

Unions, Collective Bargaining and Firm Performance

Patrice Laroche

▶ **To cite this version:**

Patrice Laroche. Unions, Collective Bargaining and Firm Performance. 2020. hal-03058266

HAL Id: hal-03058266
https://hal.science/hal-03058266

Submitted on 11 Dec 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

ECONSTOR
Make Your Publications Visible.

A Service of

ZBW Leibniz-Informationszentrum Wirtschaft
Leibniz Information Centre for Economics

Laroche, Patrice

Working Paper

Unions, Collective Bargaining and Firm Performance

GLO Discussion Paper, No. 728

Provided in Cooperation with:
Global Labor Organization (GLO)

Suggested Citation: Laroche, Patrice (2020) : Unions, Collective Bargaining and Firm Performance, GLO Discussion Paper, No. 728, Global Labor Organization (GLO), Essen

This Version is available at:
http://hdl.handle.net/10419/226657

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

WWW.ECONSTOR.EU

Mitglied der Leibniz-Gemeinschaft

Unions, Collective Bargaining and Firm Performance[1]

Patrice Laroche
Professor in Labor and Employment Relations
GLO Fellow

Université de Lorraine
IAE Nancy School of Management
Pôle Herbert Simon
13 rue Michel Ney
54 000 Nancy
France

Patrice.Laroche@univ-lorraine.fr

Abstract

The impact of unions on firm performance has been the subject of debate and controversy in most industrialized countries, particularly in the United States and the United Kingdom. The purpose of this chapter is to review and assess the scope and limitations of the economic analysis of unions as well as the controversies surrounding the conclusions of existing empirical research. Although it is difficult to draw firm and general conclusions on the effects of unions on firm performance, the existing results lead us to consider unions not solely in terms of their costs for the company. Empirical results suggest that unionism is often associated with higher productivity but this relationship might vary across industries, institutional contexts and over time. Estimates of the causal mechanisms through which unions affect productivity allow a better understanding of the effects of unions. The literature on the effect of unions on productivity recognizes that part of this effect may work through reducing employee turnover and other mechanisms, such as technological and organizational innovations, which are essential factors of productivity growth. Recent studies dealing with the effects of unions on firm profits support Freeman and Medoff's (1984) conclusion that unionization is associated with lower profitability. Finally, union activities, especially collective bargaining, trade off some economic efficiency for greater justice in workplaces and reduced inequalities.

Keywords: unions, collective bargaining, productivity, innovation, high-performance work practices, performance

JEL classification: J5, J51, J53, M54

[1] The author would like to thank Uwe Jirjahn for his thoughtful and helpful comments and suggestions on earlier versions of this paper. Forthcoming in: Klaus F. Zimmermann (ed.), *Handbook of Labor, Human Resources and Population Economics.* Springer.

Introduction

Since the publication of *What Do Unions Do?* by Richard B. Freeman and James L. Medoff in 1984, research examining the effects of labor unions on firm performance has received increasing attention, reviving the old debate on the economic consequences of unionism. In their book, the two Harvard economists highlighted the crucial role of unions in improving working conditions, increasing productivity and reducing wage inequalities, challenging the traditional economic analysis of unions. Until then, the work of economists had focused exclusively on the effect of union monopoly on wages. In demonstrating the inefficiencies of wage increases obtained by unions through collective bargaining, the orthodox economic analysis made a negative assessment of the role of unionism in society. By contrast, Freeman and Medoff (1984) suggested that unionism can also have beneficial effects for workers, firms, and the economy.

The purpose of this contribution is to shed light on the debates on the economic effects of labor unions, through a retrospective reading of existing research. After a brief review of the economic analysis of unions, the results of empirical studies dealing with the effects of unions on productivity, high-performance work practices, and firm profit will be discussed.

1. Theoretical considerations

There are two views about the economic effect of labor unions, which are basically contradictory. One is that unions can improve working conditions like wages, health and safety, job security, and workers' workload, but are likely to be detrimental to the firm. The other is that unions can increase productivity, even after taking into account the economic response of firms when confronted with demands for higher wages. The latter view considers unions as institutions that raise the efficiency of firm production through various means.

1.1. The orthodox view of unions as monopolies

The standard view of labor unions is that they are organizations whose purpose is to improve the working conditions of their members, especially by raising wages and/or reducing workload. Hence, there is an important body of literature documenting the impact of unions on wage levels and wage inequality—see Bryson (2007) and Brandl and Laroche

(2021) for a recent review. All of this literature focuses on finding an answer to the question of the ability of unions to raise wages above competitive levels. The orthodox analysis of unions assumes that the union evolves in an economy with perfectly competitive product and labor markets. Thus, it is conventional to view unions as monopolies that impose allocative costs by distorting the wage structure. Orthodox theory postulates that union wage effects cause a misallocation of resources, redirecting higher-qualified workers and capital from higher to lower marginal product uses (Hirsch and Addison, 1986). Consequently, there will be inefficiencies in production and consumption due to the union-wage premium. An important issue in the economic literature is the precise magnitude of output loss. Rees (1963) suggests a 15 percent union relative wage effect, which caused an output loss for the 1957 US economy of only 0.14 percent of GNP. DeFina (1983) arrives at a higher estimate of output loss resulting from the union-wage premium. However, these studies ignore any unemployment effects of unionism arising from wage rigidities or from workers' queuing for union jobs. Moreover, it is difficult to know the exact proportion of the union wage premium that is true rent because it is possible that the additional earnings of union members are obtained by transferring purchasing power from the rest of the economy.

The orthodox theory suggests that restrictive union work rules—such as those governing work flexibility or seniority—are potentially a much greater source of output loss than their relative wage effects. Indeed, unions can have a direct negative impact on productivity by restricting managerial discretion. For example, unions may force firms to adopt inefficient personnel hiring and firing practices. Legal restrictions on lay-offs and closed-shop arrangements impact on efficient factor usage and hence productivity. Unions can also favor restrictive work practices, curbing the pace of work, hours of work, and skill formation. They can also obstruct the introduction of new technology.

Productivity can also be affected by strike action, through lost working days, as well as the non-cooperative behavior that precedes or follows strikes (see Flaherty, 1987). The possibility that unionism affects productivity through the exercise of industrial action has been rather neglected in the economic literature. However, there is evidence to suggest that strikes have no discernible effect on labor productivity (Neumann & Reder, 1984; Dickerson et al., 1997). More recent studies even suggest that through the threat of strike action, unions can help to restrain managerial authority and ensure fairness and justice in the workplace (Tanguy, 2013). The cathartic aspect of strikes—which provide a mechanism through which the collective voice can assist parties in rectifying faults in the workplace—may be considered a means to improve productivity (Drinkwater & Ingram, 2005; Antcliff &

Saundry, 2009). Interestingly, studies examining the stock market's responsiveness to strikes find that strikes have large and negative effects on stock value (Dinardo and Hallock, 2002).

Another dimension is unfavorable effects on R&D spending and tangible and intangible investments. Union rent-seeking acts as a tax on the return on investment and limits innovative and investment activities (see Connolly et al., 1986; and Hirsch and Link, 1987). These can have a detrimental impact on the dynamic path of productivity.

The monopoly face of unionism suggests that unions will raise wages above competitive levels, impose restrictive work practices, and possibly entail industrial action, which will increase labor costs for unionized firms (see Table 1 for a synthesis). In the end, the conventional union monopoly model still requires systematic testing and clarification. This is needed even more because a large number of studies indicate that the allocative costs of unions might in practice be offset by a positive union productivity differential, as suggested by Freeman and Medoff (1984).

1.2. Unions as a collective voice and institutional response

The other aspect of unions is the collective voice and institutional response face (CV/IR) emphasized by Freeman and Medoff (1984). The CV/IR model draws on the exit-voice dichotomy of Hirschman (1970). This approach is grounded in the public goods nature of the workplace. Freeman and Medoff argue that the public good dimension of the workplace requires collective organization. In this framework, "*voluntary quits become the labor market expression of exit and unions become the institution for the expression of (collective) voice*" (Turnbull, 1991, p. 137). By providing workers with a means of expressing discontent in the workplace, unions can reduce the extent to which exit and absenteeism lead to an excessively high degree of labor turnover. By considering unions as an alternative to resignation and apathy, scholars delivered an argument in favor of union representation. This channel is important because high labor turnover can reduce productivity in a workplace through the direct loss of firm-specific training.

According to Freeman and Medoff (1984), unions can also enhance productivity by improving communication between workers and management. The opening of communication channels between management and workers can result in integrative rather than distributive bargaining. Unions can provide the firm with additional information about employees' preferences, enabling the firm to choose a better mix between working conditions, workplace rules, and wage levels. These can result in a more satisfied, cooperative and

productive workforce. Union activities can also improve workers' morale and motivation. The potentially arbitrary nature of decisions about promotions or layoffs can be reduced by the presence of unions. Consequently, the employee is more likely to see the employer as fair.

