

AN ANALYSIS OF THE ENACTMENT
OF ANTI-PRICE GOUGING LAWS

by

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ABSTRACT

Anti-price gouging (APG) laws are state-level price controls only effective during times of emergency. From standard economic analysis, there are no apparent beneficiaries from price ceilings. Thus, the enactment of APG laws is puzzling from an economic perspective. The passage of APG laws is first analyzed with case studies of all thirty-one state laws. The case studies include information such as disasters that triggered the enactment of the laws, detail on enforcement and penalties, and information on supporters and opponents. This information is used to help determine why policymakers enact the laws. From the case studies, it is apparent that state officials devote significant resources to enforcing APG laws. Thus, it can be concluded that APG are not symbolic, toothless measures. A general lack of understanding of markets also appears to play a role in the laws' enactments. Additionally, there are case studies of twelve states that do not currently have APG laws. In general, these states have either taken enforcement action without APG laws or considered an APG bill that ultimately failed. The enactment of the laws is also investigated with statistical models. The passage of APG laws is found to be associated with disaster variables like precipitation, hurricanes, and earthquakes. There is mixed evidence that poorer states are more likely to enact APG laws. More Democratic states are not more apt to adopt APG laws. Lastly, income dispersion and gas prices have no measurable effect on APG law passage.

CHAPTER 1

INTRODUCTION

When disasters such as hurricanes occur, prices rise due to both demand and supply shocks. Supply shocks occur, for example, when oil infrastructure is devastated during hurricanes. Prices also rise due to demand increases during disasters, as consumers hasten to purchase generators, ice, hotel rooms, and cleanup services. Thirty-one states have ‘anti-price gouging’ laws (henceforth APG laws) that attempt to prevent firms from significantly raising prices during states of emergency. APG laws, which are identified as those laws whose stated purpose is to limit the magnitude of price increases during states of emergency, essentially impose price ceilings on the markets to which they apply.

Standard economic analysis suggests that not all demand is satisfied under price controls. One rationing mechanism is queuing, under which the market clears with a money plus waiting time price (Barzel, 1974). Economists generally agree on the effects of price ceilings. In 1992, Alston, Kearn, and Vaughan reported that out of 464 economists surveyed, 93.5% agreed that rent ceilings reduce the quantity and quality of available housing. This thesis explores the factors that lead states to enact APG laws. Despite the attention these laws receive whenever disasters occur, no known work has examined this aspect of APG laws.

The following chapter is a discussion of the economic theory of price controls. The chapter has welfare analyses of price controls on demand-and-supply diagrams. The chapter also contains hypothetical scenarios of ten consumers of different incomes. The

scenarios show when either the rich or the poor benefit from price controls. After the discussion of the effects of price controls, Chapter 2 continues by exploring possible reasons for enacting APG laws. Chapter 3 provides examples of price controls in the United States from the colonial period to more recent history.

Chapter 4 includes information on the components of APG laws, so the reader can obtain a better understanding of the specific provisions of APG laws. The chapter begins with an overview of APG laws. This includes figures that display the laws' dates of passage and a summary of the components of APG laws.

The bulk of Chapter 4 consists of case studies of APG laws. The case studies contain information on the passage and enforcement of each law. Case studies are also included for states without APG laws, as many states have either considered APG laws or have taken action without an APG law. For seventeen states, a disaster that resulted in price gouging accusations can be identified as the triggering event for the law. The case studies include details on APG law violations and the penalties imposed on firms for the violations. The case studies show that many states devote significant resources to enforcing APG laws. Information on how states modify their APG laws with amendments is also included. This thesis provides the first comprehensive compilation of information on APG laws.

Chapter 5 focuses on statistical analyses to explain the timing of APG law passage. Information on possible statistical models is offered, along with reasoning for the models used. Several disaster proxies, including precipitation and hurricane variables, show that more disaster prone states are more likely to enact APG laws. According to the

models, a neighboring state passing an APG law makes a state more likely to adopt their own. Party control of state legislature, income dispersion, and gas prices appear to have no effect on APG law passage. The thesis concludes with Chapter 6, “Conclusions and Discussion”. It is concluded that APG laws are not purely symbolic measures, as many states have used significant resources to enforce their laws. Furthermore, it is concluded that a lack of market understanding plays a role in the laws’ passage. Several disaster proxies used in the statistical models show that more disaster-prone states are more likely to adopt APG laws. There is mixed evidence that poorer states are more likely to adopt APG laws.

CHAPTER 2

THEORY OF PRICE CONTROLS

This chapter is divided into two subsections. The first contains analyses of the effects of price controls. The second subsection explores why states would enact APG laws.

The Effects of Price Controls

Before analyzing the passage of APG laws, it is useful to first discuss in some detail the effects of price ceilings. The supply and demand graph of a generic good in figure 1 shows the impact of a price ceiling imposed through an APG law. D_0 and S_0 are the initial demand and supply schedules. The market originally clears at P^* and Q^* . When the natural disaster occurs, a supply shock shifts the supply curve from S_0 to S_1 . If there were no price ceiling, the new unregulated market price would be P_u . The price ceilings imposed by APG laws differ by state, but for this analysis it will be assumed that the price ceiling P_c is equal to P^* . With the new supply schedule S_1 , firms will supply only Q_1 . Consumers are willing to pay P_1 for that quantity. If there was a demand increase instead, one would reach similar conclusions regarding the effects of price controls.

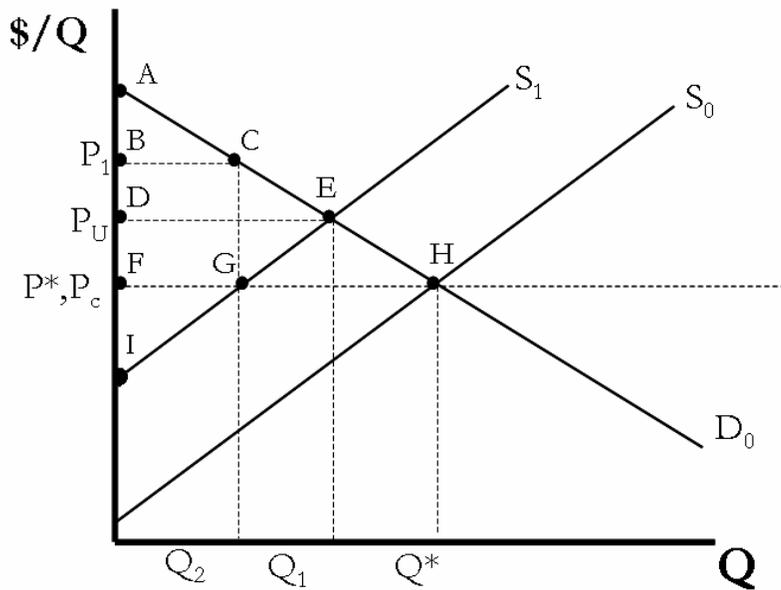


Figure 1. Supply-demand diagram depicting the effects of price controls.

The pecuniary price is not allowed to rise due to the APG law, but the quality of the good may be altered or the total price (pecuniary plus waiting time) can rise. In “The Economic Analysis of Property Rights” Barzel (1997) describes how gasoline retailers made adjustments in quality during the price controls of the 1970s. Black markets can also develop as a result of the price control. When queuing is the sole rationing mechanism, the market clears with a money plus waiting time price of P_1 (Barzel, 1974).

Consider the welfare effects of a price ceiling in this situation. In figure 1, if there was no price control after the natural disaster, consumer surplus would be triangle ADE, while producer surplus would be DEI. With the price control, consumer surplus is reduced to triangle ABC, and producer surplus has fallen to triangle FGI. Rectangle BCFG is the surplus that is dissipated due to waiting. The dead-weight loss in this situation is rectangle BCGF plus triangle CGE. Clearly, both producers and consumers are made worse off by the price control.

In the very short run after disasters, it may be reasonable to assume that the supply curves for many goods are, in essence, completely inelastic. Figure 2 depicts this scenario after a demand shock resulting from a disaster. With completely inelastic supply, the quantity traded in the market remains unchanged at Q^* . With a price ceiling of P_c , consumers compete for the rents represented by rectangle ABDC. In this situation, although a price ceiling does not result in dead weight loss due to under-production, there will still be losses associated with queuing and so forth

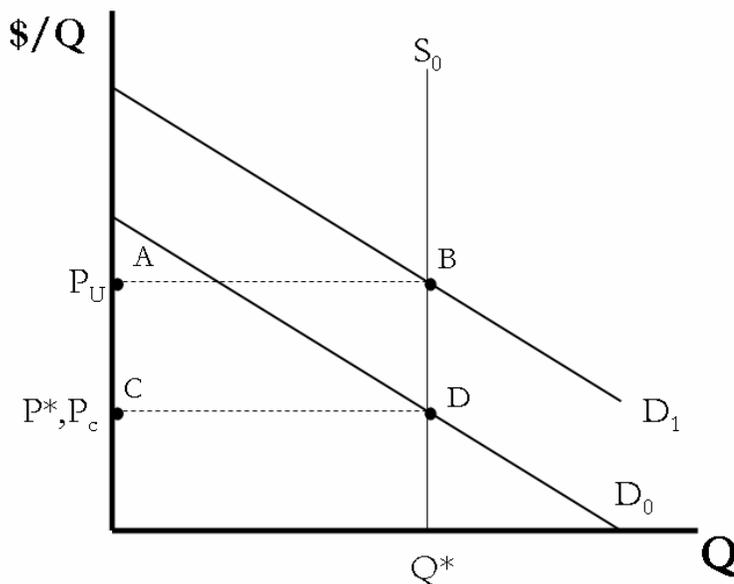


Figure 2. Price control with inelastic supply.

Disasters such as hurricanes are often anticipated. Many consumers anticipate price increases before these disasters and hoard goods like gasoline (for generators) and food. One could argue that APG laws reduce inefficiencies associated with hoarding by removing the expectation of price increases. It is hard to argue, however, that APG laws are more efficient than the free market. APG laws could simply trade hoarding for queuing (or other wasteful rent-seeking activities).

Based on the preceding welfare analyses, it is somewhat puzzling that APG laws are enacted. The existence and persistence of APG laws suggests, however, that there is probably a group who benefits from APG laws. Intuitively, APG laws may benefit those with a low opportunity cost of waiting. The true beneficiaries of a price ceiling, however, are determined by the relative magnitudes of the income and price elasticities of the commodity in question (Barzel, 1974). The following examination of the beneficiary of a price ceiling is adapted from Barzel (1974). Assume that the commodity's demand function follows the Cobb-Douglas formulation, which is formally defined as

$$(1) Q = \alpha P^\beta Y^\gamma .$$

Q is the quantity, α is the scale factor, P is the price, β is price elasticity (where $\beta < 0$), Y is income, and γ is the income elasticity (where the sign of γ is unspecified). Only one price variable is shown in (1), because the prices of other goods are held constant. The prices of other goods are embodied in the constant α . With the Cobb-Douglas formulation above, the marginal valuation of the q th unit is shown by

$$(2) P = \alpha^{-1/\beta} Q^{1/\beta} Y^{-\gamma/\beta} .$$

Consider two (otherwise identical) consumers with incomes Y_1 and Y_2 such that $Y_1 > Y_2$.

The relative valuation of the marginal unit is shown by

$$(3) \frac{P_1}{P_2} = \frac{\alpha^{-1/\beta} Q^{1/\beta} Y_1^{-\gamma/\beta}}{\alpha^{-1/\beta} Q^{1/\beta} Y_2^{-\gamma/\beta}} = \left(\frac{Y_1}{Y_2} \right)^{-\gamma/\beta} .$$

Assuming income is proportional to wages yields

$$(4) \frac{W_1}{W_2} = \frac{Y_1}{Y_2} .$$

W_1/W_2 is the consumers' relative time costs. Combining (3) and (4) produces

$$(5) \frac{W_1}{W_2} = \frac{Y_1}{Y_2} > \left(\frac{Y_1}{Y_2} \right)^{-\gamma/\beta} \quad \text{if } -\gamma/\beta < 1.$$

The inequality in (5) states that relative time costs exceed relative valuations if $-\gamma/\beta < 1$.

Said differently, as W_1 increases, relative time costs rise faster than relative valuations. If $-\gamma/\beta < 1$, the order in which individuals join the queue is from poorest to richest. If $-\gamma/\beta > 1$, consumers will join the queue in the richest to poorest order. The general idea that emerges from this analysis is that the markets in which poor consumers benefit from price controls are those with low income elasticities and high price elasticities. Assuming that β is negative, poor consumers will benefit from price controls on inferior goods. For normal goods, the absolute value of the price elasticity must exceed the income elasticity for poor consumers to benefit.

It is instructive to examine with numerical illustrations when rich or poor consumers obtain the goods under rationing by waiting. For simplifying purposes, the good in these examples has characteristics such that each person only consumes one unit per period. Consumers derive no utility from consuming more than one unit of the good. Tax preparation services are an example of such a good. The ten hypothetical consumers have daily incomes of \$10,20,30,...,\$100, and their hourly opportunity costs are \$1,2,3,...,\$10. The labor-leisure decision is ignored in this illustration. Each consumer is assumed to work 10 hours per day.

Table 1 shows the willingness to pay (Wtp) for each consumer and the marginal cost (MC) of producing each good. Each consumer is indexed by her income rank. Figure 3 is a graph of the Wtp and MC data in table 1.

Table 1. Wtp and MC values.

Consumer Index	Wtp	Wage	Quantity	MC
10	4.0	10	1	0.4
9	3.8	9	2	0.8
8	3.6	8	3	1.2
7	3.4	7	4	1.6
6	3.2	6	5	2
5	3.0	5	6	2.4
4	2.8	4	7	2.8
3	2.6	3	8	3.2
2	2.4	2	9	3.6
1	2.2	1	10	4

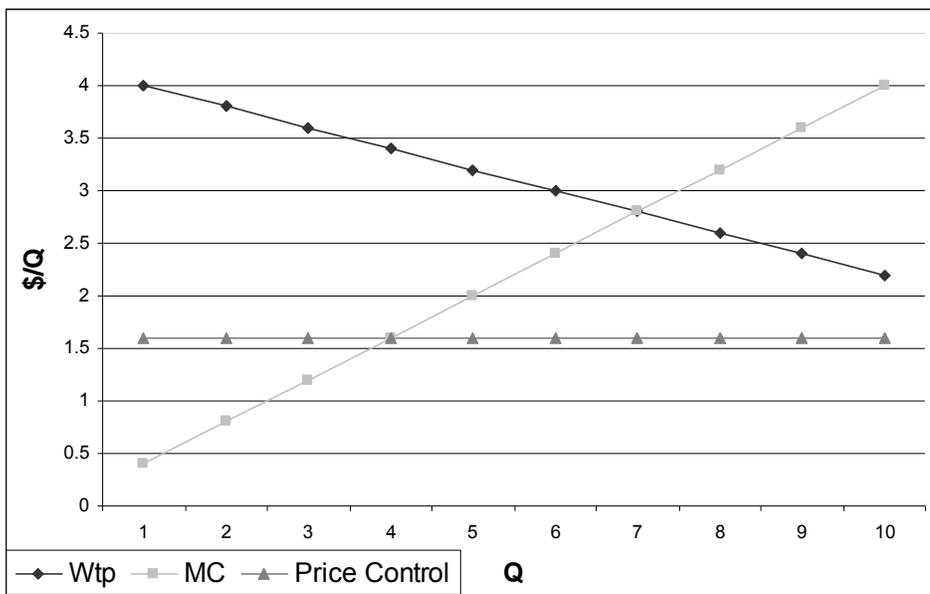


Figure 3. Graph of Wtp and MC schedules.

This market clears at a quantity of seven and a price of \$2.80. If a price control of \$1.60 is imposed, four units are supplied in the market. Determining which consumers obtain the four units can be done by computing the willingness to wait (Wtw) from the Wtp. Each consumer and her Wtp and Wtw are displayed in table 2.

Table 2. Wtp, Wtw, and CS values.

Consumer Index	Wtp	Wtp > \$1.60	Wtw (hours)	Total Price Paid	CS (free market)	CS (waiting)
10	4.0	2.4	0.2400	0.0	1.2	0.0
9	3.8	2.2	0.2444	0.0	1.0	0.0
8	3.6	2.0	0.2500	0.0	0.8	0.0
7	3.4	1.8	0.2571	0.0	0.6	0.0
6	3.2	1.6	0.2667	0.0	0.4	0.0
5	3.0	1.4	0.2800	0.0	0.2	0.0
4	2.8	1.2	0.3000	2.8	0.0	0.0
3	2.6	1.0	0.3333	2.5	0.0	0.1
2	2.4	0.8	0.4000	2.2	0.0	0.2
1	2.2	0.6	0.6000	1.9	0.0	0.3

Each consumer's Wtp over \$1.60 are displayed in the next column. The Wtw values are derived from dividing the Wtp over \$1.60 by the consumers' opportunity costs. As the four poorest consumers have the highest Wtw values, they acquire the four goods and the equilibrium waiting time is 0.30 hours (the lowest waiting time for the four consumers). Each consumer's total price paid is shown in the table. The consumer surplus (CS) values under the free market and rationing by waiting scenarios are shown in the last two columns of table 2. The richest six consumers have surplus under the free market and the poorest three have surplus with the price control. When comparing the price control to the free market scenario, CS declines by 85.71%, producer surplus (PS) declines by 71.43%, and total surplus (TS) declines by 76.19%.

The Wtp, Wtw, and CS information for ten additional consumers is shown in table 3. Incomes, time costs, and marginal costs are unchanged from the first group of consumers. Wtp, however, is more variable in this example (reflecting a higher income elasticity of demand). Figure 4 displays a graph of the Wtp and MC data.

Table 3. Wtp, Wtw, and CS information for ten additional consumers.

Consumer Index	Wtp	Wage	Wtp > \$1.60	Wtw (hours)	Total Price Paid	CS (free market)	CS (waiting)
10	8.0	10	6.4	0.6400	7.3140	4.8	0.6860
9	7.2	9	5.6	0.6222	6.7426	4.0	0.4574
8	6.4	8	4.8	0.6000	6.1712	3.2	0.2288
7	5.6	7	4.0	0.5714	5.5998	2.4	0.0002
6	4.8	6	3.2	0.5333	0.0000	1.6	0.0000
5	4.0	5	2.4	0.4800	0.0000	0.8	0.0000
4	3.2	4	1.6	0.4000	0.0000	0.0	0.0000
3	2.4	3	0.8	0.2667	0.0000	0.0	0.0000
2	1.6	2	0.0	0.0000	0.0000	0.0	0.0000
1	0.8	1	0.0	0.0000	0.0000	0.0	0.0000

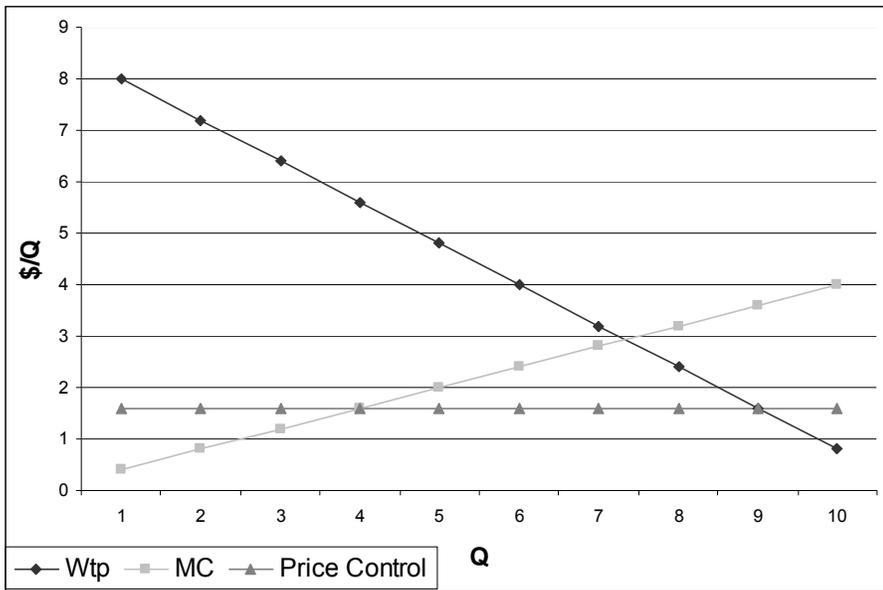


Figure 4. Graph of Wtp and MC information for consumers in table 3.

In the free-market, seven goods will be traded at a price of \$3.20.¹ Four goods are supplied when there is a price control of \$1.60. The four richest consumers will obtain those goods at an equilibrium waiting period of 0.5714 hours in this scenario. CS declines by 91.83%, PS decreases by 78.57%, and TS falls by 86.53%.

Why States Enact APG Laws

The preceding graphical analysis of a price control in figure 1 is generally how economists consider price controls. Cheung (1974) criticizes standard economic theories of price controls because they offer no refutable implications. He argues that with so many rationing methods possible under price controls (queuing, black markets, violence, etc.), no refutable predictions are generated by the standard economic analysis of price controls. “A theory potentially consistent with everything explains nothing” (p. 54). Cheung rejects the notion that markets do not clear under price controls. Price-controlled markets can be cleared, for example, by waiting time, quality changes, product bundling, or black markets. Cheung offers two general propositions that are intended to guide research of specific price controls, and, in turn, yield refutable predictions. His first proposition is: “When the right to receive income is partly or fully taken away from a contracting party, the diverted income will tend to dissipate unless the right to it is exclusively assigned to another individual” (p. 58). His second proposition is that involved parties will seek to minimize the dissipated income.

¹ The demand and supply curves could not be altered to intersect at specific points. Note that firms have no incentive to charge less than \$3.20, the maximum that Consumer 4 is willing to pay.

With his propositions in mind, Cheung states that Hong Kong rental controls were repeatedly amended from 1921-1972 with the purpose of more explicitly assigning the rental income. In the context of the APG laws examined in this thesis, Cheung's prediction suggests that states may amend their laws to make property rights more clearly defined. For example, they could amend the laws to make a violation of "price gouging" more clearly defined.

Intuitively, it seems plausible that more disaster prone states would be more likely to enact APG laws. The case studies and statistical analyses confirm that states generally pass the laws in response to disasters. In a few cases, states pass the laws as proactive measures after hearing about post disaster price increases in other states. Determining the intentions of the APG laws enacted after disasters is sought from the study. Knowing the intentions of the laws is central to understanding what leads states to enact the laws (besides disasters).

Three possible intentions are considered for the passage of APG laws. One is that the laws are primarily symbolic measures enacted to appease consumers. Many consumers do not understand the effects of price controls, and politicians could enact inconsequential APG laws with great fanfare. The costs to rationally ignorant voters of monitoring APG law enforcement may be prohibitively expensive. Furthermore, there could be years between the time of APG law enactment and the next disaster in which the APG law could apply. Thus, it is possible that lawmakers could succeed in enacting symbolic, and thus toothless, APG laws. Historical enforcement information is used to determine the effectiveness of APG laws. Since 1973, the U.S. Congress has requested

over 30 investigations of energy companies regarding gas price spikes (“Pains at the pump”, 2007). Most resulted in no legal action. This symbolic law hypothesis states that the APG laws are similar to these investigations requested by Congress.

Another possible intention is that APG laws are enacted to benefit consumers after disasters, as politicians’ rhetoric often says. It will be shown in Chapter 4 that the “benefits” touted by politicians are often based on misunderstandings of markets. Many policymakers do not appear to recognize the supply disincentives created by price controls. In short, this hypothesis states that APG laws are passed because of market ignorance. If this is the case, then one would expect some states to repeal their APG laws after they observed such unintended consequences as waiting lines, black markets, and so forth. No states have repealed their laws, and a reason for this is offered in Chapter 4.

The third possible intention of APG laws is related to the second, and it states that APG laws are enacted to benefit particularly poor consumers. When rationing by waiting is the allocation mechanism under a price control, poor consumers can benefit from the laws as demonstrated by Barzel’s (1974) analysis and the earlier examples of ten hypothetical consumers. Unlike the previous hypothesis in which legislatures enact the laws out of ignorance, this hypothesis says that the laws are enacted to transfer wealth to poor consumers. This hypothesis is tested in Chapter 5 with income and poverty data. Keep in mind that this hypothesis assumes rationing by waiting is the allocation mechanism and that poor consumers can benefit from the price control. Additional predictions are offered at the start of Chapter 5.

It is important to note that the possible intentions of the laws are not mutually exclusive. APG laws may be enacted for combinations of reasons. Politicians may enact the laws partly because they believe they will protect consumers and partly as a symbolic measure to appease their constituents. If politicians pass the laws to protect consumers, it is difficult to determine if they support them out of ignorance or to explicitly transfer wealth to poor consumers. Furthermore, not all states will pass APG laws for the same reasons. It is because of these complications that in this thesis as much emphasis is placed on analysis of historical case studies as on more formal statistical analysis.

Disaster proxies are included in the statistical models, and, as expected, they have a positive influence on APG law passage. The confirmation of the disaster prediction does not support one possible purpose of APG laws over another, however. The disaster proxy is simply a key control variable. One would expect disasters to influence the passage of APG laws regardless of whether they are passed for symbolic reasons or for income-transferring reasons or both.

Evidence in the case studies is mixed as to whether politicians enact the laws because they believe they are protecting consumers or if politicians enact them as symbolic measures. In many instances, the APG laws pass state legislatures nearly unanimously, which offers credence to the idea that the laws are symbolic, or “feel good”, measures. In other instances, however, the laws pass by slim margins and APG proposals have failed in nine states.² Policymakers are unlikely to debate symbolic bills.

² The states in which APG bills have failed are Arizona, Colorado, Maine, Maryland, Montana, New Hampshire, New Jersey, New Mexico, and North Dakota.

Furthermore, the case studies show that state officials often devote significant resources to investigating APG law violations after disasters, which goes against the symbolic idea.

