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Methods for Studying Union Effects: A Review and Comparative Analysis of Empirical Industrial Relations Literature

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ABSTRACT

This paper reviews methodological developments in Industrial Relations (IR) research on union effects from 1990 to 2023, based on 511 studies in six leading IR journals in the United States, the United Kingdom, Canada, and Australia. We find that institutional contexts shape methodological choices over time and note a general shift from descriptive analyses to advanced quantitative approaches, such as fixed effects, instrumental variables, and quasi-experimental designs. At the same time, however, qualitative and mixed methods remain central to the field. The paper further shows that research agendas have expanded from focusing on wages, collective bargaining, and workplace HR policies to include political and societal outcomes. Finally, we situate IR studies of union effects relative to adjacent disciplines: economics, sociology, political science, psychology, and management. Bibliometric analysis reveals close ties between IR and economics, as well as shared research interests with sociology and political science. The findings suggest IR has increased its methodological sophistication and maintained a pluralist identity – with both features informed by changing research priorities, national institutions, and ongoing dialogue with adjacent disciplines.

1 | Introduction

Industrial relations (IR) has long faced questions about its disciplinary boundaries and legitimacy, both from adjacent fields and from within the discipline itself (Kaufman 1993; Somers 1969). Originating as an interdisciplinary field, IR has drawn on insights from economics, sociology, psychology, law, and history to study employment and labour institutions (Heneman 1969; Kaufman 1993). This pluralistic foundation has encouraged theoretical and methodological diversity but has also fuelled concerns that IR might be overshadowed or absorbed by other disciplines in the absence of a coherent identity. The dynamics of ‘economic imperialism’ (Fine and Milonakis 2009; Lazear 2000) and, more recently, the ‘psychologization’ debate (Budd 2020; Godard 2014) exemplify these tensions, as scholars question whether economic

or behavioural approaches risk displacing the institutional and collective perspectives central to IR. Preserving the field’s distinctive contribution to the study of work and employment has thus been a central challenge for IR scholars.

For more than seven decades, IR scholars have occasionally employed methodological reviews to define the field’s core and clarify its boundaries (Frege 2005; Lewin and Feuille 1983; McMillan and Casey 2010; Whitfield and Strauss 1998, 2000; Whitfield and Yunus 2018; Wilensky 1954). Methodological reviews systematically analyze research designs, data collection strategies, and analytic techniques, highlighting strengths and weaknesses in empirical practice (Aguinis et al. 2023). Across the social sciences, such reviews are a standard means of assessing a discipline’s progression and direction, aiming to

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improve research quality and foster rigour (Bollen and Lilly 2023; Brodeur et al. 2020; Hill et al. 2021; Kertzer and Renshon 2022; Scholtz et al. 2020). In IR, these reviews serve an additional purpose: evaluating how the field's methodological openness – a strength that supports pluralism – can be maintained without losing coherence or being subsumed into adjacent disciplines. Unlike many reviews in other fields that concentrate on specific analytical techniques and recommend best practices, most IR methodological reviews cover multiple methods rooted in distinct disciplinary traditions.

Prior methodological reviews advanced the field, yet leave important gaps: how methods evolve with theory, how national contexts shape methodological choices, and how adjacent disciplines influence IR's identity. This paper addresses these gaps through a methodological review focused on a single, theoretically central topic: union effects. While union-effect research does not encompass the full scope of IR scholarship, it offers a distinctive lens for examining the field's methodological evolution, the influence of institutional settings, and the impact of other disciplines. Unions and their effects have consistently been a core focal point for industrial relations scholarship. The ways in which unions shape wages, labour relations, firm performance, and broader societal outcomes have been examined for decades across diverse contexts and fields, making this topic particularly well-suited for such analysis.

Specifically, we analyze the methods used in union-effect studies published between 1990 and 2023 in six leading IR journals. By narrowing our focus, we are able to track methodological developments more closely and coherently over time, rather than offering only a broad overview. We also review the dependent variables examined in these studies, which allows us to observe how methodological evolution is linked to theoretical and topical trajectories. In addition, we examine how methodological usage differs across four national contexts – the United States, United Kingdom, Canada, and Australia – assessing whether choices vary with institutional arrangements and the scholarly traditions that have developed within them. Lastly, we compare IR research with union-effect studies in adjacent disciplines (economics, sociology, political science, management, and psychology), directly contrasting the methods used and employing bibliometric network analysis to map intellectual interactions between fields.

Our findings show that union-effect research in IR has advanced methodologically over time, shaped by both its continued interdisciplinary engagement and its devotion to internal development. While IR has embraced methodological innovations from other fields, it has also maintained its core identity, particularly its strength in qualitative and mixed-method research. Moreover, this trajectory reflects IR's adaptation to distinct institutional contexts and responsiveness to changing research agendas that require corresponding advances in empirical analysis. Collectively, our review suggests that IR retains a distinctive position among disciplines studying union effects, sustaining its contributions despite ongoing challenges to unionization and the field itself.

2 | Literature Review: Theoretical and Methodological Foundations of IR

IR examines the employment relations and the institutional, economic, and social forces that shape it (Frege 2008;

Kaufman 1993, 2010). In the United States, the discipline emerged in the 1920s, led by institutional and political economists seeking a pragmatic alternative to neoclassical economics. Early IR research in the United States emphasized institutional constraints, public policy, and the 'web of rules' governing employment, particularly in unionized settings (Dunlop 1958; Jacoby 1990; Kaufman 1993, 2008). Over time, the field became more interdisciplinary, drawing on sociology, political science, psychology, management, and labour law (Godard 1994; Heneman 1969). Despite this diversity, IR in the United States has remained deeply influenced by its economic foundations, frequently absorbed into labour economics and characterized by a strong preference for quantitative methods, hypothesis testing, and individual-level labour market outcomes (Frege 2005).

In parallel, Britain developed a distinct but equally influential IR tradition rooted in the Oxford School's pluralist framework (Ackers and Wilkinson 2005). British IR conceptualized employment relations as a social system governed by institutional rules (Bain and Clegg 1974) and prioritized empirical, policy-oriented research (Winchester 1983). Unlike the United States, however, British scholarship remained more insulated from economics, favouring interdisciplinary approaches, qualitative case studies, and middle-range theorizing (Frege 2005; Whitfield and Strauss 2000).

Australia and Canada evolved along their own paths: Australian IR, grounded in centralized arbitration and a strong union tradition, focused on regulatory structures and institutional complexity, and has traditionally employed qualitative, inductive methods and resisted economic reductionism (Gurdon 1978; Lansbury and Michelson 2003; Littler 1990). In Canada, IR blended US quantitative rigour with British institutional traditions, producing a mixed methodological profile (Whitfield and Strauss 2000; Woods and Goldenberg 1981). These national traditions illustrate the diversity of IR scholarships as well as the looseness of the field's theories and methods. Institutional differences shape theoretical emphases and methodological choices; even within the broader Anglophone model of industrial relations, the four countries differ in their methodological preferences due to distinct institutional histories and research priorities.

Despite important national differences in institutional context and scholarly traditions, two features are shared across countries. First, the field tends to prioritize pragmatic, policy-relevant enquiry that situates employment issues within broader social, economic, and political structures. This reflects IR's foundational commitment to understanding employment as institutionally embedded and serves as a core identity of IR that unifies threads across diverse national traditions. Second, IR is not methodologically insular: across countries, it maintains sustained exchanges with adjacent fields, consistently borrowing and adapting their methods. The adjacent discipline that has most profoundly shaped the methodological direction of IR is, without question, economics (Kaufman 1993). Scholars have argued that modern mainstream economics has expanded its reach into adjacent disciplines by imposing its techniques and conceptual frameworks, a dynamic often described as 'economic imperialism' across the social sciences. This influence frequently operates through the diffusion of technical methods, setting standards for empirical rigour (Fine and Milonakis 2009; Lazear 2000). Though it applies a narrow,

highly formal framework to social phenomena, this approach strips them of their historical and political-economic grounding. By modelling labour and organizational life as if they were simply market relations and relying on methodological individualism, mainstream economics often overlooks the roles played by power, institutions, and social actors. The result is a technically sophisticated but substantively thin analysis that may efficiently predict outcomes, yet fails to contextualize, explain, or make sense of them (Fine and Milonakis 2009). IR has not been entirely immune to this trend, particularly given that US IR was funded and shaped by institutional economists. While this influence strengthens IR's analytical tools, it has also drawn criticism for overlooking the distinct features of labour-management relations and sometimes treating labour as a commodity (Katz et al. 2017). These concerns have led to calls for a more balanced approach that resists over-reliance on neoclassical economic theory (Somers 1969; Strauss and Feuille 1978).

This departure from purely market-based frameworks aligns with more human-centric perspectives advanced by industrial-organizational psychology, which emphasize worker attitudes and the social dynamics of the workplace rather than treating labour solely as an economic input. However, across all contexts, IR scholars have cautioned that this individualized, behavioural focus often overlooks the collectivist and conflictual nature of labour-management relations, potentially fostering an 'anti-union' orientation (Kaufman 1993). Over time, reviews in psychology and HR management documented a growing methodological divergence between IR and behaviourally oriented fields, while also noting the dominance of economic approaches, supplemented by some sociological perspectives (Mitchell 2001; Williams and Guest 1969).

IR's interdisciplinary nature has led to the adoption of a plethora of research methods. As early as the 1950s, Wilensky's *Syllabus of Industrial Relations* (1954) identified five core IR research areas, spanning economics, psychology, sociology, management, and political science. Early scholars often favoured inductive case studies due to the complexity of the scholarly focus, though critics argued descriptive case studies lacked proactive solutions and offered only retrospective explanations (Kaufman 1993). Later debates, such as those in a 1983 *Industrial and Labor Relations Review* special issue (Lewin and Feuille 1983) and Wallace's (1983) paper in the *Academy of Management Review*, reaffirmed the value of exploratory research while warning against a narrow progression toward experimental methods. This concern aligns with the perspectives of IR scholars who emphasize institutional constraints as critical determinants shaping employment relations, which qualitative descriptive methods can better capture.

By the late 1990s, IR scholars were reflecting more systematically on methodological trends. Whitfield and Strauss's (1998) comprehensive IR methodology handbook surveyed historical, legal, and social science approaches and underscored the close connection between methods and the field's future direction. Their subsequent review, however, documented shifts from institutional-level to individual-level analyses and a rise in quantitative methods (Whitfield and Strauss 2000). Around this time, Mitchell (2001) and Frege (2005) noted similar patterns: U.S. IR journals increasingly prioritized empirical, quantitative work, while national differences persisted. Jarley et al. (2001)

likewise highlighted IR's continuous reliance on economics, with applied labour economics as its intellectual backbone (McMillan and Casey 2010). These reviews collectively identified broad methodological shifts, from inductive case studies to deductive, data-driven approaches, acknowledging persistent disciplinary tensions.

In sum, reviews of IR methodologies have been conducted by IR scholars and researchers in related fields since the 1950s. The reviews consistently suggest IR employs a far broader variety of research methods than most other disciplines (Whitfield and Yunus 2018). While this diversity enriches the field, it also poses a challenge to establishing a clear disciplinary identity (e.g., Heneman 1969; Kaufman 1993; Somers 1969; Whitfield and Yunus 2018).

However, existing methodological reviews in IR have not fully addressed three important gaps. First, most have provided broad summaries of research designs rather than closely tracing the evolutionary trajectory of methods or linking methodological changes to theoretical developments. Second, despite IR's core focus on institutional structures as a research context, little is known about how variation across national settings and scholarly traditions shapes methodological choices. Third, IR's interaction with adjacent disciplines has rarely been examined in depth, leaving open how IR is shaped by these fields and whether IR as a field is maintaining a distinctive identity. Our approach, which centres union effects within a focused methodological review, follows Kaufman's (1993) recommendation to advance interdisciplinary scholarship by selecting a core IR topic and examining it through contributions from multiple disciplines.

