

# **Influential Determinants on the Time of Adoption of State-Based Healthcare Insurance Exchanges**

**Chris Record**

Capstone Project

Martin School of Public Policy and Administration

University of Kentucky

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## Executive Summary

The Patient Protection and Affordable Care Act of 2010 consists of several provisions designed to promote the obtainment of affordable health insurance coverage for all Americans. In order to facilitate access to information on available prices and policies for this coverage, the law requires states to decide whether to operate their own healthcare insurance exchange or join a partnership or federal exchange. While many states proceeded with the implementation of state-based exchanges despite a challenge to the law in the Supreme Court, other states did not. This paper explores the influence that certain and health market characteristics may have had in a state's decision on whether to adopt a state-based exchange prior to the Supreme Court judgment on June 28, 2012.

For my analysis, I develop a series of Kaplan-Meier survival models for my variables to identify patterns in the risk of adoption. Time to adoption of state-based exchanges serves as my dependent variable. In order to assess the relationships between variables and time to adoption, I also produce a multivariate Weibull regression model that shows hazard ratios associated with adopting by the designated date. For this model, I include factor scores for my federal and state political variables to address multicollinearity.

The results of the Kaplan-Meier models demonstrate states that are more liberal politically were more likely to adopt state-based healthcare insurance exchanges prior to the Supreme Court judgment. Further analysis of the variables in my regression model shows that certain state-level political characteristics, encompassed within one of the factor scores, had influence on a state's decision. Specifically, the number of Democrats in a state's executive office and legislature has a positive and statistically significant relationship on adoption time.

## Background

On March 23, 2010, President Barack Obama signed into law the Patient Protection and Affordable Care Act, a piece of sweeping legislation that focused on the reform of the private insurance market in an attempt to allow better access to healthcare for uninsured American citizens. The legislation as passed was highly controversial, with several efforts being made by the Republican Party to repeal the law on constitutional grounds. On June 28<sup>th</sup>, 2012, the Supreme Court's upheld most of the provisions of the Patient Protection and Affordable Care Act (PPACA) in their decision regarding the case *National Federation of Independent Business v. Sebelius*.<sup>1</sup>

Prior to the Supreme Court's decision, many states embarked on the implementation of groundwork programs to comply with the provisions of the PPACA, such as the creation of state-based health insurance exchanges, new competitive marketplaces in which individuals and small businesses can choose among industry options for comprehensive health insurance plans.<sup>2</sup> Officials in other states, perhaps averse to the act itself due to political ideology or concerned about financial implications with regards to state socioeconomic characteristics, refrained from early establishment of these exchanges. Due to existing deadlines for achieving waypoints in the process of setting up these exchanges, early inaction has left some states scrambling to meet these required deadlines and may result in states being mandated to join federally-run exchanges. Some states have simply chosen to forego setting up a state-based

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<sup>1</sup> *National Federation of Independent Business v. Sebelius*, 11-393 (2012)

<sup>2</sup> Center on Budget and Policy Priorities. Status of State Health Insurance Exchange Implementation. Online. Retrieved from: <http://www.cbpp.org/files/CBPP-Analysis-on-the-Status-of-State-Exchange-Implementation.pdf><http://www.cbpp.org/files/CBPP-Analysis-on-the-Status-of-State-Exchange-Implementation.pdf>. January 29, 2013

exchange and instead will join a federal or partnership exchange, which are both options under the law.

While states have the option of joining federally-run or partnership exchanges, states are required by Section 2001(b) of the PPACA to comply with a maintenance of effort (MOE) provision that asserts that states must maintain the same eligibility standards, methodologies, and procedures for their Medicaid programs as were in effect on March 23, 2010 until the time that the Secretary of Health and Human Services determines the operational status of a state's health insurance exchange.<sup>3</sup> A failure to comply with this provision means a state may risk losing all of its federal matching Medicaid funding, so a state's progress in establishing or joining an exchange has a direct bearing on the administration of their Medicaid program. In addition, a recent Commonwealth Fund study finds states that have not yet enacted steps towards complying with the PPACA could be faced with challenges in protecting consumers due to nuances within the law. These nuances include the presence of possible loopholes and inconsistencies in the enforcement and regulation of health insurance<sup>4</sup>.

The implications for a state's citizens based upon the type of exchange the state decided to pursue are potentially numerous. A recent policy brief from *Health Affairs* and the Robert Wood Johnson Foundation explores these issues. Threats cited within the brief include the following: the possibility of adverse selection and instability in the health market due to

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<sup>3</sup> Congressional Research Service. Memorandum: Selected Issues Related to the Effect of NFIB v Sebelius on Medicaid Expansion Requirements in Section 2001 of the Affordable Care Act. Online. Retrieved from: [http://www.ncsl.org/documents/health/aca\\_medicaid\\_expansion\\_memo\\_1.pdf](http://www.ncsl.org/documents/health/aca_medicaid_expansion_memo_1.pdf). July 16, 2012.

<sup>4</sup> Keith, Katie, Kevin W. Lucia, and Sabrina Corlette. Implementing the Affordable Care Act: State Action on the 2014 Market Reforms. Online. Retrieved from: [http://www.commonwealthfund.org/~media/Files/Publications/Issue%20Brief/2013/1662\\_Keith\\_implementing\\_ACA\\_state\\_action\\_2014\\_reform\\_brief\\_v2.pdf](http://www.commonwealthfund.org/~media/Files/Publications/Issue%20Brief/2013/1662_Keith_implementing_ACA_state_action_2014_reform_brief_v2.pdf). February 2013.

regulation differences between state exchanges and federal exchanges; the complexity of state laws that a federal exchange may need to comply with; and the question of whether citizens of states involved with federal exchanges qualify for insurance purchasing subsidies.<sup>5</sup> This latter point may have particular impact on the consumer market and the interpretation of this caveat is currently under litigation. Therefore, mechanisms of funding insurance for those not cleared for subsidies under that portion of law could prove to be problematic.

This paper examines several political, administrative, and health market factors that may have acted as valid predictors of a state's adoption of measures to implement state-based health insurance exchanges in conjunction with the Patient Protection and Affordable Care Act. Specifically, the paper will focus on time to adoption of exchange legislation or executive orders within the time frame of the act's passage in March of 2010 to the Supreme Court's decision in June of 2012. It will explore patterns that may demonstrate the extent to which political variables impacted time to adoption. In addition, economic and social factors, such as state fiscal conditions, state administrative capacities, and characteristics associated with individual state health markets will be explored for their possible contribution towards a state's decision toward quicker adoption. The study could provide some further insight into the overall predictive power of numerous factors in helping to determine a state's willingness to actively seek to comply with federal mandate legislation.

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<sup>5</sup> Goodell, Sarah. Health Policy Brief: Federally Facilitated Exchanges. *Health Affairs*, January 21, 2013.

