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## Improving Workplace Safety in the Ontario Manufacturing Industry, 1914–1939

The safety of workers and the costs to employers and the economy as a whole became a serious problem in industrializing nations. Workplace safety in the Ontario manufacturing industry deteriorated at the end of the nineteenth century. In response, the province legislated to regulate safety standards and factory inspection. However, this strategy failed to reduce accident rates. As in the United States, it was the enactment of workers' compensation legislation that generated the economic incentives for Ontario's employers to invest in safety. Yet in contrast to the United States, where safety was predominantly organized inside firms, employers in Ontario developed a comprehensive institutional framework to organize a range of safety actions.

The aim of this article is to provide new evidence demonstrating that the creation of institutions played a central role in the improvement of workplace safety. As economist Douglass North argues, not only technology but also institutions are necessary to transform inputs into the output of goods and services.<sup>1</sup> I concentrate on the Ontario manufacturing industry to illuminate the key safety issue, which is how to reduce accident rates. The relevance of this case is evident from the approval expressed by numerous Canadian, U.S. and European observers and organizations.

Mechanization and new factory work practices were the main factors behind the increased rate of workplace risk in industrializing nations on both sides of the Atlantic in the late nineteenth and early twentieth centuries.<sup>2</sup> As industrialization went ahead, concern grew for the safety of workers and the costs to employers and the economy. As social reformer Crystal Eastman wrote in her celebrated publication on the "work-accident problem," there were "grounds for belief that wrong exists in certain relations

between individuals, a wrong of sufficient importance and extent to warrant concerted interference on the part of the community.”<sup>3</sup> The leading American safety engineer Herbert W. Heinrich, meanwhile, sought to raise awareness of the “hidden” or “indirect” costs to the employers of injured employees, including “costs of lost time of the injured employee and other employees who stop work, cost of time lost by foremen or supervisors assisting the injured employee, investigating the cause of accident, preparing accident reports, arranging for the injured employee’s production to be continued by some other employee and selecting training or breaking-in a new employee to replace the injured employee,” as well as “cost due to injury to the machine, cost due to interference with production and cost due to the loss of profit on the injured employee’s productivity.”<sup>4</sup> The importance of the problem was highlighted in numerous conferences, reports, recommendations and resolutions by the International Labour Organization (ILO) during the interwar period.<sup>5</sup>

Workplace safety came to be perceived as a grave public health problem in part due to the limitations of the traditional responses for dealing with accidents. As historian Daniel Rodgers argues, “the precipitant of the crisis was a breakdown in the legal machinery of compensation.”<sup>6</sup> Workers might receive higher wages for accepting dangerous jobs, but such “compensating wage differentials” were not universal and, when they did exist, were not necessarily enough to fully cover expected losses. Injured workers or surviving family members could also claim compensation from the employer, but they still had to prove negligence, often resulting in the firm’s exoneration from any liability. Finally, workers could rely on individual, union, or employer-provided insurance. Accident insurance, however, was not widespread and benefits were often insufficient.

Early public intervention aimed at lowering the accident rate was based on two main strategies: safety standards legislation and workers’ compensation. First, legal regulation of safety and factory inspection, which sometimes included the power to fine employers, spread throughout Europe and North America from the 1860s to the 1910s.<sup>7</sup> This strategy, however, was not necessarily enough to improve working conditions, as the ILO would repeatedly complain. Scholars have confirmed that early regulation of

safety standards suffered from basic shortcomings related to the standard-setting process and enforcement.<sup>8</sup>

Workers' compensation systems, on the other hand, were not only designed to compensate injured and deceased workers and their families but also to reduce accidents. The introduction of workers' compensation implied total or partial indemnification by employers. This extra cost provided an incentive for employers to invest in workplace safety. Although scholars do not always agree about the extent to which the cost of workers' compensation had an impact on safety, it seems that compensation laws did tend to lower accident rates in the U.S., the best-known case, from 1910 onwards (except in coal mining). As shown by historian Mark Aldrich, such legislation often had the effect of encouraging employers to create new institutions in which a more active and comprehensive approach to safety was developed.<sup>9</sup>

As in the U.S., the origin of this process in the Ontario manufacturing industry was the enactment of workers' compensation, which generated the economic incentives needed for action on safety. The institutional framework that was created in Ontario, however, differed from the arrangements found in the U.S. states, where safety was predominantly organized inside firms, particularly in the large corporations. While some private and public institutions emerged outside the firm, these were aimed at sharing information.<sup>10</sup>

In Ontario, safety was organized by means of industry-wide private institutions that adopted a more extensive approach. Employers created safety associations in manufacturing industries whose main functions were regulation, enforcement through an inspectorate, and the promotion of safety practices. To these ends, employers' safety associations shared resources, cooperated with unions, and worked closely with the public Workers' Compensation Board. In the U.S., only the American Railway Association Bureau of Explosives adopted a similar strategy.<sup>11</sup>

Traditional theories of interest groups do not accurately reflect the purposes of employers' safety associations in Ontario manufacturing. In the first place, employers did not generate regulation to benefit themselves at the expense of other social groups or the efficiency of the economy, as predicted by "capture" or "rent-seeking" models.<sup>12</sup> Regulation affected all companies. Workers also benefited from improvements in safety.

The reduction of accident rates, moreover, lowered costs and raised productivity in the industrial sector overall, as recognized by employers themselves. Secondly, employers did not organize this framework to avoid public intervention.<sup>13</sup> Safety associations were created under the provisions of the workers' compensation law, and they maintained a close relationship with the Board.

What motivated employers to associate? The case of Ontario's manufacturers is similar to cases in the U.S. food industry where employers lobbied for regulation in order to bring down information costs.<sup>14</sup> As economist Oliver E. Williamson argues, workplace safety is a source of transaction costs, which can be mitigated by means of regulation through private or public agencies.<sup>15</sup>

The Ontario manufacturing industry, however, went far beyond the implementation of regulation. Employers developed a comprehensive approach to safety prevention on the basis of private institutions in collaboration with the public Workers' Compensation Board. This mixed organizational form fits into business and political science models of governance that explain the concurrence of private and public institutions. Following economist Richard N. Langlois, the appearance of mixed institutions may thus be understood as a way to channel change in new and complex situations characterized by high and varied costs, which in this case were generated by the introduction of the workers' compensation system.<sup>16</sup> In organizational arrangements of this kind, public institutions can also back and facilitate agreements between private institutions, as argued by political scientist John T. Scholz.<sup>17</sup> Even when private institutions provide the main motivation for compliance, public institutions may contribute by "externally" legitimizing safety standards and practices, as well as detecting misbehavior. These functions were done by the Board, which approved employers' self-regulation and provided information on accident records and costs for individual employers.

A final motive for the intense activity of employers' safety associations was "corporate welfarism." The provision of services to improve working conditions and secure workers' loyalty expanded in Ontario (and Canada as a whole) from the end of World War I as a response to growing labor unrest and turnover.<sup>18</sup> Available evidence

suggests that welfare schemes may have been more prevalent in Canada than in the U.S. This strategy included the establishment of joint labor-management safety committees.

This article shows that the way workers' compensation was implemented in Ontario went beyond nineteenth-century responses to accidents, such as litigation, as well as early safety standards legislation.

#### Rising Accident Rates, Litigation, and the First Public Intervention through Provincial Factory Inspection, 1888–1914

The province of Ontario underwent a remarkable modernization process between the 1880s and World War II. Manufacturing employees swelled from 16.5 to 21.9 percent of the working population between 1891 and 1941.<sup>19</sup> The urbanization rate grew from 39 percent of total population in 1891 to 61 percent in 1931.<sup>20</sup>

Employers were required to report all accidents occurring in factories from 1884 onwards.<sup>21</sup> The number of fatal and non-fatal accidents in manufacturing was recorded in the provincial inspectors' reports from 1888 onwards. Figure 1 uses the more reliable account of fatalities and an estimate of the working population to display the evolution of workplace risk until 1939.<sup>22</sup> In order to check the validity of the working population utilized, Figure 1 also shows a further rate calculated using the size of the population inspected, available from 1910, as the denominator. The evolution of both series is very similar.