CHAPTER 3

HISTORICAL REVIEW

Price controls have been used in the United States at various points throughout its history. Many of the major impositions of price controls were broad-based controls aimed at controlling inflation. During the Revolutionary War, the Continental Congress printed excess money and hyperinflation resulted (Rockoff, 1993). As a response, price controls on numerous goods were instituted. Rockoff (1993) says that the controls were largely ineffective, as consumers and merchants devised ways to avoid the controls. There were often regional differences in the price controls, which caused goods to flow to areas with less stringent controls.

Rockoff (1984) reports that the next major imposition of price controls in the United States occurred in World War I. As the United States entered the war, inflation skyrocketed. “From May 1916 to August 1917 (when controls were imposed) wholesale prices rose at an annual rate of 32.4%” (Rockoff, 1984; p. 83). Four government agencies were created to enforce price controls: the Price Fixing Committee of the War Industries Board, the Food and Fuel Administrations, and the Bureau of Industrial Housing and Transportation. Rockoff credits the price control bureaucracies, along with a slowdown in the growth of the money supply, for stopping inflation. The agencies used substitutes for the price system such as allocation by priority systems, tie-in sales, and driving bans.

Rockoff (1984) calls the price controls during World War II “the longest and most comprehensive trial [of price controls] in America’s history” (p. 85). When the war

began, the federal government experimented with controls only in certain sectors (Rockoff, 1993). Inflation took off in the uncontrolled sector, however, and President Roosevelt issued across-the-board controls in April 1943. Rockoff reports that the biggest type of evasion came in the form of quality adjustments. “Butchers added more fat to the hamburger, candy makers reduced the size of their bars” and so on (Rockoff 1993; p. 134). Rockoff concludes that the across-the-board controls only delayed inflation until after they were removed in 1946.

As the United States prepared for war in North Korea, there was “a wave of inflation and speculative hoarding” that spurred calls for price controls (Rockoff, 1984; p. 177). President Truman imposed across-the-board controls in January 1951. The controls finally ended in March 1953 under President Eisenhower. Inflation did not spike after the controls were lifted, which Rockoff takes as evidence that the Korea era controls were effective at stopping inflation.

A ninety day economy-wide price freeze dubbed the Phase I price controls was instituted on August 15, 1971 (Kalt, 1981). President Nixon cited controlling inflation as justification for the freeze (Rockoff, 1984). After the Phase I controls were lifted in November 1971, the Phase II controls were implemented, which provided more flexibility than the Phase I controls (Kalt). For example, multi-product firms were restricted by limits on weighted average prices, not individual prices. The Phase III controls replaced the Phase II controls in January 1973. The Phase III controls were voluntary, but many firms complied out of fear of re-control. The twenty-three largest oil firms were again subjected to mandatory controls in March 1973 through Special Rule

No. 1. Inflation picked up in early 1973, and, as a response, the Nixon administration made the Phase III controls mandatory. Economy-wide price controls ended with the expiration of the Phase III controls on August 12, 1973.

The Nixon era controls are similar to APG laws in that both apply to wide varieties of goods and services. However, the two types of controls drastically differ in when they could be applied. APG laws are enforced only during emergencies, while the economy-wide controls were enforced continuously over defined periods.

Petroleum price controls continued with the enactment of the Emergency Petroleum Allocation Act (EPAA) on November 27, 1973, shortly after the Arab Oil Embargo (Kalt, 1981). The act was the basis of petroleum price regulations from 1973 until 1981. The primary component of the EPAA was a price control on “old” oil, or crude oil from domestic properties that were producing in 1972. In contrast, “new” crude oil could be sold at the market price. For the purposes of this summary, the precise definition of old oil is not offered, as it is complex. Obviously, it is expected that refiners would devise ways circumvent the price controls and to capture the rents from old oil.

In December 1974, an old oil entitlements program was adopted in an attempt to evenly distribute old oil among refiners and to rescue refiners who were dependent on higher priced uncontrolled oil. Under the program, each refiner was granted entitlements equal to the amount of old oil that the “refiner would have used in the previous month had it operated using the national average proportion of controlled to uncontrolled crude oil” (Kalt, 1981, p. 14). If a refiner used old oil in higher proportion than the national average, then the refiner was required to buy entitlements from other refiners. If a refiner

used old oil in lower proportion than the national average, then the refiner was allowed to sell entitlements. Per EPAA regulations, the entitlement price was set at the difference between the controlled and uncontrolled prices of crude oil. The entitlements program was in effect in various forms until 1981.

The Energy Policy and Conservation Act (EPCA) replaced the EPAA in February 1976. The primary feature of EPCA was a three-tier pricing regulation. Most domestic oil production fell into two controlled tiers. The lower-tier price was set at the May 15, 1973 price plus \$1.35 plus inflation. The upper-tier price was set at the September 30, 1975 price plus \$1.32 plus inflation. Prices of imported oil and of production from the Federal Naval Petroleum Reserves were left uncontrolled under EPCA. Kalt concludes that one reason for the acceptance of the EPAA and EPCA programs was that policymakers believed, contrary to simple economic theory, that they would freeze refined product prices.

Domestic oil was gradually decontrolled beginning in June 1979 under the provisions of EPCA. As the EPCA controls disappeared, the Windfall Profits Tax (WPT) became effective on March 1, 1980. The publicly stated purpose of the WPT, an excise tax, was “to extract the largest part of the differences between ceiling prices and uncontrolled prices as EPCA price controls are phased out” (Kalt, 1981, p. 19). The WPT was repealed in 1988 and marked the end of the period of heavy petroleum regulation (Lazzari, 2007). Like these regulations, a few APG laws apply only to petroleum products. APG laws could be enacted to transfer wealth like the petroleum regulations.

However, the 1970s oil regulations are orders of magnitude more complex than APG laws. The petroleum controls were also enforced continuously, while APG laws are only enforced during brief, unexpected intervals.

CHAPTER 4

ANATOMY AND HISTORY OF APG LAWS

Overview of APG Laws

Thirty-one states currently have APG laws, and twenty-eight of those states enacted the laws through their state legislatures. The remaining three states, Iowa, Massachusetts, and Missouri, have APG laws that are part of the administrative codes in those states. Those three statutes were not enacted by state legislatures. Various attributes of the APG laws are displayed in table 4. Figures 5 and 6 offer additional views of the states with APG laws and their dates of passage.

“Provided in law” in the Fines column means that a firm can be fined under the APG law, but the law does not specify how large the fine may be. Similarly, “Provided in law” in the Criminal Penalties column means that the use of criminal penalties is provided in the law, but the magnitudes of the criminal penalties are not specified. “Unspecified” in the Fines column means that the ability to levy fines is not specified in the law.

Specific fines can be found in thirteen of the laws, all of which are on the order of \$1,000 or \$10,000 per violation. Twenty-four of the APG laws are written to apply to most goods and services, as indicated by the “General goods and services” entries in the “Goods Covered” column in table 4. The Indiana, Massachusetts, and Vermont statutes only apply to petroleum products. The provisions of twenty-three APG laws are triggered by states of emergency declared by the Governor or President. The Maine, Vermont, and

Wisconsin statutes are activated by “abnormal market disruptions” that are defined in the laws. Five APG laws specify criminal penalties, three of which have a maximum penalty of one year in prison.

Table 4. APG law attributes.

State	Passage Year	Fines	Goods Covered	Triggering Event	Criminal Penalties	Ceiling
AL	1996	\$1,000/violation; \$25,000 max fine in 24 hours	General goods and services	Gov declared SOE	None	25% above pre- emergency prices
AR	1997	Provided in law	General goods and services	Pres, Gov, or locally declared SOE	Provided in law	10% above pre- emergency prices
CA	1994	\$10,000 or less	General goods and services	Pres, Gov, or locally declared SOE	≤1 year in prison	10% above pre- emergency prices
CT	1986	\$1,000 or less	Goods and energy	Gov declared SOE	≤1 year in prison	Pre-emergency prices
FL	1992	Unspecified	General goods and services	Gov declared SOE	None	Pre-emergency prices
GA	1995	≤\$10,000/ transaction	General goods and services	Gov declared SOE	None	Pre-emergency prices
HI	1983	Unspecified	General goods and services	Gov declared SOE / severe weather warning	None	Pre-emergency prices
IA	1993	Unspecified	General goods and services	"Disaster"	None	Pre-emergency prices
ID	2002	Unspecified	Food, fuel, pharmaceutic als, water	Gov or Pres declared SOE	None	Pre-emergency prices
IN	2002	≤\$1,000/ transaction	Fuel	Gov declared SOE	None	Pre-emergency prices
KS	2002	Unspecified	General goods and services	Gov or Pres declared SOE	None	25% above pre- emergency prices
KY	2004	≤\$5,000 for first violation / ≤\$10,000 afterwards	General goods and services	Gov or Pres declared SOE	None	Pre-emergency prices
LA	1993	Provided in law	General goods and services	Gov/parish pres declared SOE or hurricane threatening in Gulf	Provided in law	Pre-emergency prices
MA	1990	Unspecified	Petroleum	"Market emergency"	None	Pre-emergency prices

Note: SOE = State of emergency

Table 4 (continued). APG law attributes.

State	Passage Year	Fines	Goods Covered	Triggering Event	Criminal Penalties	Ceiling
ME	2006	Provided in law	General goods and services	Gov declared "abnormal market disruption"	None	15% above pre-emergency prices
MO	1994	Unspecified	"Necessities"	Not clearly specified	None	"Excessive" prices
MS	1986	≤ \$500	General goods and services	SOE (no declaration required)	0-5 years in prison	Pre-emergency prices
NC	2003	Unspecified	General goods and services	Gov declared SOE	None	"Unconscionably excessive" prices
NJ	2001	Unspecified	General goods and services	Pres, Gov, or locally declared SOE	None	10% above pre-emergency prices
NY	1979	≤\$10,000 and restitution	General goods and services	Gov declared SOE	None	Pre-emergency prices
OK	1999	Unspecified	General goods and services	Gov or Pres declared SOE	None	10% above pre-emergency prices
OR	2007	NA	NA	NA	NA	NA
PA	2006	≤\$10,000/violation plus restitution	General goods and services	Gov declared SOE	None	Pre-emergency prices
SC	2002	≤\$1,000	General goods and services	Gov or Pres declared SOE	≤30 days in prison	Pre-emergency prices
TN	2002	Unspecified	General goods and services	Gov or Pres declared SOE	None	Pre-emergency prices
TX	1995	Unspecified	General goods and services	Gov declared SOE	None	"Excessive or exorbitant price"
UT	2005	≤\$1,000/violation or \$10,000 total	General goods and services	Gov or Pres declared SOE	None	Pre-emergency prices
VA	2004	Unspecified	General goods and services	Gov or Pres declared SOE	None	Pre-emergency prices
VT	2006	Unspecified	"Petroleum or heating fuel product"	"abnormal disruption of any market for petroleum products or heating fuel products"	None	Pre-emergency prices
WI	2006	≤\$10,000	General goods and services	Gov declared "abnormal economic disruption"	None	"Excessive prices"
WV	2002	≤ \$1,000	General goods and services	Gov or Pres declared SOE	≤ 1 year in prison	10% above pre-emergency prices

Note: SOE = state of emergency, NA = information not available

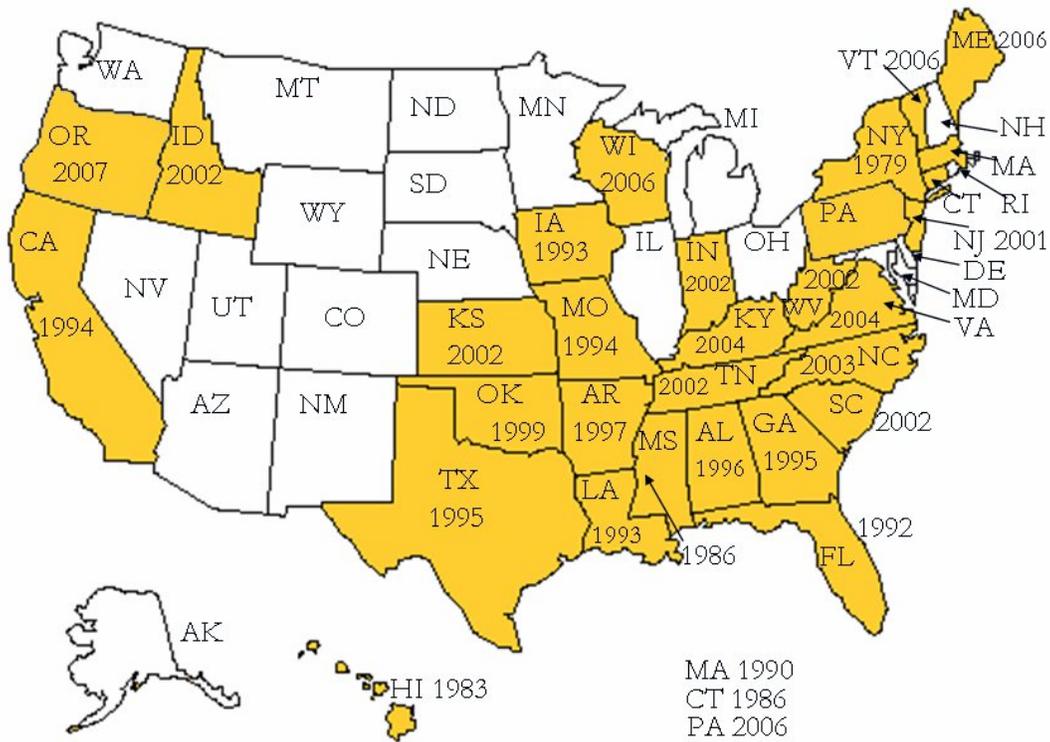


Figure 5. Map of states with APG laws.

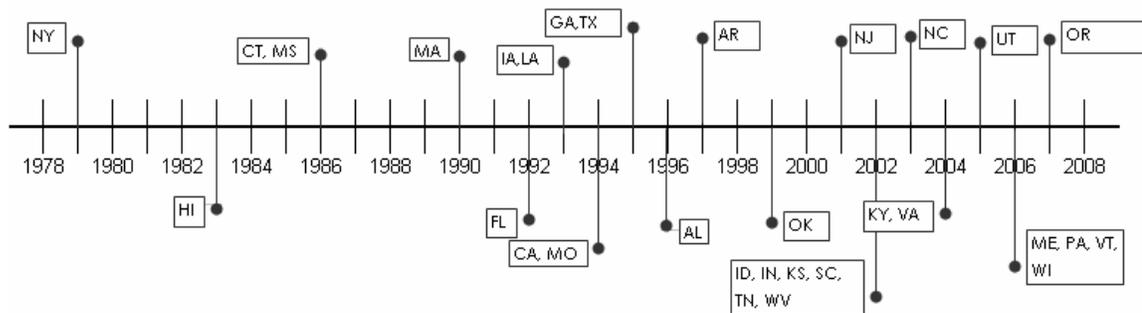


Figure 6. Timeline of states with APG laws.

Sixteen laws prohibit firms from charging substantially above “pre-emergency prices,” the definition of which varies across states. As an example of “pre-emergency prices,” a violation of the Indiana APG law occurs when “the amount charged grossly exceeds the average price at which fuel was readily obtainable within the retailer’s trade area during the seven days immediately before the declaration of emergency” (Price

Gouging in Declared Emergencies, § 4-6-9.1-2). Eight APG laws attempt to freeze prices within a specific level above pre-disaster levels (i.e. 10, 15 percent). With the exception of the laws in Missouri, Texas, and Wisconsin, all the APG laws include “increased cost” provisions that allow producers to pass on higher input costs to consumers.

Many of the laws’ supporters appear to lack a basic understanding of how markets work. Consider a portion of a note on legislative intent in the California statute:

“The Legislature hereby finds that during emergencies and major disasters, including, but not limited to, earthquakes, fires, floods, or civil disturbances, some merchants have taken unfair advantage of consumers by greatly increasing prices for essential consumer goods and services. While the pricing of consumer goods and services is generally best left to the marketplace under ordinary conditions, when a declared state of emergency results in abnormal disruptions of the market, the public interest requires that excessive and unjustified increases in the prices of essential consumer goods and services be prohibited. It is the intent of the Legislature in enacting this act to protect citizens from excessive and unjustified increases in the prices charged during or shortly after a declared state of emergency for goods and services that are vital and necessary for the health, safety, and welfare of consumers. Further it is the intent of the Legislature that this section be liberally construed so that its beneficial purposes may be served” (California Codes Annotated, 2006).

Five other APG laws – the Arkansas, Idaho, New Jersey, Tennessee, and West Virginia statutes – have notes of intent with wording nearly identical to the California statute. Because California passed its APG law in 1994 before the other states with the note, the others presumably mimicked California. This lack of understanding of markets will be further exemplified in the detailed history of the laws. The above statement indicates a lack of understanding because it seems to imply that the price mechanism fails during emergencies simply because prices often rise during emergencies. The statement fails to recognize that price increases cause goods to flow into the disaster area.

In the long-run, however, policymakers cannot be expected to remain completely ignorant of market forces. Suppose APG laws froze prices during emergencies as they are intended to do. Per the simple graphical analysis in figure 1, one would expect waiting lines to develop. Policymakers would observe the lines and eventually repeal the laws, as they may dislike the unintended consequence of waiting lines. However, widespread reports of waiting lines after disasters are not evident in the case studies. One likely reason for the lack of waiting lines is the “increased costs” provisions in the laws. These provisions are probably included by lawmakers in an attempt to placate firms. Regardless of the provisions’ intentions, they have the effect of making the laws less stringent. In many instances, a merchant can simply argue that his input costs increased after the disaster. A gas retailer may argue that his wholesale costs increased, while a contractor may argue that his labor costs increased, as his laborers were required to work longer, more strenuous hours. The presence of “increased cost” provisions may explain why no states have repealed APG laws.

Acquiring an idea of the strictness of APG laws is desired from the cases studies later in this chapter. If APG laws provide firms no disincentive to raise prices after disasters, then one would have a hard time arguing that politicians enact the laws to protect consumers. An examination of the strictness of the laws is performed to determine if the laws were symbolic measures. Consider a disaster that results in price increases of many goods and services. Politicians respond by railing against the “gougers” and enacting an APG law. Suppose that politicians enact a symbolic measure, as they may understand the consequences of APG laws. Politicians could get away with enacting such

symbolic measures, as rationally ignorant voters have high monitoring costs. This scenario is considered, because it shows that the strictness of the laws provides clues on legislative intent.

In general, the case studies later in this chapter show that APG laws are not symbolic laws. There are numerous examples of settlements, fines, and refunds resulting from APG laws. Most of the fines are on the order of one thousand dollars per violation. There are also reputational costs to violating APG laws. For example, convenience store operator Southland Corporation terminated franchise agreements with eight 7-Eleven stores after they were accused of price gouging following the Northridge Earthquake in 1994.

Large corporations like Southland have a national reputation, so they are expected to incur costs to avoid being labeled as “gougers.” Price increases by a small branch of a large corporation have the potential to affect the reputation of the entire firm. The case studies provide examples of firms like Home Depot and Georgia-Pacific freezing prices after disasters. There are only a few examples of large corporations violating APG laws.

Small firms who attain most of their profits from local customers face reputational incentives similar to large corporations. They may choose to run out of goods rather than be labeled as “gougers”. They may also implement rationing devices like quantity limits. These small firms that are highly dependent upon local customers are hard to identify, however. Many of the firms charged with gouging in the case studies could be these small firms. From the case studies, it is clear that APG law violators are not limited to firms who rush into disasters areas with goods priced high above pre-disaster prices.

If APG laws are mainly symbolic measures, then one would expect the laws to pass nearly unanimously. Voting records for APG laws and their amendments were obtained when available. The voting records for 16 APG bills are displayed in table 5.

Voting records for six amendments in four states are also displayed in the table.

California and Idaho are the only states in the table in which the laws passed by relatively slim margins in either legislative chamber. Nine states have had failed APG bills, but voting records for those bills were only found for North Dakota.

Table 5. APG bill voting records. (Sources: Legislature websites and legislative journals.)

State	Year of Passage	House Vote	Senate Vote	Provision
Alabama	1996	105-0	27-0	APG Law
Arkansas	1997	88-1	35-0	APG Law
California	1994	43-26	21-10	APG Law
California	2004	52-25	23-9	Amendment to apply to hotel PG
Connecticut	1986	140-3	35-0	APG Law
Connecticut	1991	146-0	NA	Stronger APG Law
Connecticut	2005	141-0	33-0	Stiffer fines, applicable to more goods
Georgia	1995	158-10	46-0	APG Law
Idaho	2002	19-14	34-31	APG Law
Indiana	2002	49-0	95-2	APG Law
Kansas	2002	117-4	39-0	APG Law
Kentucky	2004	92-2	38-0	APG Law
Louisiana	2005	100-0	34-0	Applicable during threatening hurricanes and tropical storms
Maine	2006	114-22	NA	APG Law
New Jersey	2001	72-2	37-0	APG Law
New York	1979	136-0	NA	APG Law
New York	1995	143-1	57-0	Amendment to include emergency repairs
New York	1998	148-1	NA	Amendment to include any party within the chain of distribution
North Carolina	2003	114-1	42-5	APG Law
North Dakota	1999	37-62	No vote	APG Law
Oklahoma	1999	94-4	39-0	APG Law
South Carolina	2002	105-0	NA	APG Law (SC Homeland Security Act)

Table 6 displays proposed amendments to APG laws and whether they passed or failed. The states in the table are ordered by the date of the initial law's passage. Eight states have amended their APG laws a total of eleven times. Most of the amendments either increase the penalties of the laws or expand their scope. Amendments to the APG laws are further evidence that they are not symbolic. It is evident that the amendments have been intended to give the laws more teeth. The exception is Utah's 2006 amendment, which specifies that the triggering event must occur in Utah.

Table 6. APG law amendments.

State	Year of Amendment	Amendment	Pass/Fail
New York	1995	Increase maximum fine from \$5,000 to \$10,000 per violation	Pass
New York	1998	Prohibition against wholesale price increases; clarification of 'unconscionably excessive'	Pass
New York	2006	APG law violation occurs if prices are raised by 25%, as opposed to 'unconscionably excessive' definition	Fail
Hawaii	1993	Specific prohibition against rental price gouging	Pass
Connecticut	2005	Increase maximum fine from \$5,000 to \$10,000 per violation; expand to apply when an 'abnormal market disruption is reasonably anticipated'; expand to apply to wholesalers	Pass
Mississippi	1994	Price increases greater than \$250 are felony offenses	Pass
Mississippi	2005	APG law can be applied outside disaster declaration	Fail
Mississippi	2006	APG law can be applied outside disaster declaration	Pass
Louisiana	2005	Law can be enforced 'during a named tropical storm or hurricane in or threatening the Gulf of Mexico'	Pass

Table 6. (continued). APG law amendments.

State	Year of Amendment	Amendment	Pass/Fail
California	2004	Law applies to hotels	Pass
California	2006	Law applies sixty days after emergency declaration, as opposed to thirty; law applies during abnormal market disruption; law applies to wholesalers	Fail
South Carolina	2006	Law applies when disasters occur elsewhere	Pass
North Carolina	2006	Law applies when disasters occur elsewhere; law applies to wholesalers	Pass
Utah	2005	Clarifies that emergency had to occur in Utah	Pass

With these amendments, it is possible to evaluate Cheung's (1974) hypothesis that price controls evolve to more explicitly assign property rights. This hypothesis is similar to Becker's (1976) hypothesis that laws become more efficient over time. An examination of the amendments does not support Cheung and Becker, as the amendments are focused on expanding the laws' scopes. The only amendment that appears to support Cheung and Becker is a proposed amendment to New York's APG law in 2006. It was a proposal to change New York's APG law so that violations occurred when prices increased by at least 25%. The proposal, which was not adopted, was a change from the language that prohibited 'unconscionably excessive' price increases

A logit model, shown in table 7, is also used to test Cheung and Becker's hypothesis. Each observation in this model is an APG law.³ The response variable equals one if an APG law had a specific price ceiling (for example, ten percent above pre-emergency prices), and zero otherwise. The explanatory variable in the model is the year

³ Oregon's APG law was not included in this model, because information on the provisions of the law could not be obtained.

of the law's passage. A positive coefficient on the year variable would imply that specific price ceilings become more likely as time passes, and this would support Cheung and Becker. The coefficient on the year coefficient was tested with a null hypothesis that it equaled zero against a null hypothesis that it was greater than zero. The coefficient is not statistically greater than zero, which does not support Cheung and Becker.

Table 7. Logit model with strict price ceiling as the response.

Variable	Coef./Std. Error
Year	0.062 (0.065)
Constant	-124.768 (130.455)

N = 30

† Significant at 10%.

* Significant at 5%.

** Significant at 1%

Standard errors are shown in parentheses.

From figure 6, one can tell that six states passed APG laws in 2002, while four states passed APG laws in 2006. These states account for nearly one-third of all APG laws. The triggering events for those states were two unique disasters: the 9/11 terrorist attacks and Hurricane Katrina. As both disasters occurred in the final thirds of 2001 and 2005, respectively, the bills did not actually pass until 2002 and 2006. The actual disasters directly affected only specific locations, but they had a nationwide impact on gas prices.

In the wake of 9/11, there was no supply shock that caused gas prices to rise. From the case studies, it appears that after 9/11, many consumers, fearing future gas shortages, rushed to fill their tanks. This demand increase led to large price increases (often greater than \$1) at some gas stations, which angered consumers. The case studies

show that such ‘panic purchases’ occurred nearly nationwide. They also show that gas price increases do not appear more prevalent near the locations of the terrorist attacks. In spite of the plethora of instances of 9/11 gas price increases in the case studies, no consumers in the newspaper articles offer any explanation of why they believed there would be gas shortages. It is plausible that some believed that ensuing war would increase the demand for gas or decrease the supply. In short, panic driven purchases after 9/11 caused a temporary increase in demand at various locations nationwide, and the logic behind this panic is uncertain. States with and without APG laws attempted to take action against stations that significantly increased prices after 9/11. In several states, stations were asked to offer refunds and make modest donations to charity. State officials, including Attorneys General, did not appear to recognize that the gas price increases were driven by demand increases.

