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Workplace Accidents and Early Safety Policies in Spain, 1900–1932

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Summary. During the late nineteenth and early twentieth centuries, workplace accidents came to be perceived as a serious public health problem. Preventive safety policies were implemented in industrialising nations. The impact of these policies, however, has received little attention. This article shows that early safety policies in Spain failed and, as a result, workplace safety tended to deteriorate. It confirms that legal regulation of safety standards and factory inspection, the strategy that became predominant in Europe, had little effect on reducing accidents. The International Labour Organization proposed supplementing legislation with further strategies that were well established in the USA, namely the use of workers' compensation programmes as an economic incentive for employers to invest in safety, and cooperation between employers and labour through the so-called Safety First movement. This article, however, argues that these strategies were difficult to adopt in Spain.

Keywords: workplace accidents; industrialising Spain; International Labour Organization recommendations; safety standards and factory inspection; workers' compensation; unions and workers

Between 1889 and 1893, the Social Reform Commission, the precursor of the social reform institutions created in Spain in the twentieth century, published an ambitious study of working and living conditions, based on reports and accounts by social reformers, workers and employers. With regard to workplace accidents, the Commission gathered abundant information about a range of industrial occupations. In the case of construction works, for example, the absence of public surveillance and prosecution, including economic penalties, was considered the main cause behind the use of improper scaffolding, one of the most serious concerns of the time.[1] According to informants, the same arguments explained other major problems, such as the lack of fencing on machinery in several industries.[2]

The Commission's study helped bring about public intervention on workplace safety in Spain, in a similar way as in other industrializing countries during the late nineteenth and early twentieth centuries.[3] As Bartrip and Burman state, 'industrial injury came to be perceived as a serious issue'.[4] Early public intervention in Europe and North America saw the

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[1]Comisión de Reformas Sociales 1985, vol. I, pp. 86 and 95–6.

[2]Comisión de Reformas Sociales 1985, vol. I, pp. 32–4, 121, 163–4, 171–2 and 193.

[3]Bartrip and Burman 1983; Weindling in Weindling (ed.) 1985; Lewchuk 1991; Aldrich 1997; Fishback and Kantor 2000; Sturdy in Cooter (ed.) 2000; Fishback 2005.

[4]Bartrip and Burman 1983, p. 14.

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adoption of two main strategies aimed at reducing the number of workplace accidents.[5] The first intervention was usually the legal regulation of safety standards, accompanied by factory inspection to enforce compliance. Workers' compensation systems, on the other hand, were conceived not only to compensate injured and deceased workers and their families, but also to reduce accidents. Workers' compensation was based on total or partial indemnification by employers.[6] This extra cost may have provided an incentive for employers to invest in safety.

With the exception of Britain and the USA, the effectiveness of early safety policies has received little attention. This article offers a study of Spain to throw light on the difficulties involved in implementing safety policies during industrialisation in a European country. It argues that a series of policies failed and, as a result, accident rates in Spanish industry tended to rise. It is confirmed that the early factory inspectorate worked under serious constraints and that its impact on safety was somewhat limited, as in other countries or regions.[7] Legal regulation suffered from problems such as a shortage of inspectors and funds, the opposition of employers and a lack of coercive power.

It is argued here, however, that a more diversified safety policy mix was difficult to adopt in Spain. The Chief of the Safety Service of the International Labour Organization (hereafter ILO), Doctor Friedrich Ritzmann, proposed complementing the European emphasis on safety legislation. The ILO referred to workers' compensation systems, a strategy that was well established in the USA.[8] The introduction of workers' compensation laws also encouraged cooperation between employers and labour through the so-called Safety First movement. The workers' compensation programme in Spain, however, was put into effect in a way that could hardly have acted as an economic incentive to improve safety.[9] Meanwhile, the involvement of unions and workers in safety prevention was difficult to attain in a context of weak institutions and restricted collective bargaining.

Previous studies have dealt with the issue of accident prevention in industrialising Spain. There is a rich literature, for instance, on the mining industry.[10] Scholars have also analysed the ideological basis of the emerging discipline of industrial medicine.[11]

[5]International Labour Organization 1923*a*, 1925; Huberman and Lewchuk 2003; Fishback 2005.

[6]Previous changes had removed common law rules and introduced employers' liability. Before establishing no-fault workers' compensation systems, several amendments were also made by limiting employers' defences. For a number of reasons, however, the broadening of employers' liability had little effect on safety. Bartrip and Burman 1983, pp. 46–53 and 185–9; Fishback and Kantor 2000, pp. 93–101.

[7]For Britain, see Bartrip and Burman 1983, pp. 67–8; Jones in Weindling (ed.) 1985; Bartrip and Fenn 1988; McIvor 2001, pp. 111–47. For the USA, see Fishback 1986, 2005; Aldrich, 1997, pp. 100–4. For France, see Dumas in Robert (ed.) 1998. For Ontario, see Tucker 1990.

[8]Ritzmann 1926, 1928, 1929, 1934. It has been confirmed that compensation laws and their effects contributed to improving safety from the 1920s. Aldrich 1997; Fishback and Kantor 2000, pp. 77–82.

