Cradle of Organized Firefighting

“The danger of fire in the wooden, thatched-roof cities of early America was so great that the first colonists commonly provided for fire protection before they organized police services or the municipal water supply.” – Fred McChesney (1986, 72)

Janna Lu[1]

Austrian Student Scholars Conference

04 February 2022

Abstract

In 1724, nineteen Bostonians founded a private fire company, the Fire Society, as a commercial entrepreneurial non-profit. Even though fire clubs were established in other cities within two decades, none adopted the same governance structure. Members of the Fire Society in Boston signed a constitution, met four times a year, and pledged to protect each other’s property in the event of a fire. After the Great Boston Fire of 1760, seven more fire companies emerged, with similar governance structures as the Fire Society. In this paper, I demonstrate how fire protection services emerging as a non-profit in Boston minimized the total costs of transactions, through a comparative analysis of the costs of market contracting and ownership. This paper adds an empirical example to Hansmann’s theoretical framework of the relative costs of ownership while illustrating how the private sector overcame collective decision-making costs and supplied goods with public attributes in the market (2000).

Keywords: Public goods, non-profits, firefighting, Colonial Boston, economic history
JEL codes: H41, L30, L22

[1] I am grateful to Caleb Fuller, Qing Lu, and Ping Xie for their insightful comments on the early drafts of this paper. I would also like to thank Jeffrey Herbener, Shawn Ritenour, and students in Seminar for Organizational Economics and Economics Colloquium at Grove City College for their valuable feedback.

1. Fire!

Many believe that Benjamin Franklin pioneered the organization of volunteer firefighting in colonial America. Boston, however, claims the honor. In 1724, nineteen enterprising businessmen of Boston founded the first fire protection agency in American history, creatively christening it the Fire Society. Franklin did not form the Union Fire Company until 1736, after he had published several articles in various newspapers about the need for organized firefighting in Philadelphia (Franklin 1961). Even though more people today know about the Union Fire Company, the Fire Society of Boston is the oldest organized firefighting society in America.

The organization structure of the Fire Society and the seven subsequent fire clubs[2] in Boston defy easy explanation. They have no antecedent in either the colonies or England, and no other city adopted an identical organizational form. Using a "self-perpetuating governance structure," these private fire companies fall under the category of entrepreneurial non-profits (Hansmann 1987, 28). As they supplied firefighting services to one another, each member both supplied and demanded the fire protection, making the club a commercial non-profit too. Hansmann would thus classify them as commercial entrepreneurial non-profits (1987). This paper will explain how the emergence of fire protection services as a non-profit in Boston minimized the transaction costs.

Several theories have been offered to explain the institutional structures of the fire companies, ranging from importing London institutions[3] to Boston's puritanical values of love for neighbors (Winer 2009; Murrin 1966). By the 1720s, however, the Bostonian sense of

---

[2] I treat fire clubs, fire companies, and fire protection agencies as synonymous in this paper.
[3] Fire insurance emerged after the 1666 Great Fire of London, which burned for four days and destroyed four-fifths of the city. It cost northward of £10 million while London only had an annual income of £12,000 ("Early Insurance Brigades" 2021). To prevent such losses from happening again, London businessmen formed insurance companies that charged subscribers premiums but promised to rebuild a structure if destroyed by fire.

“community” had lost much of its original meaning (Nash 1987, 120). Anglicization occurred at a rapid clip and many Presbyterian ministers in the Bay Colony remarked that even a “semi-Presbyterian system would give them enough authority to halt the decline of piety in the province” (Reich 2011, 46). Salem witch trials occurred between 1630 to 1640, close to a century ago, and the population had become much more mobile and fluid since then (Henretta 1965). In London, fire insurance companies paid “watermen” who worked on the River Thames to put out fires, creating the first organized fire brigade (Carlson 2005, 40). Fire insurance companies did not appear in Boston until much later, and members of private fire companies received no compensation. These differences in the organization of the Fire Society and institutions of Boston make previous explanations unsatisfactory.

