Fill 'er Up

A Study of Statewide Self-Service Gasoline Station Bans

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Can banning self-service at gas stations produce social and economic benefits without raising the price of gasoline? Here's an interesting analysis that suggests that the ban on self-service in Oregon and New Jersey makes good sense.

New Jersey and Oregon are this country's only states that still ban self-service gasoline stations. In these states, it is illegal for anyone other than a licensed gasoline station attendant to pump gasoline. Both states have maintained their laws for nearly sixty years. Since their enactment, laws banning self-service at gas stations have undergone scrutiny in both states. The pressure to adopt self-service stations typically comes from politicians who want to increase public support by reversing the bans because they believe this action will reduce gasoline prices for consumers. But the public regularly resists attempts to overturn the self-service bans in New Jersey and Oregon. A few reasons the public strongly supports statewide self-service bans are that they (a) provide a valuable service for disabled and elderly citizens, (b) help ensure environmental safety, and (c) create thousands of jobs, all of which come at a negligible cost to consumers. This paper studies the social advantages and economic effects of statewide bans.

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History of Self-Service Bans

The first gasoline station was built in 1905 in St. Louis, Missouri, by the Automobile Gasoline Company (Jakle and Sculle 1994). Before Henry Ford perfected his assembly line to produce cars at a reasonable price in 1908, their ownership was relegated to wealthy technophiles (ibid.). Gasoline at this time was purchased by the bucketful at the local general store. Over time, gasoline stations became more sophisticated by the installation of underground storage tanks and pumps, making fuel dispensing safer and more convenient.

The majority of stations in the country, about 70 percent, were full-service gasoline stations until the early 1980s. Johnson and Romeo (2000) state, "In 1968, only 27 states allowed the self-service dispensing of gasoline, and some of those required that attendants be standing by." By the late 1970s, all states except New Jersey and Oregon had overturned their self-service bans. Other than in those two states, few full-service stations remain, and those still operating often charge a premium for their services. According to the latest gasoline station count survey by *National Petroleum News* ("U.S. Annual Station Court" 2006) of the nearly 170,000 gasoline stations in the United States, only 2,166 (1.3 percent) offer a full-service option (excluding New Jersey and Oregon). Because few full-service stations are available, the disabled and the elderly find it much more difficult and expensive to obtain gasoline.

New Jersey's self-service gasoline station ban was passed in 1949, and Oregon's in 1951 (NJSA §§34:3A-1 to 34:3A-3 and ORS §§480.310 to 480.340, respectively). These laws make it illegal for people to pump their own gasoline unless they have a special license. An exception is made for motorcyclists (who are handed the pump by an attendant) and truck drivers. After the self-service bans were passed, gasoline stations had to hire and train attendants to handle their pumps, which created many jobs for low-skilled workers. Today an estimated 14,000 jobs exist in New Jersey because of their self-service ban, and 8,000 jobs in Oregon (22,000 jobs total).[1]

Full-service gasoline station laws were first enacted because of safety concerns. Pumping gasoline was more dangerous when pumps had few

fail-safes. New Jersey and Oregon have maintained their self-service bans not only out of concern for safety but also because of numerous other advantages from bans, such as job creation, environmental protection, and convenience. The primary reasons New Jersey and Oregon maintain their bans on self-service stations are clearly outlined in their state legislation. New Jersey's permanent statute states the following reasons:[2]

1. Because of the fire hazards directly associated with dispensing fuel, it is in the public interest that gasoline station operators have the control needed over that activity to ensure compliance with appropriate safety procedures;
2. When customers, rather than attendants, are permitted to dispense fuel, it is far more difficult to enforce compliance with safety measures;
3. The higher general liability insurance premium rates charged to self-service stations reflect the fact that customers who leave their vehicles to dispense gasoline or other inflammable liquids face significant inconveniences and dangers, including the risks of crime and fall-related personal injury, which are a special burden to drivers with physical infirmities, such as the handicapped and some senior citizens;
4. Exposure to toxic gasoline fumes represents a health hazard when customers dispense their own gasoline, particularly in the case of pregnant women;
5. The significantly higher prices usually charged for full-service gasoline in states where self-service is permitted result in discrimination against low income individuals, who are under greater economic pressure to undergo the inconvenience and hazards of dispensing their own gasoline; and
6. The prohibition of customer self-service does not constitute a restraint of trade in derogation of the general public interest because the Legislature finds no conclusive evidence that self-service gasoline provides a sustained reduction in gasoline prices charged to customers. (NJSA §§34:3A-1 to 34:3A-3)

Anyone who pumps gasoline without a license issued by the state

Fire Marshal's Office is subject to penalty. According to a New Jersey permanent statute under Title 34:

> No person shall dispense fuel at a gasoline station, unless the person is an attendant who has received instructions regarding the dispensing of fuel, had practical experience dispensing fuel under the direct supervision of an experienced operator for a period of not less than one full working day, and, upon examination at the end of that period, demonstrated his understanding of those instructions. (34:3A-7)

Anyone in violation of the above statute is liable to "penalty of not less than $50 and not more than $250 for the first offense; and, not more than $500 for each subsequent offense" (NJ, Title 34: 34A-10). Gasoline attendants themselves are potentially liable for not upholding the state's full-service law, and may be fined. The most serious fines are often levied against companies that allow people to violate the self-service ban. Companies can be fined thousands of dollars for not strictly adhering to their state's self-service ban.

