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The Chicago Fire of 1871: A Bottom-Up Approach to Disaster Relief

Abstract

Can bottom-up relief efforts lead to recovery after disasters? Conventional wisdom and contemporary public policy suggest that major crises require centralized authority to provide disaster relief goods. Using a novel set of comprehensive donation and expenditure data collected from archival records, this paper examines a bottom-up relief effort following one of the most devastating natural disasters of the nineteenth century: the Chicago Fire of 1871. Findings show that while there was no central government relief agency present, individuals, businesses, corporate entities and municipal governments were able to finance the relief effort through donations. The Chicago Relief and Aid Society, a voluntary association of agents with a stake in relief outcomes, leveraged organizational assets and constitutional rules to administer aid.

JEL Codes: D64, D71, H41, H84

Keywords: disaster relief, aid, charitable giving, natural disaster, Chicago Fire 1871

The grief of Chicago is the sorrow of the country, and private citizens and public bodies are rivals in generosity.

– *Harper's Weekly*, October 21st, 1871

1. Introduction

Natural disasters are unpredictable and ruinous events that can destroy entire cities within hours. Large-scale catastrophes leave casualties, displaced families, commercial businesses and infrastructure in ruin, and the general population in immediate need of aid. Conventional wisdom and contemporary public policy suggest that major crises require centralized authority for providing disaster relief.¹

Increasingly, since the 1920s, the United States has centralized responses to natural disasters and these efforts often have been very costly (Leeson and Sobel 2008b). The Federal Emergency Management Agency, nested within the larger federal bureaucracy of the Department of Homeland Security, has created perverse incentives that undermined successful collective action following major disasters, most notably after Hurricane Katrina. Politicians face weak incentives to prepare for emergencies and to mobilize resources promptly when disasters strike. The politics of bureaucracy in crisis require balancing special interests and competing political demands while spreading the costs of natural disasters over large populations (Shughart 2006).² Nationally dispersed financing coupled with strong commitments to spend billions of federal tax dollars after disasters create moral hazard (Shughart 2006; Leeson and Sobel 2008a). Political incentives often mean that centralized government fails to prepare adequately for disasters (Congleton 2006) and to respond

¹ I use the terms “disaster relief” and “disaster aid” interchangeably to mean the immediate efforts to supply the victims with necessities and to re-establish the status quo prior to the disaster. This paper focuses on these short-run relief efforts. When discussing implications for long-term recovery and reconstruction, I will use those terms accordingly.

² Balancing political demands and special interests after a crisis can work to the benefit of particular groups. After Hurricanes Frances and Katrina, Florida politicians reduced licensing restrictions on construction work they otherwise would enforce under non-crisis conditions (see Skarbek 2008).

promptly (Sobel and Leeson 2006). Nevertheless, the belief still persists that the federal government is the only institution with “the resources, authority and capabilities to help citizens cope with large scale cataclysmic events, like natural disasters” (Schneider 2008: 715). Thaler and Sunstein (2008) epitomize these views when they argue, “As the experience with Hurricane Katrina showed, government is often required to act, for it is the only means by which the necessary resources can be mustered, organized, and deployed (Thaler and Sunstein 2008: 13).

Both examples of government failure and economic theory suggest that federal disaster management may not be the best means for supplying relief (Skarbek 2010; Shughart 2011). In a wide variety of circumstances, institutions organized from the bottom-up can be more effective than centralized systems at providing local public goods (Ostrom 1990). Experimental public good games show that individuals often make significant contributions to public goods voluntarily (Cox, Ostrom and Walker 2011), and people often choose private producers of disaster relief over their public counterparts at the federal, state, and local levels (Li et al. 2011).

Field studies show that the organizational structure of aid delivery has a profound impact on the quality of disaster aid delivered. Following the Asian tsunami, Henderson and Lee (2011) find that domestic organizations and country-level governmental entities, which face both agency problems and lack proper incentives, offer low quality aid. In the case of tornado relief efforts, Smith and Sutter (2013) argue that rapid recovery was a result of federal, state, and local officials letting the voluntary sector lead the response and recovery effort. This research suggests that providing disaster relief from the bottom up delivers considerable benefits. Many examples exist of the private non-profit sector operating as an effective alternative to centralized provision of public goods (Cornuelle 1983; Cornuelle 1993; Beito 2002; Beito, Gordon and Tabarrok 2002).

This article examines the process of bottom-up disaster relief following the Chicago Fire of 1871. This historical context affords the opportunity to examine the pattern of contributions to disaster relief and to understand how a bottom-up process might coordinate relief efforts. This particular case is useful for three reasons. First, in 1871 there was no formal political or bureaucratic organization for disaster relief at the federal or state level. Contemporary studies of bottom-up disaster relief provide rich, process-based accounts of community resilience but face the confounding factor of simultaneous federal involvement in relief efforts (Chamlee-Wright and Storr 2009; Chamlee-Wright 2010). In fact, Chamlee-Wright and Storr (2010) show that expectations of federal involvement in relief critically influences the bottom-up strategies adopted after disaster. At the time of the Chicago Fire, there was no federal funding administered for aid efforts, no procedural precedent to follow, and no bureau analogous to the Federal Emergency Management Agency to administer aid. This allows for a unique look at how a bottom-up process emerges within a context of local governments, voluntary associations, and market actors, thereby undermining arguments supporting the need for an overarching federal relief and recovery authority.

Second, financing for the relief effort came exclusively from contributions rather than from national taxation or federal deficit finance. These data provide a comprehensive look at spontaneous contributions to a public good in a naturally occurring setting where potential contributors include private individuals, corporations, charitable institutions, and local municipal and state governments. In 1871, no federal income tax was collected, and, individual and corporate charitable giving therefore did not enjoy tax-favored status.³ As such, the period provides a natural experimental control, allowing the pattern of relief

³ Although a wartime income tax was levied in 1861, the first peacetime federal income tax was not introduced until 1894.

funding to be free from incentive effects that are present in other periods because of governmental crowding out of private contributions to a public good.⁴

Finally, relying on a historical case study is appropriate precisely because it allows for the examination of the institutional features of the rules governing disaster relief (Ostrom, Gardner and Walker 1994). Charitable giving under federalism has been empirically difficult to evaluate due to a lack of data at the local level (Steinberg 1987). Using novel quantitative and qualitative micro-level data, this paper utilizes a historical study of bottom-up disaster relief with a focus on how organizational rules affect aid delivery. Single case study analysis is particularly useful in this regard, allowing for an understanding of the structure of institutions that govern disaster (Ostrom 1990), the strategies agents employ (Chamlee-Wright and Storr 2011), and identification of several key empirical implications (King, Keohane, and Verba 1994). By examining how a voluntary association utilized a particular configuration of rules for organizing relief efforts, this work advances an understanding of how bottom-up approaches to disaster relief can operate in the absence of centralized administration. The results of the study are presented in a historical analytical narrative that details the disaster response as it unfolded over time (Büthe 2002).

The findings are twofold. First, decentralized contributions by businesses, individuals, social organizations, as well as municipal and foreign governments, financed the administration of disaster aid services. Private individuals, businesses, and corporate entities supplied 57% of the relief funds and made generous in-kind contributions to the relief and

⁴ Cermak, File, and Prince (1994) find that tax incentives are the primary, egoistic motivators for donating to charity. For the donor, the extent of tax deductibility has a major impact on the personal cost of making a contribution. When the tax deductibility of donations changes, so does the cost of the contributing to charitable causes. See Smith (1980) and Peloza and Steel (2005) for a meta-analysis of the incentive effects of changes in taxes on charitable contributions. While agents respond to relative price changes, field experiments highlight the variance of agent responses to changes in institutions and mechanism design (see, for example, List and Lucking-Reiley 2002; Karlan and List 2007). In addition, experimental studies by de Oliveira et al. (2011) find evidence for the existence of a “donor type” agent - suggesting that giving decisions are driven by a single factor and individuals who give to one organization, give significantly more to other organizations than do non-donors.

recovery effort. Donations came into Chicago immediately after the disaster and charitable giving tapered off as the need for aid diminished. Second, a local, private organization, the Chicago Relief and Aid Society, coordinated disaster aid efforts. The organization's constitutional rules introduced effective criteria for rationing aid and limited the scope of its relief activities to key services where leadership, need, and local knowledge were aligned. These rules were easily adaptable to the unexpected and novel post-disaster context. The adaptable allocative rules enabled the organization to be flexible, to expand to meet the suddenly greater demands for aid, and to reduce its services once demand fell. Local knowledge and adaptable allocative rules enabled the group to cooperate with community residents to ration aid efficiently and effectively.

2. Bottom-up disaster relief

How can a group of people who are in an interdependent post-disaster context organize and govern themselves to achieve a successful relief effort when members of the group may behave opportunistically? Once aid contributions have been made, they exhibit features of a common pool resource in that they are rivalrous, yet intended to be non-excludable to victims of disaster. Determining who is a victim entitled to aid and how much becomes precisely the Samaritan's dilemma of providing relief (Buchanan 1972). Theories of state-led disaster relief explain how external agents attempt to supply new institutions, lower transactions costs, enforce commitments, and monitor the distribution of aid using an overarching state power as the organizational device. How a community of citizens can self-organize after a disaster to solve these same problems presents a puzzle. When disasters strike, some communities are successful at self-organizing relief while others are not. Given this variation, it is important to identify the factors that explain successful outcomes.

A bottom-up system of disaster relief is one where individuals create and enforce the rules that govern disaster relief for their own community. The scale of the disaster dictates the

relevant communities affected and, consequently, the relevant jurisdiction. As such, bottom-up and top-down organizational structures take on different characteristics when multiple layers of governance and authority are present in a particular context. “Top down” disaster relief occurs when one overarching authority administers the relief effort and smaller centers of authority derive their authority and permission to act from further up the chain of command. The directional nature of authority is the opposite in bottom-up relief efforts. The voluntary choices of individuals determine what types of functions accrue to centers of authority (Coyne and Lemke 2011) and the particular functions being carried out correspond to a “general consensus” among the governed (Wagner 2005).⁵

Several key factors help explain when bottom-up relief efforts are likely to be effective at managing a pool of aid. These include the number of decision makers, the number of participants minimally necessary to achieve the collective benefit, participants’ discount rates, the degree of similarity among the interests and goals of decision makers, whether participants demonstrate leadership, and have (or can mobilize) assets relevant to achieving goals (Ostrom 1990: 188). These variables influence not only the internal effectiveness of governing resources, but also help to explain when these institutions will come into existence (Ostrom 1990). They help explain both the types of rules that will be effective at governing aid and when communities adopt such rules. Building on these concepts, I examine two hypotheses concerning the ability of a bottom up, private association to govern aid.