The organizational form of the Fire Society did not come and go as vapor; fire clubs that were founded before the Boston Tea Party of 1773 had similar governance structures. I do not look at fire companies established after 1773 because the Independence War changed the social fabric of America. Within thirteen years after the Great Boston Fire of 1760, seven new fire companies formed in colonial Boston. Members of these companies agreed to help each other in event of a fire, signing similar constitutions. Unanimous agreement was required for admitting new members. All fire companies had a clerk who functioned as the president, treasurer, and secretary. Only the details varied, such as membership caps, meeting times, and the level of fines for various violations of the constitution. The first private fire protection company, the Fire Society, existed for at least thirty years. Records from the Great Boston Fire of 1760 mention members of the Fire Society helping to extinguish the fire (Holicky et al. 2005; Brayley 2015). In addition, all fire companies in Boston had portions of their constitutions worded exactly like the Articles of Agreement of the Fire Society. As cost-minimizing forms of organization “dominate” most industries, these private fire companies seem to have operated efficiently (Hansmann 2000, 22). They provided fire protection services until firefighting became a state-run enterprise in Boston (McChesney 1986).

Additionally, private firefighting companies serve as an example of the failure of public provision. After 1683, the town of Boston paid eight "honorable" townspeople twenty shillings a year (forty dollars in 2021, adjusted for inflation) to maintain the fire engines that the city bought (Brayley 2015, 22; Bureau of the Census 1975, 609; "Silver Price Today" 2021). The founders of the Fire Society, however, did not want to rely solely on the town fire engines. They expended scarce resources and came together to provide for the firefighting privately. Furthermore, the number of fire clubs increased drastically after the Great Boston Fire of 1760, which damaged the property of at least 365 households, reducing 214 to "poverty" (Penchak 1979, 268). Even though fire protection has public good attributes, the founders of the Fire Society overcame the problems of free-riding to supply it privately.

My paper contributes to literatures on the organization of non-profits and the private provision of public goods. I argue that private fire protection companies in colonial Boston minimized the costs of organization as commercial entrepreneurial non-profits. I also extend the seminal work of Hansmann, providing an empirical example of an organization that faced high market contracting and ownership costs (2000). Beginning with an overview of Boston firefighting, I follow with a description of the governance structures of these private fire clubs. Then, I examine alternative organizational forms that the fire clubs could have adopted, conducting a comparative analysis of the costs of various assignments of ownership, which I break down into transaction costs incurred in spot contracts, long-term contracts, and mutuals.

2. Private Fire Protection Services

A. Firefighting in the Colonial Era

Firefighting in colonial Boston relied on every household in the neighborhood. Whenever fire broke out, a resident or fire ward ran to the nearest church to ring the bell and “summon” neighbors “to the scene” (Carp 2001, 783). Fire wards patrolled the streets at night, similar to police today. Chosen by the officials of Boston, they also had the authority to pull down a burning house with iron hooks to prevent a fire from spreading further. Upon hearing the church bell, men would issue forth into the streets from the surrounding houses. Neighbors “wielding” buckets would form a line to pass their buckets from a water source to the fire (783). Another group of men would enter the burning house and carry out as many goods as possible in bags because bucket brigades often only succeeded in preventing the spread of the fire. Predominantly made from wood, houses went up quickly in flames (Brayley 2015). Fires could spread rapidly, and fire brigades mostly prevented large-scale fires. Without neighborhood participation, fires would inflict much more damage in colonial America.

Starting in 1676, the town of Boston subsidized fire protection services. They imported fire engines from London and paid selected townspeople to maintain and operate these engines in case of fire (Brayley 2015, 22). Buckets could not “shoot” water very far but these fire engines were better equipped to extinguish fires (“Boston Burns” 2021). These engines had a leather hose, connected to a large tub into which men would fill with water from their smaller leather buckets. Town fire engines did not preclude the need for volunteer participation: they simply made these bucket brigades more effective. Firemen could now throw water higher on a burning structure. Although Boston provided fire protection services, entrepreneurs still saw the need for private provision.

B. General Features of Private Provision

If the town of Boston had provided a sufficient quality and quantity of firefighting, entrepreneurs would not use scarce resources to organize their own fire club. Paying for people to operate fire engines and appointing fire wards to patrol the streets still left citizens wanting, a need that they satisfied with the establishment of private firefighting companies.

People who worked in capital-intensive industries would stand to lose more from a fire than someone who worked as a day-laborer in a shipping yard on the wharves of Boston. Not all fire clubs had complete surviving lists of members, but most worked as merchants or skilled artisans. Fire would wreak havoc in their lives and present a prime opportunity for thieves to steal their goods. Many of the members also achieved illustrious careers, which meant that they had wealth. One of the signatories in the Fire Society, George Holmes, owned a general store and had close to £15,000 in personal items and real estate at his death in 1752, equating to over $100,000 in 2021 (Gray 1908, 31; Bureau of the Census 1975, 609; "Silver Price Today" 2021). He also became a Selectman of Boston between 1750-1752, a position of great honor (Gray 1908, 31). John Draper, another signee in the Fire Society, had a printing shop where he printed the *Boston News-Letter* [sic], the oldest Boston newspaper in print at the time (Ayers 1993, 9). Ebenezer Dorr, a member of the Union Fire Club, owned a successful shipping business on the Long Wharf in Boston (1772; Adams 1794). He also played a role in politics, riding to warn Massachusetts that the British were coming in 1775 (Todd 2009). Involved in lucrative industries requiring significant amounts of fixed capital, members of various fire clubs wanted to prevent each other from losing their investments.