3 | Methods

3.1 | Methodology and Dependent Variable Review

Following the systematic approach outlined by Aguinis et al. (2018, 2023), we have implemented a six-step process to review union effects research methods and dependent variables. First, we defined the review's scope (Step 1) and identified relevant journals (Step 2). Next, we searched for journal articles that met our selection criteria (Step 3). From these selected articles, we developed a taxonomy of methodologies and dependent variables (Steps 4 and 5) and coded each article according to this scheme (Step 6). In what follows, we provide a detailed explanation of our literature search, selection criteria (Steps 1–3), and content analysis and coding process (Steps 4–6).

3.1.1 | Literature Search and Selection Criteria

To construct our dataset, we reviewed union effect studies published between 1990 and 2023 in six core IR journals: *Industrial and Labor Relations Review* (ILRR), *Industrial Relations: A Journal of Economy and Society* (IR), *British Journal of Industrial Relations* (BJIR), *Industrial Relations Journal* (IRJ), *Journal of Industrial Relations* (JIR), and *Relations Industrielles* (RI). Following Whitfield and Strauss (2000), we consider these six journals representative of mainstream institutional IR scholarship across the United States, Britain, Canada, and Australia due to their longstanding influence, consistent

publication histories, and sustained focus on IR. While these journals do not encompass the entire IR discipline, they capture core developments central to our review. Later, we compare the methods used and dependent variables examined across journals, focusing in particular on the difference between three long-established, field-spanning journals (*ILRR*, *IR*, and *BJIR*) and three relatively newer, more regionally oriented subfield journals (*IRJ*, *JIR*, and *RI*).

We selected 1990 as the starting point because of the notable methodological advancements in labour market and economic research during this period, including Angrist et al.'s (1996) work on instrumental variables and Card and Krueger's (1995) study on minimum wage effects. These studies began to influence empirical methods across disciplines, including IR, as economics as a field became increasingly focused on economic rigour. At the same time, IR experienced growing disciplinary diffusion, with fields such as HR gaining prominence. This shift was reflected in the establishment of HR-focused journals (e.g., *Human Resource Management Journal*) and research centres (e.g., Cornell University's Centre for Advanced Human Resource Studies), signalling changes in the institutional landscape of IR scholarship.

We searched for union-related terms in article titles and abstracts, including 'union', 'unionism', 'unioniz(s)ed', 'unioniz(s)ing', and 'unioniz(s)ation'. Abstracts were then reviewed to identify studies examining the effects of unions. We excluded articles that did not focus directly on union effects, including those on unionization determinants or union membership, conceptual or theoretical work, and literature reviews. This process yielded 518 articles: 139 from *ILRR*, 114 from *IR*, 92 from *BJIR*, 54 from *IRJ*, 58 from *JIR*, and 61 from *RI*.¹

To facilitate cross-field comparisons of methods and dependent variables in union effect studies, we extended our review to adjacent disciplines using the same search and selection criteria. We identified relevant studies from leading journals in sociology (3), economics (8), political science (3), management (6), and psychology (4).² While our sample is not exhaustive, it represents a selection of journals broadly recognized for shaping methodological and topical developments in their respective fields. Similar to our selection of IR journals, we do not claim that these journals represent the entire disciplinary landscape, but they provide a solid basis for cross-field comparison. Appendix Table S1A lists all journals included in the analysis and the number of union effect studies identified in each field.

3.1.2 | Content Analysis and Coding Process

We concentrated on two main dimensions of the selected papers: methods and variables. We classified research designs into three categories: quantitative, qualitative, and mixed methods. For quantitative and mixed methods studies, we further distinguished analytic techniques into four categories: (1) descriptive studies, (2) associative (regression) studies, (3) advanced associative studies, and (4) quasi-experimental studies. Descriptive studies use basic quantitative techniques, such as bivariate correlation analysis or mean comparisons (e.g., *t*-tests or ANOVA), without incorporating regression models. Associative (regression) studies employ fundamental regression-based techniques (e.g., OLS, logit, or probit regressions) to test hypotheses, but without applying advanced

methods. Advanced associative studies apply more sophisticated techniques to address endogeneity concerns. Quasi-experimental studies use designs to approximate experimental conditions to identify causal effects. For qualitative and mixed-method studies, we classified data collection methods into three categories: (1) interviews, (2) archival or document analysis, and (3) observation (Yin 2003). We also recorded the number of different data collection methods employed in each study. In addition, we coded whether the study adopted a comparative design, as it is not only a common strategy in qualitative research for contrasting multiple cases (Mills et al. 2009) but also a widely used perspective in IR scholarship for conducting cross-national analysis (Frege and Kelly 2004; Katz 1993).

For variables, we coded both the independent variable (union effect) and the dependent variables, including general descriptions and units of analysis. For the independent variable, we also coded the measurement approach to understand how the union effect was defined, for example, through union presence, union density, or union membership. Dependent variables were grouped into five broad areas: (1) wages and benefits, (2) collective bargaining and labour relations, (3) performance and corporate governance, (4) HR policy and worker-related outcomes, and (5) political and societal outcomes.

We also coded the national context of each study, identifying the country or countries covered. This enabled us to compare methods across both the research context and the journal's country of publication, capturing the differences that may reflect each country's institutional context as well as its distinctive IR scholarship. Table 1 presents examples to illustrate how we applied our coding framework to the dataset.

3.2 | Bibliometric Analysis

Beyond the methodological and dependent variable review, we perform a bibliometric analysis to explore IR's intellectual development and assess cross-disciplinary connections among union effect studies (Donthu et al. 2021; Vogel et al. 2021; Zupic and Čater 2015). IR scholars have previously employed bibliometric analyses to explore the disciplinary connections between IR and other social science fields (Casey and McMillan 2008; McMillan and Casey 2007, 2010), but their approaches were limited by computational capacity constraints and focused on journal-level analyses or a small author sample.

Using *Web of Science*, we extracted keywords and citation data for each article and conducted the bibliometric analysis through *VOSviewer*. We first performed a keyword co-occurrence analysis specifically on the IR publications. This approach enabled the construction of a network where keywords were linked based on their co-occurrence within the same article. To illustrate temporal shifts in IR research emphasis, keywords were shaded on a gradient from black to white, representing the average publication year of the corresponding papers. This visualization complemented and enriched our analysis of dependent variable trends over time.

Next, we conducted a bibliographic coupling analysis incorporating an expanded sample from related disciplines. This approach linked studies based on shared references, creating a network where each publication was colour-coded to represent

TABLE 1 | Examples illustrating the coding framework applied in this study.

Citation	Year	Journal	Field	Variable					Context Country						
				IV		DV									
				Unit of analysis	Description	Unit of analysis	Category	Method							
	1990	<i>ILRR</i>	IR	Individual		Individual	Wages and benefits		Mixed method	Associative	Interviews	No			USA
	1995	<i>BJIR</i>	IR	Organization		Organization	Collective bargaining and labour relations		Qualitative		Observations	Yes			UK
	2000	<i>IR</i>	IR	Industry		Industry	Performance and corporate governance		Qualitative		Interviews and archival/document analysis	Yes			Australia
	2005	<i>IRJ</i>	IR	Country		Country	HR policy and worker outcomes		Quantitative	Descriptive					OECD
	2010	<i>JIR</i>	IR	Industry		Industry	Political and societal outcomes		Quantitative	Associative					Canada
	2015	<i>RI</i>	IR	Organization		Organization	Wages and benefits		Quantitative	Advanced					USA
	2020	<i>ILRR</i>	IR	Individual		Individual	Collective bargaining and labour relations		Quantitative	Quasi-experimental					UK

its disciplinary origin and illustrate the degree of connection between research areas. The objective of this network analysis was to assess the extent of cross-disciplinary communication and to identify patterns of intellectual proximity between union effect studies in IR and those in adjacent disciplines. We selected bibliographic coupling over citation or co-citation analysis because it more effectively captures cross-field connections (Kleminski et al. 2022). We then performed a supplementary citation analysis to map cross-disciplinary citation networks (results in Appendix Figure S1A). Table 2 provides a summary of the methodological approaches of our study.

4 | Results

4.1 | Overview

Out of the 518 papers in our dataset, 7 are meta-analyses, and the remaining 511 are empirical studies. This collection comprises 137 papers from *ILRR*, 111 from *IR*, 90 from *BJIR*, 54 from *IRJ*, 58 from *JIR*, and 61 from *RI*. Figure 1 illustrates the time trend of union effect studies across these journals.

The figure reveals that IR journals have consistently published union effect studies over time, indicating steady scholarly interest in the topic within the field.

To contextualize this focus within broader IR scholarship, we calculated the proportion of union effect studies among all articles published in our six focal IR journals (*ILRR*, *IR*, *BJIR*, *IRJ*, *JIR*, and *RI*) between 1990 and 2023. Figure 2 presents biannual trends in this share, highlighting the prominence of union effect studies relative to overall IR publication over time.

The analysis shows that union effect studies have constituted a relatively stable share of IR journal publications over time. While the proportion declined modestly during the mid-2010s, it has risen again in recent years. Across the entire study period, union effect studies account for 8.3% of all published articles in the six journals (511 out of 6160). Although this is not a dominant share, it represents a substantial and sustained area of scholarly attention within the field. We believe this pattern supports our focus on union effect studies as a meaningful and coherent subset of IR research. This subset is sufficiently prominent to yield relevant insights into broader methodological developments within the discipline. At the same time,

TABLE 2 | Overview of this study.

Only IR studies	Adjacent fields (Economics/Sociology/Political Science/Management/Psychology)
Methodological literature review	Methodological literature review
Research design	Research design
– Quantitative	– Quantitative
– Qualitative	– Qualitative
– Mixed-method	– Mixed-method
Analysis techniques of quantitative research	Analysis techniques of quantitative research
– Descriptive	– Descriptive
– Associative (regression)	– Associative (regression)
– Advanced associative	– Advanced associative
– Quasi-experimental	– Quasi-experimental
Data collection method of qualitative research	
– Interviews	
– Document/archival analysis	
– ObservationsComparative design of qualitative research	
Dependent variable review	Dependent variable review
– Wages and benefits	– Wages and benefits
– Collective bargaining and labour relations	– Collective bargaining and labour relations
– Performance and corporate governance	– Performance and corporate governance
– HR policy and worker outcomes	– HR policy and worker outcomes
– Political and societal outcomes	– Political and societal outcomes
Method usage by dependent variable	Method usage by dependent variable
Method usage by country	
Bibliometric analysis	Bibliometric analysis
– Keyword cooccurrence	– Bibliographic coupling

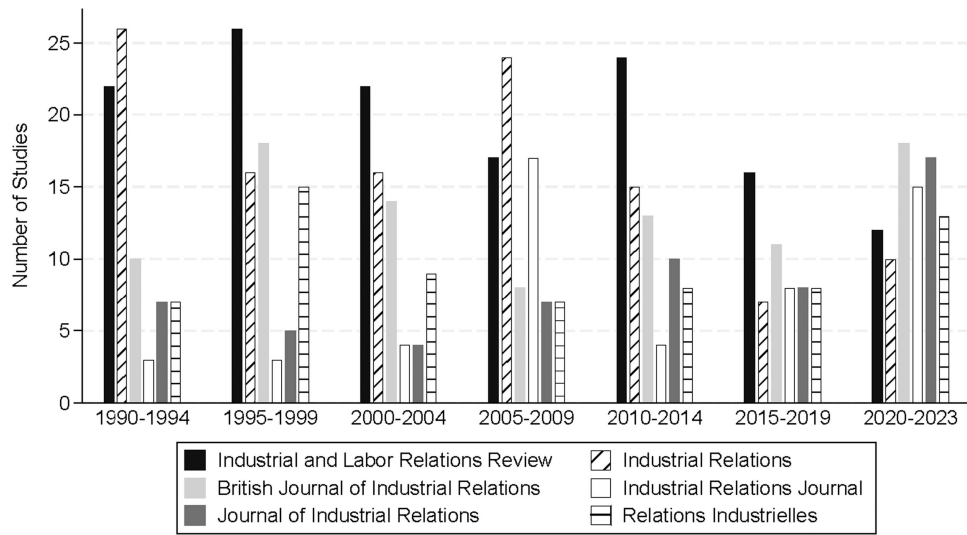


FIGURE 1 | Time trends by industrial relations journals.

