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Exclusion of women and organisational characteristics: Swedish mutual health insurance 1901–1910

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ABSTRACT

Mutual societies have been recognised for their ability to mitigate information asymmetry. Although successful in reducing sickness claims, the exclusion of women was common. Health insurance societies argued the exclusion was a means to reduce adverse selection and moral hazard since women were regarded as higher risk. In this paper, we explore differences in organisational characteristics between societies that excluded and societies that did not exclude women as members between 1901 to 1910. Based on panel data, the study shows that societies that excluded women were less successful in keeping down sickness claims, in relation to benefits, than gender-mixed societies.

KEYWORDS

Health insurance society;
mutual insurance; women;
information asymmetry;
Sweden

1. Introduction

Mutual health insurance societies emerged as an attractive form of wage-earners' assurance during the late nineteenth and early twentieth centuries.¹ By pooling the risk of wage-earners' income losses due to sickness, accident and illness, such financial institutions mitigated the greatest risks to the wage-earners' standard of living.² Indeed, a growing body of literature on the US, the UK and Germany has recognised the efficiency of health insurance societies in terms of risk sharing and loss mitigation. Emery; Emery and Emery; Gottlieb; Murray; Guinnane and Streb show that by employing age-scaled membership, medical examinations and systems for selecting members by kinship, informational asymmetries could be reduced; risks were further mitigated by monitoring members by means of social control, social proximity and social sanctions.³

However, as noted by both Gottlieb and Murray, the successful strategy of reducing information asymmetries seems to have been at the expense of wider access to health insurance; consequently, health insurance did not become accessible to everyone, and women in particular often lacked access to health insurance societies.⁴ Cordery estimates that women accounted for less than 1 percent of all members in UK friendly societies in 1872, while female labour force participation was 18.9 percent in 1890.⁵ Murray shows that, in 1908, 9 percent of all workers in the US covered by mutual health insurance were women although women accounted for 24 percent of the non-agricultural labour force.⁶ In Sweden, 10 percent of all

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women of economically active age were insured in 1910, while 30 percent of all men were insured. Women accounted for 21 percent of the non-agricultural labour force while men constituted 79 percent. Most men were in gainful employment, while 28 percent of all women were in gainful employment.⁷ It is reasonable to believe that the gender difference in insurance coverage may have reflected the male breadwinner model, whereas it is assumed that the demand for insurance among married women should be close to non-existent. However, although a low proportion of married women were involved in paid work by the turn of the twentieth century, they accounted for a substantial proportion of all female members of health insurance societies.⁸

However, not all societies were willing to accept female members. In Sweden, 37 percent of all health insurance societies formally excluded women from becoming members.⁹ There are many historical examples of how women have been excluded from involvement in various economic activities. The historical exclusion of women has frequently been due to gender discrimination, and the ideal of women as primarily wives and mothers.¹⁰ In Sweden, the exclusion of women from health insurance societies was frequently motivated by the belief that women were on average sicker than men and in general more vulnerable to common diseases, leading to more disbursements.¹¹ Since societies at the turn of the twentieth century hardly applied actuarial principles and did not differentiate among members by risk, the exclusion of suspected risk groups, such as women, might have been a way in which to manage this perceived risk. Representatives also argued that female members might jeopardise male affinity and, therefore, the popularity of and solidarity towards the society, leading to less reliable members and higher disbursements.¹²

However, not all societies excluded women, and little is known in terms of what organisational features were synonymous with excluding women and whether female-excluding societies were more successful at reducing disbursement than mixed-gender societies. The contemporary arguments for an exclusion of women and the proposed positive effects, from an underwriting point of view, therefore requires further investigation.

The purpose of this article is to examine how different organisational characteristics were related to female exclusion and different levels of disbursement and reported sickness. More specifically, it examines: (i) what organisational factors were associated with the formal exclusion of women; and (ii) whether female-excluding societies were more capable (than mixed societies) of keeping down reported sickness days in relation to levels of disbursements. The article focuses on the case of Sweden during the period 1901–1910, a period of rapid growth and competition between a wide set of different forms of mutual health insurance societies.

We believe that the Swedish case offers a unique opportunity to examine how different organisational characteristics underlying individual societies impacted on the exclusion of women, different levels of disbursements and reported sickness. The system of Swedish health insurance societies has inherited a variety of different mutual organisational characteristics since Swedish societies were influenced by different forerunner countries such as Britain, the US and Germany. The entire system of German *Knappschaften* was based on compulsion, while the British and US systems were based on a voluntary principle and self-help.¹³ In Sweden, compulsory and voluntary societies coexisted at the turn of the twentieth century.¹⁴ The Swedish health insurance system further relied on different financial principles (*ex post* and pure insurance) and different organisational bases (occupation, social proximity, belief/religion).¹⁵

In this article, we show that female exclusion was most common in small societies with close social proximity and fraternalism as an organisational basis. These fraternal self-help societies suspected women to be a higher risk, although such higher risks for women were unconfirmed. Hence, female-excluding societies expressed the motive to exclude women as a way in which to avoid unknown risks. Furthermore, the emphasis on fellowship and forging fraternal ties was seen as useful in view of the harsh competition for members, and something that could be used to make a society more attractive, club-like and prestigious in comparison with others. It was, therefore, a way in which to create close male affinity and solidarity among members and to keep the over-reporting of sickness and claims down.

However, our study does not provide support for the claim that female-excluding societies should have been more capable of keeping down reported sickness days in relation to levels of disbursements. Instead, gender-mixed societies were able both to expand their business more rapidly and keep down the reported sickness days in relation to levels of disbursements in comparison to only male-based societies. Our study therefore indicates that the exclusion of women could also be due to gender discrimination and not only to economic calculations.

The remainder of the article is organised as follows: Section 2 presents the organisational development of Swedish health insurance societies, outlining different characteristics of health insurance societies over time. Section 3 provides an account of women's membership in health insurance societies. Section 4 presents strategies for reducing risk in health insurance societies. Section 5 provides a narrative of arguments by representatives of health insurance societies for excluding women. Section 6 provides an account of organisational differences between excluding and non-excluding health insurance societies. Section 7 examines the impact of organisation on the exclusion of women. Section 8 examines whether excluding or non-excluding health insurance societies were more successful at keeping down reported sickness days in relation to levels of disbursements. Section 9 concludes the paper.

2. The organisational development of Swedish health insurance societies

Demand for health insurance in Sweden increased in the late nineteenth century. Health insurance first developed in urban areas in the southern and middle parts of Sweden. Demand for health insurance was especially strong in the growing manufacturing areas, while people working in rural areas were not as well covered by health insurance.¹⁶ Insurance coverage, measured as the number of insured members in health insurance societies in relation to the number of people of economically active age (16–64), increased from 10 to 20 percent between 1901 and 1910 for the country as a whole.¹⁷

The first health insurance societies to evolve were small, local, occupation-based societies. In Sweden, this was the common form of organisation until the 1890s. Occupation-based societies had developed out of the mutual aid arrangements that had evolved earlier in Europe within guilds and which provided a means by which to pool the risk among workers at a particular workplace or within a specific trade. These health insurance societies shared common traits with the German *Knappschaften*, which was a mutual health insurance system for miners.¹⁸ The Swedish occupational societies were largely based on voluntary membership, although membership was compulsory in a subset (29 percent) of the occupational societies. In some cases, these societies also covered medical expenses for the insured

worker's family.¹⁹ Occupational and local societies commonly excluded members who left the workplace or moved beyond a distance where they could be monitored or visited when claiming sickness benefits.²⁰ Members who wished to leave these societies were not entitled to recover any of the earlier contributions made as members of the society, so leaving entailed a cost.