The first hypothesis concerns the costs of securing agreement among those with decision-making power over the common pool of relief funds and their risk exposure to the outcome of disaster relief. As the number of people needed to reach agreement over

⁵ A separate, but related literature concerns the role of public-private partnerships in disaster relief (see Aboubakr 2013).

competing uses of resources increases, the costs of deciding how those resources are used increases (Buchanan and Tullock 1965: 70). More homogeneity among the interests and the goals of decision makers also reduces decision-making costs (Ostrom 1990). Therefore, small homogeneous bodies of decisive decision makers are likely to achieve lower costs of allocating scarce resources. This is particularly important in the post-disaster context where the speed of relief services is often an integral component of success.

In addition, large-scale disasters constitute high-impact events such that the magnitude of the event and the presence of informational opacity compound agency and moral hazard problems. Leadership roles in high-stakes, non-priced contexts take on greater significance than in priced contexts. Just as firms are like “islands of conscious power in this ocean of unconscious co-operation,” voluntary associations are structures for consciously directing resources that are non-priced internally.⁶ Unlike firms, however, voluntary associations often lack important external price and profit and loss signals to guide action. As such, the performance of voluntary associations is more sensitive to leader quality and exhibits greater volatility. Therefore, successful bottom-up disaster relief requires that people with control over general relief funds must have ‘skin in the game’ (Talib and Sandis 2014). That is, agents controlling aid must be exposed to some risk associated with the outcomes of their efforts by having a stake in those outcomes.

Two features of agents with ‘skin in the game’ reflect Ostrom’s (1990) variables for successful bottom-up governance. First, decision makers with a stake in the outcome of relief efforts are more likely to have lower discount rates and longer time horizons. Such decision makers have an interest in establishing rules that govern the use of resources over time and institutions that survive into the future. Participants with longer time horizons will likely be

⁶ Quoting D.H. Robertson, in a famous line, Ronald Coase (1937: 388) explains that firms are like, “Islands of conscious power in this ocean of unconscious co-operation like lumps of butter coagulating in a pail of buttermilk.”

more discerning about how aid is spent, invest in institutions to govern this process, and have the patience to see longer-term objectives. Second, agents who have interests tied to the outcome of disaster relief are more likely to have some time- and place-specific knowledge of the community context of the disaster. Applying this to the disaster context provides the first hypothesis:

Hypothesis 1: Bottom-up disaster relief will be more effective the fewer the number of people required to make decisive decisions over the use of aid and when those people have a vested interest in the outcome.

The second hypothesis focuses on the institutions that govern the aid delivery process. Aid delivery, by its very nature, introduces the possibility of opportunism, moral hazard, and free riding. Effective rules for mitigating these problems in the post-disaster context require that agents recognize the dilemma posed by aid (Buchanan 1972). Having done so, agents must then adopt rules that address problems of moral hazard and free riding. Finally, the rules that govern aid delivery must involve some mechanism to credibly commit agents to enforcing the rules (Schmidtchen 2002). Voluntary associations have residual claims to the activities generated by members' compliance with the rules. Moreover, when organizations operate in a competitive environment and self-select individuals according to their governance needs, this increases the effectiveness of the constitutional constraints (Leeson 2011). The second hypothesis therefore suggests:

Hypothesis 2: Bottom-up disaster relief will be more effective when the rules that govern aid delivery recognize the strategic dilemma of giving aid and provide procedural guidance for limiting moral hazard and free rider problems inherent in these post-disaster contexts.

With these two key hypotheses in mind, we can analyse the case of the Chicago Fire of 1871.

3. The Chicago fire: history and data

In the ten years leading up to 1871, Chicago's population had tripled (Andreas 1884: 52). The city was a growing center of manufacturing, industry, and trade. Businessmen had come from the Northeast for enterprise opportunities in a city that was well-positioned within a system of national waterways and rail networks. Private assets valued at over \$200 million dollars at the time of the fire turned to ashes overnight (Andreas 1884a). The fire reduced the city courthouse, municipal buildings, hotels, depots, grain mills, lumberyards, churches, theaters, newspaper offices, and residences to rubble.

The fire began burning in the West Division of the city around 10pm on October 8th, 1871. The flames moved quickly into to the North of the city and burned for 29 hours, killing over 300 people, and leaving more than one-third of the city's 300,000 inhabitants homeless. News of the fire began to spread across the country on the 9th and efforts to aid victims were underway by the morning of the 10th. On October 11, 1871, the smouldering remains of a city stood in place of what just days before had been the booming urban epicentre of Chicago.⁷

Sweeping through the city, the flames consumed approximately 17,420 buildings and more than 73 miles of street frontage (Andreas 1884a: 52; Sawislak 1995: 2). With only one and a half inches of rain in the three months before the fire, the dry wooden structures throughout Chicago burned quickly. Intense heat created convection effects that carried burning pieces of buildings, roofing, sparks and flames – “starting new fires in advance of the main fire and hampering any systematic attempt to fight the blaze” (Pauly 1984: 669). As it grew, the fire completely consumed the central business district in the South Division, destroying the most expensive property in Chicago. In terms of the number of people

⁷ As the *Chicago Tribune* reported the same day, “A fire in a barn on the West Side was the insignificant cause of a conflagration which has swept out of existence hundreds of millions of property, has reduced to poverty thousands who, the day before, were in a state of opulence, has covered the prairies with thousands of homeless unfortunates, which has stripped 3,600 acres of buildings, which has destroyed public improvements that is has taken years of patient labor to build up, and which has set back for years the progress of the city, diminished her population, and crushed her resources” (ProQuest Historical Newspapers 1849-1986): 1).

affected, the fire did the worst damage in the city's North District. A mixture of expensive lakeside homes, cottages, small shops, churches and schools accounted for the North Side's 13,800 pre-fire buildings. Only 500 remained intact after the fire and most of the city's homeless people came from the North District.

In the wake of widespread ruin, volunteers gathered at Standard Hall on the corner of Thirteenth and Michigan Avenue, one of the few remaining buildings in the city. The purpose of the gathering was, according to the 1871 Records of the Proceedings of the General Relief Commission, "threefold: to perfect arrangements to distribute food to the suffering, to organize a citizens patrol for duty, and to secure the immediate restoration of the business portion of the city" (Andreas 1884a; Pierce 1933). As monetary donations and gifts in kind flowed into Chicago, Mayor R. B. Mason issued a proclamation "... deem[ing] it best for the interest of this city to turn over to the Chicago Relief and Aid Society [CRAS] all contributions for suffering people in this city" (reprinted in CRAS 1874: 121). The Chicago Relief and Aid Society, a voluntary charitable organization of local elite citizens became the primary provider of public disaster aid services to Chicago and the recipient of all donations sent to the city for the public aid effort.

Before the fire, the Chicago Relief and Aid Society was one of many voluntary associations, fraternal societies, and charitable institutions operating in Chicago.⁸ These societies were exceptionally diverse in the purposes they served and the composition of their memberships. Selectivity was common among both mutual aid societies and charitable institutions of the period, as was distinguishing between the deserving and undeserving poor

⁸ Fraternal societies such as the Knights of Pythias, Ancient Order of Good Fellows, the Independent Order of Sons of Malta, and B'nai B'rith supplied mutual aid to their members. The latter organization, for example, had 584 members living in Chicago when the fire destroyed the city, and they could draw on a national network exceeding 25,000 members, 2,500 of whom lived in the tri-state area (Andreas 1884a). Some associations were selective based on ethnicity, such the Society for the Protection and Aid of German Immigrants, and most mutual aid societies were composed generally of members of the working class population (Andreas 1884b). By 1871, apart from the Chicago Relief and Aid Society, the two other important social agencies were the Chicago Orphan Asylum and the Home for the Friendless. See Brown (1941: viii).

(Beito 2002). Notably, however, while most fraternal societies discriminated along racial or ethnic lines, the Society's efforts were distinctive in two respects. First, the Society's efforts were directed toward aiding members of the general public, not providing mutual aid only to those with paid memberships. Second, the Society's constitution and bylaws did not restrict membership based on race or class distinctions.⁹

The Chicago Relief and Aid Society sought to provide temporary aid to the "industrious and deserving poor" who, "overtaken by sickness, accident, the loss of employment, or the destruction of property, fall behind" (CRAS 1874: 122). At the time, Cook County's poor relief activities consisted mainly of operating an almshouse and an insane asylum. The county agent's "outdoor relief" offered small subsidies to the very poor under a system that often was unsystematic and irregular (Brown 1941). After the county discontinued "outdoor" relief in 1848 and again 1851, the Society was founded with the purpose "to afford temporary relief to the destitute" and "rendering timely counsel and assistance to deserving but indigent persons...without limiting itself to any one class in the distribution of its charities" (CRAS 1874: 126). Established in 1850, the members believed that in a "domestic emergency, charity, judiciously and opportunely administered, will in many instances rescue them from permanent pauperism and save the family from being broken up" (CRAS 1874: 122).

On the afternoon of October 10th, notices were posted around the burnt areas announcing that all public buildings were open for shelter to those in need. The members of the General Relief Committee, a government body that included the Mayor of Chicago, an alderman, and private citizens representing each of the city's main divisions, signed the

⁹There is no evidence to suggest that the Chicago Relief and Aid Society ever had black members; however, no provisions banned black, Indian, or any other race outright. This is exceptional given that, as Beito (2002) reports, most fraternal organizations did not permit non-Caucasian members. For example, of the 386 organizations in Connecticut in 1891, 97.6% barred blacks from membership (Beito 2002: 45).

declaration (General Relief Committee Poster 1871). However, the governing of municipal relief by the alderman and representatives was short lived. On October 13th, Mayor Mason handed over relief efforts to the Chicago Relief and Aid Society, making it the primary provider of relief services to Chicago and the receiver of all aid donations sent to the city.