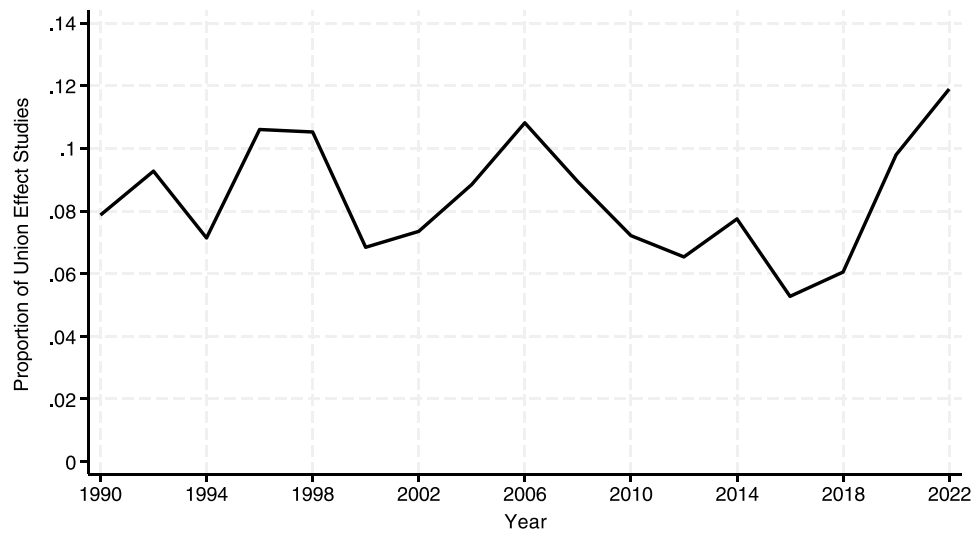


FIGURE 2 | Biannual trends in the proportion of union effect studies in IR journals.

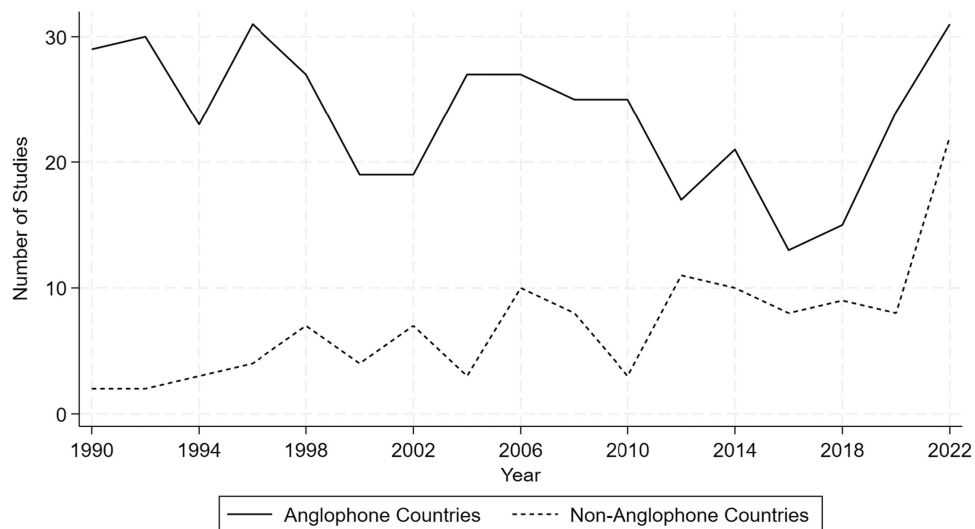


FIGURE 3 | Biannual trends by country studied.

this pattern shows that union effect studies do not capture the full breadth of IR scholarship, and our conclusions should therefore not be generalized beyond the boundaries of this subset.

IR scholars have focused on union effects at both organizational and individual levels. Specifically, 38% of the studies in our dataset (196 papers) examine union effects at the organizational level (e.g., union presence or union density), while 30% (154 papers) investigate union effects at the individual level (e.g., union membership or collective bargaining coverage). Other units of analysis include industry, occupation, or country. Eight percent of the studies (41 papers) examine union effects at multiple levels.

Perhaps unsurprisingly, given the geographic base of the top journals, IR research has traditionally focused on Anglophone countries, with 37% of studies (190 papers) using US data, 18% (91 papers) using UK data, 16% (83 papers) using Canadian data, and 10% (49 papers) using Australian data. However, IR scholars are increasingly exploring diverse research settings. Figure 3 documents the continuous expansion of research beyond the Anglophone context. Fourteen percent of the studies (69 papers) employ multinational samples, reflecting a growing interest in comparative analyses in IR research.

4.2 | Methodological Review Within IR

4.2.1 | Research Design

Quantitative approaches dominate IR research on union effects, accounting for 78% of our sample (397 of 511 empirical papers). Qualitative approaches remain significant, representing 18% of studies (93 papers), while mixed methods design appears in 4% (21 papers). Figure 4 shows the evolution of research design trends over time in IR studies.

As Figure 4 illustrates, quantitative designs have consistently dominated union-effect research. Qualitative studies, however, have remained a steady presence and increased notably after 2020, driven largely by *IRJ*, *JIR*, and *RI*, which publish qualitative work more frequently than the legacy journals (*ILRR*, *IR*, and *BJIR*). The mixed methods approach also shows a modest

rise over time. Subsequent sections compare methodological patterns and analytical techniques across these journal groups in greater detail.

4.2.2 | Analysis Techniques of Quantitative Research

Figure 5 outlines trends in quantitative analysis techniques used in the IR union effect studies, with the seven meta-analyses explicitly indicated in the figure. By the 1990s, descriptive analyses had largely declined, replaced by regression-based associative methods, which became the dominant technique through the 1990s and 2000s. Concurrently, a limited number of studies also began adopting advanced methods to address endogeneity concerns.

Associative (regression) studies employ regression models with multiple control variables to compare union versus non-union workers or workplaces, assessing union influence on different outcomes. The choice of regression model depends on the dependent variable: OLS regressions are standard for continuous variables, logistic or probit models are used for binary outcomes, and Tobit models are applied when the dependent variable is censored. The growth of this approach spurred several meta-analyses synthesizing quantitative findings, such as Doucouliagos and Laroche's (2003) study on unions and productivity and their later work on unions and firm financial performance (Doucouliagos and Laroche 2009). Appendix Table S1B lists the seven meta-analyses included in our review.³

While insightful, associative designs and meta-analyses remain correlational rather than causal and are vulnerable to endogeneity issues, complicating the interpretation of empirical results. A common challenge in union effect studies is omitted variable bias, as noted by Ichniowski et al. (1996), where findings rely on datasets limited to observable variables, making results sensitive to the scope of the data in capturing relevant factors. Another issue is reverse causality (Laroche 2016). Reverse causality makes it difficult to establish the true nature of the relationship between unionization and other variables, as the observed effects might reflect the impact of factors assumed to be outcomes of unionization. For example, studies on unions and job satisfaction face challenges disentangling whether

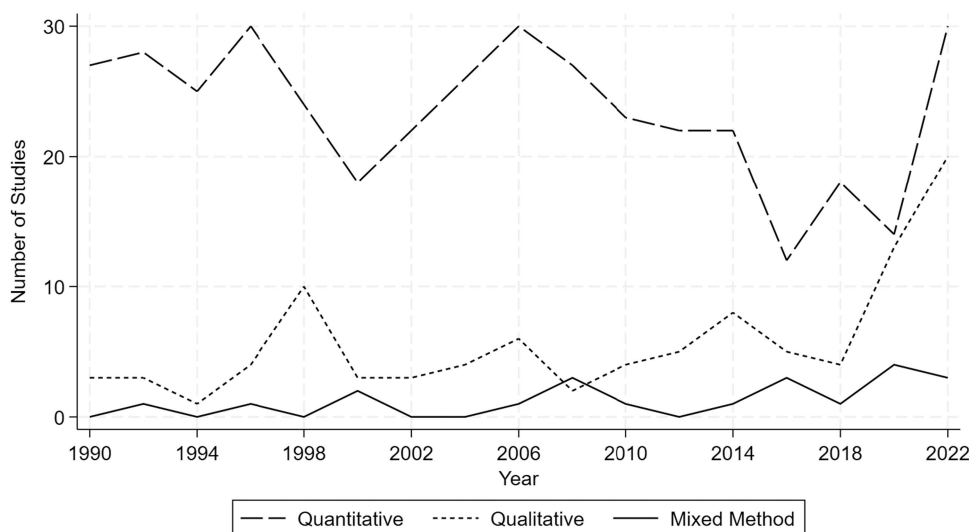


FIGURE 4 | Biannual trends by research design.

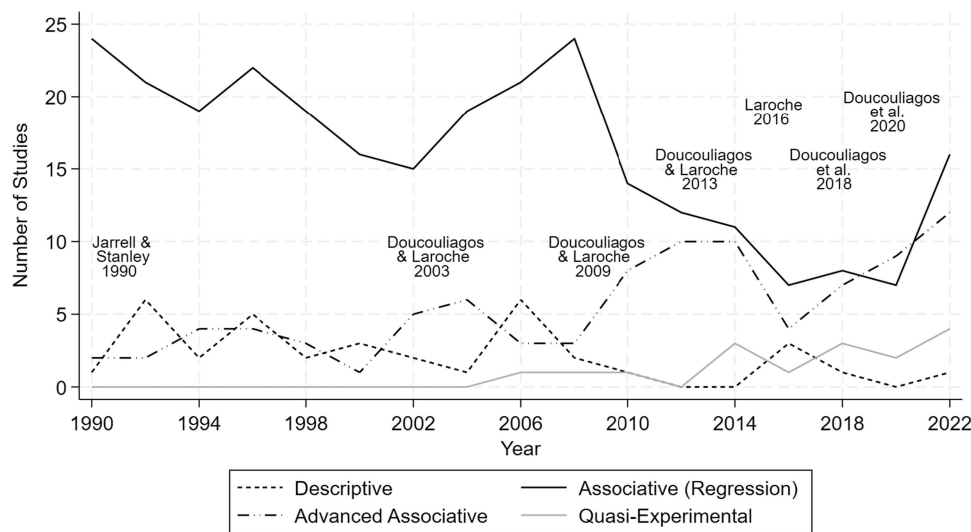


FIGURE 5 | Biannual trends by analysis technique.

unions affect satisfaction or whether dissatisfied workers are more likely to unionize (Bender and Sloane 1998; Bryson et al. 2004; Pfeffer and Davis-Blake 1990).

To mitigate endogeneity, post-2000 union effect studies increasingly used advanced statistical techniques, particularly fixed-effects models and instrumental variable (IV) approaches. Fixed-effects models control for unobserved heterogeneity, with studies employing individual or firm-level fixed effects to refine estimates of union effects. IV methods have also become more prevalent, offering a pathway to discerning unbiased causal relationships between union variables and outcomes.⁴ These techniques have contributed to the rise of advanced associative studies, as illustrated in Figure 5.

Since the mid-2000s, quasi-experimental designs have gained traction in union effect research, offering stronger causal identification by comparing firms or individuals subjected to different treatments. Three primary methods are: matching, difference-in-differences (DiD), and regression discontinuity design (RDD). Matching methods, such as propensity score matching, improve comparability between unionized and non-unionized groups by aligning on observable covariates (Addison et al. 2014; Han 2020a). DiD methods evaluate treatment impact by comparing changes in outcomes between treated and control groups under parallel trends assumptions, as in Gutiérrez Ruffrancos (2019) study of union membership and compensation. RDD exploits natural cutoffs, often the 50% +1 cutoff in union certification elections, to estimate the causal effects of unionization, as in Sojourner et al.'s (2015) work on nursing homes' labour conditions. The growing use of advanced associative and quasi-experimental methods suggests a broader shift in IR toward causal research designs, moving beyond earlier correlational approaches to generate more rigorous evidence on union effects.

