LABOUR LAW AND INCLUSIVE DEVELOPMENT: THE ECONOMIC EFFECTS OF INDUSTRIAL RELATIONS LAWS IN MIDDLE-INCOME COUNTRIES

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Abstract

We use leximetric data coding techniques and panel data econometrics to test for the economic effects of laws governing worker representation and industrial action in the large middle-income countries of Brazil, China, India, Russia and South Africa. We find that more worker-protective laws on employee representation tend to be correlated with higher scores on the Human Development Index. By contrast, in the case of laws on industrial action, some negative effects on human development indicators are reported. Our findings imply that laws supporting employee voice and collective bargaining may have beneficial social effects in middle-income countries. We find no rise in unemployment due to more protective labour laws.

JEL Codes: J88, K31

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1. Introduction

There is an increasing interest among policy makers of the effects of labour law regulation on economic development, and a related growth in empirical research on this question. There remains, however, a lack of a clear consensus on the economic effects of labour laws. In part as a consequence of the influence of the World Bank's *Doing Business* reports (World Bank, various years), policies of labour law deregulation have come to be identified, in some contexts at least, with the goal of enhanced labour market flexibility. The identification of regulation with inflexibility has however been challenged by the experience of countries which have adjusted their labour law systems to changing economic contexts, without removing, or in some cases even strengthening, social safety nets and wage floors. Strong and effective labour standards are, in general, correlated with greater earnings equality and with social cohesion (Freeman, 2005). The evidence on the impact of labour laws on productivity and employment is more equivocal in the sense of indicating a wide range of possible outcomes which vary across different country settings. A particular set of issues arises in relation to industrial relations laws, that is, laws which protect freedom of association, collective bargaining and the right to strike. An emerging literature suggests that laws promoting worker voice at enterprise level may have a positive impact on worker effort and morale and hence on efficiency, as well as being positively correlated with more equal distributional outcomes through the support they provide for collective bargaining (Deakin, Malmberg and Sarkar, 2013).

Most of the existing research on the economics of labour law relates, however, to developed countries, and there is a need to extend this type of analysis to consider the case of low and middle income countries. This paper reports findings from a 'leximetric' study of the effects of changes in collective labour law from the early 1970s in five large middle-income economies, namely Brazil, China, India, Russia and South Africa. The study extends the existing dataset on labour regulation developed at the CBR in Cambridge (CBR-LRI). We present the results of econometric analysis on the incidence and magnitude of the contribution of labour law reforms in the areas of employee representation and industrial action law to changes in employment, and their impact on equality and related indicators of development. We find that reforms which promoted collective employee representation in the workplace and strengthened the institutions of collective bargaining reduced inequality and were positively correlated with indicators of human development in our sample countries. There is also evidence of a link between stronger laws relating to employee representation and the reduction of unemployment, suggesting an efficiency effect on the part of these laws. On the other hand, we find some evidence of positive correlations between industrial action laws, on the one

hand, and unemployment and inequality, on the other, and of a negative relationship between industrial action laws and developmental outcomes.

While our findings are therefore broadly consistent with earlier studies which identified the egalitarian effects of laws supporting collective bargaining, ours is the first study to extend this result to middle-income countries. Our findings also throw light on the view, associated with the World Bank, that the adoption of worker-protective labour laws in emerging markets will bring about inflexibilities or distortions in the operation of labour markets there. We see no evidence of this for worker representation laws, although some limited evidence in support of the World Bank view for industrial action laws.

To develop our argument, section 2 below provides contextual information on the main reforms in collective labour laws in our sample countries over the period from the early 1970s to the present day. Section 3 then sets out our data sources and explains our 'leximetric' methodology for coding labour law rules and the approach taken in our econometric analysis. Section 4 presents our empirical results. Section 5 concludes.

2. Industrial relations laws in middle-income countries: an overview

Even though the principal contribution of the paper is the presentation of the data and its analysis, we think it nevertheless important to set, even if only briefly, the background and context in the five countries in the project. There are several reasons for this. First, a synthetic description of the legal systems and how they have changed provides important context for the changes that are depicted graphically below in our data analysis. Secondly, although our principal emphasis is on the data and its analysis, we do not argue that the data and its analysis alone can tell the whole story. A mixture of quantitative and qualitative approaches will produce a more nuanced understanding (Buchanan et al., 2013). Moreover, it is axiomatic in socio-legal analysis that there is always a difference between the form and content of legal rules, and their operation in practice. Thus we also draw on the literature that analyses and contextualises labour regulation and industrial relations in each of the five countries.

A useful place to start is with freedom of association, which is constitutionally protected in each of the five countries (Brazil: Art. 8; China: Art. 35; India: section 19(1)(c); Russia: Art. 30; South Africa: Arts. 18 and 23), although in different ways and to different effect. In Brazil the freedom to join a union is tempered by the operation of the *unicidade* system – itself enshrined in the 1988 Constitution – under which there may only be one trade union representing a particular category of workers in a geographical region. Thus, there is freedom

whether or not to join a trade union, but once a worker makes such a decision, there is at best a limited choice of union available: in some cases the issue of the effective trade union monopoly is addressed by making the effort to register a new trade union. If there is already a trade union for that category of workers, this can only succeed by making the (sometimes artificial) effort to establish a new 'category' for the proposed union (Gomes and Prado, 2011: 893).

In China, all unions must be affiliated to the All China Federation of Trade Unions (Brown, 2006: 61); in this sense it is a commonplace that China does not protect freedom of association in the internationally accepted sense. But even more generally, it is necessary to approach the instantiation of constitutional rights in the Chinese legal context differently than elsewhere:

> A constitutional labour right in China does not confer on individuals a judicially enforceable entitlement against the state. It instead imposes a notional obligation on the state to create conditions under which individuals will enjoy the right (Cooney, *et al*, 2013: 58).

In India, the constitutional protection of freedom of association supports the right to form and join a trade union. But it goes little further than this: the Supreme Court's interpretation of the constitutional provision is that the freedom does not include a right to collective bargaining, or a right to strike (Gopalakrishnan, 2010). In Russia, the constitution protects not only the freedom of association – and so the right to form and join trade unions – but also the so-called 'negative' freedom of association, that is, the right *not* to join an association (Lyutov, 2009: 72). This leaves little scope for either agency or closed shop arrangements.

The right to strike is constitutionally protected in Brazil (Art. 9), where the right of workers to determine the timing and the goals of the strike arguably means that the right extends to political and sympathy strikes (Gacek, 1994: 76). Civil servants are guaranteed the right by Article 37 of the Constitution (Gacek, 1994: 77).The right to strike is protected in the constitution of Russia, where it includes a right to participate in a labour dispute (Art. 37) (Bronstein, 2005: 303). The South African constitution protects the right to strike, and provides for agency and closed shop arrangements, as well as an organizational right to bargain collectively (Art. 23).

