

# Ownership of Fire Protection Services

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## Abstract

In 1724, nineteen Bostonians founded a fire company as a commercial entrepreneurial non-profit, named the Fire Society. Its organizational form defies easy explanation as no other city before or afterward adopted the same governance structure. Members of the Fire Society pledged to protect each other's property in the event of fire. Even though the city of Boston had already invested in fire engines and trained firemen, enterprising businessmen still came together to provide firefighting services. Through a comparative analysis of colonial Boston and Philadelphia, I provide reasons for fire protection services adopting the organizational form of a commercial entrepreneurial non-profit in Boston but a donative one in Boston. I also contribute an empirical example to Hansmann's theoretical framework of the relative costs of ownership, going through the costs and benefits of a non-profit organization (2000). This paper provides another historical example of the private sector overcoming collective decision-making costs, supplying goods with public attributes in the market.

Keywords: Public goods, mutuals, firefighting, Colonial America, Boston, economic history

JEL codes: H41, L30, L22

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## 1. Fire!

When people think about the first instance of organized firefighting in Colonial America, they usually recall Philadelphia and Benjamin Franklin. Boston, in reality, merits the honor. Nineteen enterprising businessmen of Boston came together in 1724 to form the first fire protection agency in American history, christening it the Fire Society. Members came together and pledged to help each other in case of fire. If a member did not comply with the rules laid out in the constitution, he had to pay a fine. Members of the Fire Society claim the privilege of forming the first private fire company in colonial America.

The organization of the Fire Society defies easy explanation. It has no antecedent in either the colonies or England, and no other city adopted the identical organizational form. Adopting a “self-perpetuating governance structure” with members supplying the good to each other, the Fire Society falls under the category of a commercial entrepreneurial non-profit (Hansmann 1987, 28). This paper will explain how fire protection services emerging as a non-profit in Boston minimized the total costs of transactions.

Additionally, the Fire Society serves as an example of the failure of public provision. Since 1683, the town of Boston paid eight townspeople twenty shillings<sup>2</sup> a year to maintain the fire engines that the city bought (Brayley 2015, 22). Twenty shillings converts to about two ounces of silver, which costs about forty dollars today (Bureau of

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<sup>2</sup> An ounce of silver costs 16.25 shillings in Boston, Massachusetts in 1724 (Bureau of the Census 1975, 609). An ounce of silver costs \$22.49 on 7<sup>th</sup> of December, 2021 (“Silver Price Today” 2021).

the Census 1975, 609). These businessmen, however, did not want to rely solely on the town fire engines because they came together to provide for the firefighting privately. Even though fire protection has public good attributes, the founders of the Fire Society overcame the problems of free-riding and supplied the good privately.

The organizational form of the Fire Society did not come and go as vapor; the Fire Society itself existed for at least thirty years. Records of the Great Boston Fire of 1760 mention the Fire Society pitching to help extinguish the fire (Holicky et al. 2005; Brayley 2015). As cost-minimizing forms of organization “dominate” most industries, the Fire Society seems to have operated efficiently (Hansmann 2000, 22). Five subsequent fire companies were also formed in Boston between 1765 and 1792. They all had similar constitutions, with only varying membership caps and fines for non-compliance. As far as historical records show, private fire companies existed until firefighting became a state-run enterprise in Boston (McChesney 1986). This paper will explain the variation between various forms of organization of the Fire Society.

Several theories have been offered to explain the emergence of the fire company, ranging from importing London and Amsterdam institutions<sup>3</sup> to Boston’s puritanical values of love for neighbors (Winer 2009; Murrin 1966). By the 1720s, however, the Bostonian sense of “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

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<sup>3</sup> 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.

remarked that only 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 (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). In Boston, however, fire insurance companies did not appear until much later, and firemen did not get paid. They simply gained exemption from the jury and militia duty (McChesney 1986). These differences in the organization of the Fire Society and institutions of Boston make previous explanations unsatisfactory.