Hurricane Katrina knocked out much of the U.S.’s refining capacity, which caused gas prices to rise and angered consumers. Katrina “caused the immediate loss of 27% of the nation’s crude oil production and 13% of national refining capacity” (Federal Trade Commission, 2006; p. viii). In the week after Katrina, prices rose an average of fifty cents in six U.S. cities.⁴ Prices rose in the Southeast, because the hurricane caused a supply reduction. Gas prices rose elsewhere in the United States because of arbitrage. Northern suppliers observed the high prices in the Southeast and shipped gasoline to the region.⁵ This arbitrage by the northern suppliers caused a supply reduction in the north, which led to price increases in the north. The process of arbitrage continued throughout the country. The

⁴ The six cities are Baltimore, Boston, Dallas, Chicago, Denver, and Los Angeles.

⁵ For simplicity, the term “northern suppliers” is used. The suppliers could come from anywhere near the hurricane devastation.

arbitrage continued until prices evened out across the nation. These 9/11 terrorist attacks and Hurricane Katrina caused several states that are not particularly disaster-prone to enact APG laws or at least consider enacting one. This concludes the overview of APG laws. Next, case studies of all states with APG laws are offered.

Case Studies

The cases studies of states with APG laws are first offered. These case studies are ordered by year of passage. Then, case studies of the states without APG laws are offered. States without APG laws have experiences similar to the states with APG laws. Policymakers in some of these states have tried, but failed, to enact APG laws. In other cases, officials in these states have tried to freeze prices by means other than APG laws. Some details in the case studies could not be obtained and are unknown to the author. This includes, but is not limited to, the outcomes of price gouging investigations, the identification of APG law triggering events, and why some APG bills failed.

Sources for this section include newspaper articles, attorney general press releases, state laws, and in some cases, conversations with officials in AG offices. Efforts were made to contact additional AG offices, but few were willing to discuss enforcement of their APG laws.

Case Studies of States With APG Laws

New York: The New York APG statute was passed in response to high heating oil prices in the 1978-1979 winter. The law said that “the inability of these persons [heating oil consumers] to pay for home heating oil will result in severe hardship, especially among the elderly and the very young, and could result in the loss of lives” (New York Assembly Bill 25, 1979). The law was introduced during a special session that specifically dealt with high heating fuel prices (Meislin, 1979). Along with the APG law, New York lawmakers passed a law that provided financial assistance to poor heating oil consumers (“Abrams acts”, 1979).

The history of the New York statute shows how APG laws can evolve to include tougher enforcement provisions. These amendments support the hypothesis that politicians support APG laws to protect consumers. Politicians would be less likely to amend laws that were introduced as symbolic measures. New York’s APG law was amended in 1995 to “include any repairs made by a merchant on an emergency basis as a result of such abnormal disruption of the market” (New York Assembly Bill 1357A, 1995). The 1995 amendment also increased the maximum fine under the law from five to ten thousand dollars per infraction. In the memorandum of support, the amendment’s chief sponsors cited home repair price increases after a December 1992 storm in New York City. For example, they cited an instance in which “it would cost as much as \$500 to restart a boiler doused by flood waters, when the customary usual charge to restart a boiler was \$100” (New York Assembly Bill 1357A, 1995). The sponsors did not explain why they responded with the amendment more than two years after the storm.

The New York APG statute was again amended in 1998 (New York Senate Bill 2664, 1998). This amendment prohibited “any party within the distribution chain of consumer goods from excessively hiking prices” during an emergency (New York Senate Bill 2664, 1998). In other words, the amendment prohibited price increases of intermediate, or wholesale, goods. Ivan Lafayette, the bill’s Assembly sponsor, said the amendment was “particularly important in light of the destruction caused by the ice storms and tornadoes, which recently plagued parts of upstate New York.” Lafayette, however, did not offer examples of price increases on wholesale goods during the storm. A summary of the amendment in the bill jacket said that the amendment was needed to protect consumers from oil price spikes such as those that followed the Exxon Valdez oil spill and the invasion of Kuwait.

The 1998 amendment also intended to clarify when a price is “unconscionably excessive.” In 1988, the New York Court of Appeals ruled on a case involving a 67% mark-up on electric generators following Hurricane Gloria on Long Island in 1985. The Court ruled “that a price may be unconscionably excessive because, substantively, the amount of the excess is unconscionably extreme, or because, procedurally, the excess was obtained through unconscionable means, or both.” The 1998 amendment codified this ruling into the APG statute. Although the preceding definition of “unconscionably excessive” may not seem like a clarification, it is clear that New York legislators intended to add teeth to the law.

The New York State Consumer Protection Board and the American Automobile Association (AAA) of New York offered letters of support for the 1998 amendment. The

Consumer Protection Board offered no reason for their support, but only repeated the provisions of the amendment. The AAA letter stated that during a national emergency “petroleum companies should exercise pricing restraint” because “U.S. policy bestows a number of important benefits on oil companies” (New York Senate Bill 2664, 1998).

The first known legal action taken with New York’s APG law occurred after Hurricane Gloria, which struck Long Island in 1985 (“Abrams to watch”, 1987). “[Attorney General] Abrams eventually obtained \$30,000 in refunds for Long Islanders who were overcharged for tree removal [after the storm]” (“Abrams to watch”, 1987, p. A11).

An ice storm in January 1998 left about 87,000 northern New York residents without power (Orenstein, 1998). Attorney General Vacco “received 150 complaints about price-gouging on items ranging from generators to food and batteries” (Fong, 1998a). Even when the AG’s office had received fifty complaints, it was, according to a spokesman, “by far the most complaints we’ve [the AG’s office] ever received” (Orenstein, 1998, p. A1). The complaints of price gouging rolled in as lines of up to 100 people formed outside a Sears in Plattsburgh to buy generators and kerosene heaters. AG Vacco sued four retailers for selling generators at excessive prices in the aftermath of the January 1998 ice storm (Fong, 1998b). Beach Boys Equipment Company was ordered to pay \$15,000 in total to 25 northern New York residents. Another retailer was also found guilty of violating the APG law, but the amount of restitution was not reported. The other two retailers named in the suit settled out of court for undisclosed sums.

AG Vacco received more price gouging complaints following a wind storm that struck on Labor Day in 1998 (Moriarty, 1998). Consumers complained of price increases on ice, generators, hotels, tree cleanup services, and home repairs (Moriarty, 1998; Mulder, 1998; “State sues”, 1998). In lawsuits filed by Vacco, three contractors were accused of violating the APG statute (“State sues”, 1998). Only one of the lawsuits is known to have resulted in fines and restitution (Kriss, 2001). In December 2001, the Appellate Division of the New York state Supreme Court upheld a lower court’s July 2000 ruling that Precision Roofing and owner Richard Dame had violated New York’s APG law. Justice Murphy ordered Dame to pay \$13,500 in court costs and fines and \$5,285 in restitution. The lawsuit alleged that Dame did not simply raise prices, but gave initial estimates that were far lower than what he actually charged. For example, the suit alleged that he charged \$802 for a job after first estimating \$90 for the job.

Attorney General Eliot Spitzer received only seven price gouging complaints in the aftermath of the September 11 terrorist attacks, all of which involved hotels. (Wood, 2002). The Days Inn in Hicksville was the only hotel fined. The hotel paid refunds to consumers plus \$9,500 in fines and court costs. The hotel had raised its rates from \$139 to as much as \$399.

Accusations of snowplow price gouging arose after a snowstorm in Buffalo in late December 2001. Mary Martino, a Buffalo city council member, said “Anyone who does this should be shot at dawn” when referring to the price increases by snowplow contractors (Fairbanks, 2002a, p. B1). Mark Shelds, a snowplow operator, defended his price increases in an editorial in the *Buffalo News*. Shelds stated that he faced increased

costs from renting extra equipment and paying employees to work 20-hour days. AG Eliot Spitzer joined the investigation of price gouging by Buffalo snowplow operators (Fairbanks, 2002b). Spitzer sought fines of \$25,000 from only one snow-removal operator, Commercial Roofing (Ernst, 2002). Customers alleged that they couldn't obtain firm estimates, while Commercial said they clearly offered price estimates. The outcome of that case is unknown.

Two hotels near Rochester were fined for increasing prices following an April 2003 ice storm ("Regulators fine", 2003). The hotels paid \$2,300 in refunds and \$7,500 in fines and costs. In October 2004, New York legislators inquired if the APG law could be applied to the flu vaccine ("Senator urges", 2004). Lawmakers did not attempt to amend the law to explicitly include the flu vaccine.

After Hurricane Katrina in August 2005, AG Spitzer's office received "hundreds" of complaints of gas price increases (Precious, 2005, p. B1). After investigating violations of the APG law, Spitzer settled with fifteen stations for a total of \$63,500. Three other gas stations that did not agree to settle were sued by Spitzer (Karin, 2006). One suit that involved an Albany gas station received its final decision in state Supreme Court. The judge ruled that New York does not need to declare a state of emergency for its APG law to become effective, but can be triggered by disasters elsewhere. Spitzer proposed an amendment to the APG law in January 2006 (Bernstein, 2006). He wanted the law to state that a violation of the APG law would occur if businesses raised prices by at least twenty-five percent after a market disruption. This amendment, which was not adopted, is in contrast to the prohibition of "unconscionably excessive" pricing currently

in the law (New York Consolidated Law Service, 2006). “The establishment of a clear threshold for price-gouging violations removes the uncertainty that merchants face when prices are changed after a market disruption,” Spitzer said (Bernstein, 2006, p. A40). Although the amendment failed, it provides an example of Cheung’s proposition that price controls evolve to more clearly define price controls.

After Hurricane Katrina, the next instance of a price gouging settlement occurred after a flood in June 2006 (Gormley, 2006). A Best Western hotel near Binghamton agreed to pay \$7,500 in fines and \$510 in refunds for raising prices by “at least 87 percent” after the flood.

The New York case study exhibits several examples of substantial penalties for violating the APG law. The newspaper articles revealed that four firms were required to pay fines and restitution on the order of \$10,000. Four additional businesses were required to pay fines and restitution on the order of \$1,000. The history of New York’s APG law is unique in that a firm (Precision Roofing) took an APG case to the state Appellate Division of the state Supreme Court. Many of the other case studies have example of firms settling APG cases out of court. It is unusual for a firm to take an APG case to court, let alone the state Supreme Court.

Hawaii: In 1983, Hawaii became the second state to enact an APG law (Hawaii Revised Statutes, 2006). The statute does not mention any disaster that helped trigger its enactment. The statute was amended in 1993 to include a prohibition against rental increases following a disaster (Hawaii Act 333, 1993). No information on intent was found for the amendment.

Connecticut: Connecticut passed an APG law with very vague language in 1986 (Connecticut Annotated Statutes, 2006). The law does not prohibit pricing at “unconscionable” levels nor does it ban price increases of a pre-specified level after emergencies. The law says that “No person, firm or corporation shall increase the price of any item which such person, firm, or corporation sells or offers for sale at retail at any location in an area which is the subject of any disaster emergency declaration issued by the Governor” (Connecticut Annotated Statutes, 2006, § 42-230). The law did allow for price increases that occur “during the normal course of business” (Connecticut Annotated Statutes, 2006, § 42-230). Violators could be fined up to \$99 per violation. Testimony from the 1986 Connecticut House of Representatives offers no explanation of why lawmakers passed the APG bill.

It is unclear why Connecticut legislators felt they should pass another APG law in 1991. Several other states have amended their APG laws to make them stricter or to expand their coverage. However, the 1991 Connecticut APG bill did not remove any language from 1986 law, but simply added another APG law. Connecticut Representative Caruso supported the 1991 bill saying “we [legislators] probably all heard many of our constituents tell us about the problems, particularly with home heating oil and the gas crisis last summer” (Connecticut House Proceedings, 1991, p. 141).

After Hurricanes Katrina and Rita, Connecticut AG Richard Blumenthal received over 100 complaints of gas price gouging (Dixon, 2005). On September 8, 2005, Blumenthal announced an investigation into “possible price gouging and antitrust violations in connection with the recent spike in oil and gasoline prices” (Moran, 2005, p.

B1). He claimed he was investigating wholesalers as well as retailers. On September 15, Connecticut's Department of Consumer Protection started a Gas Price Hot Line "for residents to report suspicions of gas price gouging" ("Hot line", 2005, p. B9).

In response to Hurricane Katrina, Connecticut policymakers passed amendments to the APG law in October 2005 (Connecticut General Assembly, 2005; Haigh, 2005). The APG law was altered so that it could be enforced "any period in which an imminent abnormal market disruption is reasonably anticipated" (Connecticut Annotated Statutes, 2006, § 42-234). Lawmakers also increased the maximum fine for violating the APG law from \$5,000 to \$10,000 and allowed the law to be applied to a wide variety of "energy resource[s]" that included "residual fuel oil, motor fuel oil, gasoline" (Connecticut Annotated Statutes, 2006, § 42-234). It is not clear why legislators added the expanded "energy resource" definition, as those goods did not appear to be excluded in the previous version of the law. Lastly, the amendments defined a "seller" to include "a supplier, wholesaler, distributor or retailer" (Connecticut Annotated Statutes, 2006, § 42-234).

Five Connecticut gas stations settled Hurricane Katrina price gouging accusations in August 2006 (Dixon, 2006). One station paid \$1,000 while five stations all owned by Cumberland Farms paid a total of \$43,891. No lawsuits were filed in the cases, but the retailers signed agreements to "avoid future violations" (Dixon, 2006).

Mississippi: Mississippi passed an APG law in 1986 (Mississippi Code Annotated, 2006). The first known legal action under the law came after a February 1994 ice storm ("Official charged", 1994). Four individuals were charged for raising prices on gas, generators, tree-removal, and meter box repair. The article did not note how much

the individuals were fined or whether they settled out-of-court or were formally charged. Accusations of \$1,000 generator price increases were a catalyst for Mississippi lawmakers to make price gouging a felony offense (“Miss. weighs”, 1994). The law was amended in 1994 so that price increases of \$250 or greater in a twenty-four period after an emergency were considered felony offenses (Mississippi Code Annotated, 2006).

Following Hurricane Georges in October 1998, a Biloxi tree surgeon was charged with breaking the APG law (“Tree surgeon”, 1998). He charged residents about \$2,000 to remove a tree, while competitors were charging between \$250 and \$1,200 per tree. The tree surgeon was released from jail on a \$10,000 bond. It is unknown if he was eventually found guilty of price gouging. Also after the hurricane, Gulfport police “chased away roadside salesmen trying to profit from the disaster, including a Texas man who was selling chain saws out of his car” (“Tree surgeon”, 1998). Before police arrived, the Texas man tried obtaining a temporary business license from Gulfport officials.

AG Moore received over 2,000 gas price gouging complaints after the 9/11 terrorist attacks (Brown, 2001). Mississippi Gov. Ronny Musgrove declared a state of emergency to activate the APG law. In April 2002, Moore requested that gas wholesalers “refund any extra profits gained from Sept. 11 sales” (“Money from 9/11”, 2002). Nineteen wholesalers paid \$30,252 to comply with the request. Per suggestions at a public forum, the money was donated to a fund supporting Mississippi police officers and firefighters. According to the AG’s office, only voluntary refunds were requested because it was uncertain if the price increases violated the APG law.

During Tropical Storm Isidore in October 2002, AG Moore received thirty complaints of gas price increases and another fifteen complaints of hotel price increases (“Attorney General”, 2002). The AG’s office investigated all the complaints but found no violations. “The press [on price gouging warnings] that we got on local TV stations had a big impact on persons not engaging in price gouging,” an assistant AG concluded (“Attorney General”, 2002).

Before and after Hurricane Ivan in September 2004, AG Jim Hood’s office received complaints of price gouging of gas, hotel rooms, and lumber (“Mississippi attorney general”, 2004; “Some complaints”, 2004). AG Hood sent three investigators to examine prices before Hurricane Ivan. No known violations occurred in the wake of Hurricane Ivan. Hood also sent investigators to examine prices before Hurricane Dennis in July 2005 (Pender, 2005). Hood’s office only received 32 price gouging complaints before Dennis, and no known violations occurred during that event (Wilemon, 2005).

In 2005, AG Hood pushed for an amendment to the APG law that he believed would allow him to more easily prosecute the law in upland areas of Mississippi (Pender, 2005). The Mississippi APG law can only be enforced in areas in which the Governor declares a state of emergency. Hood’s amendment “would have allowed the AG to declare a statewide state of emergency only for the purpose of enforcing the gouging criminal laws” (Pender, 2005). The Governor may be reluctant to declare a state-wide state of emergency, because “that declaration would open up the possibility for some damage claims in areas that shouldn't have them,” as Hood said (Pender, 2005). For hurricanes, prices increases outside the emergency area are likely, because people

evacuate the hurricane area, increasing the demand for gas, hotels, and other goods.

Hood's 2005 amendment was not adopted.

AG Hood devoted resources to enforcing the APG law throughout Hurricane Katrina. He sent investigators to deter price increases before the hurricane and started over 100 investigations into APG law violations after the hurricane ("Hood warns", 2005; Mansfield, 2005). The AG's office received about 900 complaints of gas and hotel price gouging by October 13, 2005 ("State, federal agencies", 2005).

A Pearl, Mississippi hotel operator was arrested on September 3, 2005 for increasing prices after Hurricane Katrina ("Mississippi AG", 2005). He faced a \$5,000 fine and up to five years in jail, but the outcome of his case is unknown. In August 2006, two Natchez hotel owners were arrested for sixteen violations of the APG law after Katrina ("Natchez hotel", 2006). The individuals were released on \$30,000 bond. After that arrest, the AG's office said that additional Katrina price gouging investigations were ongoing. Five gasoline distributors paid nearly \$300,000 in combined penalties to settle Hurricane Katrina price gouging accusations in May 2007 ("The Greenwood Commonwealth", 2007). Hood's investigators found that the distributors made "illegal profits" of only about \$33,000 ("The Greenwood Commonwealth", 2007). Hood claimed to find price gouging in 40 percent of the companies his office examined.

Mississippi legislators amended the APG law in 2006 so it could be applied to areas outside the disaster declaration (Elliott, 2006; Mississippi Code Annotated, 2006). Legislators appeared to be responding to their inability to prosecute price gougers in

north Mississippi following Hurricane Katrina. Hood recommended a similar amendment in 2005, but it's unknown if he authored the 2006 one.

The Mississippi case study is notable because of the extensive resources devoted toward proactive enforcement of the law. One example is the state of emergency declaration by Gov. Ronny Musgrove after 9/11, which was mainly done to enforce the APG law. Another example is the warnings against price gouging on local TV stations before Tropical Storm Isidore in 2002. Lastly, AG Hood dispatched investigators to monitor prices before Hurricane Ivan in 2004 and Hurricanes Dennis and Katrina in 2005.

Massachusetts: Massachusetts's APG regulation was not passed by its state legislature. Rather, it is part of the Attorney General regulations (Massachusetts Attorney General, 2007). The law was implemented in 1990 as an emergency regulation and was then made permanent (Massachusetts Attorney General's Office, personal communication, June 8, 2007). The law is unique in that it only applies to petroleum products (Massachusetts Attorney General, 2007).

After Hurricane Katrina, Republican Governor Mitt Romney and Attorney General Thomas Reilly warned gasoline retailers and wholesalers against drastically increasing prices (Howe, 2005). Romney encouraged consumers to report extreme prices to the state's price gouging hotline. The hotline, operated by the Massachusetts Office of Consumer Affairs and Business Regulation, received 331 gas price gouging complaints in the weekend after Katrina (Wall, 2005). The state Division of Standards sent ten inspectors to monitor gas stations during the weekend after Katrina. They were "making

sure it's [gasoline] sold in the correct way" according to one inspector (Wall, 2005, p. B5). The inspectors were also checking for instances of price gouging and they referred some cases to the Attorney General's office for further investigation (Chesto, 2005). Out of the 300 stations randomly inspected, most stations were found to have increased prices in tandem with rising wholesale costs. Because the Massachusetts APG regulation has an increased costs provision, the stations did not violate the law. The AG's office also sent inspectors to monitor gas prices after Katrina. On September 8, the Office of Consumer Affairs turned over 46 price gouging complaints to the AG's office (Stein, 2005). All the complaints concerned stations who charged between \$3.70 and \$4 per gallon. Jesse Caplan of the Attorney General's Office said his office used "significant resources" in the price gouging investigation, but no suits were filed (personal communication, June 8, 2007). Caplan declined to comment further on the investigations. Massachusetts' APG law history shows that an APG law can be on the books, but it may be years before officials even consider its use.

Florida: The Florida Senate passed an APG bill by a 37-0 margin in April 1990 ("Bill would", 1990). Senator Vince Bruner, the bill's author, cited price gouging in other states after 1989's Hurricane Hugo. Bruner wrote the bill as a preventative measure, as Florida is prone to natural disasters. The 1990 bill did not become law.

After Hurricane Andrew in late August 1992, Florida Attorney General Bob Butterworth gathered forty investigators to follow up on complaints of price gouging and looting (Garcia & Barciela, 1992). One should keep in mind that these investigations occurred before Florida had enacted an APG law. Butterworth issued sixty subpoenas on

pricing information and investigated over 500 complaints (Silva & Barciela, 1992). The complaints included building material prices, as nine of Butterworth's subpoenas were sent to wood suppliers and manufacturers (Garcia, 1992). Georgia-Pacific was one of the wood suppliers subpoenaed (Mitchell, 1992). In response, the wholesaler announced it was cutting plywood prices. Georgia-Pacific also asked its Florida and Louisiana customers to assure that the plywood was used to repair hurricane damage. Home Depot announced it would sell building materials to hurricane victims at cost (Barciela, 1992). Florida lawmakers convened for a special three-day session in December 1992 to deal with issues regarding Hurricane Andrew (Moss, 1992). Florida passed its APG law during that session (Florida Annotated Statutes, 2006).

The Florida Attorney General's office set up a task force of twenty to twenty-five people to investigate price gouging after Hurricane Opal in October 1995 (Bartlett, 1995). One task force official reported a "steady flow of calls" on high prices for ice, generators, gasoline, and hotels rooms (Bartlett, 1995, p. 1.). Newspaper articles did not indicate that any firm was ever charged with price gouging after Hurricane Opal. Florida Governor Lawton Chiles and Attorney General Bob Butterworth praised wood products maker Georgia-Pacific for freezing prices at pre-Opal levels in affected areas.

As Florida residents prepared for Hurricane Georges in late September 1998, the *St. Petersburg Times* and *Palm Beach Post* published short articles encouraging residents to report any extreme price increases to the AG's hotline ("What to do", 1998; "Profiteers face", 1998). The AG's office received only a handful of complaints shortly before the hurricane (Torbenson, 1998). After the hurricane, the Florida Department of

Agriculture and Consumer Services received between 100 and 150 complaints of price increases, mostly concerning plywood (Henry, 1998; Martinez, 1998). Consumers also complained of price increases on food, bottled water, and gasoline (Henry, 1998). By September 30, the AG's office had received 619 price gouging complaints. 309 were still under investigation, 187 were determined to be unfounded, and 16 were price increases too small for the APG law to be applicable. (The Department of Agriculture and Consumer Services had a price gouging hotline in addition to the one established by the Attorney General's office.) In November 1998, three south Florida hardware stores were sued under the APG law for increasing plywood prices after Hurricane Georges ("3 Miami-Dade hardware stores", 1998). The outcomes of these cases are unknown.

Florida residents anticipated Hurricane Floyd in September 1999, but the storm did not actually hit Florida (Wasson, 1999). Nevertheless, consumers complained of price gouging as evacuations proceeded. The AG's office received about 500 price gouging complaints, half of which concerned hotel rooms. The remainder of the AG's complaints involved gasoline and lumber. The Florida Department of Agriculture and Consumer Services received 176 price gouging complaints (Paul, 1999). About ninety of those complaints involved gasoline, while sixty-one involved hotel rooms. In December 1999, the Florida Department of Business and Professional Regulation ordered eleven hotels to pay \$29,000 in refunds to customers who were overcharged (as defined by the APG law) after Hurricane Floyd (Daniels, 1999).

On September 11, 2001, Florida Governor Jeb Bush declared a state of emergency so Florida officials could pursue price gouging cases (Meadows, 2001). By September

12, Florida AG Bob Butterworth's price gouging hotline had received about 80 complaints of gas price increases (Barancik, 2001). At the same time, the Florida Department of Agriculture and Consumer Services received 74 gas price gouging complaints (Simpson, 2001). By September 14, both state offices received a combined 605 gas price gouging complaints (Vash, 2001). During their price gouging investigation, Florida officials subpoenaed gas stations who raised their prices by at least ten cents after the terrorist attacks. Seventy-five stations fit that criterion (Vash, 2001; Kallestad, 2001).

On December 5, 2001, the Department of Agriculture and Consumer Services and the Attorney General's office fined 53 gas stations for a total of \$86,000 (Kallestad, 2001). The individual fines ranged from \$500 to \$10,000. The stations were also responsible for refunding consumers who purchased at the higher prices following September 11, providing they had proof of purchase. The state requested that the station owners sign "voluntary compliance" agreements (Cotterell, 2001).

By June 6, 2002, Florida officials had collected a total of about \$100,000 in fines from gas retailers for price gouging after 9/11 ("State seeks", 2001). Also on June 6, 2002, the state sought \$25,000 in fines from nine gas terminals for raising prices following the September 11 attacks.

