census, 2010). During the 1950s and 1960s, this part of New Castle County underwent a population explosion that saw rural out-migration and urban in-migration, likely an indication of the growth of the Boston-Washington metropolitan area. For the last four decades, however, “population turnaround”, was comprised of retirees, tourists, and immigrants attracted to the expansion of tourism and agro-processing in Sussex County (Downes, 1994).
Between 1970 and 2010, Sussex County’s population increased by 145%, followed by Kent's at 98% and New Castle's at 40%. Within the last decade, the population of Kent increased 28%, followed by Sussex at 26% and New Castle at just 8% (Chart 5.2). With this dramatic increase in population in Sussex County, it is possible that growth and development within the municipalities in the county may have encouraged annexation activity. By increasing the population and the amount of developed land within the municipalities, services could have been improved to meet the demand, causing people living in the fringe area to want to be annexed if their own services are not of similar quality.
Figure 5.2  Population Growth of Delaware Counties: 1970 – 2010

Businesses and residential developers in particular, could possibly see the benefits of being annexed into a municipality if their property is on the fringe, especially if the nearby municipality provides services (such as water and sewer) that the county does not provide or provides at a higher cost. There is also a clear distinction between counties in terms of where and how populated incorporated places (also known as “municipalities”) were as of 2010. According to the U.S. Census Bureau, an incorporated place is “established to provide governmental functions for a concentration of people…An incorporated place usually is a city, town, village, or borough” (U.S. Census Bureau, 2012, 7). This thesis will refer to incorporated places as “municipalities”. There are
twelve municipalities in New Castle County, nineteen in Kent County, and twenty-four in Sussex County. Smyrna is a municipality that straddles the political boundary between New Castle and Kent County, just as Milford straddles the boundary between Kent and Sussex Counties. While municipalities recognized by the State of Delaware are distributed among the state’s three counties, the more heavily-populated municipalities are located in the northern half of the state (Figure 5.3). Of the state’s 57 municipalities, only five have populations exceeding 10,000 residents in 2010 (Dover, Middletown, Newark, Smyrna, and Wilmington). The most populated municipality, located exclusively in Sussex County, is Seaford (population of 6,928), with Georgetown right behind (population of 6,422 in 2010).

So while New Castle County has a number of populous municipalities, Kent and Sussex Counties are dominated by small towns and cities. Because of this pattern of smaller towns and cities, any annexation act that takes place in Kent and Sussex County municipalities is more likely to gain notice among the local residents due to the small populations. So, perhaps due to public demand for greater participation, laws in these small towns may empower local residents rather than the local government. In a larger municipality, unless the annexation act encompasses a substantial amount of land, a smaller proportion of the population is directly affected by a single act and may not pressure the local government for greater decision making powers.
Figure 5.3  Population in Delaware Incorporated Municipalities: 2010
Source: U.S. Census Bureau (2010)
Perhaps the most interesting feature of Delaware’s geographic landscape is the proportion of the state’s total land area that lies outside of the boundaries of an incorporated municipality, and is thus under the jurisdiction of the county. As of the 2010 U.S. Census, the State of Delaware has a land area of 1948.54 square miles. Of that area, only 140.32 square miles or 7.2% is taken up by incorporated municipalities, leaving 1808.22 square miles of land or 92.8% that is unincorporated (U.S. Census Bureau, 2010). Dover is the largest municipality at 23.14 square miles, followed by Middletown at 11.6 square miles, and Wilmington at 10.9 miles. Of the state’s 57 municipalities, 24 have areas less than one square mile. Although incorporated municipalities make up less than 10% of the land area of Delaware, they also contain 28.41% of the state’s population. This results in a population density of 1818 people per square mile, while the population density of unincorporated areas is 355 people per square mile.

These patterns of relatively low levels of incorporated land (and large expanses of unincorporated land) could be due to a number of different factors, including:

1. Favorable development policies that permit building construction in unincorporated areas disconnected to municipal services. People who are retirees or low-income residents may prefer this situation where they would not have to pay for more in services than they need.

2. Little desire to annex areas that are uninhabitable, such as marshes and wetlands.

3. Protected lands, or land that cannot be annexed because it has been set aside for other purposes (e.g., parks, wildlife preserves etc.)
The higher population density in municipalities, compared with the unincorporated land, could indicate two things: either municipalities have the capacity to hold larger populations relative to their size than unincorporated areas, or that municipalities have benefits for residents that have attracted a larger population in comparison to unincorporated areas. Because of the taxes collected by property owners, municipalities are typically able to create their own emergency response forces, public utilities (such as water and sewer systems), as well as maintain trash collection and other services. Depending on the costs of services residents want and are willing to pay for, unincorporated areas may rely on basic and emergency services with fewer resources or not have the same access to public utilities in comparison to those in incorporated municipalities (Edwards, 2008). In New Castle County, the county has the ability to provide its residents with more services, given that its population is much larger than those of the other two counties and can generate more tax revenue. In Kent and Sussex Counties however, the county provides fewer of the aforementioned public utilities. This could compel residents to choose to live within the boundaries of a municipality rather than in unincorporated areas.

This arrangement of municipalities and unincorporated land also means that there could be a large amount of contiguous land that could be potentially available for some Delaware municipalities to annex, whether by the vote of a local government or at the request of a fringe property owner. Since it is state law for a municipality to only annex land that is contiguous to its current boundaries, a municipality that is not bordered by another municipality or water feature has the greatest opportunity to annex. As Figure
5.4 indicates, nearly all municipalities in Delaware are at least *partially* bordered by unincorporated land that falls within the state boundaries and therefore may have the opportunity to annex. Given a one mile buffer on that map, the majority of municipalities in theory have available adjacent land to annex. However, this does not take into account all of the land in Delaware that have been set aside for environmental protection or otherwise owned by the state were compiled. When this is taken into account, the amount of land that is *actually* available decreases considerably, as evidenced by Map 5.3, which shows protected land in Sussex County.

Between 1981 and 2010, annexation activity throughout much of Delaware increased rapidly, with a larger number of municipalities carrying out more annexation acts and annexing more land over time. During the 1980s, 23 municipalities in Delaware carried out 190 annexation acts that incorporated 6171.1 acres. In the 1990s, 27 municipalities carried out 202 annexation acts that annexed 6278.9 acres, an indication that more municipalities were annexing more land and at a greater frequency. In the 2000s, 33 municipalities carried out 394 acts (a 95% increase from the previous decade) that annexed 16069.2 acres, an increase in area of 155% in just one decade. Those 16069.2 acres (or 25.1 square miles) represented 1.37% of Delaware’s total land area, the highest percent annexed among all U.S. states between 2001 and 2010. So despite the fact that Delaware ranked 36th in the nation in annexation acts and 40th in acres between 2001 and 2010 (Table 5.2), the state annexed a lot of land relative to its size (U.S. Census Boundary and Annexation Survey, 2010).
Figure 5.4  Buffer Areas around Delaware Municipalities
Figure 5.5
Developed and Protected Lands in Sussex County, Delaware, 2008

Source: Urban Research and Development Corporation (2008)
5.3 State Annexation Law in Delaware

Before examining the role that municipal law in Delaware played in the annexation process, it is important to consider the state annexation laws, mainly to determine what statutes the state allows municipalities to decide to include. Annexation law in Delaware is contained in § 101 and § 101A of Title 22 in the Delaware Code. § 101 covers annexations by cities or towns, while § 101A covers annexation by municipalities with populations greater than 50,000. (Wilmington is the only municipality in the state with a population greater than 50,000 as of 2010. It is not being included in this study because Wilmington’s annexation processes are regulated by the state, not by the municipal government.)

The majority of this section will focus on § 101 as it regulates annexation for all municipalities. § 101 Delaware state annexation law as it is today has gone through seven revisions since it was first placed on the books in 1939. At that time, the sole annexation statute said that the State General Assembly could not enact a law extending the borders of an incorporated town or city until after a public referendum was held for the residents and property owners of the municipality (42 Del. Laws, c. 120, § 1, 1939). Thus in the early years in Delaware, the primary concern of the state government was ensuring a democratic process of implementation, leaving a great deal of the process up to the municipalities themselves. This statute was amended in 1965 to add that a second statute that said an annexation election can be eliminated if the land being annexed was already owned by the municipality (55 Del. Laws, c. 265, 1965). Other than an

An important addition was made to the Delaware state annexation laws in 1986 when § 101A was passed, creating a separate annexation process mediated by the state for municipalities with 50,000 or more residents. Wilmington is currently the only city in Delaware that reaches that population threshold (Del. Code tit. 22, § 101A). The increase of annexation acts (95%) and area annexed (155%) between 2001 and 2010, noted at the end of the previous section, correlates with a dramatic change in annexation law in Delaware during that time. On July 13, 2001, 73 Del. Laws, c. 186, § 10 deleted the entirety of § 101 and replaced it with the following statutes:

a. The annexation area(s) must be depicted as area(s) for future annexation on the municipality’s most recent comprehensive plan.

b. The annexing municipality must prepare a service plan that outlines how services will be provided to the newly annexed area(s), how much it will cost to provide those services, and the capacity of the municipality to provide those services.

c. When the area is annexed, it will be rezoned according to the zoning classifications set forward by the annexing municipality.

d. The municipality must notify the State of its intent to annex, notify other affected jurisdictions, conducted a public hearing, and allowed for a 30 day comment period before the annexation is made official.

e. The Advisory Council on Planning Coordination will deal with any disputes between jurisdictions regarding annexations (73 Del. Laws, c. 186, § 10).

These changes to the state annexation laws of Delaware could have been brought about by a recognition that the annexation process among municipalities needed to be more regulated. The changes imply that in the past, there had been complaints by property
owners that the annexing municipality had not provided promised services or that there was confusion on how to zone the annexed land. The addition of an Advisory Council on Planning Coordination likely meant that the state lacked the means to properly settle disputes between municipalities and property owners. The statute requiring the municipality to notify the State and all affected parties, as well as conduct a public hearing was meant to ensure that any potential problems would be resolved before the passage of an annexation act.

On January 10, 2002, an amendment was made that added a sixth section to § 101 that mandated that any annexation carried out must involve areas that are contiguous to the annexing municipality. The law defined “contiguous” as “that a part of the boundary of the parcel sought to be annexed by a municipal corporation is conterminous with a part of the boundary of the municipal corporation. Separation of the parcel to be annexed from the annexing municipal corporation by (i) a right of way for a highway, road railroad, canal or utility, or (ii) a body of water or watercourse, running parallel with and between the parcel sought to be annexed by the annexing municipality, shall not prevent annexation pursuant to this Section” (73 Del. Laws, c. 213, § 1). This statute was likely an attempt to prevent noncontiguous annexations from occurring, or to clarify the role that waterways and transportation networks played in determining what lands to annex. It could have also been put into law as a deterrent to non-contiguous annexation in which municipalities would bypass unincorporated land, creating annexed islands. A final amendment came in 2011 Advisory Council on Planning Coordination was renamed the Delaware Office of State Planning Coordination (78 Del. Laws, c. 92, § 25).
All of these new laws illustrate a shift in which stage of the annexation process was being regulated. The version of § 101 that existed before 2001 focused on ensuring that the public was able to participate in the annexation process through elections, which occurs at the end of the process. Starting in 2001, the focus shifted to ensuring that promised services could be provided, that the annexation would benefit both the annexed property owners and the municipality itself, and that discussion on the annexation was open to the public. § 101, or any other state statute in Delaware does not address how the annexation process can be initiated (i.e. through property owner initiation or government initiation), how it could be decided (i.e. referenda or local government vote), or how special circumstances can be addressed (i.e. special noncontiguous annexation or annexation due to health or safety reasons). This leaves a lot of room for municipalities in Delaware to determine how much of the annexation process is carried out, especially when compared with other states in the U.S.