[Insert Figure 1 about here]

The fatality rate remained stable until the turn of the century, when it started to rise. According to provincial inspectors this rise was due mainly to the pace of economic growth.<sup>23</sup> The annual compound rates of growth in output per worker in manufacturing for the 1890s and the 1900s were 0.3 and 4.7 respectively.<sup>24</sup> Practically all manufacturing industries expanded before World War I, including risky industries such as metals and wood and paper. Economic growth in the early twentieth century was based on mechanization and the intensification of the labor process, two further changes that may have increased risks. Other potential factors were the increase of immigrant labor from

southern and eastern Europe, predominantly from agricultural areas, the high rates of turnover, and the scarcity of skilled workers.<sup>25</sup>

Injured workers or surviving family members could claim compensation from the employer through the courts. As in other countries and regions, however, the chances of receiving adequate compensation were small. Rules of negligence derived from English Common Law prevailed in mid-nineteenth-century Ontario. Under this system, employers benefited from three defenses that allowed them to easily avoid any liability. These were the argument of voluntary assumption of risk (on the part of the worker), the fellow servant rule (if another worker caused the accident), and the rule against contributory negligence (if the worker did not act with due care to avoid the accident). As various scholars have shown, in spite of reforms in common law rules in 1886, employees' chance of obtaining compensation in practice remained small until the beginning of the twentieth century.<sup>26</sup> According to Eric Tucker, Ontario's legal rules were harsher than in the U.S. states.<sup>27</sup> Moreover, other sources of compensation aside from litigation were also inadequate. Commercial, union, or employer-provided insurance was unusual, and where it existed contributions were typically scant.<sup>28</sup>

The first comprehensive public intervention was directed at prevention rather than compensation. The Ontario Factories' Act of 1884 included guidelines for cleanliness, overcrowding, heating, ventilation, level of dust, fencing of machinery and elevators, fire safety, and boiler inspection, as well as occupations forbidden to women and children.<sup>29</sup> According to inspectors' reports and later historiography, the inspectorate operated in a similar manner to that found in other countries.<sup>30</sup> Resources were scarce and inspectors were few, particularly in the early years. Inspectors were expected to determine safety in relation to a number of different, complex workplace attributes, a problem that further reduced their effectiveness.

The main feature of the provincial factory inspectorate, however, was its lack of coercive power.<sup>31</sup> Inspectors adopted a persuasion-oriented approach rather than an emphasis on prosecution. Inspectors were given instructions to be "reasonable" and to avoid confrontations with employers. As the Chief Inspector would affirm in 1919, "The greater part of the administration of the Act has been carried on by negotiation and the ordinary work of the inspector has gone forward with little or no friction."<sup>32</sup> The

involvement of unions in safety, moreover, was somewhat limited. Certainly, unions demanded better enforcement of safety legislation during this period. However, employers gained control in safety (among other workplace issues) because of the relative weakness of the labor movement and its internal divisions.<sup>33</sup> As argued by Eric Tucker, this combination of weak inspectorate and unions had a clear effect: The majority of employers easily resisted the enforcement of the law.<sup>34</sup>

#### The Decline of Accidents Rates, 1914–1939, Workers’ Compensation, and the Beginning of the Safety Movement

The fall in industrial activity caused by the outbreak of World War I was, according to the inspectors, an important reason for the decline in accidents in 1914 and 1915 (Figure 1).<sup>35</sup> Economic recovery during the war may have resumed the upward trend.<sup>36</sup> The year 1918, however, was a breakpoint and accident rates began to fall thereafter.<sup>37</sup> The postwar economic recession and the more severe crisis of the early thirties were more than likely responsible for part of the decrease in accident rates in those years.<sup>38</sup> After both crises manufacturing growth picked up again. The annual compound rates of growth for 1922–1929 and 1933–1939 were 6.6 and 5.7 respectively. The fatality rate, however, fell in the earlier period and remained stable in the later. Further data collected by the Workmen’s Compensation Board confirm that workplace safety tended to improve in manufacturing after 1915, as shown in Figure 2.<sup>39</sup>

[Insert Figure 2 about here]

Other potential explanations for the fall in accident rates after 1915, such as employment shifts to less risky industries, the reduction of working hours, technological change, and progress in industrial medicine should also be considered. However, taking into account industry mix, trends in working hours, electrification—a main contribution to safety gains—and medical improvements suggest that the evolution of economic and technological determinants of accidents is not enough to explain why workplace safety improved after 1915 up to the outbreak of World War II.<sup>40</sup> In a review of the progress made in accident prevention, the Ontario Department of Labour, for example, recognized

the effect of technological improvements, but remarked that the institutions and practices generated around the Workmen's Compensation Act were "perhaps the most important [factors] on any safety programme."<sup>41</sup>

The viability of the workers' compensation system in Ontario was first studied in 1900.<sup>42</sup> At that time compensation costs for employers generated by individual litigation were still relatively modest. Compulsory insurance was discarded as an option because of the increase in the cost to industry. The employer's liability act, however, was insufficient to cope with the rapid economic changes that took place in the province at the turn of the century. Workers and union members, on the one hand, were concerned about the increase in accident rates as industrialization accelerated, particularly since the only recourse for each accident was litigation. Employers were rarely found to be liable for accidents in the nineteenth century and, as explained above, employees had little chance of obtaining compensation through litigation.

Juries, however, became increasingly sympathetic to the plight of injured workers. The number of cases won by workers and the generosity of jury awards increased from the late 1890s. The common law defenses thus became obsolete and ceased to offer adequate protection for employers, who were faced with rising legal costs and accident awards. This rise in legal costs and the sums paid in compensation, which moreover were irregular and unpredictable, as well as the potential to reduce labor unrest, were probably the main factors driving the adoption of a collective liability system in Ontario in the early 1900s. As in other countries and regions, employers supported workers' compensation because they anticipated gains from the switch to a no-fault system of public insurance, such as predictability in their accident costs and reduction in conflict.<sup>43</sup>

The Workmen's Compensation Act was framed by Chief Justice Sir William R. Meredith, who was appointed by the Government of Ontario in 1910 to study the viability of the system. The Act was framed with the participation of representatives from employers' and labor organizations, in particular the Canadian Manufacturers' Association and the Trades and Labour Congress, as well as representatives from insurance companies. The Canadian Manufacturers' Association expressed disagreement over the extent of compensation until the end of the bargaining process.<sup>44</sup> The final result,



however, was a compromise that made Ontario the first Canadian province to establish an extensive no-fault, province-administered workers' compensation system.<sup>45</sup>

The Workmen's Compensation Act replaced employer negligence liability for no-fault liability and provided mandatory compensation for different kind of accidents. The Act applied only to the manufacturing industries. Farming, wholesale and retail establishments, hospitals, restaurants, catering and domestic servants were excluded.<sup>46</sup> In terms of compensation, the Act provided for a fixed monthly pension of \$40 for the widow and/or children in the case of death, and an additional lump sum of \$100. Additional payments for each minor child were \$10 per month, and funeral expenses were also covered up to \$125. Benefits in the case of total and partial permanent disabilities (from 1920 onwards) were set at two-thirds of the wage.<sup>47</sup>

The system was administered by a public Board. Insurance in Ontario (and the other Canadian provinces) was mandatory, which is to say, all employers covered by the act were required to contribute and to pay compensation.<sup>48</sup> The province had an exclusive insurance fund.<sup>49</sup> An important difference between Canada and the United States was that the provinces assumed liability.<sup>50</sup> Any temporary deficit in the insurance fund, moreover, was covered with other provincial funds. As a result, workers were also paid in cases where employers failed to contribute to the fund. A further difference between Ontario and the U.S. states concerns litigation. The Board had exclusive and final jurisdiction over all compensation processes and, therefore, no appeal to the courts was permitted.<sup>51</sup>

The workers' compensation system, in Ontario and elsewhere, was introduced not only to compensate injured workers and their families but also to promote workplace safety.<sup>52</sup> With the aim of reducing the new cost to employers and strengthening their incentives to invest in safety, the Board in Ontario (as in New Brunswick, Nova Scotia, and Quebec) gave employers the authority to organize preventive measures.<sup>53</sup> Section 101 of the Workmen's Compensation Act stated that "if the Board is of opinion that an association so formed sufficiently represents the employers in the industries included in the class [i.e. industry], the Board may approve such rules." Under this scheme, employers' associations developed a series of regulatory and preventive actions. The active role of employers' associations and their intense collaboration with the public

institution were two prominent characteristics of the Ontario system, as noted by the ILO in its review of Canadian safety.<sup>54</sup>

After a process of consolidation of the associations created during the early years of the Act, there were sixteen manufacturing safety associations in 1920. These associations belonged to Schedule I, one of the two groups of industries created by the Act.<sup>55</sup> Fifteen associations federated into The Industrial Accident Prevention Association (hereafter IAPA), which represented nearly seventy percent of the payroll subject to compensation in Schedule I.<sup>56</sup>

### The Creation and Functioning of Employers' Safety Associations

Employers responded busily to the provision made in the Workmen's Compensation Act. What motivated employers to create and maintain safety associations? During the discussion of the Act, the Canadian Manufacturers' Association declared that "for reasons both humanitarian and economic the prevention of accidents should be a prime consideration in any scheme of workmen's compensation, and no system can be satisfactory which will not tend to produce the maximum of effort and result in conserving the life, health and industrial efficiency of the workman."<sup>57</sup> Some years after the Act entered the statute book, R. B. Morley, the general manager of the IAPA, would affirm that "accident prevention is fundamentally sound from either the economic or the humanitarian point of view."<sup>58</sup>

Individual employers certainly expressed humanitarian motives during the discussion of the Act.<sup>59</sup> Humanitarian reasons appeared abundantly in statements from employers during the 1920s and the 1930s, when prevention measures had already been put in place and were being discussed at different forums.<sup>60</sup>

Aside from humanitarian reasons, economic motives emerged in several ways. Employers contributed financially, shared resources, and cooperated with labor and the Board with the aim of reducing new and varied costs related to the workers' compensation system.