On August 13, 2004, Floridians began preparing for Hurricane Charley. As with previous disasters, Florida officials encouraged consumers to use the price gouging hotline to report any instances of price gouging (Toothmath, 2004). Two days after Hurricane Charley, the AG's office had received about 1,000 price gouging complaints, while the Department of Agriculture and Consumer Services had received another 400

complaints (Gussow, 2004). The complaints involved lumber, gas, hotel rooms, generators, hardware, ice, and water (Branom, 2004). In total, the state AG's office received 3,500 complaints after Hurricane Charley ("Price gouging calls", 2004). The Department of Agriculture and Consumer Services received 750 complaints.

Attorney General Charlie Crist filed price gouging complaints against two hotels on August 17, 2004 (Garrett, 2004). Both hotels allegedly quoted one rate to customers and then charged them a higher rate. One of the hotels in the civil complaint, Crossroads Motor Lodge of Lakeland, was known for often having refunds disputes with customers (Edwards, 2004). The other hotel, a Days Inn in West Palm Beach, paid \$70,000 on October 5, 2004 to settle the lawsuit (Jones, 2004b). The settlement included \$10,000 in customer restitution. The rest went to cover the investigation and to the Florida Hurricane Relief Fund. A few days later, an Ocala hotel was named in another price gouging suit (Stockfisch, 2004). The Ocala hotel also allegedly charged customers more than they were quoted. On August 24, 2004, a fourth hotel was named in a price gouging suit (Jones, 2004a). This Sarasota hotel charged customers more than guaranteed reservation rates. The Airport Inn of Sarasota paid \$7,000 in fines plus restitution in June 2005 to settle the case (Gray, 2005).

The state issued subpoenas for business records to a Bradenton gas retailer and its Davie supplier on August 20, 2004 (Rivera-Lyles, 2004). Robert Headlee, the owner of the Bradenton gas station, said, "They are looking to make favorable press. They just want to appear as if they were doing something good, and it makes me angry as a business owner and a taxpayer" (Rivera-Lyles, 2004). Headlee also said the agent who

requested the business records did not even understand the “basic principles” of the gasoline market (Rivera-Lyles, 2004).

Crist charged a Jacksonville tree service with price gouging on August 25, 2004 (Rushing, 2004). Brian Tuten of Strong Arm Industries Inc. was charged only for *offering* an estimate of \$1,500 to clear a tree – “10 times the average estimate from three other companies” (Rushing, 2004, p. B1). Tuten was caught in a sting operation and felt he was treated unfairly. He contended that he offered the high estimate because it would have involved relocating a crew from Jacksonville to Orlando. Two other customers reported satisfaction with Tuten’s work.

Florida residents began preparing for Hurricane Frances on September 2, 2004, and reports surfaced of shortages of hotel rooms and gasoline (Moewe, 2004). “Any hotels found price gouging can be terminated from the system,” said Charlotte Wood, a spokesman for InterContinental Hotels Group, which includes Holiday Inns (Moewe, 2004, p. A-1). No exact figures were available, but the *Florida Times-Union* reported that hotels in Tallahassee, Tampa, Jacksonville, Pensacola, Voldosta, Georgia, and Atlanta were sold out. During the evacuation, one merchant was selling plywood out of the back of his flatbed truck for \$30 a sheet, twice the normal rate of \$15. A Volusia County Councilman said of the merchant, “Our legal staff decided there was nothing we could do if people wanted to pay it. He was from up North somewhere. He sold out” (Moewe, 2004, p. A-1). AG Charlie Crist sued a Naples hotel for charging three consumers more than their quoted reservation rate after Frances (“Hotel accused”, 2004).

On September 15, 2004, Crist sued a Hollywood Beach carpet cleaner for quoting a customer a rate between \$6,500 and \$7,500 and then charging \$12,000 (“Dr. Dry”, 2004). Crist sued a Volusia County merchant for selling overpriced generators on September 17, 2004 (“Merchant charged”, 2004). The merchant sold generators at a discount from an inflated, fabricated list price, Crist said. His ‘discounted’ prices were still much higher than competitors’ prices. By the end of the 2004 hurricane season, the AG’s office had received 3,964 price gouging complaints after Charley, 3,692 complaints after Frances, 545 complaints after Ivan, and 537 complaints after Jeanne (“Price gouging complaints”, 2004).

On September, 17, 2004, AG Crist published an editorial in the *Tampa Tribune* in support of Florida’s APG law (Crist, 2004). His editorial was in response to an earlier editorial by Thomas Sowell that stated that price gouging helps ensure that shortages do not occur. Crist stated that an emergency is not the “normal free market situation” and that buyers’ “purchases of necessities like safe lodging” are forced (Crist, 2004, p. 17). Crist said the APG law is “about protecting citizens from predators that an emergency situation more easily spawns” (Crist, 2004, p. 17). In January 2005, AG Crist and Agriculture Commissioner Charlie Bronson unsuccessfully pushed to make price gouging a misdemeanor offense punishable by six months to a year in prison (Carlson, 2005).

In late April 2005, a Crestview hotel settled a price gouging suit for \$10,000 plus restitution (“Crestview motel”, 2005). The \$10,000 covered investigation costs and also went to the Florida Hurricane Relief Fund. The hotel allegedly charged Hurricane Frances evacuees double its advertised rates. In August 2005, Garner Construction LLC

of Fort Walton Beach agreed to pay \$200,000 in restitution for price gouging after Hurricane Ivan (“Hurricane price gouging”, 2005). No fines were reported in the settlement. No misquoted prices on Garner’s part were reported either. During the 2004 hurricane season, AG Crist started 58 formal investigations and filed 13 lawsuits related to hotels, generator merchants, tree removers, and other businesses.

Gov. Jeb Bush declared a state of emergency on July 7, 2005 in anticipation of Hurricane Dennis (Bates, 2005). By July 18, the state’s price gouging hotline had received 1,045 complaints, mostly involving gasoline. The Department of Agriculture and Consumer Services had issued subpoenas for business records of 44 gas stations by July 18 (Manfuso, 2005). RaceTrac outlets accounted for 22 of the gas stations subpoenaed.

In preparation for Hurricane Katrina, Gov. Jeb Bush declared a state of emergency on August 24, 2005 (Harrington & James, 2005). From then until September 6, 2,600 consumers called Bronson’s price gouging hotline, while another 1,250 called Crist’s hotline. Bronson’s office subpoenaed 19 oil companies with terminals in Florida. Crist sued a Swifty Star service station in Tallahassee on September, 9, 2005 in the first price gouging lawsuit after Hurricane Katrina (Date, 2005). According to Crist’s complaint, the station increased its regular gas price from \$2.80 on August 31 to \$3.50 on September 1. “I was trying to keep it so I could run my business. If I don’t have any gas to sell, how can I be gouging anybody?” said station owner Al Khalil (Date, 2005, p. 21A).

In the aftermath of Hurricane Wilma, Crist's hotline received 700 price gouging complaints ("Crist: Price gouging", 2005). Information on Bronson's hotline was unavailable. In June 2006, Crist sued a cleaning company for price gouging after Wilma (Gardiner, 2006). The company allegedly used intimidation and charged more than 300 percent above their competitors' prices. Crist was elected Florida Governor in 2006. His pursuit against price gouging became an important part of his campaign (Bousquet, 2006).

The history of Florida's APG law is notable, because it is extensive and varied. Since the law's enactment in 1992, officials have devoted massive resources to enforcement. The primary enforcement mechanisms are the price gouging complaint hotlines. Similar to the experience of other states during disasters, Gov. Jeb Bush declared a state of emergency after 9/11 explicitly to enforce the APG law. Florida's APG law history includes the only known example of law enforcement officials using a sting operation to charge a business (Strong Arm Industries) with price gouging. AG Crist used his stance against price gouging in his run for Governor, and there appears to be no other example of this.

Louisiana: Louisiana policymakers passed an APG law in 1993. Information could not be obtained on any events that led to its passage. After the 9/11 terror attacks, Louisiana Governor Mike Foster warned gas retailers against raising prices and said he had authority to reprimand them ("Foster turns", 2001). Foster invited citizens to call his office with any price gouging reports. News reports were not clear whether Governor Foster intended to declare a state of emergency to enable enforcement of the APG law.

Louisiana Attorney General Richard Leyoub's office received 64 gas price gouging complaints on September 12 and 13. No follow-up investigations on the complaints were reported.

On July 7, 2005, Gov. Kathleen Blanco signed an amendment that allowed the law to be enforced "during a named tropical storm or hurricane in or threatening the Gulf of Mexico" (Anderson, 2005a; The Louisiana Homeland Security and Emergency Assistance and Disaster Act, 2007, § 29:732). Previously, the law could only be enforced during an emergency declared by the governor or parish president. News reports do not indicate why lawmakers chose to take up that amendment in July 2005.

Many of the price gouging complaints the AG's office received after Hurricane Katrina involved increased housing rents (Boone, 2005). The AG's office wondered about applying the APG law to rents. "These laws cover goods and services like gas and hotels. But when you have thousands and thousands of homeless people, doesn't shelter become a necessity? There's no answer for that and we haven't gotten the answer," said Kris Wartelle, a spokesman for AG Charles Foti (Boone, 2005, p. 1-D). Foti sued a campground in the first price gouging lawsuit after Katrina (Anderson, 2005b). The campground allegedly had a pre-Katrina rate of \$22 per day, but then eliminated the daily rate and charged a monthly rate of \$900. On October 5, 2005, Foti announced his office had 36 other active price gouging investigations. The second price gouging lawsuit was against a New Orleans electrician who was cleared on November 17 (Purpura, 2005). The state said that Stuart Electric Inc. charged an 80-year-old woman \$4,388.42 for work that another electrician, Dan Zapalowski, had estimated at \$2,262.84. The defense countered

that it was inappropriate to compare Stuart's business to Zapalowski's since Stuart was larger, and thus had higher operating costs. The judge cleared Stuart on insufficient evidence.

By late November, the AG's office had received over 3,000 price gouging complaints (Griggs, 2005). Economist Loren Scott criticized Louisiana's APG law on November 28, 2005 at a meeting of the Press Club of Baton Rouge. Citing the standard economic arguments against APG laws, Scott said the APG law could exacerbate shortages and discourage businesses from relocating to Louisiana.

On March 6, 2006, AG Foti's office announced that no gasoline price gouging lawsuits would be pursued ("No gas gouging", 2006). AG spokeswoman Jennifer Cluck said all 1,500 gas gouging complaints were investigated, but no charges could be brought.

In May 2006, the Louisiana Senate unanimously passed a bill that would have made price gouging a criminal offense punishable by up to two years in jail, a maximum \$2,000 fine per violation, or both (Louisiana State Legislature, 2006). The bill later died in the House without a vote. The Louisiana House Committee on the Judiciary approved a specific provision against rent price gouging in June 2007 (Louisiana State Legislature, 2007). The bill currently awaits a vote from the full House.

It is interesting that no price gouging charges were pursued in Louisiana after Hurricane Katrina, especially when considering that AG Foti received over 3,000 complaints. Perhaps AG Foti had too many other legal issues after Katrina so that pursuing price gouging charges was impractical.

California: California's APG law was introduced in late January 1994, shortly after the devastating Northridge earthquake (Official California Legislative Information, 1994). The Los Angeles Department of Consumer Affairs received over 1,400 price gouging complaints after the Northridge earthquake (Howe, 1994). The APG bill was finally signed by Gov. Pete Wilson, Republican, in late September 1994.

Bill Analyses available from the Official California Legislative Information website indicate that the bill was introduced in response to price gouging complaints after the Northridge earthquake.⁶ The Bill Analyses cited garbage disposal charges of \$200 per bin. The Bill Analyses also singled out 7-Eleven stores for increasing prices of food, water, and batteries. Southland Corporation ultimately terminated franchise agreements with eight 7-Eleven stores in Los Angeles in response to the price gouging reports at the stores ("7-Eleven closed", 1994). Southland, the operator of nearly 6,000 convenience stores, declined to name the stores whose agreements were terminated out of fear of retribution to those stores, possibly from upset consumers. The Bill Analyses indicated the following sources of support for the bill: Los Angeles District Attorney's Office, California Automobile Association, California Attorney General, California Grocers Association, California State Association of Counties, California Citizen Action, Los Angeles City Council, Consumer Action, Consumers Union, Ventura County Board of Supervisors, Los Angeles Chamber of Commerce, League of California Cities, Mexican American Legal Defense and Educational Fund, the Mary Immaculate Church in Pacoima, Valley Organized in Community Efforts in San Fernando, and the Southland

⁶ Many California bills have "Bill Analyses" that are available from the Official California Legislative Information website. The Bill Analyses include information on why lawmakers passed the bill and information on who supported and opposed the bill.

Corporation. Although the bill faced significant opposition as shown by the narrow acceptable margins in table 5, no opposition arguments could be found.

The California Department of Consumer Affairs initially opposed the prohibition of ten percent price increases in the bill, feeling that it was too restrictive (Howe, 1994). Consumer Affairs instead proposed a fifty percent ceiling on price increases. Richard Katz, the bill's sponsor, countered that his bill already allowed firms to pass on increased costs. "You can't make a 50 percent profit on misery" said Katz (Howe, 1994, p. D1). The Department of Consumer Affairs later dropped its recommendation for a fifty percent ceiling. California lawmakers ultimately passed a bill that prohibited price increases of ten percent after emergencies (California Codes Annotated, 2006).

In the midst of wildfires in October 2003, Los Angeles County District Attorney Steve Cooley told residents to report any instances of price gouging to police ("Officials warn", 2003). Residents who were forced to evacuate their homes complained of hotel price increases (Official California Legislative Information, 2004). Hotels in San Diego and Imperial Counties were accused of raising their rates by more than 100%. Responding to these events, California lawmakers amended the APG law in September 2004 to include hotels. The Imperial County District Attorney's Office was the only organization named as a supporter in the Bill Analyses. The opposition's arguments were not included in news articles or the Bill Analyses.

California's APG law can be enforced when either the Governor or the President declares a state of emergency (California Codes Annotated, 2006). Thus, when President Bush declared a state of emergency after Hurricane Katrina, California Attorney General

Bill Lockyear began investigating price gouging complaints (Baker, 2006). His office investigated 50 complaints out of the more than 1,150 they received in the thirty days that the law could be applied. "We found that in every instance, there wasn't a violation of the law," said Lockyear in May 2006 (Baker, 2006, p. A1). Lockyear complained that the APG law only allowed him to investigate small gas stations. "The current law allows us to investigate the corner gas station but not the refinery," said Lockyear (Baker, 2006, p. A1).

In June 2006, Lockyear and California Assembly Speaker Fabian Nunez proposed amendments to California's APG law (Harmon, 2006). One amendment allowed application of the APG law sixty days after the emergency declaration, as opposed to thirty days (Official California Legislative Information, 2006). Another amendment allowed enforcement of the APG law during an "abnormal market disruption" in addition to a state of emergency declared by either the President or the Governor. Abnormal market disruption was defined as "disruption to the production, supply, distribution or sale of a product essential to the health, safety or welfare of the public" (Official California Legislative Information, 2006). Finally, another amendment allowed the law to be applied to wholesalers as well as retailers. Lockyear and Nunez announced these amendments outside a Sacramento gas station (Harmon, 2006). The Bill Analyses indicate the California Attorney General's Office as the only official supporter of the amendments (Official California Legislative Information, 2006). The California Association of Realtors, the California Chamber of Commerce, and the Western States Petroleum Association were noted as opponents of the bill in the Bill Analyses. In its

argument of opposition in the Bill Analyses, the California Chamber of Commerce argued that the definition of “abnormal market disruption” was too vague. “[The use of abnormal market disruption] opens up price controls to be applied arbitrarily, subjectively, and often, since disruptions and spikes and valleys in supply and distribution are normal and common in the marketplace” (Official California Legislative Information, 2006). The 2006 amendments were not enacted.

The story of Southland Corporation terminating franchise agreements with eight 7-Eleven stores after the Northridge Earthquake is the most noteworthy event in the California case study. It shows how strong reputational effects can be, especially when the brand or company is known nationally. In fact, reputational penalties were all that could possibly be imposed upon Southland Corporation, as California did not have an APG law at the time.

Missouri: The Attorney General’s rules in the Missouri Code of State Regulations contains a small section on “price gouging” (Missouri Code of State Regulations, 1996). However, the statute is very concise compared to other states’ APG laws. The statute prohibits charging “a price substantially above the previous market price of the merchandise in the seller’s trade area” (Missouri Code of State Regulations, 1996).

More than 1,000 Missouri residents complained about rising gas prices to the AG’s office in the two days after 9/11 (Missouri Attorney General, 2001). AG Jay Nixon investigated gas stations that raised prices to more than \$2.49 per gallon Nixon’s office requested settlements from 48 stations totaling \$60,000. Stations who did not comply with the settlements faced lawsuits. All stations agreed to Nixon’s terms. Nixon was

threatening lawsuits under state consumer protection laws, but the specific statutes were not noted.

One month after Hurricane Katrina, AG Nixon had received 350 complaints of gas price increases (Missouri Attorney General, 2005). Nixon's office examined gas price data for 50 stations for the period that included ten days before and ten days after Hurricane Katrina. Nixon announced the results of his investigation on September 28, 2005. Nixon sued one station whose alleged profit margin was 400 percent after the hurricane. Nixon filed assurances of voluntary compliance with nine other stations. As part of the agreements, the nine stations paid a total of \$6,750 to their local school funds. Assurances of voluntary compliance (AVCs) are sometimes used in the enforcement of APG laws. When signing an AVC, a firm generally agrees to pay a fine or restitution, but avoids prosecution. The firm does not admit wrongdoing with an AVC, but agrees not to violate the APG law in the future.

A November 30, 2006 storm left many Missouri residents without power (Missouri Attorney General, 2006). Nixon accused Precision Equipment, a generator dealer, of overcharging consumers as much as \$173 to \$697 after the storm. Nixon filed an assurance of voluntary compliance with Precision on December 29, 2006. Precision agreed to pay \$37,952 in consumer restitution and \$3,000 for state investigation costs as part of the agreement.

Nixon received 408 complaints of price increase after ice storms hit southwest Missouri in January 12-14, 2007 (Missouri Attorney General, 2007a). "We put in hundreds of hours examining market data for gas prices and hotel room rates before the

storm hit and found significant differences in what the businesses charged in the aftermath,” Nixon said of his investigation into storm price increases (Missouri Attorney General, 2007a). On February 15, 2007, Nixon filed lawsuits against two hotels, one gas station, and two hardware stores. One hardware store increased prices on gasoline and generators, while another increased prices on kerosene. Nixon also filed assurances of voluntary compliance against a gas station and a hotel on February 15. The gas station agreed to pay \$2,886 in restitution, \$10,113 in court costs, and \$12,000 in civil penalties, while the hotel agreed to provide full refunds, \$2,000 for investigation costs, and a \$1,000 penalty. As the result of additional settlements, seven more businesses accused of violating the APG during the January 2007 ice storm paid fines totaling \$92,754 on May 14, 2007 (Missouri, 2007b). The goods involved in the settlements included hotel rooms, generators, and gas cans. Finally, on July 18, 2007, five additional businesses reached settlements with Nixon for increasing prices during the ice storm (Missouri Attorney General, 2007c). The fines totaled \$29,931, and the goods involved included hotels, gasoline, and kerosene. It is striking how many resources AG Nixon poured into enforcing APG laws since 9/11.

Georgia: Following floods in Georgia in July 1994, residents complained of price increases of ice, milk, charcoal, and lumber (Emling, 1994; “Ga. house”, 1995). That led Democratic Georgia Representative Mike Snow to introduce an APG bill in February 1995 (“Ga. house”, 1995). The bill was signed by the governor in April 1995 (Georgia House of Representatives, 1995).

Hurricane Floyd threatened in September 1999 and coastal Georgians began evacuating (“Floyd issues”, 1999). The Governor’s Office of Consumer Affairs received about 800 complaints of hotel price gouging (“Macon motels”, 1999). Seventeen civil and criminal investigators from the Office of Consumer Affairs were sent to examine the approximately 225 hotels named in the complaints (“Hotel fined”, 1999; “Macon motels”, 1999). The Knights Inn of Vienna was fined \$180,000 in the first price gouging charges after Floyd, but the outcome of the case is uncertain. By December 7, Consumer Affairs had recovered \$19,000 in restitution for 357 evacuees (“Consumer affairs”, 1999). At that time, Bill Cloud of Consumer Affairs reported that 100 hotels had been investigated and about 25 had been charged with violating the APG law (“Macon motels”, 1999). Cloud said that many of the complaints in which hotels were exonerated resulted from over-occupancy fees – charging customers more for additional guests in rooms, which is permissible. The hotels who were charged with price gouging generally were either ignorant of the law or mis-advertised rooms as lower priced than they actually were.

After the 9/11 terrorist attacks, Georgia officials said that price gouging could not be prosecuted because Gov. Roy Barnes had not declared a state of emergency (“GEMA, governor’s office”, 2001). Nevertheless, Agriculture Commissioner Tommy Irvin sent 100 inspectors to monitor gas prices around the state. His office regulates the distribution and quality of petroleum products. Lisa Ray of the Georgia Emergency Management Agency described gas price gouging complaints as isolated.

In anticipation of Tropical Storm Jeanne in late September 2004, Republican Gov. Sonny Perdue declared a state of emergency in part so that the APG law could be enforced (“Tropical storm”, 2004). News reports do not indicate that government agencies ever received price gouging complaints before or after Tropical Storm Jeanne.

On August 31, 2005, shortly after Hurricane Katrina dissipated, Gov. Sonny Perdue declared an energy emergency so the APG law could be enforced (Pettys, 2005). It appears this move was aimed at preventing gas price spikes. On September 2, Governor Perdue declared a temporary moratorium on state gasoline taxes (Gillespie, 2005). Reports indicate that officials from the Georgia Department of Revenue and the Office of Consumer Affairs checked prices in a ‘price gouging’ investigation. From news reports, it is not clear what parts of the investigation focused on violations of the APG law and what parts focused on ensuring gas retailers followed the gas tax moratorium. The investigation on the gas tax moratorium was done to ensure that retailers decreased prices by the amount of the decrease in taxes. On September 29, Perdue extended the state of emergency for an additional two weeks so the APG law could continue to be enforced (Salzer & Kanell, 2005). On November 15, fifteen gas stations were fined \$1,000 to \$10,000 for gas price gouging after Hurricane Katrina (“Perdue announces”, 2005). The fines were the results of settlements with the Office of Consumer Affairs. It is clear that the fines were the results of violations of the APG law and not violations of the gas tax moratorium. Consumer Affairs received over 3,300 total complaints regarding gas prices in the aftermath of Hurricane Katrina.

Like other states, Georgia devoted extensive resources to price gouging investigations. This is especially evident by the 100 hotels investigated by Consumer Affairs following Hurricane Floyd. Similar to actions in other states, Gov. Sonny Perdue declared states of emergency in the course of Tropical Storm Jeanne and Hurricane Katrina to enforce the APG law.

Texas: The Texas APG law passed in 1995 along with several other provisions related to deceptive trade practices (Texas Advance Legislative Service, 1995).

Newspaper articles do not indicate if there was a disaster that helped trigger its passage.

Republican Gov. Rick Perry was concerned about price gouging during floods caused by Tropical Storm Allison in Southeast Texas in June and July of 2001 (“Perry warns”, 2001). Perry sent letters to several Texas government agencies telling them to be wary of price gouging. He informed them that charging “excessive prices” during declared disasters was illegal under Texas’s APG law. The Harris County Attorney’s office investigated two dozen companies for price gouging during the floods (Bill Murphy, 2001). Most of the companies offered refunds to avoid lawsuits. AG John Cornyn’s office sued four companies for post-Allison price increases in October 2001 (Lezon, 2001). The firms consisted of an auto shop, a towing service, and two carpet cleaners. The AG’s office was also investigating 25 other companies for increasing prices after Tropical Storm Allison at that time. The results of Allison-related price gouging lawsuits are unknown.

On September 11, 2001, Gov. Rick Perry and AG John Cornyn warned firms against pricing gouging (“Perry extends”, 2001). Perry issued a disaster declaration to

activate the provisions of the APG law. By September 14, the AG's office had received 1,800 price gouging complaints, 95% of which concerned gas prices (Solis, 2001). Most consumers reported \$3-5 gasoline in their complaints. On September 14, Gov. Perry extended the disaster declaration another 30 days. No lawsuits or settlements resulting from 9/11 gas price gouging were ever reported.

As Louisiana residents fled to Texas prior to Hurricane Katrina, AG Greg Abbott said that he would "aggressively" pursue hotels that increased prices (Root, 2005). Tom Kelley, a spokesman for Abbott, said that even though a disaster had not been declared in Texas, the AG would pursue gougers under statutes related to "unconscionable pricing" and false advertising. The AG's office received about 600 Katrina-related price gouging complaints, most of which concerned gasoline (Lorek, 2005).

Within one week of the evacuation for Hurricane Rita in September 2005, the AG's office had received more than 500 complaints of price gouging ("Price-gouging complaints", 2005). The complaints were related to motels, rental cars, eggs, gasoline, and bottled water. After Hurricane Rita, the AG's office had staff members in the field conducting interviews with businesses and customers to investigate the price gouging complaints. There were no known post-Katrina/Rita settlements or suits that specifically involved the APG law. One October 2005 headline stated "AG sues hotel owners for price gouging." In that case, however, the hotel was not sued for increasing prices. The owners were sued because the hotel allegedly charged a customer's credit card \$3,100 more than she thought. Like other states, Texas officials received numerous price gouging complaints after Hurricane Katrina, but no known legal action occurred there.

Alabama: Alabama Attorney General Jeff Sessions warned consumers about possible price gouging shortly before the arrival of Hurricane Opal in early October 1995 (“Sessions’ office”, 1995). Sessions invoked a general statute prohibiting “unconscionable or deceptive” practices (“Sessions’ office”, 1995, p. 4C). After the hurricane, the AG’s office received price gouging complaints against six hotels and about a dozen complaints regarding generators.