As mentioned previously, not all municipalities in Delaware are governed by § 101 when annexations are carried out. § 101A of Title 22 is a section created for annexations in Delaware by municipalities with populations of 50,000 people or more (e.g. for Wilmington, the only city over 50,000). The law was passed in 1986 and requires a more detailed process for municipalities with 50,000 or more people. Any annexation must be initiated by a petition signed by the municipality’s legislative body, or 25% of the qualified voters in the proposed annexation area. The legislative body of the municipality then must enact an ordinance approving the proposed annexation after which the chief executive officer must approve it. The proposed annexation must then be approved via
ordinance by the legislative body and chief executive officer of the county in which the territory is located. Finally, a majority of the qualified voters in each parcel slated for annexation annexed must approve of the annexation (66 Del. Laws, c. 135, § 1). It should be noted that Delaware was represented in the national-level analysis by both § 101 and § 101A. Compared to the process laid out in § 101, § 101A requires more approval from both local governing bodies and the people that an annexation act would affect. Because of these extra steps, there is a greater likelihood of an annexation act being rejected, either by the county government, the city government or the affected property owners. Again, because this is a state law that regulates annexation activity in a municipality, Wilmington was not part of the statistical analysis on the potential effects of municipal statutes on annexation activity.

5.3.1 Delaware Comparison with Chapter 4 Analysis

Looking only at annexation laws in Delaware as the factor shaping the annexation process, this study now will compare the annexation activity undertaken in the state during two iterations from 1981 – 2010. Because of the changes made to the state laws in 2001, the two time periods will be from 1981 to 2001 and 2001 to 2010. This descriptive analysis will use the array of fifteen statutes used in the national-level analysis to determine which decisions on constructing the annexation process are left to the municipalities to make.
As shown in Table 5.1, Delaware state law, in either time frame, does not place many restrictions on the process that needs to be carried out in order to annex when compared to other states in the U.S. The only requirement used from 1981 to July of 2001 was holding an election among qualified voters to make any annexation official. How the annexation process was supposed to play out before the election seems to have been left up to the municipality itself. This suggests that the state was not particularly concerned with how municipalities carried out their annexations, nor were they particularly concerned with how the laws that regulated annexation facilitated or constrained annexation activity.

These laws shift dramatically in 2001 to create requirements regarding land use and planning that municipalities must follow. A municipality needs to make it clear which areas are being considered for annexation in their comprehensive plan. When the annexation process begins, the municipality needs to make sure that it can provide adequate services to the annexed area and that all affected parties are informed. A public hearing is also required, which makes the process more open to outside opinions and analysis.
Table 5.1 Statutes Included in Delaware Annexation Law

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<td>39</td>
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<td>Annexation Overseen by Judiciary Involved</td>
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<td>Annexation Preceded by Public Hearing</td>
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</tr>
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<td>Annexation of Unincorporated Islands Allowed</td>
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<td>23</td>
<td></td>
<td></td>
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<tr>
<td>Annexation of Municipal-Owned Land Allowed</td>
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<td>22</td>
<td>✓</td>
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<tr>
<td>Annexation Determined by Election</td>
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<td>Annexation Approved by County Governing Authority</td>
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<tr>
<td>Annexation Due to Health and/or Safety Hazards</td>
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<td>Annexation Initiated by Legislature</td>
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<td>6</td>
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Table 5.2  Annexation Activity During Two Time Frames of Delaware Annexation Law

<table>
<thead>
<tr>
<th></th>
<th>1981 - 2001 Yearly Average</th>
<th>2001 - 2010 Yearly Average</th>
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<tr>
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<td>Acres Annexed</td>
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<td>Acres Per Act</td>
<td>22.72</td>
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<td>1686.66</td>
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There is also a noticeable difference in annexation activity between the two different time frames. Table 5.2.2 details the annexation activity that occurred during each main state annexation law was on the books. The number of acts, the area annexed, and acres per act are divided by the number of years that each version was in place. According to these averaged measures, the second version (2001 – 2010) annexed 54% more frequently, 190% more land, and had an average annexation area that was 323% more than the first version (1981 – 2001).

On the surface, it appears that requiring public hearings, impact reports, and service plans in Delaware results in greater annexation activity. However, the changes in state law could have been a reaction to increased annexation in the 1990s compared with the 1980s rather than state law being the facilitator of even higher annexation rates in the 2000s. Seeing the increase in annexation activity in the state during the 1990s and anticipating further increases in the coming decades, state planners and politicians likely wanted to ensure a fair and equitable process in future annexations, particularly when it came to providing services to the newly annexed areas.
So comparing the annexation numbers to annexation law at the state level has created inconclusive outcomes, meaning that more in-depth research will be needed in the future to find out the reasons why these changes of state laws occurred.

What is more interesting is the amount of the annexation process that is left up to municipalities to decide on their own. As mentioned earlier, only two of the studied statutes from the national-level analysis were in effect in Delaware during the first time period while three were in the second one with many of the laws not on the books being ones commonly used throughout the U.S. During the 2001 – 2010 time period, the average number of states that enacted annexation laws that Delaware did not was twenty three. In particular, Delaware’s state annexation laws did not include the three most commonly used state statutes in the U.S.: “Local Resolution/Ordinance” (39 states), “Petition of Property Owners” (39 states), and “Annexation Overseen by Judiciary Involved” (36 states). This means that unlike many of the other states across the country, Delaware leaves the creation and enforcement of much of the annexation process up to the municipalities themselves.

How the annexation process is initiated, then, and how it is ultimately decided and carried out, is largely left up to the municipality itself and does not involve the state or the county. With all of that discretionary power to decide how the annexation process is carried out, what statutes do Delaware municipalities have in their municipal charters? Do they give more discretionary power to the local government or the citizens/residents of the affected municipality?
The next section looks at a selection of the most common municipal statutes in Delaware from 1981 to 2010 and assesses their impact on annexation activity.

### 5.4 Wilcoxon Rank Sums Results for Delaware Municipalities

This section covers the results of the Wilcoxon Rank Sums Tests carried out at the municipal-level scale for the ten most common statutes in Delaware municipal law to determine their possible effect on annexation activity. The objectives of this chapter are (1) describe ten statutes commonly used in Delaware at the municipal level, (2) provide the statistical results of the Wilcoxon Rank Sums tests carried out for each of the studied statutes, (3) analyze the results. As mentioned in Chapter 3, the statutes were separated into two categories, Constraints and Facilitators, using a classification system created by the author and influenced by both Facer II (2006) and Edwards (2011). In Chapter 4, the facilitating/constraining categorization of statutes was called into question by this research because the constraining statutes did not actually constrain. It would make sense to only apply the categorization based on discretionary power in this analysis. However, this analysis involves a different geographic scale from that used in previous studies and the Chapter 4 analysis. Therefore, it is worth using both the facilitating/constraining and discretionary power categorizations to study Delaware’s municipal annexation statutes.

This section begins with a description of each of the annexation statutes along with the statistical results from the Wilcoxon tests. The statutes in this section were ordered based on the level of statistical significance, from most significant to least. The section concludes
with a brief discussion of the results of the statistical analysis as well as the questions that are immediately raised by doing so. Like Facer II (2006) and Edwards (2011), this analysis demonstrates that facilitator statutes are likely to be positively associated with annexation activity. On the other hand, statutes designed to constrain annexation activity are not likely to have lower levels of annexation activity. These results seem to indicate that the classification system used by these researchers does not produce meaningful results. The same method of re-categorizing the statutes was then implemented, organizing the statutes into groups based on whether they empowered the annexing municipality or the affected residents/property owners. Statutes that empower local residents and property owners were found to be statistically significant facilitators of annexation activity more frequently than those that empowered the municipality. After analyzing the statutes from the customary facilitator/constraint categorization, the statutes will be re-categorized to look for correlations between discretionary power and annexation.

### 5.4.1 Statutes Designed to Constrain Annexation

As in the previous chapter, annexation statutes traditionally categorized as constraints were given this classification because it was presumed that they would create procedural or bureaucratic hurdles that would slow or stymy annexation. While these constraining statutes are typically mandated by the municipal government (and approved by the state government when the municipal charter is changed), it does not automatically follow that
those statutes will operate as envisioned. There are intervening factors that shape the process, in particular the degree of discretionary power used by different levels of political authority. Examples of statutes that give more power to a higher government include requiring Annexation Overseen by Judiciary, and having a state-run boundary agency oversee the annexation process. Some of the statutes that were placed in this category were used in previous studies on state-level annexation statutes as well as the Wilcoxon Rank Sums tests in the previous chapter. This section describes the four statutes typically categorized as annexation constraints and the results gathered from this analysis, presented in order of statistical significance for frequency, from most to least significant.
Table 5.3  The Effect of Municipal Statutes on Number Of Annexations

| Statute                                           | Mean: No | Mean: Yes | Z Score  | Prob > |Z| |
|---------------------------------------------------|----------|-----------|----------|---------|---|
| **Traditional Constraining Statutes**             |          |           |          |         |   |
| Annexation Committee                              | .553381  | .932419   | 3.04262  | .0023***|   |
| Annexation Preceded by Public Hearing              | .446626  | .966291   | 2.44409  | .0145** |   |
| Annexation via Petition of All Property Owners    | .739606  | .636245   | 1.39090  | .1643   |   |
| Annexation Decided By Special Election             | .401238  | .759496   | -        | .2145   |   |
| **Traditional Facilitating Statutes**             |          |           |          |         |   |
| Annexation via Petition of Fewer Than All Property Owners | .44567  | 1.00357   | 3.90970  | <.0001***|   |
| Annexation Expedited if Petition Presented with All Property Owners in Annexation Area | .54356  | 1.13115   | 3.88673  | .0001***|   |
| Annexation Determined By Local Government Resolution/Vote | .692351 | .861940   | 1.79109  | .0733*  |   |
| Annexation of State/Municipal Land Allowed        | .64033   | 1.05691   | 1.30642  | .1914   |   |
| Annexation Agreement                              | .59406   | 1.19313   | 1.06976  | .2847   |   |
| Annexation Initiated by Local Government          | .750421  | .690168   | 0.07301  | .9418   |   |

* Denotes Significance at p = 0.10
** Denotes Significance at p = 0.05
*** Denotes Significance at p = 0.01
Table 5.4  The Effect of Municipal Statutes on Total Acres Annexed

| Statute                                    | Mean: No | Mean: Yes | Z Score | Prob > |Z| |
|--------------------------------------------|----------|-----------|---------|---------|---|
| **Traditional Constraining Statutes**      |          |           |         |         |   |
| Annexation Committee                       | 29.0133  | 34.9823   | 3.07245 | .0021***|   |
| Annexation Preceded by Public Hearing      | 15.6430  | 46.4426   | -2.62944| .0084***|   |
| Annexation via Petition of All Property Owners | 25.3110  | 51.8027   | -.68153 | .4955   |   |
| Annexation Decided By Special Election     | 15.5657  | 33.8178   | -.93134 | .3517   |   |
| **Traditional Facilitating Statutes**      |          |           |         |         |   |
| Annexation via Petition of Fewer Than All Property Owners | 26.7943  | 36.6621   | 3.70180 | .0002***|   |
| Annexation Expedited if Petition Presented with All Property Owners in Annexation Area | 25.6751  | 45.8261   | 3.54939 | .0004***|   |
| Annexation Determined By Local Government Resolution/Vote | 30.8220  | 36.3098   | 1.75099 | .0799*  |   |
| Annexation of State/Municipal Land Allowed | 22.4292  | 73.2297   | 1.36760 | .1714   |   |
| Annexation Agreement                       | 20.0280  | 77.0567   | 1.07262 | .2834   |   |
| Annexation Initiated by Local Government   | 24.1380  | 41.9955   | -.18702 | .8516   |   |

* Denotes Significance at p = 0.10
** Denotes Significance at p = 0.05
*** Denotes Significance at p = 0.01
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<td>Annexation Expedited if Petition Presented with All Property Owners in Annexation Area</td>
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<td>-0.28270</td>
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* Denotes Significance at p = 0.10
** Denotes Significance at p = 0.05
*** Denotes Significance at p = 0.01
**Annexation Committee.** After an annexation petition has been presented, a town government often needs to evaluate whether a town could support the new territory. As mentioned in the section on state laws, an impact report or a service plan could be used to ensure that adequate services can be provided and that the financial and environmental impact of the annexation can be sustained. At the local level, many municipalities in Delaware evaluate the feasibility of annexations using annexation committees. These committees are usually comprised of members of the Town Council; these committees are charged with investigating the area proposed to be annexed to determine the impact that the annexation would have on the finances of both the town and the property owners. A report of the committee's findings and conclusions would then be presented to the Town Council along with a recommendation on whether or not the proposed annexation should be carried out. In the case of Milford (Kent/Sussex County), three members of the City Council and one member of the Planning Commission are selected for their annexation committee, which reports back with their findings no less than 90 days after their appointment by the mayor. If the report finds the annexation to be advantageous to the city, a public hearing is then conducted, along with a final review by the Planning Commission and the City Council (72 Del. Laws, c. 148, 1999).