## Literature Review

The decision of a particular state on whether to act early on instituting provisions of the PPACA prior to the Supreme Court deciding upon its constitutionality could be linked to dominant political ideologies within the particular state instead of waiting out of an abundance of caution. Immediately following the passage of the PPACA in 2010, the Republican Party began a series of campaigns across the country focusing on a promise to repeal the bill. In January 2011, a Republican controlled House of Representatives voted 245 to 189 to repeal the bill despite the obvious obstacle for success presented by a Democratically-controlled Senate and White House. The vote for repeal was viewed as a symbolic gesture.<sup>6</sup>

In examining the role that political and economic factors may play in a state's decision to adopt early state-based exchange legislation, an understanding of existing literature on the subject of state political decision-making is necessary. Central to the idea that overarching political ideologies carry weight in the decision to implement a specific policy are macroeconomic partisan policy theories, which hold that political parties promote policies that are consistent with preferences of their core constituencies.<sup>7</sup> Further, a 1992 D.A. Hibbs, Jr. article states that partisanship is an important determinant in the variation in policy choices and policy outputs in constitutional democracies.<sup>8</sup>

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<sup>6</sup> New York Times. *Health Care Reform*. Online. Retrieved from: [http://topics.nytimes.com/top/news/health/diseasesconditionsandhealthtopics/health\\_insurance\\_and\\_managed\\_care/health\\_care\\_reform/index.html](http://topics.nytimes.com/top/news/health/diseasesconditionsandhealthtopics/health_insurance_and_managed_care/health_care_reform/index.html). Updated November 8, 2012.

<sup>7</sup> Carlsen, Fredrik. Rational Partisan Theory: Empirical Evidence for the United States. *Southern Economic Journal* 1998, 65(1), 64-82.

<sup>8</sup> Hibbs, D.A., Jr. (1992). Partisan theory after fifteen years, *European Journal of Political Economy* 8. Page 316.

In addition, a Manfred Schmidt exploration into the extent of party influence on public policy finds that it is contingent upon a variety of factors, including socioeconomic challenges and economic resources present at any particular time, the degree of vulnerability of national economies to international markets, the distribution of power resources among social classes and the incumbent party's lead of the opposition party, measured by differences in vote and seat shares.<sup>9</sup> These studies and theories could lend themselves to the notion that a state's status of implementation of health insurance exchanges prior to the Supreme Court's decision may have been motivated by partisan-controlled disposition within each respective state.

In terms of measuring partisan disposition, state political ideologies can be found within a data set provided by a website operated by Richard Fording, Professor and Chair of the Department of Political Science at the University of Alabama. The data is current through 2010, the year in which the Affordable Care Act was passed and signed into law. This state ideological measure was developed using interest group ratings from each member of Congress in each respective state.<sup>10</sup> The measure computes average ratings from the Americans for Democratic Action (ADA) and Committee on Political Education (COPE), which were chosen due to their consistency in reporting over a large time frame (1960 – 1993). A measure using this index is used in a 2003 article examining links between political institutions and policy choices to

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<sup>9</sup> Schmidt, Manfred G. When parties matter: A review of the possibility and limits of partisan influence on public policy. *European Journal of Political Research* 30, September 1996. Page 156

<sup>10</sup> Berry, William, Evan J. Ringquist, Richard Fording, Russell Hanson. *Measuring Citizen and Government Ideology in the American States, 1960-93*. From the *American Journal of Political Science*, Vol. 42, No. 1. Retrieved from: [http://www.bama.ua.edu/~rcfording/AJPS\\_1998.pdf](http://www.bama.ua.edu/~rcfording/AJPS_1998.pdf)

demonstrate how citizen and state government ideologies can influence state legislative decisions<sup>11</sup>.

Analysis of political and socio-economic factors within the United States can help to paint a clearer picture of their effects on state policy decisions. A 1989 study by Erickson et. al. shows that party control of a state legislature may not in itself be a great predictor of state policy.<sup>12</sup> While electoral politics are found to be important, Erikson and his colleagues assert that elected officials respond more to state opinion than predominant political ideology. This state opinion is derived in part by the ideology of the voting population but is also influenced by other factors. Electoral success thus hinges upon a dominant party's responsiveness to state opinion, with parties sliding more towards the center of the political spectrum once in office. Another study by Erickson et. al. on state political culture finds that the state of residence for an individual can act as a predictor of self-identified party and ideological affiliation.<sup>13</sup>

This notion of state opinion being a driver for state policy decision is supported in a R.D. Brown study of coalitional influence within and between states regarding the welfare effort. The study finds that class-based party supports in states played an important role in determining a state's welfare policy, with parties dividing the electorate in different ways.<sup>14</sup>

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<sup>11</sup> Besley, Timothy and Anne Case. *Journal of Economic Literature* , Vol. 41, No. 1 (Mar., 2003), 42.

<sup>12</sup> Erikson, Robert, Gerald C. Wright, Jr. and John P. McIver. Political Parties, Public Opinion, and State Policy in the United States. *The American Political Science Review* Vol. 83, No. 3) pp. 742-744.

<sup>13</sup> Erickson, Robert, John P. McIver, Gerald C. Wright. State Political Culture and Public Opinion. 1987. *The American Political Science Review*. 81 No. 3, 797.

<sup>14</sup> Brown, RD. Party cleavages and welfare effort in the American states. 1995. *The American Political Science Review* 89, (1): 23-23, <http://ezproxy.uky.edu/login?url=http://search.proquest.com/docview/214428803?accountid=11836> (accessed March 16, 2013).

These two findings indicate that simple party politics are not enough to explain a state's decision to implement certain policies.

If state opinion is predicated upon belief characteristics of a voting constituency that contain factors other than simply political ideology and elected officials are motivated to stay in office by appealing to the state's constituency, it is logical that socio-economic characteristics play a role in constructing state public opinion that leads to state policy. For example, unemployment in a state has been seen to affect voting patterns at the gubernatorial level, especially in situations where the candidate's party also controls a state legislature. Furthermore, a 2005 study on economic voting finds that relationships exist at the state level between economics and elections, especially in states with diverse economies.<sup>15</sup>

In support of this notion, a 1969 study on inter-party competition and welfare policies finds that socioeconomic characteristics within a state contributed to variations in welfare policies, including such policy characteristics as aid to the blind, aid to dependent children, and old age assistance.<sup>16</sup> These studies on welfare policy are of particular note to my paper because it links social and economic considerations to state opinion. Thus, determining appropriate socioeconomic measures in states that are relevant to the Affordable Care Act is an important aspect of my analysis.

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<sup>15</sup> Ebeid, Michael and Jonathan Rodden. Economic Geography and Economic Voting: Evidence from the US States. 2006. Retrieved from: [http://www.stanford.edu/~jrodden/bjps\\_ebeid\\_rodde\\_n\\_2006.pdf](http://www.stanford.edu/~jrodden/bjps_ebeid_rodde_n_2006.pdf).

<sup>16</sup> Dawson, Richard E. and James A. Robinson. Inter-Party Competition, Economic Variables, and Welfare Policies in the American States. *The Journal of Politics*. Vol. 25, No. 2 (May, 1963) 287.

## Research Design

I analyze whether several political, administrative, and health market factors potentially influenced a state's early decision to participate in one aspect of the Patient Protection and Affordable Care Act. I chose to examine activity related to the establishment of state-based healthcare insurance exchanges in each respective state. This portion of the Act can be seen as essentially laying the groundwork platform upon which the majority of the Act's provisions can then be carried out. My unit of analysis for this study will be state governments. Specifically, I will analyze the status of state governments in acting on the implementation of health insurance exchanges.