4.2.3 | Data Collection Methods and Comparative Design of Qualitative Studies

Regarding qualitative and mixed-method studies (114 papers), most used either interviews (72%, 83 papers) or archival/document analysis (80%, 80 papers) to collect data, or both.

Observation was employed in 23% of studies (26 papers). Each qualitative data collection method has its own strengths and limitations, and researchers can partially address these limitations by triangulating with multiple sources (Yin 2003). Union effect studies in IR have followed this practice, with many drawing on more than one qualitative source. More than half of the studies (51%, 58 papers) used two or more data collection methods, with 17 studies (15%) employing all three. For example, Oxenbridge and Brown (2004) examined employer-union partnerships in the United Kingdom by conducting interviews with managers and union officials, attending and observing management and union meetings over a 2-year period, and analyzing archival records. Kallas (2023) supplemented interview data from union leaders and members with union documents and secondary sources to investigate how fixed-duration strikes contribute to labour revitalization.

Forty studies (35%) adopted a comparative design, most of which compared cross-national qualitative differences in industrial relations systems. Comparative analysis across countries has been a consistent feature of union effect studies in IR, reflecting the field's emphasis on how institutional structures shape employment relations. For instance, Seeleib-Kaiser and Fleckenstein (2009) compared companies in the United Kingdom and Germany to examine how unions influence the adoption of family policies, while Payne et al. (2023) compared unions in the grocery retail sector in the United Kingdom and Norway to contrast the neoliberal economy with the Nordic welfare state.

The use of multiple data sources and comparative designs has been a consistent pattern in qualitative IR research. In contrast to quantitative analysis techniques, there has been little time-based change in the choice of data collection methods, the number of methods used, or the adoption of comparative designs.

IR's enduring reliance on qualitative approaches can be traced to the nature of its research questions, which often require a holistic understanding of socially embedded and historically contingent processes. Many topics central to IR – such as collective bargaining dynamics, worker mobilization, labour-management conflict, and organizational change – demand

attention to complex relationships that are difficult to reduce to standardized, quantifiable variables. In these contexts, qualitative methods provide researchers with tools to capture the richness of workplace experience, power relations, and institutional variation. These approaches are particularly well suited to revealing what Godard (2011) described as the ‘more subtle and hidden’ elements of IR phenomena. A renewed interest in case-based approaches (Whitfield and Yunus 2018) further underscores the field’s recognition of the value of detailed, situated enquiry.

4.3 | Review of Dependent Variables and Cross-National Methodological Variation in IR

This section gives an overview of the dependent variables examined in union effect studies in our dataset. Figure 6 displays the time trends for each category of these variables.

4.3.1 | Wages and Benefits

Wages and benefits remain the most frequently studied outcomes in IR research on union effects. Over the past 30 years, studies have consistently found positive union wage premiums (e.g., Budd 1998; Campolieti 2018; Card 2001; Eren 2007) and show that unions help reduce wage inequality by offering larger gains to lower-wage earners (e.g., Eren 2009; Hara and Kawaguchi 2008). Beyond wages, research has also demonstrated unions’ positive influence on employer-provided benefits, such as health insurance and pensions (Buchmueller et al. 2002; Fairris 2006; Olson 2019; Park et al. 2019).

4.3.2 | Collective Bargaining and Labour Relations

IR scholars have long focused on unions’ roles in shaping collective bargaining and broader labour relations. Studies examine topics ranging from employer compliance with labour laws (Pohler and Riddell 2019) to union-management partnerships (O’Brady 2020), and collective bargaining structures (Hendricks et al. 1993). With union revitalization and the rise of social movement unionism, recent studies have increasingly

applied Kelly’s mobilization theory (1998), based on social movement theory (Gahan and Pekarek 2013; Tilly 1978), to analyze how unions drive member engagement (Kirtton 2005; Lévesque and Murray 2013; Tapia 2013), activism (Jódar et al. 2011; Kallas 2023; Simms 2015), and collective action (Han 2023; Tarlau 2023).

4.3.3 | Performance and Corporate Governance

Research on unions’ impact on firm performance and corporate governance has declined since the 1990s. Earlier work often framed unions as profit-reducing due to wage increases, though Freeman and Medoff (1984) argued unions could boost profitability by improving worker retention and collective voice. Numerous studies tested this idea (e.g., Becker and Olson 1992; Boal 1990; Brunello 1992; Mitchell and Stone 1992; Rose and Chaison 1996), with mixed findings highlighted in meta-analyses by Doucouliagos and Laroche (2003, 2009). Research interests included union effects on investments (e.g., Denny and Nickell 1991; Hirsch 1992; Odgers and Betts 1997) and R&D intensity (e.g., Addison and Wagner 1994; Betcherman 1991; Menezes-Filho et al. 1998). By the 2010s, studies began focusing on corporate governance, examining unions’ influence on board nominations (Gregorič and Poulsen 2020), executive compensation (Boodoo 2018; Park 2021), CEO turnover (Ursel and Zhong 2022), and corporate social responsibility decisions (Boodoo 2020).

4.3.4 | HR Policy and Worker Outcomes

Since the mid-1990s, research has increasingly explored unions’ impact on HR policies and worker outcomes. Studies investigate union effects on various employment and HR practices, including performance appraisals (Brown and Heywood 2005; Jirjahn and Poutsma 2013), high-performance work systems (Liu et al. 2009; Ramirez et al. 2007), profit-sharing programs (Kruse 1996; Ligthart et al. 2022), and recruitment selection methods (Koch and Hundley 1997). A recurring theme has been unions’ impact on employer-provided training, with consistent evidence that unions promote greater access to employer-sponsored training (Berton et al. 2023; Green et al. 1999;

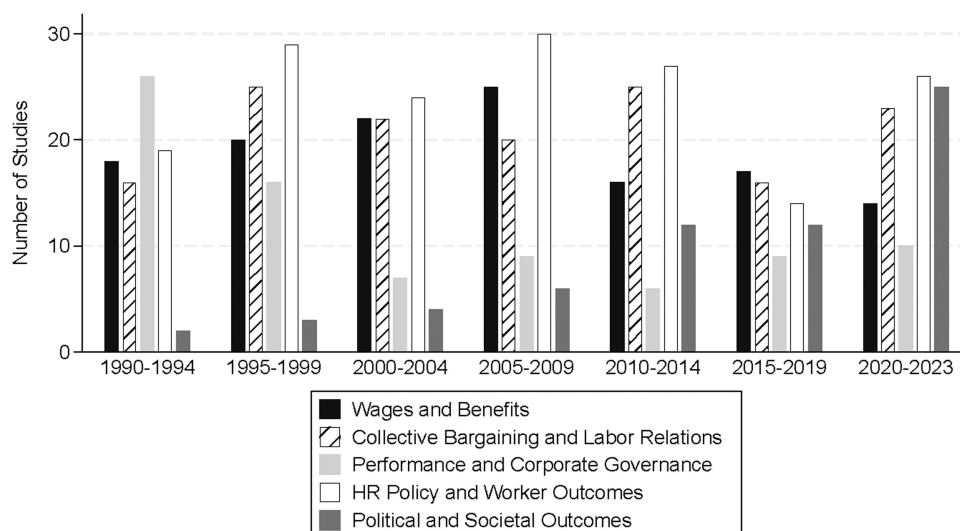


FIGURE 6 | Time trends by dependent variable.

Kennedy et al. 1994; Waddoups 2014). Scholars have also studied union effects on worker outcomes like turnover and job satisfaction, frequently referencing Hirschman's exit-voice-loyalty model (Hirschman 1970). Findings are mixed; for example, a meta-analysis by Laroche (2016) reported a negative association between unionization and job satisfaction, though the results varied depending on the model used and contextual variation (Bessa et al. 2021; Blanchflower and Bryson 2022).

4.3.5 | Political and Societal Outcomes

Recent research increasingly examines unions' political and societal impacts. Studies have investigated various channels through which unions influence political engagement, including voter mobilization and electoral politics. For example, studies by Zullo (2008) and Lamare (2010) analyzed how unions boost voter turnout. Further research has explored unions' role in shaping political preferences (Hadziabdic and Baccaro 2020; Rosetti 2019) and attitudes toward specific policies (Engler and Voigt 2023; Ringqvist 2022; Ryan and Turner 2021). Scholars have also examined unions' role in legislative decision-making (Lamare 2016; Sojourner 2013). Beyond politics, unions' broader societal impacts are currently attracting interest, particularly in areas like poverty reduction (Pineda-Hernández et al. 2022; VanHeuvelen and Brady 2022).

4.4 | Method Usage by Dependent Variable Categories

Tables 3–5 summarize methodological patterns across dependent variable categories and journal groups, with separate presentations for the three legacy and more global field-spanning IR journals (*ILRR*, *IR*, and *BJIR*) and three arguably newer and more regional subfield IR journals (*IRJ*, *JIR*, and *RI*). Table 3 highlights a

difference in method usage between the three legacy global journals and the three regional journals. Specifically, legacy journals have a higher proportion of quantitative studies, and regional journals include a greater proportion of qualitative studies. While legacy journals contain more mixed-method studies in absolute terms, the share of such studies is comparable across both journal groups. In terms of quantitative research, Table 4 shows that notable methodological differences lie in the use of descriptive and quasi-experimental techniques. Legacy journals publish fewer descriptive analyses but slightly more quasi-experimental designs, while advanced associative methods are comparably distributed across both groups. Table 5 indicates that the usage of multiple methods to collect qualitative data is similar in both journal groups; however, legacy journals are somewhat more likely to employ comparative design. This pattern suggests that legacy journals are more inclined to adopt a comparative perspective in studying union effects, whereas regional journals more often focus on single cases to pursue a deeper understanding of a specific context. Overall, these patterns highlight modest but meaningful methodological distinctions between the two journal groups and reflect differences in research conventions within the field.

Moreover, a comparison of research designs and analysis techniques across studies with different dependent variables reveals some notable patterns. As Tables 3 and 4 indicate, while the adoption of quantitative techniques has been relatively uniform across research topics, studies on political and societal outcomes more frequently employ mixed-method approaches, especially studies published in the three legacy journals. This trend suggests an interdisciplinary influence in these areas, as mixed methods capture complex political and societal dynamics more effectively. Table 3 also shows that qualitative methods are more commonly used in studies focusing on collective bargaining and labour relations, the central themes of IR research. Theoretical and empirical attention to collective bargaining dynamics has led IR

TABLE 3 | Number of studies by method used and dependent variable categories.