Unions can also be responsible for a shock effect. They can induce managers to alter methods of production and adopt more efficient personnel policies (Slichter et al., 1960). The union can be also seen as a mechanism that enforces implicit agreements between firms and workers — in other words, as a substitute for legal contractual enforcement — and can be used to promote more efficient practices (Hogan, 2001). This approach predicts that unionization is most likely to be observed in workplaces where employees await promised compensation for significant firm-specific investment. In sum, unions can play an important and significant role as commitment devices (Eguchi, 2002).

Table 1. Two views of trade unionism

Issue: / View:	Economic efficiency (what and how)	Economic equity (for whom)	Social nature of the organization
Monopoly unionism	Unions raise wages above competitive levels, which leads to too little labor relative to capital in unionized firms Unions work rules reduce productivity Unions lower firm output through frequent strikes	Unions increase income inequality by raising the wages of highly skilled workers Unions create horizontal inequities by creating differentials between comparable workers	Unions ration places discriminatorily Unions (individually or collectively) fight for their own special interest in the political arena Union monopoly power breeds corrupt and nondemocratic elements
Collective voice/institutional response	Unions have some positive effects on productivity—reducing quit rates, by inducing management to alter methods of production and adopt more efficient policies, and by improving morale and cooperation among workers	Unions' standard rate policies reduce inequality among organized workers in a given company or a given industry Union rules limit the scope for arbitrary actions concerning the promotion, layoff, recall, etc., of individuals Unionism fundamentally alters the distribution of power between marginal (typically junior) and infra-marginal (generally senior) employees, causing union firms to select different compensation packages and personnel practices than nonunion firms	Unions are political institutions representing the will of their members Unions represent the political interests of lower income and disadvantaged persons

Source: Freeman and Medoff (1979, p. 10)

However, the two faces of trade unionism are not incompatible. Hirsch (1997, p. 37) notes that: "*The monopoly and collective voice faces of unionism operate side-by-side, with the importance of each being very much determined by the legal and economic environment in which unions and firms operate."* Recent studies have shown that specific circumstances determine whether the voice or monopoly face of unions dominates. Aidt and Sena (2005) indicate that unions operating in an environment of intense product market competition are mainly engaged in rent creation. Furthermore, labor market deregulation induces unions to focus more on rent extraction. They suggest that the economic and regulatory environment is an important determinant of the effects of unions and that the differences in this environment can explain differences in union behavior across time and space.

Whether unions enhance or retard productivity depends heavily on the industrial relations climate. Freeman and Medoff (1984, p. 165) state that the quality of industrial relations in a workplace ultimately plays a key role in either raising or reducing productivity. They argue that "*If industrial relations are good, with management and unions working together (...), productivity is likely to be higher under unionism. If industrial relations are poor (...), productivity is likely to be lower under unionism*." In environments where there is low trust between employers and workers, and where workers are largely excluded from decisions affecting them, there will be little incentive for employees to work hard. In contrast, in environments where there is high trust, where employees and their unions are integrated into the decision process, and in which the parties accept the legitimacy of one another's goals, productivity gains and cost reduction can be realized through collective bargaining. In sum, the industrial relations climate will be a critical determinant of firm performance (Belman, 1992).

Finally, the routes by which unions and collective bargaining affect productivity are numerous and complex (see Table 1). Whether or not unionism affects productivity is an empirical question.

2. Unions and productivity: A review of four decades of empirical research

Considerable research has been devoted to the effect of labor unions on productivity. This issue has been particularly addressed by economists in the United States. Recent studies show that this relationship varies across countries, and that such variation can be attributed to differences in important labor relations characteristics (Doucouliagos et al., 2017; Jirjahn, 2016).

2.1. Empirical evidence and implications

The pioneering study on the effect of unionism on labor productivity is that of Brown and Medoff (1978), who estimate a Cobb-Douglas production function using a sample of 341 US manufacturing firms. By controlling a number of factors, Brown and Medoff (1978) obtain estimates of a positive and statistically significant effect of unions on productivity of more than 20 percent. However, one of the main limitations of this study remains the use of value added per employee as a measure of labor productivity. As Freeman and Medoff (1984) note, productivity gaps between unionized and non-unionized sectors can result from a favorable price effect in some monopoly sectors of the U.S. economy. Other studies for the U.S. show that unions can have both a negative and a positive influence on productivity, and that their influence varies from one industry to another (Hirsch, 1991; Doucouliagos & Laroche, 2003a). For example, Doucouliagos et al. (2017) indicate that the effects of unions on productivity is positive in education, construction, and nursing but negligible elsewhere. Finally, due to their contrasting results and methodological limitations, the results of these cross-sectoral studies must be interpreted with caution.

As a result, research has been developed using data from establishments within the same industry (e.g. Clark, 1984; Allen, 1986, 1988; for a review, see Doucouliagos & Laroche, 2003a). The effect of unions on productivity has been studied, for example, in the construction, hospital and banking, real estate, coal mining and the public sector in the United States. Despite contradictory results, several lessons can be drawn from all these studies. First, the union effect on productivity tends to be greater in industries where unions achieve higher wage gains, as one might anticipate if unions are successful in bargaining over firm rents. Second, the positive effect of unions on productivity seems to be greater when there is strong competitive pressure, partly explaining the rather positive effect of union presence in the private sector. Indeed, firms in competitive environments are more sensitive to the shock effect of unionism. Moreover, competitive pressures ensure that in the long run, firms must increase productivity in order to survive (Addison & Hirsch, 1989).

The results presented by Freeman and Medoff (1984) on the effects of unions on productivity were the subject of considerable controversy as soon as they were published. In his critical review of Freeman and Medoff's book, Ashenfelter (1985, p. 247) warns at the outset against any hasty conclusion: "*Until further empirical evidence is available, it may be more reasonable to conclude that unions have little or no effect on productivity*." Freeman (2005, p. 657) himself admitted a few years later that the effects of unions on productivity were much more modest than they had described in their book, explaining their results by methodological

biases and by the reality of "*interactions between trade unions and management that may differ between sectors, companies and even between establishments within the same company*."

Studies published over the past thirty years have recently been reviewed by Doucouliagos, Freeman and Laroche (2017), whose meta-analyses make it possible to assess the average effect of unions on productivity (see Table 2). The authors indicate that the wide diversity of findings regarding the impact of unionism on productivity do not allow a definitive position: in particular, the effect of unions on productivity depends on the period under consideration, the industry, and the nature of the social climate prevailing not only in each country, but also in each firm. In addition, the methods of data collection, the multiple productivity indicators used and the econometric treatments adopted are confusing and explain the lack of consensus on the effect of unions on labor productivity. For instance, the restrictive nature of the Cobb-Douglas specification and the imposition of constant returns to scale may be problematic (see Booth, 1995). Physical measures of output are preferable to value added measures, and there is some debate about the relative merits of using a dummy variable to denote union presence as opposed to, say, using union density. Doucouliagos and Laroche (2003a) indicate that the way unionization is measured does not appear to make any difference to the estimated effects. However, studies measuring output as value added report lower productivity effects. A similar effect emerges with respect to studies that use time series data. There are a large number of other potential moderator variables. For example, theory identifies that factors such as closed shop arrangements, recognition of unions by firms, existence of participatory mechanisms, the existence of multi-unionism, competitive pressures, establishment size and industrial relations climate, are important in moderating the impact of unions on productivity.

The importance of the labor relations climate has been reflected in a number of studies (for a review, see Belman, 1992). Measures of the industrial relations climate were positively associated with both better industrial relations outcomes and better economic performance. For example, Addison and Teixeira (2017, p. 1) indicate that "*good industrial relations appears key to strike reduction, independent of workplace representation*." Blanchard and Philippon (2004) provide evidence that the quality of labor relations – especially the level of trust between labor and management—matters in the determination of certain indicators of economic performance. They suggest that most of the reduction in the rate of unemployment in the Netherlands is due to the attitudes of the unions. They also observe a strong positive correlation between unionization rate and the level of trust in labor relations. This directly contradicts the common idea that anything that strengthens employees' bargaining power, in particular higher rates of unionization, should be negatively perceived by employers and

increase their distrust vis-à-vis workers. This representation is similar to the idea conveyed by Freeman and Medoff (1984) that unions could improve the quality of labor relations by fostering voice rather than exit.

Another body of literature has shown that what unions can actually do depends on the institutional environment in which they operate (Blanchflower & Freeman, 1992). These studies examine cross-national differences in union outcomes and are particularly interested in the institutions that enable and constrain union efforts to improve working conditions such as collective bargaining structures and welfare state configurations. Some studies reexamine the effects of unions on productivity across countries and in particular investigate the interactions between macro-level institutions and unions in order to better understand the relationship between unions and labor productivity.