[9]This finding coincides with evidence about Britain. Bartrip in Weindling (ed.) 1985; Bartrip 1987, pp. 136–8.

[10]Cohen and Ferrer in Huertas and Campos (eds) 1992; Menéndez-Navarro and Rodríguez-Ocaña in Huertas and Campos (eds) 1992. See also the studies cited in Rodríguez-Ocaña 2000, p. 506.

[11]Medina and Rodríguez-Ocaña in Huertas and Campos (eds) 1992; Martínez-Pérez 1994; Menéndez-Navarro and Rodríguez-Ocaña in Grieco *et al.* (eds) 2003; Rodríguez-Ocaña and Menéndez-Navarro 2006.

This article, however, engages with the entire industrial sector, including mining, construction and manufacturing, from the enactment of the first safety legislation in 1900 to its first serious transformation in 1932.

Early Twentieth-Century Injury Statistics

Spanish workplace accident statistics begin in 1901. Before 1924, they were compiled by the Institute for Social Reforms (*Instituto de Reformas Sociales*, IRS), the public institution charged with handling affairs related to labour reforms, and by the Ministry of Labour thereafter. Statistics from 1904 onwards report data on fatal and non-fatal industrial injuries at the national level.[12] The source also includes the number of injuries for each industry, although unfortunately without distinguishing between fatal and non-fatal cases.

Figure 1 and Table 1 use the figures for total fatal and non-fatal injuries and an estimate of the industrial population at risk to reflect the evolution of safety. Both series follow a similar path except in the early years. The IRS itself recognised problems in data collection between 1904 and 1909.[13] Figure 1 shows that workplace safety improved from the early 1910s to 1921 and deteriorated from 1922 onwards. Rates given in Table 2 also suggest that safety tended to deteriorate in almost all industries during the 1920s.[14] Inspectors, in this regard, referred to improvements during the 1910s.[15] The evidence of deterioration in safety from the early 1920s is, in fact, consistent with the historical literature. Labour historians have pointed out that the acceleration of economic growth in Spain in the 1920s caused a rise in accidents.[16] It is known that, *ceteris paribus*, the number of accidents tend to be influenced by economic cycles, rising with booms and declining during recessions.[17] The 1920s was also a period of intense structural change and high internal rural-to-urban migration rates in which unskilled workers predominated.[18]

The figures, nevertheless, should be viewed with caution.[19] As noted by the inspectors, the paucity of accident reports provided by some firms may have been common during the 1910s.[20] Under-reporting was probably more severe between 1919 and 1921 because of the increase in labour unrest, which reduced the number of factory inspections.[21]

[12]The meaning of an injury—full details are available from the author on request—was more inclusive than in the case of Britain. In that country, limits related to the cause of accidents, the number of workers employed in the establishment and the time needed to return to work. Bartrip and Fenn 1988, 1990.

[13]Soto 1989, p. 659.

[14]The shift share analysis proposed by Aldrich 1997, ch. 7 (not shown here, but available on request), suggests that the employment shift to more hazardous industries between the early 1920s and 1930 explains only around 7 per cent increase in the overall injury rate.

[15]Ministerio de Trabajo, *Memoria General de la Inspección del Trabajo* (hereafter MGIT) 1916, p. 355; MGIT 1919, p. 333; Menéndez-Navarro and Rodríguez-Ocaña in Huertas and Campos (eds) 1992, p. 278.

[16]McIvor 1982, p. 15; Martin 1990, pp. 276–7.

[17]Growth encourages the employment of new, young and unskilled workers, who also tend to work for longer hours. Saari 1982; Robinson 1988; Bartrip and Fenn 1990; Fabiano *et al.* 1995; Fairris, 1998; Nichols in Daykin and Doyal (eds) 1999; Ruhm 2000.

[18]Prados de la Escosura 2003; Silvestre 2005.

[19]For the use of historical accident statistics, see Bartrip and Fenn 1990.

[20]MGIT 1911, p. 9; MGIT 1917, pp. 7–11.

[21]MGIT 1921, p. 5; MGIT 1922, p. 5.

Table 1. Fatal and non-fatal injury rates, all industries, 1904–1930

Year	Fatal	Non-fatal
1904	19.2	114.8
1905	18.1	183.9
1906	14.1	195.3
1907	16.5	241.1
1908	14.1	200.5
1909	16.5	226.0
1910	19.7	269.3
1911	15.6	278.1
1912	12.2	271.0
1913	12.1	245.6
1914	6.6	206.8
1915	8.9	200.3
1916	7.6	183.8
1917	9.5	187.0
1918	7.6	333.3
1919	7.7	174.4
1920	6.5	159.2
1921	3.9	109.5
1922	15.0	364.7
1923	18.7	403.7
1924	20.2	419.9
1925	na	na
1926	17.2	500.0
1927	18.4	524.6
1928	na	570.7
1929	21.0	630.6
1930	18.3	639.0

Note: Fatal and non-fatal injuries per 100,000 and 10,000 workers respectively. na = not available. The working population is available for census years 1900, 1910, 1920 and 1930. Figures for the other years are interpolations.
Sources: See Figure 1.