National constitutions also protect other labour rights and concerns for labour relations, even if they do not constitute specific provisions that require or establish particular industrial relations institutions. In Brazil the constitution protects in detail a wide range of working conditions (Arts 6 to 8). India's constitution includes Principles of State Policy that extend to a right to work, to

'just and humane conditions of work', a living wage for workers, and the possibility of worker participation in the management of industries (Arts. 41 to 43A).

National legislation in each of the five countries builds on the constitutional protections, especially in the area of freedom of association, and facilitation of collective bargaining. In China the Trade Union Law provides certain support for the right of workers to form and join unions, and to participate in their activities, and also a measure of protection against acts of anti-union discrimination. It was the Trade Union Law of 1992 which introduced the possibility of regulation of working conditions by collective agreements, with later provisions introduced to provide specific guidance in the area (Brown, 2006; Shen, 2006). The bare skeleton established there was filled out by the provisions on collective agreements introduced in 2004. Collective agreements were quite widespread in the 1950s, but their use ended with changes in ideological and policy orientation (Cooney, *et al*, 2013: 24-25).

Indian law provides to some extent for the exercise of a right to strike, and other important institutions, including the extension of collective agreements (Deakin and Sarkar, 2011). Since 1982 Indian Law has included a concept of an unfair labour practice that operates, to some extent, as a form of duty to bargain collectively: redress for engaging in an unfair labour practice can be sought where, among other things, an employer refuses to bargain collectively (Mitchell, *et al*, 2012: 14). Settlements to industrial disputes are binding on all workers, whether or not they are union members (Mitchell, *et al*, 2012: 42). In some cases, enterprises with 100 or more employees must establish works councils (Mitchell, *et al*, 2012: 43). On the other hand, the Trade Union Act was amended in 2001 to increase the minimum number of members required to register a trade union (Mitchell, *et al*, 2012: 14).

Russia's Labour Code of 2002 provides for collective bargaining at different levels, allowing the bargaining parties to choose both the level of bargaining (Art 37), and the topics (Art 40). Agreements cover all workers in an enterprise, and there may only be one agreement per enterprise (Lyutov and Petrylaite, 2009: 796). At the enterprise level, where there are multiple unions they may bargain jointly, but have only five days to agree to do so, failing which a majority union may proceed to bargain independently (Rymkevitch, 2003: 154), Moreover, at other levels, there is no procedural requirement for unions to attempt to work together: a majority union may simply proceed to bargain (Lyutov and Petrylaite, 2009: 795). The right to strike is regulated by the Labour Code, although arguably the procedural requirements have the effect of stifling the potential for lawful industrial and strike action (Lyutov, 2011: 937).

South Africa's Labour Relations Act 1995 provides an elaborate and sophisticated framework for the exercise of the rights to freedom of association, to strike, and to bargain collectively. A union that is sufficiently representative may exercise certain organisational rights, including the right to request that collective bargaining should start. Disputes over whether or not a union is sufficiently representative for these purposes may be resolved by the Commission for Conciliation, Mediation and Arbitration (CCMA). Building on a tradition with origins in the 1920s, South Africa's post-apartheid labour relations laws place an emphasis on sectoral bargaining, through the vehicle of bargaining councils. To be formed at the volition of employers and unions in particular sectors, bargaining councils have power to determine conditions, to enforce compliance with them, and to extend their operation to employers and employees working in the same sector, but who are not members of the bargaining council. Where bargaining is not successful, and neither is conciliation, the parties may take direct industrial action (strikes and lockouts); workers on strike or who are locked out may not be replaced with newly-hired workers (except during a lockout taken in response to a strike). Moreover, workers may take protected secondary or sympathy strike action, subject to certain conditions (Du Toit, *et al*, 2006: 6-15).

Having briefly outlined a little of the relevant legal systems, we turn to how these systems have changed, and to evidence on how they work in practice. In our view, it is essential to pay attention to change and development in legal systems over time, rather than to look at rules at a fixed point in time: for example, if laws (institutions) have not changed, then the explanation for economic phenomena may lie elsewhere (Deakin and Sarkar: 2011). Secondly, as noted, looking at the content and form of legal rules alone can give only an incomplete explanation for other phenomena. This is not to say that actors do not respond to the economic incentives set by legal rules. It is merely to acknowledge that the rules alone cannot provide a complete explanation. Indeed in some contexts, they may explain very little, for example because it can be so difficult to identify them. In China, for example, the national level laws leave much to other levels of government, and to other forms of regulation (Cooney, Biddulph and Zhu, 2013).

In Brazil the biggest change during the period under review came with the Constitution of 1988, which included a new provision prohibiting state interference in the affairs of trade unions. This altered a key element of the corporatist model of trade unionism first developed in the 1930s (Cook, 2002: 9). At the same time, the 1988 Constitution broadened the scope of the constitutional protection of the right to strike, which had until then been quite severely curtailed, including by reliance on a very expansive concept of 'essential services', in which strikes were prohibited (Gacek, 1994: 77-78).Thus

in our terms, labour law in the areas that we are presently considering became more protective.

Yet Brazil's labour law is quite restrictive of workers' exercise of the freedom of association: the 1988 Constitution preserved the system of *unicidade,* and the associated requirement that all workers who work in a category and territory where a union is registered, must make a financial contribution to the union. These funds are collected by the state, and distributed to unions at different geographical levels according to a formula. Arguably this leads to unions that are more responsive to the compulsory financial contribution – and the state's role in the maintenance of the system – than to the interests of their worker members (Gomes and Prado, 2011). Efforts have been made to change the system since soon after the adoption of the 1988 Constitution (Cook, 2007; 2002); the Lula government established a process that led to a draft law being submitted to Congress in 2005, but to date it remains unadopted (Gomes and Prado, 2011). This is largely because of the interests that smaller, less representative unions have in the maintenance of the system, and certain employer organisations that have the same interest. The system, however, is not necessarily conducive to free collective bargaining that effectively represents workers' interests, and that could focus also on improving enterprise how performance and productivity.

Changes in Chinese labour law during the period under review have focussed predominantly on regulation of individual relations, through the Labour Law of 1994, and the subsequent Labour Contract Law of 2008 (the longer-run history, and the legal and political context, and explored in Cooney, et al, 2013). But there have also been important changes in the laws relating to the functioning of industrial relations institutions: the Trade Union Law 1992 (revised in 2001) included an important foundation for negotiation and conclusion of collective agreements. But despite the features of Chinese law on freedom of association and trade unions that are similar to those in liberal market economies, the role of unions in China is still predominantly focused on fulfilling their traditional – and still legislatively-mandated – role of mediating between workers and management (Clarke, Lee and Li, 2004; Zhu, Warner and Feng, 2011). Moreover, the ability of unions to fulfil a more independent role as a free agent in collective bargaining on behalf of their worker members is compromised by the involvement of management in unions, and unions' lack of experience in operating autonomously (Cooney, Biddulph and Zhu, 2013: 81). On the other hand, while unions in China are not seen (including by workers) as autonomous representatives of workers' interests, it is nonetheless true that as China has changed its labour market regulation model over the last 20 years, the trade union movement – through the ACFTU – has been a significant and effective

advocate for laws that provide better protection for workers (Zhu, Warner, and Feng, 2011: 138).