Table 2. Synthesis of the results of meta-analyses devoted to the economic effects of trade unions

	Freeman & Medoff (1984)	**Published meta-analyses**	**Doucouliagos, Freeman & Laroche (2017)**
Level of labor productivity	16 estimates from 8 studies Positive correlation	D&L (2003a): 73 estimates from 73 studies Positive correlation for the U.S.; negative for the UK and Japan	710 estimates from 111 studies Industry sector: no correlations for the U.S., negative correlation for the UK and positive for emerging countries. Other sectors: positive correlation for construction and education
Labor productivity gains	5 estimates from 3 studies. No correlation	D&L (2003b): 29 estimates from 26 studies. Negative correlation for the U.S., no correlation elsewhere.	268 estimates from 42 studies. No correlation
Profits	5 estimates from 4 studies. Negative correlation	D&L (2009): 532 estimates from 45 studies. Negative correlation	478 estimates from 44 studies. Negative correlation
Investment in physical capital	Negative correlation	D&L (2003c): 11 estimates from 11 studies. Negative correlation	343 estimates from 20 studies. Negative correlation
Innovation and R&D	Negative correlation	D&L (2013): 208 estimates from 25 studies. Negative correlation	
Turnover	18 estimates from 9 studies. Negative correlation	Cotton & Tuttle (1986): 10 studies and Heavey et al. (2013): 31 studies. Negative correlation	
Salary	Positive correlation	Jarrell & Stanley (1990) 152 estimates from 114 studies. Positive correlation	
Job satisfaction	Negative correlation	Premack (1984): 10 studies. Negative correlation	235 estimates from 59 studies. No correlation

Source: Doucouliagos, Freeman, & Laroche (2017, p. 148).

2.2. Country differences in union-productivity effects

The majority of studies have examined the relationship between unions and productivity in the U.S. context but a smaller number look at country differences. In the United Kingdom, most empirical research agrees that unionization has a negative effect on productivity but this research is far from robust (Wadhwani, 1990; Denny, 1997; Metcalf, 2003). Unionism in Britain does not necessarily hinder productivity growth. For example, Haskel (2005) finds a positive and significant relationship between productivity and union recognition. However, these results must be interpreted with caution, given the cross-sectional nature of the data. In fact, it appears that employee perception of managerial responsiveness to worker voice leads to superior productivity in the UK (Bryson et al., 2006). In France, the research of Coutrot (1996) and Laroche (2004) also shows contrasting results. Coutrot (1996) finds that firms with at least one union delegate in the workplace are more productive than others. He notes that this overall positive effect on productivity results from both a positive voice effect on labor productivity and lower capital efficiency. Based on matched employer-employee data, Laroche (2004) partially confirms these results in the French context. Unionization is positively correlated with labor productivity, but only where there is more than one union delegate in the workplace. In Norway, Barth et al. (2017) identify a positive causal impact of union density on productivity. They explain this causal relationship by a voice effect. Trade union agreements have a profound influence on work organization and policies at the workplace level and could thus raise productivity. Using data on samples of manufacturing workplaces in Germany, Jirjahn and Kraft (2007) provide evidence that there is no uniform relationship between wage dispersion and productivity. They make the assumption that productivity-enhancing effects of wage dispersion will be stronger in firms not covered by a collective bargaining agreement. Their results suggest that the effect of wage dispersion on productivity depends on the industrial relations regime.

For Asia, Lu et al. (2010) indicate that there is a positive and significant relationship between unions and labor productivity in China's private companies. Their findings suggest that unions in China promote workers' interests just as unions do in other economies. These results are consistent with those obtained by Fang et al. (2019) on the productivity performance of multinational enterprises. Using data on more than 4,000 Japanese firms in both manufacturing and non-manufacturing firms, Morikawa (2010) shows that the presence of labor unions has statistically and significantly positive effects on firm productivity, especially in firms where there is close cooperation between management and unions.

Notably, the specific features of certain countries, especially differences in unionization and bargaining coverage, can shape the relationship between unions and productivity. Recent studies dealing with the economic impact of unions try to disentangle the relationship between the level of collective bargaining and firm productivity. For example, Andreasson (2014) examines the effect of decentralized wage bargaining on the structure of wages and firm productivity in Sweden. His results indicate that the level at which bargaining takes place influences both wages level and firm performance. In particular, he finds a positive relationship between the degree of decentralization at the firm level and labor productivity. Using Belgian linked employer-employee panel data, Garnero et al. (2005) indicate that firm-level agreements benefit both employers and employees through higher productivity and wages without being detrimental to profits. In the same vein, Lamarche (2013) has examined the effect of industry-wide practices on productivity in Argentina. He finds that union practices around technology acquisition have a negative impact on productivity. However, negotiations between firms and unions at lower organizational levels do not appear to restrict economic efficiency. Productivity seems to improve in an economy that promotes policies that weaken industry-wide collective bargaining.

Finally, empirical results suggest that unionism is often associated with higher productivity but this relationship might vary across industries, within institutional contexts, and over time. Estimates of the causal mechanisms through which unions affect productivity allow a better understanding of the effects of unions.

3. The main mechanisms through which unions affect productivity

The literature on the effect of unions on productivity recognizes that part of this effect may work through reducing employee turnover and other mechanisms, such as technological and organizational innovations, which are essential factors of productivity growth. The sources of productivity improvement have been the topic of several studies dealing with the indirect effects of unions on labor productivity.

3.1. Unions and physical and intangible capital investment

Physical and intangible capital[2] are essential to the production process and fundamental determinants of labor productivity. The influence of unions on physical and intangible capital investments is ambiguous as there can be opposing effects.

In the traditional economic model of the firm, unions raise wages above the market-determined level, which acts as a tax on labor. This induces substitution effects between capital and labor that can stimulate investment in unionized firms. At the same time, the higher labor cost due to collective bargaining has a scale effect on the amount produced. By making production more expensive, higher wages lower the scale of production and reduce investment. Furthermore, in a union rent-seeking model, the union wage premium captures some of the firm's quasi-rents from capital investments, and acts like a tax on capital. Long-lived assets are vulnerable to rent expropriation by unions and workers. In contrast to predictions of adverse investment effects, Freeman and Medoff (1984) point out that unionized firms can have a more productive working environment, with the retention of higher skilled workers, mechanisms for voicing worker grievances, and improved communication channels that can induce additional investment. Using a larger database than Doucouliagos and Laroche (2003c, 2013), Doucouliagos et al. (2017) indicate that unions have a modest negative effect on investment in physical capital. They also indicate that unionization is associated with a seven percent reduction in investment in intangible capital, which is of practical economic significance. Doucouliagos et al. (2017) draw several conclusions from their meta-analyses of unions and investments.

First, the available evidence indicates that unions are associated with lower investment—in both physical and intangible capital—a result consistent with the tax on capital and union rent-seeking monopoly face of union behavior. For example, Bradley et al. (2016) examine the causal effect of unionization on firm innovation, using a regression discontinuity design that relies on exogenous variation generated by union elections in the U.S. context. They find that patent counts decline significantly after firms elect to unionize. Passing a union election leads to an 8.7 percent decline in patent counts. In the same vein, using manufacturing data in a set of OECD countries during the period 1980–2000, Cardullo et al. (2015) find that union power reduces investment per worker, in particular in sunk capital intensive industries. They show that the underlying hold-up problem is especially exacerbated when strikes are not regulated after a collective contract is signed and there is no arbitration.

[2] Intangible capital is an asset with no physical substance, in contrast to physical capital, like machinery or buildings. Examples of intangible capital are patents, copyright, franchises, trademarks, and so on.

Second, there are country differences in the association between unionization and investment, driven largely by the degree of labor market regulation, with more regulated labor markets seeming to experience less union resistance to technology. In an attempt to resolve theoretical ambiguity, Menezes-Filho et al. (2003) survey the micro-economic literature on the effects of unions on innovation, R&D and technical diffusion. They indicate that U.S. results find consistently strong and significant negative effects of unions on R&D. In contrast, European studies generally do not reveal negative impacts of unions on R&D (for a UK study, see Menezes-Filho et al., 1998a, 1998b). Moreover, there is no consensus on the effects of unions on technological diffusion, innovation and thus productivity growth even in the U.S. studies. These cross-country differences in the impact of unions on R&D represent genuine institutional differences in union attitudes and ability to bargain between countries. In fact, while the U.S. evidence points to adverse effects of collective bargaining on innovation, other-country experience suggests that certain industrial relations contexts or broader regulatory rules, might tip the balance in favor of unions. For instance, Schnabel & Wagner (1992a, 1992b, 1994) and Addison et al. (2017) provide some weak evidence that German collective bargaining inhibits innovation but conversely also suggest that collective bargaining might actually foster innovative activity. Indeed collective bargaining at sectoral level in conjunction with works councils is advantageous to innovation. In the same vein, in a recent study on the effect of unions on innovation in Italy, Berton et al. (2018) suggest that unionized firms have a higher and significant probability of filing patents than their non-unionized competitors. Their results indicate that unionization does not inhibit innovation and that the effect is far more significant in Italy than in the rest of Europe.