An improvement in the reporting of injuries occurring in 1922, when the Labour Accidents Law (1900) was reformed and the number of inspectors was augmented, may also have contributed to the increase in both rates.[22]

Although not perfect, one method for confirming the reliability of accident statistics is to estimate equations relating injuries to the industrial gross domestic product (GDP) and

[22]Soto 1989, pp. 659–60; Maluquer and Llonch in Carreras and Tafunell (eds) 2005, p. 1197. Some employers and insurance actuaries cautioned that the increase in compensation for temporary disabilities in 1922, as well as the absence of a waiting period (the number of days between the onset of the accident and the point in time when benefits become payable), might have led workers to report more accidents, particularly in the case of minor injuries. Instituto Nacional de Previsión 1933, pp. 28–42; Paris 1935, pp. 98–9. An interesting feature shown in Figure 1, however, is that the fatality rate also increased. If 'the more severe accident—death—should reflect very little "moral hazard"', as argued by labour economists Michael Moore and Kip Viscusi 1990, p. 122, it would be reasonable to suppose that the rise in accidents from the early 1920s was mainly determined by other factors.

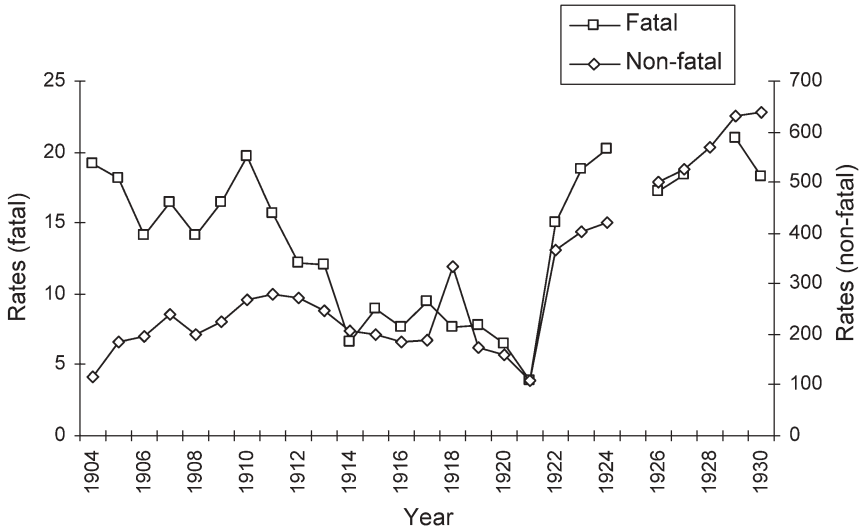

Fig. 1. Injury rates, 1904–1930. *Sources*: For injuries, Instituto de Reformas Sociales, 1905–1923, *Estadística de los Accidentes del Trabajo*, Madrid; Ministerio de Trabajo 1924–1931, *Estadística de los Accidentes del Trabajo*, Madrid. For working population, Nicolau (2005, 149).

Table 2. Injury rates and industries, selected dates

	1924	1930		1924	1930
Chemicals	634	1,302	Leather and hide	227	316
Clothing	28	58	Metallurgy	1,305	2,292
Construction	763	1,429	Mining	724	1,082
Electricity	781	1,243	Textiles	166	240
Food	451	716	Transport	944	867
Furniture	321	596	Paper	438	998
Graphic arts	184	269	Wood	386	352
Iron	852	967			

Note: Injuries (fatal and non-fatal) per 10,000 workers. Injuries are five-year moving averages. Using five-year moving averages for 1924 avoids the potential under-reporting of accidents in 1920 (see text). Worker population is available for census years, 1920 and 1930.
Sources: See Figure 1.

a dummy variable taking the value 1 for the years following 1922. Estimates, as reported in Table 3, show the significant impact of economic growth on the deterioration of safety.[23] Since both the dependent variable and GDP are expressed in natural logarithms, estimated coefficients suggest that the increase in injuries due to a 1 per cent increase in GDP was between 2 per cent (2.28 is the lowest value of the GDP coefficient, column 1

[23]A time trend variable is also included to pick up further changes, such as those related to technology. Bartrip and Fenn 1988, p. 68.

in Table 3) and 6 per cent (6.15 is the highest value of the GDP coefficient, column 2). Including a dummy variable to capture the change in the reporting effort, however, reduces the impact of GDP considerably. This finding would confirm that although accidents tended to follow the path of economic activity, the collection of data improved from 1922 onwards. Injury rates during the 1910s, therefore, may have been somewhat understated.[24]

Safety Standards and Factory Inspection

The question of workplace accidents during the nineteenth and previous centuries was primarily a concern of medical hygienists.[25] Two laws governing female and child labour (1873, 1878) included safety issues, but they were rarely enforced.[26] Voluntary and paternalistic measures were also tried in a few big companies.[27] Following the publication of the report of the Social Reform Commission, parliamentary and extra-parliamentary debate intensified during the 1890s.[28]

Although specific legislation for mining was introduced in 1897, it was not until 1900 that the first comprehensive safety legislation covering the entire industrial sector was enacted.[29] Domestic employment, home-based and self-employed work were excluded, as well as work in agriculture until 1932. The Labour Accidents Law provided mandatory safety standards for scaffolding and the fencing of machinery and elevators, the most important problems.[30] The law also included standards for cleanliness, dust levels, heating, ventilation, overcrowding, fire safety, electrical equipment, boilers and other dangerous machinery, dangerous substances and forbidden occupations for women and children.