In January 1996, Sessions introduced an APG bill in the Alabama legislature (“Legislature in brief”, 1996a). Claire Austin, a spokeswoman for Sessions, said the bill was prompted by price gouging complaints after Hurricane Opal. The APG bill unanimously passed both Alabama houses and was signed by Governor Fob James in March 1996.

On September 12, 2001, Democratic Governor Don Siegelman, declared a state of emergency to activate Alabama’s APG law (Dedrick, 2001). No price gouging fines after 9/11 were reported.

Attorney General Troy King received over 150 price gouging complaints after Hurricane Ivan in September 2004 (Bailey, 2004). The complaints concerned price increases, on ice, generators, plywood, hotel rooms, water, and gas. King set aside two of his offices’ toll-free numbers to receive price gouging complaints. Twenty investigators from King’s office, easily identified by their bright yellow T-shirts, handled the complaints (Mitchell, 2004). Two tree contractors and one electrical contractor were charged with price gouging on October 6, 2004 (“Three price-gouging”, 2004). The amounts of the fines and restitution were not reported.

As Hurricane Dennis approached in July 2005, Republican Governor Bob Riley declared a state of emergency, activating the APG law (“Attorney General warns”, 2005). After the storm, AG King received 804 price gouging complaints, 430 of which concerned gas prices (MacDonald, 2005). King encouraged lawmakers to stiffen price gouging penalties by making it a felony punishable by up to ten years in jail and a \$5,000 fine for the worst offenders (Chandler and White, 2005). The current law calls for civil penalties of \$1,000 per violation with a maximum fine of \$25,000 per day (Alabama Unconscionable Pricing Act, 2005). King’s recommendations were not adopted.

Reports of gas lines in Alabama surfaced after Hurricane Katrina (Rawls, 2005). One station had a 30-minute wait and imposed a purchase limit of \$43 (Rawls, 2005). A few days after Hurricane Katrina, Agriculture Commissioner Ron Sparks announced his office would monitor gas prices and forward any evidence of price gouging to AG King. King’s office received more than 1,100 price gouging complaints after Katrina, about 800 of which involved gas prices (Johnson, 2006). During his investigation, King subpoenaed 22 stations. In November 2005, Jason McBride of McBride oil company was fined \$10,000 for raising gas prices to \$3.69 after Hurricane Katrina (“Gas seller”, 2005). As part of the settlement, McBride also pleaded guilty to the charges (“State briefs”, 2006). King filed lawsuits against an additional four gas stations in January 2006 (Johnson, 2006). The result of those suits is unknown.

With price gouging hotlines and investigators from the AGs office, Alabama’s enforcement tools are comparable to those in other states. The newspaper articles for

Alabama's APG law history included brief information on rationing mechanism, and this information proved to be scarce in the case studies. Rawls (2005) reported gas lines after Hurricane Katrina. One station imposed a quantity limit.

Arkansas: After storms hit northwest Arkansas in 1996, the attorney general's office began drafting an APG bill (Caldwell & Freking, 1997). The bill was introduced in the Arkansas legislature in early 1997. Lawmakers hastened its passage in March after tornadoes, and accusations of price gouging, hit Arkansas.

After 9/11, AG Mark Pryor received more than 800 formal complaints of gas price gouging (Nelson, 2001). On September 20, Pryor sued five gas stations for increasing prices to at least \$2.50 per gallon (Frazier, 2001). However, the suits were under the state's Deceptive Trade Practices Act, not the APG law. On October 12, Pryor asked an additional 170 stations to sign Assurance of Voluntary Compliance (AVC) orders (Nelson, 2001; "AG's office reviewing", 2001). The AVC's required that the stations "refrain from price gouging in the future, agree to institute a refund program and make a \$250 contribution to one of three disaster relief charities" (Nelson, 2001). By April 30, 2002, all but 23 gas stations had signed the AVC's ("Pryor still", 2001).

Three weeks after Hurricane Katrina, AG Mike Beebe's office announced that most of the Katrina gas price gouging investigations were closed (Klump, 2005). The AG's investigations indicated that "that these were costs that were passed down to them [consumers] from up the pipeline" according to AG spokesman Matt DeCamp (Klump, 2005).

Arkansas provides another example of the large resources that are devoted to enforcing APG laws. After 9/11, the AG's office requested that 170 gas stations sign AVC's. Identifying those 170 stations was likely not trivial.

Oklahoma: Tornadoes devastated Oklahoma on May 2, 1999 and the AG's office received 34 complaints of price gouging (Talley, 1999b). The complaints included doubled prices of storage units and apartments (Talley, 1999a). Shortly thereafter, Democratic state Senator Ted Fisher introduced the Emergency Price Stabilization Act. Fisher said he modeled the law after Florida's APG law. "It fills a huge void," AG Drew Edmundson said of the APG bill (Talley, 1999b). On May 13, Oklahoma Governor Frank Keating signed the APG bill (Jenkins, 1999). Fisher said the quick passage of the bill was done so the law could be enforced immediately (Talley, 1999a). No lawsuits were known to have resulted after the tornadoes. As Oklahoma's APG law history is brief, its quick passage is its highlight.

New Jersey: A New Jersey water line broke in February 1996, forcing 750,000 Bergen and Hudson county residents to boil their drinking water (Zolper, 1996). An unreported number of consumers complained that several convenience stores raised the prices of bottled water to \$3-5. Assemblyman Charles Zisa, a Democrat, responded to these complaints by introducing an APG bill in November. However, Republican leaders removed it from the agenda, questioning the enforceability of the law. Zisa introduced another APG bill in July 1998, but it failed again (Demarrais, 1998).

After 9/11, the New Jersey Division of Consumer Affairs sent investigators across the state to check gas prices (“N.J. authorities”, 2001). Consumer Affairs stated that firms found to be increasing prices drastically would be prosecuted under the Consumer Fraud Act. Ronald George, a spokesman for Consumer Affairs, said that only a “handful” of consumers complained to their legislators about gas price increases after 9/11 (Krauskopf, 2001, p. A20). New Jersey lawmakers introduced an APG bill in October 2001, and it passed both houses by late November (New Jersey Legislature, 2002). Newspaper articles indicate that the bill passed because a water main broke in Bergen County in 2001 (“Bill makes”, 2002). However, this could be confused with the 1996 Bergen County water main breakage.

State inspectors monitored gas prices in New Jersey after Hurricane Katrina, but it is not clear if they were looking for violations of the APG statute (MacInnes, 2005). New Jersey law prohibits increasing gas prices more than once in a 24-hour period, and inspectors were looking for violations of that law. In late September 2005, New Jersey Attorney General Peter Harvey and the Division of Consumer Affairs sued Citgo, Hess, Shell, and Sunoco for their pricing practices after Katrina (DeMarrais, 2005a; DeMarrais, 2005b). The companies were not charged with violating the APG law. They were charged with failing to display sale prices, increasing prices more than once in a 24-hour period, failing to maintain records, and failing to provide regulators access to records (DeMarrais, 2005a). Hess settled its charges by paying \$372,391 in November 2005 (“Hess settles”, 2005). Sunoco settled its charged by paying \$325,000 in February 2006 (Perry, 2006). In both cases, neither company admitted any wrongdoing. The settlements

consisted of reimbursements for investigation costs and donations to an energy assistance program for the poor. Motiva Enterprises LLC, which operates Shell stations in New Jersey, settled its charges by paying \$371,000 in April 2006 (DeMarrais, 2006). Like the other companies, it admitted to no wrongdoing.

Idaho: In December 2001, Idaho Attorney General Al Lance proposed an APG law (“Lance will”, 2001). The APG bill was part of a package of energy-related proposals that Gov. Dirk Kempthorne requested from Lance after the 9/11 terror attacks. “Although the Idaho retailers quickly returned their [gas] prices to market levels, Idahoans deserve protection from unconscionable profiteering in any future emergency,” Lance said of the APG proposal (“Lance will”, 2001). The law was signed by the governor in March 2002 (Idaho Statutes and Constitution, 2006). The passage of Idaho’s law shows how 9/11 caused a state that is not very disaster-prone to enact an APG law.

Indiana: After the 9/11 attacks, police warned one gas retailer in Carmel, Indiana who increased his price to more than \$5 (Jewell, 2001). AG Steve Carter warned that he had the “authority and will critically review any and all complaints of improper, and quite frankly, unbelievable behavior by anyone taking advantage of this terrible situation for economic gain by collusion or price fixing” (Jewell, 2001). It is not clear what statutes the police and Attorney General claimed retailers were violating, as Indiana did not have an APG law in 2001. By September 15, the AG’s office had received 2,100 complaints regarding gas price spikes (“State investigating”, 2001). The AG’s office began investigating stations who had charged at least \$2.50 in the 9/11 aftermath. Carter closed

his investigation in August 2002 (Smith, 2002). Carter investigated 125 stations, and 67 were found not to have charged above \$2.50. He said that all but four of the 58 stations that did charge above \$2.50 issued refunds and donated to charity. The names of the four stations who did not issue refunds and donations were published by the Associated Press. Carter did not file suits against those four stations, as the “excessive revenues” were small (Smith, 2002).

Alongside two Indiana lawmakers, Carter offered support to an APG bill at a December 2001 news conference (Colwell, 2001). He said that an APG law would permit sterner actions against those who increase prices after emergencies. The APG bill was signed by Democratic Gov. Frank L. O'Bannon in late March 2002 (Indiana General Assembly, 2002).

Carter's office received 2,107 complaints of gas price increases within two weeks after Hurricane Katrina (DeAgostino, 2005). Two Indiana lawmakers asked Republican Gov. Mitch Daniels to declare a state of emergency to activate the APG statute. Daniels declined to declare a state of emergency, saying that market forces explained the recent gas price spikes.

In July 2006, House Minority Leader Patrick Bauer, D-South Bend, encouraged Carter to investigate gas price gouging (Smith, 2006). Carter spokeswoman Staci Schneider said that the AG's office had been monitoring gas prices, but that the recent run-up was the result of market forces. She said that no evidence was found to justify a Governor-declared state of emergency to enforce the APG law.

Indiana shows that an APG law is not always needed to pursue price gougers, as AG Carter requested donations and refunds from gas stations after 9/11 without an APG law. It appears that Carter's push for an APG law was done to have a stronger deterrent against price gouging. Like Idaho, Indiana is a state that is not very disaster-prone and whose APG law was triggered by 9/11.

Kansas: After 9/11, Kansas Attorney General Carla Stovall began investigating gas price increases and warned gas retailers against price gouging (Hrenchir, 2001). Stovall invoked a section of Kansas's Consumer Protection Act that deals with "unconscionable acts and practices" (Hrenchir, 2001; Unconscionable acts and practices, 2006). Stovall referred to a part of the statute that says an act may be unconscionable when "the price grossly exceeded the price at which similar property or services were readily obtainable in similar transactions by similar consumers" (Consumer Protection, 2006). As the "unconscionable acts and practices" statute is vague and does not specifically refer to pricing during an emergency, it was not considered an APG law. In the days after 9/11, the AG's office received 1,500 complaints of gas price increases (Milburn, 2001b). Stovall requested settlements from 40 gas companies who operated about 140 stations (Milburn, 2001a; Milburn, 2001b). Stovall identified these stations on the basis that they had charged at least \$2.49 after the 9/11 attacks (Milburn, 2001a). The settlement asked the companies to issue refunds to consumers, pay \$250 in fees plus \$750 to the United Way's September 11 Fund, and consent to avoid future unconscionable pricing violations. Companies who failed to comply with these terms faced fines of \$10,000 per violation. 39 of the 40 companies had complied with Stovall's terms by

October 10 (Milburn, 2001b). The remaining company, the Charles R. Wood Oil Co., took its case to court, but finally settled in July 2002 by paying \$16,500 in penalties and fees (Everly, 2002). In a September 2001 interview, a Wood Oil executive said he raised the price to \$2.49 on reports that wholesale gasoline would be rationed. His decision to raise prices was reversed after two hours.

Kansas legislators passed an APG law in July 2002 (Profiteering From Disasters, 2006). The statute prohibited price increases of 25% after disasters. Kansas Sen. Derek Schmidt, a supporter of the law, described the current “unconscionable acts” law as too vague (Alm, 2002). Schmidt was a former assistant AG in the consumer protection division.

Kansas’ APG law history is similar to Indiana’s history. The laws in both states were triggered by 9/11, and both states took action against price gouging before having APG laws. Shortly after 9/11, Indiana officials merely requested refunds and money to charity. Kansas officials, on the other hand, settled a court case by receiving \$16,500 in penalties and fees. Given this result, it is not clear what advantage Kansas’ APG law had over the “Unconscionable acts and practices” statute used shortly after 9/11.

South Carolina: One day after 9/11, Democratic South Carolina Gov. Jim Hodges signed an executive order that banned “overcharging” for food, fuel, and shelter (Crumbo, 2001). South Carolina did not have an APG law at this time. The order was effective for 15 days and was punishable by a \$100 fine and 30 days in prison for each offense. AG Charlie Condon’s office had received 600 calls regarding gas prices in the two days after 9/11 (“Condon investigates”, 2001).

South Carolina lawmakers passed an APG law in July 2002 (Unfair Trade Practices, 2006). The APG law was packaged with other emergency-related laws in the South Carolina Homeland Security Act (South Carolina Legislature Online, 2002). No newspaper articles in my news search offered any information on the passage of the APG law.

South Carolina Attorney General Henry McMaster received over 1,000 complaints of gas price increases in the days after Hurricane Katrina (Kinnard, 2005). However, McMaster could not pursue gas retailers under the APG law, as Gov. Mark Sanford did not declare a state of emergency (Werner & Shein, 2005). McMaster investigated post-Katrina gas prices to determine if there were any general violations of the Unfair Trade Practices Act (Kinnard, 2005). In April 2006, McMaster requested \$500 settlements from seven gas retailers who charged an average of \$4.59 per gallon after Katrina (“Gas stations”, 2006). All seven stations agreed to the settlements.

In November 2005, AG McMaster and House Speaker Bobby Harrell proposed amending the APG law. They wanted to make the APG law applicable when a disaster declared elsewhere affected prices in South Carolina, such as Hurricane Katrina. This amendment passed both houses, but was vetoed by Republican Gov. Mark Sanford in June 2006 (South Carolina Legislature Online, 2006). The legislature quickly overrode his veto. Newspaper articles do not indicate why Sanford vetoed the bill. The amendment specifically allowed for the APG law to become enforceable when the President declared a state of emergency in another state (Unfair Trade Practices, 2006).

The South Carolina case study shows that states may have additional tools to prosecute price gouging. One tool was the order issued by Gov. Jim Hodges that banned “overcharging” in the 9/11 aftermath. Another tool was the Unfair Trade Practices Act, which AG McMaster used after Hurricane Katrina.

Tennessee: On September 12, 2001, Republican Tennessee Gov. Don Sundquist and Attorney General Paul Summers held a press conference to state that they would investigate reports of price gouging and that it was illegal under the state’s Consumer Protection Act (Davis, 2001). It is uncertain to which parts of the Consumer Protection Act Sundquist and Summers were referring. AG Summers encouraged consumers observing high prices to call the state Division of Consumer Affairs. Tennessee lawmakers introduced an APG bill in January 2002, and it was signed by Gov. Sundquist in June 2002 (Tennessee General Assembly Archives, 2002). In 2005, Gov. Phil Bredesen said that violations are “easier to prove” under the APG law as opposed to the Consumer Protection Act (Harris, 2005, p. A1).

After Hurricane Katrina, Bredesen vowed to be aggressive in pursuing price gougers (Harris, 2005). Commerce and Insurance Commissioner Paula Flowers assigned 12-15 people to check gas prices across the state. In a matter of a few days after Katrina, the Tennessee Division of Consumer Affairs received 700 calls related to gas prices (Pare, 2005). The first price gouging suit after Katrina was filed against Tip Top Food Mart, an East Ridge convenience store (Pare, 2005). Records indicate that the store charged nearly \$5 per gallon for gas for about 90 minutes (“Judge levies”, 2005). One customer purchased gas during that time. In December 2005, a judge ordered the store’s

owner to pay \$1,000 in attorney's fees and a \$1,000 fine. In September 2006, a Memphis hotel accused of price gouging after Katrina reached a settlement with AG Summers (Buser, 2006). The settlement included \$6,137 in restitution, \$7,000 in civil fines, and \$1,000 for litigation costs.

Tennessee provides another example of a state that has used other laws besides its APG law to fight price increases during emergencies. This occurred after 9/11 when AG Sundquist said he would investigate price gouging under the state's Consumer Protection Act. Tennessee's experience with price gouging after Hurricane Katrina shows that it, like many other states, devotes significant resources to enforcing its APG law.

West Virginia: An APG bill was introduced in the West Virginia House on January 22, 2002 and was signed by Governor Robert Wise on March 18, 2002 (West Virginia Legislature, 2002). Like the other states that passed laws in 2002, one would expect that West Virginia's APG law was passed in response to 9/11 gas price increases. This could not be confirmed, however, due to the absence of newspaper articles regarding the passage of the law.

Democratic West Virginia Gov. Joe Manchin and Attorney General Darrell McGraw warned gas retailers and distributors about price gouging following Hurricane Katrina (Finn, 2005). Manchin said that gas stations should not raise prices until their current supply runs out. AG McGraw sent staff members to monitor gas prices throughout the state and encouraged consumers to call a toll-free number to report price gouging. McGraw also mentioned that he could use the APG law to punish price gougers. Two days after Katrina, the AG's office had received over 3,000 gas price gouging

complaints (Thompson, 2005). No suits or settlements involving Hurricane Katrina price gouging in West Virginia were ever reported. With the price gouging hotline and the declarations against price gouging, West Virginia officials utilized tools commonly used in other states.

North Carolina: There were reports of price increases of ice, tree removal, chain saws, and generators after Hurricane Fran hit North Carolina in September 1996 (Coleman, 1996). The state's more than 100 alcohol enforcement officers were pulled from their normal duties to investigate reports of price gouging after Hurricane Fran. The alcohol enforcement officers received 250 price gouging complaints after Fran ("State officials", 1999). The North Carolina State Bureau of Investigation covered the most serious cases (Jarvis, 1996a). Attorney General Mike Easley reported receiving an "alarming" number of complaints of price gouging in the Triangle region. Easley believed he could sue price gougers under a state law prohibiting unfair and deceptive trade practices. On the other hand, Wake County District Attorney Colon Willoughby said the statute to which Easley was referring could be too broad to use against firms that increased prices after Fran. A tree remover, Marshall Everette, charged an elderly woman \$18,000 to remove two trees and debris (Jarvis, 1996b). Everette was the first merchant arrested for Fran-related price gouging. A magistrate set bail at \$150,000 for Everette. The tree remover company owner claimed that the rate was fair and that others were happy with his company's work (Jarvis, 1996c). Shortly after Everette's arrest, another tree remover was arrested for charging \$27,000 to remove a tree and for other repairs. The outcome of these cases is uncertain. After these arrests, tree removers called the

AG's office, asking them to explain what a "legal" price was (Jarvis, 1996d). One week after Hurricane Fran, a *News and Observer* survey found that Triangle-area prices for equipment and services were similar to prices outside the affected area (Jarvis, 1996d). The Raleigh newspaper found that chain saws in the Triangle were actually cheaper.

After Hurricane Floyd in September 1999, the alcohol law enforcement agents were again in charge of investigate price gouging ("State officials", 1999). The agents received 120 price gouging complaints within three days after the hurricane. The complaints concerned food, lodging, generators, and mostly gasoline.

In late September 1999, about two weeks after Hurricane Floyd, alcohol law enforcement officers arrested the owner of a Florida carpet cleaning business for overcharging the Topsail Beach Police Department (Glascock, Curliss, & Allegood, 1999). Brian L'Hommedieu allegedly charged the police department \$2,980.56 for work that cost \$650 according to a price list he was said to have used. As North Carolina did not have an APG law in 1999, police arrested him for obtaining property under a false pretense (McGrath, 1999). A judge dismissed the case against L'Hommedieu in November because no contract was signed nor were prices discussed between the police department and Dririte, L'Hommedieu's company. Nevertheless, prosecutors were able to get Mike Smith, the employee who actually cleaned the police department's carpets, to plead guilty to a reduced larceny charge in exchange for testifying against L'Hommedieu in any future grand jury proceedings. A grand jury indicted L'Hommedieu for obtaining property under a false pretense in January 2000 (McGrath, 2000). Assistant District Attorney Ben David was pleased with Smith's guilty plea and L'Hommedieu's

indictment. “We feel we’ve already sent a message”, David said referring to Smith’s guilty plea (McGrath, 2000, p. 2B).

A.B. Swindell, a Democratic state Senator in North Carolina, proposed an APG law in April 2003 (North Carolina General Assembly, 2003). Democratic Gov. Mike Easley signed the bill in August. “This is a law North Carolina needs, especially in the east and along the coast, where we’ve seen this kind of activity [price gouging] after hurricanes. Our people, especially senior citizens, can be preyed upon after a storm,” Swindell said of the APG law (Schreiner, 2003, p. 1A).

The North Carolina Retail Merchants Association supported the bill, but asked lawmakers not to single out retailers who may have a good reason for increasing prices after a disaster. The retailers were likely granted their wish, as the APG law has an allowance for a seller’s “additional costs...during the state of disaster” (North Carolina General Statutes, 2006). The North Carolina statute is unique in that a firm that has been cleared in a price gouging investigation can request that the Attorney General issue a signed statement indicating that the firm did not violate the APG law.

AG Roy Cooper had received only 82 price gouging complaints after Hurricane Isabel hit North Carolina in September 2003 (Robertson, 2003). Cooper connected the lack of complaints with the new APG law. “The real story here is the success of this new price gouging law as a deterrent. We have heard that local law enforcement have used this law to urge companies not to gouge,” said Cooper (Robertson, 2003). The APG law’s primary sponsor, A.B. Swindell, attributed the small number of complaints to news reports that mentioned the law as Isabel arrived.

Cooper's office received more than 2,800 complaints of gas price increases after Hurricane Katrina (Shain, 2006a). No settlements or suits related to gas prices after Hurricane Katrina were reported. In August 2006, Gov. Mike Easley signed a bill that allowed the APG law to be activated when a disaster elsewhere caused prices to rise in North Carolina (North Carolina General Assembly, 2006). AG Cooper pushed the law after Hurricane Katrina (Shain, 2006b). The previous version stated that the law could only be enforced when the Governor declared a disaster. The law was also amended to include wholesalers and distributors as well as retailers.

It is interesting that policymakers in North Carolina did not pass an APG law until 2003. It is especially puzzling when considering that price gouging was a large problem after Hurricane Fran in 1996 and Hurricane Floyd in 1999. Unfortunately, news reports do not indicate what triggered the law's passage in 2003. Perhaps officials had recent difficulties prosecuting price gougers under the state's consumer protection laws, as they did in 1996 and 1999.

Kentucky: On September, 11, 2001, Kentucky AG Ben Chandler received 447 complaints of gas price increases at about 185 stations (Brammer, 2001). Chandler interviewed stations that were accused of charging \$2 or more on 9/11, but decided not to pursue charges. Had he pressed charges, Chandler would have used a portion of Kentucky's consumer protection law that deals with "unconscionable" acts. "The difficulty with that law is that it requires proof that consumers have no other reasonable alternative to get whatever necessary product they want," Chandler said. In response to the 9/11 gas price complaints, Democratic Representative Mike Cherry, introduced an

APG bill in February 2002 (Wolfe). Republican Rep. Paul Marcotte, questioned the feasibility of the APG law: “I don't know if we need to give him [the governor] the additional job of price-control czar [during an emergency]” (Wolfe). Cherry’s bill did not pass (Kentucky Legislature, 2002).

Following an ice storm in central Kentucky in February 2003, the Attorney General’s office received 78 price gouging complaints (Yuen, 2003). By April, most of the firms accused of price gouging had been cleared. It is unknown if the AG’s office charged any firms under the “unconscionable acts” statute.

AG Greg Stumbo endorsed the APG bill that was introduced in the Kentucky House in February 2004 (Schreiner, 2004; Kentucky Legislature, 2004). Under the original version of the bill, first-time violators could be imprisoned for up to one year and subsequent violators could be jailed for up to five years (Schreiner, 2004). The bill was amended so that the first offense carried a fine of \$5,000 and succeeding fines carried fines of \$10,000. The bill was signed by the Governor on April 22, 2004 (Kentucky Legislature, 2004). Stumbo was not disappointed in the removal of criminal penalties. “Obviously, no retailer is going to want to be called a price gouger, or be publicly brought to the forefront for trying to price gouge,” Stumbo said (Schreiner, 2004).

After Hurricane Katrina, AG Stumbo accused gasoline retailers of price gouging and asked Republican Gov. Ernie Fletcher to declare a state of emergency to activate Kentucky’s APG law (Alford, 2005). The governor issued a state of emergency on August 31, 2005. On August 2, 2006, Stumbo announced settlements related to post-Katrina gas price increases (Brammer, Jordan, & Mueller, 2006). Five retailers who

operated eleven stations agreed to pay a total of \$47,500 in fines. Todd Leatherman of the Office of Consumer Protection in the AG's office said that he found that per gallon profits increased from 47 cents to \$1 after Katrina (Alford, 2006). According to Leatherman, the standard industry profit is 10-20 cents per gallon. The AG's office also said in August 2006 that it was seeking records from eleven refiners regarding their business practices after Katrina (Brammer et al, 2006). On May 10, 2007, AG Stumbo announced a lawsuit against Marathon Oil Corporation and its subsidiaries for overcharging consumers more than \$89 million in the Katrina aftermath (Kentucky Office of the Attorney General, 2007a). The suit specifically says that Marathon violated the APG law and other consumer protection statutes. The suit seeks civil penalties of \$5,000 under the APG law as well as restitution. Shortly after the suit, Stumbo offered his support for national APG proposals in letters to several Congressmen (Kentucky Office of the Attorney General, 2007b). He said that his 18-month investigation of Katrina gas price gouging could be helpful "to those reviewing gas price gouging on the national level" (Kentucky Office of the Attorney General, 2007b). Marathon responded to Stumbo's suit by filing a countersuit in federal court that alleged that Kentucky's APG law is unconstitutional ("Marathon says", 2007). The suit against Marathon is the only known example of a suit against a major oil company involving an APG law.