In this paper, I argue that because of the relatively large income disparities, along with high costs of market contracting and ownership, the Boston Fire Society and subsequent ones formed as commercial entrepreneurial non-profit firms. My paper contributes to literatures on the organization of non-profits and the private provision of public goods. I will also extend the work of Hansmann, providing an empirical example of an organization facing high market contracting and ownership costs. In the first section, I explain the costs of firm organization for fire protection services, broken down into costs of utilizing the spot market, negotiating and enforcing long-term contracts, and ownership. Then, I will demonstrate how the non-profit organizational structure minimizes transaction costs. Dividing non-profits into two kinds, I further compare the costs of a commercial mutual non-profit to its donative counterpart. Lastly, I will explain the governance structures of the Fire Society and how the larger rules of the game in Boston influenced the institution as a non-profit.

## 2. 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 lower costs than other forms of ownership. If some entrepreneurs adopt a lower-cost organizational form relative to other firms in the industry, they can drive out the “higher-cost” counterparts and share the resulting savings among themselves (22). Firms would organize according to the “lowest-cost assignment of ownership,” minimizing the sum of the cost of transacting between “the firm and all of its customers” (Hansmann 2000, 21). Through a comparative analysis of various firm organizations, I demonstrate that the Boston Fire Society minimized the costs of organization.

As entrepreneurs minimize the total costs of transactions, transactors who face the “most severe” costs of market contracting will own the firm, *ceteris paribus*. Owners, defined as persons who have ultimate control over the firm<sup>4</sup> 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, split into simple market power, *ex-post* market power, and asymmetric information after they have found a willing exchange partner (Hansmann 2012; Coase 1937).

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<sup>4</sup> Adopting Hansmann’s definitions (2000), I argue that non-profits do not have owners because those who have control over the firm do not have claim to the residual earnings.

### *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 cereal does not satisfy his expectations (248). He does not need to make transactional-specific investments to buy cereal 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 infrequently used as fires do not occur every day. Fires vary in strength and duration too, depending on the weather and building materials. Suppliers might blame the factors which are out of their control such as the weather, while 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 be very costly in the spot market. A homeowner whose house is on fire does not want to be pushed to his absolute 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 house continues to burn, inflicting more loss and lowering the benefits of saving the house. If

the two parties cannot reach an agreement, the house burns to the ground, wasting scarce resources.

### *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. Market

contracting incurs costs of		Buyers	Suppliers
simple market power, lock-in,	Simple Market Power	High	Low
and asymmetric information,	Ex-post Market Power	Low	High
	Asymmetric Information	High	High

distributed between buyers and suppliers. When suppliers own the firm, buyers face high levels of simple market power from the sellers, but they can easily exploit the producer of firefighting services if they owned the firm through post-contractual opportunism.

Fire protection firms can engage in price discrimination when a house burns, even if they had a long-term contract with the owner of the house. Simple market power occurs when a firm has “market power with respect to one or another group” of its customers due to a variety of factors that limit competition (Hansmann 2000, 24). Customers would end up paying a monopoly price. When a house is set on fire, a fire protection firm can raise its price without losing the customer. The frenzied homeowner would pay a monopoly 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, parties who contract for fire protection services on the market would pay the monopoly price, even when they signed a contract with different prices earlier.

Informal norms and bilateral punishment may prevent fire protection firms from charging a monopoly price 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 a monopoly price while a social norm emerges, the customer may choose to internalize the “private cost” instead and establish a new firm of their own (Hansmann 2000, 25). Costs of producing social norms allow fire protection firms to take advantage of their position of market power.

Even though suppliers of fire protection hold simple market power, they face the risks of lock-in. After a fire gets extinguished, buyers have an incentive to behave opportunistically. Fire protection producers make “substantial transaction-specific investments,” creating appropriable quasi-rents (Hansmann 2000, 25; Klein et al. 1978). Quasi-rents are defined as the “excess of an asset’s value to the second highest-valuing user” in a market with free competition (Klein et al. 1978, 299). Buyers would want to gain part of the difference, paying the owner a lower price for the asset. Producers of the asset can no longer costlessly exit the contract and find themselves at risk of post-contractual opportunism.