Factory inspection, however, was not provided until 1906. The Labour Inspection Office (*Servicio de la Inspección del Trabajo*) was created with the aim of enforcing the Labour Accidents Law (among other labour laws). Factory inspectors' complaints about the implementation of the Accidents Law were included in annual reports. Contemporary observers, such as the French sociologist Angel Marvaud and the English Hispanist Gerald Brenan, also described the serious limitations of Spanish factory inspection.[31] Recent historiography has confirmed this view.[32]

Particularly in the early years, inspectors noted the lack of personnel, as well as the difficulty of covering all industrial establishments, as these were widely scattered and

[24] The ILO drew up fatal and non-fatal rates for the late 1920s and the early 1930s. An international comparison of accident data, however, is difficult, since compilation criteria varied across countries. ILO 1938, pp. 7–44.

[25] Menéndez-Navarro and Rodríguez-Ocaña 2005; Rodríguez-Ocaña and Menéndez-Navarro 2005.

[26] Alvarez-Buylla *et al.* 1902, pp. 69–70; García-Ninet 1975, pp. 61–3.

[27] Rodríguez-Ocaña and Menéndez-Navarro 2005.

[28] Montero 1981, pp. 35–89.

[29] *Gaceta de Madrid* (hereafter GM), Royal Decree (hereafter RD), 15 July 1897; GM, RD, 28 July 1900; GM, RD, 2 August 1900; GM, RD, 13 November 1900.

[30] Available data for the period 1928–32 show that 'collisions' and 'falls of objects and persons' accounted for 33 and 24 per cent of the total of accidents respectively. Dirección General del Instituto Geográfico y Estadístico 1934, p. 636.

[31] Marvaud 1975, pp. 288–91; Brenan 1960, p. 22.

[32] Martín-Valverde 1987, p. lvi; Palomeque 1987, pp. 84–6; Soto 1989, pp. 275–86; Martin 1990, p. 63; Comín in Fuentes-Quintana (ed.) 2001, pp. 220–1; Silvestre 2006.

Table 3. Injuries and GDP, 1909–1930

Dependent variable:	**Fatal**	**Fatal**	**Fatal**	**Non-fatal**	**Non-fatal**	**Non-fatal**
Constant	−3.54 (−1.45)	−17.05* (−1.97)	−3.34 (−0.39)	−3.54* (−1.99)	−9.23 (−1.40)	0.72 (0.11)
GDP	2.28** (3.65)	6.15** (2.49)	2.45 (1.05)	3.69** (8.15)	5.33** (2.85)	2.64 (1.45)
Trend		−0.09 (−1.62)	−0.07 (−1.49)		−0.04 (−0.90)	−0.02 (−0.62)
Change 1922			1.06** (3.12)			0.77** (2.91)
Adjusted R^2	0.38	0.43	0.62	0.76	0.76	0.83
Number of observations: 21						

Note: Ordinary Least Squares regressions. Both the dependent variable and GDP are expressed in natural logarithms. GDP = Industrial gross domestic product at constant prices (1995 = 100). Trend = time trend variable. Change 1922 = Dummy variable taking the value 1 for years following the change in the reporting effort. Data begin in 1909 because of previous problems in data collection (see text). There is no information for 1925. * Significant for values of $p < 0.10$; ** Significant for values of $p < 0.05$. *t*-statistics between brackets. Unit root and cointegration tests are available from the author.
Sources: For injuries, see Figure 1. For the GDP, Prados de la Escosura (2003, 596–8).

sometimes inaccessible.[33] The existence of numerous workshops and small firms caused further problems. Small firms operating on a low capital base tended to be less safe than medium and big enterprises, because of the high economic, and even cultural, costs associated with implementation of the law.[34] Thus, longer hours of work, short rest breaks, child labour, backward technology and overcrowding were common factors that made small and family companies unsafe. Inspectors also warned of the influence of employers on representatives and local IRS delegations (*juntas locales*) and their efforts to avoid compliance with the law.[35] The sanction process, moreover, was slow, often lasting years, and payment was easy to avoid.[36]

The number of inspectors was increased in 1914 and, particularly, from 1922 on, as shown in Table 4. These increases were intended to strengthen inspection in the provinces and provide auxiliary inspectorate staff to relieve the bureaucratic workload. The average number of annual inspections in relation to working, as a result, increased from 10.2 per thousand between 1908 and 1921, to 26.1 between 1922 and 1930.[37] The average number of annual inspections per inspector, furthermore, increased from 331 between 1909 and 1921, to 441 between 1922 and 1930.