	Quantitative	Qualitative	Mixed method	Total
All six IR journals				
Wages and benefits	121 (92%)	9 (7%)	2 (2%)	132 (100%)
Bargaining and labour relations	83 (58%)	49 (35%)	10 (7%)	142 (100%)
Performance and corporate governance	74 (90%)	7 (9%)	1 (1%)	82 (100%)
HR policy and worker outcomes	140 (84%)	18 (11%)	9 (5%)	167 (100%)
Political and societal outcome	32 (50%)	28 (44%)	4 (6%)	64 (100%)
<i>ILRR</i> / <i>IR</i> / <i>BJIR</i>				
Wages and benefits	101 (97%)	1 (1%)	2 (2%)	104 (100%)
Bargaining and labour relations	45 (69%)	15 (23%)	5 (8%)	65 (100%)
Performance and corporate governance	63 (97%)	1 (2%)	1 (2%)	65 (100%)
HR policy and worker outcomes	106 (93%)	2 (2%)	6 (5%)	114 (100%)
Political and societal outcomes	20 (71%)	4 (14%)	4 (14%)	28 (100%)
<i>IRJ</i> / <i>JIR</i> / <i>RI</i>				
Wages and benefits	20 (71%)	8 (29%)	0 (0%)	28 (100%)
Bargaining and labour relations	38 (49%)	34 (44%)	5 (6%)	77 (100%)
Performance and corporate governance	11 (65%)	6 (35%)	0 (0%)	17 (100%)
HR policy and worker outcomes	34 (64%)	16 (30%)	3 (6%)	53 (100%)
Political and societal outcomes	12 (33%)	24 (67%)	0 (0%)	36 (100%)

TABLE 4 | Number of studies by analysis technique used and dependent variable categories.^a

	Descriptive	Associative	Advanced associative	Quasi-experimental	Total
All six IR journals					
Wages and benefits	8 (7%)	78 (63%)	30 (24%)	7 (6%)	123 (100%)
Bargaining and labour relations	22 (24%)	58 (62%)	12 (13%)	1 (1%)	93 (100%)
Performance and corporate governance	2 (3%)	51 (68%)	16 (21%)	6 (8%)	75 (100%)
HR policy and worker outcomes	9 (6%)	103 (69%)	32 (22%)	5 (3%)	149 (100%)
Political and societal outcomes	5 (14%)	21 (58%)	10 (28%)	0 (0%)	36 (100%)
<i>ILRR / IR / BJIR</i>					
Wages and benefits	6 (6%)	67 (65%)	23 (22%)	7 (7%)	103 (100%)
Bargaining and labour relations	8 (16%)	34 (68%)	7 (14%)	1 (2%)	50 (100%)
Performance and corporate governance	2 (3%)	44 (69%)	13 (20%)	5 (8%)	64 (100%)
HR policy and worker outcomes	4 (4%)	78 (70%)	25 (22%)	5 (4%)	112 (100%)
Political and societal outcomes	2 (8%)	16 (67%)	6 (25%)	0 (0%)	24 (100%)
<i>IRJ / JIR / RI</i>					
Wages and benefits	2 (10%)	11 (55%)	7 (35%)	0 (0%)	20 (100%)
Bargaining and labour relations	14 (33%)	24 (56%)	5 (12%)	0 (0%)	43 (100%)
Performance and corporate governance	0 (0%)	7 (64%)	3 (27%)	1 (9%)	11 (100%)
HR policy and worker outcomes	5 (14%)	25 (68%)	7 (19%)	0 (0%)	37 (100%)
Political and societal outcomes	3 (25%)	5 (42%)	4 (33%)	0 (0%)	12 (100%)

^aOnly including quantitative and mixed-method IR studies.

TABLE 5 | Number of studies by data collection method, use of comparative design, and dependent variable categories.^a

	Data collection methods		Comparative design		
	Multiple	Single	Yes	No	Total
All six IR journals					
Wages and benefits	6 (55%)	5 (45%)	2 (18%)	9 (82%)	11 (100%)
Bargaining and labour relations	36 (61%)	23 (39%)	27 (46%)	32 (54%)	59 (100%)
Performance and corporate governance	4 (50%)	4 (50%)	1 (13%)	7 (87%)	8 (100%)
HR policy and worker outcomes	11 (41%)	16 (59%)	9 (33%)	18 (67%)	27 (100%)
Political and societal outcomes	13 (41%)	19 (59%)	6 (19%)	26 (81%)	32 (100%)
ILRR /IR /BJIR					
Wages and benefits	1 (33%)	2 (67%)	1 (33%)	2 (67%)	3 (100%)
Bargaining and labour relations	13 (65%)	7 (35%)	14 (70%)	6 (30%)	20 (100%)
Performance and corporate governance	1 (50%)	1 (50%)	0 (0%)	2 (100%)	2 (100%)
HR policy and worker outcomes	0 (0%)	8 (100%)	4 (50%)	4 (50%)	8 (100%)
Political and societal outcomes	5 (63%)	3 (37%)	4 (50%)	4 (50%)	8 (100%)
IRJ /JIR /RI					
Wages and benefits	5 (63%)	3 (37%)	1 (13%)	7 (87%)	8 (100%)
Bargaining and labour relations	23 (59%)	16 (41%)	13 (33%)	26 (67%)	39 (100%)
Performance and corporate governance	3 (50%)	3 (50%)	1 (17%)	5 (83%)	6 (100%)
HR policy and worker	11 (58%)	8 (42%)	5 (26%)	14 (74%)	19 (100%)
Political and societal outcomes	8 (33%)	16 (67%)	2 (8.3%)	22 (91.7%)	24 (100%)

^aOnly including qualitative and mixed-method IR studies.

TABLE 6 | Number of studies by method used and country.

	Quantitative	Qualitative	Mixed method	Total
Country (research context)				
United States	141 (89%)	10 (6%)	7 (5%)	158 (100%)
United Kingdom	66 (80%)	16 (19%)	1 (1%)	83 (100%)
Australia	26 (53%)	20 (41%)	3 (6%)	49 (100%)
Canada	62 (75%)	18 (22%)	3 (3%)	83 (100%)
Country (journals)				
USA (<i>ILRR</i> , <i>IR</i>)	230 (93%)	10 (4%)	8 (3%)	248 (100%)
UK (<i>BJIR</i> , <i>IRJ</i>)	105 (73%)	30 (21%)	9 (6%)	144 (100%)
Australia (<i>JIR</i>)	28 (48%)	30 (52%)	0 (0%)	58 (100%)
Canada (<i>RI</i>)	34 (56%)	23 (38%)	4 (6%)	61 (100%)

scholars to refine an inductive approach and qualitative methods to better capture the complex and context-dependent union dynamics. These studies have not only sustained qualitative traditions in the field but have also contributed to the methodological diversification of the field. Additionally, Table 5 indicates that the use of comparative designs in union effect studies is largely driven by research on collective bargaining and labour relations, especially in three legacy journals. The field's continuous focus on context-dependent bargaining processes is reflected in the use of comparative perspectives, which highlight and contrast the qualitative characteristics of institutional structures across national settings. The use of multiple data collection methods is similar across different dependent variables.

4.5 | Method Usage by Country

Tables 6–8 summarize methodological patterns across different countries. We first compared studies based on the United States, the United Kingdom, Australia, and Canada as a research context, and then compared studies based on countries in which journals are published (for *ILRR* and *IR*, the United States; for *BJIR* and *IRJ*, the United Kingdom; for *JIR*, Australia; for *RI*, Canada). By looking at these two, we aim to study whether the method used is different based on the unique institutional characteristics of each country and the IR scholarship developed in each country.

Table 6 shows that the proportion of quantitative studies is highest among studies conducted based on US contexts and

TABLE 7 | Number of studies by analysis technique used and country.^a

	Descriptive	Associative	Advanced associative	Quasi-experimental	Total
Country (research context)					
United States	6 (4%)	97 (66%)	36 (24%)	9 (6%)	148 (100%)
United Kingdom	8 (12%)	46 (69%)	12 (18%)	1(1%)	67 (100%)
Australia	8 (28%)	16 (55%)	5 (17%)	0 (0%)	29 (100%)
Canada	5 (8%)	41 (63%)	17 (26%)	2 (3%)	65 (100%)
Country (journals)					
USA (<i>ILRR</i> , <i>IR</i>)	11 (5%)	163 (68%)	52 (22%)	12 (5%)	238 (100%)
UK (<i>BJIR</i> , <i>IRJ</i>)	14 (12%)	77 (68%)	19 (17%)	4 (3%)	114 (100%)
Australia (<i>JIR</i>)	8 (29%)	13 (46%)	7 (25%)	0 (0%)	28 (100%)
Canada (<i>RI</i>)	3 (8%)	21 (55%)	14 (37%)	0 (0%)	38 (100%)

^aOnly including quantitative and mixed-method IR studies.**TABLE 8** | Number of studies by data collection method, use of comparative design, and country.^a

	Data collection methods		Comparative design		Total
	Multiple	Single	Yes	No	
Country (research context)					
United States	8 (47%)	9 (53%)	9 (53%)	8 (47%)	17 (100%)
United Kingdom	6 (35%)	11 (65%)	8 (47%)	9 (53%)	17 (100%)
Australia	10 (43%)	13 (57%)	4 (17%)	19 (83%)	23 (100%)
Canada	13 (62%)	8 (38%)	6 (29%)	15 (71%)	21 (100%)
Country (journals)					
USA (<i>ILRR</i> , <i>IR</i>)	9 (50%)	9 (50%)	9 (50%)	9 (50%)	18 (100%)
UK (<i>BJIR</i> , <i>IRJ</i>)	22 (56%)	17 (44%)	22 (56%)	17 (44%)	39 (100%)
Australia (<i>JIR</i>)	9 (30%)	21 (70%)	2 (7%)	28 (93%)	30 (100%)
Canada (<i>RI</i>)	18 (67%)	9 (33%)	7 (26%)	20 (74%)	27 (100%)

^aOnly including qualitative and mixed-method IR studies.

published in US-based journals. In contrast, studies conducted in the United Kingdom, Australia, and Canada and published in journals from these countries have more qualitative studies. More specifically, Table 7 shows that US-based studies are more inclined to adopt advanced associate designs and quasi-experimental studies than studies based on other research contexts. According to Table 8, among qualitative studies, there has been universal usage of multiple data collection methods to triangulate and overcome the limitation of single-source problems. However, US- and UK-based qualitative studies are more likely to adopt a comparative design than Australian and Canadian IR studies.

These cross-national differences in method usage reflect distinct scholarly traditions. In the United States, IR research has historically been strongly linked to economics and has emphasized advanced quantitative methods, following broader trends in the social sciences toward standardized statistical approaches. In contrast, IR scholars in the United Kingdom, Australia, and Canada have maintained a strong qualitative tradition, using in-depth analyses of institutionally grounded labour processes to preserve qualitative enquiry as a legitimate and valued form of research methods. Overall, these patterns suggest that variation in method usage across national contexts is plausibly rooted in different intellectual traditions.

While these methodological patterns highlight enduring differences in intellectual traditions, they also suggest both convergence and divergence in institutional contexts. On one hand, the persistence of advanced quantitative approaches in US-based research and the continued qualitative orientation in the United Kingdom, Australia, and Canada point to a divergence rooted in distinct national academic cultures and institutional legacies. On the other hand, the growing adoption of comparative designs in US and UK qualitative studies, and the universal reliance on methodological triangulation, indicate a degree of convergence driven by shared scholarly challenges and the diffusion of research norms across borders. This coexistence of divergence in dominant methodological orientations and convergence in specific practices mirrors broader IR trends, where institutional differences remain visible yet are increasingly shaped by common pressures in the global academic and labour relations environment.

4.6 | Bibliometric Analysis of Keywords in IR

Figure 7 maps the keyword network from IR union effect studies, visualizing how research priorities have evolved. Core topics such as wages, job satisfaction, and attitudes are centrally

positioned in grey, reflecting their long-standing significance. Keywords related to performance and governance, such as profit, productivity, and investment, cluster to the right in darker tones, indicating their prominence in earlier decades. In contrast, newer themes such as politics, poverty, and social movements are shown on the left in lighter shades, underscoring their more recent emergence in IR scholarship.

This bibliometric mapping complements our dependent variable analysis by situating it within a broader view of the field's intellectual evolution. It visually confirms a shift from traditional economic and workplace concerns toward more socially embedded and politically salient topics, highlighting the expanding scope of union effect research.

4.7 | Cross-Disciplinary Comparisons

To evaluate IR's distinctiveness as a field – particularly its core focus on unions – we compare union-effect studies in IR with those from adjacent disciplines. Figure 8 illustrates the time trends in union effect studies in these adjacent fields. The figure highlights how their engagement with union effects research has evolved over time, providing a comparative view of methodological developments and shifts in research priorities. This cross-disciplinary analysis reveals variations in focus and approach, allowing us to assess how each field has influenced or diverged from IR's methodological trajectory.

Among all adjacent disciplines, sociology contributes the largest number of union effect studies in our dataset (76 papers across three journals). These studies grew rapidly in the early 2000s

and peaked in the early 2010s, potentially reflecting heightened interest in unions amid labour market transformations. We further elaborate on this interpretation in subsequent sections by analyzing the research topics and dependent variables emphasized in union effect studies within sociology. Economics shows an earlier peak in the 1990s, followed by a decline and modest resurgence in recent years. Political science and management maintain a steady but smaller presence, while psychology has largely moved away from union effects research, a trend also noted by Schmitt (2017).