Employers benefited from the transparency of the new system, as well as the absence of court and insurance costs, though they had to internalize the cost of accidents. Rates of assessment for employers were based on past accident experience, the cost of

maintaining safety associations, provision for contingencies, and administration costs. The average rate of assessment for the period 1915–1939 was 1.18 percent of payroll.<sup>61</sup>

Employers raised concerns about a number of issues related to assessment charges. In the first place, compensation payments were relatively substantial. Ontario tended to pay higher benefits and had the most generous limits among the Canadian provinces.<sup>62</sup> The scale of benefits in Ontario was similar to the most generous U.S. states, and benefits were paid in Ontario throughout the period of disability or until the death or remarriage of the widow.<sup>63</sup> Employers expressed their disapproval of this system, which came about in part due to union pressure, a factor that did not end with the passage of the Act. At its fifty-first Annual Meeting, the Canadian Manufacturers' Association complained about the extra cost generated by pro-labor changes in the first years of the system's functioning, which took the form of increases in compensation benefits for non-fatal accidents from 55 percent to two-thirds of the wage (1920) and the addition of medical assistance and hospital services (1917).<sup>64</sup> According to the Canadian Manufacturers' Association, the Ontario system was "the most generous on the Continent."

Employers were further concerned about how they were assessed by the Board. Early assessments, in fact, resulted in employers' overpayment. In response to demands from employers, the Board introduced the merit rating system.<sup>65</sup> The system distinguished between individual employers according to their accident record. The Board expected that this system would mean "that employers who take safety precautions and avoid accidents will eventually pay a lower rate than those who do not, and thus the strongest objection that the employer who was careful to prevent accidents had to the present assessment principle will be removed."<sup>66</sup> Firms nevertheless remained unhappy with the criteria determining the extent of rewards. Each industry, in reality, was separated into a range of between three and around thirty clusters.<sup>67</sup> Rates of assessment in each cluster were fixed in accordance with companies' accident records, but each industry was also an insurance group. The problem for careful employers was that rates of assessment varied considerably within each industry. As argued by the Board, rewards had an upper limit in order to avoid "individual rating" and maintain collective liability.

Each employer, therefore, “must share to some extent the good or ill fortune of the class [i.e. industry] as a whole.”<sup>68</sup>

Employers certainly benefited from the gradual reduction in the gravest and costliest accidents involving fatalities and permanent disabilities. This was not the case for the other main expenditures, however. The temporary disability rate remained steady during the 1920s and only really fell in the depression years, while medical aid cases increased in the 1920s and remained high during the 1930s.<sup>69</sup> Other costs determining the rates of assessment also increased over time. Safety associations intensified their work and therefore safety budgets rose substantially, as shown in Figure 3.<sup>70</sup> Finally, costs of administration, although minor and partially paid by the Board in the early years, were increasingly transferred to employers.<sup>71</sup> As a result of the rise in a range of charges, the average rate of assessment measured as percentage of payroll increased 0.8 percent each year between 1917 and 1939, as shown by statistical analysis.<sup>72</sup>

[Insert Figure 3 about here]

The costs of the workers’ compensation system to employers, as they themselves recognized, stimulated interest in safety prevention. According to the general manager of the IAPA, “it is only reasonable to assume that compensation costs must focus attention on accident prevention.”<sup>73</sup> The Canadian Manufacturers’ Association, meanwhile, expressed its appreciation for an Act that gave employers “an opportunity . . . of doing what we can to lessen the burden.”<sup>74</sup> Directors of safety associations and individual employers expressed their views in similar terms.<sup>75</sup>

Businesses undertook a range of actions to deal with the complex and expensive task of safety prevention. Safety associations worked closely with the Board. This collaboration generated a kind of mixed private-public institution in which the Board legitimized actions even when employers’ safety associations held considerable autonomy. Safety associations first established self-regulation in the form of general rules and standards, which were evaluated and endorsed by the Board.<sup>76</sup> The Board also provided information on firms’ accident records and costs, which allowed the IAPA to identify companies with bad accident records and to detect misconduct.<sup>77</sup> Regulation was

enforced through an inspectorate, which was financed with the insurance fund paid by employers and administered by the Board.

Safety associations, moreover, united at different levels in order to reduce information costs. Associations federated to create the IAPA “for purposes of economy and better general direction of effort.” With the aim of sharing information and resources, related industries formed smaller groups within the IAPA, of which the Metal Trades Safety Association (including Structural Steel Fabrication, Foundries, Rolling Mills, and Metal Articles) was the largest. Further alliances were created between Textiles and Clothing and Power Laundries, as well as between Furniture and Woodworking. The main advances and shortcomings in safety prevention were discussed at the annual meetings of the safety associations, separately or together with the Board, the Department of Labour, the Canadian Manufacturers’ Association, and other employers’ associations and labor organizations.

Accident prevention not only reduced costs but was also an investment. From the outset, employers had argued for a preventive approach in order to preserve human resources, particularly skilled labor. They admitted, for example, that “care for the physical, intellectual and moral welfare of . . . employees had a direct return in increased output and better work”; and that “it is a small matter to scrap machinery, but it is a very expensive matter to scrap your employees. There is a very large investment in employees . . . , and that must be preserved.”<sup>78</sup> Once the Act was in effect, it was confirmed that better workplace safety contributed to the reduction of lost time at work, absenteeism, and labor turnover.<sup>79</sup>

Accident prevention may have played a role in the pursuit of “industrial peace” as well. The provision of safer workplaces was part of a strategy along with other “corporate welfarism” schemes from World War I onwards that helped secure workers’ loyalty. Initiatives included health, accident, old-age and unemployment insurance, profit-sharing plans, amenities like cafeterias or sport and recreational facilities, and subsidized housing. “Cooperation” between capital and labor became a key issue in evaluations of safety actions by employers. The work done through safety associations permitted employers “to be vitally interested in the safety of their workmen” and “to prove [to] . . . employees that . . . [the employers] believe in accident prevention for the humane side.”<sup>80</sup>

The Employers' Safety Associations and the Workers' Compensation Board converged in the objective of managing accidents. The evidence suggests that both organizations worked well in their respective duties. The Board's own appraisals of the system for dealing with claims, which avoided court and insurance costs, uncertainties, and delays, were usually very positive. This impression was confirmed in a report by the U.S. Bureau of Labor Statistics on provincial and state compensation laws in Canada and the U.S.<sup>81</sup>

For their part, employers' safety associations helped reduced the worst accidents—fatalities and permanent disabilities. Results were not always satisfactory, however. The temporary disability rate did not fall, save for the depression years of the early 1930s. The Board recognized that industry was taking the right measures, but admitted that thorough educational work would be needed to reduce the number of minor accidents.<sup>82</sup> On the tenth anniversary of the Workmen's Compensation Act, the Canadian Manufacturers' Association declared that, in spite of early suspicions, the new organizational change had helped the cause of accident prevention and reduction. Mr. R. B. Morley, general manager of the IAPA, expressed his views in similar terms.<sup>83</sup>

Safety associations performed three main functions: regulation, enforcement through an inspectorate, and the promotion of safety practices. Regulation, established at the industry level, was specific and versatile. The most serious concern of the time in a number of industries was the lack of proper fencing on machinery.<sup>84</sup> Other major problems that were regulated were insufficient lighting, ventilation and cleanliness, improper scaffolding, electric hazards, and the use of motor vehicles.<sup>85</sup>