The reform of the law in 1922 was said to give inspectors wider powers to assure employers' compliance with the law.[38] Apart from the possibility of better reporting, however, the impact of increased enforcement on safety matters seemed to be insignificant. Inspectors, in fact, assumed a persuasion-oriented approach rather than an emphasis on prosecution. The director of the inspectorate recommended 'neutrality' in inspectors' actions.[39] This strategy was sometimes considered most useful in spreading the use of new safety devices and practices, particularly in the case of abundant low-capitalised workshops and small companies.[40] Inspectors were to 'avoid all harassment of employers, giving facilities to be placed inside the law at the lowest possible expense'.[41]

Analysis of available data, although approximate, seems to confirm that prosecution remained at a low level. The annual average number of breaches of the Labour Accident Law per inspection between 1922 and 1930 (131 per thousand), in fact, was lower than between 1908 and 1921 (197 per thousand).[42] With regard to the number of fines imposed, the inspectorate's annual reports only provide statistics for the number of fines imposed for breaches of labour legislation in general—including Labour Accidents Law, Women's and Children's Work Law, Sunday Rest Law and, from 1919, the

[33] MGIT 1909, pp. 6–9 and 129; MGIT 1911, p. 10. On mining inspection, see also Cohen and Ferrer in Huertas and Campos (eds) 1992, p. 218, and Vázquez-Gónzalez in Vázquez-Gónzalez (ed.) 1999, p. 23.

[34] MGIT 1911, pp. 6–9 and 397; MGIT 1912, pp. 6 and 410–16; MGIT 1919, p. 329; MGIT 1920, p. 346; Soto 1989, pp. 643 and 646.

[35] MGIT 1911, pp. 1 and 5–6. Local delegations were formed by the mayor, a doctor, a priest and delegates from unions and employers' associations.

[36] Vázquez-Gónzalez in Vázquez-Gónzalez (ed.) 1999, pp. 24–5.

[37] Data are taken from MGIT 1909–1930, and Nicolau 2005, p. 149.

[38] Soto 1989, pp. 281–6, 660 and 677; Gónzalez-Sánchez 1997, pp. 101–5.

[39] MGIT 1917, p. 7; Vázquez-González in Vázquez-Gónzalez (ed.) 1999, p. 24.

[40] MGIT 1909, pp. 8–10; MGIT 1912, pp. 9 and 410–16; MGIT 1920, p. 346.

[41] MGIT 1917, p. 12.

[42] Data are taken from MGIT 1909–1930.

Table 4. Number of factory inspectors, 1909–1930

Year	Regional	Provincial	Auxiliary	Total
1909	10	14	—	24
1910	10	19	—	29
1911	10	23	—	33
1912	10	23	—	33
1913	10	27	—	37
1914	10	46	5	61
1915	10	47	5	62
1916	10	47	6	63
1917	10	44	15	69
1918	10	50	12	72
1919	10	51	11	72
1920	10	45	17	72
1921	10	45	17	72
1922	10	48	23	81
1923	10	63	54	127
1924	10	63	54	127
1925	10	67	54	131
1926	10	69	57	136
1917	10	69	60	139
1928	10	71	85	166
1929	10	72	86	168
1930	10	72	86	168

Sources: Instituto de Reformas Sociales 1909–23, Ministerio de Trabajo, *Memoria General de la Inspección del Trabajo*, 1924–1930.

Eight-hour Day Law. The rate of violations of all laws ending in a fine increased from 1.0 per thousand, between 1908 and 1921, to a still very modest 15.6 per thousand, between 1922 and 1930.[43]

The Workers' Compensation System and the Promotion of Safety

The Labour Accidents Law of 1900 also introduced the workers' compensation system. The Law replaced employer negligence liability for 'objective' (no-fault) liability, and provided mandatory compensation for different kinds of accidents. In addition to compensating injured and deceased workers and their families, the workers' compensation system in Spain was designed to promote safety.[44] According to various sources, however, the system suffered from serious shortcomings in terms of providing a real economic incentive for employers to reduce accidents.

[43] The annual chance that a small firm would receive a fine for violating the Labour Accident Law was small. Annual inspections during the 1920s reached a maximum value of around 30 per thousand workers. This implies one annual inspection for a firm with 33 workers, or around one annual inspection per three average firms. Firm size average for the census year of 1920 (the only data available) was 10 workers. The figure on firm size is estimated from Soto 1989, p. 69.

[44] The US Department of Commerce and Labor 1911, p. 2338, remarked on this in a comparative report on workers' insurance in European countries. See also Montero 1981, p. 40.

Before 1932, the Law permitted firms to choose between insurance companies or employers' mutual insurance societies, both of them being under strict governmental supervision.[45] There is, however, no evidence that any kind of merit rating system was considered to reward employers who were able to reduce accident rates.[46] It was not until 1933 that rates were finally adjusted, according to the introduction of safety measures in plants.[47]

The amount of compensation, on the other hand, was low, as pointed out by social reformers.[48] Compensation for the most serious accidents involving death or permanent disabilities had already taken the form of periodic payments, usually life pensions, in many European countries.[49] The Spanish system, however, was based on lump sums before its thorough transformation in 1932. Benefits in Spain, in fact, were among the lowest across the continent, as shown in Tables 5 and 6.[50] Using data on the extent of compensation for death, as well as available estimations of average life expectancy and internationally comparable wages, it is possible to offer an estimate of employers' costs. According to figures shown in Table 7, employers' costs in Spain were clearly smaller than in other countries.[51] The situation with regard to temporary disabilities was more favourable to workers. Before 1922, Spain formed part of a large group of countries where compensation was 50 per cent of the wage, as shown in Table 8. The 1922 reform made Spain one of the most generous countries.