Using cross-country firm-level data from 23 emerging and developing countries, Balsmeier (2017) finds a negative association between unionization and firm investment in R&D. This relationship is particularly pronounced when unions are protected by strong collective relations laws, supporting the idea that strong unions “tax” the returns on successful innovations. Bryson and Dale-Olsen (2020) find that union bargaining in Norway and Britain is positively associated with product innovations in both countries. Local union bargaining is also positively related to process innovation. Several other studies have examined how and to what extent unions affect firm innovation in Chile (Cabaleiro & Gutérriez, 2019), Korea (Cho et al., 2017) or China (Fang and Ge, 2012). They find that unions do not negatively affect product and process innovation and can encourage firm innovation and R&D investment.

Third, the association between unionization and investment has declined over time. This may be due to legal and political changes during recent years. For instance, Menezes-Filho (1997) interprets this trend in the UK as reflecting the fact that during the 1980s

managers in unionized firms were able to introduce organizational change that had been resisted by unions in the past. This was mainly due to the unfavorable legislative environment under Margaret Thatcher's Tory government.

Finally, the association of unionism with reduced investment is far from being robust in the literature. The implications for efficiency remain a matter of debate but, in any case, this is not the only channel through which unions can affect labor productivity.

3.2. Unions and employee behavior

The link between unionization and labor productivity has also been explored indirectly, through labor behavior channels. Doucouliagos et al. (2017) present a summary of the main meta-analyses on the effects of unions on job satisfaction, turnover, and organizational commitment (see Table 2). This synthesis shows that unionization is negatively related to job satisfaction "but is far from being conclusive" (Laroche, 2016), particularly because most studies failed to account for selection processes that generate the negative correlation observed in empirical studies—the selection of less satisfied workers into unionization and the unions' ability to organize in workplaces with poor working conditions. After taking into account this endogeneity issue, Blanchflower and Bryson (2020) find evidence of a positive relationship between unions and job satisfaction as well as with other aspects of workers' well-being.

On the other hand, unionization can be associated with lower turnover rates (Heavey et al., 2013), confirming the idea that union action can contribute to employee productivity by encouraging the expression of discontent. Moreover, unions can also affect productivity through the organizational commitment of workers to their firm. Organizational commitment is the relative degree to which an employee identifies with a particular organization. Meta-analyses conducted by Mathieu and Zajac (1990) and Jaramillo et al. (2005) report a positive correlation between organizational commitment and job performance. Several studies have examined the relationship between the commitment of workers to unions and their commitment to organizations. Mathieu and Zajac (1990) report a positive correlation between union commitment and organizational commitment. In sum, the available evidence suggests that unionization reduces turnover, and that union commitment is positively related to organizational commitment, which should contribute to productivity, while having little direct effect on job satisfaction. We can also conclude that employee turnover is a channel through which unions can improve firm performance and would balance in part the tangible and intangible effects of unionization that harm firm performance.

However, all these results must be interpreted with caution given the existence of certain methodological biases. Productivity gaps can result from labor force characteristics and it is difficult to control all the effects related to individuals' characteristics. In addition, most of the estimated effects are based on correlations that do not reflect causation. In some cases, panel data and/or instrumental variables allow for a stronger causal interpretation of results, but most of the evidence does not do much probing for causal links.

4. Unions and profits: Beyond contexts, converging results

According to Freeman and Medoff (1984), unions compensate for wage increases by improving labor productivity. Suppose, however, that this effect does not fully compensate for wage increases. Who will then finance the wage differential? For economists, if companies can afford to pass on the increase in labor costs to prices, they will maintain their profits. However, consumption will fall and, as a result, employment in the unionized sector will decline. Employees who have lost their jobs will have no choice but to work in the non-union sector (where wages are lower) or to remain unemployed. Under these conditions, the wage premium obtained in the unionized sector is financed by both consumers and/or employees working in the non-unionized sector. However, as a general rule, firms cannot pass on the wage increase in prices, especially in very competitive markets. The company then absorbs part of the wage increase by reducing its profits. This is why economists assume a negative relationship between unions and firm profits.

The effect of unions on profits is said to be linked, on the one hand, to the potential for a possible rent – itself linked to the firm's competitive environment – and, on the other hand, to unions' bargaining power (Booth, 1995). Firms with a competitive advantage in their market or a monopoly situation could more easily satisfy union wage demands without threatening their sustainability (Hirsch & Addison, 1986). Economists therefore hypothesize that the influence of unions on profits is more pronounced for firms facing low competition. Ultimately, the relationship between unions and profits can be analyzed from two perspectives: the union effect on wages and the union effect on labor productivity. Hence, if the level of productivity is higher in unionized firms, this should compensate for the higher level of wages observed in those firms. In the end, it is theoretically difficult to predict the effects of unions on firm profits, and existing research considers the net effect of unions on profits to be an empirical issue.

Studies on the effects of unions on profits are less controversial than studies dealing with the effects of unions on productivity. However, there is more and more research that

questions the negative impact of unionization on profits (Batt & Welbourne, 2002; Dinardo & Lee, 2004; Gittell et al., 2004; Bryson et al., 2011). These results can be explained by the fact that union bargaining power is limited in a highly competitive market and so the effects of unions on wages are also likely to be limited. In addition, unions provide a mechanism for employee voice that constrains short-term managerial decision-making, and supports longer-term investment in human capital and possibly the adoption of high-performance work systems.

4.1. Unions and profits: Results from studies in the U.S. context

The first significant study on the union/profits relationship, using sectoral data, is that of Freeman (1983). The author finds a negative impact of unionism on profits during the period 1958–1976. According to Freeman (1983), unions reduce the price-cost margin by 13 percent to 19 percent in the U.S. manufacturing industry. However, this reduction in profits is restricted almost entirely to highly concentrated industries. Karier's study (1985) confirms these results in the U.S. context using 1972 state-by-manufacturing industry data. These results support the belief that unions act as a distortionary tax on firm rents rather than a neutral lump-sum tax (Hirsch & Addison, 1986). According to Freeman and Medoff (1984), "*the impact of trade unions is to reduce high levels of profitability in highly concentrated industries to levels closer to normal competitive conditions*." The convergence of all these results obtained from U.S. industry makes it difficult to argue against the negative impact of unions on firm financial performance. This would explain the hostile attitude of American business leaders toward unions.

A second category of studies focuses directly on firm data, providing more in-depth analyses of how unions affect profits. The methodological approach is broadly identical to that adopted by the sectoral studies, in that it compares unionized and non-unionized firms. It requires the introduction of control variables in the estimates to allow reasoning on a comparable basis. In the United States, Clark (1984) conducted one of the first significant studies based on an analysis of more than 250 firms over a ten-year period (1970–80). The author reports that unions reduce firm profits by 19 percent relative to the sample mean (by 4.1 percentage points). For firms with low market shares, unions reduce profits by 40 percent relative to the sample mean of 11.1 percent (by 4.7 percentage points). No change is discernible in the case of firms with high market share. Further research has been conducted in the U.S. context. The results obtained by these studies conclude that the presence of unions has a negative effect on firm profitability. This research indicates that the degree of concentration in the sector, the

firm's market power or investments in intangible assets, are likely to generate rents that unions can capture.

The stock market is another source of information on the effects of unionism on profitability. The methodology used by these studies is event study design. This investigates the effects of labor relations on shareholder wealth by examining what happens to stock prices when unexpected labor relations information is provided to investors. Since changes in stock prices reflect the changes in expected future profits, prices changes associated with labor relations events can be interpreted as an estimate of the effect of the event on the future profits of the firm. Ruback and Zimmerman (1984) produced the first study using this methodology, and examine the impact of newly organized workers on firm value by analyzing stock price changes during union representation election drives. They observed that shareholder equity declined by 1.86 percent overall during the period beginning 24 months before the petition date to 24 months after certification. This decline remains modest, even if it masks significant disparities, since out of the 253 companies on New York Stock Exchange (NYSE), abnormal returns range from a 39 percent decline in shareholder equity to a 42 percent increase. Investors seem to react according to the economic and institutional context of the elections. Another study by Abowd (1989) confirms this adjustment of shareholder wealth. Based on 4,212 collective agreements signed between 1976 and 1982, he indicates a strong relationship between the level of wage increases and the depreciation suffered by shareholders. Overall, the available results still leave an impression of great uncertainty. Trade unions are possible pension collectors, but they are not systematically sanctioned by the markets, which can promote the signing of agreements or the holding of elections. There is no evidence today that markets are not aware of the need to balance the mutual interests of capital and labor, a balance that unions can sometimes promote.

4.2. Cross-national differences

Consistent with the evidence reported in the U.S. context, empirical studies conducted in other countries report a negative relationship between unionization and firm profits in general. In the United Kingdom, Machin (1991) shows that unionized firms have a 1.7 percent lower financial performance than non-unionized firms. This gap could result from the wage increases that unions are able to achieve through collective bargaining. Machin and Stewart produced two further British studies (1990, 1996). The 1996 study has the particularity of using a qualitative measure of performance estimated by managers themselves. Machin and

Stewart report a negative effect of unions only when there are closed shops, which force the hiring of unionized workers, and when the firm has some market power. The first study specifically devoted to the effects of unions on profits in France was published by Laroche (2004). The results reveal that there is no significant relationship between unionization and firm profits in France. The strong specificity of industrial relations—in particular the weakness of trade union representation in the private sector—could explain this absence of a relationship in the French context.

