Striker Replacements in the United States, Canada, and Mexico: A Review of the Law and Empirical Research

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The debate on striker replacements is marked by considerable passion and controversy, with many unions and workers' rights advocates proposing legal prohibitions and employers and "free market" advocates generally opposing such prohibitions. In this article we go beyond the rhetoric and examine the nature and extent of striker replacement laws across North America. We also examine the research evidence on this issue and make suggestions for future research.

COLLECTIVE BARGAINING IS A WIDELY ACCEPTED INSTITUTION in the North American system of industrial relations. One of the main foundations of free collective bargaining is the right of unions to strike and the right of employers to take a strike and to lock out striking workers. For these rights to have tangible meaning, the potency of the countervailing weapons must be preserved, a task usually left for governments. Thus any attempt, real or perceived, to influence the effectiveness of the strike weapon generates passionate debate and conflict. Of all the actions that may have an impact on the potency of the strike, the one that probably has the greatest implication is the actual use and/or legal prohibition of replacement workers during a strike, especially if such replacements are on a permanent basis (temporary replacement workers generally are used

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INDUSTRIAL RELATIONS, Vol. 40, No. 1 (January 2001).
Published by Blackwell Publishers, 350 Main Street, Malden, MA 02148, USA, and 108 Cowley Road, Oxford, OX4 1JF, UK.

for the duration of the strike, whereas permanent replacement workers remain employed after the conclusion of the strike; thus strikers may lose their jobs when permanent replacement workers are used). Advocates for a ban on strike replacements contend that the use of replacement workers leads to increased tensions and more picket-line violence, longer strikes, and more union decertifications (see, e.g., Daily Labor Report 1995; Wilson 1995; AFL-CIO 1991). Opponents, on the other hand, argue that such a prohibition leads to increased strike activity, more bargaining power for unions, resulting high and inefficient wages, and negative effects on job creation and the economy (Jain and Muthuchidambaram 1995; More Jobs Coalition 1992; Daily Labor Report 1992a, 1992b, 1993a, 1993b, 1995).

Over time, lawmakers and researchers have responded to this debate, with the former passing legislation or making decisions in legal cases, through such institutions as courts and labor tribunals, and the latter conducting research on the relationship between various aspects of strike replacements and industrial relations outcomes. This article goes beyond the political rhetoric to systematically examine and discuss the laws and empirical research on this issue across the three North American Free Trade Agreement (NAFTA) countries. More specifically, this article goes beyond the traditional literature review to discuss the laws *and* empirical research on the probable effects of the laws and the effects of the actual use of replacement workers on various industrial relations outcomes. Mexico is included for two reasons. First, having legislated a prohibition on both permanent and temporary strike replacements since 1931, Mexico is considered to have more experience with such laws. Thus policymakers in Canada and the United States potentially can learn from the Mexican experience if, or when, implementing relevant legislation on striker replacements. Second, Mexican labor law is getting increasing attention following the signing of the NAFTA and the Labor Side Accord, amidst allegations of widespread abuse of worker rights; the cases dealing with labor issues arising out of the implementation of the Labor Side Accord have kept such issues in the limelight (Adams and Singh 1997; Murphy 1995; Compa 1995, 1999; Bierman and Gely 1995a). As trade and business investments with Mexico continue to increase, an examination of specific aspects of Mexican labor law can be useful for all stakeholders.

This article is divided into four main sections. First, we outline the debate surrounding the use of strike replacements and associated laws. Second, we discuss the nature, content, and extent of striker replacement laws across North America. Third, we conduct a review of the empirical research on the probable effects of legislation and the effects of the actual

use of replacement workers on various industrial relations outcomes. Finally, we conclude with a summary of general findings and suggestions for future research.

The Debate on Striker Replacements

The debate on striker replacements is marked by considerable passion and controversy, with many unions and workers' rights advocates proposing a legal prohibition, sometimes on a general basis (temporary and permanent), and employers and "free market" advocates generally opposing such prohibitions. There are several distinctive arguments made in support of a ban on strike replacement workers. First, it is contended that the use of striker replacements, especially those hired as permanent or potentially permanent workers (after a specified period as in some Canadian jurisdictions), leads to greater tensions during the strike and increases the likelihood of picket-line violence (Alexandrowicz 1994; Perry, Kramer, and Schneider 1982; Hutchinson 1962).

Second, proponents of a prohibition on striker replacements argue that using replacement workers leads to longer strikes because the employer's ability to continue production is not seriously affected and its ability to withstand the strike becomes stronger. It is further argued that longer strikes will have a negative impact on the macroeconomy.

Third, employers actually may use replacement workers to decertify unions (AFL-CIO 1991; Gramm 1991; Hargrove 1995). While such decertifications may imply unfair labor practices, it is argued that sometimes it is difficult to prove unfair labor practices by employers, thus avoiding any punitive legal response. In fact, decertification of the Professional Air Traffic Controllers Organization (PATCO) following the strike in 1981 is sometimes cited as an important turning point in the use of permanent replacement workers in the United States. In this strike, President Reagan fired over 11,000 air traffic controllers participating in an illegal strike and ordered federal agencies not to reemploy them. Some commentators argue that this set the tone for a new, aggressive approach by employers in their use of permanent replacements (for a review of the PATCO strike, see Northrup 1984).[1]

[1] Some journalistic-type accounts of this strike contend that it contributed to the decline of union rates in the United States, mainly as a result of workers subsequent fear of joining unions, as well as through union decertifications. However, this is a somewhat simplistic analysis of union decline in the United States [see Rose and Chaison (1996) for a good analysis of union densities in the United States and Canada]. It should be noted that the decline in union densities began before the 1981 strike.

Fourth, it is contended that hiring replacements, even on a temporary basis, allows the employer to avoid its obligations to the institution of collective bargaining, an institution that is accepted by all parties as being crucial to the functioning of the industrial relations system in Canada and the United States (Singh and Jain 1997; Langille 1995; Cornwell 1990; England 1983). It is further argued that an even more pernicious outcome of such a practice is the possibility of a striker losing his or her job as a result of practicing the fundamental right to strike (Hargrove 1995; AFL-CIO 1991); this argument is summarized in a statement emanating from the AFL-CIO (1991, p.1):

> [T]he prospect of re-establishing absolute control of the workplace is seductive to many employers. For them, the opportunity to hire permanent replacements is an incentive to provoke strikes, to recruit a more pliant, non-union workforce, and to renounce any further employment relationship with their union workers.

Further, proponents of a ban on replacement workers contend that such a practice allows employers to possess and exercise too much bargaining power in their relations with the unions. Finally, it is argued that a prohibition of replacement workers, in removing a thorny issue from the relationship, has the potential of leading to greater cooperative behavior between unions and management, thus yielding greater efficiencies.