Between 1981 and 2010, 38 versions of municipal charters in Delaware required annexation committees and all three measures of annexation activity were found to be statistically significant. Municipalities that formed annexation committees carried out 64% more annexations per year than those that did not (p = 0.0086). Municipalities with this statute also annexed 18% more acreage per year than those that did not (p = 0.0063).
However, the average number of acres annexed per act was 14% lower for municipalities that contained this statute compared to those that did not (p = 0.0043). What this means is that municipalities that utilize annexation committees during the annexation process carry out a larger number of smaller annexations, while municipalities that do not have annexation committees annex more land per act but less frequently.

Because annexation committees are formed mainly to investigate the advantages and disadvantages of a particular annexation act, their decision is likely to carry weight during the rest of the annexation process. In the case of municipalities that decide their annexations through a government vote, the recommendation from the annexation committee would certainly indicate that a portion of the governing body agrees on the feasibility of a particular annexation act. For municipalities that decide their annexations through public elections, the decision of the annexation committee indicates to the affected residents whether or not the annexation is beneficial to the municipality. If the annexation is found to be beneficial to the municipality, voters may be persuaded to vote in favor because the potential implications of the act were studied and verified. The presence of an annexation committee in these municipalities may also affect the type of property that is being annexed. It is possible that these committees deter the annexation of large businesses, apartment complexes, or undeveloped land, which generally cover a large amount of land. Instead, annexations of single family residential properties may be more common among these municipalities. Future research into the land use of the land annexed by municipalities with annexation committees in their charters would be needed to verify this.
**Annexation Preceded by Public Hearing.** As mentioned in the section on the annexation activity of states, public hearings are opportunities for local residents have input in the annexation process. These public hearings normally occur after a resolution has been passed by the local government suggesting the annexation act to the residents and before any final decision-making process (public referenda, council decision) occurs. Since 2001, the Delaware Code at the state level has mandated that a public hearing be conducted prior to any annexation in Delaware. But prior to that, a public hearing was not required, and even some municipalities since 2001 do not mention the use of a public hearing in their local charters. Between 1981 and 2010, 46 versions of municipal charters contained statutes requiring public hearing during the annexation process. Municipalities that mandated public hearings as a requirement in the annexation process had higher levels of annexation activity for all three annexation measures (frequency, areal extent, and average areal extent per act), and all three were found to be statistically significant. Municipalities that required public hearings annexed 116% more frequently than those that did not (p = 0.0388). The amount of land annexed by municipalities mandating public hearings was 196% larger than that of those that did not (p = 0.023). The average amount of land annexed per act was 90% larger for municipalities that utilized public hearings than those that do not (p = 0.0205).

These results could indicate that having a public hearing during the annexation process increases the likelihood of an annexation being passed. As described in Chapter 4, allowing the public to be involved in the annexation process better informs affected residents of the advantages and disadvantages of annexation. Armed with more
information, residents may be more inclined to vote in favor of an annexation at a public referenda. In addition, having a public hearing could also resolve disputes between property owners and the municipality, leading to a greater likelihood of the annexation act passing either a public referenda or government vote.

**Annexation Decided By Special Election.** Whether it involves the property owners looking to be annexed, the residents of the municipality involved, or both, elections at the municipal level are often used to determine the final outcome of a potential annexation. As mentioned in the section on state laws, these local elections are important for ensuring that the interests of all affected property owners and residents are protected from government or private interests. These elections are especially important in cases when a petition for annexation is signed by less than 100% of affected property owners. In Delaware, the use of public elections is very common, with 79 out of 86 versions of municipal charters in Delaware requiring an election to decide the outcome of a possible annexation in some form (in the case of petitions with all affected property owners, an expedited process is sometimes provided in which an election is not used to determine the outcome). Though municipalities with these statutes carried out more annexations and annexed more land overall than those that did not, they also annexed fewer acres per act than those that did not. Despite these differences, none of these measures achieved statistical significance.

**Annexation via Petition of all Property Owners.** In her analysis of the influence of state policy on annexation activity in large cities, Edwards (2011, 332) noted the potential for analyzing the nuances of annexation petitions at the state scale: “For example, annexation
by petition is used by nearly every state, but there are nuances that should also be considered, such as, is the petition required to be signed by all property owners in the area to be annexed, or by some fraction? This too could influence results of annexation activity”. In most cases throughout Delaware, municipal annexation laws permit property owners to initiate an annexation through a written petition (Delaware’s state annexation laws do not mention property owner petitions). However, the manner in which petitions can be collected and the process that follows differs from municipality to municipality. In some cases, annexation law may require a signed petition from all of the property owners in a given area of land. This is done to ensure that all property owners are in favor and to prevent any sort of involuntary annexation. As discussed later in this section, having all of the property owners involved can also streamline the process of annexation by removing debate or elections amongst the property owners. Between 1980 and 2010, 21 annexation sections in Delaware municipal laws required all affected property owners sign any annexation petition. On average, while municipalities with this statute annexed less frequently than those that did not, they also annexed more land overall and annexed more land per act. However, none of these measures were found to be statistically significant.

5.4.2 Statutes Designed to Facilitate Annexation

As in the previous chapter, annexation statutes that have been categorized as facilitators are normally designed to remove or bypass procedural hurdles, thereby increasing the
likelihood of an annexation being passed. While these facilitator statutes are mandated by the municipal government (and approved by the state government when the municipal charter is changed), the discretionary power in each statute could mean that the either the municipality or the affected residents/property owners could benefit from these statutes. Some of the statutes that were placed in this category were used in previous studies on state-level annexation statutes as well as the Wilcoxon Rank Sums tests in the previous chapter. This section describes the six statutes categorized as annexation constraints and the results gathered from this analysis. The statutes are in order of statistical significance for annexation frequency, from most significant to least. Following this section will be a brief discussion of the results of the municipal-level analysis.

Annexation via Petition of Fewer than all Property Owners. In some cases, a petition may be brought to the local government that does not have the signatures of 100% of the property owners. This is usually done to make annexation processes more streamlined by removing the requirement of getting all property owners to sign, especially if some of the property owners are absent. If there are disagreements between property owners over whether or not annexation is favored, the annexation process can provide a forum through which concerns can be addressed by government officials. Some municipalities set thresholds for the number of property owners needed on the petition. For example, in 1988, the Town of Clayton (Kent County) revised its municipal laws to require two-thirds of the property owners in an unincorporated territory sign any annexation petition (66 Del. Laws, c. 291, 1988). Between 1980 and 2010, 44 annexation sections in Delaware municipal laws permitted fewer than all property owners or less than 100% than all
property owners to be involved in an annexation petition. Two of the three measures of annexation activity were found to be higher for municipalities that included this statute and all three measures were found to be significant. Municipalities with this statute annexed nearly twice as frequently as those who did not ($p = 0.0005$). These municipalities annexed nearly seven more acres per year than those that did not ($p = 0.0009$). However, the average amount of land annexed per act was slightly larger for those municipalities that did not contain this statute ($p = 0.0034$).

Having this particular statute in a municipal charter removed one of the procedural barriers to annexation could result in a larger number of annexations being considered and therefore, a higher number of annexations passing. Because not all of the property owners for one area of land have to be part of an annexation petition, it is possible that larger areas of land are being put forward for annexation without all of the property owners initially being involved.

_Annexation Expedited if Petition Presented with ALL Property Owners in Annexation Area._ As mentioned previously, for some municipalities, annexation law provides an expedited process for petitions that are signed by all of the involved property owners. This kind of statute is used to encourage petitioners to involve all of the property owners in a given area and usually removes a certain part of the process, such as a public hearing or town-wide election. An expedited annexation process statute was only present in 26 of the 86 annexation sections of Delaware municipalities between 1980 and 2010, and yet all three measures of annexation activity were found to be significant. Municipalities that allowed for an expedited annexation process carried out over twice as many annexation
acts per year than those that did not ($p = 0.0003$). In addition, municipalities with this statute annexed nearly twice as much land per year than those that did not ($p = 0.0009$). On the other hand, the average amount of land annexed per act is nearly even for both municipalities that had this statute and those that did not ($p = 0.0044$).

While this statute would not be the reason that property owners would want to initiate an annexation, this statute removes some of the procedural barriers that stand in the way of an annexation being passed. Therefore, it would make sense that more annexations would pass if property owners were given this option. The presence of this statute in a municipality’s charter could indicate the local government’s willingness to be flexible with the annexation process and is therefore more resident-friendly.

**Annexation Determined by Local Government Resolution/Vote:** In contrast to annexations carried out by special election, municipalities can also decide the fate of annexations through a local government resolution or ordinance. Facer II (2006) and Edwards (2011) have noted that this statute was categorized as a facilitator because of the lower number of people that have to approve of the annexation in comparison with a public election. This action can be required by local law or presented as an option depending on preceding actions in the annexation process. For example, since 1985, the charter of the Town of Newport (New Castle County) has required that after a petition of the majority of property owners in the affected area is presented, a resolution shall be passed describing the territory to be annexed. After public discussion the Mayor and Commissioners may vote on the resolution and if it approved by three-fifths of the governing body, an ordinance is passed that annexes the territory to the town (65 Del.
Laws, c. 214, 1985). On the other hand, the charter of the Town of Dagsboro (Sussex County) has a separate process for annexations involving petitions. If the petition is signed by fewer than all of the involved property owners, an annexation committee is convened and a positive decision leads to a public hearing and special election to decide whether or not the annexation will be carried out. If a petition is signed by all of the involved property owners, an annexation committee is also convened. However, if the committee recommends going forward with the annexation, a resolution annexing the property to the town is passed with a two-third majority vote (68 Del. Laws, c. 168, 1991).

Between 1981 and 2010, twelve town charters allowed annexations to be determined by local government resolutions/ordinances and one annexation measure was found to be statistically significant. Municipalities that had this statute in their charters annexed 18% more land than those that did not (p = .0799). However, annexation frequency and average extent per act did not reach significance for these municipalities. Statistically, the amount of land annexed cannot be the result of a greater number of annexations or a smaller number of annexations with greater extent. Therefore, it is difficult to speculate the reason why this pattern has emerged. Perhaps the reason the measure has reached statistical significance could be that because of the smaller number of people that need to approve an annexation, more businesses, apartment complexes, or large tracts of undeveloped land could have been approved for annexation.

**Annexation of State/Municipal Land Allowed.** Land that is owned by the state (rather than just the county) can also be annexed into a municipality. These lands are usually
transportation networks (highways, roads, etc) or waterways like canals and ponds, but can also include fixed property. These actions could be carried out to provide access to noncontiguous lands that may want to be annexed in the future. Since 2003, the charter of the Town of Smyrna has had a statute describing the annexation of transportation networks and fixed property owned by the State of Delaware. Fixed property that is owned by the state is allowed to be annexed into the town without the state casting a vote in the required special election, provided that the state has been notified of the intent to annex and has not objected (74 Del Laws, c. 176, 2003).

Between 1981 and 2010, sixteen municipal charters have allowed for the annexation of state-owned property. Although municipalities with this statute annexed more frequently, annexed more land, annexed considerably more land per act than those that did not, only one measure obtained statistical significance. The average number of acres annexed per act was found to be 334% greater for municipalities with this statute than those that did not (p = 0.0797). By allowing for the opportunity for state and municipally-owned land to be annexed, it seems to have added a land designation to the list of appropriate lands to annex. It is possible that the municipalities with this statute have taken advantage of this by approving larger annexations.