The self-service gasoline station bans in New Jersey and Oregon have been challenged several times. In 2006 New Jersey governor Jon Corzine tried to overturn the ban on self-service gasoline stations in response to concerns regarding rising gasoline prices. No sooner had he announced his intention than New Jersey citizens loudly voiced their disapproval of the new policy. Less than a week after making his proposal, Governor Corzine withdrew his plan. In 2002, state senator Gerald Cardinale (R–District 39) also attempted to remove New Jersey's self-service ban, but he, too, quickly met with overwhelming public resistance. Reversal of Oregon's self-service ban was placed on public ballot in 1982 and was soundly defeated. This evidence suggests that most New Jersey and Oregon citizens favor their state's self-service ban.

Do Statewide Self-Service Bans Lead to More Expensive Gasoline?

New Jersey's gasoline prices are consistently below the national average, while Oregon's prices are regularly near the national average. Using monthly gasoline price data from 2002 through the second

quarter of 2007 provided by GasBuddy—an independent organization that collects data on gasoline prices across the United States—the five-year average price per gallon of gasoline in New Jersey ($1.859), Oregon ($2.037), and the United States ($1.942) are found to be close.[3] Johnson and Romeo (2000) empirically estimated the price difference between states that ban self-service and those that do not. Their analysis focused on measuring the difference between the retail price per gallon of gasoline and the wholesale price of gas. They call this difference the retail margin, which captures all the costs associated with gasoline station operations (wages, insurance, rent) minus state-imposed taxes. Self-service station states should have a lower retail margin than states with self-service bans. In Johnson and Romeo's nationwide analysis, Oregon's retail price showed an increase of only $0.02 per gallon, and New Jersey's estimate was statistically insignificant. In another test, they compared marginal gasoline prices in Oregon and New Jersey against those of surrounding states in their respective regions and found a small difference in price in both states that results in a per-gallon cost to customers of between $0.03 and $0.05. They further state that based on their results, "the lack of substantial opposition to the bans is understandable."

Advantages of Statewide Self-Service Bans

Self-service gasoline station bans produce many positive effects.

First, disabled and elderly people gain significant benefits. The 1990 Americans with Disabilities Act (ADA) remains the most important legislation the United States has ever enacted to protect the rights of disabled citizens. An estimated 60 million people (roughly 20 percent of the U.S. population) are aided by the Americans with Disabilities Act, of which 28 million have a physical disability that makes daily tasks difficult to accomplish. Moreover, the United States has a growing elderly population, many of whom will someday gain from laws mandated by the Americans with Disabilities Act. Millions of physically disabled Americans find it difficult, if not impossible, to pump gasoline. Even healthy people can find pumping gasoline unpleasant,

particularly when it is raining or cold. In addition, outside New Jersey and Oregon, people who want full service are finding it harder to locate and more expensive when they do.

The ADA attempts to address the problem of too few full-service stations. It currently requires gasoline stations to offer the option of full-service to disabled and elderly people, but if a station has only one employee working, it is exempt from adherence to this law. According to Karen Kielinski (2003), "Although laws require service stations to provide refueling assistance when needed, the process is often ineffective." Furthermore, gasoline stations are not supposed to charge more for gasoline provided by full service than by self-service. Recent research indicates that price disparity does exist (Johnson and Romeo 2000). Because gasoline price variation often occurs among seemingly homogeneous gasoline stations (even ones located across the street from one another), it is difficult to determine whether a station charges more because it offers full service or if other factors (unobserved dissimilarities) are responsible for the price difference. While the ADA has attempted to increase the number of gasoline stations that offer full service, it does not go far enough (Kielinski 2003). The law needs to promote policies that will ensure more stations offer full service by either removing the "one employee, no full service" exemption or by requiring a certain percentage of a state's gasoline stations to offer full service without exception. During our empirical analysis of gasoline stations (detailed below), we found that few self-service stations make customers aware that they offer full service. In addition, few self-service stations had more than one person working.