Safety associations also created and maintained an inspectorate to enforce compliance. The new inspectors were recruited among skilled workers with "very high" qualifications, who were then specifically trained in technical and human resources areas.<sup>86</sup> Each inspector worked with the same industry or industries. The number of IAPA inspectors increased from twelve in the 1920s to sixteen in 1939, while at least one inspector handled the Pulp and Paper Mills Safety Association. In the words of the IAPA's General Manager, the inspector "went to a plant armed with a general knowledge of conditions, certain information regarding the specific situation in that plant for the past year and, after a talk with the Manager, goes through the plant noting general conditions

and subsequently making a report for the correction of these conditions, if necessary. The inspector in many cases also arranges for a plant meeting at which the accident situation is discussed.”<sup>87</sup>

The responsibility of inspectors was primarily educational. This approach was, in a sense, similar to that adopted by the early provincial inspectorate. A number of differences may explain why the new inspectorate worked much better than the older. The predominant belief in the late nineteenth century was that most accidents were either unavoidable or the result of workers’ carelessness. Early provincial inspectors, moreover, operated under serious economic and political constraints. The new inspectorate, on the contrary, was paid and organized by employers themselves. The arrangement of this inspectorate was a consequence of the costs entailed by the Workmen’s Compensation Act. As noted by the ILO in its international comparison of inspectorates: “[T]he workers compensation legislation [in Ontario] naturally leads to preventive work and above all to preventive inspection and safety first campaigns . . . in order to reduce the annual assessments on which the state fund is built up an exceedingly careful inspection has been instituted with a view to reducing hazards of all kinds.”<sup>88</sup> As a result, association reports for some years claimed that almost all or all the plants in each industry were visited, some more than once.<sup>89</sup> This was possible because firms were not reluctant to allow the inspectors in, a fact that was also stressed by the ILO.

In spite of the education-oriented approach embraced by the inspectorate, rules and standards were enforced if necessary. Inspectors’ reports, furthermore, could initiate the process of imposing a special rate on any firm where the Board considered that proper accident prevention was lacking.<sup>90</sup> The Board also could penalize employers who delayed payment of assessments.

Aside from inspection, the associations implemented a number of preventive measures. From 1922 onwards, the IAPA prepared periodic (usually, monthly) safety memorandums for each company, based on information provided by the inspectors and the Board. Thus, all employers received detailed information on accident records, accident costs, and suggested prevention measures. This information also allowed the IAPA to launch safety campaigns and to distribute abundant safety literature inside plants.<sup>91</sup> Available evidence for 1930 is provided in Table 1. Outside the IAPA network,

the Pulp and Paper Mills Safety Association established its own channels to share and disseminate information among companies.

[Insert Table 1 about here]

The participation of workers was considered a key to reduce accidents. Workers were involved in safety through joint committees, which might also include inspectors, managers, and foremen. Safety committees varied in organizational terms. The creation of both “general” or “central” and “departmental” committees represented the highest degree of formalization. Within the IAPA, for example, the general committee of the Algoma Steel Corporation consisted of a variable number of members drawn from the entire plant who “review all accidents, or near accidents, throughout the plant; [and] to receive, make and consider all suggestions in connection with accident prevention.” Departmental committees, on the other hand, “were made up of workers from the various sections of each department, who must report all unsafe practices and conditions in their own department immediately, so that the foreman may take action.”<sup>92</sup> General committees met several times per year, while departmental committees met almost daily. A similar mixed strategy was implemented in firms from the Pulp and Paper Mills Safety Association.<sup>93</sup>

The creation of formal safety committees, however, was not the only approach to labor participation. Small firms, in particular, had informal plant safety committees in which the foreman played the leading role in implementing safety practices.<sup>94</sup> Apart from having superior technical skills, foremen were expected to handle different types of workers, and to secure their interest in safety. Employers used bonuses and paid vacations as well as other incentives to motivate foremen.

The attitude of workers towards safety measures was generally favorable, and organized labor recognized that the workers’ compensation system functioned well.<sup>95</sup> If anything, workers demanded more participation in taking important decisions regarding safety, which included the organization of the associations. As the Trades and Labour Congress of Canada affirmed, not only employers but also workers benefited from cooperation on safety issues.<sup>96</sup>



Even so, it should be remembered that internal divisions in the labor movement and resistance on the part of employers meant that workers' and unions' bargaining power was considerably lessened in the 1920s and early 1930s.<sup>97</sup> As Margaret E. McCallum argues, the attitude of workers towards employers' initiatives, including welfarism, particularly in hard times, was determined in the end by the fact that employers usually had the last word.<sup>98</sup> If unions tended to accept the safety associations' framework, therefore, we should take into account, as Eric Tucker asserts, that "the onset of the depression hardly created conditions that would be conducive to workers' initiatives for a safer and healthier work environment. Rather, struggles for survival dominated labor's agenda until between the two World Wars."<sup>99</sup>

### Conclusion

Previous research about the effectiveness of early safety policies in Ontario manufacturing industry between 1884 and 1914 concluded that its impact on reducing workplace accidents was small.<sup>100</sup> This article, however, has shown that the introduction of new institutions contributed to the improvement of workplace safety from the second half of the 1910s (precisely the moment at which the previous studies end) to World War II. This process began when the enactment of the workers' compensation system succeeded in generating the economic incentives for employers to reduce accidents. Employers' interest in safety, besides humanitarian motives, was due to relatively high compensation costs and discontent with assessment charges. Companies also benefited from the additional impact of lower accident rates on production costs. Safer workplaces helped reduce lost time, absenteeism, labor turnover, and unrest.

The institutional framework that was developed in Ontario during the interwar period was acclaimed by U.S. and European observers and organizations, the ILO above all. The Ontario system also had a considerable influence on the legislation enacted in the rest of Canada's provinces.<sup>101</sup> Such a system efficiently replaced traditional nineteenth-century responses to accidents as well as the first public intervention based on legal regulation of standards and inspections, both of which had proved unable to cope with workplace changes related to industrialization. One of the main features of the Ontario system was that employers were intensely involved in safety prevention.

Safety actions were organized through private employers' associations in collaboration with the public Board. This mixed organizational form helped all concerned deal with a complex scenario characterized by new costs. Employers' safety associations took the leading role in the promotion of safety. They generated safety rules, created and maintained an inspectorate, and introduced safety education. Labor-management cooperation, utilizing either formal safety committees or informal meetings, became key. The Workmen's Compensation Board of Ontario, on the other hand, produced valuable information and legitimized safety standards and practices.

This article has shown that the creation of a new institutional framework contributed to the improvement in effectiveness of policy. This article has analyzed the case of workplace safety, as a main type of public intervention in the industrial sector and the labor market. Early safety policies in different countries were based on a range of market-based and regulation approaches. For a number of reasons, however, these strategies tended to fail. The Ontario Manufacturing Industry was able to deal with a complex and costly situation by means of collaboration between private and public institutions. The organization of employers played a key role in this process. Economic incentives generated by previous legal changes were the main reason for employers to invest in safety.

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<sup>1</sup> Douglass C. North, *Institutions, Institutional Change and Economic Performance* (Cambridge, U.K., 1990), 61–69.

<sup>2</sup> U.S. Department of Commerce and Labor, *Twenty-Fourth Annual Report of the Commissioner of Labor: Workmen's Insurance and Compensation Systems in Europe, 1909*, vol. 1 (Washington, D.C., 1911), 5, 94, and 1150; Max Rubinow, *Social Insurance with Special Reference to American Conditions*

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(New York, 1913); Peter W. Bartrip and Sandra B. Burman, *The Wounded Soldiers of Industry: Industrial Compensation Policy, 1833–1897* (Oxford, 1983), ch. 1; Wayne Lewchuk, “Industrialization and Occupational Mortality in France prior to 1914,” *Explorations in Economic History* 28 (July 1991): 344–66; Mark Aldrich, *Safety First: Technology, Labor, and Business in the Building of American Work Safety, 1870–1939* (Baltimore, 1997); Price V. Fishback and Shawn E. Kantor, *A Prelude to the Welfare State: The Origins of Workers’ Compensation* (Chicago, 2000); John E. Murray and Lars Nilsson, “Accident Risk Compensation in Late Imperial Austria: Wage Differentials and Social Insurance,” *Explorations in Economic History* 44 (July 2007): 568–87; Javier Silvestre, “Workplace Accidents and Early Safety Policies in Spain, 1900–1932,” *Social History of Medicine* (Mar. 2008): 67–86.

<sup>3</sup> Crystal Eastman, *Work Accidents and the Law* (Philadelphia, 1910), 4.

<sup>4</sup> “Direct” costs refer to liability claims and medical aid. Reproduced in Dominion Department of Labour’s *Labour Gazette* (Sept. 1931), 995–96.