**Annexation Agreement:** During the annexation process, a municipality can enter into an annexation agreement with a property owner that would provide said owner an incentive to become annexed to the municipality. The incentives usually revolve around relaxing zoning regulations or taxes for the annexed land. Although not mentioned by Delaware state law, some municipalities have had annexation agreements as part of their
annexation law. For example, Odessa (New Castle County) has had a section on annexation agreements since 1991 and some of the suggested incentives include subdivision approval, tax relief, public utilities, and improvements to nearby public property. Once the annexation has been made official, the agreement becomes “a material part of the annexation” and is observed for a maximum of seven years (68 Del. Laws, c. 141, 1991). Between 1981 and 2010, annexation agreements were mentioned in 18 iterations of annexation law. None of the annexation measures achieved a large enough difference between the averages, so they did not achieve statistical significance.

**Annexation Initiated by Local Government.** In many cases, the local government can have the option of recommending the annexation of a parcel of territory to the municipality. Often, this option is offered as an alternative to the residents providing a written petition asking for their property to be annexed, though sometimes it is the only way an annexation can be initiated. For example, since 1986, Bethany Beach has allowed the Town Council to adopt a resolution proposing the annexation of any territory contiguous to the town, provided that reasons are given for its annexation (65 Del. Laws, c. 295, 1986). 38 versions of municipal charters since 1981 have contained this statute and none of the measures obtained statistical significance.

### 5.4.3 Discussion of Wilcoxon Rank Sums Tests

Using Wilcoxon Rank Sums tests to examine the differences between municipalities with and without certain annexation statutes has provided a great first step toward
understanding how laws affect annexation activity in Delaware. This analysis of municipal level statutes highlights some interesting patterns that counteract the results from previous studies.

Two statutes involving property owner petitions, which have traditionally been designed to facilitate annexation, were statistically associated with higher levels of annexation activity among Delaware municipalities between 1981 and 2010. Municipalities with statutes permitting petitions involving fewer than all of the affected property owners annexed more frequently, annexed more land, and had larger average annexation acts than those that did not. The same holds true for municipalities that provided an expedited process for petitions that have all affected properties owners involved. While the other four facilitator statutes were not found to be statistically significant, they all scored higher in nearly every indicator; the exception being municipalities that had the local government initiate the process, which annexed more frequently than those that did not.

On the other hand, laws that were traditionally thought of as annexation constraints did not necessarily lead to a decrease in annexation activity. Two statutes were statistically associated with higher levels of annexation among Delaware municipalities between 1981 and 2010. Municipalities that had public hearings carried out 116% more acts, annexed 197% more land, and had 90% larger average annexations than those that did not. Municipalities that formed annexation committees during the annexation process carried out 68% more annexation acts and annexed 21% more land than those that did not. The average size of annexations for municipalities with annexation committees was
the only measure found to have a statistically lower measure of annexation activity in the constraint category.

The results from this study indicate that statutes that remove obstacles from the process of annexation actually increase annexation activity allows for annexation activity to increase, in line with the conclusions of Facer II. An annexation petition that has fewer than all of the affected property owners on it has one fewer requirement that it needs to fulfill, potentially allowing more annexation proposals to go to further in the process than before. Statutes that allow more public involvement and analysis, which had previously been considered annexation constraints, were found to be facilitators. Annexation committees provide opportunities for the advantages and disadvantages of an annexation to be presented by public officials, which may encourage local residents to form a more informed opinion. When a municipality holds a hearing, it could result in more public trust in the government as both people directly affected by an annexation at the general public feel that their opinions have been heard and their concerns addressed.

5.5 Re-Categorization of Municipal Annexation Statutes

This conclusion led to the realization that, much like the results of the state-level analysis in Chapter 4, the “constraints versus facilitators” classification scheme does not capture what is taking place. Therefore, the constraining/facilitating categorization may not be suitable for analyzing annexation statutes in municipal laws because few of the statutes actually constrained annexation activity. As was the case in Chapter 4, a new set of
categories was developed that focused less on the ease of annexation and more on the
discretionary power of different levels of authority. Specific statutes in the previous
analysis applied to the municipalities (i.e. “Annexation of State/Municipal Land
Allowed”), or property owners (i.e. “Annexation Decided by Special Election”). In each
of these cases, one player in the annexation process was being given more power over the
process than other players. So the question that (once again) arises becomes “does who is
given control by each statute make a noticeable difference in the annexation activity
(frequency, extent, average extent per act) in each municipality?”

To answer this question, the ten statutes used in the previous analysis were re-organized
into three separate categories depending on which player in the hierarchy of authority had
discretionary power. The categories were “Discretionary Power to the Municipality”,
and “Discretionary Power to the Property Owners/Developers”. The table with the
listings of the statutes, their p values for the three annexation measures, and whether or
not they resulted in more annexation is listed below. Following the table is an
explanation of what each category is, why certain statutes were placed in each category,
and how many of the annexation measures reached statistical significance in each
category? A brief discussion of the results follows.
Table 5.6  Annexation Statutes Organized by Discretionary Power of Stakeholders

<table>
<thead>
<tr>
<th>Statute According to Discretionary Powers</th>
<th>P Value: Acts</th>
<th>P Value: Extent</th>
<th>P Value: Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discretionary Power to the Municipality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annexation Determined by Local Government Resolution/Vote</td>
<td>.0733*</td>
<td>.0799*</td>
<td>.1095</td>
</tr>
<tr>
<td>Annexation via Petition of all Property Owners</td>
<td>.1643</td>
<td>.4955</td>
<td>.9156</td>
</tr>
<tr>
<td>Annexation of State/Municipal Land Allowed</td>
<td>.1914</td>
<td>.1714</td>
<td>.0577*</td>
</tr>
<tr>
<td>Annexation Initiated by Local Government</td>
<td>.9418</td>
<td>.8516</td>
<td>.7774</td>
</tr>
<tr>
<td>Discretionary Power to the Property Owners/Developers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annexation via Petition of Fewer than all Property Owners</td>
<td>&lt;.0001***</td>
<td>.0002***</td>
<td>.0009***</td>
</tr>
<tr>
<td>Annexation Expedited if Petition Presented with ALL Property Owners in Annexation Area</td>
<td>&lt;.0001***</td>
<td>.0004***</td>
<td>.0017***</td>
</tr>
<tr>
<td>Annexation Committee</td>
<td>.0023***</td>
<td>.0021***</td>
<td>.0012***</td>
</tr>
<tr>
<td>Annexation Preceded by Public Hearing</td>
<td>.0145**</td>
<td>.0084***</td>
<td>.006***</td>
</tr>
<tr>
<td>Annexation Decided By Special Election</td>
<td>.2145</td>
<td>.3517</td>
<td>.2088</td>
</tr>
<tr>
<td>Annexation Agreements</td>
<td>.2847</td>
<td>.2834</td>
<td>.1365</td>
</tr>
</tbody>
</table>

* Denotes Significance at p = 0.10  
** Denotes Significance at p = 0.05  
*** Denotes Significance at p = 0.01  
.000 Denotes a Significant P Value for an Increase in Annexation Activity
5.5.1 Discretionary Power to the Municipalities

Statutes that give municipalities the power to administer the annexation process (removing it from the state and individual property owners) included “Annexation Initiated by Local Government”, “Annexation Determined by Local Government Resolution/Vote” and “Annexation of State/Municipal Land”. In addition, this category included statutes that placed procedural hurdles for annexation petitioners. Therefore, “Annexation via Petition of All Property Owners” was also added to this category, resulting in there being four statutes in this category. Since four statutes were placed in this category and three annexation measures were used, there were twelve p values generated. Of those twelve p values, three (25%) reached significance; one for annexation frequency, one for annexation extent.

5.5.2 Discretionary Power to the Property Owners/Developers

Statutes permitting affected property owners or developers to participate in the annexation process include: Annexation via Petition of Fewer than all Property Owners, Annexation Expedited if Petition Presented with ALL Property Owners in Annexation Area, Annexation Preceded by Public Hearing, Annexation Decided by Special Election and Annexation Agreements. Each of these five statutes remove power from the state and municipality to give discretionary power to local property owners or developers. In addition, Annexation Committee was added to this category. By requiring the government to perform an analysis that is later released to the public, residents would be
better informed on the annexation during the rest of the process. It is worth noting that all of the municipalities that required the formation of annexation committees also required that special elections be held.

Since six statutes were placed in this category and three annexation measures were used, there were eighteen p values generated. Of those eighteen p values, twelve (66%) reached significance; four for annexation frequency, four for annexation extent, and four for the average extent of each act. Four statutes in this category had statistically significant p values in each of the three annexation measures: (1) Annexation via Petition of Fewer than all Property Owners, (2) Annexation Expedited if Petition Presented with ALL Property Owners in Annexation Area, (3) Annexation Committee, and (4) Annexation Preceded by Public Hearing.

5.5.3 Overall Observations

The re-categorization of these statutes according to where discretionary power resides suggests that statutes that empower the affected residents/property owners affect annexation activity more frequently than those that empower the municipality. This could mean that when the public is informed of the details and implications of an annexation act, they are more likely to approve of the act. Out of a possible 89 versions of municipal charters, 78 require that annexations be decided via special election, meaning that public opinion of the annexation needs to be positive in order for the annexation to pass. These results could also be indicating the opinion of the
municipalities in Delaware toward annexation. Given that eleven of the twelve p values calculated for the “Discretionary Power to the Property Owners/Developers” category facilitated annexation, the municipalities with these statutes could be encouraging annexation by making the process more easy and transparent to residents. This is in contrast to the conclusions of Carr and Feiock (2001) and Facer II (2006) in which both believed that empowering the local government was what facilitated annexation and that public engagement constrained annexation activity. While previous studies generated inconclusive results, this results of this categorization seemed to produce noticeable patterns that led to more meaningful conclusions.

While this analysis has been an instructive step, this analysis only scratches the surface when it comes to understanding the effects of municipal laws on annexation rates in Delaware. To better understand this effect, it is useful to look at the geographic distribution of municipal annexation statutes and see how they change over time in comparison with annexation activity. The next section will display and analyze those patterns.

5.6 Geographic Analysis of Results

While the statistical analysis of annexation activity was an effective introduction to the effect of municipal laws on annexation activity in Delaware, it did not display the geographic variation of that information. This section of the thesis examines the geographic patterns of annexation laws throughout Delaware from 1981 to 2010 and
compares those patterns to annexation activity during that same time period. It also
examines where statutes that were found to be significant were located during this time
period.

5.6.1 Evolution of Annexation Laws

To display and analyze the location of annexation statutes throughout Delaware, four
maps were created for the years 1981, 1990, 2000, and 2010. These maps used pie-charts
to display which of the eleven statutes used in this study each municipality had during
that particular year. Municipalities with none of the statutes were not represented in
these maps. Figures 5.4.1 (1981), 5.4.2 (1990), 5.4.3 (2000), and 5.4.4 (2010) display the
maps that were created for this analysis. As the maps illustrate, municipalities across the
state adopted more and more of the statutes, with 32 municipalities having at least one of
the statutes on their books in 1981, 39 in 1990, 46 in 2000, and 47 in 2010. Twenty of
the state’s municipalities that had at least one of the statutes in 1981 were located in
Sussex County, with six each located in New Castle and Kent Counties. By 2010, nine
more municipalities in Kent County had at least one of the statutes, the highest increase
in the state over that time.
Figure 5.8  Annexation Statutes in Delaware Municipalities, 2000

Figure 5.9  Annexation Statutes in Delaware Municipalities, 2010
The state’s municipalities also added statutes to their charters between 1981 and 2010, with several increasing from two to six statutes during that time. Just by looking at the visuals, one can see that Kent and Sussex Counties had a high concentration of municipalities that added more and more statutes to their annexation process of the studied statutes. Central and Coastal Sussex County and Central Kent County had the highest concentrations of statute variety. Interestingly, municipalities in New Castle County did not follow this trend. Places such as Newark, Elsmere, Newport, and Delaware City retained the same number of statutes during the course of the study period. It is not known why municipalities in New Castle County relied on a fairly set number of statutes to handle annexations in that time frame.