The purpose of first Swedish Act of Registered Health insurance societies of 1891, which was similar to the British Friendly Societies Act of 1875, was not only to support and encourage the development of health insurance societies but also to induce control over societies through an administrative subsidy for those societies that voluntarily registered with the government.²¹

During the last decades of the nineteenth century, societies that based membership on fellowship and which specified a maximum number of members (25, 50, 75, 100, 200, etc.) became especially popular. In our sample of 1,285 Swedish health insurance societies from both rural and urban areas across Sweden, we can determine that between 1875 and 1895, close to 95 societies were based on such an affiliation.²² Up until 1910, another 45 such societies were established. Like their predecessors, these societies usually just applied *ex post* premiums, which implied that the costs were shared once all expenditures were known. Health insurance societies based on the *ex post* principle were often like clubs, with fraternal and ceremonial elements, and in many of the societies it was considered an honour to become a member, illustrating that membership in a society not only provided financial support but also fellowship. The popularity of societies was crucial since, in order to guarantee financial stability, they needed to continuously recruit younger members with low risk profiles while retaining existing lower-risk members. Lindeberg has written a comprehensive work on the development of Swedish health insurance societies, and defines societies based on fellowship as 'closed' societies, indicating a restriction on access to the society, by voting or other means.²³

Popular movements, such as the temperance movement, trade unions and the non-conformist movement, saw strong growth in Sweden during the late nineteenth and early twentieth centuries and they established health insurance societies as part of their ambition to organise utilities of civil-society for members.²⁴ Lindeberg defines this type of society as 'open', indicating that these societies welcomed anyone with temperance or union-membership and a Christian lifestyle. Based on the aforementioned sample of 1,285 Swedish health insurance societies, it is found that between 1875 and 1895, 30 societies were formed based on religious (Christian evangelical) affinity. Another 10 such societies were established up until 1910. Unlike the US experience, trade unions that offered health insurance did not manage to attract the masses in Sweden. At the turn of the twentieth century, only 2 percent of all members were organised in union-based societies in Sweden.²⁵ In addition to the large-scale movements, various smaller, open associations also established health insurance societies. Between 1875 and 1910, 100 such societies were established.²⁶

In conjunction with the large-scale popular movements, various associations evolved with the sole objective of providing health insurance. These societies were often local and gathered together a group of people in a parish or city and cannot be attributed to any specific affiliation such as occupation, fellowship or temperance.

A number of societies based on popular movements or other associations chose to go national at the turn of the twentieth century. This was in part as a response to the limitations the local societies imposed. In general, when a member moved beyond the reach of the

local society's sickness controller, that member lost the previous contribution made in the society and had to leave. The first national, affiliated health insurance society in Sweden was established in 1892, and in 1910 there were 28 affiliated societies with 564 lodges representing over 140,000 members and accounting for 22 percent of all health insurance society members. The two largest Swedish national health insurance societies (based on membership) were part of the temperance movement that emerged in the late nineteenth century. Other affiliated societies modelled their organisations on the temperance health insurance societies, and began to apply a division of risk classes in order to reduce the risk of adverse selection by admitting the members that the temperance societies had rejected.²⁷ By having a national selection of teetotallers as members, such societies may have had a favourable risk selection. It may be noted that the initiative to organise nationwide societies with fewer excluding principles was given legal support in the early twentieth century. When the act on registered health insurance societies was passed in 1910, the exclusion of members who moved to a different region having membership in multiple societies and the imposition of compulsory membership became prohibited. After the 1910 act it was also prohibited for societies to apply *ex post* assessments (except for temporary budget deficits).

Although there were many different principles for organising a health insurance society, Lindeberg argues that the most important principles were related to the selection of members and conditions for membership. Lindeberg further notes that the most common ground for exclusion in health insurance societies was gender.²⁸ As well as societies that excluded women, there were societies for women only.

3. Women's membership in health insurance societies

A growing number of female health insurance societies were established in the late nineteenth century. In our sample (1,285 health insurance societies in total), some 26 female health insurance societies were established between 1875 and 1895, and another 21 societies were established up until 1910.²⁹ The societies evolved primarily around female occupations such as sewing, education and clerical work, although they were still open to all working women.³⁰ Nevertheless, the number of Swedish registered female health insurance societies was relative low. In 1884, only 2 percent of all health insurance societies were female. On average for the period 1901–1910, female societies accounted for 3.5 percent of all registered societies. However, the lack of data on unregistered female health insurance societies in particular has made it difficult to investigate the role of female societies in insuring the health of women.³¹

A growing number of women became members in gender-mixed societies. During the period 1901 to 1910 the proportion of female members in economic active age (16–64), increased from 5 to 10 percent, while the male member share increased from 16 to 30 percent. Membership of health insurance societies was primarily an urban phenomenon and, if agricultural occupations are excluded, 33 percent of all female and 50 percent of all male full-time workers of active age were health-insured in 1910.³²

In order to further investigate the role of civil status for women's membership in health insurance societies, we have applied individual data from one of the largest contemporary health insurance societies, Svenska Folket. The data shows that although salaried employment fuelled the demand for health insurance, 60 percent of all health-insured women were married. Data on occupation further shows that 91 percent of married women were occupied

in domestic work (the data does not distinguish between domestic work by housewives and paid domestic work).³³ Since only 3 percent of all married women were in salaried employment in 1910, it is likely that the majority of married women in Svenska Folket were housewives and not in paid employment.³⁴ However, although Sweden did not have particularly high rates of women in the labour market at the turn of the twentieth century, gainful employment by women still played a significant role in the demand among women for health insurance in Svenska Folket. In 1910, 28 percent of all women in Sweden above the age of 16 were in gainful employment, but in Svenska Folket the share of women in gainful employment was 36 percent, a higher share than in the nation in total therefore.³⁵

4. Creating social control and fraternalism in health insurance

Mutual health insurance societies performed their service by relying on limited actuarial methods. In order to reduce risks related to adverse selection, it was a common procedure to employ a doctor's certificate confirming the good health of the applicant.³⁶ Health insurance societies further became increasingly aware of the importance of age limits for the solvency of the societies. In 1884, 32 percent of all societies had no age limits for membership, while in 1908 the proportion of societies with no age limits had fallen to 8 percent. The most common upper age limits were between 45 and 50 years of age in both 1884 and 1908. In 1884, 42 percent of all societies applied these age limits, while in 1908 the proportion was 58 percent.³⁷ This development might imply that older societies experienced higher morbidity and more claims due to an older stock of members.³⁸

Societies moreover reduced the occurrence of moral hazard by employing rigorous control, visiting the reportedly sick member at home, thus reducing the risk of malingering and ensuring that the member's sickness was not self-inflicted due to hazardous behaviour, drinking or other immoral activities. Many Swedish societies further banned the recovery of benefits by members who had been exposed to 'unusual danger', and rules typically excluded those who might jeopardise a society's financial security.³⁹

In addition to medical precautions and monitoring functions, societies also excluded those who might threaten their public image. According to Emery; Emery and Emery; Guinnane and Streb; and Gottlieb, the success of mutual organisations was additionally due to the social ties among members that allowed mutual insurers to monitor sickness more intrusively than a commercial company could.⁴⁰

To investigate and identify the contemporary arguments put forward for applying different kinds of exclusion and for employing different organisational characteristics, this study draws on archival material from the Swedish National Archives in Stockholm, Stockholm City Archives, where the Social Insurance Committee in 1915 collected charters from close to 259 Swedish health insurance societies; the Popular Movement Archive in Västerbotten and monographs of Swedish health insurance societies.

In Sweden, prospective members commonly had to undergo 'character investigations.' Applicants had to be sponsored by an existing member and it was common for the sponsor to have to guarantee not only the good character, but also the good health of the prospective member, and in so doing put his or her own membership at risk. This implied that individuals who had somehow gained a bad reputation were often barred from health insurance membership. One example from *Brödrakedjans sjuk- och begravningskassa*, *Hargs arbetareförenings sjuk- och begravningskassa* and *Sprängvikens sjukhjälpskassa* was that if a member wore the

society's symbol while engaging in misconduct, the member had to answer to the society's leadership.⁴¹ Securing and reinforcing a society's positive image and reputation made it easier to attract new members perceived as a good risk and to exclude bad risks. Hence, social proximity was a means by which societies controlled their members and reduced moral hazard, while deviation from the codes of conduct would result in social punishment and exclusion from the society.⁴² Because of this, many older societies criticised the merging of societies into larger units, since they feared that social control and 'friendly' encounters would be lost.⁴³

Nevertheless, it is hard to state conclusively whether social proximity and social control were successful in attracting favourable risk or suppressing moral hazard. It is clear from written correspondence between members of a local fraternal society of bandmen in Northern Sweden that relations that were too friendly could also imply problems in terms of members monitoring each other and potentially denying a 'brother' benefit. In letters, members used the friendship and kinship relations between them to improve their chances of receiving benefits:

My dear brother! We have now known each other for 5 years and you know that I am an honest and sincere man. My wife has recently given birth to our third son, she greets you and keeps you in good memory! My health has, however, been bad recently ... I therefore ask for your help in this matter and hope our cherished society continues the disbursements ...⁴⁴

The ambition of bringing members together into a close-knit community could also induce societies to place too great an economic focus on social events. Lindeberg reports that the Vänfast society in Stockholm had a major debate on the issue, with some arguing that the social events were necessary for promoting fraternal affinity, while others argued that members could enjoy themselves without being exposed to the fights and unpleasantness that always accompanied the society's parties.⁴⁵

The Swedish health insurance societies' charters not only provide evidence of the importance of social proximity in general but, in the majority of cases, social proximity was additionally associated with fraternalism and masculinity.⁴⁶ Lewchuk shows, in the case of the Ford Motor Company, that the management tried to stimulate the performance of workers and make Ford Motor Company an attractive workplace for men by excluding women from employment.⁴⁷ In a similar way, some Swedish health insurance societies attempted to make their societies more attractive by using the exclusion of women to link together character and manhood.