Following the selection of this component, I need to determine what exactly would constitute participation in establishing healthcare insurance exchanges. For the purpose of this comparative study, defining what type of activity indicates willingness to participate and the time frame for occurrence are crucial components of my analysis. The Supreme Court case *National Federation of Independent Business v. Sebelius*, outlined above, afforded an opportunity to identify a natural break between early participation and non-participation or later participation. The Supreme Court's decision date of June 28, 2012 on the Act's constitutionality will be used as the cut-off date, establishing time to adoption as my dependent variable.

I produce a series of Kaplan-Meier survivor curves, looking at how time until adoption varies for different categories of each of my chosen variables. Then I conduct a multivariate Weibull survival analysis to further determine whether these variables affect how early or late

states begin to implement health insurance exchanges. In order to draw the descriptive survivor curves in the first part of my analysis, I designated categorical values for each of my variables where continuous data was observed. A detailed account of these designations is available in the following section. For the multivariate analysis, I keep the continuous variables on their original scale.

My null hypothesis ( $H_0$ ) is that the analyzed political and economic variables show no pattern of effect on time until adoption. The alternative hypothesis ( $H_1$ ) is that the following political and economic variables should predict a shorter time until adoption: voted for Obama in 2008, presence of a Democratic governor, a full-time state legislature, liberal state political ideology, a decisive Democratic margin of victory in the 2008 Presidential election, a simple majority of Democratic members of the congressional House of Representatives, a simple majority of Democratic members of a state legislature's House of Representatives, a simple majority of Democratic senators in a state's legislature, a higher number of Democratic senators in Congress, a higher percentage of uninsured residents, a higher percentage of residents with diabetes, a higher grade within the Government Performance Project, and a higher GDP per capita. In a previous analysis of only federal-level political determinants related to time to adoption, my model results indicated that I was able to reject the null hypothesis. In this study, I explore whether these findings hold up when controlling for additional alternative political and economic explanations through the use of a regression model.

### *Description of Variables*

In my comparison, the time to adoption of healthcare insurance exchange legislation serves as my dependent variable. To measure relationships between this variable and the control variables in my model, I set the ending date as June 28, 2012. This data was collected from a frequently updated database managed by the National Conference of State Legislatures, a non-profit organization that serves legislators and staffs of all fifty states by providing research, issue tracking, and technical assistance to policymakers<sup>17</sup>. The source of the data is updated frequently and archives of past updated resources pertaining to this topic are available for use. Thus, I was able to extract data that referenced the exact time frame associated with each state's action on this activity, ensuring that the data I have obtained for my model reflects statuses consistent with my designated threshold date.

The analysis looks at a set of political and economic variables that may show effects on whether a state engaged in early state-based exchange implementation. My first explanatory variable is a value of prevailing political ideology in a state. The data depicts state ideology as of 2010, the year in which the Affordable Care Act was passed and signed into law. The index measures state political ideology on a scale of 0 to 100, with 0 being the most conservative and 100 being the most liberal. My categorical designation denotes an assignment of 0 for more conservative ideologies, 1 for more moderate ideologies, and 2 for more liberal ideologies.

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<sup>17</sup> State Actions to Address Health Insurance Exchanges, Updated October 12. National Conference of State Legislatures. Retrieved from: <http://www.ncsl.org/issues-research/health/state-actions-to-implement-the-health-benefit-exch.aspx>

In addition to the main explanatory variable of state political ideology, I include other federal-level political explanatory variables that control for voting patterns consistent with the political situation present during my specified time frame for adoption. First, I include data on whether a state's electoral votes were awarded to President Barack Obama during the 2008 Presidential Election.<sup>18</sup> The data is presented in the form of dummy variables, with an assignment of 0 indicating that a state did not vote for Barack Obama in 2008 and an assignment of 1 indicating that a state voted for Barack Obama in 2008. This measure is used to demonstrate political willingness towards enacting legislation developed by the Obama Administration, with the assumption that states that voted for Obama in 2008 will be more likely to participate in the enactment state-based exchange legislation than those states that did not vote for Obama in 2008.

I include explanatory variables that identify the number and political party affiliation of Congressmen from each respective state. I use data from [senate.gov](http://www.senate.gov)<sup>19</sup> and [house.gov](http://www.house.gov)<sup>20</sup> to identify four different explanatory variables for each state: the number of Republican Senators, the number of Democratic Senators, the number of Republican members of the House of Representatives, and the number of Democratic members of the House of Representatives. In order to standardize my data, I assign two Independent members of the House of Representatives to the Democratic Party designation due to their respective political views being more closely aligned with that party. Values for Nebraska at the state level have been

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<sup>18</sup> Election Results 2008, New York Times. Updated Tuesday, December 9, 2008. Retrieved from: <http://elections.nytimes.com/2008/results/president/map.html>

<sup>19</sup> United States Senate website. Retrieved from: <http://www.senate.gov/>

<sup>20</sup> United States House of Representatives website. Retrieved from: <http://www.house.gov/>

omitted due to their status as a unicameral state legislature.<sup>21</sup> The House of Representatives values have been assigned as a categorical value indicating simple majority. An assignment of 0 represents a Republican simple majority, a 1 represents an even number of members between both parties, and a 2 represents a Democratic simple majority. These variables provide further indication of citizen voting patterns at the federal-level and could help to explain the speed of adoption for this type of legislation. A state with a larger number and simple majority of Democratic Senators and members of the House of Representatives could demonstrate faster adoption under my hypothesis.

I use the explanatory variable of each party's margin of victory in the 2008 Presidential Election, by percentage, in each respective state.<sup>22</sup> The margin of victory is important to control for in this model because it acts as a proxy for the competitiveness of the election in each state, demonstrating the degree of popular political support for each party in the 2008 election and aids in possibly explaining variations in support for the Affordable Care Act. Categorical values are assigned as a 0 for a decisive (greater than 10%) Republican victory, 1 for a closer margin, and 2 for a decisive Democratic victory.

In terms of state-level political variables, I include the number of representatives for each chamber of a respective state's legislature, delineated by party affiliation.<sup>23</sup> In both cases, a Republican simple majority is assigned a 0, an equal number of members is assigned a 1, and

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<sup>21</sup> Powell, Lynda W. *The Influence of Campaign Contributions in State Legislatures: The Effects of Institutions and Politics*. University of Michigan Press, 2012, Pg. 27

<sup>22</sup> *A Tale of Two Elections: Results from State Election Offices as Reported by the Federal Election Commission*. 2009. Retrieved from: <http://www.gwu.edu/~action/2008/chrneday08/results08mov.html>

<sup>23</sup> *Party Composition of State Legislatures*. National Conference of State Legislatures. 2012. Retrieved from: <http://www.ncsl.org/legislatures-elections/elections/statevote-charts.aspx>

a Democratic simple majority is assigned a 2. I also include the party affiliation of each respective state's governor, assigning dummy variables of 0 to Republican governors and a 1 for Democratic governors<sup>24</sup>. States with higher amounts of Democrats in their legislatures and states with a Democratic governor will demonstrate faster times to adoption under my hypothesis.

It is also important to control for health market factors that may have effects on healthcare-related decisions among state leaders. I include two health market measures within my model. First, the percentage of uninsured residents in each state is used to show the severity of the uninsured problem within each state.<sup>25</sup> Categorical values of 0 are assigned for relatively low (less than 10%) uninsured, a 1 for relatively moderate (10% - 20%) uninsured, and a 2 for relatively high (greater than 20%) uninsured. A higher percentage of uninsured residents in a state is predicted to positively affect earlier adoption of state-based exchanges.<sup>26</sup> Demand for health insurance should be affected by health conditions. I use the percentage of population in each state with diabetes as an indicator of health conditions.<sup>27</sup> Dummy values are assigned as a 0 for a rate of less than 10% and a 1 for a rate over 10%. Higher per capita risks are assumed to positively affect earlier time to adoption.