Second, when gasoline prices rise, the amount stolen (drive-offs or gas-and-dashes) increases as well. Drive-off thefts are expensive for gas stations. The National Association of Convenience Stores (NACS) (2006) reported that drive-off theft losses in 2004 totaled $237 million, an average of almost $2,000 per store. It further states that a gasoline retailer would have to sell an additional 3,000 gallons of gasoline to offset a $30 loss due to gasoline theft. So when wholesale gasoline prices rise, companies cannot recoup theft losses easily, which often translates into higher prices for customers. One Diamond Shamrock store in

Texas reported gasoline theft losses of $2,800 in one month. Even with states increasing penalties for gasoline theft and companies tightening their security (at significant cost), stations are still experiencing regular theft. However, in New Jersey and Oregon, drive-off rates are negligible because customers cannot handle the fuel pump and gasoline station attendants are present and accessible.

Third, self-service stations present environmental concerns. People who fill their gasoline tanks too full and improperly dispense gasoline can unintentionally cause significant harm to the environment. In Oregon, the Department of Environmental Quality (DEQ) promotes the state's self-service ban because customer errors while pumping gasoline account for significant increases in groundwater and air pollution. Inattentive gasoline dispensing can lead to increases in gasoline vapors that cause ozone depletion and toxic air pollutants such as benzene, a known carcinogen. Filling a gasoline tank to overflowing can cause a vehicle's vapor collection system to fail, which reduces a car's fuel efficiency and overall performance. In Mount Pleasant, Pennsylvania, a gasoline station attendant must be within fifteen feet of all pumps. This law was enacted because of several incidents of careless gasoline pumping that led to environmental problems in the 1970s. And recent attempts to overturn this ordinance in Mount Pleasant have failed. Furthermore, state representative W. Curtis Thomas (D-Philadelphia) is attempting to pass a statewide ban on self-service stations in Pennsylvania (Nephin 2005).

Fourth, some people argue that getting gasoline at full-service stations takes much longer than self-service. We studied this question by timing random cars at a variety of gasoline stations (all of similar size) at different times (morning, afternoon, evening) and days of the week during the spring and summer months of 2006 in several counties on the border of New Jersey (statewide self-service ban) and Pennsylvania (no statewide self-service ban). Research assistants began timing when a car's front bumper entered a station's lot and stopped timing when the car began to pull away from the pump. If the car parked without initially getting gasoline, it was eliminated from the sample. All days, times, and conditions were as identical as possible.

The resulting sample consisted of 399 observations (219 observations in New Jersey and 180 in Pennsylvania). A Mann-Whitney U-test was run to find out whether any difference existed between the times it took to get gasoline in New Jersey versus Pennsylvania. We found that there is a statistically significant difference of 5 percent, but the difference is small. The average time for obtaining gasoline in New Jersey was 3 minutes and 53 seconds (standard deviation of 66 seconds) and in Pennsylvania, 3 minutes and 38 seconds (standard deviation of 64 seconds)—a difference of only 15 seconds, and a difference in standard deviation of only two seconds. Further, the fastest someone was recorded obtaining gasoline in New Jersey was 1 minute and 33 seconds, and in Pennsylvania 1 minute and 25 seconds (an eight-second difference). The longest someone spent getting gasoline in New Jersey was 7 minutes and 18 seconds, and in Pennsylvania 6 minutes and 45 seconds (a thirty-three-second difference). These findings challenge the conventional belief that purchasing gasoline takes considerably longer at full-service stations than at self-service stations. The perception that it takes longer at a full-service station probably stems from the fact that drivers are inactive while waiting for the attendant to pump their gasoline.

Fifth, full-service gasoline stations pay less in insurance costs because having qualified attendants pump customers' gasoline reduces stations' liability. Many accidents occur because of customer negligence. From 1994 to 1998, an estimated 4,620 gasoline fires and explosions occurred at gasoline stations each year involving vehicles. These fires and explosions resulted in one civilian death, 37 injuries, and almost $8 million in property damage per year (Ahrens 2002). Huntington, Long Island, has banned self-service gasoline stations since the 1980s. This ban was initiated to reduce the potential danger from customers' pumping their own gasoline (Rather 2007).

In recent years, fires and explosions at gasoline stations caused by electrostatic (triboelectric) charges have increased significantly. Electrostatic charging commonly occurs when people exit their cars without grounding themselves. Electrostatic build-up can cause a