Fraternal societies marked themselves out from other societies by usually having vows and performing some kind of ritual at gatherings. It was often considered a privilege to become a member of a fraternal health insurance society, and the waiting list to join some of them could be long.^{48,49} In particular, representatives of fraternal societies argued that women threatened the social cohesiveness among male members and made membership less attractive, resulting in the departure of members, more fraud and moral hazard issues. Hence, women were excluded since it was believed that women threatened male affinity and the popularity of the society. The creation of a fraternal, all-male affinity, which facilitated the monitoring of members, generated social pressure and promoted moral behaviour, could result in a reduction in moral hazard.

As argued by both Clawson and Carnes, it is possible that fraternalism, as a socially constructed kinship relation, was an important reason for joining a society, in view of the networks and privileges such membership involved.⁵⁰ Hence, the exclusion of women could be

one of the most important principles of organisation for many societies. However, although all-male affinity and all-male environments were used to construct exclusiveness and popularity, another reason for excluding women from health insurance societies was often related to the assumed weaker physical constitutions of women.

5. The perception of greater illness among women than men

The perception that women were more likely than men to get sick was widely asserted among representatives of health insurance societies, and something that was commonly proposed in the different notices published by health insurance societies or organisations within the health insurance movement. In 1909, a representative of a health insurance society asked the editorial staff of the business journal published by the Swedish Health Insurance Society Association whether women were more prone to illness than men and consequently could be viewed as a higher risk as potential members than men. The journal referred to the experiences so far of morbidity in Swedish health insurance societies, with women having fewer sick days than men. The average for 100 health-insured men was 620 sick days, whereas for 100 health-insured women the average was 600. The journal referred to the same official morbidity statistics that are applied in this article, collection of which began in 1891. The business journal further showed that different conditions prevailed in urban and rural areas. The average for 100 male members in urban areas was 640 reported sick days, and the average for 100 insured women was 650 sick days. In rural areas, on the other hand, the proportion was 580 sick days for men compared with 460 sick days for women. The article attributed the finding of local variations in sickness to the labour market. According to the article, this could be due to the labour market structures and different social conditions in different regions. The article argued that working class men were more likely to face work-related accidents. The article also claimed that women were more often affected by the most common diseases.⁵¹

With regard to women as members in health insurance societies, it is conceivable that an obvious risk for societies would have been women's pregnancies and pregnancy-related sickness. However, the majority of societies did not allow benefits for pregnancies and pregnancy-related sickness. However, when this type of 'sickness' was to be offered by health insurance societies, the financial burden was to be shared among female members only.⁵² Women's pregnancies therefore seldom appear as a reason for excluding women from health insurance societies. In 1913, the government introduced a state subsidy for societies that offered maternity insurance, and the Sickness Insurance Act of 1931 subsequently obliged all registered societies to offer maternity allowance.⁵³ Furthermore, in the 1940s the institutionalisation of maternity insurance in the health insurance infrastructure resulted in women's membership rates exceeding those of men.

Nevertheless, historical records underline the fact that many health insurance societies expressed the view that women should be regarded as high-risk members, and that allowing women as members could result in bankruptcy.⁵⁴ The health insurance society *Göteborgs läroverkslärares sjukassa* conducted an investigation into the sickness benefits of retired male and female members, and it was argued that the number of female members had become too high and had resulted in 'disquieting experiences' that could jeopardise the solvency of the society. It was decided, therefore, to exclude women from membership in the future. With regard to the retired male members, the investigation showed that many

of them had not applied for sickness benefits, despite being sick enough to do so. It was also pointed out that some had passed away after a lifetime of membership without receiving any sickness benefit at all.⁵⁵

Societies reported that women sometimes insisted on becoming members, as in *Trelleborgs nya sjukassa*, *Trelleborgs nya begravningskassa* and *Ala, Sandarne, Askesta Sjuk och begravningshjelpskassa*.⁵⁶ A decision by a health insurance society to accept women as members could result in major protests, as was the case with one health insurance society, *Understödsföreningen för sjuka inom Gränna stad* in 1907. The society took a policy decision to accept women as members, at least in theory. A group of existing members viewed the idea as 'so risky and absurd' that they demanded that the decision be withdrawn, and the society relented. The women who had been denied access to the society subsequently established their own society for women only. The society, *Understödsföreningen för sjuka inom Gränna stad*, then gave a donation to the newly established female society, to show 'their good will'.⁵⁷

Women not only established female health insurance societies, but they also undertook initiatives to start mixed-gender health insurance societies, as in the case of *Stockholms folkskollärarekårs begravningskassa*, established in 1899.⁵⁸ The establishment of one mixed-gender national society, associated with the trade union of postal employees, resulted in men leaving the association in order to establish a new, local, all male, health insurance society. In the monograph, it says that the men 'feared' women as members.⁵⁹ There are several historical monographs documenting similar processes, and many bear witness to the merging of small societies into larger units resulting in women finally gaining membership, although most of the small societies had previously excluded them.⁶⁰

An historical account of the society *Göteborgs läroverkslärares sjukassa* further illustrates how the society, in its early days, implicitly excluded women by only targeting all-male occupations. When women eventually gained access to various occupations, the male members considered the number of female members in the society to be too high, and the society decided to change its charter so that women would in the future be excluded.⁶¹ However, together with stricter demands made of registered societies by the authorities in 1891 and 1910, charters were also required to provide certain information, e.g. regarding whether or not women could be members.⁶²

The narrative sources suggest that health insurance societies excluded women as a risk-reducing strategy in line with risk mitigation based on previous research. Women were primarily denied access to health insurance because, according to health insurance representatives, women were more likely than men to get sick. Due to the absence of actuarial principles and risk differentials among members, the exclusion of suspected risk groups such as women might have been a way in which to manage this perceived risk.

6. Organisational differences between excluding and non-excluding health insurance societies

Based on a large sample of Swedish health insurance societies' policy status, it can be seen that formal exclusion was a rather common strategy among Swedish mutual health insurance societies in the early twentieth century.⁶³ Between 1901 and 1910, such an exclusion strategy was applied in, on average, 37 percent of the health insurance societies in our sample. The proportion of female-excluding societies (amongst all societies) was fairly constant over that

period. However, growth appears to have been less strong. Between 1901 and 1910, the membership share (of all members in health insurance societies) of female-excluding societies fell from 23 percent to 16 percent. The growth of members was significantly higher among the non-excluding, gender-mixed health insurance societies.

Table 1 provides an overview of key policy charters elements, along with a summary of morbidity and financial structure for female-excluding (male) and non-excluding (mixed) health insurance societies during the period 1901–1910 (mean values). This shows differences between most of the aspects for the two forms of organisation. It confirms that female exclusion was a decisive feature in the working and structure of health insurance societies in Sweden during the early twentieth century.

Figures for sickness show that the number of sick days was significantly lower in mixed societies. In male-based societies, the average member was sick for 6.2 days a year, while members of mixed societies were sick for 6 days a year. Sick days are made up of the number of times members are sick (sick cases) and for how long time each sick case lasts (sickness length). When looking at the two components, it can be seen that members of male-based societies were sick more often. The number of sick cases was, on average, 27.6 out of 100 members in male societies and 22.9 in mixed societies. However, sickness duration was longer in mixed societies, with each sick case lasting an average of 27.4 days. The average sickness length among members of male-based societies was 24.1 days.

Swedish health insurance societies were commonly based on occupation or workplace, as well as social proximity, such as fellowship, or affiliation to popular movements. In our sample, we have identified a specific occupation or workplace in, on average, 42 percent of all societies between 1901 and 1910. Health insurance societies with a membership based on fellowship and social proximity accounted for another 15 percent of the health insurance societies. Temperance as affiliation accounted for 5 percent of all societies sampled, while religious affiliation accounted for 3 percent. The remainder (not affiliated by occupation, fellowship, temperance or religion) accounted for 37 percent of all societies included in our sample.