The jurisdictional landscape of the United States in the late 19th century was characterized by four tiered levels of government: federal, state, county, and city/municipal. The locus of fiscal exchanges that funded the general relief effort after the fire were between private individuals, businesses, and dispersed municipal governments. Public bodies and private organizations were rivals in generosity. Decisions to contribute came from independent centers of power, each with the ability to operate in accordance with their established rules and scopes of authority. In other words, aid financing was horizontal in nature, neither extending upwards nor downwards along an organizational hierarchy.

On the expenditure side, exchanges occurred between the Mayor of Chicago, the Chicago Relief and Aid Society, community groups and charitable associations, and Chicago residents. Given the federal organizational structure of nested, general-purpose jurisdictions of the United States, this was a comparatively decentralized means of administering disaster relief. A much more “top down” approach was possible. The federal government could have intervened to supply disaster relief through federal financing and/or military action. Similar functions and authority could have been exercised at the Illinois state level. In both of these cases, the directional nature of authority would have been from the top down to the community level. Alternatively, authority could have been delegated upwards from the local level of the mayor’s office, as was the case with security when the mayor called in federal troops and declared martial law – an unpopular decision that ultimately was rescinded

(Sawislak 1995: 59).¹⁰ With disaster aid, the situation was different. Authority over the general relief effort came from a group of citizens with a history of providing such services to in the community.

When the financing and expenditures after the Chicago Fire are viewed in concert, disaster relief was more horizontal and polycentric than vertical and monocentric in structure. Competition and contract governed relationships among local public authorities and private associations rather than command and control from the top down (Ostrom 2010). As such, the process of disaster relief was one where the individuals holding power were constrained to act in accordance with a previously adopted set of rules designed to meet the interests of the individuals they govern.¹¹

To understand the performance of this bottom-up relief effort, I rely on evidence collected from primary source materials and historical accounts. First, data on every donation made to the general relief fund after the Chicago Fire were collected from the Chicago Relief and Aid Society's extensive annual reports, now located in the Library of Congress. These reports detail all of the donations sent to fund public aid efforts in the aftermath of the disaster and how the society dispersed the funds. Public records and official documents confirm the reported aggregate level of donations (Chicago Public Records 1881; Andreas 1884b; Sawislak 1995), but no one has yet examined the data at the micro level to understand

¹⁰ General Sheridan had troops present in Chicago from October 11th through the 23th. Before the arrival of Sheridan's 600 troops, public safety and policing were provided by 1,479 police officers, volunteers, and reserve troops from neighboring militias and 450 "merchant police" – private guards and watchmen employed by railroads, hotels, and banks. Police commissioners Thomas Brown and Mark Sheridan argued that the mayor should leave public safety to those "thoroughly acquainted with the character of the people" (Thomas Brown testimony quoted in Sawislak 1995: 55). The mayor however, chose to delegated authority to General Sheridan, while ordering him to refrain from "interfering with the functions of city government" (Colbert and Chamberlin 1871: 498). Sheridan then exercised martial law, extended his powers arbitrarily to enforce price controls, and issued a strict curfew to take effect at sundown. Sheridan ordered his men to fire on any person who disobeyed an order (Sawislak 1995: 57). Martial law quickly unraveled after Sheridan's troops killed a local prosecuting attorney, Thomas Grosvenor, who walking home after dark on October 20th, 1871 (Sawislak 1995: 59).

¹¹ Self-governance systems are those where the individuals holding power are constrained to act in accordance with the rules adopted by and preferences of the individuals they govern (Ostrom, Tiebout and Warren 1961). See (Lemke 2012) for a similar description of the jurisdictional landscape of nineteenth century America as polycentric.

donor types and the structure of contributions. The Chicago Relief and Aid Society's reports include the names of donors, the amounts of their contribution, the dates on which the Society received the contribution, and the donor's geographic location. I code these data for descriptive characteristics of the donors as individuals, businesses, municipal government collections from citizens' voluntary contributions, municipal government pledges of tax receipts on the behalf of mayors, clubs, churches, and private associations.

Second, the Chicago Relief and Aid Society filed accounting records and reports, allowing for a comprehensive account of how the organization allocated relief funds. These records include the amount given to particular organizations, firms, and individuals and often specified the intended use of the aid. I collect these records and code them to examine the pattern by which relief disbursements were made and the types of spending projects undertaken. In addition, I draw on records, diaries, newspapers, and historical accounts to provide a rich picture of how relief operations functioned. Because the fire destroyed nearly all of Chicago's public records, notable limitations exist in the data before 1871.¹²

4. Aid contributions

As the flames of the fire were still burning on October 9th, news of the Great Fire spread across the country. The mayor's office immediately began receiving telegraphs expressing sympathies, pledging relief funds, and offering to supply goods and services. Municipal governments across the country held meetings, many in immediate response to the news of the fire. A telegram from the mayor of Philadelphia, for example, says that "...the city of Philadelphia instantly responds by authorizing one hundred thousand dollars, raised in one hour at a meeting of the citizens held at the mayor's office" (CRAS 1874: 27). In Manchester,

¹² According to Brown (1941: ix), "an inventory of the country archives of Illinois made in 1915 listed a few volumes of Cook County records which survived the fire, but these have now disappeared from the county commissioner's vaults".

New Hampshire the “citizens in a mass meeting this evening ...unanimously approved the sum of fifteen thousand dollars” (CRAS 1874: 27).

In addition to local governments, meetings of all kinds of voluntary associations occurred in the immediate aftermath of disaster and enabled the groups quickly to gather funds for relief. For instance, “At a special meeting of Walworth Hose Association of Saratoga Springs, held Tuesday evening October 10th, 1871, it was unanimously resolved to appropriate...aid for the sufferers of Chicago” (CRAS 1874: 50).¹³ That same day, “At a meeting of Apollo Lodge, No. 13...held last evening, it was unanimously resolved that the sum of one hundred dollars (\$100) be donated to the relief of the Chicago sufferers” (CRAS 1874: 50). Most voluntary groups secured the consent of their members for contributions. Theater groups pledged the proceeds of their shows to the Society, women’s groups took up collections, and labor unions solicited member contributions.

Businesses quickly summoned their board members to agree on contributions. The president of the Board of Trade and Corn Exchange in Montreal telegraphed on the 10th indicating that their members “have made a beginning by subscribing ten thousand dollars.” (CRAS 1874: 31). The next day, telegrams such as those from the treasurer of the New York Produce Exchange came coupled with checks, “I have this day forwarded to you for the sufferers of your city, by American Merchants’ Union Express, fifteen thousand dollars (\$15,000) as a part of the subscription by members of the New York Produce Exchange. Will forward again as soon as I can make collections. I now have thirty thousand dollars (\$30,000) subscribed” (CRAS 1874: 50).

¹³ As mentioned previously, many of the donations were raised in conjunction with mutual aid payments for the members of networked organizations. For example, on October 11th, the *San Francisco Chronicle* published letters received the previous day from the Fraternal Order of the Odd Fellows of Chicago. Alongside the correspondence were statements describing their fundraising efforts, such as “Lodge 124 took the initiative step at its meeting last night, and appropriated five hundred dollars to their relief fund for the Chicago Odd Fellows” (*San Francisco Chronicle*, Oct. 11, 1871: 3). These records are consistent with Mancur Olson’s (1965) byproduct theory of collective action, whereby groups organized for some other purpose (mutual aid, here) can be redirected to supply other public goods at relatively low cost.

[Table 1]

Table 1 summarizes donation amounts over time following the October 1871 fire. The data include 1,555 unique contributions, originating from 794 distinct jurisdictions, totalling \$3.78 million in domestic contributions and \$1.02 million from foreign sources. All data are in nominal dollars. Most foreign donations arrived within the first month after the fire. Ninety-eight percent of total donations were made within the first year of the fire, tapering off over the next six months.

[Figure 1]

Figure 1 supplies a closer look at the public and private domestic donations received by the Relief and Aid Society in the immediate aftermath of the disaster. The Chicago Relief and Aid Society's records began on the date they officially took charge of the aid efforts, October 14th. The organization did not record donations on Sundays. Domestic donations given in the first 20 days following the fire totalled \$1.4 million. Foreign donations arriving within the same period amounted to \$1.02 million. Fifty percent of total donations arrived in the first two weeks following the disaster and 68% of total domestic donations arrived before the end of the year. Coupling business contributions with those made by individuals and voluntary associations, US individuals and businesses donated \$2.16 million – accounting for 57% of total domestic aid. Of the \$4.8 million in total donations made to finance public relief efforts, \$3.7 million originated domestically – from municipal governments, businesses, individuals, and voluntary organizations. Table 2 summarizes the types of donors contributing to the Chicago general relief effort from 1871 to 1873 and the totals of their respective contributions.

[Table 2]

Perhaps the most significant feature of this bottom-up approach to financing relief is the responsiveness of funding to the demand for aid. As the relief efforts were underway, donations began to decline (See Figure 2 above). As early as February 1, 1872, the president and chairman of the executive committee of the Chicago Relief and Aid Society issued a statement to the press indicating that the organization had enough resources in hand to carry out the relief efforts and, in effect, stating that additional funds would not be needed.¹⁴ After the summer of 1872, revenues into the general relief funds dropped off substantially. The Society closed the Special Relief Period in May of 1874, with a remaining balance of \$581,328 on its books (CRAS 1874: 440). Historian James Brown (1941: iv) concludes that,

the total amount contributed was more than ample to meet the actual disaster needs, the surplus being used to strengthen existing social agencies. The financial stimulus and prestige resulting from the handling of this large job left the Chicago Relief and Aid Society as the dominant force in the field and for the next few years the county's rôle was a minor one.