In general, unions make it possible to redistribute part of the company's rent from its investments or its market position to workers, to the detriment of shareholders (Laroche & Wechtler, 2008; Doucouliagos & Laroche, 2009; Bryson et al., 2011). However, more recent studies reveal more contrasting results. In the United Kingdom, Menezes-Filho (1997) reveals that the union impact on profits was negative in the early 1980s but has been less and less significant in recent years. Several British studies confirm this trend (Wilkinson, 2001; Addison & Belfield, 2001; Bryson & Wilkinson, 2002). This trend can be explained by the anti-union legislation led by the Thatcher government in the 1980s. It seems that the weakening of trade unionism during this period has particularly affected the bargaining power of trade unions and, consequently, their influence on firm performance.

In China, Lu et al. (2009) find no effects of unions on firm profits. These results in the Chinese context are consistent with those of Ge (2007). However, the mechanism through which Chinese unions affect economic outcomes is not clear and requires further investigation.

Several conclusions can be offered in the light of the profit studies. First, while some positive union productivity effects are possible, they are not sufficient to offset the increase in costs from union wage increases and possible increases in capital stocks (Freeman & Medoff, 1984). Second, the routes through which unions capture rents and the effects of reduced profits on long-run productivity are not firmly established. As Hirsch and Addison (1986, p. 214) point out, "*if unions capture rents associated with concentration, this should be manifested in larger union-nonunion compensation (wages plus fringes) differentials among workers in more concentrated industries. But the evidence is that the compensation differential is no greater in highly concentrated industries. (…) The need for further evidence in this area is obvious.*".

Finally, and relatedly, future research must address more adequately the statistical problems arising from the simultaneous determination of unionism and union effects on the workplace and on working conditions and productivity. In fact, a number of issues restrict the scope of

these results. The first is the choice between cross-sectional or longitudinal data. Few researchers have been interested in analyzing the relationship between unions and profits in a temporal dimension to clarify the causal links between the two. Much more information is required on profit and growth effects. The assumption that unions are more likely to set up in firms where they can benefit from large rents has only been addressed by a few researchers (Hirsch, 1991; Voos & Mishel, 1986; Hirsch & Connolly, 1987). This *endogeneity* issue, which arises as a result of reverse causality and/or unobserved variables, leads us to interpret with caution most of the results of existing studies. Indeed, Voos and Mishel (1986) find a much stronger negative effect on profits when unionization is considered an exogenous variable. The negative union impact is therefore underestimated in most empirical studies (Hirsch & Connolly, 1987). Another limitation of empirical studies is the heterogeneity of the samples selected by the researchers, which requires the introduction of control variables in order to work on comparable data. Specification errors can occur if the models tested do not take into account variables that may co-vary with performance; these often include industry sector, firm size, R&D spending, advertising investment, and so on. Although no single study is totally convincing, the knowledge provided by these studies indicates that unions have a negative influence on firm profits, particularly in the U.S. context.

Although the evidence points to a direct negative relationship between unionization and profitability, some studies examine the indirect effects of unionization on managerial practices that are presumed to affect firm profits. Scholars from the HRM field provide more and more evidence showing that unions can play an important role in fostering high-performance work practices (HPWP) in the workplace.

5. Unions and high-performance work practices (HPWP)

Slichter et al. (1960) provided evidence that unions can also influence organizational arrangements at work. In recent years, more and more studies have tried to disentangle the relationship between unions and firm performance by examining the effects of unions on the adoption of so-called high-performance work practices (HPWP) or high-performance work systems (HPWS), on the basis that these practices improve firm performance (e.g. Combs et al., 2006). Although no universally accepted definition of HPWP or HPWS can be found in the literature, they commonly refer to sets of HRM and organizational practices that target blue-collar employees, translating into alternative job design and formal participatory practices, as well as high-commitment practices including financial participation and training

(Godard, 2004). Numerous denominations have been used in past literature, such as high involvement, high commitment, or, more temperately, HRM practices (see e.g. Pil & MacDuffie, 1996; Wood & de Menezes, 2008; Wood & Wall, 2007). We refer to high performance because other terminologies do not rely explicitly on the assumed link between a "*particular configuration of management practices*" and firm's performance (Bryson et al., 2005). Yet, this assumed link has been argued to be pivotal in qualifying such systems and their implications for employment relations in the workplace (Delaney & Godard, 2001).

One of the fundamental premises of the high-performance approach is that workers possess exclusive knowledge on how to enhance their individual productivity and may, under certain circumstances, choose to implement this knowledge. This process has been referred to as the achievement of effective discretionary effort. According to the abilities, motivation, opportunities (AMO) framework, HRM practices can trigger this discretionary effort: HPWS provide workers with "*appropriate motivation*," "*opportunity to participate in substantive shop-floor decisions,*" and ensure that workers also "*have the necessary skills to make their effort meaningful*" (Appelbaum et al., 2000, pp. 26–27). This mostly—although not exhaustively—translates into supporting practices that provide workers with individual voice, participation in decision-making, empowerment, work enrichment, broader job definition, and extended autonomy.

5.1. Unions and the adoption of high performance work practices (HPWP): some theoretical considerations

The exit/voice and strategic choice perspectives offer insights into both the mechanisms and consequences of the influence of unions on HPWS. However, conflicting views can still be found. These opposing views are strengthened by empirical evidence that the influence of unions on HPWS is mixed and is subject to pronounced context-related variety.

In general terms, the use of HPWS necessitates overcoming three types of barriers (Gill, 2009): a resistance barrier (management may be reluctant to abandon some power), a cost barrier related to their implementation and support, and a workers' engagement and commitment barrier. Reflections on HPWS and their implications for unions include attempts to describe theoretically and support empirically potential for competition, complementarity, or incompatibility between them.

A first, direct form of competition between HRM practices and unions draws on the idea that there is a potential conflict of interests between unions and HPWS. Such organizational devices could contribute to the transformation of industrial relations in the workplace, especially as they provide direct and individual voice mechanisms for employees (Kochan et al., 1986), which may ultimately lead to bypassing unions (i.e., substitution between unions and HPWS), the loss of the desire for unionization from employees, or employers' deliberate avoidance of unions (Belfield & Heywood, 2004; Fiorito, 2001; Kochan et al., 1986).

Second, interactions between union and non-union representation are not obvious (e.g. Kaufman & Taras, 2010): where institutional settings allow it, competition can occur between union and non-union representatives, with two possible outcomes. Unity of interests translates into non-union employment relations support of HPWS and can deplete the interest in unionization. Conversely, dual channel representation consists of union/non-union employment relations complementarity, and could overcompensate the costs associated with representation via the improvement of communication flows in the workplace (Freeman & Lazear, 1995).

Another source of competition can be found between workers' organizational and union commitments. As deliberate strategic options that rely on workers' commitment to the organization, HPWS may challenge a union's position: "*[t]he key issue then becomes the compatibility of the goals and values of the company and the union*" (Guest, 1995, p. 113). This is especially problematic in circumstances linking HRM strategy to market-driven, cost-reduction oriented business strategies.

This academic debate also opened the way to a renewal of the assessment of the role of unions in HRM-related decision-making, and their influence on HPWS. Indeed, possible complementarity arises as the influence of HPWS on organizational performance appears to be "mediated" by individual workers' responses (Macky & Boxall, 2007). Some suggest that this mediation can be enabled, or even reinforced, by employment relations.

From the exit/voice perspective, it is possible to argue that a union presence may pressure management to introduce more efficient HRM practices in order to reduce the costs associated with the union's impact on work rules. As HPWS are supposedly related to greater levels of individual and organizational performance, union pressure may ultimately lead to their use. Simultaneously, the collective voice/institutional response dynamics can draw on workers' preferences and lead to the implementation of practices that will act as incentives for workers to resort to the discretionary effort described in the AMO model (Addison, 2005; Verma, 2005). This is because union activities (the so-called collective voice) provide management

with information on workers' preferences that outperform individual voice. This has consequences for HPWP and employee involvement programs. Indeed, such practices carry sources of empowerment as they allow workers to influence the way work is organized and realized according to their preferences. Consequently, union activities can support the adoption and implementation of HPWP and HPWS (Kaufman, 2004).

Opposing views (e.g. Huselid & Rau, 1997) suggest that unions have a negative impact on the adoption of HPWS because they have incompatible objectives. First, union preferences usually favor the limitation of managerial discretion, organizational flexibility, and performance-related rewards, all of which are the principal components of HPWS. Second, the negotiating power of unions can discourage management from using HPWS, as it could modify the balance of HPWS-related gains in favor of workers. Third, as described above, HPWS can be used to bypass unions.