In India, even a cursory attempt to develop a contextual analysis of labour regulation shows the difficulty in drawing conclusions from the form and content of legal systems alone: on most analyses only 7 per cent of workers in India are covered by the formal system of labour regulation. Despite this, the argument persists that labour regulation needs to be revised to reduce obstacles to further economic growth and improved development. Two of the present three authors have already shown that Indian labour regulation has no adverse effect on levels of unemployment. In fact, the causality is in the other direction: periods of lower unemployment have led to greater levels of legal protection (Deakin and Sarkar, 2011). Moreover, while Indian labour regulation is arguably more protective in the area of protection of individual employment than it is many countries, the level of protection in its regulation of collective labour relations – that is, of industrial relations institutions – is more or less average by international standards (Deakin and Sarkar, 2011; for an attempt to test empirically the actual strength in practice of these laws, see Badigannavar and Kelly, 2012). When it comes to trade unions and collective bargaining in India, the literature suggests that trade unions have only ever represented a very small proportion of workers in India, and that collective bargaining is largely confined to public sector institutions (Mitchell, *et al*, 2013: 15). Indian unions do have a degree of political significance, but this derives from the relationships between unions and political parties, rather than from any strength in their membership base that politicians feel it necessary to consider.

Moreover, the Indian state has retained a model of state control of industrial relations that originated in British colonial rule, with a desire to maintain control of workers and production. Following independence the system was maintained in the interests of pursuing national development (Mitchell, *et al*, 2013: 12). In any event, the Industrial Disputes Act 1947 still includes provisions that give to government the power to intervene in collective disputes, and to choose whether or how they will be resolved (whether by conciliation or adjudication). It was only in 2010 that the Act was amended to provide that individuals could take their disputes to resolution without first obtaining government authorisation.

Russian law on labour relation has undergone dramatic shifts. As in China, trade unions in Soviet Russia were instruments of the state, intended to serve a ‘transmission belt’ function between the state and workers. The first trade union central was established in Russia in 1933, following the liquidation of the former Ministry of Labour (Lyutov, 2011: 934). Thereafter, the trade unions played an important role in delivering and managing social services for workers,

but they did not operate as workers' representatives, and nor was there any form of collective bargaining. At the fall of the Soviet Union, the trade union central was, effectively, privatised, with its vast assets being transferred to the new independent trade union federation that succeeded its Soviet-era predecessor (Lyutov, 2011: 935). Under the new Labour Code, the emphasis is on a model of tripartite social partnership, in order to mark a clear differentiation from the former system (Olimpieva, 2012: 273). At transition, new independent unions began to emerge, but they were then, and are now, more or less powerless to match the experience and, more importantly, the resources of the former monopoly trade union. Given the way the Labour Code operates, the structural situation has changed relatively little. As there can now be only one collective agreement in an enterprise, and as the majority union can go ahead to bargain without the other unions participating, and as the outcome covers all workers, there is little scope for new unions to find a place in the industrial relations scheme (Rymkevitch, 2003: 154). There are other advantages in the scheme for the majority union, including the provisions protecting trade union leaders from dismissal without trade union permission: these are only likely to be effective for the leaders of those unions that have a significant presence in the workplace, as these are the only ones likely to have sufficient members to be able to make use of the relevant procedures (Lyutov and Petrylaite, 2009: 792-793).

As previously noted, of the systems considered in this paper, South Africa's is the one designed most to support a system of autonomous collective bargaining. Not surprisingly, the level of protection in this aspect of the system sees South Africa ranked at the higher end of the scale in this area of labour regulation (Bhorat and Cheadle, 2009; see also section 3, below)). But in the area of collective labour relations, the outcomes have been very different than perhaps were hoped for in the transition from apartheid. Collective bargaining is relatively little established outside the bargaining councils, and is often characterized by increasing fragmentation of bargaining units. Thus industrial relations is becoming more decentralized, despite the deliberate policy choice by those establishing the system to put the emphasis on sectoral mechanisms (Leibbrandt, Woolard, McEwen and Koep, 2010: 25). One consequence is that collective bargaining may be having less distributional effect across the workforce, while relations at the workplace (which the system design hoped would deal with issues like skills and productivity) have become less effective (Budlender, 2009: 10). Indeed, at the enterprise level industrial relations are arguably becoming more conflictual, reflecting in part the historical orientation of unions in South Africa to conflict, in order to pursue the struggle to combat apartheid. The weaknesses of the formal legal regulation of collective labour relations, and of some of the actors in the industrial relation system, can be seen in the fact that recent high profile industrial disputes have been characterized by violence, including by police shooting striking miners (Benjamin, 2013).

It should also be noted that in South Africa very large numbers of workers fall outside the system of legal regulation of labour relations. 'Externalisation' of labour relations has been a significant feature of the labour market over the last 15 to 20 years, including through the use of agency work (known as 'labour broking' in South Africa), sub-contracting and casualization (Theron, 2011: 11-12). Official data show fewer workers in the informal economy than might be expected, but this more likely reflects obstacles to entry to informal employment, rather than a lower level of this form of work compared to comparable countries (Davies and Thurlow, 2010: 437). Moreover, legal innovations to address the issue of the diminishing scope of legal regulation of the employment relationship have been of little effect (Theron, 2011: 12).

The purpose of this section has only been to give a flavour of the five systems under consideration, and of their differences and similarities. Among other things, it shows the need to recall that states have pursued, and continue to pursue, political as well as economic interests in their design of labour market regulation. Most starkly in the current context, trade unions in Russia were, and in China still are, instruments of the state itself. In Brazil the corporatist system is closer to that end of the continuum than to one characterized by full enjoyment of the freedom of association. India continues to maintain a high degree of control of trade union activity. South Africa's turn to democracy brought an end to decades of institutionalised racial discrimination and differentiation between groups of workers, and amounts to the greatest shift among the five countries considered here. But the almost 20 years of the new labour relations system have arguably had limited effect on overcoming that historical legacy and the inequalities that apartheid fostered. So much we can say of these five countries by drawing on literature in law, industrial relations, development and political economy, to set a context for the empirical analysis. It is this that we now turn.

3. Leximetric coding: techniques and data

So-called leximetric coding techniques are designed to produce data on features of legal systems in a form which can be used in quantitative analysis. Coding proceeds in a series of steps: (i) identification of relevant indicators; (ii) definition of a coding algorithm or protocol to be used in allocating values to particular laws; (iii) retrieval of primary data in the form of texts of statutes, judicial decisions and other relevant regulatory sources; (iv) analysis of the primary data using the specified coding algorithms, to arrive at values or scores for individual indicators; (v) aggregation or averaging of the resulting values into composite scores for indices or sub-indices representing a given body of law in a particular jurisdiction. This is followed by a further stage, (vi) econometric analysis of the data alongside data for other variables of interest,

such as labour market data of various kinds (such as employment and unemployment data, and inequality, poverty and developmental indicators).