After the Special Relief Period ended, the Chicago Relief and Aid Society gradually returned to operating in a manner consistent with its charter and pre-fire charitable operations.¹⁵

5. The relief effort

The initial conditions of the Chicago Fire were chaotic. Nonetheless, members of the city council, board of trade, Chicago Relief and Aid Society, medical doctors, and prominent citizens met in the Congressional Church on the afternoon of the 9th and formed a General Relief Committee. The next day elected officers met to organize relief efforts in relation to

¹⁴ “The continued donations since our last report, together with the twenty days of mild weather in January, enable us to say that the resources of the Chicago Relief and Aid Society will meet the wants of the present winter. By resources we mean not only what we have actually received, but various sums of which we have been advised....We regard it as a duty to make this announcement the earliest day that it could be made with reasonable assurance of its correctness. We can also say that there will be enough to make temporary provision for our charitable institutions whose resources were cut off by the fire” (CRAS 1874: 140; *Chicago Tribune* 1872).

¹⁵ The panic of 1873 led to demands from unemployed workers for the Society to distribute the remaining balance for work relief. The Society responded by extending their operations to aid 9,710 families, some of who were listed in the records as fire victims (see Brown 1941: 119).

the most obvious and pressing needs (Records of the Proceedings of the General Relief Commission 1871; CRAS 1874: 118).

As the fire was still smouldering, officers of major rail companies made their lines available for use in the aid efforts. The president of the Erie Rail Road wrote to Chicago on October 9th informing city officials of the availability of a fleet of rail cars at their New York depot ready to “receive and forward, free of charge, on fast train...all contributions which the citizens of New York may contribute in aid of the sufferers” (CRAS 1874: 27). Schoolhouses, churches, and all available public buildings were opened immediately to the public as temporary housing for all who had nowhere else to go.

By Thursday, October 12th, the General Relief Committee reported, “every person rendered homeless by the fire was placed under shelter and supplied with food last night” (General Relief Committee; reported in CRAS 1874: 119). It is not plausible the alderman issuing the statement actually knew whether everyone was housed and it was likely not the direct result of coordinated effort on the part of the General Relief Committee or the Society. Private residents of Chicago with homes still standing took in people needing emergency shelter and various public buildings and structures outside the city were made available for housing the homeless. Joseph and Elizabeth Hudlin, for example, were an African American couple whose home escaped the fire. They provided refuge to both white and black neighbors needing housing, opening their five-room cottage to house five families after the fire (Reed 2005: 188).

On October 12th, the Mayor of Chicago declared that “the Chicago Relief and Aid Society be adopted as the means of distributing the food and supplies received for the suffering” (CRAS 1874: 119). Officials issued a public proclamation the next day, citing the Chicago Relief and Aid Society as “an incorporated and old established organization, having

possessed for many years the entire confidence of our community, and is familiar with the work to be done” (Chicago Tribune October 12th, 1871; CRAS 1871: 15-23, 1874: 116-121). On October 17th, the Chairman and Secretary of the General Relief Commission wrote to the Chairman of the Chicago Relief and Aid Society, indicating that it had “discontinued any official action and have since referred all official matters” to the Chicago Relief and Aid Society (CRAS 1874: 120).

The decision on the part of Mayor Mason to entrust the general relief contributions to the Chicago Relief and Aid Society was self-serving. The Mayor of Chicago is elected by popular vote and was responsible for appointing the Fire Commissioner. He faced a choice after the fire between backing the General Relief Committee, comprised of local alderman, or the Chicago Relief and Aid Society, comprised of local businessmen. Having already made a widely unpopular decision to impose martial law and then withdrawing that order, the mayor was in no position to risk losing further political support. On top of the poor quality of the public relief institutions, two major scandals involving public mismanagement of funds, graft, and patronage surfaced the year before the fire (Sawislak 1995: 83). The local aldermen themselves were facing upcoming municipal elections, and giving the funds to them would provide little benefit to the mayor. By giving the money to the Chicago Relief and Aid Society, he garnered support from business elites before his upcoming re-election campaign and utilized a group that could be scapegoated as not publicly accountable after the fact, should the relief effort turn out to be unsuccessful.

During the first few days following the fire, few means were available for rationing aid in the form of the in-kind donations coming into the city. Abundant supplies were arriving by train, with “first come, first served” as the primary means of distributing goods to those in immediate need. The Society soon organized relief efforts by establishing committees for transportation, housing, food and clothing distribution, employment, charitable organizations,

and medical aid and appointing chairs to oversee operations. A member of the Society who had extensive knowledge of the type of work he was assigned to supervise headed each of the committees (CRAS 1871, 1873; Andreas 1884b). Committee leadership by key people in the relevant industries allowed the Society to leverage industry-specific networks, supply chains, and pre-existing local knowledge of the relevant industries.

George Pullman and Charles G. Hammond, prominent figures in the railroad and shipping industries, directed the transportation committee by working with the railroad companies to make accommodations for thousands of people seeking to evacuate the city (CRAS 1873; Andreas 1884b). In the immediate aftermath of disaster, railroad companies allowed thousands of victims to travel on the rails free of charge (Andreas 1881b; CRAS 1874: 180). Once the relief effort was underway, the Society rationed railroad passes and later paid passenger fares. From October 13th to October 31th, the Society issued rail passes allowing more than 7,000 persons to evacuate, thus permitting families not willing or able to remain in the city to relocate to the homes of friends and relatives elsewhere (CRAS 1874: 182).¹⁶

Between October 1871 and May 1, 1873 the Society aided in the evacuation of 39,242 families (156,968 persons), supplying an average of \$96.50 in aid. Figure 2 shows that from 1867 to 1870, the Chicago Relief and Aid Society aided between 1,363 and 1,560 families per year, dispersing \$23 to \$27 dollars in aid per family, on average (CRAS 1874; Nelson 1966: 55). Unsolicited contributions collected from 1871 to 1872 yielded a 320% increase in aid provided to needy families, 27 times as many as had been helped before the fire.

[Figure 2]

¹⁶ Estimates published in Andreas (1884b) suggest that about 15,000–20,000 people evacuated Chicago in the first few days after the fire.

The Society aided thousands more through donations of clothing, food, and household necessities. In-kind aid to a family of five consisted of a substantial weekly ration of fresh and dried meats, flour, potatoes, fruit, tea, sugar, rice, and soap.¹⁷ Added to this was a monthly coal ration capable of heating a home adequately. Over the year and a half, the Society distributed nearly 1.2 million pounds of flour during the relief effort and twice as much beef (CRAS 1874; Andreas 1884b).

Most of the victims of the fire lost all of their personal apparel and household goods. In the first week, more than 330 rail cars brought donations of clothing, goods, and supplies into Chicago from all over the northeast, shipped free of charge by the rail companies. Donations of garments that came into the city most often were second-hand summer clothing – insufficient for the approaching winter months. The Society worked closely with volunteers and employees from local women’s associations to create depots in key locations in each of Chicago’s neighborhoods. Women stitched together donated clothing such that it would be suitable for the winter – bed comforters, linens, and other articles from the items donated to the Society. During the relief effort, the Society distributed in excess of 450,000 pieces of suitable clothing for men, women, children, and at least 77,000 pairs of shoes.

The Society approved 9,962 of the 16,299 applications received before May 1, 1873 for specific allocations of capital, tools, and machinery. They gave priority for allocating aid to women and children, many of whom made a living prior to the fire as seamstresses, supplying them with as many as 5,299 sewing machines (CRAS 1874). The Special Relief Committee granted funds to assist applicants in re-establishing a previous business and gave tradesmen tools and instruments to enable them to take up work they had done before the fire.

¹⁷ Three pounds of pork, six pounds of beef, 14 pounds of flour, 1¼ peck of potatoes, ¼ pound of tea, 1½ pounds of sugar, 1¼ pounds of rice, 1¼ pounds of soap, 1½ pounds of dried apples, and three pounds of fresh beef (CRAS 1874: 160).

During the relief period, the Society spent a total of \$437,458 aiding residents of Chicago with capital allocations to rebuild their small businesses.

One of the most significant aspects of the Chicago Relief and Aid Society's efforts was housing the homeless. The first order of business was to erect barracks, each family having two rooms furnished with cooking utensils, other necessities, and bedding. Just more than a week after the fire, the Society began a large-scale housing effort to construct new single-family residences for those who had lost their homes. The Society made arrangements and secured the resources for two types of basic homes, one for families of three persons and one for families of more than three persons, who either owned or rented their homes prior to the fire. The majority of applicants were working-class families who received the raw materials from the Chicago Relief and Aid Society and constructed the homes themselves. Committee volunteers built homes for widows, the elderly, or the infirm. Each house came equipped with a stove, crockery, utensils, a table, chairs, a bed frame, and bedding. Within a month, the committees used 25 million board feet of lumber to build 5,226 of these single-family homes, providing housing for 25,000 to 30,000 people. By 1873, the RAS had supplied the resources for the production of an estimated 8,000 cottages (CRAS 1873: 185-88, 192-194, 272-280; Chicago Tribune, October 9, 1982).

Fire damage was concentrated geographically in the Northern division of the city. That area was home to German, Scandinavian, and Irish immigrant populations, while native-born satirists termed it "the *Nord Seite*" (Sawislak 1995: 76). Local journalists concluded that "our German fellow citizens suffered the worst" and the first after-fire issue of the *Straats-Zeitung* – a German paper with national distribution – detailed the plights of particular German shopkeepers from the North Side (Sawislak 1995: 76).

Like many rapidly growing urban areas of the time, tensions existed between immigrant and native-born populations. In Chicago, some historians believe that “the native born...exploited the immigrant Irish, Scandinavians, and Germans, with the hope of building vast, or at least moderate, fortunes” (Nelson 1966: 54). In the case of the distribution of aid, however, relief records and historical accounts indicate that aid did, in fact, reach those populations most in need. Of the 18,478 families who received aid by mid-December, only 1,965 were of native birth, and “eighty-nine percent of the applicants to official relief agents were thus part of the immigrant population” (Sawislak 1995: 79).