Discussing the implications of HPWS for unions, Godard (2004, pp. 360–3) notes three additional reasons why union involvement in such systems could be detrimental. First, the labor-management partnership can be seen as incompatible with union representation and deter employees support, because its reliance on cooperation with management does not fit with some employees' preference for adversarial, defensive unions. This can lead to the loss of the desire to unionize (e.g. Fiorito, 2001), and hostility toward those favorable to unions. Second, inequality in the balance of power between union and management may lead to unbalanced partnership and cooperation. This makes the possibility of labor-management cooperation to provide actual opportunities for the union to participate in decision-making questionable. Third, time can influence the balance of power, and make the reverse of a more adversarial role a relevant option.

5.2. Examining the empirical relationship between unions and HPWP

There are broadly two categories of empirical studies that can be distinguished in the literature: those that examine the role of unions in the adoption of high-performance work practices and those examining the interaction effect of unions and high-performance work practices on firm performance.

Several studies suggest a negative relationship between unions and HPWP (Delaney & Huselid, 1996; Osterman, 1994). However, this finding is explained by the fact that HPWP are more likely to be implemented in new establishments where there is no union. Other studies indicate a more complex relationship. Machin and Wood (2005) suggest that there is no systematic evidence that unions resisted innovative HR practices in the UK. In the same

vein, Gill (2009) demonstrates that unions that have a cooperative relationship with management can play a role in overcoming barriers to the adoption of practices linked to firm performance. Unions have the unique advantage of delivering independent voice that cannot be substituted by management, ensuring that workers benefit from HPWP adoption.

In accordance with the curvilinear model of the impact of union power on the adoption of HRM innovations described by Kizilos and Reshef (1997), Laroche (2002) finds that the presence of unions does not prevent the use of flexible practices in the French context. He suggests that when the level of unionization is low, innovation is seen as a threat to the union's influence and leads to union opposition. Conversely, in highly unionized workplaces, unions have the legitimacy and ability to voice workers' concerns and to counteract management attempts to use HRM reforms to undermine the union. As a result, unions are likely to be more supportive of HRM innovations. Similarly, Laroche and Salesina (2017), examining the validity of the substitution hypothesis in France, conclude that there is no direct substitution effect between unions and HRM innovations. It seems that the best performing workplaces are those with both HPWP and unions. In many ways, the driver of positive results in such studies is the voice effect of unionization. Workers appear more likely to cooperate when they feel a part of participative work arrangements (Freeman & Medoff, 1984). Since a substantial majority of research suggests a positive relationship between HPWP and firm performance (for a meta-analysis, see Combs et al., 2006), this relation may be indirectly affected by unionization. However, very few studies have examined the relationship between unions and the adoption of HPWS and little discussion is offered on the interaction between unionization, HPWP and firm performance.

The few studies that have examined the interaction effects of unions and HPWP report that cooperative relations between unions and employers could magnify the effects of HPWP. For example, Black and Lynch (2001) suggest that, in the U.S. context, the best performance results occur in workplaces with HPWP and union representation. In another study, Black and Lynch (2004) find that firms that re-engineer their workplaces to incorporate more high-performance practices experience higher productivity and pay higher wages. In the same vein, Cooke (1994) provides evidence indicating that employee participation programs contribute substantially more to performance in unionized than in non-union firms in the U.S. A similar conclusion is drawn by Metcalf (2003) and Bryson et al. (2005) in the UK context, suggesting consistent cross-national patterns. Some studies indicate that unions foster a more formalized approach to HRM (see Ng & Maki, 1994) but according to others, the impact of unions does not appear to be large. More research is needed to capture the indirect effect of unions on firm performance through high-performance work practices.

Summary

This review of the main studies dealing with the relationship between unionism, collective bargaining and firm performance shows that the situation remains unclear. The results of existing studies show that the effects of unionism on firm performance are very mixed. These effects vary significantly across industries, within countries, over time and between institutional contexts. In addition, unions are themselves extremely diverse organizations, both in terms of their objectives and their ability to act within the workplace. The fact that the economic analysis examines only a partial aspect of unionism reduces the scope of existing academic work and suggests several avenues of investigation for future research. For example, Doucouliagos et al. (2017) call for the scope of union research to extend to more countries, sectors, and time periods, historical as well contemporary. This would enable researchers to discover much more about the causes and moderating factors of the differences observed in previous empirical studies—for instance, why estimated union effects on productivity are negative in the UK and why they are positive in certain sectors in the U.S. More studies of union effects in various other contexts are clearly needed to give a complete picture of union impact. A second challenge for future research is to expand analysis of collective voice beyond the unions/collective bargaining versus non-union management decision-making dichotomy, which is specified in most countries' labor law, to the changing work arrangements and channels through which workers seek to affect workplace outcomes. A third challenge is to obtain better estimates of the extent to which changes in unionism affect union outcomes when unionism is endogenously affected by the outcome variable. Finally, estimates of the impact of unions and collective bargaining on firm performance are necessary but far from sufficient for societal assessment of unions and policies toward them. The social context in which unions do what they do matters. In a time of high and rising inequality, union activities almost invariably trade off some economic efficiency for greater justice in the workplace and reduced inequalities. This means that the existing studies that provided the evidence base for this chapter are only one part of a decision system. They must also be evaluated relative to workers' and employers' social preferences and utility functions.

References

Abowd J. (1989), The effects of wage bargains on stock market value of the firm, *American Economic Review*, vol. 79, September, pp. 774–800.

Addison, J. T. (2005). The determinants of firm performance: unions, works councils, and employee involvement/high-performance work practices. *Scottish Journal of Political Economy,* 52(3), 406–50.

Addison J. T. & Belfield C. R. (2001), Updating the determinants of firm performance: estimating using the 1998 UK Workplace Employee Relations Survey, *British Journal of Industrial Relations*, 39(3), 341–66.

Addison, J. T., & Teixeira, P. (2019). Strikes, employee workplace representation, unionism, and trust: Evidence from cross-country data. *Journal of Economic Behavior and Organization*, 159, 109-133.

Addison, J. T., & Hirsch, B. T. (1989). Union effects on productivity, profits, and growth: has the long run arrived?. *Journal of Labor Economics*, 7(1), 72-105.

Addison, J. T., Teixeira, P., Evers, K., & Bellmann, L. (2017). Collective bargaining and innovation in Germany: a case of cooperative industrial relations? *Industrial Relations: A Journal of Economy and Society*, 56(1), 73–121.

Aidt, T. S., & Sena, V. (2004). Unions: rent extractors or creators? *Scandinavian Journal of Economics*, 107: 103–21.

Allen, S. G. (1986). Unionization and productivity in office building and school construction. *ILR Review*, 39(2), 187–201.

Allen, S. G. (1988). Productivity levels and productivity change under unionism. *Industrial Relations: A Journal of Economy and Society*, 27(1), 94-113.

Andreasson, H. (2014). *The effect of decentralized wage bargaining on the structure of wages and firm performance*. Ratio Working Papers, 241.

Antcliff, V., & Saundry, R. (2009). Accompaniment, workplace representation and disciplinary outcomes in British workplaces – just a formality? *British Journal of Industrial Relations*, 47(1), 100-121.

Appelbaum, E., Bailey, T., Berg, P., Kalleberg, A. L., & Bailey, T. A. (2000). *Manufacturing advantage: Why high-performance work systems pay off*. Cornell University Press.

Ashenfelter, O. (1985). *Evidence on US experiences with dispute resolution systems* (No. 185). Industrial Relations Section, Princeton University.

Balsmeier, B. (2017). Unions, collective relations laws and R&D investment in emerging and developing countries. *Research Policy*, 46(1), 292–304.

Banning, K., & Chiles, T. (2007). Trade-offs in the labor union-CEO compensation relationship. *Journal of Labor Research*, 28(2), 347–57.

Barth, E., Bryson, A., & Dale-Olsen, H. (2017). Union density, productivity and wages, IZA Discussion Paper No. 11111.

Batt R. & Welbourne T., (2002), Performance growth in entrepreneurial firms: revisiting the union-performance relationship, in J. Katz and Welbourne T. (eds), *Research Volume in Entrepreneurship*, vol. 5, JAI Press.

Belfield, C. R., & Heywood, J. S. (2004). Do HRM practices influence the desire for unionization? Evidence across workers, workplaces, and co-workers for Great Britain. *Journal of Labor Research*, 25(2), 279–99.

Belman D. (1992), Unions, the Quality of Labor Relations and Firm Performance, in Mishel L. and Voos P.B., (eds), *Unions and Economic Competitiveness*, New York, M.E. Sharpe, 41–108.

Berton, F., Dughera, S., & Andrea, R. (2018). *Do unions affect innovation in Italy? Evidence from firm-level data*. INAPP Working Paper n°2, November, 1-16

Black, S. E., & Lynch, L. M. (2001). How to compete: the impact of workplace practices and information technology on productivity. *Review of Economics and Statistics*, 83(3), 434-445.