When comparing the different affiliations, it is clear that exclusion of women was most common among the occupational and fellowship-based societies. Of all male-based societies, 78 percent were accounted for by occupational (48 percent) and fellowship-based (30 percent) health insurance societies. The exclusion of women was much less common among health insurance societies affiliated to the popular movements, with only very few (1 percent) excluded by temperance and Christian health insurance societies. Exclusion was also less common among the other societies than in the fellowship- and the occupation-based health insurance societies.

Male-based societies were financed to a greater extent by *ex post* premiums. Such *ex post* health insurance societies accounted for 72 percent of all women-excluding societies. This insurance principle was more common in the mixed societies, with 62 percent of all societies relying on the *ex post* principle. It has been argued in a previous study of Swedish sickness insurance that *ex post* premiums predominated in groups with long-term relations based on fellowship, occupation or other forms of mutual trust.⁶⁴ This study further re-emphasises that the *ex post* principle was more common in societies based on occupation and fellowship.

Male-based societies relied to a greater extent on the members' own contributions. The share of premiums, in relation to all other incomes, was significantly higher. Premiums

Table 1. Definitions and summary statistics by male (female excluding) and mixed (non-excluding) societies.

Variable	Definition	Full sample			Male societies		Mixed societies		Male – Mixed
		Mean			Mean		Mean		
Female exclusion	Societies where women were formally excluded: 1 if excluded, 0 otherwise	0.37			1		0		***
Female participation	Female participation rate	21.9			0		35.5		***
Sick days	Number of sickness days by member	6.08			6.2		6		**
Sick cases	Number of sickness cases per 100 member	24.7			27.6		22.9		***
Sickness length	Number of sickness days by cases	26.1			24.1		27.4		***
Occupational	Occupation as a basis of formation: 1 if occupational, 0 otherwise	0.42			0.48		0.39		***
Fellowship	Fraternism as a basis of formation: 1 if fraternal, 0 otherwise	0.15			0.30		0.06		***
Temperance	Temperance as a basis of formation: 1 if temperance, 0 otherwise	0.05			0.01		0.07		***
Christian	Christian as a basis of formation: 1 if Christian, 0 otherwise	0.03			0.01		0.05		***
Other	Association of other basis of formation: 1 if other, 0 otherwise	0.35			0.21		0.42		***
Ex post premium	Societies financed by <i>ex post</i> payments: 1 if <i>ex post</i> , 0 otherwise	0.66			0.72		0.62		***
Benefit	Sickness pay per day in 1905 price level of Stockholm	1.61			1.88		1.45		***
Premium	Premium payment per member in 1905 price level of Stockholm	11.54			14.21		9.97		***
Subsidy	Subsidy per member in 1905 price level of Stockholm	1.47			1.56		1.42		***
Size	Number of members	268.5			138.9		349		***
Age	Age of society	18.5			18.7		18.4		***
Entry age, lb	Minimum age to become member	16.9			17.6		16.4		***
Entry age, ub	Maximum age to become member	46.6			45.9		47.1		**
Member time	Days before a new member is qualified to receive for sick pay	90.6			85.6		93.2		***
Waiting time	Days of qualifying before benefit/sick pay may be claimed	13.9			10.5		16.9		**
Sick time, lb	Minimum time of sick leave to receive benefits	6.0			5.0		6.7		**
Sick time, ub	Maximum time of sick leave to receive benefits	93.4			98.7		89.6		**
Benefits, lb	Minimum benefit per week	11.3			13.9		9.5		***
Benefits, ub	Maximum benefit per week	12.8			14.8		11.4		***
Benefits, diff	Difference between minimum and maximum benefit per week	1.45			0.86		1.90		***
Female labour	Share of females employed in manufacturing industry by city	23.6			27.5		21.1		***
Manufacturing labour	Share of working population employed in manufacturing industry	22.7			24.4		21.7		***
Insurance penetration	Share of working population insured by sickness societies	35			32.7		36.4		***
Observations (n =)	Number of society-year observation	10,089			3866		6223		

Note: * denotes significance difference of group mean at the (***)1, (***)5 and (*)10% level.

Source: Kommerskollegii, 1901–1910; Kommerskollegii (1904–1912); Detaljpriser och indexberäkningar åren 1913–1930, Socialstyrelsen (1913, 1933).

accounted for 75.5 percent of all income, while in the mixed societies, premiums accounted for a smaller proportion of total income (71.1 percent). The main reason was that members' contributions were on average higher in male societies (SEK 14.2) than in gender-mixed societies (SEK 10.1). The difference in subsidy level was much less substantial in economic terms between male (SEK 1.6) and gender-mixed (SEK 1.4) societies.⁶⁵

Male-based societies offered their members higher benefits per sick day, providing an average of SEK 1.9 per day, while mixed societies provided SEK 1.5 at Stockholm's 1905 price level.⁶⁶ The benefits can be compared with the worker's wages at the time. In 1905, the average day-rate wage in the agricultural sector was SEK 1.9 for male workers and SEK 1.2 for female workers. For workers in the metal and engineering (male-dominated) industry, the average day-rate wage was SEK 3.6 and in the textile industry (female-dominated), the average wage was SEK 2.4.⁶⁷ The comparison with wages shows that the benefits covered at least 45 percent of the day-rate wage.

It can be seen from policy statutes that regulate the terms between individual members and the society, that male-based societies offered both a significantly higher minimum payment per week (13.9 vs. 9.5) and a higher maximum payment per week (14.8 vs. 11.4), at the 1905 price level. Previous literature has argued that high benefit levels were sometimes used to attract new members and that societies often suffered from the lack of actuarial techniques to arrive at a fair premium in relation to the risk assured.⁶⁸ Data from registered societies shows that male-based societies had both higher benefit levels and an easier access to benefits. The period before a new member was provided with insurance coverage during a period of sickness (member time) was longer for members in mixed societies. The qualifying period before benefits/sick pay could be claimed (waiting time) was also significantly longer among members of mixed societies (16.9 days) than in male-based societies (10.5 days). The same is true for the maximum time during which sickness benefits could be received.

Mixed societies were larger, with an average membership of 349, while for male-based societies average membership between 1901 and 1910 was only 139. Mixed societies had a significantly higher growth rate during the period under study (3.3 percent vs. 1.4 percent annually). Most of the societies were established towards the end of the nineteenth century and in the early twentieth century. Relatively few were established before the mid-nineteenth century. The age of societies in the two groups was fairly similar (18.7 vs. 18.4). In order to identify whether there was any difference in terms of age of members, we have compiled the member-age statistics for a sample ($n = 237$) of health insurance societies in Stockholm for the year 1905.⁶⁹ The membership records show that the average age was fairly similar (40.5 vs. 41) and also for both men and women (41 vs. 40). However, when comparing the age profile, it seems that mixed societies included relatively more young and old members. The members of male-based societies had a more compressed age structure. Part of the reason was that in health insurance societies; female members were either younger or older than male members.

All members of a health insurance society usually paid about the same fee, i.e. sharing the cost equally despite differences in age, occupation or other differences in risk structure. If there were any differences in premiums, these reflected differences in benefits/levels of disbursements and not risk profile. This flat-risk pricing policy seems to have generated cross-subsidisation within a society from young and lower-risk members to old and higher-risk members. It may be argued that young workers had an incentive to put off joining a society as well as to create new societies instead of joining existing societies where they

would have to subsidise older workers.⁷⁰ It has also been argued that fierce competition for members nevertheless led to detrimentally low premiums, a high rate of closures and insecure coverage. That may have been one reason why societies dissolved, leaving members without insurance.⁷¹ When comparing male and mixed health insurance societies, we find that the male societies experienced a significantly higher exit rate. The exit rate (measured as a share of societies exiting before 1910) was 24 percent among male-based health insurance societies and only 7 percent among mixed societies (the exit rate for the full sample was 14 percent). Hence, exclusion seems not to have improved survival rates.

7. The impact of organisational characteristics on the exclusion of women

The exclusion of female members seems to have been related to a number of organisational features. As shown by the description in Table 1, there were significant differences between excluding and non-excluding health insurance societies in terms of affiliation, financial structure and policy charters. In order to further analyse the relative importance of such differences, we have applied a panel data analysis to the factors underlying exclusion. The first stage of the analysis was based on a random effect logit model, in which we estimate the impact of affiliation (occupation, fellowship, temperance), financial structure (the *ex post* principle, subsidies) and membership structure (size, age) along with place-specific variables (female labour share, manufacturing labour share, insurance coverage) on female exclusion.