Not many detailed records of these private firefighting societies remain today, but their articles of agreement survived the last two centuries. They all formed as commercial entrepreneurial organizations. In these firms, the buyers of the good or service generate the "ultimate source of income," and managers neither get elected by members nor earn the profits of the firm (Hansmann 1987, 28). The Fire Society, founded in 1724, stated that all members should "be helpful to each other in extinguishing fire, or in saving and taking care of each other's goods[4] or estate" (1724). All fire clubs that came later in Boston used similar wording, and the Union Fire Club even promised to recompense the owner if members of the club saw a "suspicious person conveying away" the owner's goods in the chaos of fire (1772).

C. Governance of Fire Clubs

Every society had a clerk, who wore the hats of the president, secretary, and treasurer. Clerks only served for a year, and another member would succeed them. During the year, he had to keep "books," recording all the fines and "disbursements" of the club (Union Fire Club 1772). When a fire broke out, he had to keep a record of which members showed up to help, and fine those absent without a valid excuse. Members of the Anti-Stamp Fire Society also received a fine of six shillings[5] if they showed up wearing a cloak (1763). Clerks had to choose the date and time of quarterly meetings and send notice to all the members at least a day in advance. The articles of agreement stipulated which months they had to meet, but not the specific day. At each meeting, the clerk kept track of attendance and the topics of discussion. He also had to inspect every member's property before each quarterly meeting with at least three other people. Inspections familiarized other members with the location of dwellings and shops and allowed the clerk to monitor the compliance of members: they had to have the proper equipment hanging in the right place. Without a clerk, fire clubs would fall apart.

[4] One could argue that private fire companies concerned themselves mainly with protecting movable household possessions, but every constitution required members to help whenever fire broke out. In addition, saving the household possessions made up an integral part of firefighting in colonial America (Carp 2001).

[5] Seven dollars in 2021, adjusted for inflation (Bureau of the Census 1975, 609; "Silver Price Today" 2021)

Constitutions also laid out clear procedures for appointing the new clerk. As an entrepreneurial non-profit, these clerks did not get elected by fellow members. Exact succession procedures varied by the club, but they all relied on a roster or randomization. Clerks in the Fire Society and Sun Fire Society simply took turns according to the order they signed their names on the constitution, but the Anti-Stamp Fire Society, Union Fire Club, and Union Society all drew lots to select the next clerk. Whoever drew Lot One became the new clerk for the year. If the member refuses to serve, he pays a forfeit, and the remaining members draw lots again.

To remain in good standing, members had certain duties. They had to attend quarterly meetings; if they "absent" themselves from four meetings "successively," they lose their membership (York Fire-Club 1760; Anti-Stamp Fire Society 1776; Union Society 1772; Sun Fire Society 1794). All members had to "keep in good order" at least two buckets and bags, equipment used to put out a fire and move goods from a house, respectively (York Fire-Club 1760). Buckets and bags had to have the last name of the owner on them, and bags must come with strings to "draw them close with greater Dispatch and Conveniency [sic]" (Fire Society 1724). All fire clubs that came after the Fire Society required a bed key in one of the buckets too (Anti-Stamp Fire Society 1763; York Fire-Club 1760). Bed keys allowed for the quick disassembly of a wooden bed frame, usually the most expensive moveable piece of property in a house (Hashagen 2003). Constitutions stipulated minimum sizes of the leather bags: a yard and a half long as it was wide. Violators had to pay a fine, ranging from one to ten shillings, depending on which fire club they joined (Friendship-Society 1767; Union Fire-Club 1772). These rules expressly made each member more prepared in case of fire.

All members from the club had to show up with their bags, buckets, and bed wrench at the "notice" of a fire. Only those away "from home at the alarm may appear" without their bags and buckets (York Fire-Club 1760). Some would assist with putting out the fire; others with safeguarding the goods.