Virginia: Virginia Senator Kenneth Stolle proposed an APG law in January 1996 in response to price gouging accusations after a blizzard in Virginia Beach ("Bill would ban", 1996). The Virginia Retail Merchants Association expressed its opposition to the bill, which did not pass.

After 9/11, Virginia Attorney General Randolph Beales encouraged consumers to call a consumer hotline to report price increases (Olson, 2001). Beales spokesman Randy Davis promised an investigation into gas prices and said that Beales may seek laws against “unethical individuals” depending on the results of the investigation (Olson, 2001, p. D2).

A few weeks after Hurricane Isabel struck Virginia in September 2003, Democratic Gov. Mark Warner and Republican Attorney General Jerry Kilgore expressed desire for an APG law in Virginia (Hinkle, 2003). David Irvin of the Virginia Attorney General’s office said that the passage of the APG law was prompted by exorbitant prices charged by tree removers after the hurricane (personal communication, October 12, 2007). Roy Leshner, president of the Norfolk Federation of Civic Leagues, a coalition of civic organizations, also wanted the legislature to pass an APG law (Goldfarb, 2004). Virginia’s APG bill was signed into law by Governor Warner on April 14, 2004 (Virginia Bill Tracking, 2004).

On September 2, 2005, a few days after Hurricane Katrina, Gov. Warner declared a state of emergency, which allowed enforcement of the APG law (Kincaid, 2005). AG Judy Jagdmann’s office received more than 200 price gouging complaints after Hurricanes Katrina and Rita (Edwards, 2005). Alongside the Virginia Department of Agriculture and Consumer Services, the Virginia AG’s Office investigated stations that raised prices more than 25 percent above pre-hurricane prices (David Irvin, personal communication, October 12, 2007). This threshold was chosen because two other states with similar APG laws used twenty-five percent as a benchmark for the *prima facie* (first

instance) case. Furthermore, per the provisions of the APG law, the AG's office sought price increases that were unexplained by cost increases.

In January 2006, a Falls Church gas station settled a case with the AG's office that alleged the station charged as high as \$4.59 for regular gas after Katrina (Kincaid, 2006). By signing an assurance of voluntary compliance, the station agreed to pay \$700 in restitution, \$1,500 to the Red Cross, and \$2,000 for attorney costs in the settlement. In March 2006, a Fairfax County station settled a Katrina price gouging case in which it was accused of charging as high as \$5.90 for gasoline ("Virginia AG", 2006). The settlement consisted of \$3,000 in restitution, a \$1,000 donation to the Red Cross, and \$1,000 in attorney costs. A third retailer settled a Katrina gas gouging case in June 2006 ("Price gouging subject", 2006). The McLean station, who was accused of charging as much as \$4.10 for regular gas, agreed to pay restitution and \$1,000 to the Red Cross.

Utah: Utah Senator Patrice Arent introduced an APG bill in late January 2005 (Utah State Legislature, 2005). She heard of price gouging in Florida in the aftermath of 2004 Florida hurricanes and wanted to protect Utah consumers should a disaster hit the state (Loftin, 2005). The bill was signed by the Governor on March 22, 2005 (Utah State Legislature, 2005). Jim Olsen, executive vice president of the Utah Retail Merchants Association, supported the APG bill, saying that community outsiders, not local retailers, would be expected to engage in price gouging (Loftin, 2005).

Gov. Jon Huntsman Jr. declared a state of emergency on September 3, 2005 to recover \$5 million allocated to Katrina evacuees (Henetz, 2005). Commerce Executive Director Francine Giani and the Utah Attorney General's Office examined the APG law

to determine if it would be applicable after Katrina, even though the disaster did not occur in Utah. They decided that the law did not apply under the circumstances. “The statute was never intended to control prices or stop normal supply and demand,” said Giani (Henetz, 2005). “This was not exactly what we were thinking about,” said Patrice Arent, the APG bill’s sponsor (Henetz, 2005). Utah lawmakers passed an amendment to the APG law in 2006 that clarified that the emergency had to occur in Utah (Utah Code Annotated, 2007). Utah’s APG law history shows that amendments do not always expand the scope of APG laws or make them more stringent.

Maine: In April 2002, Maine lawmakers considered an APG bill along with three other bills related to terrorist attack response and preparation (Adams, 2002). The other three bills passed, but the APG bill failed, as lawmakers believed it raised too many irresolvable issues. Maine legislators did pass an APG law in April 2006 (Maine State Legislature, 2006).

Pennsylvania: Pennsylvania AG Mike Fisher sent agents to investigate claims of gas price gouging after 9/11 (Worden, 2001). “If the rise in retail prices is dramatically higher than the rise in wholesale prices, then my office will take action against those exploiting this emergency,” Fisher said (Worden, 2001). Fisher was intending to prosecute the stations under consumer protection laws. No legal action against Pennsylvania gas stations for post-9/11 pricing was reported.

A little over a month after Hurricane Katrina, Pennsylvania AG Tom Corbett had received over 1,500 complaints regarding high gas prices (Smith, 2005). Corbett’s office

began investigating the complaints and was looking for violations of a consumer protection statute that prohibits “unconscionable” acts (Schillinger, 2005). The Pennsylvania Senate passed an APG bill on September 21, 2005, but Gov. Ed Rendell did not sign an APG bill until October 31, 2006 (Fellinger, 2005; Pennsylvania Advance Legislative Service, 2006). In April 2006, the AG’s office settled with two gas stations who raised their prices at least 20 percent immediately after Hurricane Katrina (Gostomski, 2006). The stations paid fines of \$6,000 and \$1,000, respectively, as part of the assurances of voluntary compliance that they signed.

Vermont: Shortly after Hurricane Katrina, Vermont Attorney General William Sorrell asked Vermont legislators to pass an APG law (Rossi, 2005). Gov. Jim Douglas signed an APG bill in May 2006 (The Vermont Legislative Bill Tracking System, 2006). Julie Brill, an assistant AG who promoted the bill, said the bill was prompted by gas price spikes after Hurricane Katrina (“House may”, 2006).

Wisconsin: Wisconsin Gov. Scott McCallum and Attorney General Jim Doyle, both candidates for governor, held separate press conferences on gas prices on September 12, 2001 (Weier). Doyle complained that Wisconsin did not have an APG law, while McCallum asked the Department of Agriculture, Trade and Consumer Protection to monitor gas prices. McCallum directed the department to determine if retailers were colluding or if they had violated a Wisconsin law that prohibits gasoline retailers from changing prices more than once in a 24-hour period. The Department of Agriculture, Trade and Consumer Protection received nearly 2,000 complaints of gas price increase in

the five days after September 11 (Content, 2001). More than 400 stations were inspected by the department (“State finds”, 2001). Fifteen cases were forwarded to district attorneys (Content, 2001). Each case involved either an alleged violation of Wisconsin’s prohibition against changing prices more than once in a 24-hour period or a deceptive advertising charge. AG Doyle also investigated post-9/11 gas prices, subpoenaing 16 stations in the process (Ross, 2001). Doyle and the Consumer Protection Department could have been investigating the same stations, as their efforts were not coordinated. Doyle was looking for the same violations as the consumer protection department. District attorneys in Barron, Marinette, Outagamie, Winnebago, and Dane counties prosecuted gas stations for violating Wisconsin’s pricing rule (Price, 2001; Miller, 2002). A Little Chute gas distributor settled its case regarding 9/11 pricing violations by paying \$8,762 (“Fox Valley”, 2001). It was the only known settlement.

Wisconsin Attorney General Peg Lautenschlager encouraged Wisconsin lawmakers to pass an APG law in the aftermath of Katrina (Ross, 2005). Lautenschlager, a Democrat, began drafting an APG law with two state Democratic lawmakers as early as September 1 (Sandler & Marley, 2005). Jim Doyle, who became governor of Wisconsin, signed an APG bill into law in May 2006 (“Doyle signs”). “The aftermath of a disaster should not be an excuse for big oil companies to gouge Wisconsin citizens. We need to send a clear message to the big oil companies that they can't simply raise prices 40 or 50 cents overnight for no reason,” Doyle said in a statement (“Doyle signs”, 2006). Also in May 2006, the AG’s office filed seven lawsuits against gasoline retailers and distributors for their pricing practices after Katrina (“Court orders”, 2006). As the violations occurred

before the passage of the APG law, the firms were charged under Wisconsin's 24-hour pricing rule. In the only reported outcome of the cases, one firm was ordered to pay \$3,000. Gov. McCallum and AG Doyle's fight to be portrayed as pursuing the gougers after 9/11 stands out from the history of Wisconsin's APG. The other case studies do not have similar examples of such conflicts.

Oregon: Oregon AG Hardy Myers received over 1,000 complaints of gas price increases after the 9/11 attacks (Hunsberger, 2001). Myers sent letters requesting information on gas prices after 9/11 to 36 stations. His office wanted to determine if the stations violated Oregon's Unlawful Trade Practices Act. It was never reported if Myers' investigation resulted in any prosecutions or settlements.

After Hurricane Katrina, Myers wrote an editorial expressing his desire for an APG law (Myers, 2005). "If a catastrophic earthquake or other natural disaster struck our state, Oregonians coping with the life-and-death aftermath shouldn't face unlimited price increases as an obstacle," Myers said (p. B07). Myers indicated that he had tried to pass an APG law for the past decade and that he would try again in 2007, the next legislative session. U.S. Rep. Peter DeFazio, an Oregon Democrat, urged Gov. Ted Kulongoski to call a special session to pass an APG bill, but Kulongoski declined to do so (Cole, 2005). Kulongoski did sign an APG bill in June 2007, near the close of the regular legislative session (Esteve & Graves, 2007). The repeated failure of Myers' APG bill is unique among the other states.

Case Studies of States Without APG Laws

Illinois: On September 12, 2001, Illinois AG Jim Ryan sued Casey's General Store Inc. for raising gas prices from \$1.68 to as much as \$5 per gallon after the 9/11 terror attacks (Babwin, 2001). Illinois does not have an APG law, so Ryan sued Casey's under Illinois' Consumer Fraud and Deceptive Business Practices Act. Casey's spokesman Jim Shaffer offered refunds to consumers who purchased gas at the higher prices, which he claimed were effective for only 90 minutes. AG Ryan considered an emergency rule on September 13 that would clarify the definition of price gouging ("State trying", 2001). Ryan spokesman Dan Curry said that he was confident that the suit against Casey's would "hold up in court, but it would give consumers even more protection if there was an explicit offense spelled out" ("State trying", 2001, p. 37). On September 14, several Illinois lawmakers said they were considering an APG law (Anderson, 2001). Casey's settled its case on September 26 by agreeing to donate \$25,000 to the Red Cross and reimburse the state \$5,000 in legal costs (Wills, 2001). From more than 1,600 consumer complaints, AG Ryan requested another 19 companies to donate to disaster relief or face lawsuits ("Ryan sends", 2001).

As Illinois AG Lisa Madigan began receiving 2,000 complaints of gas price increases after Hurricane Katrina, she sent investigators to examine the complaints as early as August 30 (McKinney, 2006; Finke, 2005). Ben Weinberg of the AG's public interest division said that violators would be sued under the state's fraud laws, as Casey's General Stores was sued in 2001. Madigan also issued an emergency APG rule on September 2 (Illinois Attorney General, 2005). The rule applied only to petroleum

products and was similar to other states' APG laws. The rule derived its authority from the Consumer Fraud and Deceptive Business Practices Act, and the penalties of that act applied. Illinois Rep. Bill Mitchell, a Republican, introduced an APG bill in the Illinois General Assembly on September 12, but the bill died without a chamber voting on it (Illinois General Assembly, 2006). Mitchell said that the APG law would "give more teeth" to state consumer protection laws (Colindres, 2005, p. 13). In late December 2005, Madigan sent letters to eighteen gas stations requesting that they donate \$1,000 to the Red Cross or face a lawsuit for their pricing practices after Katrina (McKinney, 2005). Madigan issued letters to the stations she identified as having raised prices beyond wholesale price increases. The threatened lawsuits were under the Consumer Fraud and Deceptive Business Practices Act, and Deborah Hagan of the AG's consumer protection division cited the 2001 case against Casey's as a precedent. All the stations settled with Madigan on January 13, 2006 (McKinney, 2006). The settlements did not include an admission of guilt by the gas station operators.

After 9/11 and Hurricane Katrina, Illinois officials investigated price gouging under the state's Consumer Fraud and Deceptive Business Practices Act. Other states have also investigated price gouging under state consumer protection laws. Illinois sits apart, because lawmakers did not find it necessary to pass an APG law in addition to the Consumer Fraud and Deceptive Business Practices Act.

Minnesota: Minnesota AG Mike Hatch promised to publicly identify stations who excessively raised prices in the 9/11 aftermath at a hearing later in September (Knutson, 2001). Later, however, Hatch said he would not have to identify any such stations at the hearing, as those who raised prices lowered them quickly.

Colorado: Colorado AG Ken Salazar threatened to prosecute gas retailers who exorbitantly increased prices after 9/11, but he did not find any violators (Draper, 2001). Deputy AG Jan Zavislan said, “We spent a ridiculous amount of time trying to follow through on the complaints we did receive . . . but we didn't get a single verification” (Draper, 2001, p. B6). It is unclear what statutes Salazar intended to use in his investigation.

After Hurricane Katrina, Deputy Attorney General Jason Dunn, after consulting with Gov. Bill Owens' legal counsel Jon Anderson, determined that because Colorado did not have an APG, there was nothing his office could do about escalating gas prices (Chakrabarty, 2005). Colorado lawmakers began pursuing an APG law in September 2005 in response to the post-Katrina gas price increases (Hughes & Raabe, 2005). Republican Gov. Bill Owens vetoed the APG bill in June 2006 (Colorado Governor, 2006). He said that the bill “violates the fundamental principles of our market-based economy.”

Maryland: Maryland AG J. Joseph Curran promised to investigate all instances of price gouging after 9/11 (“Governor, attorney general”, 2001). It is unclear what statutes Curran intended to enforce. No prosecutions or lawsuits arising from post-9/11 gas price hikes were reported.

Curran subpoenaed records from 188 gasoline retailers and distributors after Hurricane Katrina, but found no violations of Maryland law (“Gov. asks”, 2006). “Unfortunately our consumer protection division didn't have a price gouging statute like 28 states did,” Curran said (“Gov. asks”, 2006). Curran lobbied the Maryland legislature to pass an APG law in 2006, but the bill died.

Michigan: On September 13, 2001, Michigan AG Jennifer Granholm sent letters to nine gasoline stations in which she threatened to sue them under the state’s Consumer Protection Act for raising prices to as much as \$4 per gallon after the attacks (Flesher). The results of Granholm’s threatened legal action are unknown.

North Dakota: North Dakota Representative Mary Ekstrom, a freshman Democrat, introduced an APG bill in January 1999 (“Briefs from”, 1999a). Ekstrom introduced the bill in response to complaints of home-repair price increases following the Red River flood in April 1997. Republican Rep. Bill Devlin said the bill could lead to costly lawsuits and discourage businesses from offering supplies during disasters (“Briefs from”, 1999b). The bill ultimately failed 62-37.

New Hampshire: APG bills originating in both the Senate and House were considered by New Hampshire lawmakers in February 2006 (New Hampshire General Court, 2006a; New Hampshire General Court, 2006b). Neither bill received a floor vote. Sen. Sylvia Larsen said she became concerned about price gouging after constituents complained of gas prices increases after Katrina (“Senate panel”, 2006).

Nevada: Sen. Dina Titus, D-Las Vegas, proposed an APG bill in February 2007, because of the attention gas price gouging received after Hurricanes Katrina and Rita (Mullin, 2007a). Several lobbyists complained that the bill was infeasible. George Ross of the Las Vegas Chamber of Commerce and the Nevada Retail Association used the standard economic argument that prices ensure quantity supplied meets quantity demanded. Chevron lobbyist John Sande complained that due to vague language “the average retailer will have no idea if they're violating the [APG] law” (Mullin, 2007b). Greg Ferraro of the Nevada Resort Association said that hotels would be prevented from raising their rates during special events, since the bill was tied to disaster declarations in other states. The bill never received a vote (Nevada Legislature, 2007).

Montana: Montana lawmakers considered an APG bill in the first part of 2007 (Montana Legislature). The bill narrowly passed the Senate 26-24, but failed in the House. Ronna Alexander, representing the Montana Petroleum Marketers and Convenience Store Association, said the bill would place the burden of proof on businesses (Cooke, 2007). Jim Smith of the Montana County Attorneys Association said

that county attorneys did not have the resources to prosecute the law. In other states, those lobbying against APG laws have generally been businesses. Smith of the Montana County Attorneys Association is an atypical example.

New Mexico: After Hurricane Katrina, New Mexico Democratic Gov. Bill Richardson and Attorney General Patricia Madrid lamented that New Mexico did not have an APG law (Nash, 2005a). “I was shocked to learn that New Mexico does not have a law protecting consumers from price gouging,” Richardson remarked (Nash, 2005a, p. A2). “I stand ready to prosecute anyone who would take advantage of consumers because of a national emergency or natural disaster, but the Legislature must provide me the tools to do it,” said AG Madrid (Nash, 2005a, p. A2). Within two weeks after Hurricane Katrina, Richardson’s office received 50 complaints of gas price increases (Nash, 2005b). Richardson and Madrid’s offices introduced a draft APG bill shortly before a special legislative session in October 2005 (Jennings, 2005). The draft prohibited increasing prices in anticipation of higher replacement costs. The bill passed the House, but ultimately died in the Senate (Terrell, 2005). In January 2006, two additional APG bills were introduced in the regular legislative session, but both died (New Mexico Legislature, 2006a; New Mexico Legislature, 2006b). The New Mexico example shows that APG bills can fail even immediately after disasters like Hurricane Katrina.

Ohio: Within days after the 9/11 attacks, Ohio AG Betty Montgomery began filing lawsuits against gas stations for charging as much as \$6 per gallon (Johnson, 2001). The lawsuits charged that the stations violated the Ohio Consumer Sales Practices Act.

Montgomery encouraged the stations to contribute \$1,000 to the Red Cross and refund overcharged consumers to settle the suits (“State settling”, 2001). By early February 2002, 25 of the 28 stations sued had settled with Montgomery (“Price-gouging by gas stations”, 2002).

Arizona: On July 30, 2003, one of Arizona’s two main gas pipelines ruptured (Arizona Governor, 2003). AAA of Arizona reported Phoenix pump prices increased about 60 cents, and AG Terry Goddard received over 1,000 complaints of increased gas prices. During the spike, Goddard asked Arizona lawmakers to pass an APG bill (Davenport, 2003). An APG bill was introduced in the Arizona legislature each year in 2003-2006, but failed each time (“Bill to guard”, 2006; Arizona State Legislature, 2006). Emma Mamaluy of the AG’s office, who helped draft the 2004 APG bill, said that she wanted to freeze profits, not prices, after a disaster (personal communication, July 12, 2007). She wanted a bill that was fair to both producers and consumers. Like New Mexico and Oregon, Arizona shows that APG laws can repeatedly fail.

CHAPTER 5

STATISTICAL MODELS AND RESULTS

Predictions

The statistical analyses focus on determining the factors that led thirty-one states to enact APG laws when they did. One hypothesis tested is that states with higher proportions living in poverty are more likely to enact APG laws. This prediction is derived from the discussion on the effects of price controls in Chapter 2. Poor people have a low opportunity cost of waiting, so they can benefit from APG laws under certain circumstances. For many poor people, their total price paid (in terms of money and waiting time) could be less than the unregulated, higher market-clearing price after a disaster. This hypothesis states that APG laws are enacted to transfer wealth to poor individuals. Empirical proxies used for the predictions here are discussed in the “Description of Data” subsection below.

It is expected that states with higher probabilities of natural disasters are more likely to adopt APG laws. It is clear that consumers and politicians often abhor the price increases that follow emergencies. After such price increases, there are often calls to prevent similar increases in the future. Preventative action often comes in the form of an APG law.

Neighboring states enacting APG laws make a state more likely to adopt an APG law. The argument for this prediction is similar to the previous prediction that more disaster-prone states are more likely to pass APG laws. Citizens and lawmakers are likely

to be aware of neighboring states passing APG laws. When the lawmakers hear of neighboring states passing APG laws, they may pass APG laws as preventative measures. Geddes and Lueck (2002) examined the passage of women's rights law in the early 20th century and had the same hypothesis regarding neighboring states.

States with more dispersed incomes are more likely to enact APG laws. This prediction is based on Suen's (1989) proof that rent dissipation from waiting declines as the variance in time costs increases. The prediction assumes that waiting is the primary rationing mechanism. This hypothesis provides a test of Becker's (1974) test of efficient government. Suen's prediction is best illustrated with an intuitive example. Suppose 100 concert tickets will be given away for free, 150 people value the tickets at \$100 apiece, and that all the consumers have the same opportunity cost of their time, which is \$10 per hour. In this situation, all 150 consumers will show up 10 hours before the tickets are given away, and 100 will stay in line once their positions are secured.⁷ There is no consumer surplus in this scenario.

Now, imagine a situation in which the 150 consumers still value the tickets at \$100, but 50 have an opportunity cost of \$10 per hour and 100 have an opportunity cost of \$20 per hour. The high wage consumers (\$20/hour) are only willing to wait in line for five hours. The low wage consumers (\$10/hour) know that the high earners will only wait in line for five hours, so all fifty low earners arrive five hours and one second before the tickets are dispersed. The fifty high wage consumers who happen to arrive first (a fraction of a second after the low wage earners) receive tickets. The low wage earners

⁷ This example assumes instantaneous distribution and that the consumers have perfect information regarding others' opportunity costs.

receive slightly less than \$50 each in consumer surplus in this situation ($\$100 - (5 \text{ hours waiting time} * \$10/\text{hour}) = \$50$). In the first scenario, the variance in the consumers' time costs is zero, and all rent is dissipated. In the second scenario, there is positive variance in their time costs, and the low wage consumers attain rents. This example provides a simple illustration of Suen's theorem that rent dissipation declines with greater variance in time costs.

More liberal states are expected to enact APG laws. This prediction is based on the presumption that primarily Democrats are concerned with helping poor people. Higher gas prices could make states more likely to enact APG laws. This hypothesis was derived from several examples in Chapter 4 that suggest gas is the primary commodity for which people complain of "price gouging". For example, Cort Jensen of the Montana Office of Consumer Protection said that Montana lawmakers considered an APG law in 2007 (that eventually failed) because of high gas prices after Hurricane Katrina (personal communication, August 29, 2006).

Previous Literature

The subsection examines previous econometric studies on factors that influence the passage and timing of various state laws. Stoddard and Corcoran (2006) examined the passage and strength of state laws authorizing charter schools. One of their cross sectional models used a binary response variable that equaled one if a state passed a charter school law by 1999, and zero otherwise. Another model used the year of passage as the response variable. Only the District of Columbia and the 39 states that had passed a

charter school law by 2003-2004 were included in that model. Stoddard and Corcoran also estimated regressions with an index of charter school law strength. These regressions were not applicable to this paper, as no index of APG law strength is available.

Stoddard and Corcoran's (2006) cross-sectional binary response model does not take the time of passage of the laws into account. The only information embodied in the response variable is that either a state has a law or does not. Stoddard and Corcoran's model that used year of passage as the response is an improvement because time is taken into account, but only states that currently have laws can be used in that specification.

Geddes and Lueck (2002) analyzed the factors that led states in 1860-1920 to adopt laws that granted women additional property rights. Specifically, one type of law allowed married women to control separate estates (estate acts). Another type of law gave married women control over their earnings (earnings acts).

Geddes and Lueck used binary response models with panel data to analyze the passage of the laws. Each observation consisted of a state at a specific time. The data were only available in census years, or every ten years. The response variable equaled one if a state had passed both estate and earnings acts, and zero otherwise. These statutes were never repealed, so once the response variable equals one for a state, it equals one in all subsequent census years. Geddes and Lueck's explanatory variables included economic variables like per capita wealth, percentage of school-age females attending school, and the percentage of a state's population residing in cities. They predicted that all three variables would be positively related to the passage of estate and earnings acts. Their models generally confirmed their predictions.

Geddes and Lueck's approach takes into account how time-varying factors affect the passage of women's property laws. Problems could arise, however, with the non-randomness of the response once a law is passed. Consider using their approach to model the passage of APG laws. Specifically, consider the hypothesis that APG law passage is associated with Democratic-controlled legislatures. In the data table, suppose there is a 1 in the Democrat column and a 1 that indicates passage of an APG law. Then, suppose the Democrats get ousted from office, so there are zeros thereafter. But, there are still ones in the APG law column, as the law has not been repealed. In this circumstance, the estimated model could fail to find any Democratic association with APG law passage when there could be an association in reality. Panel logit models could work in circumstances in which the explanatory variables vary minimally across time. Nevertheless, it is still not clear what information is added by including the non-random observations after a state has passed a law.

Hanssen (2004) examines the factors that lead states to change procedures to select judges. Historically, states have chosen judges using three procedures: gubernatorial and legislative appointment, partisan and nonpartisan elections, and the merit plan, which "involves the appointment of a candidate by the governor from a short list of (typically three) candidates put together by a nonpartisan nominating commission" (Hanssen, 2004; p. 432).

In the first fifty years after the American Revolution, most states used gubernatorial or legislative procedures to select judges. Hanssen divides his analysis into three periods of change. First, in 1850-1910, many states switched to partisan elections to

choose judges. In the 1910-1960 period, numerous states switched to nonpartisan elections. Finally, many states adopted the merit plan in the 1960-1990 period. Hanssen estimates panel probit models for each period. His response variable equals one if a state had adopted the period-specific procedure, and zero otherwise. Hanssen had observations only for census years (1970, 1980, 1990, etc.).