The analysis shows that affiliation was a key explanatory variable for female exclusion. Societies formed on the basis of occupation and fellowship formally excluded women to a significantly greater extent than societies with other affiliations. In contrast, it can be seen that health insurance societies affiliated to temperance and Christian movements excluded female members much less (other health insurance societies are used as a reference category). When comparing the different sub-forms, we find that the temperance societies reduced female exclusion the most, while Christian societies had a negative but insignificant impact. Bengtsson has shown how women in early twentieth century Sweden joined popular movements like the temperance movement. These movements and their causes were viewed as respectable arenas for women. Bengtsson further illustrates how women used the temperance societies as a way of creating their own public platform and in the struggle for women's rights.⁷² The large proportion of women organised in different temperance movements most likely reduced the likelihood of exclusion of women from temperance health insurance societies.

Health insurance societies based on *ex post* premiums excluded women to a somewhat greater, but insignificant extent. As argued in the previous literature, such societies were associated with greater levels of moral hazard controls, and were expected to be more extensively based on long-term social relations within a homogeneous group of members, mitigating information asymmetry by restricting access and by putting pressure on social control. Skogh, together with Guinnane, further argues that such mutual sharing as *ex post* premiums reduced moral hazard by enabling the pursuit of stronger measures of social control and social repercussions, and thereby lowering the frequency and/or duration of sickness claims.⁷³ However, such principles seem not to have reduced access for women.

Table 2 shows a significant and positive impact by premiums/contributions on female exclusion. The finding indicates that larger contributions create stronger incentives among

members to control disbursements either by avoiding cross-subsidising (women perceived as higher risk) or moral hazard (loss of social proximity and trust) by excluding women. In that regard, it supports the argument by Guinnane and Streb, that larger contributions to a society would encourage members to adopt stronger measures to check for simulation and sickness among other members.⁷⁴ Another line of reasoning is that larger contributions created stronger incentives to support only individuals belonging to the same ‘club’ or ‘community’, sharing close social bonds and kinship relations. The latter argument finds support in smaller societies having excluded women to a greater extent than large societies. It also underlines the fear among representatives of fraternal societies that larger units would mean the loss of male affinity and social control.⁷⁵

Female exclusion varied across different cities and counties. In cities and rural areas where female labour market participation was high, the exclusion of women from societies was more common. In contrast to Sweden, in Britain, female societies during the period 1830 to 1840 proved most numerous in industrial areas with high female employment.⁷⁶ Industry structure was also a determinant for female exclusion. In areas where manufacturing industries dominated, female exclusion was high, which is additionally explained by a high female employment rate in manufacturing. In turn, the diffusion of sickness insurance reduced exclusion, as demonstrated by the negative correlation between insurance coverage and female exclusion. It is difficult to explain this increased exclusion of women from societies in regions with high female employment. Perhaps the exclusion might be explained by the critique against female workers in inter-war Sweden put forward by Frangeur, that women’s lower salaries resulted in employers sometimes preferring to hire women instead of men.⁷⁷ Some employers and unions wanted a prohibition against employment of married women, and in contemporary labour market statistics it was wrongly argued that the increase in female employment was at the expense of men’s employment.⁷⁸ Our findings might indicate that there was a critique against the employment of women in Sweden earlier than previous research has acknowledged.

To further analyse the impact of organisational structure on female access to health insurance societies, we have applied a Tobit model to estimate the determinants for the female participation rate. A Tobit model is considered preferable due to the left-censored structure

Table 2. Random effect panel data analysis of female exclusion and female participation rate.

	Female exclusion		Female participation	
	Logit model		Tobit model	
	Random-effect		Random-effect	
Occupational	9.05	***	−12.33	***
Fellowship	15.04	***	−17.22	***
Temperance	−3.88	***	3.92	
Christian	−2.50	*	13.84	***
<i>Ex post</i>	0.75		−3.26	***
Premium	0.30	***	−0.09	***
Size	−0.002	***	0.00004	***
Age	−0.02		0.12	***
<i>Female labour</i>	0.19	***	−0.03	
Manufacturing labour	0.06	***	0.00	
Insurance penetration	−0.07	***	0.03	***
Constant	−15.03	***	29.38	***

Note: ***, **, * denote significance at the 1, 5 and 10% levels. 3956 left-censored observations in the Tobit model.

Source: see Table 1.

of the data on female participation. The result of the Tobit model largely confirms the results from the Logit model of female exclusion and, like the Logit model of female exclusion, it is found that societies affiliated to occupation and fellowship had a significantly lower female participation rate than societies affiliated to the Christian evangelical movement in particular. Similarly to the exclusion model, larger premiums/contributions reduced female membership, while a larger size went hand in hand with higher female participation.

Unlike the exclusion model, Christian societies had a significant effect on the participation rate, showing that Christian societies had more female members, while temperance societies were closer to the average of the reference group (Other societies). Another difference is the significant impact on female participation rates of *ex post* (negatively) and age (positively). It should also be noted that the structure of the local labour market does not appear to impact on the female participation rate. This may indicate that the exclusion of female members outweighed the expected positive impact of female labour on female participation in health insurance societies. Another reason for the result might be that women's membership in health insurance societies was not only an outcome of women's wage-earning labour. As noted previously, the demand for health insurance was not limited to wage-earners. Married women occupied in domestic work accounted for a substantial proportion of all women insured. Nevertheless, there appears to have been a greater demand by wage-earners as indicated by the over-representation in our sample compared with the population of women of economically active age.⁷⁹

8. The relationship between sickness and benefits by organisational form

One of the key arguments put forward at the time for motivating female exclusion was that female members might jeopardise the male affinity and, therefore, the popularity of the society and solidarity between members and towards the society. The lack of male affinity and solidarity would lead to less reliable members and a higher risk of moral hazard. Pressure from members in the pool, and possibly also the threat of social sanctions in case of immoral or fraudulent behaviour, would thereby help bind the interests together and reduce the risk of moral hazard problems. By including only known male members in an effort to create an all-male affinity, it may be argued that reported sickness days in female-excluding societies would not be affected by levels of disbursements.⁸⁰ In turn, gender-mixed societies should face more difficulties in mitigating the incentive to report sick due to the lack of fraternalism and club-like characteristics. If female exclusion fostered closer social proximity and fraternalism, higher benefits would not result in higher sickness figures since the individual incentives to report sick would have been counteracted by the enhanced (social) ability to control members. In turn, mixed societies would face far more difficulties in combining high benefits with low sick day figures.

To empirically examine the relation between benefits/ levels of disbursements and sick days by organisational form, we used the aforementioned sample of 1,285 health insurance societies observed between 1901 and 1910.⁸¹ The dependent variable (sick days) is measured by sick days per member in one year. An alternative would be sick cases or duration of sickness. Compared to the latter two, sick days is preferable since it combines the number of sick cases with duration of sickness into one measure. The key independent variable of benefits is measured as benefits per member in purchasing power parity (PPP)-adjusted price levels.⁸² In order to examine the relationship of benefit to sick days by organisational

form, we have run two identical but separate models for male and mixed societies respectively.

Following a study conducted by Guinnane and Streb, we have used both a linear fixed effect (FE) model and an instrumental variable (IV) fixed-effect model, using cluster robust errors by spatial unit in both specifications. The FE model is used as a baseline, and the IV model is used to control for the endogeneity of an important regressor. Since we lack individual information on benefits schemes, we have to rely on the average benefits (sick benefit to number of sick days) per society and year. One could argue that this variable reflects the balance of two forces; the incentive to report sick for the individual member and the incentive for other members to impose measures against moral hazard and excess claims. A society would also have incentives to cut down on benefits in response to increasing number of sick days over time—again showing how sick pay per day (benefits) arguably are endogenous (Guinnane and Streb, 2011).

Benefits are first instrumented by premium per member (PPP-adjusted). The first-stage regression (reported in Table 3) shows that the instrument, has a highly significant impact on the endogenous (benefit) variable. However, one concern is that premium size is affected by sick days when *ex post* premiums are applied. To control for that linkage, we have restricted the sample to include only the years when no *ex post* payments were applied. When imposing that restriction (*ex post* excluded) it is shown that premiums still have a highly significant impact on benefits. A few other instruments were also considered for the variable list shown in Table 1. From that list we find that public subsidy per member was significant and met the exclusion criteria. Subsidies, however, are close to the threshold for a weak instrument.⁸³

For all societies taken together, we find that the FE effect model gives initial support to the notion that benefits are negatively related to sick days. However, when running the IV model the sign is reversed across all three different specifications (Premium instrumented including *ex post*, Premium instrumented excluding *ex post*, Subsidy instrumented), demonstrating that benefits have a significant positive impact on sick days. The result clearly shows that sick pay per day are endogenous, and we therefore need to instrument benefits when estimating the effect on reported sickness days. Our findings are in line with Guinnane and Streb showing that higher benefits yield higher sick days' figures. We arrive at a somewhat higher coefficient estimate (11) for Swedish health societies as compared to the German Knappschaft considering the size of the benefit.