Next, the capacity of a state's government is included as a measure of the capability of states to administer programs such as healthcare insurance exchanges. For state capacity, I use

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<sup>24</sup> Former Governors' Bios. National Governors Association. 2013. Retrieved from: <http://www.nga.org/cms/FormerGovBios>

<sup>25</sup> Health Insurance Coverage of the Total Population, states (2010-2011), U.S. (2011). The Henry Kaiser Family Foundation. 2013. Retrieved from: <http://www.statehealthfacts.org/comparetable.jsp?ind=125&cat=3>

<sup>26</sup> State and County Quickfacts. US Census Bureau. 2013. Retrieved from: <http://quickfacts.census.gov/qfd/index.html>

<sup>27</sup> Obesity and Diabetes: Across States, a Clear Relationship. Gallup Wellbeing. 2009. Retrieved from: <http://www.gallup.com/poll/122405/obesity-diabetes-across-states-clear-relationship.aspx>

dummy variables to assign the status of a legislature as being full-time, hybrid, or part-time<sup>28</sup>.

Full-time legislatures are assigned a 2, hybrid legislatures are assigned a 1, and part-time legislatures are assigned a 0. Full-time legislatures are assumed to function at a higher level of effectiveness due to increased time resources and support staffing.

I also include a measure for a state's performance grade within the Pew Charitable Trusts' Government Performance Project. This initiative, completed in 2008, assesses the quality of management within each state, indicating an evaluation of a state's capability to administer its programs.<sup>29</sup> I assign states a value that equates each grade to its grade point average equivalent.<sup>30</sup> Categorical values are then assigned as a 0 for the 1.0 – 1.9 range, a 1 for the 2.0 – 2.9 range, and a 2 for the 3.0 – 4.0 range. Higher grades are expected to have a positive effect on earlier time to adoption.

Finally, I include a measure of gross domestic product per capita for each state for a general demonstration of state economic health, calculating each figure by using gross domestic product data available at the U.S. Department of Commerce Bureau of Economic Analysis website in conjunction with population data from the U.S Census Bureau.<sup>31</sup> States within the range of \$28,293 to \$35,000 are assigned a 0, \$35,001 - \$45,000 a 1, and greater than \$45,001 a 2.

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<sup>28</sup> Full and Part-Time Legislatures. National Conference of State Legislatures. 2009. Retrieved from: <http://www.ncsl.org/legislatures-elections/legislatures/full-and-part-time-legislatures.aspx>

<sup>29</sup> Grading the States 2008 Report. The Pew Charitable Trusts: State and Consumer Initiatives. March 3, 2008. Retrieved from: <http://www.pewstates.org/research/reports/grading-the-states-2008-report-85899379355>

<sup>30</sup> GPA Conversion Chart. Princeton Review. 2013. Retrieved from: [http://inquiry.princetonreview.com/leadgentemplate/GPA\\_popup.asp](http://inquiry.princetonreview.com/leadgentemplate/GPA_popup.asp)

<sup>31</sup> National Economic Accounts: Gross Domestic Product (GDP). Bureau of Economic Analysis. February 11, 2013. Retrieved from: <http://www.bea.gov/national/>

A summary of these dummy variable designations can be found in Table 1 below:

<b>Table 1: Summary of Categorical Variable Assignment for Kaplan-Meier Analysis</b>			
<b>Name</b>	<b>Description of Categorical Variables</b>	<b>Ex. Signs</b>	<b>Source</b>
<b>Dependent Variable</b>			
DateofAdoptionorOrder	Date of adoption of exchange legislation or executive order	N/A	www.ncsl.org
<b>Independent Variables</b>			
VotedforObamain2008	Voted for Obama in 2008 - yes (0), no (1)	0 = - 1 = +	www.nytimes.com
State_Governor	Party affiliation of governor - Republican (0), Democrat (1)	0 = - 1 = +	www.nga.org
Professional_Legislature	Type of state legislature -full-time (2), hybrid (1), part-time (0)	0 = - 1 = neutral 2 = +	www.ncsl.org
IdeoDum	State Political Ideology - conservative (0), moderate (1), liberal (2)	0 = - 1 = neutral 2 = +	Berry, et. Al (1998)
FHouDum	Simple majority of Representatives in Congressional House - Republican (0), equal (1), Democrat (2)	0 = - 1 = neutral 2 = +	www.house.gov
MarVicDum	Margin of Victory in 2008 Presidential Election -decisive Republican (0), close (1), decisive Democrat (2)	0 = - 1 = neutral 2 = +	Federal Election Commission (2009)
StHouseDum	Simple majority of state House of Representatives - Republican (0), equal (1), Democrat (2)	0 = - 1 = neutral 2 = +	www.ncsl.org
StSenDum	Simple majority of state Senators -Republican (0),neutral (1), Democrat (2)	0 = - 1 = neutral 2 = +	www.ncsl.org
FedSenateDem	Number of Democratic senators in US Senate	+	www.senate.gov
FedSenateRep	Number of Republican senators in US Senate	-	www.senate.gov
UninsDum	Percentage of uninsured residents - relatively low (0), relatively moderate (1), relatively high (2)	0 = - 1 = neutral 2 = +	www.statehealthfacts.org
DiabDum	Percentage of residents with diabetes - below 10% (0), above 10% (1)	0 = - 1 = +	www.gallup.com
GovPerDum	Grade on Pew Research Center's Government Performance Project -1.1 to 1.9 (0), 2.0 to 2.9 (1), 3.0 - 3.9 (2)	0 = - 1 = neutral 2 = +	www.pewstates.org
GDPDum	Gross domestic product per capita - \$28,293 – \$35,000 (0), \$35,001 – \$45,000 (1) \$45,001 + (2)	0 = - 1 = neutral 2 = +	www.bea.gov

In addition to the Kaplan-Meier survival analyses, I also include a Weibull regression model for each continuous variable. It is used to help explain relationships between a variable's entry into the model and the designated failure date of June 28, 2012. It allows the opportunity to identify the hazard ratio for each variable or simply the chances of a variable's impact on a

state’s adoption time. This technique is also useful to my analysis because it specifies a parameter that measures the overall rate of adoption risk as the time interval nears the designated deadline. I use a 95% confidence interval in my analysis, meaning that associated p-values of .05 or less are statistically significant. The formula for assessing the hazard ratio is as follows:  $(1 - \text{Hazard Ratio}) \times 100 = \text{Percent Influence on Outcome}$

As several of my explanatory variables are highly correlated, I also include a factor analysis to extract the common variance among them. Summary statistics for my data are shown below in Table 2:

