THE EFFECTS OF LABOUR LAWS ON PRODUCTIVITY, EMPLOYMENT, UNEMPLOYMENT AND THE LABOUR SHARE OF NATIONAL INCOME: ANALYSIS OF NEW EVIDENCE FROM THE CAMBRIDGE LEXIMETRIC DATABASE, WITH A UK-CHINA COMPARISON

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Abstract

We report the results of an econometric analysis of the effects of labour laws in the UK and China. For data on labour laws we draw on the 2023 update of the CBR-LRI index, part of the Cambridge Leximetric Database, which codes for labour laws around the world between 1970 and 2022. The longitudinal coverage of the CBR-LRI enables us to use time-series techniques which model dynamic changes in an economy over time. We employ impulse response function analysis to estimate the effects of labour laws on indicators of efficiency (productivity, employment and unemployment) and distribution (labour's share of national income). We find that stronger labour laws in the UK are associated with rising employment and falling unemployment, while those in China are associated with rising productivity. We also observe positive impacts of labour laws on the labour share in both countries. Breaking down our results according to particular types of labour law, the positive employment effect we see in the UK is associated with stronger working time protections, while the positive productivity effect in China is associated with more protective laws regulating flexible forms of employment and with stronger dismissal laws. Assessing our results, we suggest that they speak to the importance of labour laws for avoiding regression, in the British case, to a low-cost, low productivity economy, and, in China's case, for helping bridge the 'middle income gap' to sustainable development. More generally, our findings imply the need for adjustment to standard models of the role of labour laws in the economy and to the policy advice which they generate, to the following effect: labour laws, by disciplining capital, contribute to its more productive use.

Keywords: labour law, employment, unemployment, productivity, labour share, leximetrics, UK, China

JEL Codes: K31, J83, O57

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This industrial revolution which takes place spontaneously, is artificially helped on by the extension of the Factory Acts to all industries in which women, young persons and children are employed… The chief objection, repeatedly and passionately urged on behalf of each manufacture threatened with the Factory Act, is in fact this, that in order to continue the business on the old scale a greater outlay of capital will be necessary. But as regards labour in the so-called domestic industries and the intermediate forms between them and Manufacture, so soon as limits are put to the working-day and to the employment of children, those industries go to the wall. Unlimited exploitation of cheap labour-power is the sole foundation of their power to compete.

Marx, *Capital: A Critique of Political Economy*, Volume 1, Chapter 15 (1867)

1. Introduction

The question of the economic effects of labour laws has long been contested. During Britain's industrial revolution, the introduction of legal controls over the length of the working day and week was challenged by the dominant political economy of the time. It was argued that these restrictions, deriving from the Factory and Workshop Acts passed between the 1830s and the 1870s, would impair firms' profitability, depress investment, and raise unemployment. As it turned out, the Factory Acts benefited the more technologically advanced enterprises, which could more easily absorb the costs of labour protection, and initiated a period of rising industrial productivity and employment in Britain which lasted throughout the course of the nineteenth century (Moos, 2021). More recently, beginning in the 1990s, international agencies, including the OECD, World Bank and IMF, revived the economic argument against labour laws, claiming that they introduced rigidities and distortions into the labour market. Policies of deregulation and labour flexibilization were needed, it was claimed, if firms and countries were to remain competitive in an increasingly globalised economy. Yet this argument too reached its limits, with the World Bank recognising in its 2015 *Doing Business Report* that labour laws protecting workers against 'arbitrary and unfair treatment' could 'improve productivity', while the absence of such laws might lead 'to losses of employment in an economy or to its missing out on job-supporting agglomeration effects and knowledge spillovers' (World Bank, 2014: 231).

At present, the debate over the economic consequences of labour laws is at something of an impasse. Theory offers no clear prediction either way: in principle, a number of effects, both positive and negative, can be identified from worker-protective laws. This impasse has shifted attention to empirical analysis. Methodological problems, including the limited availability and questionable

validity of data on labour laws, have stalled progress on this issue in the past. However, the development of new sources of data on labour laws, with a global reach and a time series going back several decades, has helped address the data availability issue.

In this paper we draw on these new empirical sources to reassess the debate over labour laws' economic impacts. For evidence on labour laws, we use the Cambridge Centre for Business Research Labour Regulation Index (CBR-LRI), the most comprehensive dataset of its type. The CBR uses a bespoke coding protocol to benchmark changes in labour laws around the world, in 117 countries representing 95% of global GDP, for the period between 1970 and 2022. This lengthy time series, coupled with consistency and transparency in the coding process, makes it possible to test claims relating to labour laws' economic effects using a range of econometric methods. Earlier studies using the CBR-LRI employed large cross-country panels to estimate the impacts of legal changes. This approach helps us to understand the overall picture but it can be hard to extrapolate from there to individual country effects. In this study we choose a different approach, based on time series analysis, to explore effects within individual countries. Specifically, we employ the methodology of impulse response functions (IRFs) to estimate the impacts labour laws have had on a number of economic variables, namely employment, unemployment, productivity and the labour share of national income, at country level. We apply our approach in analyses of the UK and China.

In the case of the UK, we find that increases in worker protection deriving from labour laws are correlated, on average, with higher employment and lower unemployment. Particular types of laws, including those relating to the regulation of atypical or flexible work, working time, and employee representation, have positive productivity effects. In China, we observe a positive impact on productivity of laws governing flexible work and dismissal protection. This positive effect is associated with falls in unemployment.

In interpreting our results, we suggest that they point to the generally positive relationship between productivity, on the one hand, and certain types of labour laws, in particular those levelling up between atypical or flexible forms of work and the so-called normal or standard employment relationship, setting a limit to working time, and protecting workers against arbitrary or unfair dismissal. These laws, by rendering employment more stable, provide incentives for firms to invest in capital equipment, which can mitigate the effects of the rising cost of labour, and for workers to invest in firm-specific skills and knowledge, returns from which are realised over time. Laws of this kind help solve coordination problems which would otherwise lead to both firms and workers engaging in a 'race to the bottom', with firms undercutting each other on labour standards, and workers

declining to commit their time and effort to firms. Such 'race to the top' effects can assist a fast-growing country such as China to bridge the 'middle income gap' to sustainable development, and prevent a mature economy, such as Britain, regressing back to a low-cost, but also low-productivity, regime for labour.