<sup>5</sup> See, among others, the exhaustive ILO, *Report on Prevention of Industrial Accidents* (Geneva, 1919).

<sup>6</sup> Daniel T. Rodgers, *Atlantic Crossings: Social Politics in a Progressive Age* (Cambridge, Mass., 1998), 246. See also Bartrip and Burman, *The Wounded Soldiers*; Bob Hepple, “Welfare Legislation and Wage-Labour,” in *The Making of Labour Law in Europe: A Comparative Study of Nine Countries up to 1945*, ed. Bob Hepple (London, 1986), 114–53; Aldrich, *Safety First*; Fishback and Kantor, *A Prelude*; and John F. Witt, *The Accidental Republic: Crippled Workingmen, Destitute Widows, and the Remaking of American Law* (Cambridge, Mass., 2004).

<sup>7</sup> International Labour Organization, *Factory Inspection: Historical Development and Present Organisation in Certain Countries* (Geneva, 1923).

<sup>8</sup> See the articles by Doctor Friedrich Ritzmann, the chief of the Safety Service of the ILO, included in the journals *Industrial Safety Survey* and *International Labour Review* between 1926 and 1934. See also Peter W. J. Bartrip and Paul T. Fenn, “Factory Fatalities and Regulation in Britain, 1878–1913,” *Explorations in Economic History* 25 (Jan. 1988): 60–74; Helen Jones, “An Inspector Calls: Health and Safety at Work in Inter-War Britain,” in *The Social History of Occupational Health*, ed. Peter Weindling (London, 1985), 223–39; Price V. Fishback, “The Irony of Reform: Did Large Employers Subvert Workplace Safety Reform, 1869 to 1930?” NBER Working Paper, 2005; Aldrich, *Safety First*; and Silvestre, “Workplace Accidents.”

<sup>9</sup> Aldrich, *Safety First*. See also Fishback and Kantor, *A Prelude*, and the works cited therein.

<sup>10</sup> Aldrich, *Safety First*.

<sup>11</sup> Mark Aldrich, “Regulating Transportation of Hazardous Substances: Railroads and Reform, 1883–1930,” *Business History Review* 76 (Summer 2002): 267–97.

<sup>12</sup> For the theoretical model, see George J. Stigler, “The Theory of Economic Regulation,” *Bell Journal of Economics and Management Science* 2 (Spring 1971): 3–21. Mark Aldrich reviews a number of

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case studies analyzed by business and economic historians in “Regulating Transportation,” 268. See also Mark Cox, “Innovation on Trial: British Columbia Fruit Growers and the Rise and Retreat of Regulation, 1923–1931,” in *Canadian Papers in Business History*, vol. 2, ed. Peter A. Baskerville (Victoria, B.C., 1993), 125–46.

<sup>13</sup> In the field of workplace health and safety, see Marc J. Stern, “Industrial Structure and Occupational Health: The American Pottery Industry, 1897–1929,” *Business History Review* 77 (Autumn 2003): 417–45; and Michael Esbester, “‘No Good Reason for the Government to Interfere’: Business, the State and Railway Employee Safety in Britain, c.1900–39,” *Business and Economic History On-Line* 4 (2006).

<sup>14</sup> Howard Seftel, “Government Regulation and the Rise of the California Fruit Industry: The Entrepreneurial Attack on Fruit Pests, 1880–1920,” *Business History Review* 59 (Autumn 1985): 369–402; Marc. T. Law, “The Origins of State Pure Food Regulation,” *Journal of Economic History* 63 (Dec. 2003): 1103–30.

<sup>15</sup> Oliver E. Williamson, “Public and Private Bureaucracies: A Transaction Cost Economics Perspective,” *Journal of Law, Economics, and Organization* 15 (Apr. 1999): 306–47, esp. 320 and “The New Institutional Economics: Taking Stock, Looking Ahead,” *Journal of Economic Literature* 38 (Sept. 2000): 595–613, esp. 602–3.

<sup>16</sup> Richard N. Langlois, “Chandler in a Larger Frame: Markets, Transaction Costs, and Organizational Form in History,” *Business and Economic History On-Line* 1 (2003), 8–9 and “The Vanishing Hand: The Changing Dynamics of Industrial Capitalism,” *Industrial and Corporate Change* 12 (Apr. 2003): 351–85, esp. 368–69.

<sup>17</sup> John T. Scholz, “Enforcement Policy and Corporate Misconduct: The Changing Perspective of Deterrence Theory,” *Law and Contemporary Problems* 60 (Summer 1997): 253–68; John T. Scholz and Wayne B. Gray, “Can Government Facilitate Cooperation? An Informational Model of OSHA Enforcement,” *American Journal of Political Science* 41 (July 1997): 693–717.

<sup>18</sup> Michael J. Piva, *The Condition of the Working Class in Toronto* (Ottawa, 1979), 16; Elizabeth J. Campbell, “The Balance Wheel of the Industrial System: Maximum Hours, Minimum Wage, and Workmen’s Compensation Legislation in Ontario, 1900–1939,” PhD diss., McMaster University, 1980, 199; Margaret E. McCallum, “Corporate Welfarism in Canada, 1919–1939,” *Canadian Historical Review* 71 (Mar. 1990): 46–79; James Naylor, *The New Democracy: Challenging the Social Order in Industrial Ontario, 1914–1925* (Toronto, 1991), 165–75; Hugh M. Grant, “Solving the Labour Problem at Imperial Oil: Welfare Capitalism in the Canadian Petroleum Industry, 1919–1929,” *Labour/Le Travail* 41 (Spring 1998): 69–95.

<sup>19</sup> Mining and construction are not included. Data come from rearrangements of census data by Ian M. Drummond, Peter George, Kris Inwood, Peter W. Sinclair, and Tom Traves, *Progress without Planning: The Economic History of Ontario from Confederation to the Second World War* (Toronto, 1987),

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362–64. See also Graham D. Taylor and Peter A. Baskerville, *A Concise History of Business in Canada* (Toronto, 1994), 317–19 and 244.

<sup>20</sup> Douglas McCalla, “The Ontario Economy in the Long Run,” *Ontario History* 90 (Autumn 1998): 97–115, esp. 99.

<sup>21</sup> Statutes of the Province of Ontario, *The Ontario Factories’ Act, 1884* (Toronto, 1884), ch. 39, 146–61, esp. 153; Statutes of the Province of Ontario, *The Ontario Factories’ Amendment Act, 1889* (Toronto, 1889), ch. 43, 155–61 and 160–61. The size of factories subject to inspection was reduced from twenty to five employees in 1889. Work in agriculture, lumbering, mining, the building trades and construction of railways and canals was excluded.

<sup>22</sup> Non-fatal accidents are usually more affected by changes in inspection and reporting efforts, as well as “moral hazard” problems. In fact, the non-fatal accident rate (not shown here) tripled after the Workmen’s Compensation Act entered the statute book in 1914. Another more reliable source on non-fatal accidents is utilized below.

<sup>23</sup> *Annual Report of the Inspectors of Factories* (hereafter ARIF), 1899, 6; ARIF 1901, 6; ARIF 1903, 5 and 27; ARIF 1904, 13–14; ARIF 1905, 31; ARIF 1910, 6. Michael Piva and Eric Tucker minimize the impact of improvements in reporting on accidents recorded from 1900 onwards; Michael J. Piva, “The Workmen’s Compensation Movement in Ontario,” *Ontario History* 67 (Mar. 1975): 39–56, esp. 39–41, and Eric Tucker, *Administering Danger in the Workplace: The Law and Politics of Occupational Health and Safety Regulation in Ontario, 1850–1914* (Toronto, 1990), 181. See also ARIF 1917, 63.

<sup>24</sup> Output data in this section are based on census data for 1890, 1900, and 1910, and include rearrangements by Drummond et al., *Progress without Planning*, 353–59 and 393, as well as previous adjustments by Gordon Bertram. Output has been deflated using the general wholesale index for fully and chiefly manufactured materials included in Frank H. Leacy and Malcolm C. Urquhart, eds., *Historical Statistics of Canada* (Toronto, 1983), K-44-6.

<sup>25</sup> ARIF 1900, 6; Naylor, *The New Democracy*, 168–69; Tucker, *Administering Danger*, 186–87.

<sup>26</sup> Piva, “The Workmen’s Compensation,” 42–43; Campbell, “The Balance Wheel,” 189; Richard C. B. Risk, “‘This Nuisance of Litigation’: The Origins of Workers’ Compensation in Ontario,” in *Essays in the History of Canadian Law*, ed. David H. Flaherty (Toronto, 1983), 424–25 and 432.