5.6.2 Significant Annexation Laws

It is also important to note the geographic distribution of municipalities that had the four statutes found to be statistically significant in all three measures of annexation activity. The four statutes found to statistically affect annexation in Delaware municipalities were (1) Annexation via Petition of Fewer than all Property Owners, (2) Annexation Expedited if Petition Presented with ALL Property Owners in Annexation Area, (3) Annexation Preceded by Public Hearing, and (4) Annexation Committee. In 1981, all but four of the nineteen municipalities with at least one of the statistically significant statutes were in Sussex County (three were in New Castle County and one in Kent County).
Figure 5.10  Significant Annexation Statutes in Delaware Municipalities, 1981

Figure 5.11  Significant Annexation Statutes in Delaware Municipalities, 1990
Figure 5.12  Significant Annexation Statutes in Delaware Municipalities, 2000

Figure 5.13  Significant Annexation Statutes in Delaware Municipalities, 2010
Between 1981 and 2010, more and more municipalities added at least one of the significant statutes to their laws, with the greatest increase occurring in Kent County. There was also an increase in the number of municipalities using more than one of those significant statutes, from ten in 1981 to twenty-one in 2010. Again, the municipalities that used these statutes most frequently were predominantly located in Sussex County.

There are also concentrations of particular statutes in Delaware, with two main patterns standing out. The coastal region of Sussex County has a high concentration of municipalities that only had a statute requiring a public hearing, with the pattern becoming evident starting in 1991. In contrast, the northern portion of the state, New Castle County in particular, had a high concentration of municipalities that only had a statute allowing fewer than all affected property owners to sign an annexation petition. So in some cases, the statutes put in annexation laws correlated with geographic concentrations. A noticeable geographic pattern also emerges when looking those municipalities using all four significant annex statutes. Seventeen of these municipalities had all four significant statutes at some point from 1981 to 2010, with fifteen having all four in 2010. Ten of those municipalities were located in Sussex County in 2010, four in Kent County, and two in New Castle County.

The maps displayed in this section were compared with maps of annexation activity (acts carried out and acres annexed) for Delaware municipalities between 1981 and 2010. Although four statutes were found to be statistically significant facilitators of annexation activity, no noticeable geographic correlations were found (annexation activity maps for Delaware during the study period can be found in the appendix of this thesis).
To better understand the effect of the most significant four statutes on annexation activity, a Wilcoxon Rank Sum analysis was carried out to see if municipalities with all four of the annexation statutes annex more frequently than those that did not. Between 1981 and 2010, twenty-four municipal charter iterations of seventeen municipalities in Delaware contained all four of the statutes found to be statistically significant in the previous chapter. The results of the analysis can be seen in Table 5.7. Municipal charters that had all four of the statistically significant annexed twice as frequently (p = .0002) and 49% more land (p = .001) than those that did not. However, municipalities that did not have all four of these statutes had larger average annexations than those that did.

Table 5.7 Results of Wilcoxon Rank Sums Test: Effect of Having All Four Significant Statutes on Annexation Activity

<table>
<thead>
<tr>
<th>Statute</th>
<th>Mean: No</th>
<th>Mean: Yes</th>
<th>Z Score</th>
<th>Prob &gt;</th>
<th>Z</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Acts</td>
<td>.56044</td>
<td>1.13442</td>
<td>3.66791</td>
<td>.0002***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area Annexed</td>
<td>27.8700</td>
<td>41.5606</td>
<td>3.27961</td>
<td>.0010***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Size of Annexation</td>
<td>4.14116</td>
<td>2.52695</td>
<td>2.84491</td>
<td>.0044**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Denotes Significance at p = 0.10
** Denotes Significance at p = 0.05
*** Denotes Significance at p = 0.01

The statistical and geographic analyses not only revealed a number of statutes that are annexation facilitators, but the distribution and variation of those statutes across Delaware. It also facilitated a discussion of how certain laws could potentially influence annexation. However, the processes behind these results are not yet known. The scale of
this study is too large to appreciate the intricate factors that lead to individual annexations at the municipal level, such as the type of government, the actions of individual players in the process, and the reasons for carrying out the annexation. In order to truly understand the processes behind the results given in this analysis, it would require an in-depth look at each municipality’s laws and how they were carried out in specific examples. The final chapter is an individual-level case study of Georgetown, a small town in southern Delaware. The focus is on one particular annexation act that doubled the area of the town as well as the size of the town’s population. In this case study, the roles of Georgetown’s municipal laws as well as factors not previously considered in this study are examined.
Chapter 6
THE LARGE GEORGETOWN ANNEXATION OF 1989

6.1 Introduction to the Case Study

This final exercise brings the study down to the town scale where the factors leading to annexation are revealed. The analyses in Chapters 4 and 5 only looked at annexation through a very broad lens and could not capture some of the key aspects of the process, such as the motivations, the stakeholders involved, and the type of government. This case study will demonstrate how discretionary power given to residents/property owners affected the outcome of the large Georgetown annexation of 1989. The laws in place in 1989 gave more power to residents, leading to the local government being very transparent with information during the process.

The case study starts with a look at the town’s history and how three decades of relatively little change may have led to a surge of annexation acts in the latter half of the 1980s. Then, it will look at the annexations that took place in Delaware during its recent history, looking more specifically at the acts carried out from 1986 to 1989. The case study then shifts to the process of how a particularly large annexation act was carried out in 1989. This chapter will then lay out the context for the annexation being carried out and how the municipal laws may or may not have affected the annexation’s outcome.
The chapter concludes with a discussion of how the case study of Georgetown compares with the patterns observed in previous chapters.

6.2 Introduction to Georgetown

Georgetown is a small, rural town centrally located in the southern most county in Delaware. Its population in 2010 was 6,422 as of the 2010 U.S. Census (U.S. Census, 2010). While the town only has an area of 5.043 square miles, it’s large enough to be the third largest municipality in Sussex County. The town also acts as the county seat for Sussex County, which means that the county’s courthouses and governing council (which has jurisdiction over the county’s unincorporated areas) are clustered here. The population of Georgetown in 2010 is ethnically and socioeconomically diverse, with Hispanics making up 47.8%, Whites 35.3%, and African-Americans 14.5% (U.S. Census, 2010).

Georgetown’s land use is also very diverse, starting with its town center, known as The Circle, which is mainly surrounded by areas designated as Historic (see Map 6.3.1). More than half of the land within the town’s border is zoned as Residential with pockets of multi-family housing located on the outskirts. Georgetown’s business sector is split between the center of town (Urban/Neighborhood Business) and along the U.S. Route 113 corridor (Highway Commercial). What is interesting about this land arrangement is that much of Georgetown’s current Highway Commercial and Light Industrial areas were
not within the boundaries of the town until the late 1980s and early 1990s, before Georgetown began expanding for the first time in the twentieth century.

Figure 6.1 2015 Boundaries of Georgetown, Delaware
Source: Google Maps (2015)
Figure 6.2  Zoning Map of Georgetown, September 2014.
Source: Davis, Bowen, and Friedel, Inc.
6.3 History of Georgetown, Delaware 1791 - 1989

The factors leading to the dramatic annexation event of 1989 that incorporated 1000 acres to the town may be better understood against a historical background of the town and its place in Sussex County history. In contrast to towns that were established to perform an economic or transportation function due to their economic or transportation function, Georgetown was established due to its political function. In response to complaints that the county seat should not be located on eastern boundary, in the coastal community of Lewes, Georgetown was designed to be the administrative center of the county. In the first survey of Georgetown, some of its most familiar features of today were already established, such as the square where “The Circle” currently sits and spaces for the courthouse and public offices in the square (Wade, 1975).

Figure 6.3 1792 Plot Survey of Georgetown (Wade, 1975, 8)
As the town grew in the early 19th century, it drew in a new population of county officials, as well as tanners, carpenters, and other tradesmen that would enable Georgetown to grow, prosper and support the type of upwardly mobile professional class it aspired to be. Thus Georgetown was early-identified as one of the more "upper class" settlements in downstate Delaware. 80 miles from Wilmington and Washington D.C. where businesses catered to urban elites, Georgetown leaders quickly looked for ways to bring industries such as tanneries, carpenters, brick-makers and blacksmiths to town as well as businesses that catered to the movers and shakers in the community, businesses such as hat makers, carriage makers and a local bank (Wade, 1975, 14).

During the mid-19th century, the development of Sussex County’s railroad systems was able to further break Georgetown's spatial isolation within Sussex County and Delmarva Peninsula. Local farmers, merchants, and manufacturers were now able to ship their goods to the northern and southern markets. Improvements in transportation also enabled Sussex County to become an important area for food processing, an economic development that attracted a more working class population in the mid-1800s. Wade (1975) argues that the increase in Georgetown’s population from 553 to 710 between 1860 and 1870 was partly due to the canneries that located there. Food processing plants began to prosper and with it came more workers from outside Georgetown, which was a primary reason for the town’s population increasing from 553 in 1860 to 710 in 1870 (Wade, 1975, 35). This lessening geographic isolation not only introduced outside residents to the town, but also made the town an appealing location for new industries.
From the early 1880s to the 1940s, then, Georgetown was characterized by urbanization and transportation developments that reinforced the town's sense of its important central location and important administrative and social identity. The town's special claim to fame was put to the test, however, when in 1883 the C.H. Treat Manufacturing Company established itself in Georgetown, brought additional laborers to the town and created the town's first need to expand its housing supply. Six years later, unable to keep the business afloat and possibly the target of the town people's unhappiness about the influx of new laborers, town leaders forced Treat to close his business and leave (Wade, 1975).

According to local historian David Wade (1975, 56) "By rejecting the opportunity to become a leading industrial site, the village indicated its inclination to retain its identity as county seat and service center for the surrounding agricultural area.” Though the Treat Manufacturing Company left Georgetown, the ethnically and socioeconomically differentiated labor pool of Georgetown became a part of the town as the town's pop doubled, from 710 in 1880 to 1600 in 1886 (Scharf, 1888). These working class families largely lived in the neighborhood of Kimmeytown (Wade, 1975, 56).
6.3.1 Change and Development in the 20th Century to 1985

In the 20th century, advancements in transportation led to changes in Georgetown’s economic development. The creation of roads and highways for automobiles in Sussex County resulted in the gradual decline of Georgetown’s railroads. But even so, Georgetown retained its role as county seat and commercial hub to the residents of the town and nearby farming families who often sold their produce in Georgetown (Wade, 1975). Between 1900 and 1950, Georgetown developed itself as the commercial center of central Sussex County while also maintaining its role as the political center for the
entire county. According to Wade (1975, 73), within a two block area from the Circle were many viable commercial establishments in 1948, such as clothing stores, restaurants, grocery stores and other businesses. In addition, Wade notes that Georgetown gained a reputation as a town where farmers retired during the early 1900s, with the percentage of residents above the age of 60 increasing from 7.8% in 1900 to 14.5% in 1920.

Starting in the 1960s, processes occurring in and around Georgetown began to change the town’s economics. The 1960s and 1970s also saw the opening of several shopping centers, malls, and other businesses in Sussex County within driving distance of Georgetown, especially on the coast, in Lewes and Rehoboth Beach. This added competition from the coast led to a decline in retailing in Georgetown. As this happened, many of the earlier social and economic institutions, such as the general store, that developed around small town life were disappearing. Meanwhile, along Route 113 outside of the western border of Georgetown, national grocery stores such as Acme and Safeway began to spring up, again pulling customers away from the established stores in downtown Georgetown and contributing to the decline of commerce in central Georgetown. In addition, new developments such as the Arrow Safety Device Company (which produces automotive parts) the Dresco Incorporated women’s clothing manufacturing center, and a new industrial park were built outside of the town boundary (Wade, 1975).