Due to the asset-specificity of fire protection, suppliers face the risk of losing the quasi-rent. At the first glance, fire protection does not seem asset-specific. Buckets and engines used to put out one fire may easily be used to extinguish another fire. Time

expended in putting out a fire, however, becomes “so specialized” to a particular buyer that the services would not be “reduced if the price paid to the owner were somehow reduced” (Klein et al. 1978, 299). Nobody can reallocate time once it passes. Because a unit of firefighting service once expended cannot be used for another house, producers of firefighting services lose their bargaining power once they extinguish a fire. As fires do not occur every day, the buyer can choose not to pay the fire protection firm without incurring significant losses in the near future. Even if the firm demands the buyer to pay a deposit, they could still lose the appropriable quasi-rent when the opportunistic buyer withholds payment. If the deposit exceeds what the firm would have expended in fire protection resources, the firm could abscond with the money. The firm could also sue the buyer, but courts cost time and money. Vertical integration could mitigate the problems of lock-in, as the appropriable quasi-rent would disappear. Unless the buyers and suppliers merge into one firm, suppliers of fire protection risk running into opportunistic buyers.

Fire protection agencies also face severe asymmetric information. Asymmetric information occurs when one side of the transaction has more information relevant to the transaction than the other party, who becomes concerned about the other side behaving opportunistically (Hansmann 2000; Stiglitz 2000; Elitzur & Gavious 2003). When the buyer has more information, he has an incentive to “take advantage” of the firm by withholding valuable information (Hansmann 1987, 29). Fewer exchanges would occur because the seller, 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. In addition, the owner may not have gunpowder in the house at the time of inspection, but he may easily get some later, and the firm would be none the wiser. 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. Like the spot market, buyers in the long-term contracting market cannot easily measure firefighting service quality variation. In general, buyers would have to “rely more heavily” on other quality assurances such as “past experience, seller reputation, and warranties” (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 high costs of long-term market contracting, fire protection services would adopt alternative forms of firm organization. Non-profits would arise when buyers face severe asymmetric information and simple market power, and sellers face high costs of asymmetric information and post-contractual opportunism.

#### *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, firms with no owners become the lowest-cost form of organization, known as non-profits. Buyers cannot write 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” (Hansmann 2000, 228; Ellman 1982). 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, but 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 suppliers the demanders 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<sup>5</sup>, 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.

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<sup>5</sup> 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.

Differences of opinion would arise in any firm with multiple residual claimants, creating a need for adjudication when differences 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). Shared common ground for making decisions will prevent the “unrepresentative minority” from exploiting the “majority in favor of the minority” (Hansmann 2000, 41). The 51% would not take advantage of the 49%, simply because they have the majority. Though making owner interests more homogeneous, a firm overcomes problems of decision-making. For the Fire Society, 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 of the Fire Society would affect everyone else due to strategic bargaining.

In Hansmann’s framework, non-profits can be divided into four ways. Commercial and donative non-profits, along with entrepreneurial and mutual non-profits. Mutual non-profits are organizations whose “ultimate control” lies in the hands of the customers (Hansmann 1987, 28). In contrast, entrepreneurial non-profits are “self-perpetuating,” where the board of directors elects itself. Hansmann refers to entrepreneurial non-profits as the “ultimate” separation of ownership and control because the management has no “effective supervision” over them (2000, 238). Donative non-profits derive a “substantial” portion of their income from donations, while commercial non-profits get their income “primarily or exclusively from the sale of goods or services”

(28). These “intersections” create four kinds of non-profits: commercial mutual, donative mutual, commercial entrepreneurial, and donative entrepreneurial. This paper focuses on the commercial and donative entrepreneurial non-profit forms of organization as no fire protection agency that in colonial America adopted a mutual form.

Donative entrepreneurial non-profits get a significant amount of income in the form of donations, differing from the commercial entrepreneurial non-profit. As they fall under the umbrella of mutuals, the donors have a vote in making decisions. Some examples of donative mutual non-profits today are the National Audubon Society and various political clubs (Hansmann 1987). Hansmann defines the donators as a “purchaser of services” who pays to deliver goods to a “third party” or “collective consumption goods produced in such aggregate magnitude that the increment purchased by a single individual cannot be easily discerned” (30). In these non-profits, the “marginal impact” of the donation cannot be easily observed (Ellman 1982, 1010). Donative non-profits also satisfy donor needs, not the third party who gets the goods, as they get most of their money from donors. Thus, the inability to judge the precise quality of the goods purchased and the marginal impact of their donation forms the two main features of the donative mutual non-profit firm.