Black, S. E., & Lynch, L. M. (2004). What's driving the new economy? The benefits of workplace innovation. *The Economic Journal*, 114(493), F97-F116.

Blanchard, O., & Philippon, T. (2006). *The Quality of Labor Relations and Unemployment.* NBER Working Paper No. 10590. Cambridge, MA: National Bureau of Economic Research.

Blanchflower, D. G., & Bryson, A. (2020). *Now Unions Increase Job Satisfaction and Well-being* (No. w27720). National Bureau of Economic Research.

Blanchflower, D G., & Freeman, R. B. (1992). Unionism in the United States and other advanced OECD countries. *Industrial Relations* 31(1):56–79.

Booth A. L., (1995), *The Economics of the Trade Union*, Cambridge University Press.

Bradley, D., Kim, I., & Tian, X. (2017). Do unions affect innovation? *Management Science*, 63(7), 2251–71.

Brown C. & Medoff J. L., (1978), Trade unions in the production process, *Journal of Political Economy*, 86 (3), June, p. 355-378.

Bryson, A. (2007). The effect of trade unions on wages. *Reflets et perspectives de la vie économique*, 46(2), 33-45.

Bryson, A., Charlwood, A., & Forth, J. (2006). Worker voice, managerial response and labour productivity: an empirical investigation. *Industrial Relations Journal*, 37(5), 438-455.

Bryson, A., & Dale-Olsen, H. (2020). *Unions, tripartite competition and innovation* (No. 13015). IZA Discussion Papers.

Bryson, A., Forth, J., & Kirby, S. (2005). High-involvement management practices, trade union representation and workplace performance in Britain. *Scottish Journal of Political Economy*, 52(3), 451-491.

Bryson, A., Forth, J., & Laroche, P. (2011). Evolution or revolution? The impact of unions on workplace performance in Britain and France. *European Journal of Industrial Relations*, 17(2), 171-187.

Bryson A. & Wilkinson D. (2002), *Collective bargaining and workplace performance: an investigation using the Workplace Employee Relations Survey 1998*, Employment Relations Research Series No12, London: Department of Trade and Industry.

Cabaleiro, G., & Gutiérrez, F. (2019). The relationship between unions and innovation in Chile. *Journal of Technology Management & Innovation*, 14(4), 17-30.

Cardullo, G., Conti, M., & Sulis, G. (2015). Sunk capital, unions and the hold-up problem: Theory and evidence from cross-country sectoral data. *European Economic Review*, 76, 253-274.

Cho, H., Lee, B. B. H., Lee, W. J., & Sohn, B. C. (2017). Do labor unions always lead to underinvestment? *Journal of Management Accounting Research*, 29(1), 45-66.

Clark K., (1984), Unionization and firm performance: the impact on profits, growth and productivity, *American Economic Review*, n° 74, December, 893-919.

Combs, J., Liu, Y., Hall, A., & Ketchen, D. (2006). How much do high-performance work practices matter? A meta-analysis of their effects on organizational performance. *Personnel Psychology*, 59(3), 501-528.

Connolly, R. A., Hirsch, B. T., & Hirschey, M. (1986). Union rent seeking, intangible capital, and market value of the firm. *The Review of Economics and Statistics*, 567-577.

Cooke, W. N. (1994). Employee participation programs, group-based incentives, and company performance: A union-nonunion comparison. *ILR Review*, 47(4), 594-609.

Cotton, J. L., & Tuttle, J. M. (1986). Employee turnover: A meta-analysis and review with implications for research. *Academy of Management Review*, 11(1), 55-70.

Coutrot T. (1996). Relations sociales et performance économique: une première analyse empirique du cas français, *Travail et Emploi*, n° 66, p. 39-66.

DeFina, R. H. (1983). Unions, relative wages, and economic efficiency. *Journal of Labor Economics*, 1(4), 408-429.

Delaney, J. T. & Huselid, M. A. (1996). The impact of human resource management practices on perceptions of organizational performance. *Academy of Management Journal*, 39, 949–969.

Delaney, J. T., & Godard, J. (2001). An industrial relations perspective on the high-performance paradigm. *Human Resource Management Review*, 11(4), 395-429.

Denny, K. (1997). Productivity and trade unions in British manufacturing industry 1973–85. *Applied Economics*, 29(10), 1403-1409.

Dickerson, A. P., Geroski, P. A., & Knight, K. G. (1997). Productivity, efficiency and strike activity. *International Review of Applied Economics*, 11(1), 119-134.

Dinardo, J., & Hallock, K. F. (2002). When unions "mattered": the impact of strikes on financial markets, 1925–1937. *ILR Review*, 55(2), 219-233.

Dinardo, J., & Lee, D. S. (2004). Economic impacts of new unionization on private sector employers: 1984–2001. *The Quarterly Journal of Economics*, 119(4), 1383-1441.

Doucouliagos C. & Laroche P. (2003a), What do unions do to productivity? A meta-analysis, *Industrial Relations: A Journal of Economy and Society*, Vol. 42, n°4, October, pp. 650-691.

Doucouliagos C. & Laroche P. (2003b) Unions and productivity growth: a meta-analytic review, in Kato T. and Pliskin J. (eds), *The Determinants of the Incidence and the Effects of Participatory Organization*, vol. 7, JAI Book series, Elsevier Science, 57-82.

Doucouliagos C. & Laroche P., (2003c), Unions and tangible investments: a review and new evidence in France, *Relations Industrielles/Industrial Relations*, 58(2), 314–37.

Doucouliagos, H., & Laroche, P. (2009). Unions and profits: a meta-regression analysis *Industrial Relations: A Journal of Economy and Society*, 48(1), 146–84.

Doucouliagos H. & Laroche P., (2013). Unions and innovation: new insights from the cross-country evidence, *Industrial Relations: A Journal of Economy and Society*, 52 (2), 467–91.

Doucouliagos, H., Freeman, R. B., & Laroche, P. (2017). *The Economics of Trade Unions: A Study of a Research Field and its Findings*. Taylor & Francis.

Drinkwater, S., & Ingram, P. (2005). Have industrial relations in the UK really improved? *Labour*, 19(2), 373–98.

Eguchi, K. (2002). Unions as commitment devices. *Journal of Economic Behavior & Organization*, 47(4), 407–21.

Fang, T., & Ge, Y. (2012). Unions and firm innovation in China: Synergy or strife? *China Economic Review*, 23(1), 170–80.

Fang, T., Ge, Y., & Fan, Y. (2019). Unions and the productivity performance of multinational enterprises: evidence from China. *Asian Business & Management*, 18(4), 281–300.

Fiorito, J. (2001). Human resource management practices and worker desires for union representation. *Journal of Labor Research*, 22(2), 335-354.

Flaherty, S. (1987). Strike activity, worker militancy, and productivity change in manufacturing, 1961–1981. *ILR Review*, 40(4), 585–600.

Freeman R. B. (1983), *Unionism, price-cost margins, and the return to capital*, Working Paper No 1164, National Bureau of Economic Research.

Freeman, R. B. (2005). What do unions do? The 2004 M-brane stringtwister edition. *Journal of Labor Research*, 26(4), 641-668.

Freeman, R., & Lazear, E. (1995). An economic analysis of works councils, in J. Rogers, and W. Streeck, eds., *Works Councils: Consultation, Representation, and Cooperation in Industrial Relations*, NBER.

Freeman R. B. & Medoff J. L. (1984), *What Do Unions Do*? New York, Basic Book.

Garnero, A., Rycx, F., & Terraz, I. (2018). *Productivity and wage effects of firm-level collective agreements: Evidence from Belgian linked panel data*, IZA Discussion Papers, No. 11568, Institute of Labor Economics (IZA), Bonn.

Ge, Y. (2007). *What do unions do in China?*. Available at SSRN: http://ssrn.com/abstract=1031084

Gill, C. (2009). Union impact on the effective adoption of high-performance work practices. *Human Resource Management Review*, 19(1), 39-50.

Gittel J. H., Von Nordenflicht A., & Kochan, T. A. (2004). Mutual gains or zero sum? Labor relations and firm performance in the airline industry, *ILR Review*, 57(2), 163–79.

Godard, J. (2004). A critical assessment of the high-performance paradigm. *British Journal of Industrial Relations*, 42(2), 349–78.

Guest, D. (1995). *Human resource management, trade unions and industrial relations. Human resource management: A critical text*, London: Routledge, 110–42.

Haskel, J. (2005). Unions and productivity again: New evidence from matched WERS and Business Census data. Unpublished manuscript.

Heavey, A. L., Holwerda, J. A., & Hausknecht, J. P. (2013). Causes and consequences of collective turnover: A meta-analytic review. *Journal of Applied Psychology*, 98(3), 412.

Hirsch B.T., (1991), *Labor Unions and the Economic Performance of Firms*, W.E. Upjohn Institute for Employment Research, Kalamazoo, Michigan.