In the 1960s, Georgetown underwent additional changes that put pressure on the town's footprint, infrastructure and ability to control growth. As the county seat, the town
became the location of several government-supported institutions and agencies, exemplified by the opening of Delaware Technical and Community College in 1967 and Sussex County Vocational and Technical Center in 1961. Some of the other government agencies at the time included a State Police station, the Motor Vehicle Bureau, the Division of Social Services, the State Tax Department, the Sussex Correctional Institute and the Hospital for the Mentally Disabled (Wade, 1975, 80). The County Courthouse and Chancery remained largely important in Georgetown’s historic center with over 50 lawyers having offices in town. Some of these agencies were located within the town while others would be annexed into the town in the 1980s.

While these agencies provided a large number of jobs for Georgetown residents and brought business to area, the concentration of nontaxable government property in Georgetown contributed to the town’s low tax base. There was also a lack of industry within the town’s boundary that could contribute to the tax base. “Ever since Charles Treat’s unsuccessful attempt to industrialize Georgetown in the late 19th century, there has been a certain reticence to encourage industrial development” (Wade, 1975, 82). Without a bustling industrial base from which to draw on, this left the town’s small businesses, its few manufacturing firms, and private residents on the hook for providing taxes. In addition, the residents of Georgetown historically had been opposed to any increases in taxes and this trend continued in the 1960s and 1970s (Kujala, 2014; Booth, 2014). Consequently, public services in Georgetown were limited, with some outdated services such as water and sewer being cited as prime examples.
The shrinking tax base that Georgetown experienced in the mid-twentieth century was compounded by a reluctance to expand the town’s boundaries. As seen in the 1939 Sanborn Fire Insurance Map (Figure 6.5), the original circular boundary defined Georgetown geographically and symbolically. In the 1940s and 50s residential infill on the western side of town, filled in the space, and for the next few decades they did not alter the configuration. The circular boundary was also a source of pride to many of the town’s longtime residents, who saw it as part of their identity in Sussex County (Booth, 2013). Consequently, the circular border was not expanded at any time between 1939 and 1986. This meant that businesses and developments directly outside of the boundary were not added to the town’s tax base. When the circular boundary of the town was finally "broken" by a 50 acre annexation in October 1986, (the first recorded annexation since the U.S. Census began keeping track of annexations in 1970), some residents lamented it. One resident wrote to the Town Council saying that he opposed the annexation “because of the destruction of the geometrical symmetry of the Town” (Hickman, 1986).

Once the circular boundary of the town was broken, however, a flood of additional annexations occurred, as seen in Figure 6.6. Between October of 1986 and May of 1989, Georgetown carried out seven annexation acts totaling 150.5 acres. Three apartment complexes, a housing development, and a shopping plaza were among the properties annexed into the town during that time. In most of those cases, the property owners wanted to be hooked up to the town's municipal services, such as water and sewer, rather than rely on septic tanks which were the rule outside of town. In July of 1989,
Georgetown carried out the largest annexation act in Sussex County history and the second largest in Delaware since 1970, annexing 1000 acres into the town boundaries. As will be covered in greater detail later in this case study, the annexation was carried out as a way of improving and expanding the local sewer system and to facilitate greater economic growth within Georgetown.

Figure 6.5 1939 Sanborn Map of Georgetown, Delaware
Source: Sanborn Mapping Services (1939)
Figure 6.6  Map of Parcels Annexed into Georgetown Between October 1986 and March, 1989
Because of the large 1989 annexation, the area of Georgetown increased from 1.02 square miles to 2.58 square miles, an increase of 152% (U.S. Census Bureau, 1990). While the exact population change is not known, the U.S. Census estimated that the 1988 population was 2,160 (Sussex Countian, December 6, 1989, 1). That number increased to 3,372 in 1990, an increase of 1,212 people or 56% (U.S. Census Bureau, 1990).

Between 1990 and 2010, Georgetown annexed even more land, as the boundary eventually reached its current position. These two decades witnessed a total of twenty-eight annexation acts, 1,160.6 acres or an average of 41.45 acres annexed per act. Though none of the annexation acts were nearly as large as the one carried out in July of 1989, several encompassed over a hundred acres. A decade-by-decade comparison of annexation activity shows that although the number of annexation acts carried out in Georgetown increased between 1981 and 2010, the number of acres annexed decreased (Figure 6.6). A complete listing of all annexation acts in Georgetown from 1981 – 2010 can be found in the index of this thesis. Due to a lack of information on the placement of several of these annexations, an accurate map could not be produced for the entire time period.
6.4 Georgetown’s Annexation Laws

Before examining the process of annexation through the case study of the large annexation of 1989, it is important to understand the municipal laws that governed Georgetown and how they changed over time. Between 1940 and 2010, laws regarding annexation in Georgetown’s charter changed three times, with another iteration being created in 2013 that is still in effect today. The full text of each of these iterations can be found in the index of this thesis, but in this section a brief overview will be given.

Delaware state law at the time allowed municipalities more flexibility when it came to creating and enforcing their annexation laws. As discussed in Chapter 5.3, the only law on the books between 1939 and 2001 was the requirement that an election be carried out to vote on the annexation, and these requirements were only required for annexations.

Figure 6.7  Annexation Activity in Georgetown, 1981 – 2010
carried out by the state and not by the municipality (42 Del. Laws, c. 120, § 1, 1939). This meant that state law was largely a non-factor in any annexation that Georgetown (or any municipality) carried out until 2001, when the laws were changed to require impact reports, service plans, and public hearings (73 Del. Laws, c. 186, § 10). Thus the formation of the annexation process in Georgetown was largely in the hands of the municipal government itself.

In 1941 the municipal charter was revised and consolidated to include a section on the procedure for altering the boundaries of the town. In this version, annexation required that the town council first propose a resolution extending the boundary to the town, and then put that resolution to a public vote (43 Del. Laws, c. 166, 1941). This iteration of the law would stay in place in the Georgetown municipal charter for 45 years, until 1986. This iteration, because the town council initiated the process, gave more discretionary power to the municipality.

On March 12, 1986, a new municipal charter was passed by the Georgetown Town Council and passed to the Delaware State Legislature where it was approved on June 4, 1986. Under this new charter, the process of carrying out an annexation became more complex, but it also allowed for more property owner participation in the process. A petition of property owners could be presented to the Town Council and the process would be different depending on whether or not all of the affected property owners signed the petition. If all of the property owners signed the petition, a three-person annexation committee would be formed and tasked with determining the advantages and disadvantages of the annexation for the town and property owners. If the annexation was
deemed advantageous, a resolution passed by a two-thirds majority of the elected members of the Town Council the property could be annexed to the town. If the annexation was deemed disadvantageous to either the town or property owners, the annexation could proceed as if the petition had fewer than all of the affected property owners. In this situation, discretionary power is shared between the property owners and the Town Council, though the Town Council ultimately approved the annexation.

For petitions that have signatures from fewer than all of the affected property owners, an annexation committee was formed to determine whether or not the annexation is advantageous to the town and property owners. A public hearing was then scheduled if the annexation was found advantageous. Following the public hearing, a special election was scheduled for at least thirty days after the hearing in which every Georgetown property owner and every property owner affected by the annexation was allowed to vote. In order for an annexation to pass, a majority of votes cast from the Georgetown property owners and from the territory to be annexed must have been cast in favor of the annexation (Delaware Code, 1986). On July 6, 1989, the section of the Georgetown municipal charter was changed to extend the effective date of an annexation from ninety days to one year. In this situation, more of the discretionary power was in the hands of property owners and residents because they could initiate annexations as well as decide them through elections.

The laws regarding annexation in Georgetown’s municipal charters involve many of the statutes used in the Wilcoxon Rank Sums test from the previous chapter. Table 6.1
shows how each iteration of annexation law in Georgetown fits the criteria used for the Wilcoxon Rank Sums tests in Chapter 5. Both the second and third iterations contain the four statutes found to be statistically significant facilitators of annexation activity, an attribute that led to higher numbers of annexation acts and acres annexed in the statistical analysis section. As discussed in Chapter 5, those statutes (allowing fewer than all property owners to sign a petition, providing an expedited process if all property owners sign, requiring a public hearing, and forming an annexation committee) both remove obstacles in the annexation process and facilitate the involvement of more property owners within the town. For annexations that require a public hearing (when fewer than all property owners sign the petition), it can result in more people having their voices heard and having the opportunity to hear the arguments for and against an annexation.

What is interesting about the second and third iterations is the fact that even when an annexation may not be deemed advantageous by an annexation committee, the laws seem to have built-in ways for those annexations to remain on the table for consideration. For annexations generated by petitions coming from all affected property owners, rejection of the petition often does not mean that the annexation is impossible; rather there is a mechanism that gives the petition a second chance by following the protocol for petitions with fewer than all of the property owners’ signatures.
Table 6.1  Georgetown Charter Iterations Regarding Annexation Procedures

<table>
<thead>
<tr>
<th>Iteration</th>
<th>First</th>
<th>Second</th>
<th>Third</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Year</td>
<td>1941</td>
<td>1986</td>
<td>1989</td>
</tr>
<tr>
<td>End Year</td>
<td>1986</td>
<td>1989</td>
<td>2010</td>
</tr>
<tr>
<td>Number of Acts</td>
<td>0</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>Acres Annexed</td>
<td>0</td>
<td>150.5</td>
<td>2106.9</td>
</tr>
<tr>
<td>Average Area Annexed Per Act</td>
<td>0</td>
<td>21.5</td>
<td>60.20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Annexation Statute</th>
<th>First</th>
<th>Second</th>
<th>Third</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annexation Initiated by Local Government</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annexation via Petition of all Property Owners</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annexation via Petition of Fewer than all Property Owners</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Annexation Expedited if Petition Presented with ALL Property Owners in Annexation Area</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Annexation Preceded by Public Hearing</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Annexation Committee</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Annexation Decided By Special Election</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Annexation Agreement</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Annexation Determined By Local Government Resolution/Vote</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annexation of State/Municipal Land Allowed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: U.S. Census Boundary and Annexation Survey, 43 Del. Laws, c. 166 (1941); 43 Del. Laws, c. 166 (1941); 65 Del. Laws, c. 276 (1986)

For petitions with fewer than all affected property owners, a disadvantageous decision can result in a resolution being voted on by the Town Council on whether further consider the annexation. With so many opportunities for an annexation to continue through the process, the 1986 changes to the charter seem to have shifted more discretionary power to the residents and property owners.

Interestingly, many of the municipalities in Sussex County had very similar annexations laws to Georgetown in their charters. In fact, Georgetown may have found inspiration for
its annexation laws from other municipalities in the county. Interestingly, many of the municipalities in Sussex County had very similar annexations laws to Georgetown in their charters. In fact, Georgetown may have found inspiration for its annexation laws from other municipalities in the county. This is evident in the data used in the municipal-level annexation analysis in Chapter 5. The version of annexation law that Georgetown put in its charter in 1986 had five of the studied statutes: (1) *Annexation via Petition of Fewer than all Property Owners*, (2) *Annexation Expedited if Petition Presented with All Property Owners in Annexation Area*, (3) *Annexation Preceded by Public Hearing*, (4) *Annexation Committee*, and (5) *Annexation Decided by Special Election*. Prior to 1986, five other municipalities in the area had the same combination of statutes in their charters: Laurel (enacted in 1983), Milford (enacted in 1977), Milton (enacted in 1978), Millsboro (enacted in 1976), and Selbyville (enacted in 1973). In fact, much of the written language in these charters with regards to annexation is very similar to that of Georgetown’s 1986 version, suggesting that Georgetown borrowed heavily from its neighbors. Between 1980 and 1986, Milford, Millsboro, and Selbyville each carried out at least five annexation acts. The Georgetown government, wanting to implement laws that made the annexation process easier for petitioners, likely looked to the language used in the charters of these municipalities.