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Date of Adoption or Order	50	10/28/2010	609	4/12/2006	4/12/2012
State Political Ideology (index)	50	47.42779	15.46769	18.06953	86.18446
Voted for Obama in 2008 (dummy of 0 or 1)	50	0.56	0.5014265	0	1
Republican Senators in Congress (count)	50	0.94	0.8184106	0	2
Democratic Senators in Congress (count)	50	1.06	0.8184106	0	2
Republicans in Congressional House (count)	50	4.84	5.120427	0	23
Democrats in Congressional House (count)	50	3.84	5.686935	0	34
Margin of Victory in 2008 Election (percentage)	50	16.26%	981.57%	0.14%	45.27%
State Governor Party Affiliation (dummy of 0 or 1)	50	0.4	0.4948717	0	1
Republicans in State Senate (count)	49	21.2449	9.143601	1	37
Democrats in State Senate (count)	49	18.08163	8.509399	4	35
Republicans in State House (count)	49	59.65306	42.15821	8	294
Democrats in State House (count)	49	50.79592	27.19833	10	126
Uninsured residents (percentage)	50	14.68%	4.02%	4.46%	24.24%
Diabetic residents (percentage)	50	10.76%	1.83%	6.30%	15.40%
Professional Legislature Status (categorical value of 0, 1, or 2)	50	0.84	0.7384485	0	2
Government Performance Project Grades (GPA equivalent)	50	2.616	0.5056255	1.3	3.6
Gross Domestic Product Per Capita (dollars)	50	\$41,284.54	8108.248	\$28,293	\$63,159

## Results and Analysis

### *Kaplan-Meier Interpretations*

The following section contains the results of my Kaplan-Meier models for each variable and a discussion of how the results either support or diverge from my alternative hypothesis.

**Figure 1: Voted for Obama in 2008**

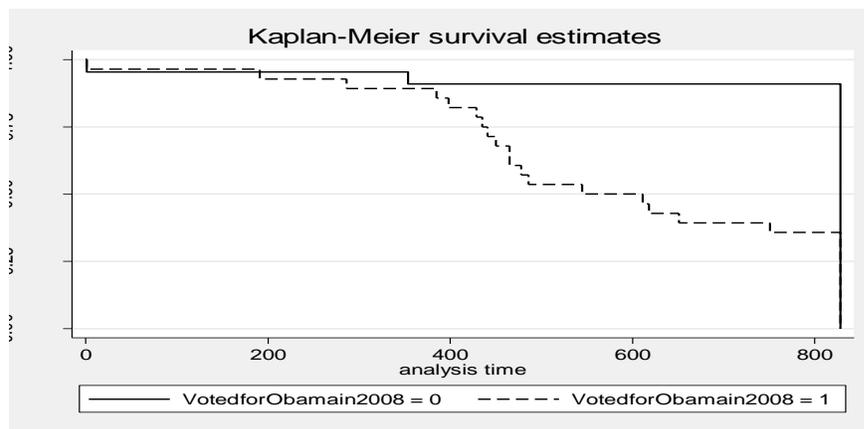


Figure 1 demonstrates that states that voted for Obama in 2008 were more likely to adopt overall than those that did not, which supports my alternative hypothesis for this variable.

**Figure 2: State Political Ideology**

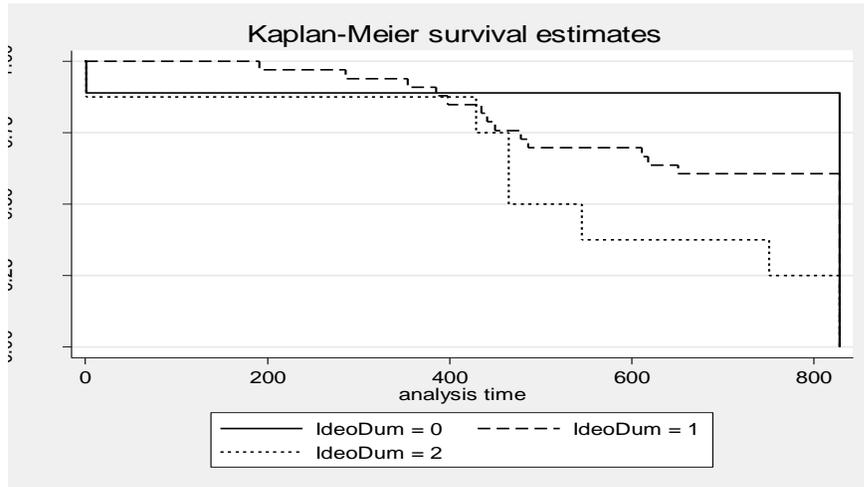


Figure 2 demonstrates that states that are ideologically more liberal on the index I used for measurement were more likely to adopt than states that were more conservative, with more moderate states falling in the middle. This pattern supports my alternative hypothesis.

**Figure 3: Republican Senators in Congress**

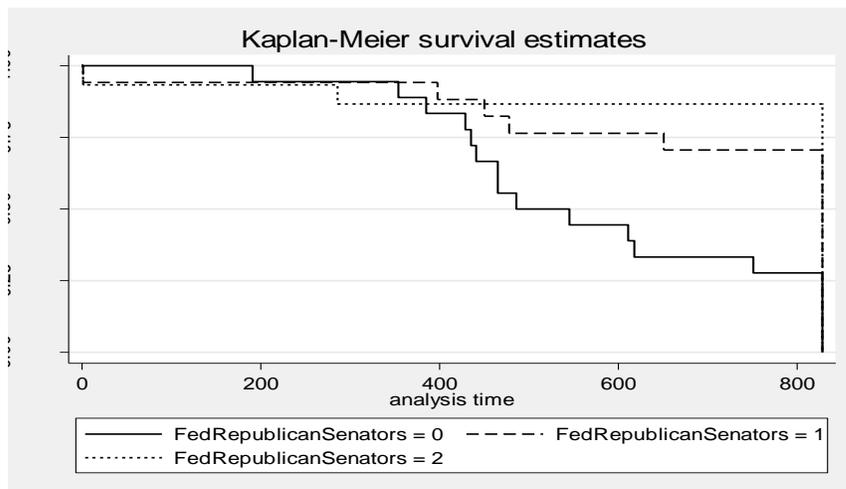


Figure 3 shows with more Republican senators in Congress less likely to adopt, which supports my alternative hypothesis. I did not include a model for Democratic senators due to that variable being perfectly correlated with this measure.

**Figure 4: Simple Majority of House of Representative Members in Congress**

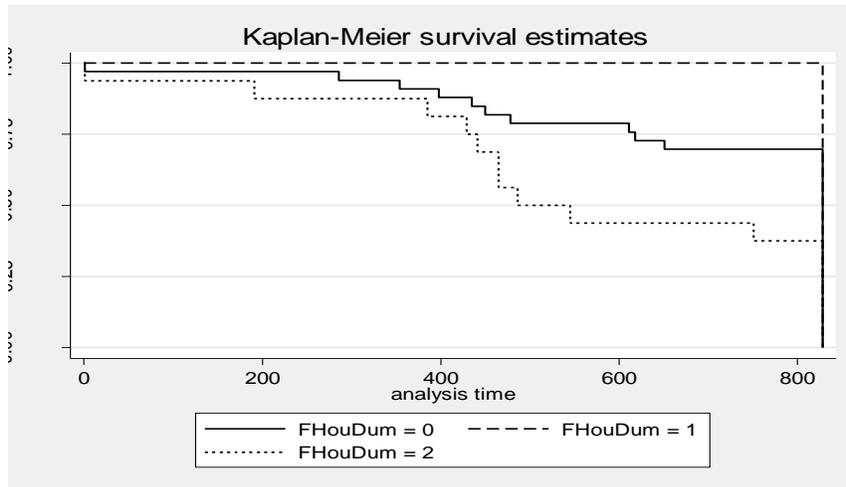


Figure 4 shows that states with a simple majority of Democratic representatives in the Congressional House were more likely to adopt, which supports my alternative hypothesis.