Commercial mutual non-profits, on the other hand, differ slightly. They have no owners, and the income of the firm comes from the “sale of goods or services” (Hansmann 1987, 30). Some modern examples are non-profit hospitals and country clubs. Most of the time, the marginal impact of the payment is observable, as one can enjoy the services that a hospital provides after paying a fee to the hospital. Instead of paying for

goods that a third party gets, however, the buyers pay for goods that “are often complex and difficult” to evaluate on the buyers’ side before the purchase (30). Due to the intricacies of the goods supplied, the buyers would find it hard to “specific his preferences in advance” because “specific issues are difficult to anticipate” (Ellman 1982, 1035). As a mutual non-profit, the buyers know the quality of the good that is supplied because they supply it, and they have control over the management. They would “expend efforts to obtain exactly” what they want (1035). In these ways, the commercial mutual non-profit varies from the donative mutual non-profit.

### **3. Implications**

Firm providing goods that generate high measurement costs and asset-specificity would more likely to become integrated into a firm. According to Hansmann, services would not be contracted on the market when the costs of market contracting are higher than any “alternative assignment of ownership” and costs of managerial opportunism are low (2000, 21). When members have a strong homogeneity of interests, the chances of strategic bargaining decrease.

Commercial non-profits are usually formed when quality monitoring is a problem as consumers cannot “evaluate accurately the quantity or quality of the service a firm provides for them” (Ellman 1982; Hansmann 1987, 29). For fire services, I posit that fire protection services would more likely form as a commercial mutual non-profit if people had fewer interactions with people outside their social circle as they cannot know the right quantity and quality of firefighting services provided to their neighbors. They would rather expend fewer resources and simply produce firefighting services for the members

within the club. Market contracting would incur higher costs because of the high measurement costs and potential for hold-ups. Donative mutual non-profits, however, would form if the neighbors had interactions with each other. Donors gain psychic profit from providing the service. They gain even more satisfaction usually when someone sends a grateful signal.

#### **4. Boston Fire Society**

##### *A. General Features*

The Fire Society of Boston serves as a good example for commercial entrepreneurial non-profits. Other fire societies in Boston and other colonial cities patterned themselves after the first fire society founded in America.

Founded in 1724, the Fire Society of Boston was comprised of nineteen young men who wanted to protect each other from the harm of fire. Most of them worked in capital-intensive industries. One of the signatories, George Holmes, owned a general store and had close to £15,000 in personal items and real estate at his death. He also became a Selectmen of Boston between 1750-1752, a position of great honor (Gray 1908, 31). John Draper, another signee, had a printing shop where he went on to print the “only newspaper published in Boston” until the middle of the Independence War (“Boston News-Letter” 2015). Thomas Greenough, a member of the Ancient and Honorable Artillery Company of Boston, manufactured “precise mathematical instruments” (Davis 2000, 11). John Scollay<sup>6</sup>, a Son of Liberty, became an extremely wealthy and powerful

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<sup>6</sup> John Scollay was the great grandfather of Herman Melville and a Son of Liberty. His name has been misspelled in multiple places as John Scolley (“John Scollay” 2019).

merchant, corresponding with George Washington and John Hancock during the Independence War. He also served as a Fire Ward between 1747 to 1782 (“John Scollay” 2019). Fire wards had the authority to destroy a house to prevent a fire from spreading further with iron hooks (Carp 2001). With the membership limit at twenty people, the club members could ensure a larger margin of homogeneity of interests.

### *B. Governance*

According to the constitution signed by all nineteen members in 1724, the Fire Society laid out clear governance rules. Members had to keep buckets and bags in a certain place and show up at all quarterly meetings on time. Non-compliant members paid fines, which would go towards issuing buckets and bags, and any other expenses that the Fire Society voted on. Without rules, the Fire Society would run into serious collective decision-making costs.