The CBR-LRI index divides industrial relations laws into two main areas, worker representation laws (covering both collective bargaining laws and employee information and consultation laws) and strike laws (or laws governing industrial action). Each of these two main sub-indices is disaggregated into a number of individual indicators, corresponding to particular types of legal rules. Each indicator has a coding algorithm which sets out the process for allocating scores to particular variables (see Tables 1 and 2). A 0-1 scale is used, with higher scores indicating a higher degree of worker protection.

The choice of indicators in the CBR-LRI is based on broadly-held understandings among labour law experts of the more important types of rules protecting workers and trade unions in relation to collective representation and industrial action. It also reflects, in broad terms, the subject-matter of relevant ILO conventions and recommendations on these issues. When it comes to aggregating the values for particular laws, and combining them into composite scores for a wider area of law, difficult issues of weighting arise. If no weighting is used, the implicit assumption being made is that each of the individual indicators is of equivalent importance in determining the overall score arrived at in the relevant composite index or sub-index. This assumption may be questioned, since it is possible that the relative importance of a given indicator may not be the same at all times and in all systems. However, it is difficult to apply a priori weights to individual indicators in a way that would get round this problem for particular countries or time periods, without introducing a new element of subjectivity into the analysis. As labour law systems consist of interlocking rules, each of which contributes to the operation of the system as a whole, an assumption of equal weighting is arguably the best default position to take. Changes to weights can be made to test particular hypotheses concerning the salience of particular laws in given country contexts.

Table 1. Indicators and coding algorithms in the Employee Representation Laws Sub-Index

Indicator	**Algorithm**
Right to unionisation	Measures the protection of the right to form trade unions in the country's constitution (loosely interpreted in the case of system such as the UK without a codified constitution). Equals 1 if a right to form trade unions is expressly granted by the constitution. Equals 0.67 if trade unions are described in the constitution as a matter of public policy or public interest. Equals 0.33 if trade unions are otherwise mentioned in the constitution or there is a reference to freedom of association which encompasses trade unions. Equals 0 otherwise. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.
Right to collective bargaining	Measures the protection of the right to collective bargaining or the right to enter into collective agreements in the country's constitution (loosely interpreted in the case of system such as the UK without a codified constitution). Equals 1 if a right to collective bargaining is expressly granted by the constitution. Equals 0.67 if collective bargaining is described as a matter of public policy or public interest (or mentioned within the chapter on rights). Equals 0.33 if collective bargaining is otherwise mentioned in the constitution. Equals 0 otherwise. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.
Duty to bargain	Equals 1 if employers have the legal duty to bargain and/or to reach an agreement with unions, works councils or other organizations of workers. Equals 0 if employers may lawfully refuse to bargain with workers. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.
Extension of collective agreements	Equals 1 if the law extends collective agreements to third parties at the national or sectoral level. Extensions may be automatic, subject to governmental approval, or subject to a conciliation or arbitration procedure. Equals 0 if collective agreements may not be extended to non-signatory workers or unions, or if collective agreements may be extended only at the plant level. Mandatory administrative extensions of collective agreements are coded as equivalent to mandatory extensions by law. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.
Closed shops	Equals 1 if the law permits both pre-entry and post-entry closed shops. Equals 0.50 if pre-entry closed shops are prohibited or rendered ineffective but post-entry closed shops are permitted (subject in some cases to exceptions e.g. for pre-existing employees). Equals 0 if neither pre-entry or post-entry closed shops are permitted to operate. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.
Codetermination: board membership	Equals 1 if the law gives unions and/or workers to right to nominate board-level directors in companies of a certain size. Equals 0 otherwise. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.
Codetermination and information/consultation of workers	Equals 1 if works councils or enterprise committees have legal powers of co-decision making. Equals 0.67 if works councils or enterprise committees must be provided by law under certain conditions but do not have the power of co-decision making. Equals 0.5 if works councils or enterprise committees may be required by law unless the employer can point to alternative or pre-existing alternative arrangements. Equals 0.33 if the law provides for information and consultation of workers or worker representatives on certain matters but where there is no obligation to maintain a works council or enterprise committee as a standing body. Equals 0 otherwise. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.

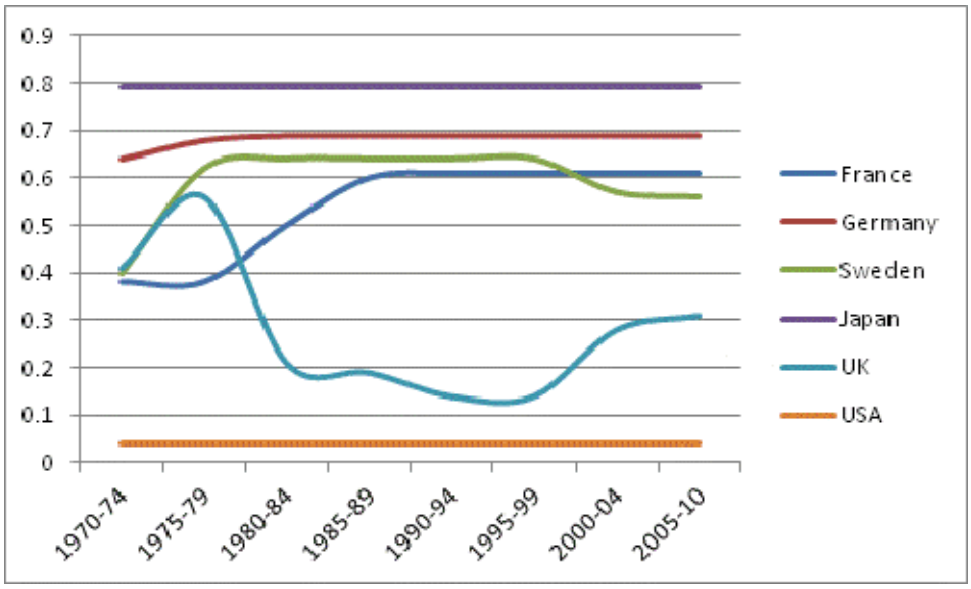
Table 2. Indicators and coding algorithms in the Industrial Action Laws Sub-Index