In developing our argument we present, in section 2 below, some more detail on the way labour laws are understood in economic theory, and, in section 3, a review of the state of the art in the empirical literature. Section 4 explains how the Cambridge dataset of labour laws was constructed and overviews the key trends it reveals. Section 5 sets out our econometric findings. Section 6 offers a concluding assessment.

2. Labour law and economic theory: a continuing debate

The idea that labour laws, while purporting to protect workers, may end up harming them by causing involuntary unemployment, became influential in the wake of the World Bank's *Doing Business Report* for 2008, which prominently reported this claim (World Bank, 2007: 19). The theoretical basis for the claim is unclear. It is indeed the case that, from the point of view of neoclassical economic theory, a perfectly competitive labour market, characterised by complete information and frictionless contracting, would have no need of regulatory interventions to achieve optimal resource allocation: the price mechanism alone would suffice. It is also the case that in such a world, there would be more scope, not less, for labour laws to play their part in promoting workplace justice and a fairer distribution of gains from production. The supposed 'great trade off' between efficiency and fairness (Okun, 1975) would not arise if the price mechanism were able to operate unhindered. The positive or descriptive version of the 'Coase theorem' (Coase, 1960) predicts that the distribution of legal rights and liabilities has no impact on efficiency as long as contracting is costless. Coase (1988) also recognised that the zero transaction cost world was a fiction, and that in the real world, contracting is necessarily costly. In reality, perfectly competitive labour markets are neither the norm, nor the default in the absence of law. Coase's observation on financial markets – that, in so far as they are competitive, it is only thanks to laws and regulations of various kinds (Coase, 1988) – applies with equal force to labour markets (Kaufman, 2007).

There is no 'state of nature' in which labour markets operate unaided by legal institutions, which serve a number of functions: defining commodities, reducing transaction costs, and mitigating the effects of information and power asymmetries (Deakin and Wilkinson, 2000). When they perform these market constituting operations, labour laws tend to have combined equity and efficiency effects, which cannot be neatly separated. While trade-offs are possible, and

should be recognised for what they are, fairness norms can also have efficiency effects (Stabile, 1996). They may generate mutual gains from contracting, in the form of more stable and productive jobs, for workers and firms (Bartling et al., 2011) and positive externalities, in the form of higher wages and employment, for society at large (Acemoglu, 2001).

The economic literature has identified a number of potentially positive welfare effects of certain specific types of labour laws. Minimum wage laws may have the effect of simultaneously raising both wages and employment in contexts where employers operate as monopsonists, that is to say, monopoly buyers, with power to alter market outcomes for their private gain (Manning, 2008). Working time laws, setting legal maxima to the working day, week or year, help to promote the physical and psychological well being of workers, leading to productivity gains (Collewet and Sauermann, 2017). Unfair dismissal legislation may enable firms to make credible commitments to workers, facilitating information sharing, which may be of particular importance for innovative firms (Acharya et al., 2013). Laws providing for employee representation both within the firm (for example, through works councils and codetermined boards) and at sector or industry level (for example, by mandating multi-employer collective bargaining) may induce firms and workers to make complementary investments in capital goods and skills (Jäger et al., 2022).

It may be argued that if it is in the interests of employers to offer stable jobs and high wages to workers, they would do so without the need for legal regulation. Thus firms may pay 'efficiency wages', involving a premium over the supposed market-clearing wage, in order to elicit extra effort and commitment from workers (Bulow and Summers, 1986). Employers may be reluctant to cut wages during a recession, knowing that to do so would demotivate employees (Bewley, 1999). The observation that employers may voluntarily observe labour standards which laws would otherwise impose on them is not in itself, however, a reason to oppose regulation: it can be one of the functions of labour laws to inform employers of good practices and to generalise their effects. Moreover, there are situations in which the absence of publicly instituted legal regulation can prevent the emergence of beneficial contractual arrangements in the first place. For example, in the presence of asymmetric information, firms may be reluctant to offer contractual job guarantees, if to do so runs the risk of attracting lower-quality recruits (Levine, 1991).

While a case can be made for regulation from perspectives which do not depart far from the methods and axioms of mainstream neoclassical and new-institutional economics, a political-economy perspective may help to reveal more of the dynamics underlying the relationship between labour law and technological change. Moos (2021) offers an interpretation of the political economy underlying

the British Factory Acts which emphasises the role that legislation plays in overcoming social coordination or 'collective action' problems facing private actors. In her account, which draws on Marxist and feminist theory, the social reproduction of labour power is essential for the maintenance of capital accumulation by firms over the long term. The effective social reproduction of labour requires, among other things, the payment of a living wage and the placing of limits on the length of the working day and week. However, in the early decades of the factory system in Britain, employers followed a strategy of extending working hours and employing women and children to substitute for more highly paid adult males. This was profitable for individual firms even if it was against the interests of the capitalist class in general. In the absence of general legislation, any firm offering a shorter working week and avoiding the employment of child labour faced undercutting by its competitors. Working class households, conversely, found it hard to maintain a social norm of defending the living wage by withdrawing children and working age women from employment, as the wages received by a single male earner were insufficient to meet subsistence needs. The result was a 'race to the bottom' on both sides, which resulted in a deterioration of working and living conditions, on the one hand, and relatively slow productivity growth, on the other. This pattern persisted throughout the first half of the nineteenth century.

The passage of the first Factory Acts in the 1830s, followed by their more effective enforcement and extension to firms across all industrial sectors from the 1805s, established equality of competition between firms. It also provided a more secure basis for social reproduction, as living conditions for working class families improved, and for industrial production, as productivity and output increased in response to capital investment and skill formation. As Marx recognised in his account of the factory system in *Capital*, regulation favoured the technologically more advanced firms, while forcing out of the market those which were less able to respond to the working time limits by making technical and organisational improvements (Marx, [1867] 1990: ch. 15). While output per worker in the factory sector rose by 46% in the period between 1780 and 1840, before the enactment of legislative controls, it increased at twice that rate between 1840 and 1900. The return on capital in the industrial sector also increased over this period. Rather than reducing firms' profits, the reduction of the working day placed them on a more stable basis (Moos, 2021: 77).