**Figure 5: Margin of Victory in 2008 Presidential Election**

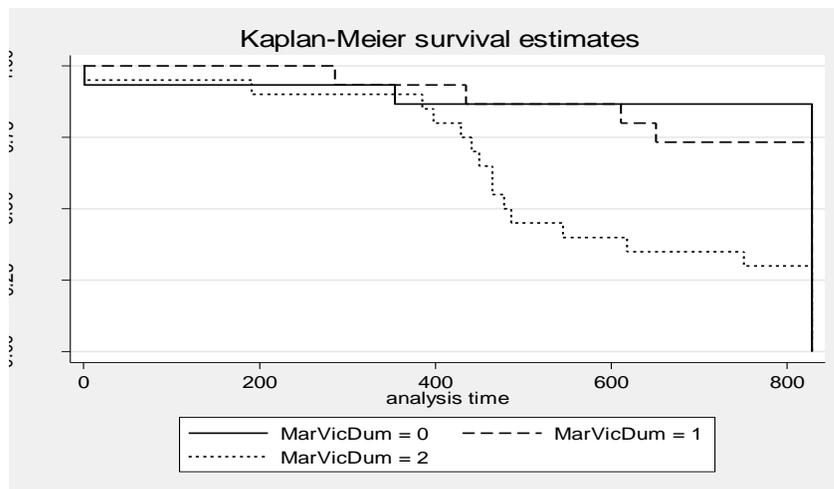


Figure 5 demonstrates that states with a decisive Democratic margin of victory in the 2008 Presidential Election were more likely to adopt, which supports my hypothesis. States that exhibited a close margin of victory, in general, were quicker to adopt than those with a decisive Republican victory.

**Figure 6: State Governor Party Affiliation**

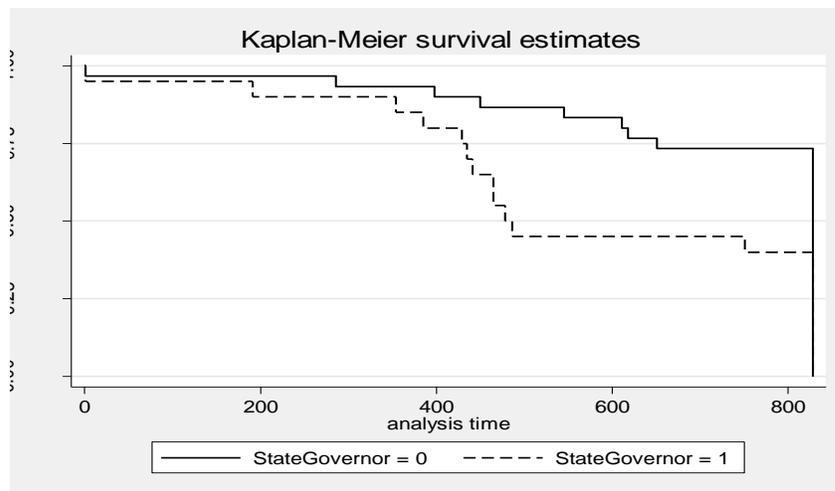


Figure 6 shows that states with Democratic governors were more likely to adopt than states with Republican governors, which supports my alternative hypothesis

**Figure 7: Simple Majority of State Senate Representation**

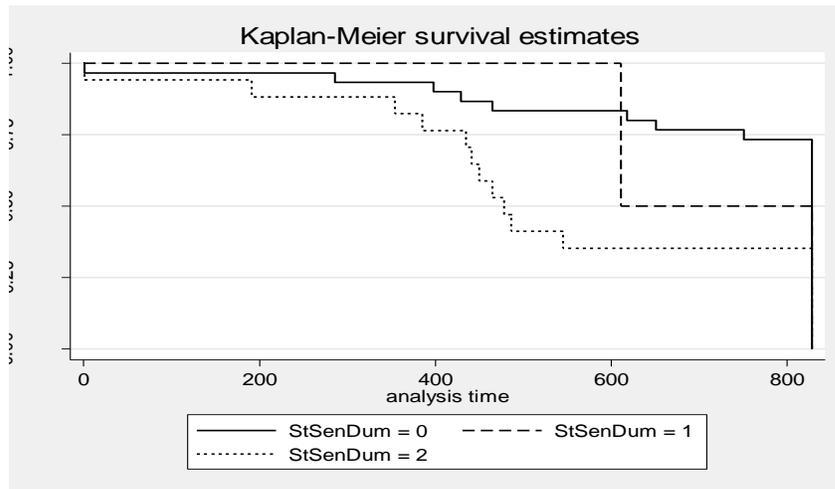


Figure 7 shows that states with a simple majority of Democrats in their state Senates were more likely to adopt than those with a Republican simple majority, which supports my alternative hypothesis.

**Figure 8: Simple Majority of State House Representation**

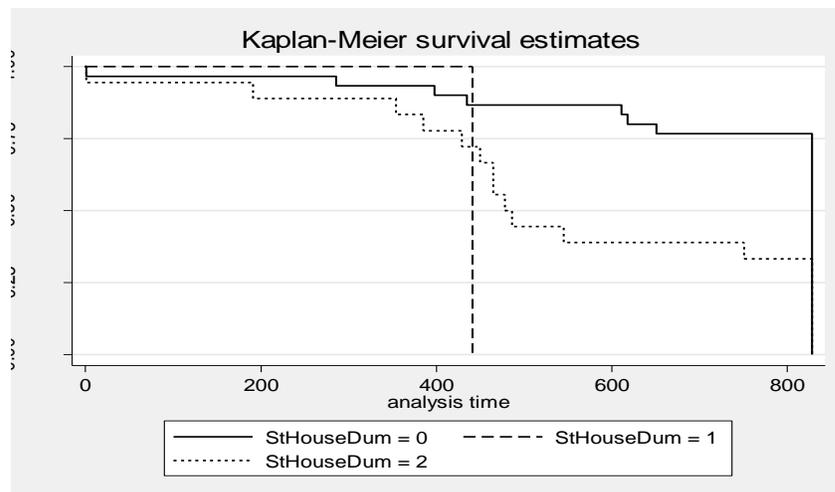


Figure 8 shows that states with a simple majority of Democrats in their state House of Representatives were more likely to adopt than states with a simple majority of Republicans, which supports my hypothesis.