Table 3 shows the distribution of total aid by population in relation to the pre-fire demographics. The native born made up just over half of the pre-fire population, but the immigrant populations most prevalent in the North Division received the most aid. German immigrants were the largest ethnic concentration, 18% of the pre-fire urban population, yet they received 38% of the total aid distributed. Similarly, Irish populations comprised 12% of the pre-fire population and received 30% of aid. The African American population was concentrated primarily in the Southeast of the city, which experienced some damage from the flames. According to historian Christopher Reed (2005: 187), “The African American community suffered, but in regard to physical damage, it suffered disproportionately less than the rest of the city.”¹⁸ Nonetheless, the African American 1% of the city population before the fire received 2% of the aid administered by the Chicago Relief and Aid Society. Moreover, in 1875, the city council investigated a complaint concerning the Society’s methods of administering relief. The committee “found no evidence of partiality or prejudice on account of nationality of religion” and concluded, “the whole business had been faithfully

¹⁸ Evidence from historian Christopher Reed, a specialist in African American experience in twentieth century Chicago, seems to confirm the fact that the Chicago Relief and Aid Society did not discriminate against blacks when making aid distributions. On July 14th, 1874, another fire broke out in Chicago, this time destroying many houses in the African American community. Reed (2005: 190) reports that, “With alacrity, assistance was forthcoming, with the Chicago Relief and Aid Society providing cash and other help.”

and wisely administered” (CRAS 1875: 6; also Brown 1941: 119). The most vulnerable populations, compared to the native-born residents, received more aid.

[Table 3]

The Society extended the reach of its operations by coordinating efforts and producing relief services with a variety of local voluntary associations. A letter from the Good Samaritans association published by the *Chicago Tribune* in March of 1872 acknowledges the contributions of the Chicago Relief and Aid Society as among the most significant donations that allowed the organization to aid 4,975 individuals. The public announcement included statements indicating that, “applications for aid have been received from all classes of people. Special attention has been given to those persons who have not applied elsewhere; to those who have applied elsewhere and whose need have been overlooked or disregarded” (*Chicago Tribune* March 11, 1872).

By redistributing supplies and resources to other aid organizations, the Society utilized groups with specific knowledge of needs within the community. Initial lump-sum appropriations of \$329,900 were distributed to local hospitals, orphanages, and groups caring for the sick, homeless, and elderly (CRAS 1872: 14-15). The Society continued to make lump-sum appropriations for these organizations and, by 1876, had dispersed \$617,810 in aid (CRAS Eighteenth Annual Report 1875: 18-19; Brown 1941: 115). In almost every case, the organization receiving the aid contracted with the Society to guarantee it the right to provide a specified number of beds.

The Society facilitated medical treatment by financing home visits, local hospitals, and dispensaries. It began by appointing a medical superintendant to each sub-district of the city. Each superintendent established an office wherever possible in the sub-district assigned, served as a coordination point for volunteer and paid physicians, and was responsible for

keeping medicine on hand to administer to the health needs of the local community (CRAS 1871: 23). In addition, the Society established six medical dispensaries within the first months after the fire: one in the North Division, three in the West Division, and two in the South (CRAS 1871: 24).

Physicians made house visits and reported their work to the superintendent who kept records. From October 17, 1871 to May 1, 1873, the Society treated 89,724 patients, filling 76,660 prescriptions and administering treatments for ailments such as bronchitis, cholera, diarrhea, rheumatism, and fever (CRAS 1874; Andreas 1884b). In addition, the six medical dispensaries provided 63,933 free smallpox vaccinations as a public health initiative to prevent an outbreak (CRAS 1874; Andreas 1884b).

The Chicago Relief and Aid Society was capable of coordinating an expansive relief effort. The voluntary association effectively clothed and housed the city's homeless, supplied rations to struggling families, facilitated mobility in and out of the city for goods, services, and families needing to relocate, provided free vaccinations for 20% of the population, and worked with local charities and employers to find work for the unemployed. By the winter of 1873, 86.5% fewer families were receiving relief from the Society, having found employment and the wherewithal to support their families (Figure 2 above; Andreas 1884b).

6. The institutional rules governing bottom-up disaster relief

The aid operations of the Chicago Relief and Aid Society involved an “enormous and unprecedented organizational effort” of coordinating private inputs into the production of disaster relief (Sawislak 1995: 82). Managing the distribution of goods was complex, requiring experience with context-specific production and distribution chains. The Society noted the exceptional nature of their endeavour, explaining that, “the distribution of millions of dollars among seventy five thousand persons...is a problem upon which experience throws

little light” (CRAS Special Report: 30). Yet, despite the complexity of the environment, historian Karen Sawislak (1995: 91-92) reports that the Chicago Relief and Aid Society “transformed itself into a social welfare giant” in the space of a few days and the “commercial magnates who ran the Society excelled at meeting precisely this type of challenge.” One month after the fire, an article in the *Overland Monthly* stated that the ongoing relief effort in Chicago was “as thoroughly systematized as the business of any commercial house of the city” (Sawislak 1995: 92).

The successful relief effort following the Chicago Fire, I argue, is consistent with both of the two general hypotheses regarding the effectiveness of bottom-up disaster relief. First, the leadership of the Society had a history in the community, established experience with specific industries relevant to supplying relief, and a clear stake in Chicago’s commercial future. Second, the Society’s organizational constitution (see Appendix 1) outlined the principles for governing aid and guided the rationing of contributions according to general criteria. The Society then utilized broad cross-sections of the local population for distributing aid and monitoring aid disbursements for fraudulent claims. These rules were congruent and applicable to governing the allocation of aid and the particular tasks relating to the post-fire conditions. I consider each of these claims in turn.

6.1 Hypothesis 1: relief leaders as stakeholders

Managing relief efforts successfully requires solving the problems of leadership and internal governance. At the time of the fire, Cook County’s administration of poor relief consisted of operating an almshouse, an insane asylum, and making disbursements of outdoor relief. There was one warden for the almshouse and the insane asylum and the operating budgets of both were lumped together into one financial statement. During the relief period, the annual

amount spent by these institutions was just under \$70,000.¹⁹ A board of county commissioners elected all county officers. According to Brown (1941: 84), “the selection of persons to fill these positions was made not on the basis of qualification, but rather as a reward for political services rendered.” Minor employees of these institutions were appointed directly by the board, which meant that the head of these institutions did not have authority to hire and fire his subordinates, “with the natural result that there was little discipline” (ibid.: 85). In examining these public institutions, historian James Brown (ibid.: 127) documents the “inefficient methods of administration” that were “poorly adapted” to administering relief. He (ibid.: 126) concludes that, “there can be no questioning of the fact that public ‘outdoor’ relief was poorly and sometimes dishonestly administered.”

In terms of practical experience, the Society was suited to the task of providing widespread relief “in ways the city government decidedly was not” (Sawislak 1995: 82). The population of Chicago shared a recent history and common identity as Chicago residents, even though half of the population were immigrants of different backgrounds and despite socioeconomic disparities.²⁰ Media reports and narratives of the fire spoke of a common bond uniting Chicagoans in the wake of the terrible ruin. As for the members of the Society, each had made fortunes in Chicago, suffered business losses as a result of the fire, and all could reasonably have expected to share in the future prosperity of the city. The men who composed the Society’s executive committee were men for whom reputations were important amongst one another as well as with the public of Chicago. They had long time horizons and large stakes in the city’s recovery. If costly investments were necessary to ensure an urban

¹⁹ The annual figures for the almshouse and the insane asylum are from 1871. The amount spent on outdoor relief in 1873 was \$170,000, but there are no data available for 1871. See Brown (1941: 81, 120).

²⁰ For example, historian Christopher Reed (2005: 189) reports that African Americans in Chicago “demonstrated a high sense of civic awareness and commitment during the fire. Their efforts persisted in the aftermath of the conflagration and their concern for their fellow citizens and public and private property moved their recognized level of citizenship to a higher level than just being disinterested, self-absorbed citizens.... African Americans now proposed to more fully participate in civic affairs as part of their civic duty.”

rebound, the members of the Society had good reason to incur those costs – their reputations and private fortunes depended on it.

The board of directors of the Chicago Relief and Aid Society was a small, homogeneous group of 21 members drawn from the local business, cultural, and religious community. The executive committee was even smaller, comprised of a subset of 10 members. Every member of the Chicago Relief and Aid Society's board of directors earned his livelihood directly from businesses in Chicago, and all of them were key figures in the major industrial, health, and religious life of pre-fire Chicago. Each had extensive experience and considerable specialized knowledge about operating large firms and social organizations within the community. Strong reputations and personal financial stakes in Chicago's recovery from disaster gave the members of the Society meaningful responsibility over the relief effort. At the outset, members worried that "mid-winter might find us with our treasury bare...and with a city full of poor looking to us for food and fuel" (CRAS Circular, October 24, 1871). Their collective deep interest in the community's welfare created strong incentives for Society members to care about the outcome of their efforts. In comparison, "those who were regarded as the community's authorities in the field of social welfare were content to hold themselves aloof and disclaim all responsibility, rather than to offer the leadership which might have led to improvement" (Brown 1941: 126).

Practical knowledge of the transportation, housing, and shipping industries was of great importance, as was knowledge of local networks of physicians, community leaders, and aid societies. For example, T.M. Avery and T.W. Harvey were chairs of the Shelter and Housing Committee and both had extensive experience in the lumber industry. T.W. Harvey acquired his lumber company after buying out the interests of his partner in 1865, and, "until now[,] there are few if any more extensive lumber dealers in the world" (Andreas 1884a: 373). After the fire, Harvey's firm incorporated in Chicago, remaining profitable as Harvey

took positions in other local lumber companies. Both men had established knowledge of the lumber trade, were members of the Chicago Lumberman's Exchange, possessed intricate knowledge of local supply routes, and had established relationships with vertically related shipping and receiving companies (Industrial Chicago 1894: 88). These men played vital roles in securing lumber for immediate construction of homes and buildings after the fire.

Murry Nelson oversaw the distribution of donated goods, while Marshall Field sat on the governing board of that committee. Nelson had similar experience throughout the Civil War, coordinating the shipping and receiving of goods such as “vegetables, clothing and sanitary stores” (Andreas 1884a: 348). After the fire, Nelson relied on that experience to make decisions on the fly. For example, Nelson transformed a local skating rink into a frost-proof building and divided cellars into space for storing perishable goods (Andreas 1884b: 605). Marshall Field, on the other hand, was owner of the prominent dry goods retailer Marshall Field & Co., which burnt to the ground by the fire. Immediately afterward, Field resumed selling his goods from an old horse-railway barn spared by the fire (Andreas 1884a: 695). He began rebuilding his business at the same time, both at the original retail location on the corner of State and Washington streets and a new wholesale house at Madison and Market streets. The wholesale operation opened first in March 1872; the retail location followed in 1873 (Andreas 1884a: 695).