When running the IV model for male societies only, it is shown that the impact of benefits on sick days is significant but higher (17) than if the full sample is considered. When running the IV model for gender-mixed societies only, we find that the impact of benefits on sick days is significant but smaller (8). When running the model with subsidy instead of premium as instrument, we also arrive at a disadvantage for the male societies as compared to the mixed societies. However, as subsidy is a weaker instrument, the explanatory power in the first stage of the model is lower and the results in the second stage are more varying. Compared to the premium-instrumented result, we find a lower coefficient estimate in the full model (6.8) in panel A, but a somewhat higher (19.8) estimate in panel B, but a lower estimate for panel C (6.2). When restricting the sample to include only societies using *ex ante* premium, we also find a disadvantage for male societies compared to mixed societies. Due to differences in the sample selection however, the size of the coefficient estimate differs somewhat compared to the full sample.

Table 3. Multivariate analysis of sick days.

FE	II Premium instrumented				III Premium instrumented				VI Subsidy instrumented			
	including ex post		excluding ex post		including ex post		excluding ex post		including ex post		excluding ex post	
	IV	First	IV	First	IV	First	IV	First	IV	First	IV	First
Panel A. All societies												
Benefit	***		11.21	***	0.058		4.06	***	0.038		6.74	***
Premium	***											
Subsidy	**											
Female	*											
Size			-0.015	***	-0.003	***	-0.027	***	0.001	***	-0.018	***
Age	***		0.000	***	-0.002	***	-0.001	***	0.000	***	-0.417	*
Manuf.	***		0.350	***	-0.004	***	0.224	***	-0.016	***	0.250	***
Constant	***		-0.074	***	0.007	***	-0.033	*	0.004	***	-0.043	***
Within	***		-16.51	***	0.96	***	-3.47	***	1.35	***	-6.17	*
Between	0.27		-		0.04		-		0.06		-	
Overall	0.15		0.00		0.08		0.01		0.13		0.01	
Observations	0.13		0.00		0.06		0.01		0.09		0.01	
	9395		9395		9395		5703		5703		9395	
Panel B. Male societies												
Benefit	***		17.41	***	0.011		6.27	***	0.035		19.77	***
Premium	***											
Subsidy												
Female	(omitted)		(omitted)		(omitted)		0.000		0.000		-2.607	***
Size	-0.001		-2.408	*	0.147	**	-1.357	**	0.161	***	0.640	***
Age	0.189		0.605	***	-0.026	***	0.342	***	-0.027	***	-0.137	***
Manuf.	-0.017		-0.127	**	0.007	***	-0.029	***	0.005	***	-28.01	***
Constant	-0.44		-26.05	***	1.37	***	-5.77	***	1.09	***	-	***
Within	0.36		-		0.07		-		0.09		0.06	
Between	0.18		0.02		0.03		0.01		0.06		0.02	
Overall	0.13		0.01		0.02		0.01		0.04		0.02	
Observations	3439		3439		3439		1757		1757		3439	
Panel C. Mixed societies												
Benefit	***		7.70	***	0.027		2.16	***	0.041	***	6.22	***
Premium	**											
Subsidy												
Female	**		-0.015	***	-0.001	***	-0.034	***	0.001	***	-0.019	*
Size	-0.015		-0.198	***	0.082	***	0.034	***	0.079	**	-0.270	***
Age	-0.001		0.243	***	-0.016	***	0.154	***	-0.011	***	0.208	***
Constant	0.166											

(Continued)

Table 3. (Continued)

	II Premium instrumented				III Premium instrumented				VI Subsidy instrumented			
	including <i>ex post</i>				excluding <i>ex post</i>							
	FE	IV	First	IV	IV	First	IV	First	IV	First	IV	First
Manuf.	-0.042				-0.018	-0.001			-0.039	*		0.004
Constant	3.06	**	**	***	0.62	0.81	***	***	-4.20			1.00
Within	0.13				-	0.05			-			0.02
Between	0.12				0.01	0.15			0.01			0.02
Overall	0.08				0.01	0.10			0.01			0.01
Observations	5956	5956	5956	5956	3946	3946			5956			5956

Note: ***, **, * denote significance at the 1%, 5% and 10% levels.

Source: see Table 1.

Contrary to the expectation by contemporary representatives, our result shows that excluding societies seem to have faced greater problems in keeping down sick days in relation to benefits. According to model II (when the full sample and benefits are instrumented by premium), an increase of one krona in benefits (153% increase) is translated into 17 more sick days (Panel B). The gender-mixed societies seem more capable of keeping down the number of sick days in relation to benefits. An equally large increase of benefits (1 krona) produces 8 more sick days (Model II, Panel C). Although stronger social proximity and control may have existed in male-based societies, it proved to be rather ineffective in reducing incentives to report sick.

Our results show that fraternal societies, rather than occupational societies, had more sick days in relation to benefits, and that fraternal societies excluded women the most. Even though there was a slight difference in the age structure of men and women, the fact remains that societies were still not exposed to a greater risk from insuring women than men. If it were common for women to become members at a young age, the rationale of health insurance societies would be to regard them as a lower risk and welcome them as members. Furthermore, since the data is based on sick days, not actual sickness, it is theoretically possible that women more often suffered from 'real' sickness, but for some reason did not report in sick. In any case, they did not represent a greater risk for health insurance societies.

The disadvantage of excluding women is further underlined by the finding that the female participation rate had a negative impact on sick days. This finding further undermines the arguments by contemporaries that women were more likely to get sick than men, and that keeping women out of health societies would limit sick days. In fact, including more female members would have had the effect of keeping the number of sick days down. Since women reported sick for longer periods, it is likely that they more frequently faced periods of sickness without benefits, since the benefit period was restricted to a limited time period.

On the other hand, men with shorter but more frequent sickness periods were left without benefits because of the qualifying period. A Swedish study by Angelov et. al, shows that today's increased labour force participation by women with small children has resulted in a large increase in reported sickness among women. In the 1960s and 1970s, when women with children worked less, there was no significant difference between women's and men's reported sickness.⁸⁴ In the light of this recent research, although based on historical conditions, the large proportion of health-insured women working at home might offer an explanation for the fewer sick days among women. When comparing sickness duration among women reporting sick using individual data from Svenska Folket, we find a statistically significant difference between women occupied in domestic work compared to women in wage work. Women in domestic work have a longer duration of sickness, but fewer cases of sickness. Occupation may be one reason, but age is another. Women in domestic work were significantly older.⁸⁵

Guinnane and Streb argue that a worker in a large health insurance society would be less likely to feel strongly that abusing the system was hurting someone to whom he had real social ties. Therefore, they argue, moral hazard increased with the size of the association.⁸⁶ Contrary to that reasoning, we find, if anything, a negative correlation between size and sick days, showing that, on average, smaller societies tended to have higher sick-day figures than larger societies. Although smaller societies might have had an advantage in monitoring members and thereby reducing moral hazard and sick days, one could also argue that smaller

societies were more willing to support members in financial difficulty due to closer social relations. Close social ties among members seem less likely in larger societies. Larger societies were forced to rely more on formalised rules and measures to keep the number of sick days down. Gottlieb suggests that mutual insurance might have benefited from informational advantages; by employing egalitarian pricing combined with scaled entry fees and a policy of discouraging individuals older than 40 to apply for membership, countervailing incentives for joining a fraternal society were generated.⁸⁷ Our results demonstrate that such formalised measures were a more efficient tool than social ties for reducing sick days.