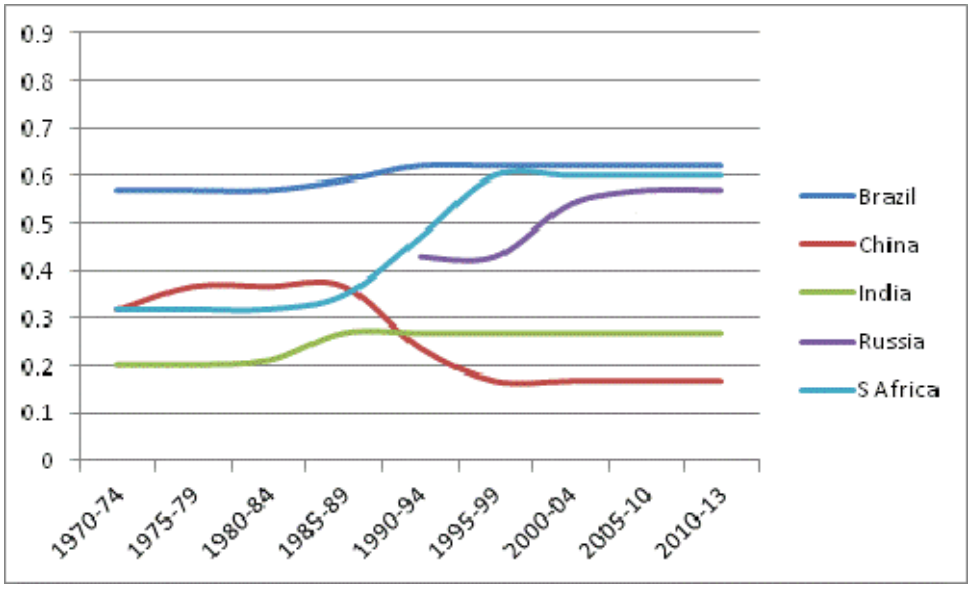
Indicator	**Algorithm**
Unofficial industrial action	Equals 1 if strikes are not unlawful merely by reason of being unofficial or 'wildcat' strikes. Equals 0 otherwise. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.
Political industrial action	Equals 1 if strikes over political (i.e. non work-related) issues are permitted. Equals 0 otherwise. Scope for gradations between 0 and 1 to reflect changes in the strength of the law.
Secondary industrial action	Equals 1 if there are no constraints on secondary or sympathy strike action. Equals 0.5 if secondary or sympathy action is permitted under certain conditions. Equals 0 otherwise. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.
Lockouts	Equals 1 if lockouts are not permitted. Equals 0 if they are. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.
Right to industrial action	Measures the protection of the right to industrial action (i.e. strike, go-slow or work-to-rule) in the country's constitution or equivalent. Equals 1 if a right to industrial action is expressly granted by the constitution. Equals 0.67 if strikes are described as a matter of public policy or public interest. Equals 0.33 if strikes are otherwise mentioned in the constitution. Equals zero otherwise. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.
Waiting period prior to industrial action	Equals 1 if by law there is no mandatory waiting period or notification requirement before strikes can occur. Equals 0 if there is such a requirement. Scope for gradations between 0 and 1 to reflect changes in the strength of the law.
Peace obligation	Equals 1 if a strike is not unlawful merely because there is a collective agreement in force. Equals 0 if such a strike is unlawful. Scope for gradations between 0 and 1 to reflect changes in the strength of the law.
Arbitration	Equals 1 if laws do not mandate conciliation procedures or other alternative-dispute-resolution mechanisms (other than binding arbitration) before the strike. Equals 0 if such procedures are mandated. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.
Replacement of striking workers	Equals 1 if the law prohibits employers to fire striking workers or to hire replacement labour to maintain the plant in operation during a non-violent and non-political strike. Equals 0 if they are not so prohibited. Scope for further gradations between 0 and 1 to reflect changes in the strength of the law.

Figures 1 and 2 represent in graphical form the main trends in our two sub-indices for the five countries in the sample and, by way of comparison, Figures 3 and 4 present equivalent data for a range of developed economies. Russian data are coded from 1994, the first full year of the operation of the Constitution of the Russian Federation. The data are presented as five-yearly averages. Certain trends stand out. Chinese law, formally at least, became somewhat less protective over time. The 1992 Trade Union law replaced provisions in the earlier 1950 law which were formally more protective of trade unions' collective bargaining and co-decision making rights. In addition, the 1982 Constitution removed references to the right to strike which had been contained in the Constitutions of 1975 and 1978. Whether these changes made a difference of substance to the operation of the law may be doubted. Although, as we noted above, collective agreements were in place in parts of the Chinese economy in the 1950s, collective wage determination was more or less in

abeyance from the early 1960s onwards. Nor is it clear, as we saw (see section 2 above), what significance should be attached to constitutional labour rights in the Chinese context, given the absence of mechanisms for asserting them through the court system.

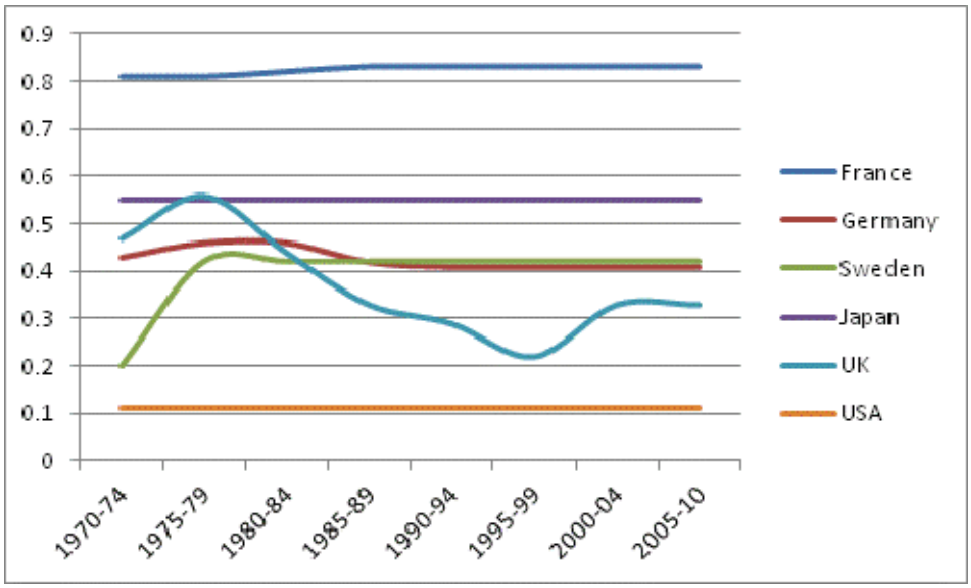
Figures 1-2: Employee representation laws in developed and developing countries