Goods could get stolen in the process of evacuating the valuables from a house on fire, fire clubs employed secret watchwords to allow members to quickly differentiate between a member and an imposter. Watchwords changed at the club's "pleasure," serving as a differentiator between someone who was part of the club and someone who wasn't (Carp 2001). Members of the Fire Society who could not remember the watchword at the meeting had to pay a fine of six shillings, which equals about seven dollars in 2021, adjusted for inflation (Bureau of the Census 1975, 609; "Silver Price Today" 2021). Other private fire companies had comparable fines for forgetting the watchword when required.

If the owner of the burning house belonged to a fire club, only his fellow members could move his possessions (Carp 2001). Members had to "use their best endeavors to remove and secure" his goods, going as far as standing watch over the goods or putting them under "lock and key" (Sun Fire Society 1765; Fire Society 1724). Moreover, the Union Fire Club promised to reimburse the owner if members saw a thief stealing the owner's goods, and they could not stop the villain (1772). In this way, members would be less likely to suffer losses from theft in a fire.

All fire clubs met in the evening four times a year, three months apart. According to Brayley, these meetings functioned like social events: dinner accompanied business. One surviving bill from such a meeting on July 18, 1755, record the gentlemen ordering supper, two bottles of Maderia, a bottle of port, six bowls of punch, and four bottles of porter (Brayley 2015, 38). Fines went towards funding these dinners and providing each member with a copy of the Articles of Agreement they signed. The Friendship-Society, true to their name, required members to stay until nine unless they received majority permission to leave (1767). Anyone who did not show up to a meeting on time had to pay a fine, the level of which depended upon whether they simply showed up late or not at all. For example, the Anti-Stamp Fire Society fined members one shilling for lateness, but six[6] for absence. These meetings gave fellow members time to socialize and conduct business.

All fire clubs also enacted membership caps and voting rules. They limited the number of members to twenty to thirty people and encouraged other interested persons to form their own fire company. New members had to be admitted with a “unanimous” vote, while a “major vote of the society” would decide the “differences, deciding, and voting of fines” (Fire Society 1724). Everyone had one vote, including the clerk. Articles of argreement fixed fines for common infractions such as showing up late to a meeting, and majority vote determined the amount in unforeseen contingencies. With definite rules of the game, the fire companies established order within them.

3. Alternative Organizational Forms

A. Who will Own the Firm?

When a particular form of organization pervades an industry, Hansmann suggests that the organizational form incurs the lowest cost compared to its alternatives (2000). If some entrepreneurs found a way to lower the cost of organization in an industry, they could drive out the “higher-cost” counterparts and share the resulting savings among themselves (22). Firms would thus organize according to the “lowest-cost assignment of ownership,” minimizing the sum of the transaction costs between “the firm and all of its customers” (Hansmann 2000, 21).

---

[6] Fines were lower in the Fire Society of 1724, but the Massachusetts pound also suffered inflation (Bureau of the Census 1975, 609; Fire Society 1724).

Through a comparative analysis of various firm organizations, I demonstrate that private fire companies in colonial Boston minimized the costs of firm organization by becoming non-profits.

As entrepreneurs minimize the total costs of transactions, the party who faces the "most severe" costs of market contracting will own the firm, *ceteris paribus* (Hansmann 2000, 11). Owners, defined as persons who have control over the firm and the "right to appropriate the firm's residual earnings" face collective decision-making costs when a firm has multiple owners (11). They would not run into contracting costs, which are divided into simple market power, *ex-post* market power, and asymmetric information after they have found a willing exchange partner (Hansmann 2012; Coase 1937).

B. Costs of the Spot Market

According to Williamson, the frequency and specificity of any transaction change the costs and benefits associated with transacting on the market (1979). Non-specific and frequently occurring transactions incur the least costs when transacted on the spot market. A buyer purchases a box of cereal from the store because he can "turn elsewhere at little transitional expense" if the product does not meet his expectations (248). He does not need to make transactional-specific investments to buy generic products from a grocery store. Non-specific but infrequent transactions could only occur on the spot market if the good or service is "standardized" as the discipline of repeated dealings would provide "incentives for both parties to behave responsibly" (Williamson 1979, 248; Barzel 1982). Else, the buyer cannot rely on the experience of other buyers or rating services.

Services that promise to extinguish fires are used infrequently as fires do not occur every day. Fires vary in strength and duration too, depending on the weather and building materials. Suppliers might blame factors that are out of their control such as the weather when they did not discharge their duty. Without the ability to accurately judge the quality of the fire protection, buyers can no longer simply rely on the discipline of repeated dealings when purchasing fire protection services on the spot market.