Hirsch, B. T. (1997). *Unionization and Economic Performance: Evidence on Productivity, Profits, Investment, and Growth*. Vancouver: Fraser Institute.

Hirsch, B. T. & Addison, J. T. (1986). *The Economic Analysis of Unions: New Approaches and Evidence*, London, Allen & Unwin.

Hirsch, B. T. & Connolly, R. (1987). Do unions capture monopoly profits? *ILR Review*, 41(1), October, p. 118-136.

Hirsch, B. T., & Link, A. N. (1987). Labor union effects on innovative activity. *Journal of Labor Research*, 8(4), 323–32.

Hirschman, A. O. (1970). *Exit, Voice, and Loyalty*, Cambridge (Mass), Harvard University Press.

Hogan, C. (2001). Enforcement of implicit employment contracts through unionization. *Journal of Labor Economics*, 19(1), 171–95.

Huselid, M. A., & Rau, B. L. (1997). The determinants of high-performance work systems: cross-sectional and longitudinal analyses. In *Academy of Management Annual Meetings* (255–76).

Jaramillo, F., Mulki, J. P., & Marshall, G. W. (2005). A meta-analysis of the relationship between organizational commitment and salesperson job performance: 25 years of research. *Journal of Business Research*, 58(6), 705–14.

Jarrell, S. B., & Stanley, T. D. (1990). A meta-analysis of the union-nonunion wage gap. *ILR Review*, 44(1), 54-67.

Jirjahn, U. 2016. The Contribution of Labour Economics to the Analysis of Unions and Collective Bargaining in Germany in: I. Artus, M. Behrens, B. Keller, W. Matiaske, W. Nienhüser, B. Rehder and C. Wirth, eds., *Developments in German Industrial Relations*, Cambridge Scholars Publishing: 187 – 220.

Jirjahn, U., & Kraft, K. (2007). Intra-firm wage dispersion and firm performance—is there a uniform relationship?. *Kyklos*, 60(2), 231–53.

Karier T. (1985). Unions and monopoly profit, *Review of Economics and Statistics*, 67(1). 34–42.

Kaufman, B. E. (2004). Prospects for union growth in the United States in the early 21st century. In *Unions in the 21st Century* , Palgrave Macmillan, London, pp. 44–60.

Kaufman, B. E., & Taras, D. G. (2010). Employee participation through non-union forms of employee representation. In Wilkinson, A., Gollan, P.J., Lewin, D. (Eds). *The Oxford Handbook of Participation in Organizations*.

Kizilos, M., & Reshef, Y. (1997). The effects of workplace unionization on worker responses to HRM innovation. *Journal of Labor Research*, 18(4), 641–56.

Kochan, T. A., McKersie, R. B., & Chalykoff, J. (1986). The effects of corporate strategy and workplace innovations on union representation. *ILR Review*, 39(4), 487–501.

Lamarche, C. (2013). Industry-wide work rules and productivity: evidence from Argentine Union contract data. *IZA Journal of Labor & Development*, 2(1), 11.

Laroche, P. (2002). The effect of unions on workplace innovation: evidence from a French survey. *International Employment Relations Review*, 8(2), 35.

Laroche P. (2004), Présence syndicale et performance financière des entreprises: une analyse statistique sur le cas français, *Finance Contrôle Stratégie*, Vol. 7, n° 3, Septembre, p. 117–46.

Laroche, P. (2016). A meta-analysis of the union–job satisfaction relationship. *British Journal of Industrial Relations*, 54(4), 709–41.

Laroche, P., & Salesina, M. (2017). The effects of union and nonunion forms of employee representation on high-performance work systems: New evidence from French microdata. *Human Resource Management*, 56(1), 173–89.

Laroche, P., & Wechtler, H. (2011). The effects of labor unions on workplace performance: New evidence from France. *Journal of Labor Research*, 32(2), 157–80.

Lu, Y., Tao, Z., & Wang, Y. (2010). Union effects on performance and employment relations: Evidence from China. *China Economic Review*, 21(1), 202–10.

Machin S. J. (1991), Unions and the capture of economic rents: an investigation using British firm-level data, *International Journal of Industrial Organization*, 9, 261–74.

Machin, S. & Wood, S. (2005). Human resource management as a substitute for trade unions in British workplaces. *ILR Review*, 58, 201–18.

Machin, S., & Stewart, M. (1996). Trade unions and financial performance. *Oxford Economic Papers*, 48(2), 213-241.

Macky, K., & Boxall, P. (2007). The relationship between 'high-performance work practices' and employee attitudes: an investigation of additive and interaction effects. The *International Journal of Human Resource Management*, 18(4), 537–67.

Mathieu, J. E., & Zajac, D. M. (1990). A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. *Psychological Bulletin*, 108(2), 171.

Menezes-Filho, N. A. (1997) Unions and profitability over the 1980s: some evidence on union-firm bargaining in the United Kingdom, *The Economic Journal*, 107, 651–70.

Menezes-Filho, N., Ulph, D., & Van Reenen, J. (1998a). R&D and unionism: comparative evidence from British companies and establishments. *ILR Review*, 52(1), 45–63.

Menezes-Filho, N., Ulph, D., & Van Reenen, J. (1998b). The determination of R&D: empirical evidence on the role of unions. *European Economic Review*, 42(3–5), 919–30.

Menezes-Filho, N., Ulph, D., & Van Reenen, J. (2003). Unions and innovation: a survey of the theory and empirical evidence. In Addison J. T. & Schnabel C. eds., *International Handbook of Trade Unions*, Edward Elgar, pp. 293–334.

Metcalf, D. (2003). Trade unions. In *The Labour Market Under New Labour*, Palgrave Macmillan, London, (pp. 170–87).

Metcalf D. (2003), Unions and productivity, financial performance and investment: international evidence. In Addison, J., & Schnabel, C. (eds), *International Handbook of Trade Unions*, Edward Elgar.

Morikawa, M. (2010). Labor unions and productivity: An empirical analysis using Japanese firm-level data. *Labour Economics*, 17(6), 1030–7.

Neumann, G. R., & Reder, M. W. (1984). Output and strike activity in US manufacturing: How large are the losses? *ILR Review*, 37(2), 197–211.

Ng, I., & Maki, D. (1994). Trade union influence on human resource management practices. *Industrial Relations: A Journal of Economy and Society*, 33(1), 121–35.

Osterman, P. (1994). How common is workplace transformation and who adopts it? *ILR Review*, 47(2), 173–88.

Pil, F. K., & MacDuffie, J. P. (1996). The adoption of high-involvement work practices. *Industrial Relations: A journal of Economy and Society*, 35(3), 423-455.

Premack, S. L. (1984). Prediction of Employee Unionization from Knowledge of Job Satisfaction A Meta–Analytic Investigation. In *Academy of Management Proceedings*, 1984(1), pp. 279-283.

Rees, A. (1963). The effects of unions on resource allocation. *The Journal of Law and Economics*, 6, 69-78.

Ruback, R., & Zimmerman, M. (1984). Unionization and profitability: evidence from the capital market, *Journal of Political Economy*, 92, 1131–57.

Schnabel, C., & Wagner, J. (1994). Industrial relations and trade union effects on innovation in Germany. *Labour*, 8(3), 489-504.

Schnabel, C., & Wagner, J. (1992a). Unions and innovation: Evidence from German micro data. Economics letters, 39(3), 369-373.

Schnabel, C., & Wagner, J. (1992b). Unions and innovative activity in Germany. *Journal of Labor Research*, 13(4), 393-406.

Slichter, S., Healy, J., & Livernash, R. (1960). *The Impact of Collective Bargaining on Management*, Washington DC, The Brookings Institution.

Tanguy, J. (2013). Collective and individual conflicts in the workplace: evidence from France. *Industrial Relations: A Journal of Economy and Society*, 52(1), 102–33.

Turnbull, P. J. (1991). Trade unions and productivity: Opening the Harvard “black boxes”. *Journal of Labor Research*, 12(2), 135-150.

Verma, A. (2005). What do unions do to the workplace? Union effects on management and HRM policies. *Journal of Labor Research*, 26(3), 415–49.

Voos, P. B. & Mishel, L. R. (1986). The union impact on profits in the supermarket industry, *Review of Economics and Statistics*, 68(3), 513–17.

Wadhwani, S. (1990). The effect of unions on productivity growth, investment and employment: A report on some recent work. *British Journal of Industrial Relations*, 28(3), 371–85.

Wilkinson, D. (2001), *Collective Bargaining and Workplace Financial Performance in Britain*, Policy Studies Institute, mimeo.

Wood, S., & de Menezes, L. M. (2008). Comparing perspectives on high involvement management and organizational performance across the British economy. *The International Journal of Human Resource Management*, 19(4), 639-683.

Wood, S. J., & Wall, T. D. (2007). Work enrichment and employee voice in human resource management-performance studies. *The International Journal of Human Resource Management*, 18(7), 1335-1372.