In this account, labour laws are not so much exogenous interventions imposed from outside the industrial system, as endogenous responses to crises generated by capitalist dynamics (Deakin and Sarkar, 2008: 455; Moos, 2021: 81). Seeing labour laws as an endogenous response to the structural conditions of capitalist modes of production goes some way to explaining what Polanyi (1944) referred to as the 'double movement' of industrial societies, with regulation tending to

follow liberalisation. At the same time, a historical perspective would tend to suggest that regulatory systems are not necessarily stable, and can be destabilised or fragmented over time. Notwithstanding the collective interest which capital has in labour market regulation, individual firms may seek ways to evade legal controls if they can profit by doing so.

The British Factory Acts, thanks to their limited coverage (they did not apply to adult male workers), left a complex legacy. By the early twentieth century they were overtaken by collective agreements setting a shorter working day and week. Collective bargaining, however, reproduced patriarchal norms, embedding a male breadwinner wage as the basis for social reproduction. Voluntary collective agreements, operating in the absence of legislative underpinning, proved to be vulnerable to the effects of the business cycle and the destabilising effects of technological and organisational transitions (Deakin and Wilkinson, 2005: ch. 4). The lack of an effective statutory floor to working hours proved problematic when sector level collective bargaining began to disintegrate under a combination of political and economic pressures in the middle decades of the twentieth century. Having been a pioneer in the statutory regulation of working time in the Victorian period, Britain became, by the 1980s, one of the least regulated systems among developed countries with respect to controls over the working day and week.

The case of the British Factory Acts suggests that while regulation is, in general terms, intrinsic to the operation of capitalist labour markets, systems of regulation are vulnerable to decay and fragmentation. The issue is not so much that labour laws are unduly 'rigid', as that collective action problems can re-emerge in periods of transition from one mode of production to another, undermining the basis on which wages and working conditions are regulated. This is particularly the case where regulations are not put on a general basis, but apply selectively to certain industries, occupational formations, and social groups, and where doubt arises as to the scope of regulatory controls in the face of technological and organisational change. Universal standards, taking wages and hours 'out of competition' for all firms and sectors and applying to the wage earning class as a whole as opposed to certain segments of it, are more likely to survive pressures for fragmentation (Deakin and Wilkinson, 2005: ch. 5).

In short, economic-theoretical perspectives of various kinds, ranging from neoclassical and new-institutional approaches relying on formal modelling and econometric testing, to Marxist and institutionalist political economy approaches which draw on range of methods including historical research, recognise the centrality of labour regulation to capitalist dynamics. At the same time, theory suggests that labour laws face a significant obstacle in the form of the social coordination problem, which impedes the formation of general standards in the

first place and, once established, can induce their disintegration over time. This leaves open the question of how labour law systems work in practice to shape economic change and development, and how far they can be designed to withstand pressures for their fragmentation.

3. Empirical research: a shifting consensus?

In the early 1990s, a consensus seemed to have been formed on the question of the economic effects of labour laws, which was linked to the efforts of a number of international agencies, in particular the OECD, World Bank and IMF, to promote policies of labour market deregulation, which they believed would increase employment and reduce unemployment. In its *Jobs Study* of 1994, the OECD argued that unduly strict employment protection laws, along with strong trade unions and generous social security benefits, were among the principal causes of structural unemployment. Its 'Jobs Strategy' accordingly encouraged countries to reduce legal protections against unfair dismissal and promote the use of fixed-term and temporary work in place of permanent or indeterminate-duration employment (OECD, 1994).

Around the same time, the OECD began to publish indicators of the strictness of employment protection, which were then used to benchmark how far countries were implementing its recommendations for employment law reform (see now OECD, 2023). In 1999 the OECD published an assessment which claimed that countries which had made the most progress in implementing the Jobs Strategy were also those that had been the 'most successful in curbing structural unemployment and improving overall labour market conditions' (OECD: 1999). In the same year, the IMF described as the 'dominant view' the claim that 'institutional factors', including collective bargaining and job protection legislation, had 'a statistically significant and quantitatively important effect on the structural unemployment rate'. In 2003, the IMF's *World Economic Outlook* urged countries to implement 'comprehensive structural reforms to reduce "labour market rigidities"' including laws providing for 'high employment protection, such as high firing costs' (IMF, 2003). A few years later, the World Bank followed suit, claiming in its *Doing Business Report 2008* that 'many countries err on the side of excessive rigidity, to the detriment of businesses and workers alike' (World Bank 2008: 19). Like the OECD before it, the World Bank began to publish data indicating the relative strength of labour laws in different countries, via an Employing Workers Index which formed part of the wider set of indices contained in the Doing Business project.

In the 1990s and 2000s, most empirical studies tended to support the positions taken by the OECD, IMF and World Bank. A number of highly cited papers by prominent economists set the tone. These included Lazear (1990), claiming to show that strict dismissal rules, including provisions for notice and severance pay, led to unemployment; Besley and Burgess (2004), presenting evidence to the effect that high levels of labour law protection in Indian states were correlated with lower flows of investment, resulting in reduced growth; and Botero et al. (2004), constructing a global database of labour laws which was used to show that higher levels of worker protection were correlated with increased unemployment, in particular for youth, and a larger informal economy.