The leadership of the Chicago Relief and Aid Society had a history in the community, established experience with specific industries relevant to supplying relief, and a clear stake in Chicago's commercial future. These features of the relief effort are consistent with the two theoretical hypotheses for effective bottom-up resource management and appear to have proven effective in Chicago.

6.2 Hypothesis 2: the Chicago Relief and Aid Society's constitutional rules

To ration relief aid, the Chicago Relief and Aid Society relied on an established organizational constitution specifying the conditions for disbursing aid. These rules clearly identified who had rights to withdraw resources from the common pool of aid funds and specified the criteria recipients had to meet to be eligible for receiving aid. Established bylaws spelled out the role of the executive committee and defined how decision-making authority worked within the organization. Thirteen constitutional rules outlined how the Society allocated, authorized, and accounted for the distribution of resources in the everyday course of operating its charitable function.

The Chicago Relief and Aid Society's constitution explicitly recognized the strategic dilemma of giving aid and adopted rules to mitigate moral hazard problems and limit potential free riders. Established in 1850, the rules of the Society reflect a decidedly individualist ideology (Sawislak 1995: 89). The first rule stipulated the scope of the organization's aims, stating that

The object of this Society is to aid such of the poor as through sickness or other misfortune require temporary assistance. The permanently dependent are not regarded as proper subjects, because if they should be relieved, the entire funds of the association would soon be exhausted in the support of a permanent list (Rule 1).

Although the Society established a criterion for who were to be considered "deserving" poor, the constitution was general in that "each applicant for relief is regarded as entitled to charity until a careful examination proves the contrary" (Rule 2). Nonetheless, it imposed strict limits on general aid. Rule 5 insisted that relief "be discontinued to those who manifest a purpose to depend on alms rather than their own exertions for support". These rules excluded "destitute persons sent from other cities" and "able-bodied men" (Rules 6 and 7). The former would be sent back to their previous residence and the latter "will be furnished employment directly by the Superintendent, or sent to reliable employment agents, which whom the Society cooperates". Finally, the constitutional provisions stipulated that the Society would not

directly aid applicants making claims on other charities (Rule 8). All of these rules worked to identify who the Society would supply aid, in what forms and for what durations. In effect, these rules were explicitly concerned with avoiding the well-known moral hazard and free rider problems associated with administering aid.

The Society's rules for administering aid in normal circumstances were particularly well suited to the post-disaster context. The strong, pre-established principles for rationing aid provided a readily available, general framework for managing a crisis period when moral hazard and free-riding problems would be most severe. Without criteria for determining who should receive aid and in what manner, volunteers dispersing aid would face a greater likelihood of misallocating resources to people who had not been victimized and would have had no basis for prioritizing claims. The Society stipulated that persons seeking aid from outside the Chicago area be sent to their former residence because freely giving aid "would be offering a premium to other cities to send their poor to us to be supported" (CRAS 1874, Rule 6: 127). This constitutional rule served to mitigate free-rider problems and define the boundaries of aid. Similarly, the rules clearly stated that aid disbursements are "to be discontinued to those who manifest a purpose to depend on alms rather than their own exertions for support", thereby limiting moral hazard in financing relief (CRAS 1874, Rule 5: 127). Finally, to minimize duplication of services and deter free riders, the Society established a procedure whereby "applicants having claims on other charities are to be furnished with a card directing them to the same" (CRAS 1874, Rule 8: 127).

In the post-disaster context, rules are necessary for establishing expectations about how relief organizations will allocate resources to victims. When the numbers of potential appropriators are substantial and the demand for common-pool resources strains available supplies, these pressures are likely to shorten potential beneficiaries' time horizons. The catastrophic and unexpected nature of natural disasters means that people are more likely to

treat such situations as one-shot prisoners' dilemmas wherein the dominant strategy for each player is to attempt to over-consume the available resources.

Chicago Relief and Aid Society workers awarded aid to applicants based on how well they fit the pre-existing criteria in light of recommendations by the applicant's peers and associates. The second and third rules in the constitution established a procedure whereby each applicant for relief was to be "regarded as entitled to charity until a careful examination proves the contrary" and that aid was to be accompanied by "a personal investigation of each case by visitation and inquiry (CRAS 1874, Rules 2 and 3: 127). The Society processed applications for housing and other aid by relying on members of the community familiar with the claimant. Letters from local merchants or the applicant's co-religious adherents typically accompanied applications to validate claims.

For example, Lawrence Saddler applied for materials to aid in the construction of a shelter home. His application included information about himself as a skilled tailor, head of a family of six, and owner of the land where he wanted to construct a temporary shelter while he arranged to rebuild a permanent home. Saddler was a successful applicant because letters from reputable associates within his community accompanied his request for aid. Local merchant T.F Phillips wrote to the Society that he had known the man for 15 years and that Saddler was "an honest, upright man and worthy of credit and confidence" (CRAS Saddler Correspondence 1872c). The Society also received a letter on Saddler's behalf from his pastor, Reverend J. Cate, vouching for his losses in the fire and stating that "he greatly deserves to be helped in starting his business" (CRAS Saddler Correspondence 1872b).

Kate Moran's application for aid provides an example of how these mechanisms proved effective. Moran submitted her application accompanied by a letter of reference from a man named John Kennedy dated February 3rd, 1872 (CRAS Moran Correspondence 1872a

and 1872b). Kennedy's letter gave "the widower Moran permission to build on my lot", describing her as a "destitute and severe suffer by the late disastrous fire" (CRAS Moran Correspondence 1872b). By February 16th, the records contain a report submitted by a visitor on behalf of the Relief and Aid Society. The report charges that Moran lied on her application, did not disclose assets from a previous sale of property and current holdings, including a new milk cow, four adult children, and three tenants residing on her property. The agent stated that she could not recommend approval of Moran's application for assistance (CRAS Moran Correspondence 1872c). In consequence, the Society rejected her application, terming the document "a perfect fraud" (CRAS Moran Correspondence 1872d).

By establishing a mechanism for monitoring and enforcement that utilized a wide cross-section of the population, the Society could take advantage of third-party information to enforce its aid disbursements. This mechanism, while imperfect, provided a credible enforcement strategy. Robust bottom-up institutions require congruence between the rules governing the provision of the resources and the particulars of the local conditions (Ostrom 1990). With claims to property and resources monitored by fellow community members, the process of dispersing aid was better able to reflect local knowledge and less subject to arbitrary decisions by decision makers far removed from the scene.

7. Conclusion

Centralized administration of disaster relief is often thought of as the only set of institutional arrangements capable of coping successfully coping with the aftermaths of large-scale natural disasters. The Chicago Fire provides a case study of a successful, bottom-up relief effort led by a private organization. Monetary donations from thousands of sources outside of Chicago funded the relief effort, were quick to arrive, and were scaled back after the recovery was underway. The Chicago Relief and Aid Society coordinated the administration of aid along functionally specific margins guided by established rules.

The implications of this case study are limited in important ways. The success of the Chicago relief effort does not imply that bottom-up solutions will always produce an effective arrangement for coping with large-scale disaster. The case study cannot answer the question of whether a centralized response would have done a better job at the time, or whether the voluntary sector could replicate this type of response today. The case also raises the question of why a federal system of disaster management would emerge on the heels of a decentralized jurisdictional landscape. Beito (2002) has argued that the rise of the US welfare state effectively crowded out private charitable organizations such as the Chicago Relief and Aid Society. While examining the case of the Chicago Fire cannot address that larger question, it can supply a deeper understanding of how bottom-up institutions worked prior to the emergence – and nearly complete dominance – of the modern centralized system.

The operations of the Chicago Relief and Aid Society demonstrate how the principles of effective self-governance worked in an unexpected, extremely pressurized social context for which there had been no precedent. The efforts of the Chicago Relief and Aid Society relied on constitutional rules governing aid, which worked effectively to mitigate moral hazard and free-rider problems. These particular normative rules governing the distribution of aid served a positive function in supplying effective criteria for managing a financial windfall springing from the very human impulse to aid the victims of a disaster beyond their control. By taking advantage of the moral sentiments and cooperative efforts of the Chicago community more broadly, the established Chicago Relief and Aid Society lowered the costs of supplying resources for the city's relief and recovery by relying on local knowledge.

Finally, municipal governments can contract – either vertically with state governments or horizontally with other jurisdictions (including private organizations, firms, and non-profits) – to supply relief goods. Centralized disaster response is more efficient than a decentralized response only when the costs of negotiating contracts to supply goods and

services demanded in the aftermath of disaster exceed the inefficiency costs of relying on centralized provision (Boettke et al. 2011). In the Chicago case, the costs of negotiating horizontally among jurisdictions did not impede disaster financing or limit the effective provision of disaster aid. Examining how multiple centers of independent authority operate to produce disaster relief provides new avenues of research for a contractual view of disaster response and assessing the comparative performance of centralized and bottom-up systems.

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Appendix I: Constitutional Rules of the Chicago Relief and Aid Society

Rule 1. The object of this Society is to aid such of the poor as through sickness or other misfortune require temporary assistance. The permanently dependent are not regarded as proper subjects, because if they should be relieved, the entire funds of the association would soon be exhausted in the support of a permanent list.

Rule 2. Each applicant for relief is regarded as entitled to charity until a careful examination proves the contrary.

Rule 3. Relief is only to be given after a personal investigation of each case by visitation and inquiry by the Superintendent or authorized visitor.

Rule 4. Necessary articles in small quantities to be given, and only in proportion to immediate need.

Rule 5. Relief to be discontinued to those who manifest a purpose to depend on alms rather than their own exertions for support.

Rule 6. Destitute persona sent from other cities should be referred to the County Agent, to be sent to their former residence. Should we undertake the support of such persons it would be offering a premium to other cities to send their poor to us to be supported.

Rule 7. Able-bodied men are not regarded as proper subjects for relief, but will be furnished employment directly by the Superintendent, or sent to reliable employment agents, which whom the Society cooperates.