Additionally, transacting fire protection services would incur high costs in the spot market. A homeowner whose house is on fire does not want to be pushed to his maximum buying price, which could almost equal the value of the house and all the possessions within it. As the two parties take time to negotiate the deal, the fire continues to devour the house, inflicting heavier losses on the distraught homeowner. If the two parties cannot reach an agreement, the house burns to the ground, benefitting neither the buyer nor supplier.

C. Costs of Long-term Market Contracting

Since spot contracts generate high costs for both the buyer and supplier of fire protection, long-term market contracting may pose as a viable alternative. Like any other transaction, demanders and suppliers share the cost of market contracting in varying degrees. Market contracting consists of simple market power and asymmetric information, distributed between demanders and suppliers (see appendix).

If the suppliers of fire protection formed a firm and signed a long-term contract with individual property owners, suppliers can still hold up the homeowners. When a house catches fire, a fire protection firm can raise its price without losing the customer on the spot. It could arrive at the site of the fire and demand a higher price before putting out the fire or running in to save the goods. The frenzied homeowner would pay a higher price for the fire protection agency to extinguish the fire because he would not want to lose his house. With a strict time-constraint like a burning house, people who contract for fire protection services on the market would pay the higher price, even when they signed a contract with different prices earlier.

Informal norms and bilateral punishment may prevent fire protection firms from re-negotiating a contract at the site of a fire, but no governance structure functions costlessly. The discipline of repeated dealings may deter fire protection agencies from engaging in "price exploitation," but the mechanism requires scarce resources such as time and social credibility. Norms take years to emerge, and the rules "remain unclear" in the "interim" of emergence (Leeson and Coyne 2012). With the possibility of paying an unreasonably high price while a social norm emerges, the customer may choose to internalize the costs of owning a firm and establish a new one of their own (Hansmann 2000). Costs of producing social norms allow fire protection firms to take advantage of their position of market power.

Fire protection agencies also face severe asymmetric information. When the buyer has more information, he has an incentive to behave opportunistically and "take advantage" of the firm by withholding valuable information (Hansmann 1987, 29; Stiglitz 2000; Elitzur and Gavious 2003). Fewer exchanges would occur because the supplier, who has less information, would not trust the buyer to exploit the disparity.

A homeowner, who buys fire protection services, would have a better idea of the general flammability of their property, such as whether he stored gunpowder on the premises. Fire protection firms could demand to inspect houses at will, but that requires time and manpower. With information asymmetries, the homeowner can hoodwink the fire protection agency into believing in the relative safety of his house.

Even though the buyer has more information about the condition of his house, he cannot accurately gauge the quality and quantity of fire protection. Similar to their counterparts in the spot market, buyers in the long-term contracting market cannot easily measure firefighting service quality variation. They would have to "rely more heavily" on other quality assurances such as “past experience and seller reputation” (Barzel 1982, 31). Fire is heterogeneous, so the customer cannot know on the margin if the firefighting crew provided low-quality services when his house gets significantly damaged by fire. They cannot easily measure the quality of the service that they received.

Facing the high costs of long-term market contracting, fire protection services would adopt alternative forms of firm organization. Non-profits would form when buyers face severe asymmetric information and simple market power, and sellers face high costs of asymmetric information.

D. Costs of Ownership

Ownership overcomes the problems posed by appropriable quasi-rents and asymmetric information, but it still has positive costs. Klein et al. predict that the production of goods with high measurement costs and asset specificity would become integrated into a firm (1978). When costs of market contracting exceed any alternative assignment of ownership, demanders would not contract for the service on the market (Hansmann 2000). They would own or manage the firm instead.

When both market contracting and ownership costs become sufficiently high, non-profits become the lowest-cost form of organization. Nobody owns the firm. In this case, buyers cannot draw up a contract with a firm that covers enough contingencies, but the costs of controlling the firm exceed the “relative value of their transactions with the firm” so they would not own it (Hansmann 2000, 228; Ellman 1982). They simply may not want to put in the effort required to monitor the performance of the firm or bear the risks as the residual claimants. Demanders of the good or service become the managers, holding the firm “in trust” for the members (Hansmann 2000, 228). With multiple people in control of the firm, interest homogeneity on the part of the managers lowers collective decision-making costs. Reputational mechanisms constrain managerial opportunism, which occurs when managers benefit themselves at the expense of the owners or members. Even though non-profits also face “poor incentives for cost minimization” and have limited access to capital, informational asymmetries may make market contracting a much costlier alternative (Hansmann 1987, 29). Without a low-cost party to assert ownership, all the members of the non-profit share the costs of ownership.