<sup>27</sup> Tucker, *Administering Danger*, 49.

<sup>28</sup> Risk, “‘This Nuisance of Litigation,’” 450–52; Tucker, *Administering Danger*, 39–40.

<sup>29</sup> *The Ontario Factories’ Act, 1884*, 146–61. See a detailed list of amendments to 1914 in Tucker, *Administering Danger*, 223–27.

<sup>30</sup> Tucker, *Administering Danger*, 154 and 197; Devine, *Industrial Safety Legislation in Ontario: The History of an Act and its Administration* (Toronto, 1975), 15, 20, and 30.

<sup>31</sup> Tucker, *Administering Danger*, 145–55 and 199; ARIF 1897, 7; ARIF 1890, 12.

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<sup>32</sup> ARIF 1919, 63. There is no systematic, disaggregated record of prosecutions. The number of prosecutions for breaches of all labor laws, including safety, child labor, and hours of work, remained very low and irregular.

<sup>33</sup> Eric Tucker, “The Determination of Occupational Health and Safety Standards in Ontario, 1860–1982: From the Market to Politics to . . . ?” *McGill Law Journal* 29 (Mar. 1984): 260–311, esp. 284–85.

<sup>34</sup> Tucker, *Administering Danger*, 155, 162, and 167.

<sup>35</sup> ARIF 1914, 7; ARIF 1915, 7. The same argument for the whole of Canada is utilized in *Sessional Papers, Report of the Department of Labour, 1916* (Ottawa, 1917), number 36, 94. It is also possible that confusion following the passing of the Workmen’s Compensation Act in 1914 contributed to the sharp fall in 1915. See Piva, “The Workmen’s Compensation,” 41.

<sup>36</sup> ARIF 1916, 12.

<sup>37</sup> Extraordinary events occurring in 1923 and 1929 contributed to the peaks in those years. In 1923, nine workers were killed by gas fumes in a single accident. See ARIF 1923, 48–49. The number of fatalities due to “falling substances” and “falls” was unusually high in 1929. See ARIF, various years.

<sup>38</sup> The annual compound rates of growth in output per worker in manufacturing for 1918–1922 and 1929–1933 were -2.4 and -12.3 respectively. Statistics on output and gainful workers are from the Dominion Bureau of Statistics, *The Manufacturing Industries of Canada*, various years (Ottawa); and Drummond et al., *Progress without Planning*, 362–64. For deflation, see note 24.

<sup>39</sup> Data refer to compensated cases in “Schedule I,” which is explained below. Schedule I also includes lumbering, mining, and construction, but the source reports rates as a whole. I have estimated annual fatality rates between 1911 and 1939 for these three industries based on information published in the *Labour Gazette* (hereafter LG). Interestingly, fatality rates in lumbering, where the employers’ safety association was created in 1915, displayed a downward trend in the 1920s and the 1930s. Fatality rates in mining and construction, with no safety associations until 1929 and 1930 respectively, present an upward trend.

<sup>40</sup> I follow the methods proposed by Aldrich, *Safety First*. According to available data, first, I have estimated the average fatality rate in 1941 if the industry mix in manufacturing had been the same as in 1921. I have also estimated hours of work for skilled and unskilled workers (between 1911 and 1939, and between 1901 and 1939, respectively). Finally, I have gathered data on the number of electric power and light installations, which are utilized as a proxy for the extent of electrification, as well as information on industrial medicine. Estimates, statistical analyses and sources, not shown here, are available upon request.

<sup>41</sup> Reproduced in LG (Mar. 1929): 298.

<sup>42</sup> The process of adopting workers’ compensation in Ontario is analyzed by Piva, “The Workmen’s Compensation,” 43–47; Campbell, “The Balance Wheel,” 186–92; Risk, “This Nuisance of Litigation,” 453–62; Margaret S. Gordon, “Industrial Injuries Insurance in Europe and the British

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Commonwealth before World War II,” in *Occupational Disability and Public Policy*, ed. Earl F. Cheit and Margaret S. Gordon (New York, 1963), 191–220, esp. 207; and Judy Fudge and Eric Tucker, “Pluralism or Fragmentation? The Twentieth-Century Employment Law Regime in Canada,” *Labour/Le Travail* 46 (Autumn 2000): 251–306, esp. 260.

<sup>43</sup> For Britain, see Bartrip and Burman, *The Wounded Soldiers*. For the U.S., see Fishback and Kantor, *A Prelude*. For Quebec, see Terry Copp, *The Anatomy of Poverty: The Condition of the Working Class in Montreal, 1897–1929* (Toronto, 1974), 125; and Andrew Stritch, “Power Resources, Institutions and Policy Learning: The Origins of Workers’ Compensation in Quebec,” *Canadian Journal of Political Science* 38 (Autumn 2005): 549–79.

<sup>44</sup> Sir William R. Meredith, *Final Report on Laws Relating to the Liability of Employers to Make Compensation to Their Employees for Injuries Received in the Course of Their Employment Which Are in Force in Other Countries, and as to How Far Such Laws are Found to Work Satisfactorily* (Toronto, 1913), 14–15 and 18; Samuel D. Clark, *The Canadian Manufacturers Association: A Study in Collective Bargaining and Political Pressure* (Toronto, 1939), 33–34.

<sup>45</sup> Fudge and Tucker, “Pluralism or Fragmentation?” 260. Several amendments were made between the first act and 1939, but basic features such as exclusions (agricultural and domestic employment as well as casual workers and home-based work) remained.

<sup>46</sup> Similar exclusions prevailed in other countries at this time, as reported by Gordon, “Industrial Injuries.”

<sup>47</sup> LG (Aug. 1920): 1017–19.

<sup>48</sup> In 1939, the employee or (usually) the employer could opt to accept the compensation law in thirty-four U.S. states. See Fishback and Kantor, *A Prelude*, 103–4; and U.S. Bureau of Labor Statistics, *Comparison of Workmen’s Compensation Law of the United States as of January 1, 1925* (Washington, D.C., 1925), 2.

<sup>49</sup> Some industries, however, were permitted self-insurance. This is explained below. In the U.S., seven states had exclusive state funds, eleven had competitive state funds, and the rest had a private system. Self-insurance was often allowed under certain conditions. See Fishback and Kantor, *A Prelude*, 103–4.

<sup>50</sup> Carl Hookstadt, “Comparison of Canadian Workmen’s Compensation Laws,” *Monthly Labor Review* 10 (Mar. 1920): 765–74, 766; LG (Apr. 1930): 397–99; Department of Labour of Canada, *Workmen’s Compensation in Canada: A Comparison of Provincial Laws* (Ottawa, 1944).

<sup>51</sup> Appeals to courts were allowed in U.S. states. See U.S. Bureau of Labor Statistics, *Comparison of Workmen’s Compensation Law*, 13; and LG (Apr. 1930): 399.

<sup>52</sup> LG (Aug. 1920): 1016–17; ILO, *Factory Inspection*, 258–60; Department of Labour of Canada, *Workmen’s Compensation in Canada*, 18–19.

<sup>53</sup> Workmen’s Compensation Board, *The Workmen’s Compensation Act* (Toronto, 1914), 33. This mirrored the German model, as did other key features of the system. Meredith took his inspiration in

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writing the Ontario Workers' Compensation Act from his thorough study of existing laws in Europe and some U.S. states, especially Washington. See U.S. Department of Commerce and Labor, *Twenty-Fourth Annual Report*, 1039–42; Hookstadt, "Comparison of Canadian Workmen's Compensation," 171; and Department of Labour of Canada, *Workmen's Compensation in Canada: Legislation Branch* (Ottawa, 1969).

<sup>54</sup> ILO, *Factory Inspection*, 258–60.

<sup>55</sup> The industries included in Schedule I formed the collective fund. Schedule II included national, provincial, and municipal corporations, as well as telephone and telegraph companies, steam and street railways, and navigation companies. These industries were individually liable.

<sup>56</sup> LG (June 1925): 582; LG (Oct. 1933): 975.

<sup>57</sup> Sir William R. Meredith, *Interim Report on Laws Relating to the Liability of Employers to Make Compensation to Their Employees for Injuries Received in the Course of Their Employment Which Are in Force in Other Countries, Brief submitted by Canadian Manufacturers Association* (Toronto, 1912), 54.

<sup>58</sup> Morley, "Accident Prevention," 286.

<sup>59</sup> Piva, "The Workmen's Compensation," 46; Risk, "'This Nuisance of Litigation,'" 461–62.