Rule 8. Applicants having claims on other charities are to furnished with a card directing them to the same.

Rule 9. It is an absolute condition of relief by this Society that all persons receiving aid are not to ask alms or assistance of the public, either on the street, at residences, or places of business.

Rule 10. No loans shall be made from the funds of the Society.

Rule 11. As a rule, relief to be administered in supplies rather than money.

Rule 12. Subscribers to the funds of the Society are entitled to send persons applying to them for relief to the rooms of the Society, and will be furnished with cards for that purpose.

Rule 13. In all cases where families or personal have been aided by this Society through a winter, on account of want of employment, and are by us offered situation either in the city or country, adapted to their condition in life, with aid to reach such situations, which they refuse to accept, no further relief shall be extended to them.

References

Abou-bakr, A. (2013). *Managing disasters through public-private partnerships*. Washington, DC: Georgetown University Press.

Andreas, A. T. (1884a). *History of Chicago: from the earliest period to the present time in three volumes. Volume II: from 1857 until the fire of 1871*. University of Michigan Libraries. A.T. Alexander, Chicago.

Andreas, A. T. (1884b). *History of Chicago: from the earliest period to the present time in three volumes. Volume III: from the fire of 1871 until 1885*. University of Michigan Libraries. A.T. Alexander, Chicago.

Beito, D.T. (2002). *From mutual aid to the welfare state: fraternal societies and social services, 1890-1967*. University of North Carolina Press, Chapel Hill.

Beito, D.T., Gordon, P., Tabarrok, A. (2002). *The voluntary city: choice, community, and civil society*. University of Michigan Press, Ann Arbor.

Boettke, P., Coyne, C., and Leeson, P. (2011). Quasimarket failure. *Public Choice*, Vol. 149, pp. 209-224.

Brown, J. (1941). *The history of public assistance in Chicago, 1833 – 1893*. University of Chicago Press. Chicago, Illinois.

Buchanan, J. M., & Tullock, G. (1965). *The calculus of consent: Logical foundations of constitutional democracy*. University of Michigan Press.

Buchanan, J.M. (1972). The Samaritan's dilemma. Reprinted in Buchanan, J.M. (1977), *Freedom in constitutional contract*, Texas A&M University Press, pp. 169-15.

Büthe, T. (2002). Taking temporality seriously: modelling history and the use of narratives as evidence. *American Political Science Review*, 96, No. 3, 481-493.

Cermak, D.S.P., File, K.M., and Prince, R.A. (1994). Customer participation in service specification and delivery. *Journal of Applied Business Research*, 10(2): 90-97.

Chamlee-Wright, E. and Storr, V. (2011). Social capital as collective narratives and post-disaster community recovery. *Sociological Review*, 59 (2): 266-282, 2011.

Chamlee-Wright, E. and Storr, V. (2010). Expectations of government response to disaster. *Public Choice*, 144 (1-2).

Chamlee-Wright, E. (2010). *The cultural and political economy of recovery: social learning in a post-disaster environment*. Routledge.

Chamlee-Wright, E. and Storr, V. (2009). Club goods and post-disaster community return. *Rationality & Society*, 21(4): 429-458.

Chicago Relief and Aid Society Correspondence. (1872a). The case of Kate Moran, 1; application, 1872 (ichi-63799). Chicago Historical Museum.

Chicago Relief and Aid Society Correspondence. (1872b). The case of Kate Moran, 2; letter of John Kennedy, 1872 (ichi-63798). Chicago Historical Museum.

Chicago Relief and Aid Society Correspondence. (1872c). The case of Kate Moran, 3; report of a Relief and Aid Society visitor, 1872 (ichi-63796). Chicago Historical Museum.

Chicago Relief and Aid Society Correspondence. (1872d). The case of Kate Moran, 4; rejection of application, February 26, 1872 (ichi-63797). Chicago Historical Museum.

Chicago Relief and Aid Society Correspondence. (1872a). The case of Lawrence Saddler, 1; approved application, 1872 (ichi-63784). Chicago Historical Museum.

Chicago Relief and Aid Society Correspondence. (1872b). The case of Lawrence Saddler, 2; letter from Reverend J. Cate, January 29, 1872 (ichi-63782). Chicago Historical Museum.

Chicago Relief and Aid Society Correspondence. (1872c). The case of Lawrence Saddler, 3; letter from T. F. Phillips, January 29, 1872 (ichi-63781). Chicago Historical Museum.

Chicago Relief and Aid Society Correspondence. (1872d). The case of Lawrence Saddler, 4; letter from Alex Bengley, January 30, 1872 (ichi-63783). Chicago Historical Museum.

Chicago Relief and Aid Society. (1871). *Records of the proceedings of the General Relief Commission*. Chicago Historical Society.

Chicago Relief and Aid Society. (1871). *Report of the Chicago Relief and Aid Society of disbursement of contributions for the sufferers by the Chicago fire*. First special report.

Chicago Relief and Aid Society. (1872). *Report of the Chicago Relief and Aid Society of disbursement of contributions for the sufferers by the Chicago fire*. Fourteenth annual report.

Chicago Relief and Aid Society. (1873). *Report of the Chicago Relief and Aid Society of disbursement of contributions for the sufferers by the Chicago fire*. Fifteenth annual report.

Chicago Relief and Aid Society. (1874). *Report of the Chicago Relief and Aid Society of disbursement of contributions for the sufferers by the Chicago fire*.

Chicago Relief and Aid Society. (1875). *Report of the Chicago Relief and Aid Society of disbursement of contributions for the sufferers by the Chicago fire*. Sixteenth annual report.

Chicago Tribune. (1871). Article Oct 9, 1871; ProQuest historical newspapers Chicago tribune (1849 - 1986) pg. 0_1

Chicago Tribune. (1871). Article Oct 11, 1871; ProQuest historical newspapers Chicago tribune (1849 - 1986) pg. 0_1

Chicago Tribune. (1871). Article Oct 12, 1871; ProQuest historical newspapers Chicago tribune (1849 - 1986) pg. 0_1

Chicago Tribune. (1871). Article February 1, 1872; ProQuest historical newspapers Chicago tribune (1849 - 1986) pg. 0_2

Chicago Tribune. (1872). Article March 11, 1872; ProQuest historical newspapers Chicago tribune (1849 - 1986) pg. 0_5

Colbert, E. and Chamberlin, E. (1871). *Chicago and the great conflagration*. Chicago: J. S. Goodman and Co.

Congleton, R. (2006). The story of Katrina: New Orleans and the political economy of catastrophe. *Public Choice* 127(1-2): 5-30.

- Cornuelle, R. (1983). *Healing America*. General Publishing Co. Toronto
- Cornuelle, R. (1993). *Reclaiming the American dream: the role of private individuals and voluntary associations*. Transaction Publishers.
- Coase, R. H. (1937). The nature of the firm. *Economica*, 4(16), 386-405.
- Cox, J.C., Ostrom, E., and Walter, J.M. (2011). Bosses and kings: asymmetric power in paired common pool and public good games. Paper presented at biennial social dilemmas conference, Rice University, Houston, TX, September 23–25, 2010.
- Coyne, C. and Lemke, J. (2011). Polycentricity in Disaster Relief. *Studies in Emergent Orders*, 3: 45-57.
- de Oliveira, A.C.M., Croson, R. T.A. & Eckel, C. (2011). The giving type: identifying donors. *Journal of Public Economics*, 95(5-6): 428-435.
- General Relief Committee Poster (1871). broadside collection, Chicago fire, 1871. photographs and prints. Chicago Historical Society: Chicago
- Henderson, J. V. and Lee, Y. (2011). Organization of disaster aid delivery: spending your donations. NBER Working Paper No. 17707
- Industrial Chicago. (1894). *Industrial Chicago, volume 4*. Goodspeed Publishing Company. Cornell University.
- Karlan, D., and List, J.A. (2007). Does price matter in charitable giving? Evidence from a large-scale natural field experiment. *American Economic Review*, 97(5): 1774–1793.
- King, G., Keohane, R. O., and Verba, S. (1994). *Designing social inquiry: Scientific inference in qualitative research*. Princeton University Press
- Leeson, P. T. and Sobel, R. S. (2008a). Weathering corruption. *Journal of Law and Economics*, 51: 667-681.
- Leeson, P. T. and Sobel, R. S. (2008b). Centralization proves inadequate to disaster aid. *Journal of International Peace Operations* 3(4): 11-12.
- Leeson, P. T. (2011). Government, clubs, and constitutions. *Journal of Economic Behavior and Organization* 80(2): 301-308.
- Lemke, J. (2012). Polycentrism, self-governance, and the case of married women’s rights reform. In Chamlee-Wright (ed) Annual proceedings of the wealth and well-being of nations volume 4: self-governance, polycentrism, and the social order (Beloit College Press), pp. 69-88.
- Li, S. X., Eckel, C. C., Grossman, P. J., & Brown, T. L. (2011). Giving to government: Voluntary taxation in the lab. *Journal of Public Economics*, 95(9), 1190-1201.