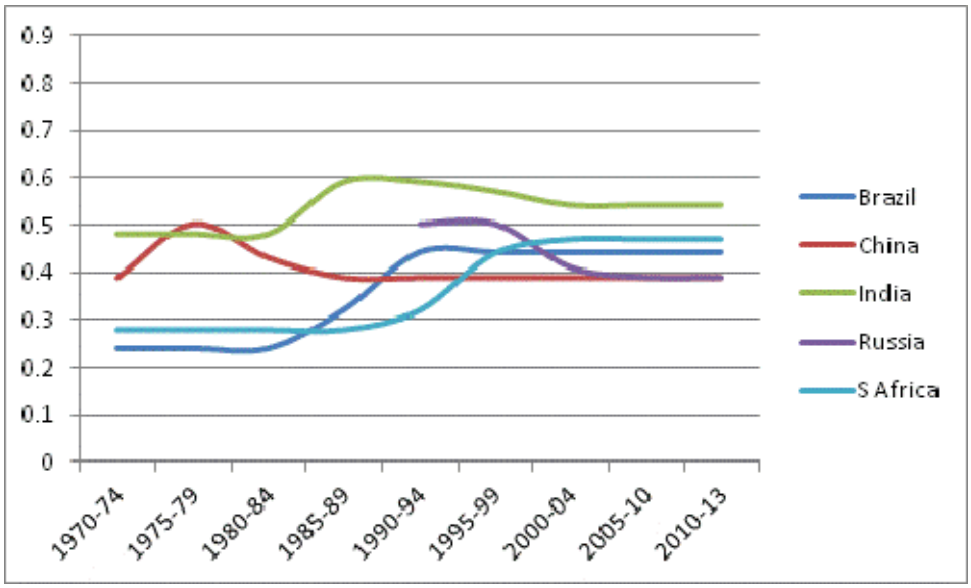




Source: CBR Labour Regulation Index.

Figures 3-4: Industrial action laws in developed and developing countries





Source: see Figures 1-2.

These caveats aside, Figures 1 and 3 suggest that China has, over the period studied, generally provided a lower degree of legal protection for workers' representation and industrial action rights than the other countries in the sample. Brazil and India have levels of protection which are as high as the most protective developed country systems. The rising trend of protection in South Africa since the end of the Apartheid period is also clearly represented in Figures 1 and 2.

4. Labour market data and econometric analysis

The data coded in the CBR-LRI relate to formal laws, that is to say, 'laws in the books' derived from legislative and judicial texts and, where relevant, from collective agreements or other sources of regulation which are meant to have a binding effect equivalent to that of a statutory or judicial text. No assumption can be made from the scores in the index of the actual effects of laws. It is only through econometric analysis that any basis can be found for evaluating these consequences. Econometric analysis makes it possible to test for relationships of correlation and, up to a point, of causation, between variables of interest: an independent or causal variable, on the one hand, and a dependent or outcome variable, on the other. Here, we are interested in testing for possible correlations between legal regulation (the causal variable) and a number of measures of economic performance (the outcomes variables). We control for the country level growth-rate of real GDP and for the effectiveness of enforcement of legal rules as measured by the World Bank's rule of law index.

Single country studies, although of some interest, are by their nature liable to be unrepresentative of the potential effects of laws on economic outcomes, and so it is preferable to undertake a panel data analysis which pools data from a range of different national systems. Alternative regression models can be used in order to take account of cross-country and cross-time heterogeneity which is not fully captured in the data. Fixed-effects models (FE) control for omitted variables that may be expected to differ across countries but are constant over time. Random effects models (RE) control for omitted variables that may be expected to vary over time and which may also vary across countries.

There are distinct problems involved in seeking to analyse the relationship between legal change and economic outcomes in developing countries. The gap between 'law in the books' and 'law in action' is likely to be more significant in emerging market contexts where legal institutions are generally less well developed than in industrialised countries. However, this can be addressed by the inclusion of the rule of law variable in the regression analysis; this in effect controls for the effectiveness of enforcement of 'law on the books'. Secondly, labour market data may only reflect the experience of the segment of the workforce, possibly a minority that is, the part of employed in the formal sector. This in itself does not invalidate econometric analysis of the effects of laws on economic outcomes, since what is being measured is the impact of legal regulation on precisely those groups in the workforce which are most likely to be affected by legal regulation. The limited scope of labour market data in emerging markets does, nevertheless, stress the need for particular caution in interpreting findings from econometric analysis. A further point is that time series data are more limited for emerging markets than they are in the case of

developed economies. The data sources that we use –ILO data on unemployment, Gini coefficient data for inequality, and the Human Development Index for developmental indicators – are less extensive and less complete in the case of emerging markets than they are for the more developed economies, for which OECD data provide extended time series. For this reason, our econometric analysis is confined to the period from the early 1990s.

Table 3 reports our results for employee representation laws. We find, firstly, that a higher score in the worker representation sub-index is inversely correlated with the Gini coefficient in the FE model which, according to the Hausman test, is to be preferred in this case. This implies that as the law in this area becomes more protective of worker rights, inequality declines. Secondly, the worker representation law is positively correlated with values in the Human Development Index in both the FE model and the RE model. This suggests that these laws are related to beneficial developmental outcomes. We also find a negative relationship between employee representation laws and unemployment levels in the FE model, although not in the RE model; however, the Hausman test indicates the result from the FE is to be preferred here.

Table 3. Labour market effects of employee representation laws

Dependent variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent variables						
GDP growth	-0.08098	-0.2311	0.0003	-0.0006	0.0065	-0.2978*
Rule of law	-3.7494	1.2973	-0.0092	-0.1651	12.2152	4.5874
Worker representation laws	-37.9085**	11.6790	0.4470**	0.1850***	-27.1831**	13.3212
R^2	0.4489	0.4375	0.1962	0.7837	0.0107	0.4756
Chosen model	FE		FE			RE

Sources: World Bank (Gini Coefficient and Rule of Law Index), UNDP (Human Development Index), ILO (unemployment).
Significant at the 1% level (***), 5% level (**), 10% level (*)

Table 4 reports the results for industrial action laws. In contrast to the findings on employee representation, there is some evidence of negative effects of worker protective laws on equality, human development and employment. However, the magnitudes here are small, as indicated in particular by the very low R^2s for the Gini coefficient and unemployment correlations.

Table 4. Labour market effects of industrial action laws

Dependent Variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent Variables						
GDP growth	-0.0573	-0.2348	0.0001	0.0008	0.2442	0.1283
Rule of law	-3.6032	2.9543	0.0110	-0.04864	16.4779	8.4732
Industrial action laws	56.4779***	24.7123	-0.5145**	-0.7874***	84.0592	72.1090*
R^2	0.0641	0.4322	0.5583	0.7401	0.1905	0.1916
Chosen model	FE		FE			RE

Sources: see Table 3.
Significant at the 1% level (***), 5% level (**), 10% level (*).

In order to test whether these findings are a contingent result of the sample we are using, we conduct further analyses, dropping one country at a time from the sample, and comparing the outcomes generated by the fixed-effects and random-effects models, respectively, in each case. The results are summarised in Table 5 and the full analysis is set out in detail in the Appendix.