This apparent consensus fed into policy making. In 2000 a paper prepared by three leading labour economists advocating labour market deregulation to stimulate growth was jointly presented by the British and Italian governments to a European Union summit (Boeri et al., 2000, reported in Brancaccio et al., 2020a: 10). This chimed with the EU's 'Employment Strategy', which sought to increase the employment rate through institutional reforms including changes to the scope of employment protection laws. In the decade that followed, numerous European countries followed a strategy of widening the scope of exemptions from dismissal protection by lengthening qualifying and probation periods, authorising the use of fixed-term and temporary agency work, and reducing administrative controls over economic dismissals. The IMF and World Bank pursued similar strategies. Labour market deregulation formed part of structural adjustment measures imposed by the IMF as a condition of financial assistance to states affected by high levels of sovereign debt, including in Europe following the Eurozone debt crisis of 2009 (Escande Varniol et al. 2012). The World Bank's *Doing Business Reports* drew on the then influential 'legal origins theory' and related empirical methodology for creating a statistical measure of legal regulation to encourage deregulatory measures in developing countries, with 'dozens' of countries following what was taken to be global best practice in the first decade of the new millennium (La Porta et al., 2008).

The consensus in favour of labour market deregulation has, however, been fraying. The research literature is no longer of one voice. A recent meta-analysis conducted by Brancaccio et al. (2020a, 2020b) reported that of 53 papers studying the effects of employment protection on employment and unemployment published between 1990 and 2019, a minority, 28%, supported by the consensus view. A majority of papers, 51%, reported results contrary to the consensus, with the remainder offering conclusions that were neither for nor against it. Over the course of the 2010s, the number of papers reporting findings inconsistent with the consensus had increased. The Brancaccio et al. study was conducted using an established methodology for meta-analyses, which restricted the analysis to papers appearing in peer-reviewed journals recognised by the Web of Science. A

meta-regression analysis which controlled for possible publication bias, in the sense of journals tending to publish results which conform to existing theory, reached the same conclusion.

Brancaccio et al. (2020b: 14) observe that 'when top officials of the major international economic institutions support labour deregulations by claiming that these reforms promote economic growth and employment, they suggest an economic policy line not confirmed by the prevailing economic research'. Although observing the shift in the empirical literature, they do not seek to offer an explanation for it. It could represent the tendency, inherent in any academic field, for views which were regarded as established or mainstream to be challenged and adjusted over time. The central contributions of the 1990s and 2000s have been questioned on a number of methodological grounds.

Addison et al. (2000) show that the results arrived at by Lazear (1990), demonstrating negative labour market effects of laws mandating severance pay, are affected by errors induced by autocorrelation (a common problem in longitudinal studies), and do not survive once these biases are corrected for. The same authors nonetheless insist that their own results 'do not of course imply that the effects of dismissal laws, or employment protection legislation more generally, are benign'. Besley and Burgess' study (2004) of the effects of labour laws on employment and growth in India was almost immediately challenged on the basis that the coding of the relevant legislation was incorrect (Bhattacharjea, 2006). A more recent replication analysis conducted by Storm (2019) concluded that not only were the legal classifications relied on by Besley and Burgess 'demonstrably inappropriate', but that their econometric results were 'not statistically robust and often not adequately powered'. The legal codings contained in the Botero et al. (2004) study have not been subjected to a similarly fundamental critique, but Kanbur and Ronconi (2016) find that the negative effects of labour regulation on employment and growth reported by Botero et al. go away once account is taken of the uneven enforcement of laws.

In other cases, authors of studies claiming to find negative effects of labour laws have acknowledged that their estimates are limited in size and/or significance. The Nobel Laureate Heckman, co-author of a multi-country study claiming to show that labour laws in South America were responsible for low growth and high levels of informality (Heckman and Pages, 2000), later accepted that 'the evidence currently in play in this literature is weak' (Heckman, 2007). Several studies published by international agencies themselves have found either no effect of employment protection laws on employment and productivity, or some positive impacts (World Bank, 2013; OECD, 2016; IMF, 2016). The uncertainty surrounding the size and direction of the observed effects may help explain the caution more recently expressed in the international agencies' policy

pronouncements, with the World Bank in 2014 suggesting that appropriately framed regulations can 'benefit both workers and firms', and the OECD's revised Job Strategy of 2018 observing that countries 'with policies and institutions that promote job quality, job quantity and greater inclusiveness' tend to out-perform those in which there is an emphasis on 'enhancing (or preserving) market flexibility' (OECD, 2018).

While the meta-analysis undertaken by Brancaccio et al. (2020b) was confined to papers which estimate the economic effects of employment protection laws on employment and unemployment, the same authors also conducted an informal review of literature exploring the impacts of worker protection on productivity and inequality. The trends here are not particularly ambiguous. Employment protection laws, as well as laws governing worker voice and representation, have been found to be positively correlated with productivity in papers going back to the 2000s (Scarpetta and Tressel, 2004; Koeniger, 2005; Micco and Pages, 2006; Cingano et al., 2008; Deakin and Sarkar, 2008). Recent papers reporting a positive impact of labour law on innovation include Acharya et al. (2013, 2014), finding that employment protection laws are positively correlated with patent activity and growth in high-tech firms in both a sample of five developed economies (France, Germany, Japan, the USA and UK) and in a comparison of US states; Belloc (2016, 2019) reaches similar results, with the focus on employee representation; Jäger et al. (2021) study the effects of codetermination laws, finding a positive impact on capital investment; and several papers by Kleinknecht and other look ats regulation of fixed-term and temporary work, finding that deregulation is negatively correlated with innovation (Kleinknecht, 2020; Hoxha and Kleinknecht, 2020; Damiani and Pompei, 2022). Presidente (2023) identifies a positive correlation between worker protective laws and the adoption of industrial robots in a sample of advanced and developing countries, while Freeman et al. (2024) obtain a similar result for minimum wage legislation in China. Labour laws of various different kinds have been found to promote income equality (Nugent and Campos, 2015; Ciminelli et al., 2018; Deakin et al., 2013, 2014; Adams et al., 2019) and, when combined with an effective level of state capacity and acceptance of the rule of law, to reduce informality (Blanton and Peksen, 2019).

Thus summing up trends in the empirical literature, there has been a distinct movement over time: from consensus on the negative economic impacts of labour laws in the 1990s and 2000s, to growing doubt and ambivalence from the early 2010s, and the identification of a number of positive productivity and distributional effects of worker-protective labour standards in the most recent studies. With this in mind, we can now take a closer look at the data on labour laws made available in the latest iteration of the CBR-LRI index.