The inefficient functioning of the system, however, may also have helped erode the economic incentives for employers to invest in safety. Because insurance companies showed relatively little interest in accident insurance, the government promoted the establishment of employers' mutual insurance societies.[52] Successive governments and unions, in this regard, discussed the creation of a reserve fund with the aim of assuring workers' payments in cases of default by employers. Delays and failures in processing compensation, in fact, were common.[53] Budgetary constraints, however, meant that

[45]Iparraguirre 1934, pp. 2–3; Montero 1981, pp. 37–8; Pons 2006, p. 84.

[46]*Ibid*. Competitiveness in the insurance market, as pointed out by Bartrip and Burman as a possible cause of the introduction of merit rating, was small before the 1930s. For the merit rating system in the USA and Britain, see Bartrip and Burman 1983, pp. 213–14 and Bartrip 1987, pp. 95–6 and 136–8.

[47]Even then, insurance actuaries and employers strongly criticised the criteria determining the extent of rates. Paris 1935, pp. 71–100; Iparraguirre 1934.

[48]Maeso 1933, pp. 5–6; García-Ormaechea 1935, p. 13; Gallart 1936, pp. 307–8; Martínez-González and Saura 1936, pp. 5–6.

[49]ILO 1925, p. 220.

[50]Permanent disabilities were separated into three categories, which were remunerated with wages for two, one and a half, and one year respectively. Because the law was very imprecise in its definition of permanent disabilities, workers often received, at best, the small benefit of one year's wage. García-Ormaechea 1935, pp. 13–8; Soto 1989, pp. 636–7; Martínez-Pérez in Huertas and Campos (eds) 1992, 354–6.

[51]Using data for the case of permanent disabilities yields similar values. My quantitative methodology on this point is available upon request.

[52]Pons 2006, p. 84.

[53]US Department of Commerce and Labor 1911, pp. 2344–5; Soto 1989, pp. 675–7; Rodríguez-Ocaña and Menéndez-Navarro 2006, p. 82.

Table 5. Amount of workers' compensation in European countries *c.* 1925: Death

Compensation paid in the form of a pension: Percentage of annual earnings	
Serb-Croat-Slovene Kingdom	100.0
Austria, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, Poland [Former Austrian and Russian territories] Romania, Russia, Sweden	66.6
Finland, France, Germany, Luxembourg, Netherlands, Poland [Former German territory], Portugal, Switzerland	60.0
Norway	50.0
Compensation paid in the form of a lump sum: Multiple of annual earnings	
Denmark, Greece, Italy	5.0
Britain, Ireland	3.0
Spain (maximum)	2.0

Note: Allowances for funeral expenses and family members, as well as limits on the basic wage are not included.
Source: International Labour Organization 1925, 216–305. Copyright © International Labour Organization 1925.

Table 6. Amount of workers' compensation in European countries *c.* 1925: Permanent disability

Compensation paid in the form of a pension: Percentage of annual earnings	
Serb-Croat-Slovene Kingdom	100.0
Netherlands, Switzerland	70.0
Austria, Czechoslovakia, Estonia, Finland, France, Germany, Hungary, Latvia,	
Lithuania, Luxembourg, Poland, Portugal, Romania, Russia, Sweden	66.6
Norway	60.0
Belgium, Bulgaria (minimum), Britain (minimum), Ireland	50.0
Compensation paid in the form of a lump sum: Multiple of annual earnings	
Denmark	10.0
Italy, Greece	6.0
Spain (maximum)	2.0

Note: Waiting periods, allowances for family members, as well as limits on the basic wage are not included. Compensation varied according to different criteria in some countries: Bulgaria, from 50 to 80 per cent of annual earnings; Britain, from 50 to 75 per cent.
Source: International Labour Organization 1925, 216–305. Copyright © International Labour Organization 1925.

Table 7. An estimate of employers' costs in the case of death. Selected countries

	Wage	Wage per cent	Corrected wage	Life expect.	Age	Life expect. −35 years	Years	Cost	Discounted cost
Sweden	99	66.6	65.9	62.3	35	27.3		1,800	475
France	71	60	42.6	54.3	35	19.3		822	321
Germany	80	60	48.0	58.4	35	23.4		1,123	359
Norway	101	60	50.5	62.8	35	27.8		1,404	362
Denmark	142						5	710	
Italy	52						5	260	
Britain	96						3	288	
Ireland	103						3	309	
Spain	53						2	106	

Note: National real wages for unskilled labour deflated by purchasing-power-parity (PPP) price indices for comparable market baskets in 1925 (100 = Britain real wage in 1927). Male life Expectancy at birth in 1930 (years). Discounted cost refers to the present value of the stream of annual payments. Life expect—35 years using a discount rate of 5 per cent.
Sources: For wages, Williamson (1995, 181). For the percentage of the wage, Table 5. For life expectancy, Caselli *et al.* in Bardet and Dupâquier 2001, 130. For years of payment, Table 5.