In the case of employee representation laws, the one result that is consistently reproduced across all tests is the positive correlation between worker rights and scores on the HDI. The results for the Gini coefficient continue to suggest that employee representation laws contribute to a reduction in inequality, but because the FE and RE models point in different directions in most of the regressions, this finding must be regarded as a qualified one. The results for the unemployment variable also indicate a range of outcomes, suggesting that there is no clear evidence of an effect, either positive or negative, of this type of law.

With regard to industrial action laws, the clearest finding is that these laws are correlated with a decline in the HDI score. The results for the Gini coefficient are mixed, suggesting no clear relationship between industrial action laws and inequality, while those for unemployment mostly point to the absence of any effect, positive or negative, of these laws.

Table 5. Labour market effects of labour laws: summary of robustness tests

Table 5a. Employee representation laws

Variables	FE model	RE model	Choice of model by Hausman test
Gini coefficient			
Excluding Brazil	Gini declines	Gini rises	FE
Excluding China	Gini declines	Gini rises	FE
Excluding India	Gini declines	Gini rises	FE
Excluding Russia	Gini rises	Gini rises	RE
Excluding South Africa	Gini declines	Gini rises	FE
Full sample	Gini declines	No effect	FE
HDI			
Excluding Brazil	HDI rises	HDI rises	FE
Excluding China	HDI rises	HDI rises	FE
Excluding India	HDI rises	HDI rises	FE
Excluding Russia	HDI rises	HDI rises	FE
Excluding South Africa	HDI rises	HDI rises	FE
Full sample	HDI rises	HDI rises	FE
Unemployment			
Excluding Brazil	Unemployment falls	Unemployment rises	RE
Excluding China	Unemployment falls	Unemployment rises	FE
Excluding India	Unemployment falls	Unemployment rises	RE
Excluding Russia	No effect	Unemployment rises	FE
Excluding South Africa	Unemployment falls	Unemployment rises	FE
Full sample	Unemployment falls	No effect	FE

Table 5b. Industrial action laws

Variables	FE model	RE model	Choice of model by Hausman test
Gini coefficient			
Excluding Brazil	Gini rises	No effect	FE
Excluding China	Gini rises	No effect	FE
Excluding India	Gini rises	Gini rises	RE
Excluding Russia	No effect	No effect	RE
Excluding South Africa	Gini rises	No effect	FE
Full sample	Gini rises	No effect	FE
HDI			
Excluding Brazil	HDI declines	HDI declines	RE
Excluding China	HDI declines	HDI declines	RE
Excluding India	HDI declines	HDI declines	RE
Excluding Russia	No effect	HDI declines	RE
Excluding South Africa	HDI declines	HDI declines	FE
Full sample	HDI declines	HDI declines	FE
Unemployment			
Excluding Brazil	No effect	No effect	RE
Excluding China	No effect	No effect	RE
Excluding India	No effect	Unemployment rises	RE
Excluding Russia	No effect	No effect	RE
Excluding South Africa	No effect	No effect	RE
Full sample	No effect	Unemployment rises	RE

5. Discussion and conclusion

Richard Freeman has suggested that 'while proponents and opponents of the case against labour institutions disagree about whether labour institutions are a significant contributor to unemployment and aggregate economic efficiency, it is important to recognize that they concur on one point: that labour institutions, particularly those associated with trade unions, reduce inequality of pay compared to pay in competitive markets'. He goes on to note that this proposition is broadly accepted for industrialised countries, 'the situation is more ambiguous in developing countries since unions do not represent workers in the informal sector and rarely represent rural workers, who are paid less than those in the modern sector' (Freeman, 2005: 11). In this paper we have sought to move advance empirical understanding of these issues in two ways. Firstly, we have used leximetric data coding to analyse the role of laws supporting industrial relations institutions: laws supporting worker representation in the workplace and at industry level, and laws protecting the right to take industrial action. Secondly, we have applied these leximetric coding techniques to a

sample of larger middle-income countries – Brazil, China, India, Russia and South Africa – thereby extending our knowledge of the effects of labour laws beyond the developed economies which have up to now been the focus for most econometric research in this area.

Our results suggest that an emerging finding to the effect that laws supporting employee representation contribute to more egalitarian labour market outcomes holds for the developing world, just as they do, according to other studies, in the developed world (Sarkar, 2013; Deakin, Malmberg and Sarkar, 2013). This is clearest in the consistently positive correlation between employee representation laws and scores on the Human Development Index. There is weaker evidence of an inverse correlation between employee representation laws and the Gini coefficient, suggesting that these laws are associated with a reduction in inequality. When the full sample of BRICS countries is analysed there is a negative correlation between employee representation laws and unemployment, but this result is not consistently reproduced across the differently composed samples.

In the case of industrial action laws, we find evidence of a link between a higher level of worker protection with respect to the right to strike, and a lower score on the HDI, the opposite of the finding for employee representation laws, although as noted in section 4, above, the magnitudes involved here are small. In the case of the Gini coefficient, there is some weak evidence of a positive correlation with industrial action laws (indicating that a higher score here is correlated with more inequality) but this is not reproduced across all tests. In the case of the unemployment variable, most of the regressions report no effect either way of the law.

Our study is limited, as all such studies are, by the confined nature of leximetric data, which only code for formal laws and regulations, and by the lack of long time series for labour market data in emerging markets, by comparison to industrialised countries. Cross-country panel data analyses of the kind we have presented also suffer from the tendency to gloss over within-country differences operating at firm and sector level. Thus our findings would need to be complemented by analysis of firm-level and sector-level effects in order to be regarded as more widely generalisable. As always with econometric research, there is a role for case studies and qualitative research in validating the results from statistical analysis, and in clarifying relationships of cause and effect, as opposed to simple correlation.

Notwithstanding these caveats, the present study adds to a growing body of empirical work with a clear message: strong industrial relations institutions, supported by labour laws underpinning worker voice and collective bargaining,

can help reduce inequality and promote developmental outcomes in emerging markets, just as they do in industrialised countries. Conversely, the case against labour laws in emerging markets, namely that they induce rigidities in labour markets which lead to unemployment, is not supported by the empirical evidence we have presented here. Future research should seek to identify more precisely the social and economic effects of particular laws, building on the analysis presented here which suggests some degree of divergence in the effects of employee representation laws and industrial action laws respectively.

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Appendix

Appendix Table 1. Labour market effects of laws concerning employee representation: alternative samples

1a. Excluding Brazil

Dependent Variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent Variables						
GDP growth	-0.3353	-0.2430	0.0012	0.0014	0.0509	-0.2011*
Rule of law	--6.1679	15.5493	0.1240	0.0151	16.4839	8.8027
Worker representation laws	-41.1248**	29.9058**	0.1884*	0.0497***	-31.1692**	31.1687***
R^2	0.3494	0.6191	0.2918	0.8421	0.0076	0.6635
Chosen model	FE		FE			RE

Sources: World Bank (Gini Coefficient and Rule of Law Index), UNDP (Human Development Index), ILO (unemployment), CBR Labour Regulation Index (employee representation laws).
Significant at the 1% level (***), 5% level (**), 10% level (*).