Hanssen's explanatory variables included whether or not the state had held a constitutional convention in the past decade. The predicted sign for this variable was positive, as many states cannot change their judicial selection procedures without changing their constitutions. Another explanatory variable was the size of the majority in the state legislature. Hanssen expected this variable to be negative, as "a stronger hold on power reduces the attractiveness of an independent court", and thus, the incentive to change judicial selection procedures (Hanssen, 2004; p. 432). The year the state entered the Union was also an explanatory variable, which was expected to be positive under the assumption that newer institutions are less costly to alter. Hanssen's models generally confirm these predictions.

In a forthcoming paper, Ponicki, Bielinska-Kwapisz, and Young analyze the factors that determine the magnitudes of state beer excises taxes (Douglas Young, personal communication, December 14, 2007). One of their models is a cross-sectional regression with the state excise tax as the response. Cross-sectional models are estimated with the tax levels in 1970 and 2003. The authors find that a state's beer tax rates are positively and significantly related to neighboring states' tax rate in both 1970 and 2003. Using data from the same period, they also estimate a panel model with the change in the

log-transformed excise tax as the response. The panel model reveals that changes in neighbor state tax rates are associated with changes in home-states. The panel model also shows that beer tax changes were positively related to the number of Catholics and Mormons in a state and negatively related to the size of a state's tourism industry.

Background on Hazard and Logit Models

This subsection contains background information on the two statistical models used in this thesis, hazard models and logit models. Detail is offered on the types of datasets that are used with hazard models and the statistical frameworks that are employed with hazard models. The section on logit models contains the functional form of logit models, as the form is complex. The logit section concludes with the odds interpretation of logit models.

Hazard Models

Hazard models, also known as survival models, are used as an alternative approach to model the passage of APG laws. The response variables in hazard models are time-to-failure variables. Hazard models can be used for such diverse applications as light-bulb burnout times and unemployment durations. For this study, hazard models are used to test how the aforementioned variables (poverty, disasters, etc.) have influenced the timing of APG law passage. States that have not yet passed APG laws can be incorporated into hazard models by *censoring*, which assumes that the passage of the APG law in those states will occur in the future (later than 2007). Another way to state

the censoring assumption is that there is a positive probability (however small) that states currently without APG laws will pass them eventually.

Much of the hazard model terminology described here is adapted from the first three chapters of Cleves, Gould, and Gutierrez (2004). An advanced discussion of the statistical theory of hazard models can be found in Chapter 20 of Wooldridge (2002). Let T be a random variable representing the failure time (enactment time) of APG laws, and t is a realization of T . (For now, assume that a clear starting date for analyzing the passage of APG laws can be determined.) The hazard function, denoted by $\lambda(t)$, is commonly used to interpret hazard models. It is defined as

$$(6) \lambda(t) = \lim_{h \rightarrow 0} \frac{P(t \leq T < t + h | T \geq t)}{h} = \frac{f(t)}{S(t)}$$

where $f(t)$ is the probability density function of failure times, and $S(t)$ is the survivor function.⁸ In this context, the survivor function represents the probability that a state will pass an APG law after a time t . The definition of the survivor function is shown in mathematical terms as

$$(7) S(t) = \Pr(T \geq t).$$

The intuitive definition of the hazard function is best demonstrated with an example. For example, $\lambda(2003)$ is the probability that a state passes an APG law in 2003 given that it has not already passed an APG law. For simplicity, the hazard function is shown without conditioning on covariates. The estimated hazard models are obviously dependent upon covariates.

⁸ Intuitively, $f(t)$ can be thought of as a function that computes the probabilities of obtaining each value of t .

Hazard models can be used with both static and time-varying explanatory variables. The dataset for a hazard model with static covariates looks identical to a dataset for ordinary cross-sectional regressions. The response variable is the year of passage and an indicator variable is used to denote censored observations. Hazard models' ability to deal with censoring is the main advantage they have over ordinary regression models with year of passage as the response, as those models do not incorporate information from states that currently do not have APG laws.

The setup of a dataset used for a hazard model with time-varying covariates is exemplified in table 8. Each observation in table 8 displays the poverty rates for Oklahoma, Rhode Island, and South Carolina in each $(t_0, t_1]$ time interval. For parsimony, the poverty rate is the only covariate shown in the table, but the setup is the same for additional covariates. A "1" in the "APGLaw" column indicates if a state passed a law in the $(t_0, t_1]$ interval. The enactment of Oklahoma's law in 1999 is shown by the 1 in the APGLaw column in the last row for Oklahoma. Similarly, the enactment of South Carolina's statute in 2002 is indicated by a 1 in the APGLaw column in the last row of the table. For each state that has passed an APG law, the dataset ends in the year of the law's passage. The data entries for censored states, or states that do not currently have APG laws, continue through 2007. Rhode Island does not have an APG law, so zeros are in the Rhode Island's APGLaw column for every observation.

Table 8. Excerpt of dataset used for a hazard model with time-varying covariates.

State	t0	t1	APGLaw	PovertyRate
OK	1978	1979	0	13.9
OK	1979	1980	0	13.9
.
.
.
OK	1997	1998	0	16.6
OK	1998	1999	0	13.7
OK	1999	2000	1	14.1
RI	1978	1979	0	10.7
RI	1979	1980	0	10.7
.
.
RI	2006	2007	0	12.1
RI	2007	2008	0	12.1
SC	1978	1979	0	16.8
SC	1979	1980	0	16.8
.
.
SC	2001	2002	0	15.1
SC	2002	2003	1	14.3

When estimating hazard models, either a parametric approach or a semi-parametric approach can be used. These approaches can be used for both static and time-varying datasets. For the parametric approach, an explicit form for the hazard function must be assumed. For example, the model can be specified to have an exponential form, in which case the hazard is assumed to be constant across the analysis time given constant covariates. Alternatively, the model could be specified to have a Weibull form where the hazard is allowed to increase or decrease monotonically across the analysis time. Additional hazard specifications exist for parametric models.

A specific start date must be identified when using parametric hazard models. The start date can be clearly identified in situations like unemployment duration. The start

date could not be clearly identified for the passage of APG laws. All parametric models except the exponential model are sensitive to the start date used.

The maximum likelihood method is used to estimate parametric hazard models. The likelihood function for static models is derived here, so an intuitive understanding of the estimation can be acquired. From the hazard function above, the hazard function for state i in the static framework is given by

$$(8) \lambda(t_i | \mathbf{x}_i, \beta) = \frac{f(t_i | \mathbf{x}_i, \beta)}{S(t_i | \mathbf{x}_i, \beta)}$$

As opposed to the first hazard function displayed in (6), the hazard function above is conditioned on a vector of covariates and a parameter vector. Solving for the density function $f(\cdot)$ yields

$$(9) f(t_i | \mathbf{x}_i, \beta) = S(t_i | \mathbf{x}_i, \beta)\lambda(t_i | \mathbf{x}_i, \beta)$$

The density function above assumes that a failure time (enactment time) is known. For many states, it is only known that they “survived” through 2007 and have a probability of failing in the future. Thus, the survivor function $S(\cdot)$ embodies all the information for those states. The likelihood function, essentially the product of all the density functions, is

$$(10) L(\beta) = \prod_{i=1}^n S(t_i | \mathbf{x}_i, \beta)\lambda(t_i | \mathbf{x}_i, \beta)^{d_i}$$

where d_i is an indicator variable that equals one if a state has passed an APG law, and zero otherwise. Therefore, if a state has an APG law, the likelihood contribution for that state is $S(\cdot)\lambda(\cdot)$. If a state does not have an APG law, its likelihood contribution is

$S(\cdot)$. In maximum likelihood estimation, estimates of β are chosen to maximize the likelihood function. In essence, maximum likelihood estimation chooses values of β that maximize the probability of obtaining the observed data. Stata and SAS statistical programs solve for β with iterative procedures, not by explicitly solving the first order conditions of the likelihood function. For a concrete example, the hazard and survivor functions for the Weibull model are

$$(11) \lambda(t_i | \mathbf{x}_i, \beta) = pt^{p-1} \exp(\beta_0 + \mathbf{x}_i \beta) = pt^{p-1} \exp(\beta_0) \exp(\mathbf{x}_i \beta) \text{ and}$$

$$(12) S(t_i | \mathbf{x}_i, \beta) = \exp\{-\exp(\beta_0 + \mathbf{x}_i \beta)t\} \text{ (Cleves et. al, 2004).}$$

The $\exp(\beta_0)$ part of the hazard function is the *baseline hazard*, the value of the hazard function when all covariates are zero. The p parameter must be positive for the hazard function to be defined. When $p = 1$, the Weibull reduces to the exponential. Observe that when $p=1$, the hazard function is constant across the analysis time given constant covariates. When $p>1$, the hazard monotonically increases, and when $p<1$, the hazard monotonically decreases.

Time explicitly enters every known parametric hazard model except the exponential (Cleves et al., 2004). If the passage of time affects the hazard, this means that the covariates do not completely explain the failure process. As Cleves et al. write, “To assume that the ticking of the clock somehow, by itself, changes the hazard is absurd unless we are physicists analyzing the true nature of time” (p. 24). The exponential model can be thought of as the desired form for any study trying to understand a failure process. In reality, however, it is often not possible to completely understand processes by the available covariates. The Weibull model is less constraining, as the hazard can increase

or decrease as time passes. Thus, Weibull models, not exponential models, are estimated in the “Hazard Model Results” subsection below.

The idea of maximum likelihood estimation can be easily extended to parametric models with time-varying covariates. Every observation in a time-varying dataset either results in the passage of an APG law or it does not. For each observation in table 8 that does not result in the passage of an APG, the likelihood contribution is given by

$$(13) \frac{S(t1_i | \mathbf{x}_i, \beta)}{S(t0_i | \mathbf{x}_i, \beta)} \text{ (Cleves et. al., 2004).}$$

The likelihood contributions for observations that result in failure consist of the above multiplied by the hazard function, $\lambda(t_1 | \mathbf{x}_i, \beta)$. Just like the static case, the overall likelihood function is obtained by multiplying all the likelihood contributions together. The parameter estimates are chosen such that the likelihood function is maximized.

Semi-parametric hazard models, or Cox hazard models, do not assume a specific form for the hazard function nor do they analyze the actual failure times. Rather, semi-parametric models rank the failure times and determine how the covariates change the hazard. An actual hazard function cannot be estimated with semi-parametric models. Cox models offer more flexibility than parametric models, however, because it is not necessary to make specific assumptions regarding the functional form of the hazard function. The Cox model assumes that the hazard follows the form

$$(14) \lambda(t_i | \mathbf{x}_i, \beta) = \lambda_0(t_i) \exp(\mathbf{x}_i \beta).$$

The baseline hazard, $\lambda_0(t_i)$, has no specific form. It will be shown that the baseline hazard cancels out in the estimation process.

In brief, Cox estimation first ranks the failure times. Then, binary outcome analyses similar to probit or logit methods are performed for each failure time (Cleves et al., 2004). Maximum likelihood is also used to estimate parameters for Cox models. Cumbersome notation must be used to derive the general likelihood function for Cox models. Thus, a simple example of Cox estimation from Chapter 9 of Cleves et al. (2004) is offered. The failure times (t) and values of an “x” covariate are displayed in table 9. Table 9. Failure times and covariate values for Cox estimation example.

Subject	t	x
1	2	4
2	3	1
3	6	3
4	12	2

There are four failure times and four distinct “risk pools” at each failure time. Subject 1 fails in a risk pool of four subjects because it has the first failure time, Subject 2 fails in a risk pool of three subjects, and so on. For each risk pool, an expression is needed for the conditional probability that the subject fails given that a failure occurred in the risk pool. At t=12, Subject 4 is in its own risk pool, so the probability that it fails given a failure occurs ($P_4 = \Pr(4 \text{ fails} \mid \text{a failure})$) is simply 1. The conditional probability of failure for Subject 3 (P_3) is shown by.

$$(15) P_3 = \frac{h(t_3 \mid x_3)}{h(t_3 \mid x_3) + h(t_3 \mid x_4)} = \frac{h_0(t_3) \exp(x_3 \beta)}{h_0(t_3) \exp(x_3 \beta) + h_0(t_3) \exp(x_4 \beta)}$$

$$= \frac{\exp(x_3 \beta)}{\exp(x_3 \beta) + \exp(x_4 \beta)} .^9$$

⁹ The proof that this probability is the ratio of hazard functions shown in (15) is complex and not offered in this thesis. It can be found on pp. 23-24 of Cleves et al (2004).

Similarly, the conditional probability for Subject 2 is displayed by

$$\begin{aligned}
 (16) \quad P_2 &= \frac{h(t_2 | x_2)}{h(t_2 | x_2) + h(t_2 | x_3) + h(t_2 | x_4)} \\
 &= \frac{h_0(t_2 | x_2) \exp(x_2 \beta)}{h_0(t_2 | x_2) \exp(x_2 \beta) + h_0(t_2 | x_3) \exp(x_3 \beta) + h_0(t_2 | x_4) \exp(x_4 \beta)} \\
 &= \frac{\exp(x_2 \beta)}{\exp(x_2 \beta) + \exp(x_3 \beta) + \exp(x_4 \beta)}.
 \end{aligned}$$

P_1 is not shown, but follows this pattern. Notice that the baseline hazard function $h_0(\cdot)$ cancels from the expressions.

The likelihood function is derived by multiplying all the conditional probabilities together,

$$(17) \quad L(\beta) = P_1 P_2 P_3 P_4.$$

In Cox estimation, there is no difference between estimating static models and models with time-varying variables. Unlike parametric models, information from years in which a failure did not occur is not used in Cox estimation (Cleves et al., 2004). In this thesis, however, there is a difference between static and time-varying Cox models, because, as described in the “Description of Data” subheading below, different datasets are used for the two approaches. The four observations in table 9 have different failure times. Cox estimation is more complicated when there are tied failures. For information on the different ways to deal with tied failures, see pages 140-144 of Cleves et al. (2004).

In the “Hazard Model Results” subsection below, both semi-parametric and parametric hazard models with static covariates are reported first. The static models are followed by parametric and semi-parametric hazard models with time-varying covariates. As it will be shown, more covariates are available in the time-varying framework.

A recent economic literature search of hazard models revealed two studies that employed the parametric framework. Smith (2004) used Weibull hazard models to analyze the attrition of fisherman in California’s red sea urchin industry. Smith’s response variable was the length of time divers remained in the industry. Static covariates included the average revenues per season, while his time-varying covariates included the season length and an estimate of the sea urchin stock. Smith included all these variables in time-varying models. As expected, Smith found that both increased revenues and increased sea urchin stocks decreased the hazard of attrition (or increased the time they spent in the industry). Both results were significant at the 5% level. Season length did not have a consistent and significant effect on the hazard.

Burton, Rigby, and Young (2003) analyzed the timing of the adoption of organic agricultural practices in the United Kingdom with Weibull and exponential hazard models. Their models included static covariates such as the size of the farm and an indicator variable that equaled one if agriculture was the household’s primary source of income. Both variables were insignificant in their models. Burton et al.’s sample included data from 1953-1996. In 1986, the Organic Advisory Service (OAS) began operating in the United Kingdom. Burton et al. controlled for the OAS with a dummy variable that

equaled one in the 1986-1996 period for all farms. The models found that the OAS increased the hazard of organic practices by about four times. The OAS effect was significant at the 1% level.

Logit Models

In addition to hazard models, panel logit models are also estimated. The difference between using a panel logit model and a time-varying hazard model is that the logit framework does not assume that all states eventually pass APG laws as the hazard model framework does. There is no theoretical reason to believe that all states will eventually pass APG law, nor is there any reason to believe that they eventually will not all pass laws. Because there was ambiguity with this assumption, both hazard and logit models are estimated. The response variable in this framework equals one if a state has an APG law in a specific year, and zero otherwise. Similar to the time-varying hazard models, once a state passed an APG law it is excluded from the dataset. The panel logit dataset also began in 1978 like the time-varying hazard dataset. Observations after the passage of the law are not included because those observations are non-random. Cross-sectional logit models are not estimated, because the models do not take time into account.

It is useful to review the functional form of logit models. The models have the following form

$$(18) \pi(\mathbf{x}) = \left(\frac{\exp(\beta\mathbf{x})}{1 + \exp(\beta\mathbf{x})} \right) + \varepsilon .$$

\mathbf{x} is a vector of covariates, and $\boldsymbol{\beta}$ is a vector of coefficients. $\pi(\cdot)$ is a function that measures the probability of an event. For this thesis, $\pi(\mathbf{x})$ measures the probability of an APG law being enacted when the \mathbf{x} covariates have various values. ε is the error term, and it has a logistic distribution.

The odds of an event is the probability that an event occurs divided by the probability that it does not occur. For interpretation purposes, logit models are commonly placed in odds form,

$$(19) \left(\frac{\pi(\mathbf{x})}{1 - \pi(\mathbf{x})} \right) = \exp(\boldsymbol{\beta}\mathbf{x}).^{10}$$

For simplicity, the error term is excluded from the above equation. If x increases by 1, the odds increase multiplicatively by

$$(20) \frac{\exp(\beta(x+1))}{\exp(\beta x)} = \frac{\exp(\beta x) \exp(\beta)}{\exp(\beta x)} = \exp(\beta).$$

The odds interpretation is used for the logit models in this thesis.

Description of Data

The variables for the hazard models with time-varying covariates are described first, because most of the static variables are derived from the time-varying dataset. These data are also used for the panel logit models. As exhibited by table 8, the datasets for time-varying hazard models are unbalanced panel datasets, as observations after the passage of APG laws are not included. Each observation in this setup displays the covariate values for a state in a specific year.

¹⁰ The logit model equations are adapted from Agresti (1996) and Wooldridge (2002).

Annual state-level poverty rates and median incomes (in 2005 dollars) are used to test the hypothesis that APG laws are enacted to transfer wealth to poor people. It is expected that poverty rates are positively related to the hazard, while median incomes are negatively related. Both predictions coincide with the hypothesis that poorer states are more likely to enact APG laws. Due to the different nature of the poverty and income variables, the predictions are in opposite directions. Gini coefficients are used to test the hypothesis that states with more dispersed income are more inclined to enact APG laws, as the dissipation of rent is smaller in those states.

The maximum monthly precipitation for each state-year observation is the primary disaster proxy. It is used, because many disasters like hurricanes, ice storms, and snow storms, all of which to spur price gouging complaints, are associated with precipitation. The maximum monthly precipitation, as opposed to say, the total annual precipitation, is used, because maximum monthly precipitation more precisely captures extreme weather events. The total number of hurricanes in each state-year is another disaster variable. A binary indicator variable that equals one for state-years that had earthquake damages greater than \$1 billion, and zero otherwise, is also used.

Party affiliation for state legislatures is used to determine if Democratic states are more likely to enact APG laws. A dummy variable is used that equals one if Democrats control both houses *and* the Governor's office in the state-year, and zero otherwise.

The percentage of neighboring states that have passed APG laws is used to determine if imitation is a factor in the passage of APG laws. Maximum monthly gas prices are used to determine if gas prices influenced the passage of APG laws. The gas

price data are all in 2002 dollars. As happened after September 11, 2001, short term spikes in gas prices can lead to requests for APG laws. Maximum monthly prices, instead of average annual prices, are better at depicting short term spikes. Additional information on the variables, including sources, can be found in Appendix A.

State-level averages are computed for the time-varying covariates, which are then used as the variables in the static models. For states with APG laws, the averages only include the values of the variables from 1978 until the passage of the law. The averages include all observations in the 1978—2007 period for states that do not currently have APG laws.

The state-level averages of the hurricane variable can be interpreted as estimates of the expected number of hurricanes each year for each state. The state-level averages of the Democratic dummy are the proportions of years that Democrats controlled all branches of government.

Table 10 contains summary statistics for the static variables, while table 11 contains the correlation matrix for the static variables. Table 12 contains summary statistics for the time-varying variables, and the correlation matrix is displayed in table 13. It is tempting to think that the means for the static variables should equal the means for the time-varying variables, as the static variables are derived from the time-varying ones. Many of state-level averages used to derive the static variables are not computed from the same number of observations, so the means are not equal. Static variables for states without APG laws are computed from thirty observations. Static variables for states with APG laws are computed from fewer observations.

Table 10. Summary statistics for static variables.

Variable	N	Mean	Std Dev	Minimum	Maximum
Med. Income (\$1,000's)	50	42.172	6.968	26.384	57.367
Poverty Rate (%)	50	13.154	3.827	6.907	24.778
Gini Coef. (%)	50	41.772	1.635	37.433	45.417
Max. Precipitation (in.)	50	6.459	2.315	1.807	13.798
Hurricanes	50	0.043	0.094	0.000	0.375
Democratic	50	0.294	0.286	0.000	1.000

Table 11. Correlation matrix for static variables.

	Med. Income	Poverty	Gini Coef.	Max. Precip.	Hurricanes	Democratic
Med. Income	1.000	-0.862	-0.518	-0.007	-0.306	-0.144
Poverty	-0.862	1.000	0.698	0.185	0.467	0.404
Gini Coef.	-0.518	0.698	1.000	0.106	0.351	0.318
Max. Precip.	-0.007	0.185	0.106	1.000	0.382	0.674
Hurricanes	-0.306	0.467	0.351	0.382	1.000	0.376
Democratic	-0.144	0.404	0.318	0.674	0.376	1.000

Table 12. Summary statistics for time-varying variables.

Variable	N	Mean	Std Dev	Minimum	Maximum
Med. Income (\$1,000's)	1259	42.529	7.417	24.666	65.382
Poverty Rate (%)	1259	12.771	3.908	3.700	27.000
Gini Coef. (%)	1259	41.773	2.872	33.680	51.915
Max. Precipitation (in.)	1259	6.071	2.497	0.864	18.039
Hurricanes	1259	0.032	0.193	0.000	2.000
Earthquake	1259	0.002	0.049	0.000	1.000
Neighbor States (%)	1259	8.648	15.911	0.000	75.000
Democratic	1259	0.257	0.437	0.000	1.000
Max. Gas Price (¢'s)	1259	171.458	39.253	108.216	280.170

Table 13. Correlation matrix for time-varying variables.

	Med. Income	Poverty	Gini Coef.	Max. Precip.	Hurricanes	Earthquake	Neighbor States	Democratic	Max Gas Price
Med. Income	1.000	-0.766	0.013	0.008	-0.094	0.035	0.231	-0.145	-0.034
Poverty	-0.766	1.000	0.265	0.116	0.13	0.015	-0.10	0.265	0.020
Gini Coef.	0.0130	0.265	1.000	0.119	0.081	0.062	0.415	0.056	-0.216
Max. Precip.	0.008	0.116	0.119	1.000	0.138	0.027	0.156	0.316	0.033
Hurricanes	-0.094	0.130	0.081	0.138	1.000	-0.008	0.029	0.045	-0.025
Earthquake	0.035	0.015	0.062	0.027	-0.008	1.000	-0.027	0.046	-0.022
Neighbor States	0.231	-0.100	0.415	0.156	0.029	-0.027	1.000	0.031	0.035
Democratic	-0.145	0.265	0.056	0.316	0.045	0.046	0.031	1.000	0.062
Max Gas Price	-0.034	0.020	-0.216	0.033	-0.025	-0.022	0.035	0.062	1.000

Hazard and Logit Model Results

The static hazard models are displayed in table 14. Two Cox models and two Weibull models, one for each poverty variable, are displayed. The response variable in all models is the time of enactment of APG laws with a 1978 start date. This start date is irrelevant for the Cox models, as they only analyze the ordering of passage times. The 1978 start date was partly chosen for technical convenience. Hazard models require at least one time period before the first failure event. New York passed the first APG law in 1979, so a start date of 1978 makes the models estimable. The 1978 start date is also about four years after the final economy-wide price controls during the Nixon administration (Kalt, 1981). APG laws would have a diminished purpose with economy-wide controls in effect.

Table 14. Results for static covariate hazard models.

	Cox Model (1)	Cox Model (2)	Weibull Model (3)	Weibull Model (4)
Poverty variables				
Poverty Rate (>0)		35.990% [0.307] (0.100) **		34.061% [0.293] (0.090) **
Med. Income (<0)	-10.399% -[0.110] (0.044) **		-9.624% -[0.101] (0.041) **	
Gini Coef. (>0)	-39.496% -[0.502] (0.192)	-52.022% -[0.734] (0.242)	-42.945% -[0.561] (0.186)	-55.189% -[0.803] (0.232)
Max. Precip. (>0)	49.741% [0.404] (0.164) **	48.351% [0.394] (0.153) **	68.024% [0.519] (0.165) **	62.053% [0.483] (0.151) **
Hurricanes (>0)	17310.080% [5.160] (2.202) **	11018.020% [4.711] (2.279) *	2780.973% [3.361] (1.891) *	2042.752% [3.065] (1.961) †
Democratic (>0)	1.985% [0.020] (0.011) *	1.329% [0.013] (0.012)	1.722% [0.017] (0.010) *	1.176% [0.012] (0.010)
Constant (≠0)			[11.079] (8.333)	[12.517] (8.222)
ln(p) (≠0)			[1.305] (0.159) **	[1.387] (0.157) **
p			[3.689]	[4.003]
X ² test (df = 5)	38.340	41.780	37.590	41.740
P-value	0.000	0.000	0.000	0.000

N = 1259

† Significant at 10%.

* Significant at 5%.

** Significant at 1%

Notes: The first number by each variable is the semielasticity.

Coefficients are in brackets.

Standard errors are in parentheses.

The first number beside each covariate is the semi-elasticity, which is the percentage change in the hazard function for a one-unit change in the variable. Recall that the hazard function measures the probability that a state passes an APG law given that it has not already passed one.