- List, J. A. Lucking-Reiley, D. (2002). The effects of seed money and refunds of charitable giving: experimental evidence from a university capital campaign. *Journal of Political Economy*, 110(1), 215-233.
- Naylor, T. J. (1975). Responding to the fire: the work of the Chicago Relief and Aid Society. *Science and Society* 39(4): 450-464.
- Nelson, O. (1966). The Chicago Relief and Aid Society, 1850-1874. *Journal of the Illinois State Historical Society (1908-1984)*, Vol. 59, No. 1: 48-66.
- Olson, M. (1965). *The logic of collective action*. Harvard University Press: Cambridge and London.
- Ostrom, E. (2010). Beyond markets and states: polycentric governance of complex economic systems. *American Economic Review*, 100(3): 641–72.
- Ostrom, E. (1999). Polycentricity, complexity, and the commons. *The Good Society* 9, No. 2: 37-41.
- Ostrom, E. (1990). *Governing the commons: the evolution of institutions for collective action*. Cambridge University Press.
- Ostrom, E., Gardner, R. and Walker, J. (1994). *Rules, games, and common pool resources*. University of Michigan Press.
- Ostrom, V., Tiebout, C.M., Warren, R. (1961). The organization of government in metropolitan areas: a theoretical inquiry. *American Political Science Review* 55: 831-842.
- Pauly, J. (1984). The Chicago fire as a national event. *American Quarterly*, (36) 5: 668-683.
- Peloza, J. and Steel, P. (2005). The price elasticities of charitable contributions: a meta analysis. *Journal of Public Policy & Marketing*, 24(2): 260-272.
- Pierce, B. L., ed. (1933). *As others see Chicago: impressions of visitors 1673-1933*. University of Chicago Press.
- Reed, C.R. (2005). *Black Chicago's first century: 1833-1900, volume 1*. University of Missouri Press. Columbia, Missouri.
- Records of the proceedings of the General Relief Commission (1871) Chicago Historical Society, Chicago.
- San Francisco Chronicle. (1871). Front page. Tuesday, October 11, 1871. Proquest historical newspapers.
- Sawislak, K. (1995). *Smoldering city: Chicagoans and the great fire, 1871-1874*. University of Chicago Press: Chicago and London.

- Schmidtchen, D. (2002). To help or not to help: the Samaritan's dilemma revisited. In G. Brennan, H. Kliemt & R. Tollison (Eds.) *Method and morals in constitutional economics: essays in honor of James M. Buchanan* (pp. 470-484). Springer: New York.
- Schneider, S. (2008). Who's to blame? (mis) perceptions of the intergovernmental response to disasters. *Publius: The Journal of Federalism* 38, No 4: 715-738.
- Shughart, W. F. II. (2006). Katrinaomics: The politics and economics of disaster relief. *Public Choice* 127(1-2): 31-53.
- Shughart, W. F. II. (2011). Disaster Relief as Bad Public Policy. *The Independent Review*, 15 (4): 519–539.
- Skarbek, D. (2008). Occupational licensing and asymmetric information: post-hurricane evidence from florida. *The Cato Journal* 28(1) 2008: 71-80.
- Skarbek, E. (2010). Coordinating the reconstruction of Haiti. *Journal of International Peace Operations* 6(2): 25-28.
- Smith, D. and Sutter, D. (2013). "Response and recovery after the Joplin torando: lessons applied and lessons learned". *The Independent Review*, 18(2) 165-188.
- Smith, S. (1980). Giving to charitable organizations: a behavioral review and a framework for increasing commitment. *Advances in Consumer Research* 7: 753-756.
- Steinberg, R. (1987). Voluntary donations and public expenditures in a federalist system. *American Economic Review*, 77(1): 24-36
- Sobel, R. and Leeson, P. (2006). Government's response to hurricane Katrina: a public choice analysis. *Public Choice* 127(1-2): 55-73.
- Sobel, R. and Leeson, P. (2007). The use of knowledge in natural disaster relief management. *The Independent Review* 11: 519-32.
- Sutter, D. (1998). Constitutions and the growth of government. *Journal of Economic Behavior and Organization*, 34:29-42.
- Taleb, N. and Sandis, C. (2014). The skin in the game heuristic for protection against tail events. *Review of Behavioral Economics*, 1: 1–21.
- Thaler, R. and Sumstein, C. (2008). *Nudge: improving decisions about health, wealth and happiness*. Penguin Press.
- Wagner, R. (2005). Self-governance, polycentrism, and federalism: recurring theme in Vincent Ostrom's scholarly oeuvre. *Journal of Economic Behavior and Organization* 57: 173-188.

Tables and Figures

TABLE 1: TOTAL DONATIONS TO GENERAL RELIEF EFFORT BY MONTH, 1871-1873

Donations	1871	1872	1873
January		\$248,786	\$5
February		\$407,764	\$11
March		\$516,040	\$82,776
April		\$4,557	\$910
May		\$60,006	
June		\$11,558	
July		\$199,049	
August		-	
September		\$9	
October	\$1,406,575	\$687	
November	\$664,851	\$267	
December	\$181,796	\$950	
Total, Domestic	\$2,253,224	\$1,449,675	\$83,703
Total, Foreign	\$1,024,403		
Total Donations	\$3,277,627	\$1,449,675	\$83,703

Source: Author's tabulations from Chicago Relief and Aid Society Annual Reports 1871-1873

FIGURE 1: PUBLIC AND PRIVATE DOMESTIC DONATIONS TO CHICAGO, OCTOBER 14TH – 31TH

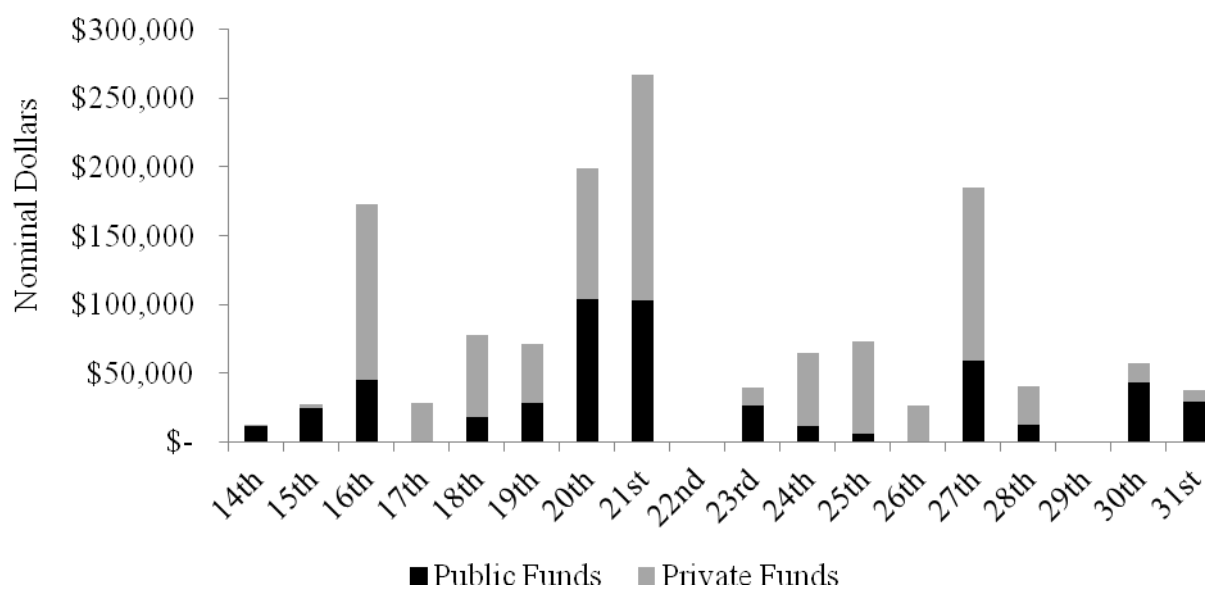


TABLE 2: SOURCE OF DOMESTIC DONATIONS 1871-1873 BY DONOR TYPE

Donor Type	Donation
Municipal Governments	\$1,363,299
Business	\$1,311,742
Individuals	\$725,830
General State Funds	\$263,197
Clubs and Mutual Aid Societies	\$97,271
Churches and Religious Groups	\$23,761
Schools	\$3,312
Miscellaneous	\$187
Total Public	\$1,626,497
Total Private	\$2,161,917
Total Domestic Donations	\$3,788,603

Source: Author's tabulations from Chicago Relief and Aid Society Annual Reports 1871-1873

FIGURE 2: FAMILIES AIDED BY THE CHICAGO RELIEF AND AID SOCIETY, 1868 –

1884

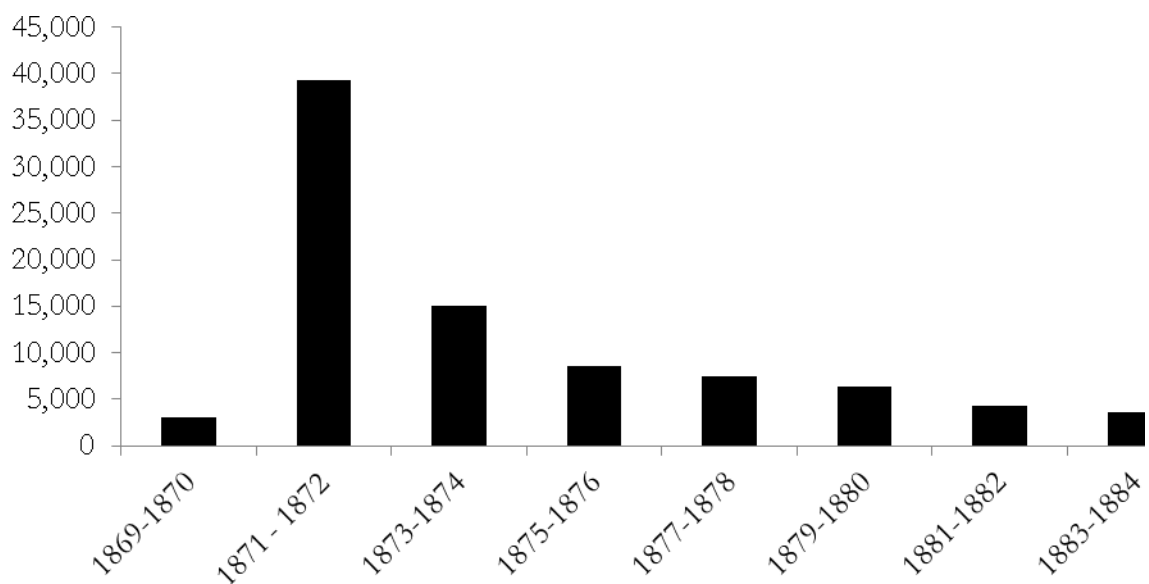


TABLE 3: DEMOGRAPHICS OF AID

Population by Birth 1870	Total Families Aided	As a Percentage of Total Population of Cook County	As a Percentage of Total Aid
German	14,816	18%	38%
Irish	11,623	12%	30%
American	4,823	52%	12%
Scandinavian	3,624	4%	9%
English	1,406	3%	4%
Negro	600	1%	2%
Bohemian	565	2%	1%
Scotch	526	1%	1%

Source: Andreas (1884b: 613)