Now that both the municipal and state laws have been addressed for 1989, the study will now examine the origins of and the process of carrying out the large Georgetown Annexation of 1989.
6.5 The Large Georgetown Annexation of 1989

6.5.1 Motivations for Annexation

The idea of carrying out a large annexation act in Georgetown dates back to 1985 and has its origins in the desire to expand and develop the town and solve the problem of an underperforming sewage system. In a Town Council meeting held on September 11, 1985, Mayor Layton Johnson brought up the possibility of expanding the town limits from a half mile to a mile from the town center, thus expanding the town's footprint without altering its unique circular shape. The reason given for the change was that the town needed to grow economically and the only way to do that was expand the boundaries to allow for more development in the areas just beyond the town's boundaries that would be annexed. In addition, this expansion of the circle was seen as an opportunity to repair or replace the aging sewer system of the town, which was struggling to meet capacity. It was mentioned that in order for this annexation to take place, an extension of sewer and water services would be needed and that the current systems could not handle the added capacity and would need to be replaced. According to an interview with former Mayor Joe Booth (2013), “It was during the Layton Johnson administration that the problem of an aging sewer system was brought up, but how the town was going to pay for it was a very complicated issue.” A resolution to have an annexation referendum held at the same time as the June town elections was passed by the council (Hickman, 1985). However, at the following Town Council meeting, Mayor Johnson felt that the annexation would most likely not be possible and the resolution was tabled (Hickman, 1985).
In a special meeting of the Town Council on November 26, 1985, representatives from the engineering firm George, Miles & Buhr introduced a possible solution to the funding problem in the form of federal grant money from the Environmental Protection Agency. Starting in 1956 under the Water Pollution Control Act, the federal government had started “subsidizing the construction of municipal sewage treatment plants. The subsidies took the form of cost-sharing grants in which the federal government’s contribution was set at 55% by the 1981 Municipal Wastewater Treatment Construction Grant Amendments” (National Center for Environmental Economics, 2015). In addition to the maximum 55% that the federal government would provide, the State of Delaware would also provide funds to cover an additional 25% of the costs, leaving the town with only 20% of the costs in the end. The only problem with this plan was that the funds would only be available for the construction phase, meaning that the funds would only be used during the construction of new facilities and hookups to properties (Hickman, 1985). To maximize the advantages of federal and state dollars earmarked for construction only, it was in the interest of Georgetown to expand its footprint and build as much needed infrastructure as possible with those funding sources. Thus there was a huge incentive for Georgetown to annex as much property adjacent to the town as possible and then have this land included in the funding proposal.

In a hearing held on August 20, 1986 members of council discussed the planned sewer project and the fact that the town would need to expand its borders to accomplish this project in way that saved the town considerable money. To help the public understand the rationale behind annexing as much land as was wanted and needed, representatives of
George, Miles & Buhr explained that the current sewage treatment plant that served Georgetown was in jeopardy of exceeding capacity thus needed serious updating and expansion. They also explained in the plan of study that the firm had completed on a possible sewage line extension and facilities improvement project, which was approved by the State of Delaware and became eligible for federal and state grant funds. It was also recommended that any annexation of new property should be carried out at least five years before the construction of new sewer lines (Hickman, 1986).

When, in Feb 1987, the Water Quality Act dictated that the EPA would not fund construction of municipal sewage systems after 1990, it added a greater urgency and impetus to the annexation process in Georgetown. (National Center for Environmental Economics, 2015). The sewer construction plans in Georgetown had to be finalized and grant money applications filed by 1990, which means that an annexation had to occur before that date. The Town Council, then, was tasked with the risky decision about whether to annex lands needed for the sewage construction—a decision that carried a considerable economic benefit to the town if grant money was secured, and a decision that would put septic tank users in the country onto the town's new sewerage system. This would require one of two options: 1) residents outside the town would need to pay a substantial fee to use the sewage system or 2) those properties would need to be annexed into the town and then made a part of the new sewage system once constructed. Both Mayor Johnson and Town Councilman Joe Booth agreed that it was best to annex those properties into the town. Booth, in particular, wanted any potential referendum on annexation to be moved up to 1989 at the latest so that all affected property owners
would be able to commit to the project well before the EPA deadline. (Hickman, 1987). The upshot of this was that the town government realized that discretionary power in the sewage project and the annexation lay in the affected property owners and began to engage the public on their opinion.

Knowing that the town's power to annex depended on the favorable inclinations of property owners just outside of the town's boundaries, the Town Council decided to hold a public hearing involving representatives from both the EPA and the Delaware Department of Natural Resources and Environmental Control on October 15, 1987. Both town residents and the property owners from the potentially annexed areas were asked their opinions on a possible annexation. Given that the timeline was November 1990 to July 1992 for construction, the annexation approval process had to be completed by at least the beginning of 1990. The questions asked by the people present were not available in both the minutes of the meeting and the media coverage of the event. However, the minutes did say that the discussion largely revolved around the cost of the project, which had yet to be determined. An informal vote was then carried out to gauge people’s opinion on any possible annexation, with the majority of residents voting in favor of the project. After the public hearing, the Town Council voted to move ahead with the preliminary project research (Krause and Stickels, 1987).

Mayor Layton Johnson, who held his post since 1962, decided not to run for office again in 1987, meaning that a new leader would be in charge during the annexation process. In his place, Joe Booth, who had served on Town Council from 1986 to 1988 and was very well educated on water and sewage services during professional career in New Jersey,
was elected mayor. Booth and Town Manager Allan Kujala (who had started in his current capacity in 1987) saw the importance of the annexation as a way to improve and expand the sewage system of Georgetown. According to an interview with Booth (2014) “The annexation was so important for Georgetown because there was no way that the town was going to be able to develop and survive without it. I saw the annexation as a pivotal point in the town’s history. Were we going to become a small, stagnant town or the political and economic center of the county?” Kujala (2014) reinforced the importance of the annexation when he commented that ”Joe was really enthusiastic about the annexation and we both really saw it as our last good chance to make a dramatic improvement to the town”. As we will see in the next section, the laws that governed the process made a dramatic difference to the passage of the annexation. But the actions of Booth and Kujala also contributed to the outcome as well in what was to become a battle for public trust.

6.5.2 Annexation Committee

The following three sections describe the process undertaken by the Georgetown government to pass the large annexation of 1989. Each section will revolve around the three statutes in the Georgetown charter that played a central role in the annexation. Most of the information regarding the chain of events came from the Georgetown Town Council minutes and articles from the Sussex Countian, with commentary coming from the interviews with Joe Booth and Allan Kujala. After a description of the events
surrounding each of those statutes, there will be a brief discussion of how both the statute in question as well as the factors not previously considered by the statistical analyses helped to facilitate the annexation.

As per the charter of Georgetown, an annexation committee was set up to investigate whether or not an annexation of the proposed territory would be advantageous for the town. All four members of Georgetown's council were appointed to the annexation committee, which met for the first time on April 4, 1989. At the committee meeting, a map of the areas under consideration was presented to the committee, and the committee agreed that certain properties would no longer be considered for annexation (even though some of those properties would later be annexed into the town). In order to better gauge the opinions of property owners, the committee decided that the area being considered would be canvassed on their support for annexation. According to Booth (2014), the final shape of the area finally annexed to Georgetown was determined by Booth and Kujala going to property owners one by one whether wanted to be annexed. “If they said yes, we’d add them [to the map]. We tried to stay away from anyone who didn’t want to be annexed to make sure the vote passed. We took a simple poll of the people on East Market Street and we had a deal in which if they said ‘no’ we wouldn’t try to annex. They said no, so we said ‘alright’” (Booth, 2014). The area proposed for annexation, therefore, was an area that was more likely to vote in favor of an annexation act in the future an acknowledgement of the discretionary power that was in the hands of local property owners.
In addition, in their report, the annexation committee created a list of advantages and disadvantages to carrying out the annexation. In the end, the committee believed that carrying out the annexation would be advantageous and that the reasons for doing it far outweighed any potential disadvantages. The full list of advantages and disadvantages can be found in the index. As will be discussed in the section on the public hearing, one of the main advantages in the list was the positive effect of the annexation on the fees and tax rate of both new and existing residents of the town. The annexation committee report not only addressed any potential questions regarding the costs of sewer expansion, but also the benefits of a larger tax base that would enable the town to improve its services such as police protection, trash removal and street maintenance. Another benefit was the opportunity for greater development on the newly annexed land, as more businesses will be attracted to parcels of land connected to town services. Finally, the annexation committee meeting helped to finalize the location of the parcels selected for annexation (see Figure 6.7) (Kujala, Allan 1989).
Figure 6.8   Areas Annexed by Georgetown, Delaware on July 29, 1989
While the compilation of reasons for annexation was an important first step, only fourteen residents attended the Town Council meeting in which the committee’s report was presented. While some people may have found out about some of the information through reading the town minutes or newspaper coverage of the meeting, a more inclusive forum was needed to address any property owner concerns.

6.5.3 Public Information and Hearing

Following the reading of the annexation committee report, a resolution was drafted that set the date for a public hearing, per the requirements set forth in the Town charter. Due to the large expected turnout for this event, the hearing was scheduled for June 28, 1989 at the large community room of Grace Methodist Church. A month before the hearing, a letter listing many of the most frequently asked questions about the annexation was sent to current residents and residents of the area to be annexed. The letter detailed the process of annexation and how the sewer project would be decided, the reasons why both residents and non-residents would benefit from the annexation, and why it was important for the project be carried out at that time in Georgetown's history. It was important to note in the letter that the bond vote that would provide funding for the sewer construction from federal, state, and local monies would come after the annexation vote. According to the Town Charter, only residents of the town could vote in a bond referendum, so the annexation had to happen before new residents could vote in an election (Crockett, 1989).
On June 28, 1989, nearly a hundred people attended the public hearing, including representatives of the engineering firm for the sewer project, the Delaware Department of Natural Resources and Environmental Control, and the local news media. Presiding over the event, Mayor Booth gave a brief history of the sewer project and argued that annexation was a critical step for the success of the project and town. He reminded the audience that in order for a bond referendum to take place, the annexation must pass so that new residents could participate.

During the question and answer period, the main topic of discussion was how tax rates would be impacted after annexation and completion of the sewerage project. Mayor Booth argued that federal and state grant money would offset many of the costs at the same time that taxes generated by new parcels of annexed land would drop the property tax rate from $1.75 to $1.25 per $100 assessed value. Questions were asked about who was able to vote, the likelihood of the sewer project being approved after the annexation, and how the annexation would affect zoning within the town. Most of the questions that were asked during the hearing were items that were addressed in the annexation committee report, the letter sent out beforehand, and information that was available for public viewing in the town hall (Crockett, 1989). This underscored the importance of the public hearing for the Town Council as a way of informing people who had not had the opportunity to learn about how the annexation would affect them. It also reassured residents with doubts about the success of the sewage project. This act of inclusion demonstrated the power that property owners had in the annexation process.
6.5.4 Public Referendum

The day after the public hearing, a special meeting of the Georgetown Town Council was convened to determine the date of the special election. According to the Town Charter, the annexation needed to take place between thirty and sixty days after the public hearing. The earliest date for the referendum would be July 29 and the latest would be August 26. July 29 was selected by Mayor Booth and the council for three key reasons: 1) the facilities plan for the sewer extension could be completed in the month between the hearing and the election and submitted on September 1, 2) the information from the hearing would still be fresh on the minds of voters, and 3) vacations and weather conditions will be no different in August than in late July (Kujala, Allan, 1989). A resolution was passed setting the date for the annexation election as July 29, 1989 along with the voting rules for the election.