Table 9 summarizes the characteristics of union effect studies across these disciplines. For IR, Table 9 provides both an aggregate overview and a breakdown between legacy journals (*ILRR*, *IR*, *BJIR*) and newer regional outlets (*IRJ*, *JIR*, *RI*), consistent with Tables 3–8.⁵

Disciplinary differences are evident in units of analysis. Sociology studies commonly analyze higher-level units, with 32% of research focused on the country level. Economics resembles IR research in emphasizing individual (36%) and organizational levels (24%), with an added focus on industry-level effects (20%). Political science investigates union effects at the individual (35%) and country (38%) levels. Management research concentrates on organizational-level union effects (44%), while psychology focuses primarily on the individual level (50%). The United States serves as the main research context across all fields, but sociology and political science, given a country-level focus, include more multinational studies (30% and 38%, respectively).

Adjacent fields also vary in methods. Economics and political science studies stand out for their adoption of advanced methodologies to estimate union effects, with economics pioneering

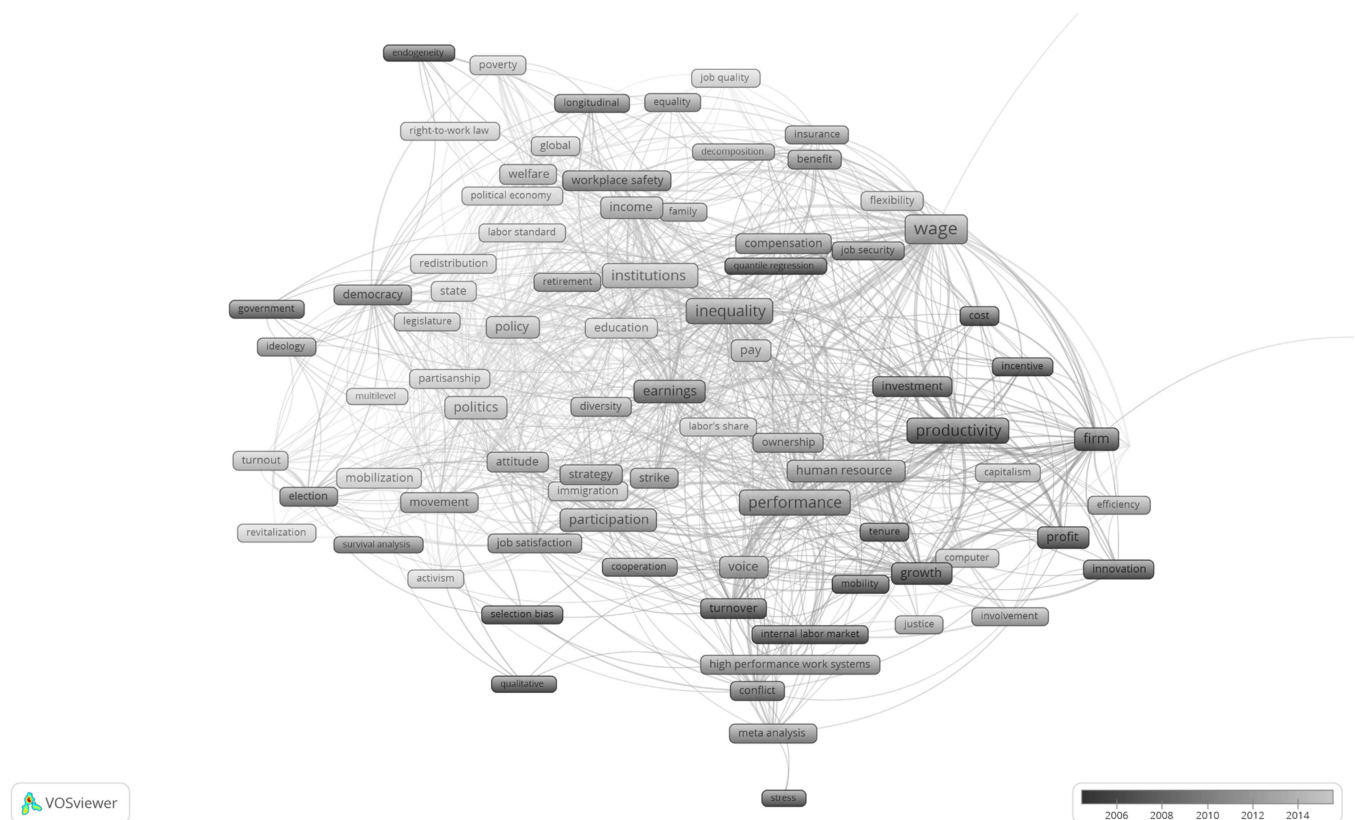


FIGURE 7 | Keyword cooccurrence network based on the IR publication sample.

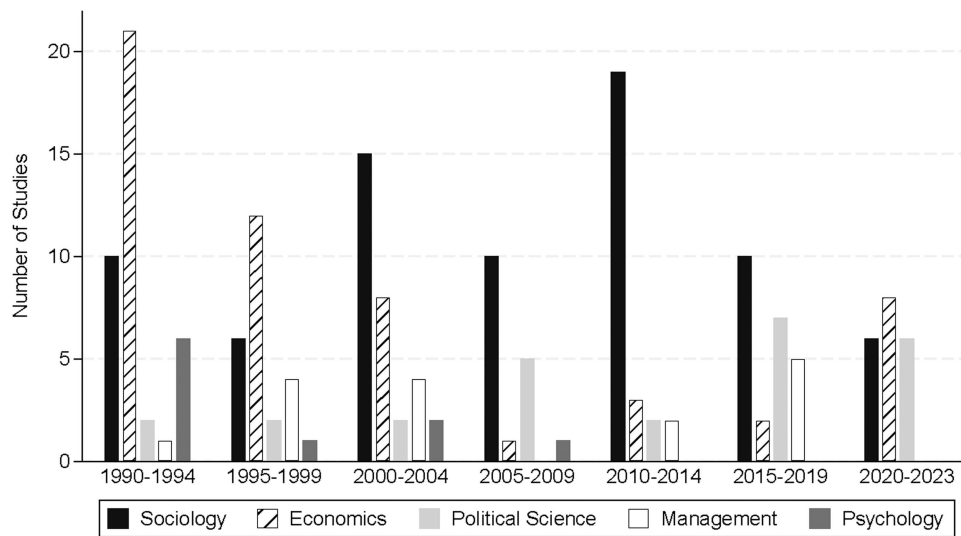


FIGURE 8 | Time trends by academic field.

quasi-experimental methods like DiD and RDD (e.g., DiNardo and Lee 2004; Hoxby 1996). Political science studies, though fewer in number, similarly employ sophisticated techniques, possibly due to the field's relatively recent focus on union effects and the field's concomitant shift towards valuing methods derived from econometrics. IR and sociology show a gradual methodological evolution; IR, in particular, reports fewer advanced associative designs than sociology or management, though the use of quasi-experimental designs is comparable, especially in the three legacy journals. Unlike psychology, where union effect studies are mostly limited to associative methods, IR maintains a distinctive emphasis on qualitative (18%) and mixed-method (4%) research. Qualitative approaches to study union effects are rarer in those adjacent fields, with only 4% of sociology and 6% of management studies to analyze or supplement union effect findings.

We compared union-effect studies across adjacent disciplines to evaluate IR's methodological standing relative to other social science fields. Our findings suggest that IR shares certain methodological characteristics with economics, where robust approaches to estimating union effects are well established, and with political science, which has recently adopted similarly sophisticated quantitative techniques. However, IR's methodological trajectory most closely parallels that of sociology. Both fields have produced extensive union-related research and have gradually incorporated more advanced quantitative and mixed-method designs over a similar time frame. In IR, the growing use of these approaches mirrors developments in sociology, contributing to enhanced methodological rigour and reinforcing the field's relevance and legitimacy alongside other established disciplines.

Dependent variable emphases also differ. Sociological studies often explore unions' influence on wages and benefits (24%) and political and societal outcomes (38%), viewing these impacts through broader social and political lenses than IR or economics. Much of these studies emphasizes unions' role in addressing wage inequality (e.g., VanHeuvelen 2018; Western and Rosenfeld 2011) and disparities across gender and race (e.g., McCall 2001; Rosenfeld and Kleykamp 2012). In the realm of political and societal impacts, sociology explores

topics such as income inequality (e.g., Gustafsson and Johansson 1999; Jacobs and Myers 2014; Volscho and Kelly 2012), poverty (e.g., Brady 2003; Brady et al. 2009, 2013; Moller et al. 2003), and diversity or segregation (e.g., Baron et al. 1991; Brown and Boswell 1995; Ferguson 2015; Logan et al. 1994; Moller and Li 2009).

However, there has been a notable fluctuation over time. As noted, union effect studies in sociology increased in the early 2000s and peaked in the early 2010s. We argue this trend coincided with two developments: heightened concern over unions' diminishing capacity to shape economic and political outcomes (e.g., Jacobs and Myers 2014; Rosenfeld 2006) and the rise of union revitalization efforts adapting to restrictive legal environments (e.g., Dixon and Martin 2012; Van Dyke et al. 2007; Voss and Sherman 2000). Together, these shifts likely contributed to the renewed scholarly attention to unions in sociology during this period.⁶ Other disciplines show distinct patterns: economics concentrates mainly on union wage premiums and wage inequality (67%), political science emphasizes unions' role in political and societal outcomes (58%), management studies present a balanced approach across various union effect categories, and psychology focuses primarily on individual-level worker outcomes (60%), emphasizing the employee experience.

4.8 | Bibliometric Analysis Across Fields

We conducted a bibliographic coupling analysis to map shared references among union effect studies from IR and adjacent disciplines. Unlike previous keyword networks, this analysis allows us to examine cross-disciplinary connections and intellectual influences.

In Figure 9, node colour denotes its respective field. IR dominates the network of union effect studies and forms a primary cluster closely linked to economics publications. Sociology papers, by contrast, cluster more closely with political science papers and a subset of IR studies concentrating on unions' political impacts. These two primary clusters (IR/economics and sociology/political science) remain densely interconnected, highlighting the cross-field exchange of ideas on union effects.

TABLE 9 | Study characteristics by academic fields.

Union effect Unit of analysis	Individual	Organization	Industry	Country	Total
All six IR	154 (30%)	196 (38%)	29 (6%)	36 (7%)	511 (100%)
ILRR /IR /BIIR	121 (36%)	151 (45%)	19 (6%)	18 (5%)	338 (100%)
IRJ /JIR /RI	33 (18%)	45 (26%)	10 (6%)	18 (10%)	173 (100%)
Sociology	15 (20%)	10 (13%)	10 (13%)	24 (32%)	76 (100%)
Economics	20 (36%)	13 (24%)	11 (20%)	4 (7%)	55 (100%)
Political Science	9 (35%)	3 (12%)	0 (0%)	10 (38%)	26 (100%)
Management	1 (6%)	7 (44%)	1 (6%)	4 (25%)	16 (100%)
Psychology	5 (50%)	3 (30%)	0 (0%)	0 (0%)	10 (100%)
Research context	USA	Non-USA	Multinational		Total
All six IR	190 (37%)	321 (63%)	69 (14%)		511 (100%)
ILRR /IR /BIIR	170 (50%)	168 (50%)	38 (11%)		338 (100%)
IRJ /JIR /RI	20 (12%)	153 (88%)	31 (18%)		173 (100%)
Sociology	50 (66%)	26 (34%)	23 (30%)		76 (100%)
Economics	42 (76%)	13 (24%)	4 (7%)		55 (100%)
Political Science	13 (50%)	13 (50%)	10 (38%)		26 (100%)
Management	10 (63%)	6 (38%)	5 (31%)		16 (100%)
Psychology	5 (50%)	5 (50%)	1 (10%)		10 (100%)
Research method	Quantitative	Qualitative	Mixed method		Total
All six IR	397 (78%)	93 (18%)	21 (4%)		511 (100%)
ILRR/IR/BIIR	303 (90%)	20 (6%)	15 (4%)		338 (100%)
IRJ/JIR/RI	94 (54%)	73 (42%)	6 (3%)		173 (100%)
Sociology	67 (88%)	3 (4%)	6 (8%)		76 (100%)
Economics	55 (100%)	0 (0%)	0 (0%)		55 (100%)
Political Science	26 (100%)	0 (0%)	0 (0%)		26 (100%)
Management	15 (94%)	1 (6%)	0 (0%)		16 (100%)
Psychology	10 (100%)	0 (0%)	0 (0%)		10 (100%)
Analysis technique ^a	Descriptive	Associative	Advanced associative	Quasi-experimental	Total
All six IR	28 (7%)	264 (67%)	89 (22%)	16 (4%)	397 (100%)
ILRR/IR/BIIR	14 (5%)	209 (69%)	65 (21%)	15 (5%)	303 (100%)
IRJ/JIR/RI	14 (15%)	55 (59%)	24 (25%)	1 (1%)	94 (100%)