4. Mapping labour regulation: the 2023 update of the CBR-LRI dataset

4.1 Aims and rationale

The initial rationale for developing the CBR-LRI in the mid-2000s was to fill gaps in knowledge arising from the limited coverage of the indices then available. The OECD's Employment Protection Indicators, then as now, only coded for certain aspects of dismissal law and the law governing flexible forms of employment, and even with respect to these areas of labour law their coverage was not comprehensive, as it focused on economic dismissals rather to the exclusion of disciplinary or other reasons for the termination of employment contracts (for the more recent update of the OECD EPI, see OECD, 2023). The index prepared by Botero et al. (2004) had a wider coverage in the sense of including a full range of indicators for dismissal laws and what these authors referred to as 'alternative employment contracts' ('different forms of employment' in the CBR index) as well as laws on working time, employee representation and industrial action, but it did not provide a time series. The CBR-LRI was designed to provide historical codings on laws going back to the 1970s in the areas of law identified as relevant by Botero et al. In the process of constructing the index, the opportunity was taken to add new indicators to those proposed by Botero et al, and to make the coding protocols somewhat more granular, so as to capture more information. The CBR index, initially covering five countries by way an exploratory study (Deakin et al., 2007), was extended to the current 117 in the mid-2010s (Adams et al., 2017). With the 2023 update, the same 117 countries are coded using the existing protocols, with the period covered now extending from 1970 to 2022 (Adams et al, 2023). Thanks to its extensive year and country coverage, and the wide range of rules it codes for, the CBR-LRI is currently the most comprehensive source of statistical data on labour laws around the world. The only index to approach the CBR-LRI in terms of comprehensiveness, the World Bank's Employing Workers Index, was discontinued in 2021 because of concerns over the robustness of the methodology contained in the wider Doing Business project of which it formed a part (World Bank, 2021). A further feature of the CBR-LRI is that it forms part of a wider data series, the Cambridge Leximetric Database, which uses similar techniques to code changes in company and insolvency law, thereby providing a common methodology for analysing the effects of a wider set of laws governing business firms (Deakin et al., 2023).

4.2 Coding method: construct validity

The design of the CBR-LRI follows the guidelines for developing 'synthetic' indices set out in the *Handbook on Constructing Composite Indicators* first published by the OECD in 2005 (Nardo et al., 2005), and later under appearing under the joint auspices of the OECD and European Commission (OECD, 2008). The core idea here is that of 'construct validity', according to which an index represents a statistical construct or representation of a social or behavioural reality. A series of steps are suggested for identifying defining the elements of such a construct (see Table 1).

Table 1. Elements of a composite index

Concept
Construct
Indicators
Coding protocols
Measurement scale
Weights
Aggregation

Source: Deakin (2018)

The first step is to clarify the phenomenon to which the construct relates. This is referred to as the underlying 'concept'. In the case of the CBR-LRI, this is 'labour regulation', understood as the regulatory content of a rule governing labour relations. From the worker's point of view, this is equivalent to its protective content; from the employer's perspective, it signifies the external constraint imposed by law. The 'construct' is then broken down into a number of elements. 'Indicators' are summary representations of particular rules. The indicator is not literally the rule as it is expressed in the relevant legal text, but an abstraction from that text, which is intended to capture its meaning. The CBR index contains 40 indicators, each of which refers to a particular labour law rule, such as the definition of the employment relationship, the length of the normal working week, and the procedural requirements for calling a lawful strike. The 40 indicators are grouped into five sub-indices, referring to areas of regulation: these are, respectively, the laws governing different forms of employment, working time, dismissal protection, employee representation and industrial action. For each indicator there is a pre-defined 'coding protocol' which instructs the coder on how to score a given law. The coding protocols contain 'measurement scales' which assign higher or lower scores according to how protective a rule is. The CBR-LRI uses a 0-1 scale, within which higher scores indicate more protection

for the worker. Once scores are assigned to indicators, those indicators can be aggregated or averaged to produce overall scores for each of the sub-indices and for the index as a whole. Weights can be applied to increase or decrease the relative importance of a given indicator or sub-index; the default is to accord each indicator an equivalent weight. Laws are coded on a country-year basis, so that for each indicator there is a unique score for each of the countries and for each of the years, 1970-2022, covered by the index. The codebook published with the data spreadsheet contains a full explanation of how the coding protocols were applied to generate the relevant scores. Both the data and the codebook are publicly available and can be consulted online (see Adams et al., 2023).

The coding process is carried out 'manually', that is to say, by the authors of the index, who are legal scholars trained in labour and comparative law, reading the laws in question and arriving at an agreed score for each country-year unit. Primary texts of laws are sourced from the ILO's NATLEX database and similar country-level databases which can be accessed online. Where texts are unavailable online, which is sometimes the case with repealed laws going back to the 1970s and 1980s, they are tracked down through physical collections held in law libraries or with the help of national experts. The process of scoring is not automated, as it might be if a computational technique such as machine learning or natural language processing were being used, but nor is it predominantly subjective. The aims is to identify the score which, objectively speaking, is the best fit for the relevant coding protocol. It is clear nonetheless that this approach does not remove all elements of subjectivity. The initial identification of the 40 indicators, the definition of the coding protocols, and grouping of indicators into the sub-indices and overall index, in addition to the application of any weights, all involve elements of judgment.

Such judgment is unavoidable. The construction of an index, according to the OECD-EU Handbook, is a process akin to the building of 'mathematical or computational models', and as such 'owes more to the craftsmanship of the modeller than to universally accepted scientific rules for encoding' (OECD, 2008: 14). Even so, steps can be taken to minimise 'bias' in the statistical sense of a measure which systematically misrepresents the reality to which it purports to correspond. One such step is to make the coding process as transparent as possible. In the case of the CBR-LRI, explanations for each of the codings are provided in the sourcebook which accompanies the published data (Adams et al., 2023). In an attempt to minimise errors when coding particular laws, secondary materials are read in addition to the basic legal texts, and national experts consulted on matters which remain unclear. A draft version of the 2023 update of the index was published on a Cambridge University website in the course of 2022 and details circulated to members of the Labour Law Research Network (LLRN), a network of labour law researchers with global reach. The draft index

was then further updated in the light of information received from several members of LLRN.