Opponents of laws that prohibit strike replacements make a number of distinctive arguments as well. First, it is argued that to deny employers the freedom to hire replacements would tip the balance of bargaining power in favor of organized labor, thereby leading to higher, inefficient, and inflationary wage settlements (Witmer 1992; Eastman and Kenny 1992; Dole and Hatch 1991). They thus contend that the law should abstain from the battle and let the market determine the outcome, through the employment of those who are willing to work under the prevailing conditions set by the struck employer. This argument implies that there is a balance of power between employers and unions. Along similar lines, it is contended that tipping the balance of power in favor of unions would increase industrial disputes, including more frequent and longer strikes (Reynolds 1991). Second, it is argued that a prohibition on the use of replacement workers places small firms, the pillars of the capitalist system, at a distinctive disadvantage because their ability to withstand strikes is weaker than larger firms. For instance, larger firms may have larger inventories, greater revenues to sustain a long strike, more secure markets, and an ability to double up on shift work once the strike is completed. Third, by not allowing replacement workers, production, and consequently employment and the economy, is adversely affected. It is contended that this is evident even if small units within larger firms are

affected, especially for employers with functionally integrated units or those operating within a "just in time" production system. Finally, opponents of a ban on striker replacements contend that in a free-market economy business owners, in safeguarding their investments, have a right to hire replacement workers via common-law property rights. These arguments are summed up in a 1992 statement emanating from the Ontario Chamber of Commerce during a debate on the proposed introduction of a law banning striker replacements (Eastman and Kenny 1992, pp. 6–7):

> . . . the ability to strike gives the union a substantial capability to inflict economic damage on a company. A ban on replacement workers dramatically escalates that power. It gives unions the capability to bankrupt any Ontario-based business virtually at will. . . . the impact of this massive shift in power will be felt by everybody, not just those companies who are, or will be unionized. . . . it will affect overall economic vitality, and it will affect the tax base for the province's social programs. . . . the ban on replacement workers would hit the hardest at the companies and jobs we most want to have. . . .

All the NAFTA countries—Canada, the United States, and Mexico—explicitly or implicitly recognize the right to strike. However, there are marked differences in the actors' positions, as noted earlier in this article, on how legislation should deal with a number of strike-related issues, including that of replacement workers. These differences have given rise to a fairly complex set of striker replacement laws across these countries.

Strike Replacement Laws in the United States, Canada, and Mexico

The United States. The National Labor Relations Act (NLRA) of 1935, also called the *Wagner Act*, grants workers in the private sector the right to organize, bargain collectively, and "take part in the activities of their organizations." More specifically, the right to strike is addressed by Section 7 of the NLRA, which states that

> . . . [E]mployees shall have the right to self-organization, to form, join, or assist labor organizations, to bargain collectively through representatives of their own choosing, and to engage in other concerted activities for the purpose of collective bargaining or mutual aid or protection. . . .

Section 8(a)(3) of the NLRA further ensures this right in declaring that it is an unfair labor practice (ULP) for an employer "to interfere with, restrain, or coerce employees in the exercise of the rights guaranteed in section 7."

While the Constitution of the United States and the NLRA do not explicitly address the strike replacement issue, a number of National

Labor Relations Board (NLRB) and court cases have done so, of which the most important has been *NLRB* v. *Mackay Radio and Telegraph Co.* (1937). In *Mackay*, the union representing the workers at a unit of the employer's operations struck as a result of a dispute related to the terms of a collective-bargaining agreement. The employer consequently moved employees from other locations to do work for the striking employees in San Francisco. The strike failed, and the employer reinstated all the strikers except five of the most active union supporters. The union filed ULP charges with the NLRB, which held that the employer discriminated against the employees because of their activities and support for the union during the strike. On appeal by the employer to the Court of Appeal, the court denied enforcement of the NLRB's order. When the case came up in Supreme Court, it was found that the NLRB's position was supported by the evidence. While the striker replacement issue was never the focus of this case, the Supreme Court, however, made reference to the issue, thus giving rise to the *Mackay* doctrine (*NLRB* v. *Mackay Radio* 1937, pp. 346–47):

> . . . nor was it an unfair practice to replace the striking employees with others in an effort to carry on the business. Although section 13 [of the NLRA] provides "nothing in the Act shall be construed so as to interfere with or impede or diminish in any way the right to strike," it does not follow that an employer, guilty of no act denounced by the statute, has lost the right to protect and continue his business by supplying places left vacant by the strikers. And he is not bound to discharge those hired to fill the places left by strikers, upon the election of the latter to resume their employment, in order to create places for them. . . .

Ever since this ruling, employers have been permitted to lawfully hire replacement workers, permanent and/or temporary, for workers engaged in economic strikes[2] (for limitations and further discussions of the *Mackay* doctrine, see Adams 1996; Bierman and Gely 1995b; Furaro and Josephson 1995; Golden 1991; Spector 1992; Pollitt 1991; Dolan 1991; Estreicher 1987; Weiler 1984). However, the *Mackay* ruling does not give employers an unfettered right in hiring replacement workers. Employers must prove legitimate and substantial business reasons for not reinstating strikers at the end of a strike or face ULP charges (see, e.g., Spector 1992; Weiler 1984).

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[2] Permanent replacement workers can only be used in economic strikes—i.e., strikes that occur as a result of demands related to conditions of employment, etc. They cannot be used in ULP strikes—i.e., strikes resulting from violations of the NLRA; temporary replacement workers may, however, be used in ULP strikes (see *Mastro Plastics Corp.* v. *NLRB* 1956).

In another important and related case, *Belknap* v. *Hale* (1983), replacement workers were informed, both verbally and in writing, that they would be hired as permanent replacements and would be retained even after the strike ended. However, on the termination of the strike, the replacement workers were released to make way for the returning strikers. Twelve of the terminated replacement workers filed a civil suit against the company for "misrepresentation and breach of contract." The Supreme Court ruled for the terminated workers, stating that the law (NLRA) does not necessarily permit an employer to discharge replacements if such a termination breaches promises made to the replacement workers. This case implies that while the law allows for strikers to return to work on cessation of a strike as part of the union-management back-to-work agreement, employers cannot breach promises made to replacement workers.

Over time, there have been a number of related cases,[3] but the *Mackay* doctrine remains the general rule. Many unions, labor advocates, and politicians have criticized this doctrine, and there have been several attempts to introduce legislative changes. Over the past 15 years, U.S. federal lawmakers have debated at least four proposals to limit the use of permanent replacement workers, with no law being passed on any occasion. For instance, in 1991, the U.S. House of Representatives passed H.R. 5, a bill that sought to make it a ULP for employers to hire or threaten to hire permanent replacements during strikes; however, it failed by 3 votes to get the 60 votes required under Senate procedural rules to allow a vote on the proposal (Corbett 1994; Lippner 1995). An almost identical bill, S. 55, was soon after introduced in the Senate but was killed by filibusters (Daily Labor Report 1992a; 1992b). The Cesar Chavez Workplace Fairness Act, a similar proposal, suffered the same fate. State legislation aimed at restricting the use of permanent replacement workers, such as that in Maine in 1987 and Minnesota in 1991, also has been ruled unconstitutional (LeRoy 1993; Budd 1996). Further, in 1995, President Clinton issued an executive order prohibiting the government from doing business with firms that hire permanent strike replacement workers (see Nomani 1995; Manegold 1995). However, this executive order was later terminated by adverse court decisions. While the order was upheld by a district court, on appeal, the decision was overturned by the D.C. Circuit

[3] See, for instance, *NLRB* v. *Fleetwood Trailers* (1967) for a ruling that strikers cannot be displaced by new hires after the strike is over; *NLRB* v. *Erie Resistor Corp* (1963) for a ruling that replacements cannot be treated more favorably than reinstated strikers; and *NLRB* v. *Great Dane Trailers* (1967) for a ruling stating that hiring replacements "inherently destructive" of employee rights constitutes a ULP but that those which are "comparative slight" (or no direct threat to the union's survival) may not be.

Court, which held that the order was unlawful because it conflicted with an employer's right to hire permanent replacements during economic strikes. The *Mackay* ruling has thus remained in force.

Canada. Canadian labor legislation, unlike the United States, is not administered solely at the federal or national level (see Table 1 for a summary of relevant legislation). By the time the Wagner Act was passed in the United States in 1935, labor affairs had devolved to the provinces; interprovincial/intranational issues were retained at the federal level (Adams 1996). Currently, only about 10 percent of the workforce is covered by federal legislation.