<sup>60</sup> See, for example, LG (June 1925): 585; and Ceramics and Stone Safety Association (hereafter SA), *Report of the Annual General Meeting* (hereafter RAGM) (Toronto, 1926), 6.

<sup>61</sup> Workmen's Compensation Board, *Annual Reports, 1915–1939* (Toronto, 1916–1940); Workmen's Compensation Board, *The Workmen's Compensation Act with Amendments to 1920* (Toronto, 1920), 7–9; Workmen's Compensation Board, *The Workmen's Compensation Act with Amendments to 1942* (Toronto, 1942), 7–8.

<sup>62</sup> LG (Aug. 1920): 1017–18 and 1918–19.

<sup>63</sup> Compensation in many U.S. states, meanwhile, was limited to between 150 and 400 weeks. Waiting periods for temporary disabilities were usually longer in U.S. states than in Ontario. See LG (Aug. 1920): 1012–20; LG (Apr. 1930): 399; Hookstadt, "Comparison of Canadian Workmen's Compensation," 173; U.S. Bureau of Labor Statistics, *Comparison of Workmen's Compensation*, 7–12; Workmen's Compensation Board, *The Workmen's Compensation Act with Amendments to 1932* (Toronto 1932), 8; Miles M. Dawson, "Ontario Procedure in Settlement of Workmen's Compensation Claims," *Monthly Labor Review* 42 (Jan. 1936): 1–9, esp. 3–4; and Fishback and Kantor, *A Prelude*, 208–17.

<sup>64</sup> Reproduced in LG (Aug. 1922): 844. See also Harold A. Logan, *Trade Unions in Canada: Their Development and Functioning* (Toronto, 1948), 402; Piva, "The Workmen's Compensation," 55; Campbell, "The Balance Wheel," 311–14; and LG (Oct. 1918): 888.

<sup>65</sup> Campbell, "The Balance Wheel," 320–21; Workmen's Compensation Board, Ontario, *Annual Report*, 1918 (hereafter ARWCB), 63; ARWCB 1927, 8–9; LG (June 1928): 599–600.

<sup>66</sup> ARWCB 1916, 7.

<sup>67</sup> Workmen's Compensation Board, *Table of Rates*, various years (Toronto).



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<sup>68</sup> Workmen's Compensation Board, *Table of Rates 1921* (Toronto, 1921), 6.

<sup>69</sup> Workmen's Compensation Board, *Annual Reports, 1921–1939* (Toronto, 1922–1940).

<sup>70</sup> See also ARWCB 1926, reproduced in the LG (June 1927): 636; and ARWCB 1927, 27.

<sup>71</sup> ARWCB 1915, 29; ARWCB 1919, 3; ARWCB 1930, 29.

<sup>72</sup> I have estimated an equation, available upon request, relating the natural logarithm of the rate of assessment on a constant and a time trend.

<sup>73</sup> Morley, "Accident Prevention," 286.

<sup>74</sup> Joint Safety Convention, *Discussion to the Ontario's Accident Prevention Problem* (Toronto, 1922), 10.

<sup>75</sup> See for example LG (March 1922): 263; Furniture Manufacturers SA, RAGM 1923, 2; Food and Tobacco Products SA, RAGM 1926, 4 and 8; Metal Trades SA, RAGM 1921, RAGM 1928, 8; Chemical Industries SA, RAGM 1932, 2; Printing Trades SA, RAGM 1933, 2; Joint Safety Convention, *Discussion to the Solution of the Accident Problem from the Engineering Standpoint* (Toronto, 1922), 15; and Joint Safety Convention, *The Solution of the Accident Problem by the Educational Method* (Toronto, 1922).

<sup>76</sup> ILO, *Factory Inspection*, 259; LG (Oct. 1933): 975; Campbell, "The Balance Wheel," 324.

<sup>77</sup> Morley, "Accident Prevention," 287; LG (Oct. 1933): 974; Joint Safety Convention, *Ontario's Accident Prevention Problem* (Toronto 1922), 9; ARWCB 1927, 6–7; ILO, *Factory Inspection*, 259; ARWCB 1933, reproduced in the LG (May 1934): 429; Campbell, "The Balance Wheel," 324.

<sup>78</sup> *Industrial Canada* (Jan. 1907): 506; Meredith, *Interim Report, Minutes of Evidence*, 10.

<sup>79</sup> Joint Safety Convention, *Discussion to the Solution of the Accident Problem*, 15; LG (June 1925): 591; IAPA, *Report of the Safety Convention and Annual General Meeting* (hereafter RSCAGM) 1927, reproduced in the LG (June 1927): 640. See also Metal Trades SA, RAGM 1921, 8, and RAGM 1927, 19.

<sup>80</sup> Metal Trades SA, RAGM 1921, 8. See also Meredith, *Interim Report, Minutes of Evidence*, 163; IAPA, RSCAGM 1931, 21; and Metal Trades SA, RAGM 1927, 19.

<sup>81</sup> Miles M. Dawson, "Ontario Procedure". See also Gordon, "Industrial Injuries," 208; and Piva, "The Workmen's Compensation," 54.

<sup>82</sup> LG (June 1927): 639. See also ARWCB 1926, reproduced in the LG (June 1927): 636; and ARWCB 1927, 27. An additional problem was the increase in medical costs. The Associations recognized that accident prevention was the priority rather than accident follow-up. See Metal Trades SA, RAGM 1921, 5; Textile Manufacturers SA, RAGM 1928, 4; and Printing Trades SA, RAGM 1933, 5.

<sup>83</sup> Reproduced in LG (June 1925): 587; and LG (Oct. 1933): 974.

<sup>84</sup> Metal Trades SA, RAGM 1921, 6; Metal Trades SA, RAGM 1928, 15; Textile Manufacturers SA, RAGM 1923, 5; Printing Trades SA, RAGM 1932, 2; LG (June 1925): 586–89.

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<sup>85</sup> ARIF 1922, 83–88; Joint Safety Convention, *Ontario's Accident Prevention Problem*, 3–4 and 13; IAPA, RSCAGM 1931, 24–26; LG (Mar. 1929): 298 and 1301; Campbell, “The Balance Wheel,” 322; McCallum, “Corporate Welfarism,” 66; Naylor, *The New Democracy*, 167.

<sup>86</sup> ILO, *Factory Inspection*, 258; LG (Oct. 1933): 975. The new inspectorate supplemented rather than substituted provincial inspection. Provincial inspectors remained in charge of the enforcement of the Factories' Act, which was expanded with the enactment of the Factory, Shop and Office Building Act in 1913.

<sup>87</sup> Morley, “Accident Prevention”, 287. Information on the number of inspectors and inspections, not available annually, is taken from: ARWCB, 1920–1928; IAPA, RSCAGM 1923, 11; LG (June 1925): 582; LG (May 1940): 413; and Morley, “Accident Prevention,” 287–88.

<sup>88</sup> ILO, *Factory Inspection*, 253 and 258. See also Morley, “Accident Prevention”; and IAPA, RSCAGM 1931, 29–30.

<sup>89</sup> For 1928, see Ceramics and Stone SA, RAGM 1928, 5; Leather, Rubber and Tanners SA, RAGM 1928, 5; Metal Trades SA, RAGM, 9; Packers SA, RAGM 1928, 7; Printing Trades SA, RAGM 1928, 6; and Textile Manufacturers SA, RAGM 1928, 5.

<sup>90</sup> LG (June 1928): 600; LG (Oct. 1918): 888.

<sup>91</sup> IAPA, RSCAGM 1923, 11; Morley, “Accident Prevention,” 287; LG (Apr. 1926): 362. See also Furniture Manufacturers SA, RAGM 1923, 5; Implement and Vehicle Manufacturers SA, RAGM 1923, 6; Metal Trades SA, RAGM 1924, 7; Woodworkers SA, RAGM 1924, 6; Ceramics and Stone SA, RAGM 1928, 5; Printing Trades SA, RAGM 1928, 5–6; and Textile Manufacturers SA, RAGM 1928, 4.

<sup>92</sup> For the Algoma Steel Corporation, see Metal Trades SA, RAGM 1933, 2.

<sup>93</sup> LG (Nov. 1918): 1028; LG (Dec. 1925): 1190.

<sup>94</sup> Metal Trades SA, RAGM 1921, 21; Food and Tobacco SA, RAGM 1926, 9–10; Joint Safety Convention, *The Solution of the Accident Problem*, 5–6; Metal Trades SA, RAGM 1927, 12; Printing Trades SA, RAGM 1933, 2; LG (May 1921): 650; LG (June 1927): 639; LG (June 1928): 610; LG (Apr. 1934): 323.