Non-profits generally arise to supply goods with strong public attributes to prevent opportunism, as customers cannot monitor the marginal impact of their contribution without significant costs. Certain non-profits, such as providers of satellite radio, only supply the good to the subscribers, who can monitor imperfectly the quantity and quality. If a for-profit firm supplied the good, the owners would “solicit payments far beyond” the costs of providing the good because the purchasers do not know the actual price of producing the marginal unit (Hansmann 2000, 231). For goods without publicness attributes, a buyer can easily discern the impact of their payment: spending a dollar on chocolate gives the buyer an additional chocolate bar. Non-profits do not allow the distribution of profits from the operations of the firm to the owners, so those who control the firm cannot benefit as heavily from “providing low-quality services” (Hansmann 1987, 29). Even though the non-distribution constraint serves as a “crude” protection device, it still “reduces” the incentive to offer poor quality services (Hansmann 2000, 235). Coupled with the non-distributive constraint, making the demanders also the suppliers of the good decreases the chance of opportunism and mitigates information asymmetry.

Fire protection services possess some traits of public goods. Non-rivalrous but excludable[7], fire protection services do not allow buyers to easily monitor the impact of their marginal payment. To measure the quality and quantity of fire protection offered more effectively, the suppliers of the fire protection could make themselves the beneficiaries of fire protection. They would become both the buyer and the supplier, mitigating informational asymmetries.

Differences of opinion would arise in any firm with multiple residual claimants, creating a need for adjudication when disagreements arise. To reach a decision fairly, most firms with multiple owners incorporate a democratic structure to protect “members’ interests” (Ellman 1982, 1045). Homogeneity increases the likelihood that the preferences of the median voter coincide with the average voter, creating efficient outcomes (Congleton 2004). For all private fire companies in Boston, each member had one vote, and all decisions required at least a majority vote to pass. Admission of new members required unanimous agreement, as a long-standing disagreement between two members would generate significant negative externalities. With unanimous admission and a membership limit, current members would have a lower incentive to engage in strategic bargaining, as decisions would affect everyone roughly equally.

Even though fire protection firms may not have owners, managers would still run the firm. Managers mainly ensure that the firm remains solvent. In other words, they hold it in “trust” for the members (Hansmann 2000, 238). Fire protection firms face two relevant costs: the cost of collective decision-making and the cost of preventing managerial self-dealing. Members

[7] Even though free-riding would occur to some degree, the costs of losing a house to fire could incentivize more risk-averse homeowners to buying fire protection services. A house that does not have fire protection services only benefits from a neighboring house that does when the neighboring house gets set on fire, lowering the benefits of free-riding. Fire protection is non-rivalrous because providing the service to an additional marginal user does not generally reduce the rest of the consumers’ ability to consume the good.

do not have to worry about quasi-rents and asymmetric information. Fire protection agencies in Boston remained relatively small with self-perpetuating managers, lowering the costs of collective decision-making.

The Fire Society prevented managerial self-dealing, even though it adopted the form of a commercial entrepreneurial non-profit. Entrepreneurial non-profits represent the "ultimate" separation of ownership and control because nobody who had an "interest in residual earnings" would monitor the managers (Hansmann 2000, 238). Clerks in these private fire companies functioned as managers. To prevent opportunism, the clerk did not get chosen by vote but took turns according to the order they signed the constitution or by random lots (Fire Society 1724; Friendship-Society 1767). Clubs kept records of who served as a clerk each year, so each member knew who served before them. Constrained by their reputation, the clerk for the year would not abuse his power. In all the fire clubs, three to five people chosen from the list in the order that they subscribed had to accompany the clerk to inspect the condition of the leather buckets and bags of all the members before each quarterly meeting (Fire Society 1724; Union Society 1772). Going down a list makes colluding harder, as the clerk cannot simply choose his friends to inspect the property of various members. He cannot show favoritism to some members and not levy fines when they do not keep their equipment in good condition. By not relying on elections, private fire clubs in Boston lowered the possibility of managerial opportunism.

4. Conclusion

Providing an empirical example for Hansmann's theoretical framework for firms, the Fire Society illustrates the relative costs of each form of organization in protection against fire. Facing the high costs of long-term market contracting, founders of the Fire Society in Boston formed their fire company as a commercial entrepreneurial non-profit. When the degree of asymmetric information and simple market power rises, a firm would adopt the non-profit organizational form. As strong homogeneity of member interests lowers the gains from strategic bargaining, non-profits with multiple members in control would have larger margins of interest homogeneity.