The right to strike is not guaranteed in any Canadian jurisdiction, even though all have provisions similar to the federal Canada Labour Code section 8(i),[4] which stipulates that "[e]very employee is free to join the trade union of his choice and to participate in its activities." However, as

TABLE 1

STRIKE REPLACEMENT LEGISLATION IN CANADA

	Total ban on all replacements	Reinstatement rights provisions	Professional strikebreakers banned	Provisions protecting those who refuse to do struck work
Federal	s. (1998–present)			
Alberta		s.88 (1988–present)	s.152(1) (1988–present)	s.147(f) (1988–present)
British Columbia	s.68 (1993–present)		s.3(3) (1973–present)	s.68(3) (1993–present)
Manitoba		ss.11, 12, 13 (1976–present)	ss. 14(1) (1973–present)	ss. 15, 16 (1973–present)
New Brunswick				
Newfoundland				
Nova Scotia		s.53(3)(a) (1989–present)		s.53(3)(c)
Ontario	s.73 (1993–1995)	s.80 (1995–present) s.75(1) (1970–1993)	s.78 (1983–present) s.73(1) (1993–1995)	
P.E.I.		s.9 (1987–present)		
Quebec	s.109.1 (1978–present)	s.98(a) (1978–present)		
Saskatchewan		s.46 (1994–present)		

SOURCE: Survey of Canadian Ministries of Labour/Labour Departments/Labour Boards.

[4] The *Canada Labour Code* regulates labor matters in the federal jurisdiction (e.g., banking, transportation, etc.). The ten provinces are responsible for all other matters and have passed their own labor legislation.

Arthurs and colleagues (1993) note, statutes in all jurisdictions regulate strikes, thus implying that employees have this right.

The Canada Labour Code historically has been silent on the use of temporary strike replacements and had no clause on the reinstatement of strikers (thus restricting the use of permanent replacement workers) on cessation of a strike. However, recent changes (1998) in the Canada Labour Code imply a prohibition on the use of both permanent and temporary replacements[5]:

> No employer or person acting on behalf of an employer shall use, for the demonstrated purpose of undermining a trade union's representational capacity rather than the pursuit of legitimate bargaining objectives, the services of a person who was not an employee in the bargaining unit on the date on which notice to bargain collectively was given and was hired or assigned after that date to perform all or part of the duties of an employee in the bargaining unit on strike or locked out [section 94(2)(1)].

At the provincial level, Quebec (Labour Code, section 109.1, 1977) and British Columbia (Labour Relations Code, section 68, 1993) have prohibitions on the use of both temporary and permanent replacements once the prerequisites for a lawful strike or lockout are met. Both provinces prohibit the use of new hires or employees from other locations or from other employers to do struck work but permit the use of managerial staff; reprisals against managers who refuse to do such work are disallowed. Both jurisdictions allow for exemptions to the law in the case of emergencies and for services deemed essential. Some notable differences in the law between the two provinces are also evident. Quebec has a blanket prohibition on the use of bargaining-unit members during a strike, whereas in British Columbia employers are allowed to use consenting strikers and non-bargaining-unit employees. Further, Quebec prohibits struck work to be done at other facilities (contracting out and/or relocation), whereas this is permissible in British Columbia. Ontario, under the New Democratic Party government, introduced similar prohibitions against hiring temporary and permanent replacements in 1993, but these were repealed by the Progressive Conservative government when it was elected to office in 1995.

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[5] There were very heated debates leading up to the passing of this law, with the business community opposing any ban on replacement workers and organized labor wanting a total ban on all strike replacements. The three-member Commission on the Reform of the Labour Code was split in its recommendations to the government, with two members favoring a temporary ban and one arguing for a total prohibition. It would be interesting to see how the Canada Labour Relations Board treats the issue of "undermining a trade union's representational capacity" in the cases that come before it. See *http://labour-travail.hrdc-drhc.gc.ca/labour/labstandard/index.html* for the final report by the commission, in which the debate on strike replacements is presented.

Professional strike breakers, defined as persons not involved in a dispute whose primary object "is to interfere with, obstruct, prevent, restrain, or disrupt the exercise of any right under the Act in anticipation of, or during, a legal strike or lockout" [Ontario Labour Relations Act, section 78(1), 1995], are prohibited in Ontario, Manitoba, Alberta, and, by logical extension, British Columbia and Quebec (see Table 1 for citations of the relevant legislation on striker replacements). Alberta and Nova Scotia, as well as Quebec and British Columbia, disallow discipline or discharge against workers who refuse to do struck work. "Strike-related misconduct," such as incitement, intimidation, or surveillance to discourage strikes, is prohibited in Ontario and Manitoba.

Eight provinces, including the two with outright bans on strike replacements (Saskatchewan, British Columbia, Ontario, Manitoba, Alberta, Prince Edward Island, Nova Scotia, and Quebec), have provisions in their labor statutes that to varying degrees guarantee the striker his or her job at the end of a strike. Ontario provides for the reinstatement of strikers anytime within 6 months of the strike once an unconditional application for work is made, and Alberta has a similar 2-year stipulation; the other six provinces have no such limitations. In essence, eight jurisdictions have explicit provisions banning the use of permanent replacements because they provide for the reinstatement of strikers once the strike is concluded. Even though there is a lack of explicit legislation on reinstatement rights in New Brunswick and Newfoundland, the practice of hiring permanent replacement workers is rare across Canada.[6] Further, it should be noted that these two provinces, along with Prince Edward Island, Nova Scotia, and Ontario,[7] have legislation prohibiting the supplying or hiring of replacement workers by employers represented by an accredited employer's organization (thus making the law applicable to the construction industry). In fact, all Canadian jurisdictions provide that the employment relationship does not cease solely because an employee has stopped working as a result of a strike or lockout[8] (Adams 1996). These "striker

[6] While it is not customary for strikers to be permanently replaced in Canada, there are some exceptions. For instance, one notable exception occurred in the 1994 strike at Irving (the firm's name) in New Brunswick in which several strikers were not rehired after the union "lost" the strike.

[7] New Brunswick Industrial Relations Act, section 50(2); Newfoundland Labour Relations Act, section 68; P. E. I. Labour Act, section 60; Nova Scotia Trade Union Act, section 102; and Ontario Labour Relations Act, section 140(2).

[8] Canada Labour Code, section 3(2); Alta. Labour Relations Act, section 87; B. C. Labour Relations Code, section 1(2); Manitoba Labour Relations Act, section 2(1); N. B. Industrial Relations Act, section 1(2); Nfld. Labour Relations Act, section 2(2); N. S. Trade Union Act, section 14; Ontario Labour Relations Act, section 1(2); P. E. I. Labour Act, section 9(2); Quebec Labour Code, section 110; Sask. Trade Union Act, section 2(f)(iii).

protection" clauses generally are interpreted by the labor relations boards and courts to give protection to strikers from being permanently replaced.[9]

There is a mosaic of case law across the various Canadian jurisdictions, partly as a result of the variations in legislation. Nevertheless, a few cases stand out, some serving as precedents across all jurisdictions (for a discussion of many of these cases, see Adams 1996). In *Eastern Provincial Railways* (1984), the union lost the strike, and the employer refused to reinstate the strikers over replacement workers; the Canada Labour Relations Board (CLRB) found the refusal to reinstate the strikers to be a ULP. The adjudicators refused to apply an *obiter dictum* of one judge, out of nine, in *C.P.R. Co.* v. *Zambri* (1962), in which it was held that employers were at liberty to engage others to fill the places of strikers and were not obligated to continue the employment of striking employees at the termination of a strike.