In addition to being transparent, an index should be designed so as to be neutral with respect to the research question it is intended to address. 'Neutrality' here means that the design does not embed, implicitly or otherwise, assumptions which will skew or bias the index towards a particular outcome. The CBR index aims to achieve neutrality in this sense by seeking to code for regulatory content, making no assumptions about whether regulation is harmful or beneficial in terms of its effects. This is not so clearly the case with the OECD index, which aims to measure 'strictness', or the Botero et al index, which seek to measure 'costs'. As a result, these indices do not appear to be neutral with respect to the research question, 'are labour laws harmful?'

It may be said that it is not clear how far, in practice, this results in skewed codings, since it may be that 'strictness' and 'costs' are synonyms here for 'regulation', but it could equally well be the case that the design of these indices contains a built-in tendency to find adverse effects of labour laws. This risk may be amplified when it is borne in mind that the OECD indicators were developed after the OECD's initial *Job Study* had previously identified 'strict' employment protection as a cause of unemployment, and that the World Bank's Employing Workers Index was incorporated into a series of *Doing Business* reports founded on the belief that regulations of various kinds, including those governing labour relations, posed a barrier to economic growth.

Clarity of scope is a further issue with indices. The CBR-LRI aims to measure only the regulatory content of a labour law rule, in so far as this can be identified from a reading of the legal text in which that rule is contained or embodied. In seeking to measure 'strictness' or 'costs', the OECD and World Bank indices, respectively, are measuring something else, namely the assumed impact of a rule on employers' decision making. It is not clear, however, that a reading of a legal text alone can disclose this information. For example, a dismissal law which is more protective may not impose 'costs' on those employers who, given the existence of the law, are now more free to make credible commitments of stable employment to workers. Legal 'constraints' are not the same as 'costs'. Relatedly, a law which sets a limit to the working week may not in practice be a burden to employers who, by virtue of contract or collective agreement, already observe a more protective standard. Labour law rules operate alongside other sources including contracts, collective agreements and general principles of law.

The difficulty in extrapolating from jural or textual law to 'law in action' can be overcome to some degree through survey evidence, or via reliance on country experts to score laws according to how far, in practice, they see them as protecting

workers and binding employers. Both techniques have been used at various points in the evolution of the OECD and World Bank indices, but they run the risk of introducing new elements of subjectivity and, conceivably of bias, into the coding process. Polls of employers and law firms will simply reflect the views of those stakeholders and should be at least counterbalanced by the views of trade unions and workers, but simply combining or aggregating these different perspectives is not guaranteed to arrive at an improved understanding of the operation of labour law rules, as opposed to how survey respondents, who are not free of their own biases and preconceptions, might think they are.

Combining textual or 'jural' scores with survey evidence into a single index, or reweighting a jural score according to perceptions of enforcement or data on the size of the informal economy, risks a loss of transparency, as it may no longer be clear whether the overall score is driven by the content of the law, its perceived effect, or reweighting for apparent non-enforcement. In providing an index of the jural content of the law only, the CBR-LRI avoids this kind of opacity. Data are separately available on the state of the rule of law in a country, for example via the World Bank's Governance Indicators (Kaufmann et al., 2012), and on perceptions of law enforcement, for example via the World Values Survey (WVS, 2024). Given the existence of these separate datasets, which can be used as controls in a regression analysis, there is less justification than there would otherwise be for incorporating enforcement and perception data directly into the CBR index.

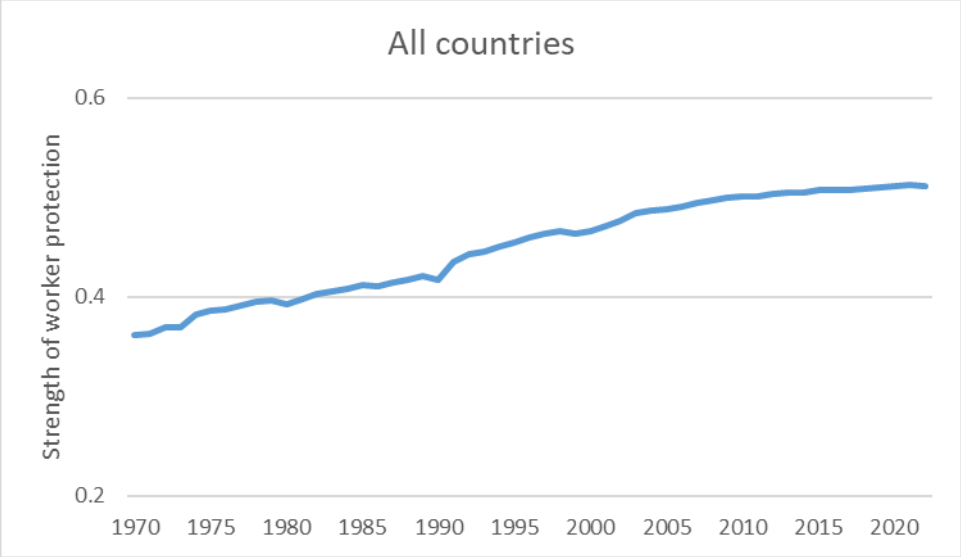
As just noted, the construction of the CBR-LRI has not, to this point, taken advantage of the recently developed techniques in machine learning (ML) and natural language processing (NLP) which are making it possible to automate the process of turning 'text into data' (see, for an overview, Ash and Hansen, 2024, and for an application in the labour law context, Arold et al., 2024). It is possible that greater use of automation can be made in future, but there are some caveats to bear in mind here. The case for using automation turns on its potential in identifying patterns and structures which would not otherwise be visible, or in allowing more granular analyses than would be possible, given time and resource constraints, through manual coding. Automation is not necessarily less free of bias and of the need to make judgments when identifying data sources and choosing algorithms or models to process them. ML applications, in particular, may be more opaque or at least less easily interpretable or explicable than those which use a 'manual' approach. In its current form, the CBR-LRI, while extensive (it codes for several thousand individual legal events, in the form of statutory amendments and court rulings, and contains over 200,000 country-year observations), does not operate at a scale where direct human reading and interpretation of texts is infeasible. Manual coding, since it makes it possible to provide an explanation for each individual score in the dataset, assists

transparency, replicability and (in cases where feedback is received on codings) error correction, each of which would be less straightforward with ML.