The Fire Society lowered its collective decision-making costs through membership caps and unanimous admission. They capped the number of members at twenty people and encouraged other interested persons to form their own fire company. As most current members had shops that required a significant level of capital investment, they would bear the “burdens and benefits” of fire protection roughly equally (Hansmann 2000, 97). 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” (*These Presents Witness* 1724). Most fines for non-compliant behavior in foreseeable circumstances were fixed, but contracts never cover every contingency. With unanimous admission and a membership limit of twenty members, people would have a

lower incentive to engage in strategic bargaining, as decisions would affect everyone roughly equally.

To lower the risks of a fire getting out of hand, the Fire Society had clear rules for the quality and quantity of firefighting equipment that each household had to own. Each member had to have at least “two good Leather Buckets, and two large Bags” that had the last name of the owner on it, with strings to “draw them close with greater Dispatch and Conveniency” (*These Presents Witness* 1724). With every member complying with the rules, the Fire Society could keep the costs of supplying fire protection relatively low. Formed as a commercial entrepreneurial non-profit, the Fire Society prevented managerial self-dealing. 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).

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). To prevent managerial opportunism, the clerk or manager did not get chosen by vote but took turns according to the order they signed the constitution (*These Presents Witness* 1724). Each person knew which members served before them, and who would serve after them. Constrained by their reputation, the clerk for the year would not abuse his power. Five people drawn from the same roster in order had to accompany the clerk to inspect the condition of the leather buckets and bags of all the members before each quarterly

meeting. Going down a list makes colluding harder, as the clerk cannot simply choose his friends to inspect the property of various members. By relying on the roster list, the Boston Fire Society lowered the possibility of managerial opportunism.

Owned by the members who demanded fire protection, the Boston Fire Society avoided the costs of long-term market contracting. When the demander and the supplier belong to the same firm, holding up the supplier does not benefit either party. Asymmetric information would not prevent trades from occurring because the buyers would know who supplied the fire protection—themselves—and how reliable their fellow members could supply it.

As voting comes with external costs and decision-making, the club adopted a unanimity rule for admitting new members and a majority rule for fining violators. When the voting rule approaches unanimity, the costs of collective decision-making increase. Persuading everyone to agree on the same issue would require more resources than simply gaining the agreement of the majority. However, when the voting rule approaches the majority, the external costs increase. The 51% could pass rules that take advantage of the 49% who have no say whatsoever in the proceedings. As admitting a new member that does not get along with simply one existing member of the club would cause significant disagreements and thus externalities, the cost of decision-making makes the unanimity rule workable. With fines and punishments, a few disagreements would not significantly damage the club, and getting some ten people to form a cartel is easier said than done. In this way, the club minimized their costs of reaching an agreement.

## **5. Philadelphia and Boston**

### *A. Governance Structures in the Union Fire Club*

Philadelphia, on the other hand, formed as a donative mutual society, called the Union Fire Club. Members of the fire club had priority if two fires occurred at the same time, but they did not exclusively only help the members of the club who paid annual dues, volunteered their time, and abided by the constitution. Similar to the Boston Fire Society, they had to show up on time for meetings, do rounds every year, and take turns in the office of a clerk.

It differed from its Boston counterpart in one crucial feature: it provided fire protection services to everyone that they could reach in time. In event of a fire, members of the Union Fire Club set candles in their windows so that others would know that someone in their house was a member (Franklin 1961). They donated their time to the people in their neighborhood when they provided fire protection services to everyone they could reach in time.

### *B. Boston's Institutions*

Between 1690 and the 1720s, wealth levels increased drastically in Boston. Real estate values increased drastically. In 1687, 85% of real estate holdings ranged between two to ten pounds while the “same spectrum ran from twelve to two hundred pounds” in 1770 (Henretta 1965, 86). Pulled into the “dynamic, competitive world of Atlantic commerce,” Boston rapidly shifted from an agricultural, “land-based society to a maritime center” (76). Shipyards crowded the wharves, and farms disappeared (Bonner 1722).