In *USWA* v. *Shaw-Almex Industries, Ltd.* (1987), the CLRB held that it was a ULP to refuse to reinstate striking employees at the end of a strike because the employer did not want to let go of replacement workers, thus discriminating against strikers. It was held that the employer violated the duty to bargain in good faith because it impaired the union's ability to represent its members. The legislation in many jurisdictions has since addressed this issue through reinstatement rights clauses, thus ensuring the continuity of the employment contract on the cessation of a strike.

There are several other relevant cases on the striker replacement issue.[10] However, in general, labor laws are very protective of employees' job rights but leave the details of the collective-bargaining relationship to

[9] See, for example, *General Aviation Services* (1982), in which it was found that the employer's decision not to reinstate strikers was a ULP and violated section 107(2) of the Canada Labour Code. Other cases focus on the continuity of the employment relationship; for instance, in *McGavin* v. *Ainscough* (1975), the Supreme Court ruled that even while a strike may even be unlawful (workers struck during the term of the collective agreement), it did not per se terminate the employment relationship, and strikers were thus entitled to their severance pay because the collective-bargaining agreement was in force and not the individual contract. Note that the jurisprudence in the United States also suggests that the employment relationship does not cease on the initiation of a strike (e.g., strikers vote in decertification elections, etc.).

[10] See, for example, *Webster* v. *Horsefall* (1969), in which a ULP was not found in the termination of strikers because the employer had legitimate business reasons for its actions in that it was going out of business; in *Fotomat Canada, Ltd.* (1980), Ontario's 6-month limitation to reinstatement rights was brought to the fore—it was found that the employer deliberately prolonged the strike and thus the strikers had rights to their jobs even after the 6 months (essentially the adjudicators—OLRB—converted an economic to a ULP strike); however, in *Miniskool, Ltd.* (1983), the Ontario Labour Relations Board concluded that after the 6-month period is over, strikers have no legal rights to bump strikers who had returned before the strike was over—note, however, that the issue here was with strikers who had returned to their jobs and not outside replacements. The *Shaw-Almex* ruling has since held that the employer's "motive" is

the outcomes of relative economic power between unions and employers. Nevertheless, when unilateral employer power appears "excessive or inherently destructive" labor boards may intervene (Adams 1996).

Mexico. The 1917 Mexican Constitution contains extensive protections for workers, reflective of the major role played by working people and their organizations in the success of the 1910 revolution (Clark 1934; Miller 1968; Middlebrook 1991). The legitimacy of unions and the right to strike are guaranteed under Article 123 of the constitution (entitled "Labor and Social Security"), thus preceding similar American and Canadian law by almost two decades. As Zelek and de la Vega (1992) note, this Mexican initiative represented one of the earliest constitutional recognitions of labor rights in world history. Over time, the constitution has been amended several times, but these rights have, in general, continued to be protected in the statutes (Miller 1968; Franco 1991). As a result of the protections in the constitution and the federal labor law, Mexican workers now enjoy an impressive list of rights in the law. In fact, Mexican workers, in principle, enjoy more rights than their counterparts in both the United States and Canada (Bartow 1990; Befort and Cornet 1996). However, as LaBotz (1992) notes, the government has established mechanisms that limit the effectiveness of these rights through the federal labor law and its associated institutions.

The Federal Labor Law, or the *Ley de Trabajo* (LFT), enacted in 1931, regulates labor law countrywide, including issues related to minimum working conditions, the rules of association and bargaining, and the conflict-resolution process. It also establishes tribunals at various levels of government (federal, state, and major cities) to oversee the law. These tripartite tribunals, called *Conciliation and Arbitration Boards* (CABs), are comprised of an equal number of labor and management representatives and a government official who acts as the chairperson. Issues under the federal jurisdiction are dealt with by the federal CABs, whereas state and local issues are handled by state and local boards, respectively.

The right to strike is protected under Article 123-XVII of the Mexican Constitution, and the striker replacement issue is specifically addressed by the LFT. Article 447 of the LFT prohibits an employer from temporarily or permanently replacing legally striking workers; this prohibition

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the key factor in the decision; improper motive was found in *Shaw-Almex*. The question of who exactly is a replacement worker was addressed by the British Columbia Labour Relations Board in *V. I. Care Management, Ltd* (1993); it was held that it must be shown that replacement workers were used to do bargaining unit work and that such replacements were employed for the purpose of resisting a strike or pursuing a lock-out to sustain a finding that the employer violated the prohibition against hiring replacement workers.

has been in place since 1931. The striker replacement issue thus revolves around conditions under which strikes are deemed legal, or *existente*. The LFT, as amended in 1970, states that for a strike to be considered legal, among other prerequisites, the strike must aim to (1) attain a balance of workers' and employers' rights, (2) pressure employers to execute, revise, or comply with collective-bargaining agreements, and (3) annually obtain higher wages (Singh and Jain 1997). It is further stipulated that a strike is legal only if carried out by a majority of workers in the firm or industry (for industry-wide bargaining units). While no formal majority strike vote is required to commence a strike, such a majority may be required to be proven if the legality of the strike is challenged. Other requirements include a formal petition by the union to the appropriate CAB, stating the reasons for the strike and the expected time of commencement, to which the employer is asked to respond within 48 hours. In keeping with the conciliatory disposition of the CABs, a negotiated settlement is attempted. If the CAB fails in its efforts and declares the strike to be legal, the employment contract is suspended, and replacement workers cannot be used. Exemptions are provided for certain essential services.

These extensive procedures have the dual effect of "settling" disputes once they erupt and discouraging strike action. As LaBotz (1992, p. 50) notes, this system has been very effective in keeping strikes down: ". . . between 1982 and 1988 there were 78,801 strike notifications to initiate the process of taking strike action, but only 2.3 percent of those strikes were actually carried out." De la Garza (1991) reports similar figures; between 1975 and 1984, there were a total of 531,070 conflicts in all Mexican jurisdictions (federal and local) resulting in only 11,832 strikes (2.23 percent).

Since the use of striker replacements is prohibited by law, the use of replacements occurs in situations involving "illegal," or *inexistente*, strikes. Relevant case law is somewhat inaccessible because such information is rarely open to the public. Further, as Befort and Cornet (1996, p. 269) point out, "as a civil law system, legislation—not jurisprudence—plays a primary role in Mexico's legal rules." Nevertheless, a few cases offer insights into the application of Mexico's striker replacement law, enforcement procedures, and the operation of the CABs (see LaBotz 1992; Middlebrook 1991).

In 1991, the Modelo Brewery Workers Union, an affiliation of the Confederation of Mexican Workers (CTM), struck at Modelo Brewery, pressing for changes to the collective agreement (the CTM is Mexico's largest and most powerful "official" labor confederation; it shares a close

relationship with the government and the ruling political party). The strike decision was made after appropriate legal procedures were followed, such as petitions to the CAB, and after conciliation attempts failed. The CAB ruled the strike *inexistente*, but a court of appeal reversed this decision, effectively stopping the company from hiring replacement workers. However, in a surprise decision a few weeks later, the strike was reverted back to its illegal status by the same court; the company fired the 5200 striking workers and hired replacements with the support of the CTM, which claimed that the strike was political. The strike failed, and the company rehired all the strikers except about 100 of the most militant unionists, who were given severance packages. The company, the CAB, and the CTM all found this decision acceptable. The CTM subsequently created another union to replace the Modelo Brewery Workers Union (LaBotz 1992).