(Continues)

TABLE 9 | (Continued)

Analysis technique ^a	Descriptive	Associative	Advanced associative	Quasi-experimental	Total	
Sociology	2 (3%)	45 (59%)	24 (32%)	3 (4%)	76 (100%)	
Economics	0 (0%)	30 (55%)	18 (33%)	10 (18%)	55 (100%)	
Political Science	0 (0%)	12 (46%)	11 (42%)	5 (19%)	26 (100%)	
Management	0 (0%)	10 (63%)	5 (31%)	0 (0%)	16 (100%)	
Psychology	1 (10%)	9 (90%)	0 (100%)	0 (0%)	10 (100%)	
Dependent variable	Wages and benefits	Bargaining and labour relations	Performance and corporate governance	HR policy and worker outcomes	Political and societal outcomes	Total
All six IR	132 (26%)	142 (28%)	82 (16%)	169 (33%)	64 (12%)	511 (100%)
<i>ILRR/IR/BJIR</i>	104 (31%)	65 (19%)	65 (19%)	114 (34%)	28 (8%)	338 (100%)
<i>IRJ/JIR/RI</i>	28 (16%)	77 (45%)	17 (10%)	53 (31%)	36 (20%)	173 (100%)
Sociology	18 (24%)	16 (21%)	4 (5%)	12 (16%)	29 (38%)	76 (100%)
Economics	37 (67%)	2 (4%)	11 (20%)	18 (30%)	0 (0%)	55 (100%)
Political Science	2 (8%)	2 (8%)	6 (23%)	2 (8%)	15 (58%)	26 (100%)
Management	1 (6%)	6 (38%)	4 (25%)	4 (25%)	2 (13%)	16 (100%)
Psychology	0 (0%)	3 (30%)	1 (10%)	6 (60%)	0 (0%)	10 (100%)

Note: The total characteristics for each study may exceed or fall short of the overall number/percentage, as studies often employ multiple research methods and examine various dependent variables, or because not all studies fit neatly into the categories presented in the table.

^aOnly including quantitative and mixed-method studies.

As shown in Figure 9, IR exhibits a closer intellectual tie to economics than to other disciplines. While early IR scholarship critiqued neoclassical economics for failing to account for the institutional and relational aspects of labour, modern mainstream economics has extended its methodological influence across the social sciences (Angrist et al. 2020). This pattern may reflect, as discussed in the literature review, the methodological influence that economics has extended into IR. To better understand whether methodological development in IR journals reflects internal disciplinary evolution or external influence, we conducted an additional analysis to examine whether these developments were primarily driven by IR scholars or by economists publishing in IR outlets. Specifically, we identified all articles in our IR journal sample classified as either ‘Advanced Associative’ or ‘Quasi-Experimental’, yielding a total of 108 papers. We identified 179 unique authors of these studies and categorized them by disciplinary affiliation at publication: Economists, IR Scholars, Interdisciplinary (affiliated with both fields), or Others. For each paper, we determined whether economists or IR scholars constituted the majority of authorship (50% or more).

Figure 10 presents the distribution of papers based on this majority-author classification. The results indicate that economists drove the initial rise in methodologically advanced IR papers, with their contributions preceding those of IR scholars. More recently, however, IR scholars have increasingly authored such studies, indicating a growing internal methodological capacity within the field.

In Figure 11, nodes are colour-coded to reflect the dependent variables in each study. Together with Figure 9, this visualization indicates wages and benefits are predominantly examined in economics, with additional contributions from IR and sociology. Topics on performance, corporate governance, HR policy, and worker outcomes are primarily centred in IR publications. Conversely, political and societal outcomes are largely investigated in IR, political science, and sociology studies. This thematic distribution is consistent with the cross-field citation patterns presented in Appendix Figure S1A.

To summarize, our bibliometric analysis of IR and adjacent fields suggests that the evolution of methodology and research priorities within IR is shaped not only by internal developments but also by cross-disciplinary exchanges. Economics, which shows the closest bibliometric ties to IR, predominantly examines unions’ instrumental impacts on wages and benefits. Sociology and political science form a distinct cluster within the union-effect research landscape, focusing more on unions’ political and societal effects while maintaining links to IR publications. These strong cross-disciplinary linkages underscore IR’s hybrid identity and its central role in broader debates about labour. However, our analysis of methodologically advanced quantitative IR studies indicates that, rather than displacing IR, external disciplinary influences have helped catalyze methodological growth within the field.

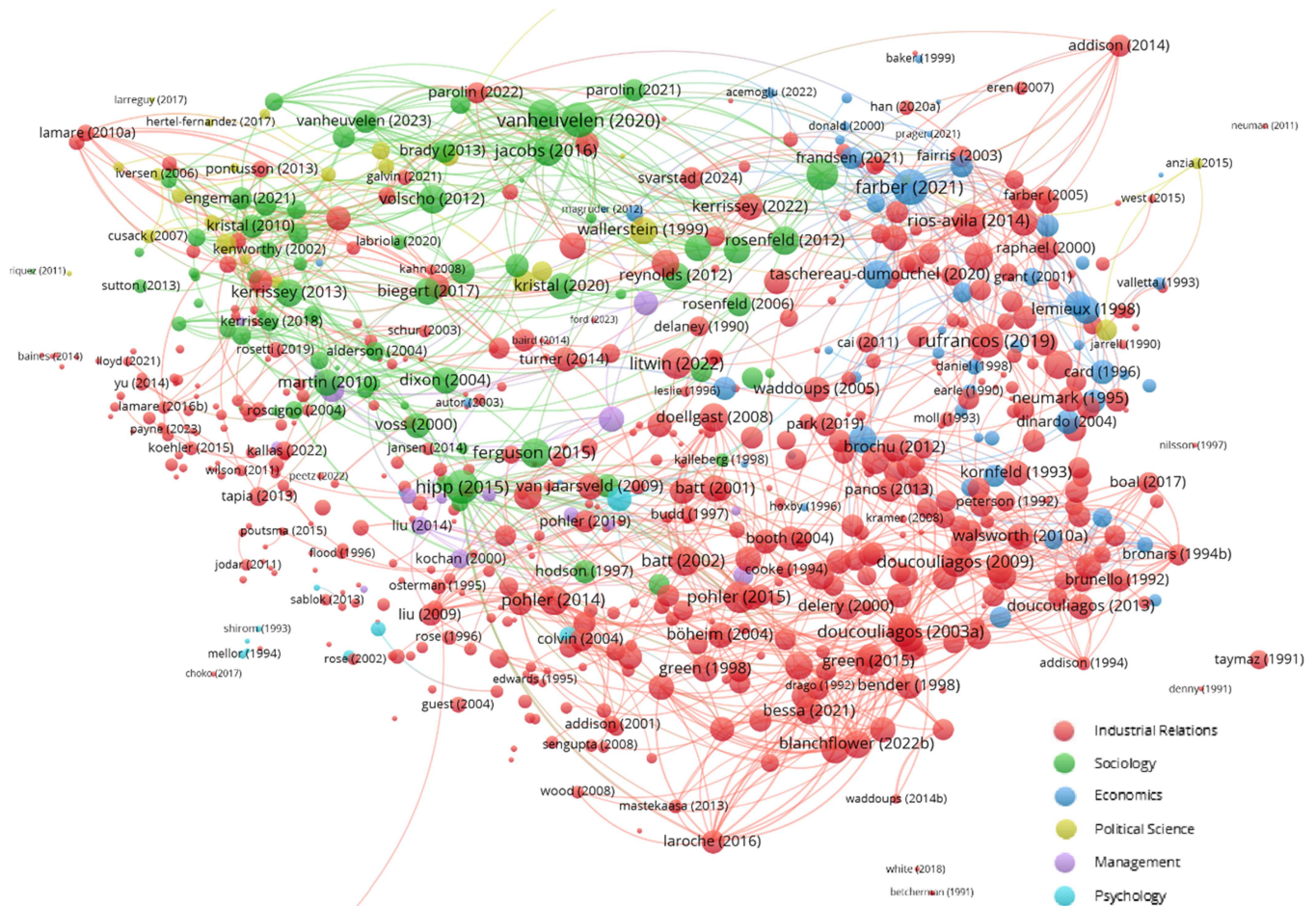


FIGURE 9 | Publication network based on bibliographic coupling (academic fields).

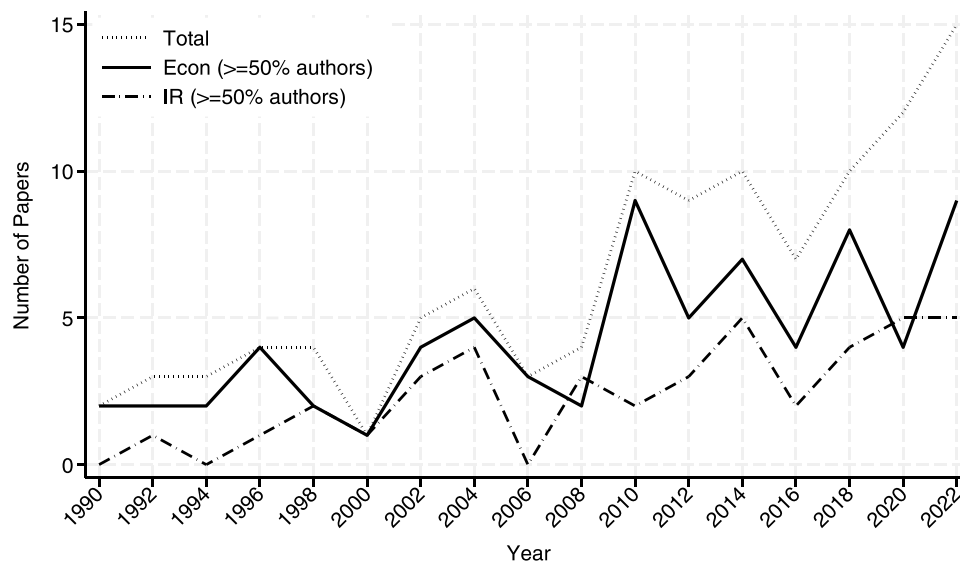


FIGURE 10 | Biannual trends of advanced associative/quasi-experimental IR papers.