Older societies had on average higher figures for sick days than younger societies. One possible explanation is that the age of a society can be a proxy for the age of its members. That reasoning is supported from a cross-section analysis on the relationship between age of members and age of society. Based on the aforementioned sample of Stockholm-based health insurance societies in 1905, we find a positive and significant correlation between average age of member and age of society (.41). It is also shown that the proportion of older members is highly correlated with the age of the society (.45).⁸⁸

9. Conclusion

Female exclusion was most common in small societies with close social proximity as an organisational basis. Findings from archive records and charters show that exclusion was based on a mix of different arguments. Social proximity and forging fraternal ties were seen as useful in view of the harsh competition for the 'right' members that could assist in making the society more attractive and prestigious compared to others. It was further argued that social proximity and solidarity among members could help keep down over-reporting of sickness. We find support for the view that exclusion was seen as a measure by which to avoid unknown risks. Hence, small societies in some cases perceived the entering of female members as a risk for losing social proximity, and they therefore put forward economic objectives for excluding women. Female-excluding societies suspected that women represented a greater risk, although this greater risk was unconfirmed.

The larger societies were more open to expansion in order to share the risks across a larger pool of members, making them less dependent on social proximity and male affinity by excluding women. The larger national societies were further often connected to Christian and temperance movements, in which women had a large engagement.

Our study finds no support for the contemporary argument that female exclusion reduced sick days directly by avoiding a higher risk, or indirectly by mitigating the incentive to report sick. It seems rather that the exclusively male-based societies were less successful in keeping down sickness claims in relation to benefits than mixed-gender societies. We also find that mixed societies were faced with fewer sick days on average, and the impact of female participation on sick days was negative.

Notes

1. Emery and Emery, *A Young Man's Benefit*.
2. Harris, Gorsky, Guntupalli, Hinde, 'Long-Term Changes'.
3. Gottlieb, 'Asymmetric Information', 278; Emery, 'The Rise and Fall'; Emery, 'Risky Business?'; Emery and Emery, *A Young Man's Benefit*; Murray, *Origins of American Health Insurance*; Guinnane and Streb, 'Moral Hazard in a Mutual Health Insurance System'.

4. Gottlieb, 'Asymmetric Information'; Murray, *Origins of American Health Insurance*.
5. Cordery estimates that women constituted 5 percent of all members in UK friendly societies around the year 1800, hence the turn of the nineteenth century is considered to be an historical high-water mark when it comes to female membership in friendly societies. Cordery, *Friendly Societies*, 24.
6. Murray, *Origins of American Health Insurance*, 100.
7. Stanfors, 'Women in a Changing Economy'.
8. Riksarkivet, Första och andra sjukförsäkringsbyrån, Statistiska redogörelser, Registrerade sjukkassar, 1910, Y-BD, län 'Svenska folket'.
9. The exclusion of women could, of course, be an example of gender discrimination, a way to restrict women's self-reliance and opportunities based on perceptions of women's and men's roles in society, where women belonged in the private sphere and men in the public sphere. The formal exclusion of women from sickness insurance was common in many countries, and the masculine and fraternal character of friendly societies has been a subject of research among historians. Clawson, 'Nineteenth-Century Women's Auxiliaries'. Clawson shows how American fraternalism in the 1800s created bonds of loyalty across class lines and made gender and race primary categories of collective identity. Clawson, 'Constructing Brotherhood'. Carnes has studied fraternal orders in eighteenth century America, and argues the fraternal bonds offered a counterculture to women's strengthened positions in society. Carnes, 'Secret Ritual and Manhood'. Weinbren argues the exclusion of women from fraternal societies was a means to create and confirm male dominance. Weinbren, 'The Fraternity of Female Friendly Societies'.
10. See e.g. Honeyman, 'Doing Business with Gender'; Yohn, 'Crippled Capitalists'.
11. Lindeberg, 100–103.
12. In the economic historical research on insurance, it has been argued that health insurance societies managed to reduce adverse selection by including only known risks, that is, only persons already known to other members of the society. Everyone else, not known to the society, was suspected as involving a higher risk. When it came to insuring women, societies suspected a higher, although not confirmed, systematic risk, and women were therefore formally excluded. Reducing moral hazard in mutual societies was accomplished by creating social affinity and fraternalism among members together with the social control generated in small communities. Fraternalism as a base of organisation could be jeopardised by welcoming women in the society. By formally excluding women, an all-male based affinity was created which might have mitigated the risk for moral hazard. Gottlieb, 'Asymmetric Information', 278; Emery, 'The Rise and Fall'; Emery, 'Risky Business?'; Emery and Emery, *A Young Man's Benefit*.
13. Jopp, 'Old Times, Better Times?'; Jopp, 'Insurance, Size and Exposure to Actuarial Risk'.
14. Andersson and Eriksson 'Sickness Absence in Compulsory and Voluntary Health Insurance'.
15. Nekby, 'Pure versus Mutual Health Insurance'; Lindeberg, *Sjukförsäkringshistoria*.
16. Lindeberg, *Sjukförsäkringshistoria*, 232.
17. Kommerskollegii, B:1 *Registrerade sjukförsäkringsverksamhet 1901–1910*; Schön and Krantz, 'New Swedish Historical National Accounts'.
18. Guinnane and Streb, 'Moral Hazard in a Mutual Health Insurance System'.
19. The National Archives (RA). Marieberg, Stockholm, Sweden. RA Socialförsäkringskommittén 1915 [Social insurance committee], 28, sjukkastestadgar mm [Health insurance society policy statements, etc.].
20. Lindeberg, *Sjukförsäkringshistoria*.
21. Lindeberg, *Sjukförsäkringshistoria*, 41.
22. The sample includes 1,285 mutual health insurance societies over the period from 1901 to 1910. The sample covers 60% of all members registered in Swedish health societies. The Swedish health insurance system was based on small local societies and a few national societies. The data were published by rural and urban areas for all 24 counties of Sweden. Each society was nested by either a city or a rural area for each county. To account for the spatial structure of the health insurance system, all counties in Sweden are included. Data selected to represent urban societies include all societies from the largest and the second largest city within each county. Data selected to represent rural societies include all societies from the counties of Östergötland

and Västernorrland. These two counties were chosen in order to cover rural areas with high and low levels of women in gainful employment, respectively. Lindeberg, *Sjukasserörelsens historia*; Kommerskollegii, B:1 *Registrerade sjukassors verksamhet 1901–1910*.

23. Lindeberg, *Sjukasserörelsens historia*, 65.
24. Johansson, *Fast i det förflutna*.
25. Andersson and Eriksson, 'Sickness Absence in Compulsory and Voluntary Health Insurance', 5.
26. Kommerskollegii, B:1 *Registrerade sjukassors verksamhet 1901–1910*.
27. Lindeberg, *Sjukasserörelsens historia*, 134.
28. Lindeberg, *Sjukasserörelsens historia*, 65.
29. Kommerskollegii, B:1 *Registrerade sjukassors verksamhet 1901–1910*.
30. Lord argues that the establishment of British female friendly societies illustrated women's ability to control their own lives and spend their spare capital as they wished. Lord, 'Weighed in the Balance and Found Wanting', 101; Lindeberg, *Sjukasserörelsens historia*.
31. Similar, in Britain, there is a lack of comparable data on female societies. Some regions in Britain listed local friendly societies by name in their returns to the government, while others submitted anonymous tallies that remained opaque on gender. According Rusnock and Dietz, on the basis of the available data on British female health insurance societies, in the late nineteenth century roughly 8 percent targeted women only. Rusnock and Dietz, 'Defining Women's Sickness and Work', 63. The existence of female health insurance societies seems to have been more common at periods Jones, 'Self-Help in Nineteenth-Century Wales'; Lord, 'Weighed in the Balance and Found Wanting'. Clark shows that, in London, the female share of societies decreased from 15 percent in 1794 to 3 percent in 1837. Clark, *Struggle for Breeches*, 35–6.
32. The Swedish censuses are problematic when it comes to describing women's historical roles on the labour market. According to the censuses, women's gainful employment was 28 percent (aged 16–64) in 1910. However, the censuses did not include part time workers or women's work as farmers' wives. If farmers' wives are included in the census, women's gainful employment increases to 55 percent and women's labour market share become 34 percent of the total labour force. While male farmers are included in the censuses, the inclusion of farmers' wives makes a much fairer estimation of the female workforce in 1910. If we use the data that includes farmers' wives, 14 percent of all women in the labour force (16–64) are members of a health insurance society. When it comes to men (16–64 years of age), 28 percent of the male labour force was health-insured.
33. Riksarkivet, Första och andra sjukförsäkringsbyrån, Statistiska redogörelser, Registrerade sjukassor, 1910, Y-BD, län 'Svenska folket'.
34. Silenstam, Arbetskraftsutbudets utveckling, 105.
35. Stanfors highlights the fact that in contrast to what is commonly assumed, Swedish women did not, in a long-term perspective, have particular high rates of gainful employment until the post-war period. Stanfors, 'Women in a Changing Economy', 515–516.
36. Kommerskollegii, B:1 *Registrerade sjukassors verksamhet 1901–1910*.
37. Kommerskollegii, B:1 *Registrerade sjukassors verksamhet 1901–1910*.
38. Lindeberg, *Sjukasserörelsens historia*, 152; Arbetareförsäkringskomitén, *Arbetareförsäkringskomiténs betänkande 1888–1889*.
39. Lindeberg, *Sjukasserörelsens historia*, 151–52.
40. Gottlieb, 'Asymmetric Information', 278; Emery, 'The Rise and Fall'; Emery, 'Risky Business?'; Emery and Emery, *A Young Man's Benefit*; Murray, *Origins of American Health Insurance*; Guinnane and Streb, 'Moral Hazard in a Mutual Health Insurance System'.
41. Brödrakedjans sjuk- och begravningskassa Norrköping 1890–1925, 16; Socialförsäkringskommittén 1915, 28, sjukkassestadgar mm., Stadgar för Hargs arbetareförenings sjuk- och begravningskassa, 10–11; Stadgar för Sprängvikenssjukhjälpskassa, 5. The National Archives. Marieberg, Stockholm; Lindeberg, *Sjukasserörelsens historia*, 214.
42. Clawson, 'Constructing Brotherhood'; Carnes, *Secret Ritual and Manhood*.
43. Lindeberg, *Sjukasserörelsens historia*, 104.
44. Norrlands Dragonregementes hjälpkassa, 3.1. Brev 1909–1937. The Popular Movement Archive in Västerbotten.