4.3 Descriptive data: trends revealed by the 2023 update

We are now in a position to describe the results from the legal coding. Figure 1 shows the trend in the aggregate score, that is, the average of the five sub-indices, covering between them the full set of 40 indicators, for all countries and all years. As can be seen, there has been a steady, incremental and more or less continuous rise in the level of protection. This may seem surprising, given the importance placed by the OECD, IMF and the World Bank on the supposed merits of labour market deregulation since the 1990s, and the related popularity of policies of labour flexibility in many countries. The steadily rising trend also seems to contradict the claim that labour laws are becoming otiose or redundant as a result of the rise of precarious work, from the 1980s and 1990s and, more recently, of platform work. The trend, being an average, abstracts from the pattern in countries and regions which experienced quite significant changes, some of them deregulatory; the global average smooths out these country differences. Nonetheless, the chart clearly refutes the idea that the protective content of labour laws in general has been declining over time.

Figure 1. Trends in labour regulation over time: all countries, all years

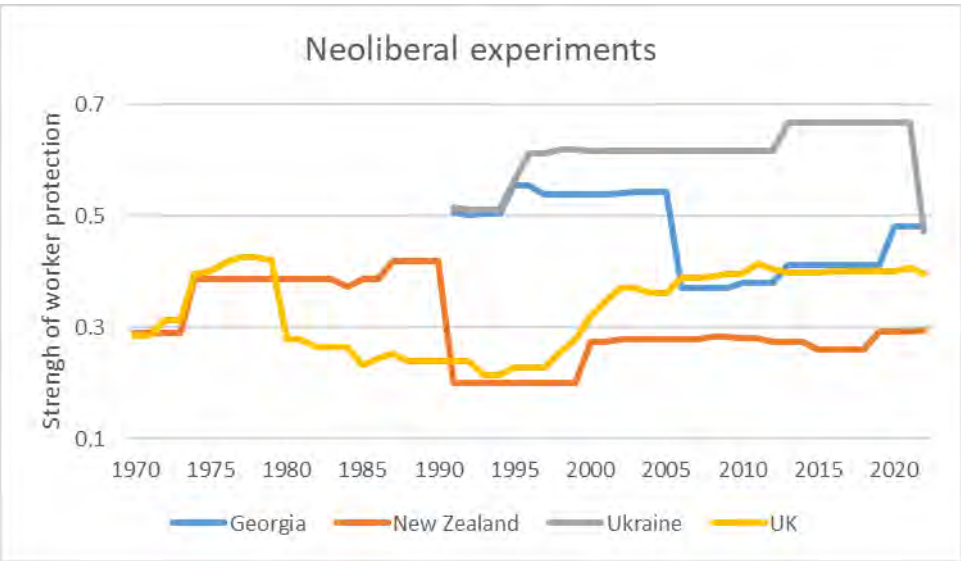


Note. The vertical axis measures the strength of worker protection on a 0-1 scale, with higher scores indicating a higher level of protection.

Source. CBR-LRI Index, 2023 update (Adams et al., 2023).

Episodes of rapid and far-reaching deregulation are comparatively rare, and rarely persist for long, although they may have lasting effects. Figure 2 shows the time trends in four countries which engaged in deregulatory initiatives: the UK in the 1980s, New Zealand in the 1990s, Georgia in the 2000s, and Ukraine since 2022. In the first three cases, the deregulatory trends were reversed over time, although the overall level of protection did not return to where it had been before. It remains to be seen how far Ukraine follows a similar pattern in due course. The labour law reforms it introduced in 2022, although in some cases introduced under a state of emergency, were planned before the current conflict with Russia began.

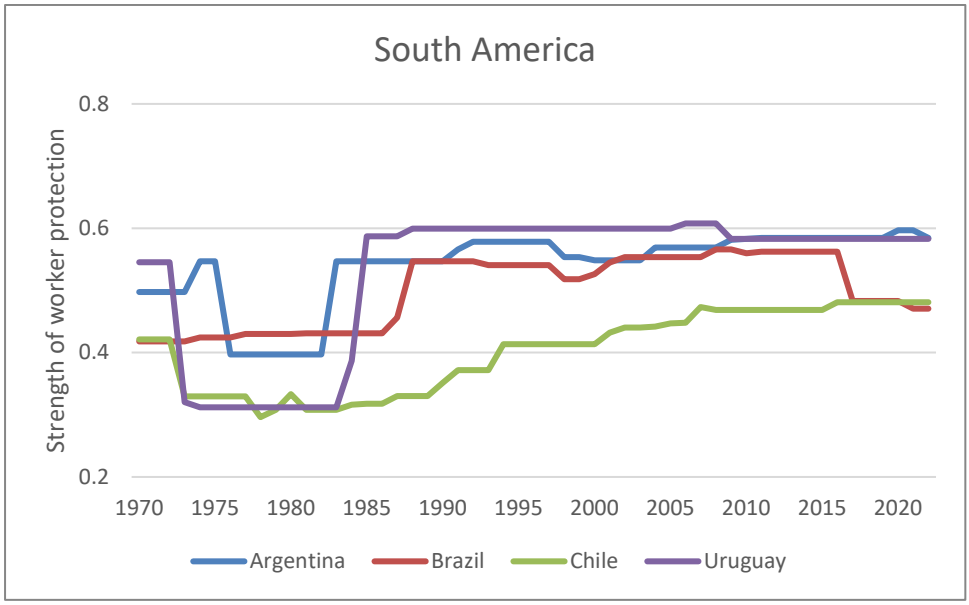
Figure 2. Neoliberal experiments in labour law



For explanations and sources, see Figure 1.