Table 8. Amount of workers' compensation in European countries *c.*1925: Temporary disability

Percentage of the wage	
Russia	100.0
Switzerland	80.0
Spain [before 1922]	75.0 [50.0]
Netherlands	70.0
Austria (minimum), Czechoslovakia, Denmark, Finland, Latvia (minimum), Portugal, Serb-Croat-Slovene Kingdom	66.6
Norway, Poland, Sweden	60.0
Belgium, Bulgaria (minimum), Estonia (minimum), France, Germany, Britain (minimum), Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg	50.0
Romania (minimum)	35.0

Notes: Waiting periods, allowances for family members, as well as limits on the basic wage are not included. Compensation varied according to different criteria in some countries: Austria, from 66.6 to 80; Bulgaria, from 50 to 80; Estonia, from 50 to 66.6; Britain, from 50 to 75; Latvia, from 66.6 to 100; Romania, from 35 to 50.
Source: International Labour Organization 1925, 216–305.

this fund did not come into operation until 1933.[54] Workers themselves, on the other hand, sometimes failed to claim compensation. This was due to ignorance of the law.[55] Spanish representatives at the ILO conference in 1929, on this subject, identified

[54]Jordana de Pozas 1933, p. 3.
[55]Soto 1989, p. 676.

that a lack of education was a limiting factor for the success of the compensation system.[56] Restrictive criteria in medical reports on accidents, as well as fear of reprisals, may also have discouraged workers from claiming.[57] Personal agreements with employers, meanwhile, may have been common.[58]

The Involvement of Unions and Workers in Safety Issues

Historians have debated the role played by unionised and non-unionised workers in accident prevention. It has been argued that unions and workers may sometimes have preferred monetary compensation, in the form of compensating wage differentials for dangerous jobs (pre-accident compensation) or workers' compensation (post-accident compensation), over safety prevention.[59] However, while partly true, this position is overdrawn.

Recent studies have shown that unions and workers campaigned for and participated in the promotion of health and safety in the early decades of the twentieth century. In the USA, for example, unions pressed for safety laws and for revisions to employers' liability.[60] As shown for the same country, workers also tended to collaborate in safety departments and joint committees, which were created in many companies as a response to employers' internalisation of compensation.[61] This process benefited from a change in opinion and new theories about the causes of accidents occurring at that time.[62] Carelessness and individual responsibility lost ground as explanations for the main causes of accidents. In Britain, on the other hand, unions demanded improvements in health and safety conditions related to byssinosis and silicosis and participated in the design of preventive measures.[63]

In Spain, safety issues were not among the main motivations for strikes. Forty-five per cent of strikes between 1905 and 1932, in fact, were motivated by or included wage claims.[64] This, however, was probably common in other countries, where 'basic' economic (and political) demands prevailed in strike activity.[65] Real wages in Spanish industry during the 1920s and 1930s, furthermore, were generally lower than in Britain, France, Germany or Italy.[66] Even so, it is clear that the issue of safety was on the labour agenda and was addressed, as far as possible, through channels other than conflict. Unions demanded better (post-accident) compensation at two different levels. Unions

[56]ILO 1929, p. 168. Illiteracy rates in Spain were generally higher than those in England, France and Germany. In 1930, almost one-third of the population could not read or write. Nuñez 1992, p. 291.

[57]Soto 1989, p. 675; Cohen and Ferrer in Huertas and Campos (eds) 1992; Rodríguez-Ocaña and Menéndez-Navarro 2006, p. 82.

[58]US Department of Commerce and Labor 1911, p. 2344; Soto 1989, p. 675.

[59]See a review of studies in Bufton and Melling 2005, pp. 67–8. See also Boal 2003; Melling 2003.

[60]Fishback and Kantor 2000; Fishback 2005.

[61]Aldrich 1997.

[62]Aldrich 1997, pp. 114–32; Fishback 2005, pp. 8–9.

[63]Bowden and Tweedale 2003; Bufton and Melling 2005.

[64]Soto 1989, p. 451. Spanish statistics do not offer specific information about safety-motivated strikes. It is possible that safety was part of the motivation for strikes over working hours or 'workplace organization'. These two motives, however, only accounted for 15 per cent of the total.

[65]ILO 1923*b*, pp. 11–12; ILO 1924, p. 383. For the USA, see also Aldrich 1997, p. 91.

[66]Vilar 2004. See also MGIT 1917, p. 10; MGIT 1919, p. 330.

campaigned for legislative reform to increase benefits.[67] Because the introduction of the workers' compensation system did not completely eliminate litigation, unions also supported claims by individual workers in the so-called industrial courts (*tribunales industriales*).[68] Union and workers, on the other hand, were involved in safety prevention, but a number of obstacles interfered with more effective participation. Before 1923, accident prevention measures could be negotiated at the local delegations of the IRS. Labour delegates were often affiliated to or supporters of the Socialist *Unión General de Trabajadores* (UGT). The UGT was more willing to cooperate with employers and the state than the other main union at that time, the Anarchist *Confederación Nacional del Trabajo* (CNT), which maintained a more revolutionary and anti-capitalist stance. In any event, the local IRS delegations were often inoperative.[69] Inspectors, for example, noted that labour delegates could lose their day's wage if they attended meetings.[70] Local delegations were not even established in a number of parishes.[71]