Summary: if Brazil is excluded, unemployment rises; other results are unchanged.

1b. Excluding China

Dependent variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent variables						
GDP growth	-0.0476	-0.3464	-0.0002	-0.0013	0.0042	-0.2837
Rule of law	-2.3880	17.8504***	-0.0143	-0.1432***	16.7735	9.4036***
Worker representation laws	-44.1906***	77.3019***	0.4315**	0.3426***	-29.6548**	36.0603***
R^2	0.5091	0.0842	0.6926	0.9205	0.0699	0.4106
Chosen model	FE		FE		FE	

Sources: World Bank (Gini Coefficient and Rule of Law Index), UNDP (Human Development Index), ILO (unemployment), CBR Labour Regulation Index (employee representation laws).
Significant at the 1% level (***), 5% level (**), 10% level (*).

Summary: if China is excluded, the results are unchanged.

1c. Excluding India

Dependent variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent variables						
GDP growth	-0.0810	-0.0923	0.0002	-0.0013	0.0209	-0.2063
Rule of law	-3.7494	21.8977	0.0687	-0.1284	12.3234	12.7685***
Worker representation laws	-37.9085**	28.4672***	0.3413**	0.0927*	-27.8611**	17.2021***
R^2	0.4136	0.8256	0.0048	0.6777	0.0002	0.6067
Chosen model	FE		FE			RE

Sources: World Bank (Gini Coefficient and Rule of Law Index), UNDP (Human Development Index), ILO (unemployment), CBR Labour Regulation Index (employee representation laws).
Significant at the 1% level (***), 5% level (**), 10% level (*).

Summary: if India is excluded, unemployment rises; other results are unchanged.

1d. Excluding Russia

Dependent Variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent Variables						
GDP growth	-0.0277	-0.2660	0.0015	0.0019	0.1911	1.4129***
Rule of law	-5.7167	2.4859	0.0057	-0.2155***	12.8429	15.3716***
Worker representation laws	116.8887***	42.0734***	1.5552***	0.2435***	270.7476	42.8163***
R^2	0.8005	0.8041	0.1413	0.7197	0.4562	0.6320
Chosen model	FE		FE		FE	

Sources: World Bank (Gini Coefficient and Rule of Law Index), UNDP (Human Development Index), ILO (unemployment), CBR Labour Regulation Index (employee representation laws).
Significant at the 1% level (***), 5% level (**), 10% level (*).
Summary: if Russia is excluded, inequality rises and there is no unemployment effect. HDI rises as before.

1e. Excluding South Africa

Dependent variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent variables						
GDP growth	-0.2949**	17.7098***	0.0005	-0.0005	-0.1288**	-0.3163***
Rule of law	-17.7094	-0.2212	0.0128	-0.1587***	-1.9493	-2.6653***
Worker representation laws	-28.7776*	36.7612***	0.4524**	0.1986***	-19.8887***	5.0556***
R^2	0.5168	0.6160	0.3751	0.7765	0.4291	0.8157
Chosen model	FE		FE		FE	

Sources: World Bank (Gini Coefficient and Rule of Law Index), UNDP (Human Development Index), ILO (unemployment), CBR Labour Regulation Index (employee representation laws).
Significant at the 1% level (***), 5% level (**), 10% level (*)

Summary: excluding South Africa makes no difference to the results.

Appendix Table 2. Labour market effects of laws concerning employee representation: alternative samples.

2a. Excluding Brazil

Dependent variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent variables						
GDP growth	-0.0062	-0.7079	-0.0004	0.0053	0.2941	-1.0881
Rule of law	-6.3087	16.5899	-0.0413	-0.1231	20.5022	9.1684
Industrial action laws	61.3271**	-37.2344	-0.6051*	-0.6187***	87.1592	-15.0145
R^2	0.0284	0.4891	0.8167	0.8934	0.1916	0.3751
Chosen model	FE			RE		RE

Sources: see Appendix Table 1.
Significant at the 1% level (***), 5% level (**), 10% level (*).

Summary: if Brazil excluded there is no unemployment effect; other results are unchanged.

2b. Excluding China

Dependent variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent variables						
GDP growth	-0.04763	-0.6135	-0.0002	0.0006	0.2450	-0.3979
Rule of law	-2.3880	22.1940***	-0.0143	-0.0629**	20.9050	10.1287**
Industrial action laws	56.8165***	-66.2362	-0.5547**	-1.3033***	85.2598	-31.5968
R^2	0.066	0.5063	0.9112	0.9171	0.1534	0.2367
Chosen model	FE			RE		RE

Sources: see Appendix Table 1.
Significant at the 1% level (***), 5% level (**), 10% level (*).

Summary: if China is excluded, there is no unemployment effect; other results are unchanged.

2c. Excluding India

Dependent variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent variables						
GDP growth	-0.0573	-0.02368	0.0000	-0.0051***	0.3589	0.1331
Rule of law	-3.6032	13.2102	0.0714	-01109***	17.9791	9.5812***
Industrial action laws	56.4779***	144.5994***	-0.3720***	-0.2919*	97.6719	128.5135***
R^2	0.1900	0.7968	0.3164	0.6545	0.6073	
Chosen model		RE		RE		RE

Sources: see Appendix Table 1.
Significant at the 1% level (***), 5% level (**), 10% level (*).

Summary: excluding India makes no difference to the results.

2d.Excluding Russia

Dependent variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent variables						
GDP growth	-0.0632	-1.9862	0.0011	-0.0082***	-0.2705	-1.0368
Rule of law	6.4909	5.6972	0.0053	-0.0735*	3.1518	25.8144
Industrial action laws	dropped	-37.6127	dropped	-0.8998***	180.9812	-83.0133
R^2	0.0746	0.5930	0.1375	0.7228	0.1573	0.4399
Chosen model		RE		RE		RE

Sources: see Appendix Table 1.
Significant at the 1% level (***), 5% level (**), 10% level (*).

Summary: if Russia is excluded, there is no inequality or unemployment effect; there continues to be a negative relationship with HDI.

2e. Excluding South Africa

Dependent variables	Inequality		Human development		Unemployment	
	FE model	RE model	FE model	RE model	FE model	RE model
Independent variables						
GDP growth	-0.2639**	-0.8482	0.0004	-0.0065***	-0.1835	-0.3863***
Rule of law	-17.1354	14.6248***	0.1462	-0.1089***	-3.8663	-4.2480***
Industrial action laws	45.1266***	-6.7940	-0.5202**	-0.7172***	18.0880	8.8190
R^2	0.0641	0.3529	0.5076	0.8074	0.7008	0.7574
Chosen model	FE		FE			RE

Sources: see Appendix Table 1.
Significant at the 1% level (***), 5% level (**), 10% level (*).

Summary: if South Africa is excluded, there is no unemployment effect; other results are unchanged.