To help keep the annexation fresh in the minds of voters, and to sway any voters who had any doubts about the annexation, Mayor Booth wrote a series of weekly articles for the Sussex Countian, the local newspaper. The first article, entitled “Annexation: Why Now?” described the situation regarding federal funding for the sewer construction project and how that influenced the decision to carry out the annexation before 1990 (Booth, 1989). The second article, entitled “Annexation: Why Town Residents Need It” explained the need for the town to have an improved sewage system. Growth, development, and a fear of being surpassed in terms of economic activity and progress were the main motivations for completing the annexation (Booth, 1989).
The third article, entitled “Annexation: What out-of-town residents should know about it” detailed the benefits of being annexed into the town and how the installment of a public sewage system would be better than a septic system financially and environmentally (Booth, 1989). The final installment, entitled “Annexation: Everyone Can Vote,” laid out who was able to vote in the annexation election and detailed the process of absentee voting, which one could do through a Power of Attorney. Two separate polling booths would be set up for people within the town and people in the annexation area, with a majority needed in both sections of the election in order for the annexation to pass (Booth, 1989). A second informational letter was also sent out to both in-town and out-of-town residents detailing the information discussed in the newspaper articles as well as the public hearing (Crockett, 1989). These editorials and the informational letters were important, as Mayor Booth felt they were necessary to dispel any potential opponents to the annexation. He spelled out the arguments in fine detail in a popular media source at the time, indicative of the central role that residents and property owners played in the process.

On July 29, 1989 the annexation election for the areas included in the future sewage system expansion took place at Georgetown Town Hall. As stated in the annexation laws of the Georgetown charter, in order for an annexation to pass a vote must reach a majority for both the in-town residents and the residents in the annexation area. The voting totals for the in-town election were 403 for annexation, 63 against annexation, and three void votes. The voting totals for the out-of-town election were 265 for annexation, 157 against annexation, and one void vote (Crockett, 1989). A majority vote was
therefore passed in both the in-town and out-of-town vote per the laws of the Georgetown charter. However, the annexation would not become official until December of 1989.

6.5.5 After the Referendum

It is important to describe the events that followed the public referendum in order to learn whether or not the Georgetown government followed through on the promises made to the affected property owners - promises that appear to have been useful in getting the annexation to pass. Following the annexation referendum of July 29, 1989, the Georgetown government waited until the newly annexed land could be properly zoned before making the annexation official. An advisory committee formed after the annexation determined that the zoning code of Georgetown was going to have to be redrawn from five land uses to twelve in order to accommodate the variety of land uses being annexed. At a special meeting of the Town Council on December 20, 1989, the large annexation of July 29 was finally filed with the Sussex County Recorder of Deeds and made official. Immediately afterwards, the new zoning code was unanimously passed. Now that the zoning ordinance and annexation were officially in place, attention shifted to the sewage expansion project that had been promised as part of the annexation.

In the months following the passage of the zoning code and large annexation, the sewage engineers that had been working on the development of the expansion plan were able to fully complete their assessments. In addition, it was determined that the town’s water system would also be upgraded, as the current water pumping stations had aged and
needed to be improved. By including water in the sewer expansion project, the town hoped to save money by not having to dig up land twice to put in the new systems. By September of 1990, it was determined that if the project were to be fully funded, the town would need to borrow over ten million dollars from a lender through a bond. A Federal grant of 3.7 million dollars and a Delaware state grant of 1.4 million dollars would also be acquired to fund the project. However, this would require a majority of the residents of the town to vote on the bond in order for it to take place. As was mentioned previously, only residents of the town could vote in a bond referendum, which is why it was so crucial for the large annexation to become official before the bond was brought before the town residents.

Following a public hearing held by the project engineers, a letter was sent out to the town residents explaining the reasoning behind the sewer/water project and its necessity for a growing Georgetown. On October 13, 1990, in a public referendum the status of the bond for sewage and water expansion was passed with a vote of 471 for the bond and 203 against (Crockett, 1990). Following its passage, the town obtained the grant funds and began construction in March of 1991. Much of the construction was completed by 1992, giving the town the sewage and water capacity that it needed to fully accommodate its new residents.

The final major promise made during the annexation process by the Georgetown government was the lowering of the town’s property tax rate. Two budget workshops were held in which it was determined that the increase in the number of residents could offset a decrease in the property tax rate. On March 28, 1990, the property tax rate for
the Georgetown Fiscal Year 1991 Budget was approved for $1.25 per $100 of assessed value, which was within the range promised at the time of the large annexation (Crockett, 1989). With the construction of the expanded sewage system and the reduction in the property tax rate, the promises made to the public regarding the annexation were met.
Chapter 7

CONCLUSION

This chapter will summarize the preceding chapters by returning to the three questions raised in the first chapter of the thesis and explore how they were answered in the text. A discussion then addresses the limitations of this thesis, additional questions raised during the research process, and how future studies could address them.

7.1 Review of the Three Research Questions

The first question (Chapter 4) asked how annexation activity in United States was affected by state level statutes between 2001 and 2010. After reviewing the methodology used by earlier studies (Chapter 3), Wilcoxon Rank Sums tests were performed on fifteen statutes commonly found in state law books in the United States. These statutes were categorized into facilitators and constrainers based on the presumed effect that previous scholars thought they would have. The data used was U.S. Census Boundary and Annexation Survey data from 2001 to 2010, and the data was tested using three categories: annexation frequency, aerial extent, and average extent per act. Nine of the fifteen statutes were found to be statistically significant in at least one of the measures. The results, however, went against the hypotheses of previous scholars.
Statistically significant statutes classified as facilitators led to higher annexation rates in the states that had them. On the other hand, statistically significant statutes classified as constraints had the opposite effect and facilitated annexation activity instead.

Given that similar results were reached by previous studies on this topic, the focus shifted to categorizing the statutes based on a new criteria. Rather than focus on whether statutes facilitate or constrain annexation, the statutes were categorized based on who was empowered during the annexation process. The statutes were separated into three categories: statutes that empowered the state or county, those that empowered the annexing municipality, and those that empowered property owners. This categorization resulted in 28% of the possible measurements reaching statistical significance for the “State/County Empowered” category, 46% for the “Municipality Empowered” category, and 55% for the “Property Owners Empowered” category. These results indicated that statutes that involve the property owner in the annexation process are more likely to facilitate annexation. The analysis also provided an alternative method of examining annexation statutes to those undertaken by earlier scholars, one that would produce meaningful results.

The second question (Chapter 5) asked how annexation activity was affected by municipal statutes between 1981 and 2010. To justify this question, the state-level annexation statutes from the previous chapter were compared with other states, showing that the Delaware state government allowed municipalities to dictate much of the annexation process. To answer the question, a Wilcoxon Rank Sums test was performed on ten common statutes found in municipal charters in Delaware from 1981 to 2010. The
annexation data came from the U.S. Census Bureau Boundary and Annexation Surveys for 1981 to 2010. The statutes were placed in the facilitating and constraining categories used in the previous analysis with the idea being that statutes in the facilitator category would have higher annexation rates attributed to it and those in the constraint category having lower annexation rates. Five of the statutes were found to be statistically significant in all three categories. The statistically significant facilitating statutes performed as expected and had higher measures of annexation activity attributed to them. However, the results went against the categorization used, with two statistically significant constraining statutes actually facilitating annexation activity.

As in Chapter 4, a new categorization scheme was created, dividing the statutes based on who the statutes empowered during the annexation process. The statutes were divided into two categories: statutes that empowered the annexing municipality and statutes that empowered the property owners or residents. This categorization resulted in 25% of the possible measurements reaching statistical significance for the “Municipality Empowered” category and 66% for the “Property Owners Empowered” category. Therefore, the results indicated that statutes that required public involvement were more likely to facilitate annexation than those that empowered the municipality. This analysis brought the statistical methodology used by recent scholars from the national scale to the state scale. That change in scale did not result in statistics that backed up the categorization methods used by previous scholars and drove the point home that the commonly used facilitating versus constraining categorization did not produce meaningful results.
The third question (Chapter 6) asked what factors have shaped the nature of annexation in Delaware at the municipal level. That is, what factors contributed to a municipality undertaking annexation and did any of the aforementioned statutes mentioned in the national and state-level studies have an impact on the decision to annex in Delaware. To answer this question, a case study focused on the large 1989 annexation act in Georgetown, Delaware was undertaken. Starting with an analysis of the town's municipal laws, it was found that Georgetown implemented some of the laws that gave discretionary power to the residents and property owners. The motivations for the annexation, a factor that had not been considered in the previous chapters or studies, were also examined, demonstrating that Georgetown wanted to use the annexation as a pathway for improving their municipal sewage systems using funding from national and state sources instead of local resources.

Keeping in mind the observations made from the statistical analyses on discretionary power, the process of the annexation in Georgetown was examined. Three statutes in particular were studied: the requirement for an annexation committee, the requirement for a public hearing, and the passing of an annexation through a public election. In addition to the public involvement required by statutes, the local government, particularly the mayor and town manager, recognized that transparency was an important factor in getting the annexation to pass. They went above and beyond to provide the public with information about the advantages and disadvantages of the annexation, going door-to-door to talk to residents, and running editorials in the local newspaper. This annexation passed by a considerable margin on July 29, 1989, and the mayor and town manager
believe that is was because of this transparency that the act passed the election. This case study demonstrated what the statistical analyses in Chapters 4 and 5 had concluded: statutes that give discretionary power to the residents and property owners results in a higher likelihood of the annexation passing.

7.2 More Questions, More Studies

Both the statistical analyses and the Georgetown case study, while very informative, should only be considered steps along the process of understanding the effect of state and municipal statutes on municipal annexation. As mentioned in the results of the national level analysis, there are opportunities to conduct studies on how particular statutes are utilized in the annexation process. It would be interesting to study the annexation activities of states that allow for cross-boundary annexation. How often is the statute utilized and how large are the annexations? Why do municipalities want to annex land in other counties? Entire studies asking questions such as these are certainly possible for each of the statutes examined in the national level analysis. Further studies should examine annexations at the individual municipal level in order to gain a better understanding of how annexation laws are utilized.

Future studies should also examine the relationship between state and municipal annexation statutes in America today. The Delaware analysis carried out in Chapter 4 demonstrated the amount of flexibility that the state gave municipalities in terms of determining how the annexation process is carried out. This made the Wilcoxon Rank
Sums test a logical analysis to carry out because while the state has overriding authority, the municipality determined the majority of the statutes. But this is likely not the case for other states. While Delaware only had three of the fifteen state statutes examined, several others had upwards of nine, meaning that the state had more authority in the annexation process. The question that immediately arises is how the annexation process in states with greater state involvement compares with that of states with greater municipal involvement. Given how many states and municipalities there are in the United States, there are many opportunities to examine the process of annexation.

As the literature review and this analysis has demonstrated, it is not until you get to the individual municipality level that one can fully understand the role of statutes on the annexation process. The Georgetown case study included more factors that played a role in the annexation than the statutes in place at the municipal and state level. The case study also looked at motivation to annex, the actions of the local government, and the history of the municipality. In large statistical analysis, it is difficult to account for all of these additional factors. Perhaps it is useful to conduct these large-scale analyses to gain a preliminary overview, much like was done in this thesis, but then conduct a number of individual municipal studies in order to gain a full understanding of the statutes in place and how they affected the annexation process.
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Appendix

UNIVERSITY OF DELAWARE INSTITUTIONAL REVIEW BOARD
APPROVAL LETTER FOR USE OF HUMAN SUBJECTS IN RESEARCH (TWO PAGES)

DATE: July 24, 2013
TO: Eric Pugliano, B.A.
FROM: University of Delaware IRB
STUDY TITLE: [493072.1] Master’s Thesis Research: Economic and Political Change and its Impact on Georgetown, Delaware from 1960 - Present
SUBMISSION TYPE: New Project
ACTION: APPROVED
APPROVAL DATE: July 24, 2013
EXPRIATION DATE: July 23, 2014
REVIEW TYPE: Expedited Review
REVIEW CATEGORY: Expedited review category # 6, 7

Thank you for your submission of New Project materials for this research study. The University of Delaware IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All sponsor reporting requirements should also be followed.

Please report all NON-COMPLIANCE issues or COMPLAINTS regarding this study to this office.

Please note that all research records must be retained for a minimum of three years.

Based on the risks, this project requires Continuing Review by this office on an annual basis. Please use the appropriate renewal forms for this procedure.
If you have any questions, please contact Jody-Lynn Berg at (302) 831-1119 or jiberg@udel.edu. Please include your study title and reference number in all correspondence with this office.