In a similar case, the groundworkers union at the state-owned Aeromexico airline struck in 1988 after filing appropriate petitions, claiming violations to the collective agreement. The government promptly declared the company bankrupt and initiated plans for privatization, and the CAB ruled the strike illegal on grounds that proper legal procedures were not followed. The airline was reopened subsequently as a private company, and management rehired some of the workers who were on strike "not on the basis of their seniority but on their opposition to labor unions" (LaBotz 1992, p.100). As the government stated, its actions were legal because Mexican laws permit a company to declare bankruptcy and reopen as a new entity.

In another case, the militant Mexican Electricians' Union (SME) filed a strike petition against the Compania de Luz y Fuerza del Centro and its affiliates (Franco 1991). The strike was declared *inexistente* on the grounds that it was spurred by general economic conditions facing the country and not specifically related to conditions in the company. The workers were thus compelled to return to their jobs or lose them in favor of replacements. A similar fate resulted in a 1987 strike called by the National Telephone Workers union (Franco 1991).

As the Mexican situation suggests (similar incidents also occurred during the 1989 Tornel Rubber Company and the 1990 Ford Motor Company strikes, among others), poor enforcement procedures may block the translation of impressive statutory and constitutional worker rights provisions to reality (LaBotz 1992; Goldin 1990). The operation of the CABs has stirred considerable controversy. In fact, as a result of recent NAFTA labor cases [for a review of these cases, see Adams and Singh (1997) and Compa (1999)], a special study on these institutions has been requested

by the trinational North American Agreement on Labor Cooperation (NAALC).

Thus one lesson for other North American jurisdictions is that the passing of legislation is not sufficient to ensure a protection of the principles of free collective bargaining. Legislation on strike replacements, if this is the path chosen by policymakers, must be accompanied by a provision of adequate resources and strong and independent administrative agencies to implement the laws.

The preceding sections focused on the debate and the laws related to striker replacements in Canada, the United States, and Mexico. The debates generally have included conflicting claims as to the effects of using replacement workers and the effects of laws aimed at prohibiting their use. Since there are variations in these laws across jurisdictions, researchers can test the effects of legislation and/or the use of striker replacements empirically under varying conditions and scenarios. Such research, while sparse prior to the 1990s, grew considerably this decade. In the following section, the thrust and results of these empirical studies are discussed.

A Review of the Empirical Research

A Brief Overview of Theoretical Frameworks. An analysis of the literature reveals that most, if not all, of the theories used in the research on striker replacements may be categorized as "economic," reflecting the disciplinary focus that has dominated the literature. In general, striker replacements (both the passing of law and the actual use of replacement workers) have been treated in the literature as integrally connected to the bargaining-power issue. The relevant question invariably has been: Does the passing of a law or the use (or threat) of replacement workers affect the "power relationships" between employers and union, thereby leading to outcomes that favor one party? Two main strike theories/models are emphasized in the empirical research: the joint-cost and the interrelated information-dissemination models [for a review of strike models and outcomes, including critiques, see Kaufman (1992)]. Both have been used to explain the main outcomes in the striker replacement debate, *viz.*, strike activity, bargaining power, wages and employment, and union survival.

The joint-cost model (Kennan 1980, 1986; Reder and Neumann 1980) predicts that the greater the joint costs of a strike to unions and employers, the less are the chances for a strike or "expensive mistake." That is, both sides rationally calculate their respective costs of a strike versus other alternatives (e.g., arbitration); the greater the costs of a strike to a party,

the more likely it is that party will be willing to make compromises. In terms of strike activity, the model suggests an inverse relationship between strike costs and strike incidence and duration. With regard to the striker replacement issue per se, this theory has been extended to make predictions on various outcomes such as bargaining power, wages, and strike activity. For instance, it is suggested that the use of strike replacement workers reduces the costs to employers (since production may not be significantly affected), thus increasing their bargaining power and lowering wages (Gramm and Schnell 1994).

The information-dissemination models (imperfect information, information uncertainty, asymmetrical information) all grapple with the issue of a lack of relevant information (costs and benefits of strikes) by both parties. In the imperfect-information model, strikes are assumed to occur as a result of a miscalculation of the associated benefits and costs [see Kaufman (1992) for a more detailed discussion of these models]. The uncertainty-information model extends this argument to include the amount of information to be processed and the degree of uncertainty associated with the variables. Siebert and Addison's (1981) analogy to "accidents" is particularly relevant in discussing the effects of striker replacement legislation. According to their arguments, strikes, like road accidents, cannot be predicted accurately ahead of time. However, certain conditions that make driving more difficult or safer will have a predictable relationship with accidents. Thus strike laws favorable to unions will increase their power in the employer-union relationship. Finally, the asymmetrical-information model proposes that strikes are not really a result of an information deficiency and inaccurate estimates but rather a device used by unions to appraise firms' ability to pay based on their profitability. That is, unions hold the strike threat or use a strike (as an employer calculates his or her costs of taking a strike versus other alternatives) to efficiently seek out a firm's profitability. In terms of testable hypotheses on striker replacements, a ban on all replacement workers, for instance, is predicted to lead to a greater uncertainty about future profits and increased strike activity (Abowd and Tracy 1989).

Empirical Studies: Research Design and Results. In his review article, Kaufman (1992), noting that the striker replacement issue was one of the most important strike issues in the 1980s, laments that ". . . this subject is almost entirely missing from the industrial relations literature" (p. 119). However, such research has accelerated in the 1990s, with the focus being largely on "testing" the controversial issues in the political debate on striker replacements. Two distinct streams of this research body can be

identified: one that examines the *probable* effects of striker replacement laws on various outcomes, especially strike activity (incidence and duration) and changes in wages (proxy for bargaining power)—this stream uses exclusively Canadian-based data—and a second that focuses on the effects of the *actual use* of replacement workers on such outcomes—this stream uses mainly U.S.-based data (we are not aware of any study that uses Mexican data; this paucity is most likely due to the fact that striker replacements are legally banned in that country). Overall, these studies focus on a number of dependent variables, most of which are mentioned in the political debate (see Table 2 for a summary of the main studies). These variables may be classified into two categories: (1) balance-of-power indicators/variables (employers' ability to continue business operations, strike activity, bargaining power/wages, union decertification, and union coverage) and (2) wider social and economic issues (picket-line violence, effects on small firms, and employment).

(i) Balance-of-Power Variables. (a) Employers' Ability to Continue Operations. An employer's ability to continue its operations is a crucial indicator of relative power and a mechanism whereby an employer can gain more power in the relationship. That is, it is both an indicator and a tool of economic power. In an early study, Hutchinson (1962) analyzed the determinants and consequences of an employer's decision to continue business operation during a strike with the use of replacement workers. In this in-depth study of 55 firms, over 150 interviews were conducted with a wide range of stakeholders; relevant archival data, including photographic coverage of strike violence in local newspapers, also were analyzed. Hutchinson reported that some of the main variables influencing an employer's decision to continue operations using replacement workers included the right by employers to operate with or without union labor, the associated costs, and interestingly, personality and psychological factors. Consequences of the decision to use replacement workers included picket-line violence and a weakening of unions.