Between 1923 and 1931, during the dictatorship of Primo de Rivera, the state strictly controlled social reform institutions. Safety issues were included on the agenda of parity committees (*comités paritarios*), the new institutions through which the unions, primarily the UGT, employers and government managed conflict.[72] The Anarchist CNT was banned. There is no systematic record of the parity committees created (usually at the local level) or their activities. Estimates of workers represented on parity committees range from 15 to 25 per cent of the industrial and service labour force.[73] Their activities, in any case, were very limited and were largely confined to the province of Madrid.[74] As indicated by promoters of the law governing parity committees, moreover, the main priorities were minimum wages, hours of work and unemployment.[75] Safety and prevention decisions, however, were few. Parity committees, in reality, tended merely to embrace the basic standards established in the Labour Accidents Law.[76]

It was not just that social reform institutions were barely operative, but also that successive governments restricted labour action.[77] Although the unions, particularly the UGT, engaged with the social reform institutions, they were often the weakest link, and their claims tended to be modest.[78] The unions faced a further problem because

[67] Cuesta 1988, pp. 702–14.
[68] Soto 1989, p. 390.
[69] Martin 1990, p. 251; Barrio in Suàrez-Cortina (ed.) 1997; Soto in Arenas *et al.* 1998; Cabrera and Rey-Reguillo 2002, pp. 156–7.
[70] MGIT 1912, p. 383.
[71] In 1908, local delegations did not exist in 37 per cent of parishes. Soto in Arenas *et al.* 1998, p. 496.
[72] GM, RD, 26 November 1926.
[73] Martin 1990, p. 272; Gómez-Navarro 1991, p. 425; Soto 1989, pp. 403–4.
[74] *Ibid*.
[75] *Revista de Política Social* 1928, 2, 'Interview with Práxedes Zancada', pp. 116–20; González-Rothvoss n.d., pp. 17–37.
[76] Soto 1989, pp. 658 and 677; Rodríguez-Ocaña and Menéndez-Navarro 2006, p. 82.
[77] Martin 1990, pp. 251–3 and 273; Castillo 1991–2; Gómez-Navarro 1991, pp. 419 and 430–1; Cruz 1994; Soto in Arenas *et al.* 1998, pp. 497–500.
[78] Castillo 1991–2, pp. 170–2; Gómez-Navarro 1991, p. 400; Barrio in Suàrez-Cortina (ed.) 1997, pp. 301–3.

employers, fearing labour involvement in workplace organisation, did not facilitate the functioning of the institutions.[79] Ideas about the co-management of safety, on the other hand, found little favour. As medical historians have shown, the spread of the 'scientific organisation of work' in Spain from the late 1910s consolidated psychological theories about individual responsibility for accidents.[80] Leaders of the main public medical institutions and the factory inspectorate assumed the 'human factor' and its manifestations of 'imprudence' and 'carelessness', as mainstream explanations for high accident rates.[81] Particularly during the period of dictatorship (1923–31), the emphasis on individuals causing accidents was utilised as a way of lessening collective demands related with unsafe workplace environments.[82]

In 1929, in the light of the information supplied by different nations, the ILO promoted 'co-operation of all the parties interested in accident prevention' and pointed to safety committees as one of 'the methods of co-operation which experience has shown to be the most effective'.[83] This strategy, in short, was barely put into action in Spain because of the weakness of established institutions, as well as the imbalance of power.

Conclusion

As in other European nations, workplace safety became a social reform issue in industrialising Spain. For a combination of reasons, as explained in this article, public policies failed and workplace accidents did not fall. Public intervention was based on the regulation of safety standards and factory inspection. The impact of this approach was limited because of the shortage of funds and personnel, particularly in the early years, and a factory inspectorate that was too weak to enforce the law. Aimed at assuring the compliance of the law, inspectors adopted a persuasion-oriented approach rather than an emphasis on prosecution. As in other countries, however, the concept of the inspector as an educator rather than an enforcer did not in the end generate sufficient incentive to ensure compliance with the law as a general rule.[84]

The workers' compensation system may also have contributed to reducing accidents, as proposed by the ILO. The way in which workers' compensation was designed and implemented, however, did not permit the emergence of economic incentives for employers to invest in safety. The lack of a merit rating system to reward employers who were able to reduce accidents, low compensation, as well as delays and failures in processing compensation hindered the proper functioning of the system. Finally, new ideas about the co-management of safety did not take root in Spain. Labour involvement in the already ineffective safety institutions was largely limited by restrictive governments and opposition from employers, not to mention the Anarchist union's

[79] Barrio in Suàrez-Cortina (ed.) 1997, pp. 313–14; Cabrera and Rey-Reguillo 2002, pp. 157, 187–8, and 226–7.

[80] Medina and Rodríguez-Ocaña in Huertas and Campos (eds) 1992; Martínez-Pérez 1994; Rodríguez-Ocaña and Menéndez-Navarro 2006.

[81] Mallart 1932, p. 36; Marvá 1932, p. 11.

[82] Martínez-Pérez 1994, pp. 145–6.

[83] ILO 1929, p. 165.

[84] Jones in Weindling (ed.) 1985; Tucker 1990, pp. 198–204.

own reluctance. Mainstream theories about accident causation, meanwhile, continued to stress psychological and individual responsibility.

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