The Fire Society also serves as an example of supplying public goods. Even though the state had fire engines and trained firemen, business owners still found it more effective to supply private fire protection services. This paper demonstrates that the failure of public provision does not imply a market failure—the market will find ways to supply goods with public attributes.

Further research could explain several other features of the Boston fire companies. Even though Boston had a trained firefighting force, my paper did not explain their exact efficacy origins. In this paper, city-provided firefighting services simply serve as an example of a failure of public provision because Bostonians still bore the costs of providing a publicly provided good privately. I paint a general picture of the private firefighting companies in Boston; I do not detail every variation between different fire clubs. Between 1724 and the Great Fire of Boston in 1760, the Fire Society functioned as the only private firefighting club in Boston. After the Great Fire, Bostonian citizens formed seven more fire protection agencies. Successful fire insurance, a form of warranty for firefighting, also emerged in 1752 after several abject failures, but it lies beyond the scope of my paper. Fire insurance bears similarities to private firefighting, but it differs on the level of member participation required. Firefighting in colonial America holds many questions that do not have answers yet.

References

Adams, John. 1794. “John Adams to John Quincy Adams, 12 May 1794.” National Archives and Records Administration. https://founders.archives.gov/documents/Adams/04-10-02-0107.

Anderson, Melanie O. 2016. “The Financial Fitness of Pennsylvania Volunteer Fire Companies.” Center for Rural Pennsylvania. Center for Rural Pennsylvania. https://www.rural.palegislature.us/documents/reports/The_Financial_Fitness_of_PA_Volunteer_Fire_Companies_2016.pdf.

Anti-Stamp Fire Society. 1763. *Rules and Orders to be Observed by the Anti-Stamp Fire Society, Instituted at Boston, October 1763.* Boston, MA: Printed by Nathaniel Willis and Edward Eveleth Powars.

Ayer, Mary Farwell. 1933. “List of Boston Newspapers by Years.” Essay. In *Publications of The Colonial Society of Massachusetts Collections* 9, edited by Albert Matthews, 9:9–11. Boston, MA: Colonial Society of Massachusetts.

Barzel, Yoram. 1982. “Measurement Cost and the Organization of Markets.” *The Journal of Law and Economics* 25, no. 1: 27–48. https://doi.org/10.1086/467005.

Brayley, Arthur Wellington. 2015. *Complete History of the Boston Fire Department 1630 to 1888*. 1. Vol. 1. 2 vols. Forgotten Books.

Bureau of the Census. 1975. *Historical Statistics of the United States, Colonial Times to 1970.* Washington, D.C.: U.S. Dept. of Commerce, Bureau of the Census.

Carlson, Jennifer Anne. 2005. “The Economics of Fire Protection: From the Great Fire of London to Rural/Metro.” *Economic Affairs* 25, no. 3: 39–44. https://doi.org/10.1111/j.1468-0270.2005.00570.x.

Carp, Benjamin L. 2001. “Fire of Liberty: Firefighters, Urban Voluntary Culture, and the Revolutionary Movement.” *The William and Mary Quarterly* 58, no. 4: 781–818. https://doi.org/10.2307/2674500.

Coase, Ronald Harry. 1937. “The Nature of the Firm.” *Economica* 4, no. 16: 386-405.

Congleton, R.D. 2004. “The Median Voter Model.” In *The Encyclopedia of Public Choice,* edited by C.K. Rowley and F. Schneider, 707–712. Boston, MA: Springer. https://doi.org/10.1007/978-0-306-47828-4_142

Davis, Archie K. 2000. *Boy Colonel of the Confederacy: The Life and Times of Henry King Burgwyn, Jr.* University of North Carolina Press.

“Early Insurance Brigades.” 2021. London Fire Brigade. London Fire Commissioner. https://www.london-fire.gov.uk/museum/history-and-stories/early-insurance-brigades-brigades/.

Elitzur, Ramy, and Arieh Gavious. 2003. "A Multi-period Game Theoretic Model of Venture Capitalists and Entrepreneurs." *European Journal of Operational Research* 144, no. 2: 440-453.

Ellman, Ira Mark. 1982. "Another Theory of Nonprofit Corporations." *Michigan Law Review* 80, no. 5: 999–1050. https://doi.org/10.2307/1288593.

Fire Society. 1724. *These presents witness, that we the subscribers, as neighbours and friends, do mutually agree to the following articles, viz.: I. That in case it should please Almighty God to permit the breaking out of fire in Boston, where we dwell, we will be helpful to each other in extinguishing fire, or in saving and taking care of each others goods or estate*. Boston, MA: Printed by John Draper.