Perry, Kramer, and Schneider (1982), in another early study, examined the legal, institutional, logistical, and economic dimensions of operating a struck facility from a management perspective. In a detailed analysis of 15 U.S. companies that were known to have used striker replacements, using formal and informal interviews and company data, they found that while employers were able to continue their operations to meet market needs, there was a high turnover among permanent replacements, "emotional encounters" and some picket-line violence, and an increase in the bargaining power of employers, as indicated through concessionary wage

TABLE 2

SUMMARY OF MAJOR EMPIRICAL RESEARCH

Study	Sample	Dependent variable(s)	Independent variables and controls	Analysis	Results
Effects of legislation on industrial relations outcomes					
Gunderson, Kervin and Reid (1989)	3347 coll. ag., mostly > 500 ee's: 531 strikes	Strike incidence	Eight policy variables, plus controls for industry, region/ province, size of unit, etc.	Logit analysis	Statistically significant increase in strikes
Gunderson and Melino (1990)	7546 strikes in private sector; 1967–85; mostly > 500 ee's	Strike duration	Same as above	Hazard-function estimates	Strikes longer when a general prohibition on replacement workers exists
Martinello and Meng (1992)	Cross section of 3853 full-time ee's in 1986	Union coverage	Ban on permanent and temporary replacements and strike breakers plus other policy variables	Probit regressions	No significant impact on wages and union coverage
Budd (1996)	2042 c.b. agreements; 22.5% involved a strike; 13.8% in Quebec	Strike incidence, strike duration, wage determination	Bans on permanent, temporary and professional strike breakers plus controls for year/time etc.	Logit analysis; hazard estimates; OLS regressions	General prohibition and ban on professional strike breakers associated with increased likelihood of strikes; reinstatement rights clauses associated with lower strike probabilities
Cuther-Gershenfeld, McHugh and Power (1996)	481 coll. bar. negotiations, 24 involving strikes—11 using repl. workers: 1987–91	Time to settle after contract expiration	Use of replacement workers plus industry strike incidence	OLS regression	No significant effect on time to settle
Effects of actual use of replacement workers					
Gramm (1991)	53 strikes; permanent replacements in 10, 4 temporary	Union decertification; strike duration; employer's ability to continue operations	Not applicable	Descriptive statistics	When permanent replacements used, unions more likely to be decertified; strikes longer; limited impact on employers ability to continue operations

Schnell and Gramm (1994)	271 strikes in 1985 and 989; corrected n = 1211	Strike duration	Employers' announcing use of striker replacements; actual use of replacements, plus controls for size of unit, region, etc.	Hazard function estimates	No significant effects on proportion of full capacity operations; significant decrease in the rehiring of strikers; firms using replacement workers obtain less favorable contracts than those that do not
Gramm and Schnell (1994)	53 strikes in U.S.	Employers ability to continue operation; strikers' job security; bargaining outcomes	Hiring permanent replacements; plus controls for size of unit, etc.	Logistic regressions	General prohibition and ban on professional strikebreakers associated with increased likelihood of strikes; reinstatement rights clauses associated with lower strike probabilities
Crampton and Tracy (1998)	312 strikes in U.S. from 1980–1989	Strike duration, strike incidence and dispute incidence	Use of replacement workers	Probit regressions	Strikes longer when replacement workers used; increased replacement risk associated with less strikes but more disputes
Jain and Singh (1999)	93 strikes in Canada	Strike duration	Use of replacement workers, legal environment, size of bargaining unit, sector, industry, year	OLS regression analyses	Use of replacement workers significantly associated with longer strikes

settlement by the unions. In both Hutchinson (1962) and Perry, Kramer, and Schneider (1982), the authors conclude their studies by advising management on the mechanisms necessary to protect their "right to take a strike," including ways in which to effectively use striker replacements to continue operations. In more recent studies, Gramm (1991) and Gramm and Schnell (1994), using survey data on 53 strikes in the United States in which permanent replacements were used in 10 and temporary replacements in 4, found that the use of permanent replacements had no

significant effects on an employer's ability to continue its operations; i.e., the use of permanent replacements (versus temporary replacements) offered no significant advantage in continuing the firm's operations. Overall, while the sample sizes in these studies are relatively small, the use of "first hand" data is noteworthy and needs to be pursued in future research, albeit with larger samples.

(b) Strike Activity, Bargaining Power, Wages, and Union Decertification. The debate on the effects of striker replacements (both the passing of laws and the actual use of replacement workers) on strike activity (incidence and duration), bargaining power and wages, and union decertifications has attracted the most academic attention so far; some studies include all these outcomes as dependent variables. Subdividing these studies into those which examine the probable effects of labor legislation on various outcomes and those which examine the effects of the actual use of replacement workers allows for greater clarity of the literature.

Effects of Striker Replacement Legislation. Gunderson, Kervin, and Reid (1989) examined the impact of nine policy variables, including a prohibition on the use of replacement workers, on strike incidence (other policy variables were mandatory strike votes, one-stage conciliation, two-stage conciliation, a cooling-off period, an employer-initiated vote option, compulsory dues checkoff, a permission of negotiated reopeners of collective agreements, and automatic reopeners for technological change). Using logit analysis of 3347 individual collective agreements (involving 531 strikes) in fairly large establishments (mostly 500 or more employees; some with 200 to 500 employees), they found that a prohibition of replacement workers was associated with significantly higher strike probabilities. They rationalized this unexpected finding through an explanation of the probable effects of picket-line violence: "[the] elimination of the potential picket line violence associated with the use of 'scabs' appears to have made the strike a more viable option to the parties, in spite of the greater potential output loss associated with such a prohibition" (Gunderson, Kervin, and Reid, 1989, p. 790).

In another study, Gunderson and Melino (1990), using hazard function estimates, analyzed the effects of various policy variables, including a prohibition of replacement workers, on strike duration (variables were similar to Gunderson, Kervin, and Reid, 1989). Using a sample of 7546 strikes in Canada (sample comprised mostly of units of 500 or more employees) between 1967 and 1985, they found a similar result: A

prohibition on strike replacements is associated with longer strikes. However, as they noted, ". . . the effect of the antiscab legislation is identified only through its existence in Quebec since 1977. It may be picking up the effects of other changes in that province, which are not controlled for in our analysis" (Gunderson and Melino, 1990, p. 308). Gunderson, Melino, and Reid (1990) offer further explanation of their finding that Quebec legislation was associated with increased strike activity (duration and incidence), noting the possibility that strike replacement legislation "may increase the union's uncertainty about the firm's position because the option of using replacement workers is now circumvented. As well, the legislation enlarges the rents to be bargained over since the firm cannot utilize the alternative of replacement workers" (Gunderson, Melino, and Reid, 1990, p. 517).

Budd (1996), in a study of 2042 collective-bargaining agreements between 1966 and 1985 in Canada, of which 22.5 percent involved a strike, used logit and ordinary least squares regression analyses to investigate the effects of various striker replacement laws on strike activity and wage determination. He found that, controlling for province/jurisdiction effects, a ban on permanent replacements is not significantly associated with strike incidence, strike duration, and negotiated wages. In an earlier version of this study, Budd and Pritchett (1994), using changes in wages as an indicator of shifts in bargaining power, with controls for other wage determinants, reported that "there is no evidence to support the contention that the presence of legislation affecting the use of strike replacements significantly alters relative bargaining power and the wage determination process" (Budd and Pritchett, 1994, p. 376).

Similarly, Crampton, Gunderson, and Tracy (1999) focused on the impact of legislative bans of replacement workers in Canada from 1967 to 1993. They found that when bans were in place, strike incidence was higher, duration of strikes was longer, and wages were higher. The database (updated to 1993) and results are similar to that of Gunderson and colleagues and reflect the problems inherent in those studies (e.g., results are heavily influenced by the Quebec experience).