**Figure 9: Percentage of Uninsured Residents in State**

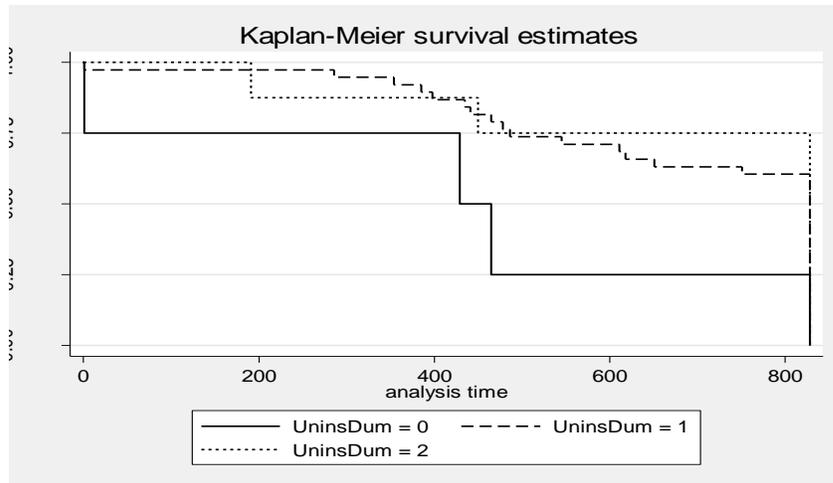


Figure 9 shows that states with a lower number of uninsured residents were actually quicker to adopt than states with higher numbers of uninsured residents, which does not support my alternative hypothesis. This variable was a measure of the overall healthcare market in a state and thus a state with higher levels uninsured would be quicker to act on adoption. It should be noted that only four states possessed the lowest level of uninsured population (<10%) in my model, while the majority of states fell within the 10%-20% range. Eight states possessed an uninsured population percentage over 20%, with two of them (California and Nevada) adopting a state-based exchange.

**Figure 10: Percentage of Residents with Diabetes in State**

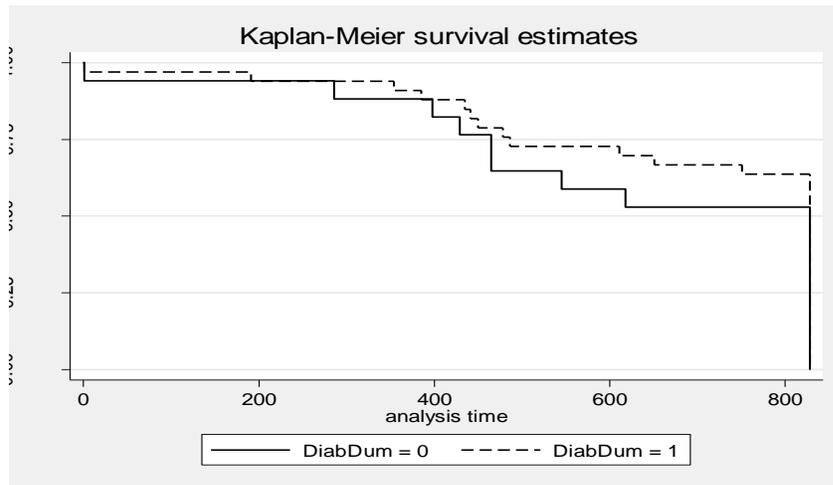


Figure 10 shows that states with a relatively lower percentage of population with diabetes acted quicker towards adoption, which does not support my alternative hypothesis. My assumption in this case did not take into account potential regional correlations associated with such a condition, as the data for this variable indicates that no state in what would be considered the Southeast, a traditional Republican stronghold, possessed a relatively lower diabetes rate.

**Figure 11: Professional Legislature Status**

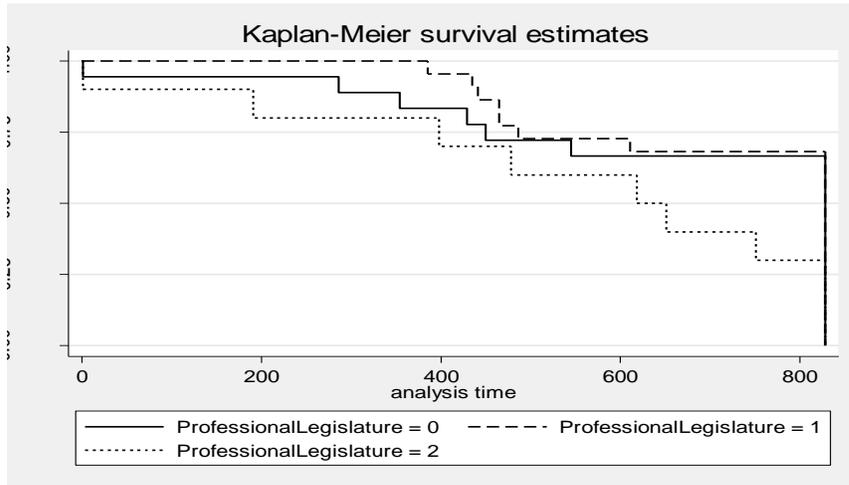


Figure 11 shows that states with part-time legislatures were quicker to adopt than hybrid or full-time legislatures, which does not support my alternative hypothesis. The difference between states with a hybrid legislature and a full-time legislature was nominal in terms of their time to adoption. Full-time legislatures with relatively better access to time resources were anticipated to be able to implement state-based exchanges quicker.

**Figure 12: Government Performance Project Grades**

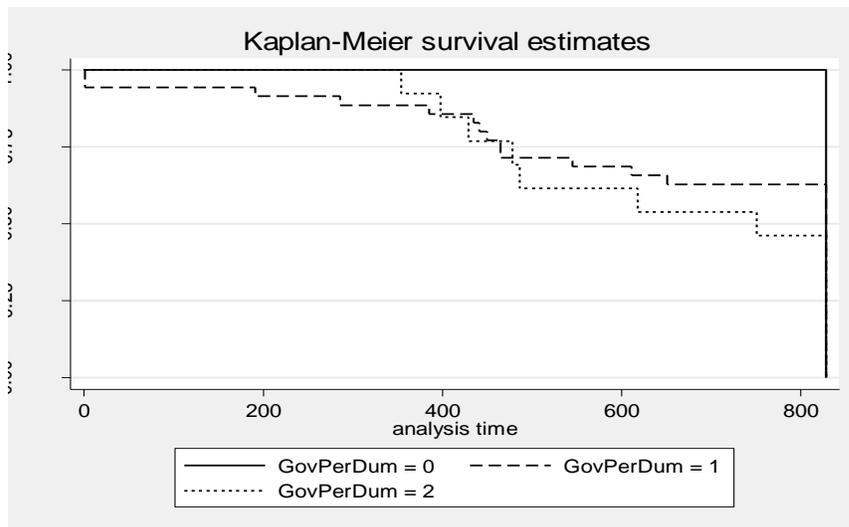


Figure 12 shows that states that were graded relatively higher on the Pew Center's Government Performance Project, a measure of state capacity in my model, were more likely to adopt than those states that were graded lower. This supports my alternative hypothesis for this variable.