Franklin, Benjamin. 1961. *The Papers of Benjamin Franklin Vol. 2, January 1, 1735, through December 31, 1744*. New Haven, CT: Yale University Press.

Friendship-Society. 1767. *Rules and orders, agreed to be observed, by the Friendship-Society: instituted at Boston, the twenty-fifth day of May, A.D. 1767.: We the subscribers for the more speedy and effectual assistance of each other in securing our substance when in danger of fire, do agree to the following articles*.

Gray, George Arthur. 1908. *The Descendants of George Holmes of Roxbury. 1594-1908*. Press of D. Clapp & Son.

Hansmann, Henry. 1987. "Economic Theories of Nonprofit Organizations." Essay. In *The Nonprofit Sector: A Research Handbook*, edited by Walter W. Powell, 27–42. New Haven, CT: Yale University Press.

Hansmann, Henry. 2000. *The Ownership of Enterprise*. Cambridge, MA: Harvard University Press.

Hashagen, Paul. 2003. "Firefighting in Colonial America." Firehouse. Firehouse.com. https://www.firehouse.com/home/news/10527819/firefighting-in-colonial-america.

Holicky, M., Alois Meterna, Gerhard Sedlacek, and J. B. Schleich. 2005. "Implementation of Eurocodes, Handbook 5, Design of Buildings for the Fire Situation." *Leonardo da Vinci Pilot Project: Luxemboug*.

Klein, Benjamin, Robert G. Crawford, and Armen A. Alchian. 1978. "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process." *The Journal of Law & Economics* 21, no. 2: 297–326. http://www.jstor.org/stable/725234.

Leeson, Peter T., and Christopher J. Coyne. 2012. "Wisdom, Alterability, and Social Rules." *Managerial and Decision Economics* 33, no. 5/6: 441–51. http://www.jstor.org/stable/41682549.

Pencak, William. 1979. “The Social Structure of Revolutionary Boston: Evidence from the Great Fire of 1760.” *The Journal of Interdisciplinary History* 10, no. 2: 267–78. https://doi.org/10.2307/203337.

McChesney, Fred S. 1986. “Government Prohibitions on Volunteer Fire Fighting in Nineteenth-Century America: A Property Rights Perspective.” *The Journal of Legal Studies* 15, no. 1: 69–92. https://doi.org/10.1086/467804.

Murrin, John M. 1966. *Anglicizing an American colony: the Transformation of Provincial Massachusetts*. New Haven, CT: Yale University.

Nash, Gary B. 1987. “The Social Evolution of Preindustrial American Cities, 1700-1820.” *Journal of Urban History* 13, no. 2: 115–45. https://doi.org/10.1177/009614428701300201.

Reich, Jerome R. 2011. *Colonial America*. Upper Saddle River, NJ: Prentice Hall.

“Silver Price Today.” 2021. Business Insider. Accessed December 7, 2021. https://markets.businessinsider.com/commodities/silver-price.

Sun Fire Society. 1794. *Association and Articles of Agreement of the Sun Fire Society Instituted in Boston, 8th May, 1765*. Printed at Boston: By E.W. Weld and W. Greenough, at the Magazine Office, No. 49, State Street.

Stiglitz, Joseph E. 2000. “The Contributions of the Economics of Information to Twentieth Century Economics.” *The Quarterly Journal of Economics* 115, no. 4: 1441–78. http://www.jstor.org/stable/2586930.

Todd, Tom. 2009. “Ebenezer Dorr Jr. (1739-1809).” Find a Grave. httpsf://www.findagrave.com/memorial/38674382/ebenezer-dorr.

Union Fire-Club. 1772. *Rules and orders agreed to be observed by the Union Fire-Club instituted at Boston, September 1st, 1772*.

Union Society. 1772. *Rules and Orders to be Observed by the Union Society, Founded in Boston, the Twenty-fifth of November, MDCCLXXII*. Boston, MA: Bridgnorth.

Williamson, Oliver E. 1979. “Transaction-Cost Economics: The Governance of Contractual Relations.” *The Journal of Law & Economics* 22, no. 2: 233–61. http://www.jstor.org/stable/725118.

Winer, Daniel H. 2009. *The Development and Meaning of Firefighting, 1650-1850*. ProQuest, UMI Dissertation Publishing.

York Fire-Club. 1760. *Rules and orders to be observed by the York Fire-Club instituted at Boston the first day of May, A.D. 1760*.

Appendix

Who Owns?	Demanders	Suppliers
Simple Market Power	High	Low
Asymmetric Information	High	High