Effects of the Actual Use of Replacement Workers. Gramm (1991), using mainly descriptive statistics, examined the differences across strikes in which permanent (versus temporary replacements) were used by struck firms. Using survey data on 53 strikes in the United States (described earlier), she found that in instances when permanent replacements were used, strikes were longer; unions also were more likely to be decertified, and there was a limited impact on an employer's ability to

continue its business operations. Using this same database, Gramm and Schnell (1994) analyzed the effects of using permanent replacements (versus other labor sources) on bargaining members' job security, resulting wage contracts, and an employer's ability to continue operations. Using ordinary least squares and logistic regression analyses, they found that the use of permanent replacements had no significant effects on an employer's ability to operate at full capacity, significantly decreased the rehiring of strikers, and resulted in less favorable contracts (compared with firms that did not hire permanent replacements). However, the small sample in the two studies raises a question about the statistical robustness of the results.

In another study, Schnell and Gramm (1994) investigated the effects of an employer announcing an intent to use permanent striker replacements, as well as the actual use of such replacements on strike duration. Using hazard function estimates on a sample of 271 strikes in 1985 and 1989, as reported by the U.S. General Accounting Office, they found that both actions by an employer were associated with longer strikes. As the authors note, their findings are consistent with arguments made by proponents of a ban on permanent striker replacements, *viz.*, that such replacements lead to longer strikes.

Olson (1990), using duration analysis in a study on the use of replacement workers in strikes in New York during three periods (1881–1986, 1901–1911, and 1926–1931) and in general U.S. strikes involving 1000 or more workers (1984–1988), also found that the use of replacement workers led to longer strikes. Card and Olson (1995), using archival strike data for Illinois, New York, and Massachusetts in the 1880s, report similar results. However, no distinctions were made in these two studies between permanent and temporary replacement workers. A U.S. General Accounting Office study further found that hiring permanent replacements is associated with longer strikes (U.S. GAO 1991). Further, using 165 NLRB cases involving the use of striker replacements between 1935 and 1990, LeRoy (1995) also found that since 1981, strikes involved more replacements and were longer than strikes in the 1950s, 1960s, and 1970s; the latter strikes involved those which used replacement workers less frequently. Crampton and Tracy (1998), using data from 312 strikes in the 1980s, find a similar use of the replacement worker–strike duration association: 32 days if no replacements are hired, 70 days if temporary replacements are hired, and 217 days if permanent replacements are hired. They also found that the increased predicted replacement risk that occurred in the 1980s significantly increased the likelihood that a union will select a holdout threat (work-to-rule, go-slow, etc.) versus the strike.

In the first study to examine the effects of the use of replacement workers in Canada, Jain and Singh (1999), using regression analyses on a sample of 93 strikes in the federal sector in Canada, also found that strikes are significantly longer when replacements are used. The authors further complemented their quantitative study with two case studies; the basic difference in these two cases was that replacements were used in one strike and not the other. This qualitative research complement suggested that certain behavioral-based variables, such as attitudes and personality, may have led to the longer strike in the instance where replacement workers were used.

In summary, the research evidence on the actual use of striker replacements is unambiguous: This practice is associated with increased strike activity. While these studies formerly used U.S. data, a recent study using Canadian data reports similar results (Jain and Singh 1999). However, the evidence on the effects of striker replacement legislation, gained largely from Canadian-based studies, is less clear. While some studies report increased strike activity, bargaining power for unions, and wages, others suggest largely insignificant relationships (this issue is elaborated in the overall summary/general findings section later in this article).

(c) Union Coverage. While union coverage is not a primary issue in the striker replacement debate, it may be argued that legislation supportive of a prohibition may lead to increased union coverage as a result of increases in bargaining power and wages, as suggested by critics of such legislation. Martinello and Meng (1992) investigated the effects of a number of labor laws, including restrictions on replacement workers, on union coverage. Using cross-sectional data on 3853 Canadian full-time employees, they found that a ban on permanent and temporary replacements and professional strike breakers had no significant impact on union coverage because it had no significant effect on wages. However, as they noted, "the finding of no significant effect . . . is likely due to inadequate variation in the provincial laws. If, for example, some provinces allowed permanent strike replacements . . . one would likely find a significant effect of variations in legislation on union coverage" (Martinello and Meng 1992, p. 189).

(ii) Social Policy and Economic Variables. (a) Picket-Line Violence. One of the main reasons proposed for a ban on striker replacements relates to the issue of picket-line violence. Sensational tragedies are sometimes highlighted, such as the Giant Mines disaster in Yellowknife, Canada, when replacement workers were killed by a bomb

(Christopherson 1995); a striker subsequently was convicted for this crime. In one study that addressed picket-line violence, Alexandrowicz (1994) analyzed 48 strikes in Ontario in 1988 that involved some violence. He concluded that "the employer's use of replacement workers proved to have the strongest impact on picket-line violence" (p. 67). Hutchinson (1962) and Perry, Kramer, and Schneider (1982) also reported violence in the strikes they analyzed. There are many reasons why violence may be associated with strikes that use striker replacements, including the facts that daily crossing of picket lines by replacement workers increases the chances of conflict and that the emotional states of strikers may predispose them to violence (Alexandrowicz 1994). As Hutchinson (1962, p. 4) noted:

> [W]hen a strike is called, emotions rise. Settlements are, however, usually concluded with a minimum of physical harm and destruction of property. But when a firm decides to operate its facilities and then proceeds to hire replacements for striking workers, emotions tend to supplant reason, and conflict begins in dead earnest.

The issue of picket-line violence is preeminent in the strike replacement debate. However, there is a paucity of empirical research on this issue. While the lack of archival data is a major problem, initiation of primary, survey-type research promises to be an exciting avenue.

(b) Effects on Small Firms. Small firms contribute significantly to the North American economy, and it is imperative that empirical studies on strike replacements analyze relevant aspects. Given this fact, a few studies are beginning to address this issue. Cutcher-Gershenfeld, McHugh, and Power (1996) focused specifically on small firms in Michigan. Using ordinary least square regression analysis on data from 481 collective-bargaining negotiations between 1987 and 1991, 24 involving strikes (11 used replacement workers), they found that the use of striker replacements had no significant effects on the time to settle disputes after contract expirations. In another study, Budd (1996) investigated this issue in an analysis of 1298 collective agreements in Canada (subset of the larger sample in the same study reviewed earlier in this article) when bargaining units were less than 1000 employees. While a significantly greater impact of the legislation on strike incidence was evident for small versus large firms, there were no significant effects on bargaining power and wages.

(c) Employment. Noting that opponents of a ban on striker replacements contend that this would lead to massive job losses, Budd (1997) examined the effects of striker replacement legislation on employment.

Using regression analyses on aggregate employment data for the period 1966–1994 (n = 3480) and disaggregated unionized employment data (n = 3629) in private-sector collective-bargaining agreements, he reported that a general ban on striker replacements (both temporary and permanent) had adverse employment consequences, with mixed results for provisions that allow the use of temporary workers (only) and the banning of professional strikebreakers. In fact, with the aggregate data, a ban on temporary replacements is associated with a significant increase in jobs. Further studies are needed on this issue, especially in view of the mixed results.