**Figure 13: Gross Domestic Product Per Capita**

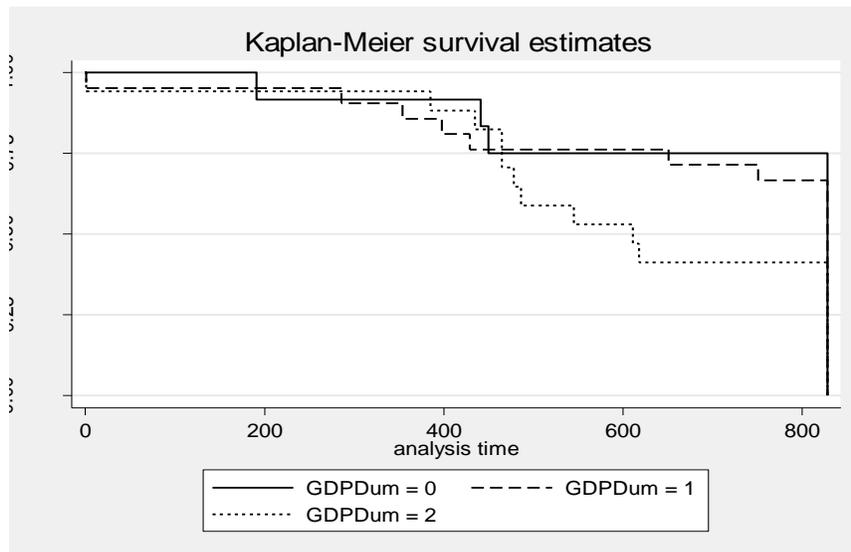


Figure 13 shows states with a relatively higher level of gross domestic product per capita were more likely to adopt than those states with lower levels, which supports my alternative hypothesis. The results for the relatively low levels and moderate levels did not show much difference.

### *Factor Analysis*

The factor analysis of my state and federal political variables demonstrated shows that two factors comprise are most associated in both cases. I generated two factor scores for both types of political variables to incorporate into my Weibull regression model.

Table 3 below demonstrates the factor loadings for my federal political variables. Factor #1 is most highly correlated with the following variables: voted for Obama in 2008, state political ideology, and Democratic senators in Congress. Factor #2 was most highly correlated with the number of Republican representatives in the congressional House and the number of Democratic representatives in the congressional House.

<b>Table 3: Federal Political Variable Factor Loadings</b>		
<b>Variable</b>	<b>Factor 1</b>	<b>Factor 2</b>
Voted for Obama 2008	.7298	.1513
State Political Ideology	.7866	-.0764
Republican Senators in Congress	-.9564	.1177
Democratic Senators in Congress	.9564	-.1177
Republican Representatives in congressional House	-.0526	.8016
Democratic Representatives in congressional House	.3962	.6598
Margin of Victory in 2008 Presidential Election	.1962	-.2269

Table 4 below demonstrates the factor loadings for my state political variables. Factor #1 is most highly loaded with the party affiliation of the governor, the number of Democratic senators in the state legislature, and the number Democratic representatives in the state House. Factor #2 is more highly loaded with number of Republican representatives in the state House and the number of Democratic representatives in the state House.

<b>Variable</b>	<b>Factor 1</b>	<b>Factor 2</b>
State Governor Party Affiliation	.6431	.0739
State Republican Senators	-.3842	.3408
State Democratic Senators	.8065	-.0945
State Republican Representatives in House	-.2198	.7686
State Democratic Representatives in House	.7246	.4725
Professional Legislature	.3257	-.0424

*Weibull Regression Model*

Table 5 shows the results of my multivariate Weibull regression model:

<b>Variable</b>	<b>Hazard Ratio</b>	<b>P- value</b>
Federal Political Factor Score #1	1.38	.595
Federal Political Factor Score #2	1.32	.465
State Political Factor Score #1	3.72	.048**
State Political Factor Score #2	.37	.102
Percentage of Uninsured	.71	.432
Percentage of Diabetes	1.72	.545
Government Performance Project Grades	.83	.779
Gross Domestic Product per Capita	1.0	.856

Time parameter: .80

Observations = 49

\*\* p<.05

The results show that my first state political factor score is statistically significant at the 95% confidence level. Specifically, this factor score is most highly loaded with Democratic

senators and representatives in the state House and governor party affiliation. Thus, a positive hazard ratio of demonstrates that states with more Democrats in a state's executive and legislative offices were 3.8 times more likely to adopt state-based exchange legislation before the deadline. This result supports my alternative hypothesis. Overall, the Weibull model shows that state-level political characteristics were more influential in time to adoption than those at the federal level. Measures of state capacity, the size of a state's health market, and gross domestic product did not demonstrate significance. In addition, the Weibull model's time parameter of .80 indicates that the overall time to adoption in all states began to decline as the June 28<sup>th</sup>, 2012 deadline approached.

### **Conclusions**

The results of my Kaplan-Meier and Weibull survival analyses produced mixed results in support of my hypothesis. The majority of the variable results in support of my hypothesis were aligned with political considerations. Specifically, it was found that states with the following characteristics were quicker to adopt measures to implement state-based exchanges: voted for Obama in 2008, a liberal political ideology, more Democratic senators in Congress, more Democratic senators in the Congressional House, a decisive margin of victory for Obama in 2008, a Democratic governor, more Democratic representatives in the state House of Representatives, more Democratic senators in the state legislature, higher grades on the Government Performance Project, and higher levels of gross domestic product per capita. In general, it demonstrates that political attributes in a state appear to have contributed to time of early adoption. Other variables, such as my weighted variables for size of the healthcare

market in a state, did not demonstrate the results I anticipated. A higher percentage of uninsured residents or diabetic residents did not speed time to adoption as assumed. With the latter variable, the effect of regional political influences may have played a part in influencing the relationship. A full-time state legislature also did not demonstrate a quicker time to adoption than part-time legislatures. In turn, this state capacity measure did not correspond as hypothesized with overall state capacity grades within the Government Performance Project.

Within the context of these findings, my Weibull model finds a statistically significant relationship between Democrats at the state-level and time to adoption. This seems to indicate that the decision to adopt a state-based exchange prior to the Supreme Court decision laid with a state's political composition as opposed to federal political factors, state administrative capacities, or the market for healthcare insurance. While the decision being influenced by state political considerations is not surprising, it was interesting that federal level political characteristics did not demonstrate a closer relationship in the results.

The results of my study can potentially be used as a contributor to the literature on partisanship policy-making or function as initial baseline evidence of the appearance of relationships between common political characteristics and healthcare mandates. In the event that regulatory and subsidy coverage complications do arise in the months ahead, this study can be used to examine state characteristics that may have influenced, to some degree, early decision-making, serving as a small reference point for study. Further research of a more robust nature could include more socio-economic variables associated with individual and statewide health opinions, such as other health risk rates, interest group activity, and per capita

income. Another possible similar analysis could involve examining determinants that may have played a part in a state's decision regarding which type of structure to pursue for state-based exchanges.

### *Limitations*

Due to the nature of the study focusing on a time specific determinant, the scope of the results is limited. Much of the data used was taken at one point in time, with the majority of the collection occurring from 2011 data, which was the year in the middle of the analysis window. Thus, characteristics of states at the actual time of adoption may not be fully incorporated into the models and also may not be generalizable to similar studies. One particular source of data, state political ideology, reflects this limitation. The state political ideology index used focuses on average interest group ratings from members of Congress for 2010. The validity of this methodology seems to fall in line with previous discussion of state opinion influencing elected officials' decisions but only relies on one specific measure to compile index ratings. It is possible that other methodologies for calculating ideology may yield somewhat different relationships.

A similar possible limitation involves the categorical assignment of many continuous variables in my model in order to complete a Kaplan-Meier survival analysis. Other survival techniques that serve a similar analytical purpose may have been more appropriate for these types of variables, though the Weibull survival analysis conducted in my study did attempt to address the individual significance of each variable in relation to the Kaplan-Meier results. In addition, the time constraints of completing this project precluded that other political and

socio-economic variables were not included, which may have painted a clearer overall picture of certain relationships.