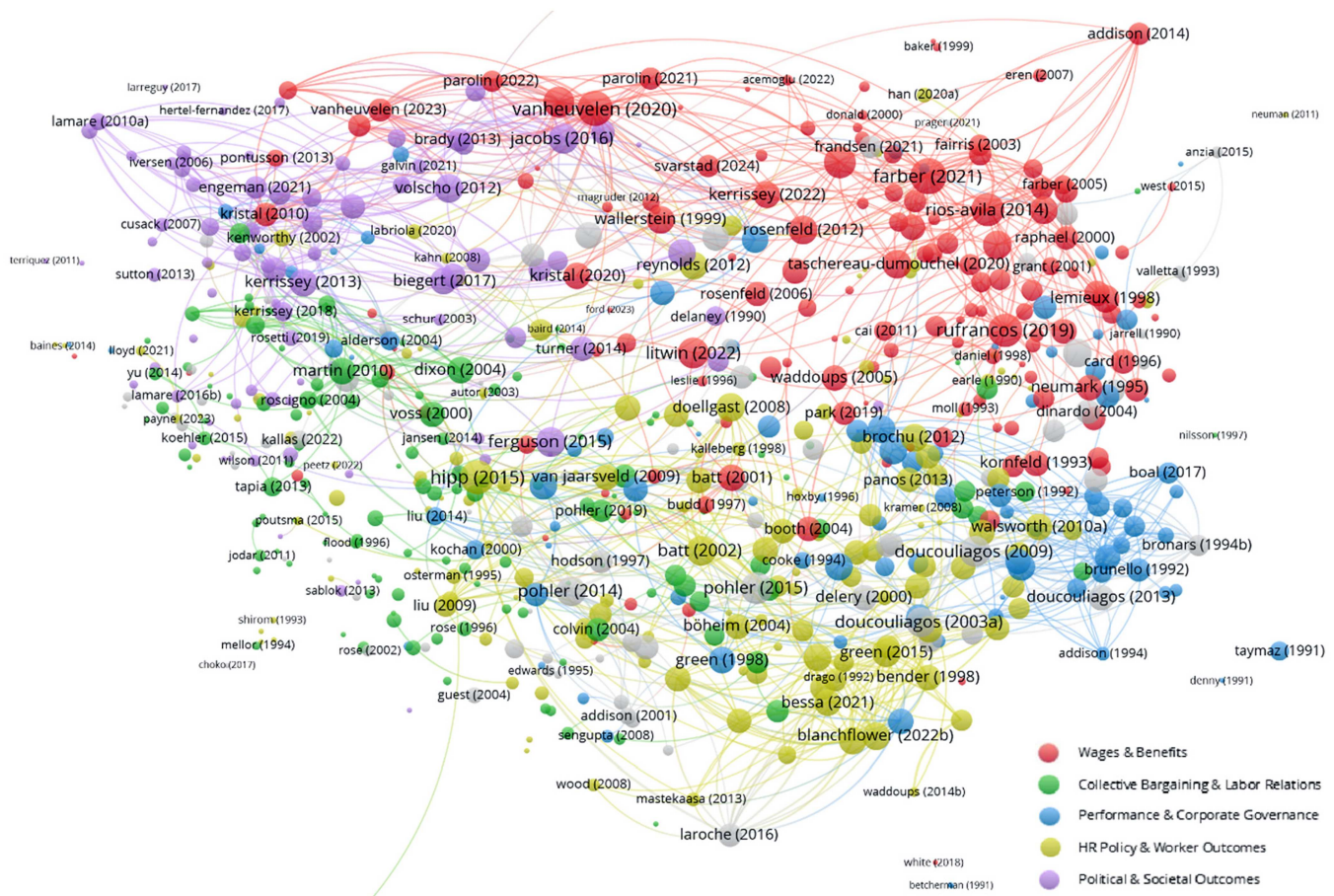


FIGURE 11 | Publication network based on bibliographic coupling (dependent variables).

5 | Discussion and Conclusion

Our methodological review of union effect studies illustrates a clear progression within the IR field from descriptive and associative designs toward more sophisticated quantitative methods. This shift reflects broader trends in the social sciences toward causal identification and has allowed IR scholars to

address enduring concerns about endogeneity and reverse causality. While early IR research occasionally used experimental designs, often through laboratory studies on bargaining, arbitration, and mediation (e.g., Olson et al. 1992), such approaches never became central to union-effect studies. This core question rarely lends itself to random assignment, as unions operate within complex institutional and regulatory contexts

that cannot be replicated in controlled settings. Instead, IR has advanced primarily through survey and archival data, adopting increasingly sophisticated quasi-experimental and associative methods, such as fixed effects, instrumental variables, and matching, to approximate causal inference. Although economists initially drove this methodological transformation, our analysis shows that IR scholars are now increasingly employing these techniques, signalling growing internal capacity.

Despite this quantitative evolution, qualitative research remains a defining strength of IR. Case studies, ethnography, and interviews continue to examine complex workplace dynamics – collective bargaining, worker mobilization, and labour-management conflict – that are difficult to capture through standardized metrics. This sustained qualitative tradition distinguishes IR from adjacent disciplines, such as economics and political science, which typically prioritize standardized quantitative methods. Even in the area of union effect research – a topic that has often been examined using quantitative designs – qualitative and mixed-method studies represent a meaningful portion of IR scholarship. This reflects the field's core commitment to understanding context and capturing the institutional and relational features that shape labour outcomes. The recent rise of mixed methods designs further supports IR's pluralistic orientation in the purposeful pursuit of methodological diversity, allowing scholars to combine contextual insights with generalizable findings. This approach is particularly valuable for studying unions' multifaceted effects across wages, governance, and societal outcomes, producing insights that are both analytically rigorous and grounded in the lived realities of labour and employment systems. Rather than suggesting that one approach is more rigorous than another, we see value in acknowledging that different methods illuminate different dimensions of IR phenomena (Whitfield and Strauss 2000), and that overreliance on any one approach carries risks. Promoting methodological diversity not only strengthens the discipline but also ensures that IR remains equipped to address the full complexity of contemporary work and employment relations.

The evolution of dependent variables mirrors methodological advancement and reflects shifts in research priorities. Traditional emphases on wages and benefits have persisted, but newer research agendas address unions' influence on governance structures, HR policies, and societal outcomes such as poverty and inequality. This thematic broadening parallels the field's response to union revitalization efforts, changing labour market dynamics, and the growing salience of political mobilization. Our keyword and bibliographic analyses confirm this trajectory, highlighting both continuity in core topics and diversification toward politically and socially embedded questions.

This finding illustrates that reviewing methodological developments in IR also provides a window into the field's theoretical evolution. Early IR theories, like their methods, drew heavily from multiple fields. However, between the 1940s and 1970s, particularly after micro behavioural science distanced itself from IR, the field narrowed its focus from encompassing all aspects of employment relations to primarily addressing unions and collective bargaining (Kaufman 1993; Mitchell 2001). Dunlop's *Industrial Relations Systems* (1958) framework became the first widely recognized meta-theory (Kaufman 1993; Tapia et al. 2015), establishing a core research focus on how relationships among key actors (i.e., labour, management, and

government) are structured and evolve over time. Although influential, the framework has been criticized for its limited ability to generate testable hypotheses (Tapia et al. 2015), the dismissal of behaviour perspectives (Kaufman 1993), and its reliance on unionized settings, a limitation made more pressing by declining union density (e.g., Katz 2013; Tapia et al. 2015). Later theories, such as the strategic choice model (Kochan et al. 1986) and the exit/collective voice unionism model (Freeman and Medoff 1984), as well as more recent applications of Kelly's mobilization theory (1998), and power resources theory (Arnholtz and Refslund 2024; Korpi 1985) enabled more empirical hypothesis testing and reflected shifts toward middle-range theorizing. These frameworks made hypothesis testing more feasible, allowing researchers to study union effects with greater methodological rigour and link theory more directly to outcomes.

Our analysis of methodological development and trends in dependent variables reflects a broader theoretical trajectory within the field. The early focus on union effects, particularly on individual wages, firm performance, and collective bargaining, was broadly aligned with the industrial relations systems framework. Over time, research attention gradually expanded to include more general organizational outcomes, such as governance structures, HR policies, and worker experiences. These developments are consistent with theoretical models like the strategic choice model and the exit/voice unionism framework. In more recent years, studies have increasingly explored unions' influence on political and societal outcomes, drawing on frameworks such as power resources theory and mobilization theory. Because theory and method are closely intertwined, our methodological review not only traces the evolution of research tools and designs but also provides a window into the field's theoretical direction, particularly regarding how the concept of union effects has developed over time.

Cross-nationally, we also find durable differences in method usage: US-based research relies more heavily on advanced quantitative and quasi-experimental designs, whereas work in the United Kingdom, Australia, and Canada more often adopts qualitative designs, with convergence in shared practices such as triangulation. These patterns imply that methodological choices are partly shaped by institutional and training legacies and caution against one-size-fits-all expectations of methodological rigour across contexts.

Comparisons with adjacent fields further highlight both IR's distinctiveness and its embeddedness within broader scholarly debates. Economics maintains strong bibliometric and methodological ties to IR, particularly in studies of wages and benefits, while sociology and political science contribute most to research on unions' political and societal roles. Management and psychology focus on organizational and individual outcomes, respectively, but rarely examine unions' institutional dimensions. IR's hybrid position that bridges economic, political, and sociological approaches enables it to engage multiple levels of analysis while retaining a central focus on labour-management relations.

Taken together, these findings point to a field that is neither being subsumed by adjacent disciplines nor isolated from them. Instead, IR has leveraged cross-disciplinary exchanges

to enhance methodological rigour while preserving its pluralist tradition. This dual identity positions IR to address emerging challenges, from declining union density to new forms of worker organization, and to inform policy debates on labour and inequality. Moving forward, IR scholars should continue integrating advanced quantitative tools with qualitative insights, expand research beyond U.S.-centric contexts, and investigate unions' evolving roles in governance and political life. This balance between methodological sophistication and contextual richness ensures IR's continued relevance and capacity to contribute meaningfully to understanding labour dynamics and union effects in a changing world of work.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data used in this study are available upon reasonable request.

Endnotes

¹ A full list of reviewed papers is available in the Supporting Information: Table S1A.

² For sociology, we selected *American Journal of Sociology*, *American Sociological Review*, and *Social Forces*, long regarded as the discipline's top general journals (Champion and Morris 1973; Kalleberg and Newell 2022). For economics, we included five leading general-interest journals – *The Quarterly Journal of Economics*, *The American Economic Review*, *Journal of Political Economy*, *Econometrica*, and *Review of Economic Studies* – alongside field-specific outlets, such as *Journal of Human Resources* and *Journal of Labor Economics*, and the *American Economic Journal* family, reflecting their influence and consistent ranking (Card and DellaVigna 2013; Heckman and Moktan 2020). For political science, we included *American Journal of Political Science*, *The American Political Science Review*, and *The Journal of Politics*, widely recognized as the field's premier generalist journals (Garand and Giles 2003; Kasza 2010). For management and psychology, we selected eight journals that are used in the TAMUGA journal ranking system for business schools – *Academy of Management Journal*, *Academy of Management Review*, *Organization Science*, *Administrative Science Quarterly*, *Strategic Management Journal*, *Organizational Behavior and Human Decision Processes*, *Personnel Psychology*, and *Journal of Applied Psychology* – and added *Journal of Organizational Behavior* and *Journal of Management* due to their prominence and relevance to IR. These psychology and management journals emphasize organizational behaviour and workplace dynamics, which are more closely aligned with the study of unions and labour relations.

³ The seven meta-analyses, labelled in Figure 5, are highlighted separately as milestones in synthesizing findings and demonstrating the field's increasing focus on cumulative knowledge-building.

⁴ For examples of fixed-effects, see Powdthavee (2011) and Green and Heywood (2015) on union-job satisfaction, and Pohler and Luchak (2015) on union density and business strategy. For an example of IV, see Han (2020b), who used private-sector union density within districts and state collective bargaining laws as instruments for teacher unionization rates.

⁵ For qualitative and mixed-method studies, we do not compare detailed analytic techniques across IR and non-IR because of sparse cells in the non-IR sample (only 10 qualitative studies). Table 9 reports pooled descriptive counts for these categories, and cross-disciplinary comparisons are limited to the quantitative domain.

⁶ It is important to note that this interpretation is shaped by the US context. The three sociology journals included in the analysis are all based in the United States. Consequently, the observed patterns primarily reflect labour developments and scholarly responses within the United States, potentially overlooking union dynamics and methodological trends in other national or global contexts. This limitation suggests the need for future research to expand the sampling frame to include a broader set of international journals in order to better capture how international contexts influence methodological and topical developments in union studies.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.

Appendix Figure S1A: Publication Networks Based on Citation Analysis. **Appendix Table S1A:** Union Effect Studies in Adjacent Fields — Journals and Number of Studies. **Appendix Table S1B:** The List of Meta-Analysis Studies in IR Conducted on Union Effect. **Table S1A:** Full List of Reviewed Articles.