spark that can ignite gasoline, causing both personal and property damage. Robert Renkes (2007) of the Petroleum Equipment Institute (PEI) initiated an ongoing analysis of electrostatic gasoline station fires. He collected a sample consisting of 166 incidents of refueling fires caused by electrostatic charges since 1992. In these 166 incidents, 34 cars were completely destroyed, 14 had severe paint damage, nine had $1,000–$8,000 in damages, nine had melting around the fill pipe, and many more had a variety of lesser damages. During this same period, roughly two dozen people suffered first- or second-degree burns due to fires while filling their gasoline tanks. Of all recorded accounts, 79 fires were caused when people entered and exited their cars while pumping gasoline and did not ground themselves before handling the gasoline pumps. Another 59 fires were sparked without anyone entering and exiting their cars. And 17 fires occurred while people were handling their gasoline caps. New Jersey and Oregon had the two lowest incident scores throughout the study's fourteen-year period. Both states had only one incident each. Nebraska had the most gasoline pump fires at 14, Texas 11, Colorado 10, Missouri 10, California 7, and so on. These accidents cost insurance companies millions of dollars a year and physically harm dozens of people annually. Statewide self-service bans, therefore, reduce insurance costs in New Jersey and Oregon because insurance companies recognize the risks associated with self-service. Furthermore, if an insurance company fails to pay a damage or injury claim, gasoline station owners are often left to pay for it using their insurance, consequently raising their insurance rates.

Finally, self-service bans create jobs. These jobs require minimal skills and can be performed by almost anyone—men or women, immigrants or citizens, all races, even people with disabilities (both physical and mental). Such jobs are becoming scarce in the country. They fill an important need for the less advantaged in the population, many of whom find it difficult to get work that is not labor intensive and requires minimal English language proficiency. Job creation should not be the purpose of self-service bans; it is merely a fortunate consequence.

Policy Considerations

New Jersey and Oregon have upheld their statewide bans on self-service while other states have succumbed to pressures to allow self-service stations. States that enact bans will likely accrue benefits similar to those experienced by New Jersey and Oregon. The average state in the United States would create more than 3,000 jobs by forgoing self-service stations. Of the nearly 170,000 gasoline stations in the United States ("U.S. Annual Station Count" 2006), if each station hired one additional worker, it would increase U.S. employment by roughly 150,000 (excluding New Jersey and Oregon). It is probably unrealistic to believe that every state in the United States will adopt self-service bans, but for some states it is a reasonable policy—especially since many states had bans until the late 1970s. As was presented above, statewide self-service bans do not have a drastic effect on gasoline prices. Statewide self-service bans are preferable to local bans (such as in Huntington, New York), because they spread the costs and advantages across an entire state.

If federal and state governments promoted hybrid stations that offered both full and self-service, perhaps it would eliminate some arguments against self-service bans. Hybrid gasoline stations may even get lower insurance rates, like full-service stations, because they have full-time attendants watching their stations (as in Mount Pleasant, Pennsylvania). Attendants' presence will likely reduce thefts, limit environmental problems, and ensure customer safety. Statewide bans will probably generate the greatest benefits, but adequately comparing these two approaches is beyond the scope of this paper.

Federal and state governments can encourage self-service station bans by giving many different types of subsidies and incentives to participating states. Through the ADA, the government could require that a certain percentage, say, 20 percent (the proportion of disabled Americans), of gasoline stations in each state offer an adequate full-service option. The government could increase unemployment benefits for states that enact self-service bans. It could also give participating states subsidies that reduce (or at least stabilize) gasoline prices. This would help eliminate consumers' and states' fears of a possible in-

crease in gasoline prices caused by new self-service bans. To alleviate some of station owners' fears, the government could help subsidize the initial expenses they incur by switching to full service.

Some people may argue that requiring full-service (even hybrid) stations goes against natural economic mechanisms by placing unnecessary regulations on gasoline station owners. But gasoline station attendants are different from other workers who have been displaced by technology (or ceremonially) in the past. For example, automatic teller machines (ATMs) have probably reduced the demand for bank tellers. Elevator operators, a courtesy of a bygone era, are few and far between today. But full-service gasoline station attendants are different from these examples. First, no one has ever died, caused major property damage, or created an environmental disaster by going to an ATM or operating an elevator—the same cannot be said about pumping gasoline. Further, technology like ATMs actually makes life easier for most people by offering many banking services anytime and at more locations—and if a teller is needed, they are still accessible during regular banking hours. In addition, it is unlikely that disabled and elderly people have difficulty operating elevators. Gasoline station attendants serve an important role in society and the economy that technology has yet to adequately replace.

Conclusion

For more than fifty years the bans on self-service stations in New Jersey and Oregon have survived with strong public support. This suggests that similar policy would be supported in other states, and any state that adopts a self-service ban will likely realize the same advantages as those seen in New Jersey and Oregon. Some people in states that ban self-service may have to wait a few seconds longer on average to get their gasoline tanks filled, but for most people the social and economic gains are more important.

Notes

1. These estimates were provided by Stacey Standish of the Bureau of Labor Statistics in a personal communication on June 12, 2006.

2. Oregon's reasons for its ban (ORS §§480.310 to 480.340) are roughly equivalent to those of New Jersey; so, to avoid repetition, only New Jersey's statutes are presented.

3. GasBuddy generously provided its data with permission to publish any findings.

For Further Reading

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