Each semi-elasticity is computed with

$$(21) (\exp(\beta) - 1) * 100 .$$

To understand how the above expression is derived, consider a hazard function with a single covariate x . The hazard evaluated at $(x_i + 1)$ divided by the hazard evaluated at x_i is shown by

$$(22) \frac{\lambda(t_i | x_i + 1, \beta)}{\lambda(t_i | x_i, \beta)} = \frac{\lambda_0(t_i) \exp((x_i + 1)\beta)}{\lambda_0(t_i) \exp(x_i\beta)} = \frac{\exp((x_i + 1)\beta)}{\exp(x_i\beta)} = \frac{\exp(x_i\beta) \exp(\beta)}{\exp(x_i\beta)} = \exp(\beta) .$$

A Cox model is shown in (22), but the same result holds for a Weibull model. Subtracting one from $\exp(\beta)$ and then multiplying the result by 100 places the result in percentage form. This interpretation of hazard models is similar to the odds interpretation of logit models, which was derived in the discussion of logit models. The bracketed numbers in table 14 are the coefficients, and the numbers in parentheses are the coefficients' standard errors. Because the coefficients are exponentiated in Cox and Weibull models, they are not very useful for model interpretation (Cleves et al., 2004). They are included for completeness and because significance tests are performed with the raw coefficients and their standard errors. The natural logarithm of p and its standard error are shown, because Stata estimates $\ln(p)$, not p , and computes its standard error.

One-sided significance tests were performed for each covariate. For each covariate, the null hypothesis was that the coefficient was equal to zero. Either “>0” or “<0” is displayed under each covariate. This denotes the alternative hypothesis used for that covariate. The signs under the covariates also denote the predicted sign for the covariate. For example, “>0” is displayed under poverty rates. In Model (2), the “***” by

poverty indicates that poverty rates are significantly greater than zero at the one percent level. All variables except median incomes have positive expected signs.

Two-sided significance tests were performed for the constant and $\ln(p)$ parameters in the Weibull models, as there is no reason to believe that they should have either positive or negative signs. The two-sided tests are indicated by the “ $\neq 0$ ” underneath the parameters. The test that $\ln(p)$ is not equal to zero is equal to the test that p is not equal to one. This can be deduced by exponentiating the equation, $\ln(p) = 0$, which yields $p = 1$. The hazard is constant across the analysis time if $p = 1$, the hazard decreases monotonically if $p < 1$, and the hazard increases monotonically if $p > 1$.

The response variable only includes APG laws *passed by state legislatures*. This excludes Iowa, Massachusetts, and Missouri, which have APG laws in their state administrative codes.¹¹ All the poverty coefficients are significant and have their expected signs. A \$1,000 increase in median income decreases the APG law hazard by 10.399% in the Cox model and 9.624% in the Weibull model. In other words, an increase in median income decreases the likelihood an APG law is enacted. A one percentage point increase in poverty rates increases the hazard of APG laws by 35.99% in the Cox model and 34.061% in the Weibull model. (Again, it should be noted that the different signs on the semi-elasticities of poverty rates and median income both confirm the income-transferring hypothesis.) Contrary to the predicted relationship, the Gini coefficient is negative in the models, which does not support Cheung and Becker. According to all four models, maximum precipitation has a positive and significant effect on APG law passage.

¹¹ The models in this thesis were also estimated with a response variable that included the three APG laws in state administrative codes. The model results are not very sensitive to the type of response used.

The models predict that a one-inch increase in maximum monthly precipitation increases the hazard of APG law passage by at least 48.35%. Hurricanes have a substantial effect on the passage of APG laws. Increasing the average hurricane variable by one increases the hazard by about twenty-nine times, according to model (3). The Democratic proxy is significant in the models with median income and insignificant in the models with poverty rates. The median income models predict that a one percent increase in the legislative sessions controlled by Democrats increases the hazard of APG laws by at least 1.7%.

More credence should be given to the Cox models in the static framework, because they do not assume a specific form for the hazard function, making them less constraining. The overall conclusions that should be drawn from the static models are that poorer states are more likely to enact APG laws. Furthermore, precipitation and hurricanes have positive and significant effects on APG law passage.

Hazard values can actually be computed for the parametric Weibull models. Figure 7 shows the estimated static Weibull model with median income (model (3)) evaluated at the mean covariate values. Because the p parameter is significantly greater than one, the hazard monotonically increases over the analysis time. Notice that even in 2007, the hazard function only equals about 0.06 APG laws per year. This demonstrates that the model predicts that there is little chance that states with mean covariate values will pass APG laws. Recall from the hazard models background section that covariates have a multiplicative effect on the hazard for Cox and Weibull models. For example, model (3) predicts that a one inch increase in maximum precipitation increases the hazard

by 68.024%. Thus, five additional inches of precipitation increase the hazard by $1.68024^5 = 13.39274$ times or 1239.274%. In figure 7, the hazard equals about 0.05 in mid-2004. Adding five inches of precipitation while holding the other variables at their means increases the hazard to about 0.670. Increasing poverty rates and hurricanes would further increase the hazard. A one standard deviation increase in the number of hurricanes, which is 0.094, would increase the hazard from 0.05 to 0.057. These hazard calculations and figure 7 are offered as an illustration and are not included for any other models. It is tedious to show how the hazard actually changes with respect to all the variables. Furthermore, the actual shape of the hazard in other Weibull models is similar to that in figure 7.

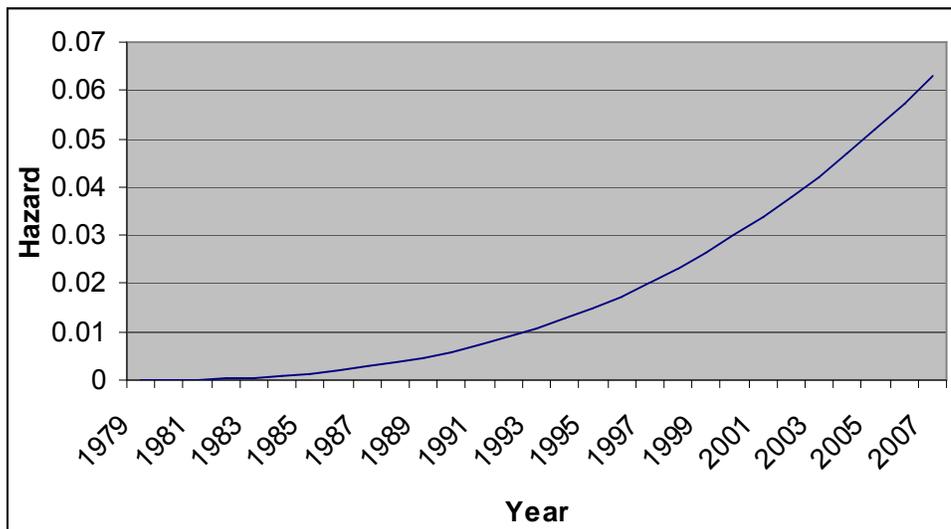


Figure 7. Model (3) evaluated at mean covariate values.

To further investigate the factors that influence the passage of APG laws, the models in table 14 are re-estimated with time-varying covariates. The results are displayed in table 15. These time-varying models provide validation of the results of the static models in table 14.

Table 15. Results for time-varying covariate models.

	Cox Model (1)	Cox Model (2)	Weibull Model (3)	Weibull Model (4)
Poverty variables				
Poverty Rate (>0)		21.293% [0.193] (0.072) **		12.856% [0.121] (0.060) *
Med. Income (<0)	-5.821% -[0.060] (0.035) *		-4.475% -[0.046] (0.032) †	
Gini Coef. (>0)	14.146% [0.132] (0.094) †	5.905% [0.057] (0.103)	12.001% [0.113] (0.082) †	7.066% [0.068] (0.089)
Max. Precip. (>0)	31.904% [0.277] (0.090) **	34.424% [0.296] (0.091) **	26.411% [0.234] (0.076) **	26.022% [0.231] (0.074) **
Hurricanes (>0)	337.090% [1.475] (0.606) **	308.042% [1.406] (0.620) *	229.685% [1.193] (0.421) **	217.731% [1.156] (0.425) **
Democratic (>0)	-1.174% -[0.012] (0.523)	-22.590% -[0.256] (0.561)	17.871% [0.164] (0.451)	2.594% [0.026] (0.469)
Constant (≠0)			-[15.048] (3.385) **	-[17.401] (3.360) **
ln(p) (≠0)			[1.095] (0.221) **	[1.176] (0.215) **
p			2.988	3.240
X ² test (df = 5)	30.460	34.940	28.840	30.580
P-value	0.000	0.000	0.000	0.000

N = 1259

† Significant at 10%.

* Significant at 5%.

** Significant at 1%

Notes: The first number by each variable is the semi-elasticity.

Coefficients are in brackets.

Standard errors are in parentheses.

In these regressions, poverty rates, median incomes, Gini ratios, precipitation, and hurricane values are all lagged one year to reflect how there are often legislative delays in passing laws. The Democratic indicator is not lagged, as the current legislature determines if APG laws are passed.

Similar to the static models, the poverty variables are significant and have their expected signs in every model. Unlike the negative values of the Gini coefficient in table 14, the Gini coefficient is significantly positive in models (1) and (3). Maximum monthly precipitation has a positive and significant effect in all four models in table 15. Hurricanes again show a strong positive effect. None of the models in table 15 support the hypothesis that Democratic states are more likely to adopt APG laws.

Results from time-varying hazard models with additional control variables are estimated and shown in table 16. The additional controls are a billion dollar earthquake indicator, the percentage of neighboring states with APG laws, and the maximum monthly gas price. The poverty variables, the Gini coefficient, maximum precipitation, the neighbor state and maximum monthly gas price variables are all lagged one year. The billion dollar earthquake indicator is not lagged.¹²

¹² There are only three billion dollar earthquakes in the dataset – two in California and one in Washington. Those observations equal one for the nearest year in which they occurred. For example, consider an October 18, 1989 California earthquake. In decimal terms, the earthquake struck at approximately 1989.80. Thus, it was rounded up and recorded as occurring in 1990. A January 17, 1994 California earthquake was rounded down and recorded as occurring in 1994.

Table 16. Results from time-varying covariate hazard models with additional controls.

	Cox Model (1)	Cox Model (2)	Weibull Model (3)	Weibull Model (4)
Poverty variables				
Poverty Rate (>0)		15.007% [0.140] (0.077) *		14.550% [0.136] (0.060) *
Med. Income (<0)	-4.372% -[0.045] (0.038)		-5.835% -[0.060] (0.034) *	
Gini Coef. (>0)	1.476% [0.015] (0.106)	-3.188% -[0.032] (0.113)	0.280% [0.003] (0.093)	-3.784% -[0.039] (0.098)
Max. Precip. (>0)	33.996% [0.293] (0.100) **	34.440% [0.296] (0.099) **	23.900% [0.214] (0.084) **	23.384% [0.210] (0.082) **
Hurricanes (>0)	257.299% [1.273] (0.604) *	235.990% [1.212] (0.614) *	280.962% [1.338] (0.445) **	266.196% [1.298] (0.451) **
Earthquake (>0)	12215.890% [4.813] (1.726) **	8153.685% [4.413] (1.779) **	3281.524% [3.521] (1.155) **	2163.122% [3.119] (1.141) **
Neighbor States (>0)	3.000% [0.030] (0.012) **	2.878% [0.028] (0.013) *	2.982% [0.029] (0.010) **	2.896% [0.029] (0.011) **
Democratic (>0)	19.587% [0.179] (0.540)	1.011% [0.010] (0.564)	-4.635% -[0.047] (0.483)	-17.590% -[0.193] (0.506)
Max Gas Price (>0)	-8.995% -[0.094] (0.034)	-8.513% -[0.089] (0.034)	-0.191% -[0.002] (0.007)	-0.220% -[0.002] (0.007)
2002 (>0)			907.667% [2.310] (0.551) **	1013.094% [2.410] (0.553) **
2006 (>0)			347.542% [1.499] (1.022) †	366.907% [1.541] (1.005) †
Constant (≠0)			-[6.974] (4.216) †	-[9.859] (4.206) *
ln(p) (≠0)			[0.705] (0.313) *	[0.766] (0.310) *
p			[2.023]	[2.151]
X ² test (df = 8)	50.750	52.620	52.150	53.800
P-value	0.000	0.000	0.000	0.000

N = 1259

† Significant at 10%. * Significant at 5%. ** Significant at 1%

The advantage of the Weibull models in the time-varying framework is that variables that vary across time, but not states, can be used. Dummy variables for the 2002 and 2006 years are used in the Weibull models to control for the effects of 9/11 and Hurricane Katrina, respectively. Six states enacted APG laws in 2002, while three states passed laws in 2006. Adding the dummies allows the model to account for the spikes in the hazard in 2002 and 2006. As stated earlier, Cox estimation can be thought of as binary outcome analyses at each failure time. Placing the 2002 and 2006 dummies into Cox models is similar to estimating a logit model with a covariate that equals one across all observations.

The Weibull models are also better equipped to handle the gas price variable, as the variation in gas prices mainly occurs across time. Cross-sectional variations in gas prices are mainly the result of differences in state gas taxes. The within-year variation of maximum monthly gas prices is, on average, only 7.22 cents, which is 4.18 percent of the size of the mean of annual gas price averages. Furthermore, the gas price data are not ideal for Cox models, as the years in which no APG laws are passed are excluded from Cox estimation.

In table 16, three of the four poverty variables are significant and have the expected signs. Similar to the time-varying models in table 15, the Gini coefficients are insignificant. Precipitation and hurricanes are positive and significant with values similar to those in table 15. Earthquakes also have a large positive impact on the passage of APG laws. The four models predict that a one percentage point increase in the proportion of neighboring states with APG laws increases the hazard of an APG law in that state by

about 3.3% the following year, and these results are significant at the 5% level or smaller. As expected, 9/11 and Katrina dummies have strong effects on the passage of APG laws, as shown in the Weibull models. For the Cox models, gas prices have a negative effect on APG law passage. This result is viewed with skepticism, though, as Cox models are not intended to handle variables that vary mainly across time. Given the preponderance of gas price gouging complaints in Chapter 3, it is surprising that gas prices are insignificant in the Weibull models. Many of the 9/11 gas gouging complaints, however, demonstrate that drastic spikes as short as a few hours can spur gouging complaints. These short-term spikes are not reflected in the monthly data. A better measure would consist of taking the maximum weekly or daily price across all states' counties for each state-year observation. Obtaining these data is prohibitively costly, however.

Results from logit models are displayed in table 17. These models are analogous to the Weibull models in table 15, the models with a limited number of control variables. Cox models do not have a logit analog, as all logit models make distributional assumptions. The number beside each covariate in table 17 is the coefficient, while the number in parentheses is the coefficient's standard error.

Table 17. Panel logit models.

	(1)		(2)	
Poverty variables				
Poverty Rate			-0.015	
(>0)			(0.049)	
Med. Income	0.016			
(<0)	(0.025)			
Gini Coef.	0.298		0.303	
(>0)	(0.066) **		(0.066) **	
Max. Precip.	0.209		0.211	
(>0)	(0.080) **		(0.080) **	
Hurricanes	1.133		1.106	
(>0)	(0.477) **		(0.477) *	
Democratic	-0.086		-0.099	
(>0)	(0.460)		(0.475)	
Constant	-18.810		-18.172	
(≠0)	(3.099) **		(2.975) **	
X2 test (df = 5)	37.360		37.150	
P-value	(0.000)		(0.000)	

N = 1259

In both models, the Gini coefficient, maximum monthly precipitation, and hurricanes are significantly positive, as predicted. Using the odds interpretation of logit models for model (1), the probability of APG law passage increases by $\exp(0.209) = 1.232$ times if maximum monthly precipitation increases by one inch. The models find no evidence to support the hypotheses regarding poverty and Democratic state legislatures.

Logit models with additional predictors are displayed in table 18. Like the models in table 17, the table 18 models find that precipitation and hurricanes are positively related to the passage of APG laws. Earthquakes are also positively related to the passage of APG laws in the models below. Unlike the table 17 models, the models in table 18 offer no evidence to support the hypothesis that Gini coefficients are associated with the passage of APG laws. The table 18 models also indicate positive relationships with the neighbor state variable and the 2002 and 2006 dummies. Model (2) shows that the

poverty rates are positively related to APG law passage at the ten percent level, but model (1) does not find any significant relationship with median incomes. Overall, both sets of logit models find little evidence to support the hypothesis that poorer states are more likely to enact APG laws. Overall, the logit model results generally correspond with the Weibull hazard model results in tables 15 and 16.

Table 18. Panel logit models with additional controls.

	(1)		(2)	
Poverty variables				
Poverty Rate			0.098	
(>0)			(0.061)	†
Med. Income	-0.040			
(<0)	(0.034)			
Gini Coef.	0.090		0.059	
(>0)	(0.094)		(0.102)	
Max. Precip.	0.234		0.225	
(>0)	(0.096)	**	(0.096)	**
Hurricanes	1.472		1.427	
(>0)	(0.527)	**	(0.531)	**
Earthquake	4.363		4.201	
(>0)	(1.560)	**	(1.576)	**
Neighbor States	0.046		0.046	
(>0)	(0.015)	**	(0.016)	**
Democratic	-0.120		-0.252	
(>0)	(0.522)		(0.545)	
Max Gas Price	-0.006		-0.006	
(>0)	(0.008)		(0.008)	
2002	3.142		3.250	
(>0)	(0.662)	**	(0.691)	**
2006	2.474		2.579	
(>0)	(1.089)	*	(1.099)	**
Constant	-8.125		-9.633	
(≠0)	(4.862)	†	(4.869)	*
X2 test (df = 8)	35.490		37.360	
P-value	(0.000)		(0.000)	
N = 1259				

CHAPTER 6

CONCLUSIONS AND DISCUSSION

Several factors appear to play a role in the passage of APG laws. It is not clear how large a role each factor plays in their passage. This uncertainty about the magnitudes of the factors arises from the fact that the case studies in Chapter 4 were used to analyze some of the factors such as market ignorance and populism. The case studies, of course, do not yield quantitative results in the same manner as the statistical models.

As expected, natural disasters lead to the passage of APG laws. Specific disaster triggers can be identified for seventeen APG laws.¹³ Triggers could not be identified for twelve states because of a lack of information. Adequate historical information was available for Kentucky and North Carolina's APG laws, but specific disasters did not appear to instigate their enactments. The effect of natural disasters on APG law passage is further confirmed in the statistical analyses, as nearly all the disaster variables are significant with their expected signs. Similar to the prediction that natural disasters lead states to pass APG laws, it was hypothesized that neighboring states passing APG laws could lead states to enact APG laws. The statistical models confirmed this prediction.

It is hard to claim that APG laws are symbolic measures, as numerous states have gone to considerable lengths to enforce their laws. The lack of market understanding appears to play a role in the passage of some APG laws. This is evidenced by the intent

¹³ A broad definition of "disaster trigger" is used for this statement. The disaster triggers include the high heating oil prices that hit New York in the winter of 1978-1979 and the 1994 Northridge Earthquake in California. The 9/11 terror attacks and Hurricane Katrina are also included as disaster triggers for several states, even if those events did not occur in those states.

notes preceding six APG laws (see pp. 18-19). If ignorance of market forces drives APG law passage, then one would expect states to eventually repeal their laws. It is speculated that the “increased costs” provisions dampen the impacts of the laws and provide an explanation of why the laws are not repealed. These provisions make raising prices during disasters permissible in many circumstances. This could explain why waiting lines and black markets often are not reported after disasters in states with APG laws.

Three predictions were not confirmed by the statistical analysis. The Democratic coefficients are barely significant in two of the static hazard models, but are not significant in any of the time-varying models or the logit models. Thus, it is concluded that party affiliation has no measurable effect on APG law passage. Income dispersion, as measured by Gini coefficients, is not positively related to APG law passage in most of the models. The Gini coefficients are only significantly positive at the one percent level in the logit models in table 17. They are only significant at the ten percent level in hazard models (1) and (3) in table 15. Therefore, there is little support for Becker’s (1976) hypothesis of efficient government. According to the time-varying hazard models in table 16 and the logit models in table 18, maximum monthly gas prices have no effect on APG law enactment. The time-varying Weibull models are the most valid models for measuring the effect of gas prices, as they include data from years in which no APG laws are passed.

There is mixed evidence that poorer states have a greater chance of enacting APG laws earlier. Most of the hazard models support this hypothesis. Model (2) in table 18 is the only logit model to support this hypothesis, however. It seems intuitive that poor

people could benefit from price controls. Nevertheless, as demonstrated by Barzel's (1974) analysis of the beneficiaries of price ceilings in Chapter 2, poor people do not always benefit from APG laws. This prediction is also problematic because poor people are not known to vote in large numbers. Perhaps the poverty variables are picking up the *perception* that APG laws are beneficial to poor people.

APPENDICES

APPENDIX A

DATA DESCRIPTIONS AND SOURCES

Data Descriptions and Sources

The time-varying hazard models are used to analyze the passage of APG laws over the 1978-2007 period. The poverty rates, median incomes, Gini coefficients, maximum monthly gas prices, hurricanes and maximum monthly precipitation values were all lagged one year. Thus, data for all states from 1977-2006 were needed for those variables. When select years were unavailable, they were estimated from the available data. Descriptions of the estimation methods, along with source information, are provided in the table below.

Table 19. Variable descriptions and sources.

Democratic Legislature Indicator	Party composition data for state legislatures were used to create the democratic legislature indicator variable. The 1978-2007 party composition data were gathered from editions of the Census Bureau's Statistical Abstract of the United States (2007c). The governor party data were obtained from the Governors Database on the National Governors Association website (2007).
Earthquake Damage Indicator	The damage data used for the earthquake indicator variable were obtained from the United States Geological Survey (2007).
Maximum Monthly Gas Price	State-level monthly gas price data from 1977-2006 were used to construct the maximum monthly gas price variable. These data were obtained from the Energy Information Administration (2007).
Gini Coefficient	Annual state-level Gini coefficients over the 1977-2006 period were obtained from the Census Bureau (Carmen DeNavas-Walt, personal communication).
Median Income	Median income data from 1984-2006 were available from the Census Bureau (2007a). There is a slight increasing income trend for each state over time. These relationships were estimated with linear regressions for each state. The regressions were then used to estimate median income values for 1977-1983.

Table 19 (continued).

Poverty Rate	Poverty rates from 1980-2005 were also available from the Census Bureau (2007c). 1978-1979 poverty rates were approximated by 1980 poverty rates, and 2006 poverty rates were approximated by 2005 poverty rates.
Maximum Monthly Precipitation	The 1977-2006 maximum monthly precipitation values were computed from monthly “surface” data available from the National Oceanic and Atmospheric Administration (2007b).
Hurricanes	The number of hurricanes in each state-year in 1977-2006 was obtained from the National Hurricane Center (2007).

APPENDIX B

ADDITIONAL COVARIATES

Additional Covariates

Other hurricane variables were used in additional time-varying hazard models. Five hurricane variables were constructed that equaled the number of Category 1-5 hurricanes in each state-year. All five variables were placed in one hazard model, which made model interpretation cumbersome. Two other hurricane variables were binary indicators. One indicated the presence of hurricanes, while another indicated the presence of major hurricanes (Category 3 or greater). The former binary indicator did not include information on the number of hurricanes in a year, while the latter did not include information on Category 1 and 2 hurricanes, which often produce accusations of price gouging. Some of the models that used these hurricane variables uncovered positive relationships between hurricanes and the passage of APG laws. The total number of hurricanes in each state-year was used in the thesis, because it contained all the relevant information on hurricanes while still being easy to interpret.

Static hurricane variables were also used in hazard models. One hurricane variable consisted of the number of hurricanes in each state from 1851 until the present, while another consisted of the number of “major” (Category 3 or higher) hurricanes over the same period. A binary hurricane variable was used that equaled one if a major hurricane had struck a state since 1851, and zero otherwise. Another binary variable that was designed to control for the impacts of hurricanes equaled one if a state is on the East or Gulf coasts, and zero otherwise. When used in hazard models, these variables were generally found to be positively related to the passage of APG laws. The hurricane data were obtained from Landsea (2007). The variables encompassed such an expansive time

period (1851-present), because those variables were easily obtained from the Landsea dataset. This dataset was later discarded when the more detailed hurricane dataset from the National Hurricane Center (2007) was discovered. A variable equal to the average number of hurricanes in the 1977-2006 period was constructed from the National Hurricane Center dataset and used in this thesis. This variable was not constructed from extraneous years, as the Landsea variables were.

Another disaster proxy was the annual damage estimates from a wide variety of storms. The damage estimates were obtained from the Storm Events database offered by the National Oceanic and Atmospheric Administration (2007b). The damage estimates variable was never positively related to the passage of APG laws. It was not used in this thesis, because most of the estimates were accurate only to an order of magnitude.

Population density was employed in hazard models under the assumption that price spikes after disasters can be more extreme in densely populated areas after disasters. For example, gas prices spike as residents evacuate urban areas prior to a hurricane. Population density was never positively related to the passage of APG laws. It was not used, because numerous examples in the case studies show that price gouging accusations are not limited to urban areas.

The percentage of voters who voted for Ross Perot in 1992 was used as a proxy for populism. The Perot vote was never positively related to the enactment of APG laws. The variable was not included because “populism” is a concept that is difficult to quantify. Furthermore, it is not certain if the Perot vote accurately captures “populism”, however it may be defined.

The percentage of a state's population that lives in urban areas was also used in hazard models. The demand in rural areas for a commodity like gasoline is generally more inelastic, as rural people typically have fewer transportation alternatives. With inelastic demand, price controls are more inefficient. Thus, it was predicted that more urban states would be more likely to enact APG laws, as they are less inefficient in those states. For other goods besides gasoline, however, it is tougher to make the argument that rural consumers have less elastic demand curves, which is why this variable was not used. The variable was never significantly positive in hazard models.

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