General Findings, Caveats, and Future Research

While the evidence from the empirical studies can only be treated as tentative, there are some discernible general findings. First, studies that examine the actual use of striker replacements all report that such a practice is associated with longer strikes, increased picket-line violence, and more union decertifications. Second, a legal prohibition on the use of replacement workers has mixed effects on bargaining power and wages. Third, while small businesses experience more strikes, these are not significantly longer than in large firms, and there is no evidence suggesting that bargaining power and wages are adversely affected in these smaller firms. Fourth, there are mixed results on the effects of striker replacement legislation on strike activity. While some studies report more frequent and longer strikes (Gunderson, Kervin, and Reid 1989; Gunderson and Melino 1990; Gunderson, Melino, and Reid 1990), others find no significant effects of the laws (Budd and Pritchett 1994; Budd 1996). The single study that examines the effects of striker replacements on employment reports mixed results: a negative effect for a general prohibition but mixed, even favorable effects for laws allowing the use of temporary replacements (Budd 1997). Overall, with the exception of the strike duration–use of replacement workers relationship, the research evidence is not very conclusive. Some of the divergent results may be attributed to problems/caveats inherent in the research designs evident in the literature.

Apart from specific concerns about individual studies, as stated earlier, there are some general caveats with many of these studies. We will first discuss the theoretical issues and then proceed to data problems and other issues. First, there is a general lack of explicit relevant theory to guide research in this area. If we focus on strike activity, for instance, while there is no general theory that explains the effects of striker replacements per se, many scholars have used standard models of bargaining and strike

activity [for recent reviews, see Kaufman (1992) and Kennan (1986)], of which the most popular have been the joint-cost model (Reder and Newmann 1980; Kennan 1980) and the asymmetrical-information model (Card 1990). However, as Budd (1996) notes, these models yield ambiguous predictions regarding the effects of striker replacement legislation. For instance, using the joint-cost model, "a ban on permanent replacements increases the cost of disagreeing for management (reducing strike activity) while reducing the cost of disagreeing for labor (increasing strike activity). The net result is ambiguous" (Budd 1996, p. 251).[11] Similar conclusions can be made with regard to the other theoretical models.

This lack of relevant theory has been noted by many scholars. LeRoy (1995) notes that "[e]xamination of strikes involving replacements is so preliminary at this time that no theoretical model of such strikes has been proposed." The contention here is that strikes using replacement workers are quite different from "regular" strikes, for which standard theoretical models are geared. Gunderson, Kervin, and Reid (1989) lament that their results may not provide a clear-cut test of theory "because the labour relations policies have not been explicitly included in the theoretical models in the literature" (p. 790). Budd (1996, p. 251) further asserts that ". . . because there is no well-accepted model of the collective bargaining process and strike activity . . . , no unambiguous theoretical expectations exist regarding the impact of strike replacement legislation. Thus, to decipher the impact of such legislation, one needs to rely on empirical research." While there is nothing inherently wrong with such a deductive approach to empirical research, it is perhaps time, in light of the empirical findings so far, to deductively and inductively develop theoretical formulations explicitly incorporating labor relations legislation to guide such research, thereby increasing our understanding of the effects of such policies.

Second, strikes and the use of replacement workers are not common occurrences, especially in larger firms. Also, the potential for strikes exists mainly in the unionized sector of the economy; this sector comprises approximately 30 percent of the labor force in Mexico, 34 percent in Canada, and 15 percent in the United States (LaBotz 1992; Rose and Chaison 1996). Further, it is estimated that replacement workers are used in about 15 to 30 percent of strikes in the United States (Perry, Kramer, and Schneider 1982; Gramm 1991) and about 12 to 20 percent in Canada (Haywood 1992; Jain and Singh 1999) and are legally nonexistent in

[11] Budd and Wang (1999) recently proposed a sequential-investment bargaining model that predicts that striker replacement legislation reduces investment; the theoretical effect on wage outcomes is ambiguous.

Mexico. Replacement workers are usually not preferred because of training costs and a poisoned labor-management relations climate following the strike. In many of the studies, while sample sizes are fairly large, the number of strikes in effect and the proportion of replacement workers used are relatively small. Thus it is not difficult to envision insignificant effects of striker replacements on industrial relations outcomes, especially macroeconomic variables. As reported in some studies, the "significant" results may be picking up on factors that are inherently difficult to control. For instance, is the traditional militancy of unions in Quebec, catalyzed by the totality of the labor law changes in 1977, more reflective of the generally higher strike incidence in that province rather than striker replacement legislation?

Third, many of the studies, including all using Canadian-based data, emanate from databases that track situations involving large establishments, usually more than 500 employees. It is generally accepted that strike replacements are rarely, if ever, used in large firms. Thus analyzing the probable effects of the law on data that exclude firms that are most likely to be affected (small firms) or on firms that may not be affected by the law (large firms) poses a potential for bias.

Fourth, as Chaison and Rose (1994) point out, strike replacement laws (general prohibition) have been adopted only recently in Canada (Quebec, 1977–present; Ontario, 1993–1995; and British Columbia, 1993–present); thus there is an inherent difficulty in establishing cause and effect. Of course, this limitation will gradually cease to be applicable as the law "matures" in Quebec and British Columbia.

Fifth, researchers are not generally unanimous in how *strike duration* is best defined. Essentially, is the strike over when the union says it is? Or is it over when production resumes? And how fully does production have to resume? In Canada, since the general practice is to rehire strikers, this is less of a problem because the date the strikers return to their jobs is a good indicator of the end of a strike (see Jain and Singh 1999). However, in the United States, as a result of this definitional problem, the duration data may exaggerate the actual length of strikes involving replacement workers.

Sixth, there is some confusion on the specification of the striker replacements variables; i.e., there is an inconsistent understanding on the extent and timing (number of provinces and when implemented) of striker replacement legislation in Canada, especially with regard to the presence of statutes and cases on the reinstatement rights of strikers. Further, none of the studies consider the case law in Canada's federal and provincial jurisdictions. As the *Mackay* ruling illustrates, case law is as powerful as

statutory laws in Canada and the United States. That is, there is no explicit attempt made by researchers to ascertain whether or not it was the practice to use striker replacements prior to legislation because of the existence of appropriate case law and/or custom and practice. Of course, this places some doubt on the research results of all the studies that examine the effects of labor law on various outcomes. Future research should consider both statute and case law in the analysis.

Nevertheless, attempts at "natural experiments," such as those conducted by Gunderson and colleagues and Budd, are laudable. The use of large databases to examine the effects of legislation, controlling for as many other factors as possible, is an innovative research design that future research should build on. For instance, as Gunderson, Kervin, and Reid (1989) suggest, future research should model both strikes and wages as jointly determined, thus enabling the estimation of the policy variables on bargaining power and wages.

Another intriguing avenue for future research is an examination of the legislation itself as a dependent variable(s) (Gunderson, Melino, and Reid 1990). So far research has examined the legislation and the use of striker replacements as independent variables. However, is the relationship unidirectional only? That is, can strike activity, bargaining power and wages, and other outcome variables be driving legislation?

Finally, there is a conspicuous absence of contributions from fields other than economics in the literature.[12] While this may be a result of historical factors, there is a definite need for studies that explore the striker replacement issue from other perspectives, including those which are behaviorally based. One of the most promising avenues for research is to marry the traditional case-study approach with those which use large archival databases. It is interesting to note that two of the earliest studies on the replacement worker issue (albeit indirectly), using a case-study approach, found psychological and personality factors to be "significant" in explaining the antecedents and consequences of the decision to use replacement workers (Hutchinson 1962; Perry, Kramer, and Schneider 1982). Jain and Singh (1999) also found attitudinal and personality factors to be important in their case studies on the striker replacement issue. It is time for a more interdisciplinary approach to the issue.

[12] There are a few studies that examine strikebreaking from social and historical perspectives (see e.g., Brown and Boswell 1995; Rosenbloom 1998). The authors are indebted to an anonymous reviewer for identifying this body of literature.

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