45. Lindeberg, *Sjukkasserörelsens historia*, 213.
46. Socialförsäkringskommittén 1915 [Social insurance committee], 28, sjukassestadgar mm [Health insurance society policy statements, etc.]. Stadgar för Rörstrands sjuk- och begravningskassa, 13; Stadgar för Billesholms arbetares sjuk- och begravningskassa, 6; Stadgar Wargöns sjuk- och begravningskassan, 9. The National Archives. Marieberg, Stockholm.
47. Lewchuk, 'Men and Monotony'.
48. *Brödrakedjans sjuk- och begravningskassa Norrköping 1890–1915*, 14.
49. Clawson, 'Constructing Brotherhood'.
50. Lindeberg, *Sjukkasserörelsens historia*, 104.
51. Sjukkasestidningen 1909 (1): 6; Lindeberg, *Sjukkasserörelsens historia*, 237.
52. Lindeberg, *Sjukkasserörelsens historia*, 151; 315.
53. The condition for receiving subsidies was that pregnant women should receive maternity allowance at least for 14 days. SOU 1954:4, *Moderskapsförsäkring mm.*, 14.
54. *Alingsås erk. Sjukassa Enighet: minnesskrift 1913–1938*, 37; *Sjukkasserörelsens ursprung och Ludvikabygdens sjukasseverksamhet under åren 1901–1961*, 2.
55. *Göteborgs Läroverkslärares sjukassa och understödsföreningen Göteborgs läroverkslärares livförsäkringskassa 1898–1923*, 14–5.
56. Trelleborgs nya sjukassa och Trelleborgs nya begravningskassa 1893–1923, 5–6; Socialförsäkringskommittén 1915, 28, sjukassestadgar mm., Ala, Sandarne, Asketa Sjuk- och begravningshjelpskassa. 21, The National Archives. Marieberg, Stockholm.
57. Lindeberg, *Sjukkasserörelsens historia*. 111.
58. *Stockholms folkskollärarekårs begravningskassa: till tjugofemårsminnet 1924*.
59. *Posttjänstemännens sjukassa 187–1977*, 2.
60. *Alingsås erkända sjukassa Enighet: Minnesskrift 1913–1938*, 11.
61. *Göteborgs Läroverkslärares sjukassa 1923–1947*, 6–7.
62. By the law of registered societies from 1891, societies that wished to receive state subsidy had to submit their charters to the authorities for approval. The statistics used in this paper is collected from these charters. Hence, societies with implicit exclusion probably had reason to decide on a formal exclusion or not when adjusting the charters to the instructions from the authorities.
63. The sample includes 1,285 mutual health insurance societies during the period 1901 to 1910, making up an unbalanced panel of 10,089 observations. The panel is unbalanced and contains society/year observations. The unbalanced structure is largely due to the entry of new societies ($n = 448$) and to a lesser extent by the exit of societies ($n = 178$). The data is gathered from reports submitted by mutual health insurance societies to the National Board of Trade. The data contains information on membership, sickness, financial accounts and charters. The membership statistics are differentiated between male and female participation. Many societies also submitted charters, providing information regarding voluntary/mandatory membership and restrictions on membership by sex. The Swedish sickness insurance system was based on small local societies and a few national societies. Kommerskollegii, B:1 *Registrerade sjukassors verksamhet 1901–1910*.
64. Nekby, 'Pure versus Mutual Health Insurance'.
65. The exchange rate SEK/£ equalled 18.2 in 1905.
66. To compare benefits across time and space the figures are expressed in real terms with the 1905 price level of Stockholm as reference year/place. The fixed price calculations are based on cost-of-living-standard indices constructed for each city between 1901 and 1910. The cost-of-living includes prices for food stuff, fuel and rent (Kommerskollegii, D:1 *Livsmedels och bostadspriser i Sverige*; Socialstyrelsen, *Detaljpriser och indexberäkningar 1904–1912*).
67. Bagge, *Wages, Cost of Living and National Income*.
68. Lindeberg, *Den svenska sjukkasserörelsens historia*.
69. *Riksförsäkringsanstalten, Första och andra sjukförsäkringsbyrå, Statistiska redogörelser, Registrerade sjukassor, Stockholms Stad. Riksarkivet, Arninge, 1905*.
70. Gottlieb, 'Asymmetric Information', 275.
71. Edebalk, *Välfärdsstaten träder fram*; Emery and Emery, *A Young Man's Benefit*; Cordery, *Friendly Societies*.

72. Bengtsson, *Nyktra kvinnor*.
73. Skogh, 'Risk-sharing institutions for unpredictable losses'; Guinnane, 'Cooperatives as information machines'.
74. Guinnane and Streb, 'Moral Hazard in Mutual Health Insurance System'.
75. Lindeberg, *Sjukkasserörelsens historia*, 104.
76. Rusnock and Dietz, 'Defining Women's Sickness and Work', 63.
77. Frangeur, *Yrkeskvinna eller makens tjänarinna?*
78. SOU 1938:47, 7; 170–73; 315–16.
79. Riksarkivet, Första och andra sjukförsäkringsbyrån, Statistiska redogörelser, Registrerade sjukkassor, 1910, Y-BD, län 'Svenska folket'; Stanfors, 'Women in a Changing Economy'.
80. Lindeberg, *Sjukkasserörelsens historia*.
81. Kommerskollegii, B:1 *Registrerade sjukkassors verksamhet 1901–1910*.
82. Benefits are expressed in real terms with the 1905 price level of Stockholm as reference year/place. The fixed price calculations are based on cost of living standard indices constructed for each city between 1901 and 1910. The cost of living includes prices for foodstuffs, fuel and rent (Kommerskollegii, 1904–1912; Socialstyrelsen, 1919; 1933).
83. To test for a weak instrument, a commonly used diagnostic is the F-stat for the significance of an instrument (in the first-stage regression of an endogenous regressor). A widely used rule of thumb is that an F-stat of less than 10 is a weak instrument. For premium the F-stat we arrive between 20 and 40, and for subsidy it is between 5 and 20. A more formal test is proposed by Stock and Yogo (2005). They provide critical values for single endogenous repressors. Based on their critical values from the first regression output, we can reject the null hypothesis of a weak instrument based on our F-stat reported in the first stage regression for premiums, but not for subsidy in the model on excluding societies.
84. Angelov et.al, 'Kvinnors och mäns sjukfrånvaro', 4; 41–42.
85. Riksarkivet, Första och andra sjukförsäkringsbyrån, Statistiska redogörelser, Registrerade sjukkassor, 1910, Y-BD, län 'Svenska folket'.
86. Guinnane and Streb, 'Moral Hazard in a Mutual Health Insurance System'.
87. Gottlieb, 'Asymmetric Information', 278.
88. *Riksförsäkringsanstalten (1905)*, Första och andra sjukförsäkringsbyrån, Statistiska redogörelser, Registrerade sjukkassor, Stockholms Stad. Riksarkivet, Arninge.

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