<sup>95</sup> *Canadian Congress Journal* 4 (June 1925), 25; *Canadian Congress Journal* 6 (Sept. 1927): 15–16; Trades and Labour Congress of Canada, *Summary of the Proceedings of the 42nd Annual Convention*, reproduced in LG (Oct. 1926): 964; Dawson, “Ontario Procedure,” 9; Logan, *Trade Unions*, 503.

<sup>96</sup> I have not found evidence of any strong opposition by workers to the introduction of new safety procedures. We should not, however, dismiss the existence of antagonism. As shown by Aldrich, *Safety First*, with regard to the U.S. case, initial resistance was common because new safety procedures were often imposed from above. See also Michael Esbester, “Organizing Work: Company Magazines and the Discipline of Safety,” *Management & Organizational History* 3 (Aug. 2008): 217–37; and Lucy Taksa, “Intended or Unintended Consequences? A Critical Reappraisal of the Safety First Movement and its Non-Union Safety Committees,” *Economic and Industrial Democracy* 30 (Feb. 2009): 9–36.

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<sup>97</sup> For Canada as a whole, see Stuart Jamieson, *Industrial Relations in Canada* (Toronto, 1973), 18–19; Michael Huberman and Denise Young, “Hope against Hope: Strike Activity in Canada, 1920–1939,” *Explorations in Economic History* 39 (July 2002): 315–54, and the works cited therein. For Ontario, see Tucker, “The Determination of Occupational Health and Safety”; Bryan Palmer, “Taking It: Ontario’s Workers Struggle,” in *Lectures in Canadian Labour and Working Class History*, ed. W. J. C. Cherwinski and Gregory S. Kealey (St. Johns, Newfoundland, 1985), 183–98; and Douglas Cruikshank and Gregory S. Kealey, “Strikes in Canada, 1891–1950,” *Labour/Le Travail* 20 (Fall 1987): 85–145.

<sup>98</sup> McCallum, “Corporate Welfarism,” 73.

<sup>99</sup> Tucker, “The Determination of Occupational Health and Safety,” 285.

<sup>100</sup> Tucker, *Administering Danger*, 208; Piva, “The Workmen’s Compensation,” 56.

<sup>101</sup> Department of Labour of Canada, *Workmen’s Compensation in Canada*, 3; Gordon, “Industrial Injuries,” 208.



Figure 1. Fatality rate in manufacturing according to factory inspections, 1888–1939. Notes: Gainful workers in manufacturing are available for census years. The rest of the years have been interpolated. Average inspected population between 1910 and 1939 represents two-thirds of gainful workers. Sources: For fatalities and inspected population, Ontario Department of Agriculture, *Annual Report of the Inspectors of Factories*, 1888–1915 (Toronto, 1889–1916); The Ontario Department of Public Works, *Annual Report of the Trades and Labour Branch*, 1916–1919 (Toronto, 1917–1920); and The Ontario Department of Labour, *Annual Report*, 1920–1939 (Toronto, 1921–1940). For gainful workers, Drummond et al., *Progress without Planning*, 362–63.

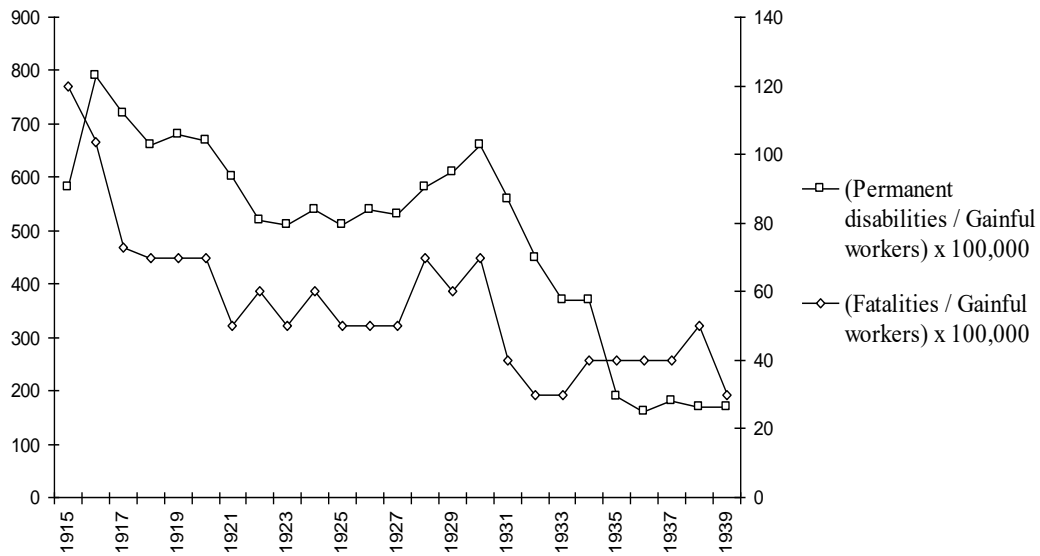


Figure 2. Permanent disability and fatality rates according to the Workmen’s Compensation Board, 1915–1939. Note: Compensated cases in Schedule I. Scales on the left and right vertical axes refer to permanent disabilities and fatalities respectively. Source: Workmen’s Compensation Board of Ontario, *Annual Report*, 1915–1939 (Toronto, 1916–1940).

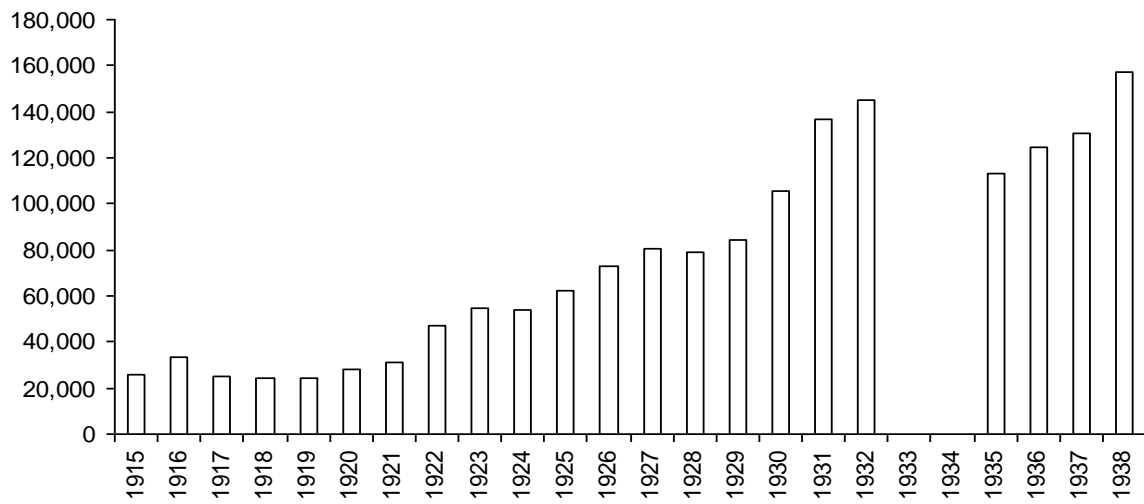


Figure 3. Total expenditure in employers' safety associations, 1915–1938. Real terms. Notes: Nominal payments were deflated using a cost of living estimated for the city of Toronto (1913=100). The years of 1933, 1934, and 1939 are not available. Sources: For the payments, Workmen's Compensation Board, *Annual Report*, 1915–1938 (Toronto, 1916–1939). For the cost of living, J. C. Herbert Emery and Clint Levitt, "Cost of Living, Real Wages and Real Incomes in Thirteen Canadian Cities, 1900–1950," *Canadian Journal of Economics* 35 (Feb. 2002): 115–37, 127.

*Table 1*

Distribution of Safety Literature in the Industrial Accident Prevention Association, 1930

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Type of literature	Number of pieces
Safety bulletins	520,000
Special leaflets	97,500
Special reports	80,000
Monthly memorandums for each industry	78,000
Pay envelope inserts	74,000
Safety calendars	45,000
Safety picture books	38,500
Special letters to membership	35,000
Foreman's record of accident	21,500
General shop safety rule books	14,000
Self inspection form	12,000
"Foreman training that works"	10,000
Pamphlets First Aid	8,500
Accident record forms	5,000
Departmental safety records	3,000
Proceedings, 1930 Safety Convention	3,000
Special cards and tags	2,500
Statistical reports to larger firms	2,000
Bulletin boards	215
Total	1,049,715

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Source: IAPA, *Report of the Safety Convention and Annual General Meeting* (Toronto, 1931), 30.