Not only did Boston increase in average wealth, but its population also increased in size and heterogeneity. Within 50 years, the town grew from 6,000 to 16,000. By 1740, Boston had become “more diverse, more complex, more modern—increasingly different from that of the rest of New England” (Henretta 1965, 75) Buildings that used to “house seven people suddenly began to hold nine or ten” (81).

Even though more people lived in each building, Boston society became more stratified Shopkeepers and laborers essentially formed half of the city while a smaller group of elites with “extensive commercial investments” in shipping dominated the political sphere (Henretta 1965, 88; Winer 2009, 295). Successful sea captains made up the richest 20% of the population. Lured by an “urgent demand for labor,” propertyless young men flocked to Boston in hopes of securing jobs<sup>7</sup> and making their way in the world (77). Instead of working for one master until they turned twenty-one, they usually rented a room and worked for a wage. The Gini coefficient of Boston grew from 0.7 in 1687 to 0.73 in 1771 (Main 1977, 560). A Gini coefficient less than 0.2 represents perfect income equality, and anything above 0.5 represents a severe income gap.

### *C. Philadelphia’s Institutions*

Compared to Boston, Philadelphia did not expand at the same time. Founded in 1682, Philadelphia started with “a few” Quaker merchants and artisans (Warner 1968, 4). Boston had a bustling seafaring trade by 1680, as it was founded five decades ago (Henretta 1965). In 1720, forty years after its founding, “Philadelphia was said to have

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<sup>7</sup> John Erving started out as a poor Scotch sailor, but his grandson became one of the richest men in Boston in 1771 (Henretta 1965, 76).

10,000 inhabitants” (Warner 1968, 5). Alleys “cut” into the back lots of existing houses to accommodate new structures (15). Even Philadelphia eventually became a center of commerce, it still lagged behind Boston for the twenty years after its founding.

Even as Philadelphia expanded into the shipping business, the “one-man shop” still made up the core of its business (Warner 1968, 5). Most worked alone, with one or two helpers. Business and commerce occurred at “what one would call today a rural pace,” allowing people to lead a “public and gossipy style of life” in the streets (19). Philadelphia thus built a “remarkably inclusive network of business and economic relationships maintained by the daily interactions of trade and sociability” (11). Boasting many taverns, Philadelphia also had many *de facto* clubs, from whence many fire companies formed after 1736 (Warner 1968, 20). Compared to Boston’s 0.7 Gini coefficient, Philadelphia only went from 0.27 in 1693 to 0.39 in 1730 (Main 1977, 560). Neighbors knew each other better, and thus provided a feedback mechanism to the various fire societies about the quality and quantity of the goods provided. Boston had no such community, so the fire societies only provided firefighting to their own members.

## **6. 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, the Fire Society in Boston was formed as a commercial entrepreneurial non-profit. When the degree of asymmetric information, simple market power, and post-contractual opportunism rises, entrepreneurs would look for other ways to assign ownership. When ownership costs

remain sufficiently high, a firm would adopt the non-profit organizational form. To lower the possibility of strategic bargaining, members in control of the firm would have a strong homogeneity of interests.

Even though Boston had a trained firefighting force, my paper did not explain their roles or origins. 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. Successful fire insurance also emerged in 1752 after several abject failures, but it lies beyond the scope of my paper.

This paper also creates two areas for future research. Due to the limitations on the available data and length of the paper, I could only compare two cities: Philadelphia and Boston. Charleston and New York functioned as major colonial cities by 1750, and they all had organized firefighting societies around that time. I would expect that if communities had tighter geographical links, the firefighting societies would form as donative mutual non-profits. Secondly, this paper does not look at volunteer firefighting institutions today. Many rural municipalities, which mainly rely on volunteer firefighting, have struggled in the past decade to find volunteers (Anderson 2016). A deeper dive into modern-day rural societies and their communities, along with making firefighting companies a commercial mutual non-profit could potentially solve some of the recruiting slack. Communities in modern-day America seem more similar to Boston than Philadelphia, where neighbors do not interact daily, and friendships form based on common interests, not shared land.

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- 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.* 1740. Boston, MA: Printed by John Draper?.
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