Figures 3, 4 and 5 show the trends in three regions: South America, mainland Europe, and East Asia. In South America, the period from the late 1970s into the early 1980s saw sharp falls in the level of protection for workers. In countries which included Argentina, Brazil, Chile and Uruguay, these falls correspond to periods of authoritarian and military rule, when freedom of association rights were removed and basic labour protections scaled back. As Figure 3 shows, when military rule ended in these countries, labour rights were restored. South America remains a region with mature and developed labour law systems, although it is not now, as it was prior to the 1970s, the region with the most protective labour laws.

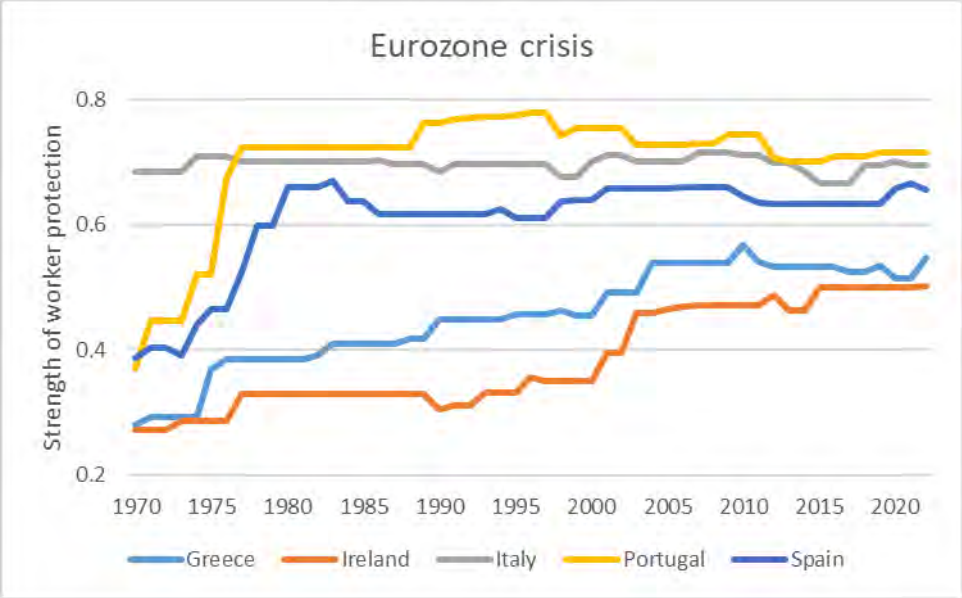
Figure 3. Labour laws in four South American countries



For explanations and sources, see Figure 1.

The region with, on average, the most highly worker-protective laws, is mainland Europe. European labour law is notable in particular for the presence of unfair dismissal laws, which were widely adopted from the 1970s, and laws levelling up the position of workers engaged in flexible or atypical employment (part-time, fixed-term and temporary agency work), which were diffused across the region, in part thanks to the influence of European Union law, from the 1990s. Figure 4 shows the time trends in selected Eurozone countries which were affected by the 'structural adjustment' measures imposed by the 'troika' of the IMF, European Central Bank and European Commission as a condition of financial assistance and debt relief following the crisis of 2009. What is notable here is that while the financial crisis did lead to some deregulation, the losses of protection were minor by comparison to the increases in protection which occurred in the 1970s and 1980s. Moreover, the trend in protection turned upwards again during the Covid-19 crisis, as member states adopted laws making it more difficult for employers to announce large-scale redundancies, which a view to stabilising the labour market and maintaining employment levels.

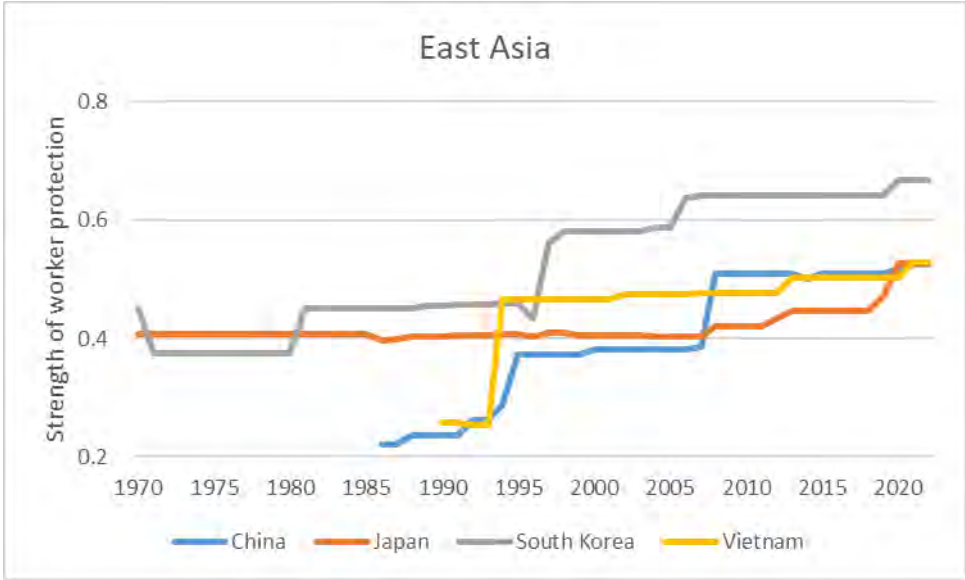
Figure 4. Labour laws in five Eurozone countries



For explanations and sources, see Figure 1.

The region in which labour law protections have shown the most marked rise, according to the index, is East Asia. Figure 5 shows the steadily and substantial rising trend in China, Japan and Korea and Vietnam, which is particularly marked since the late 2000s. The adoption of the Labour Contracts Act in 2007 is responsible for the marked rise in protection in China.

Figure 5. Labour laws in four East Asian Countries

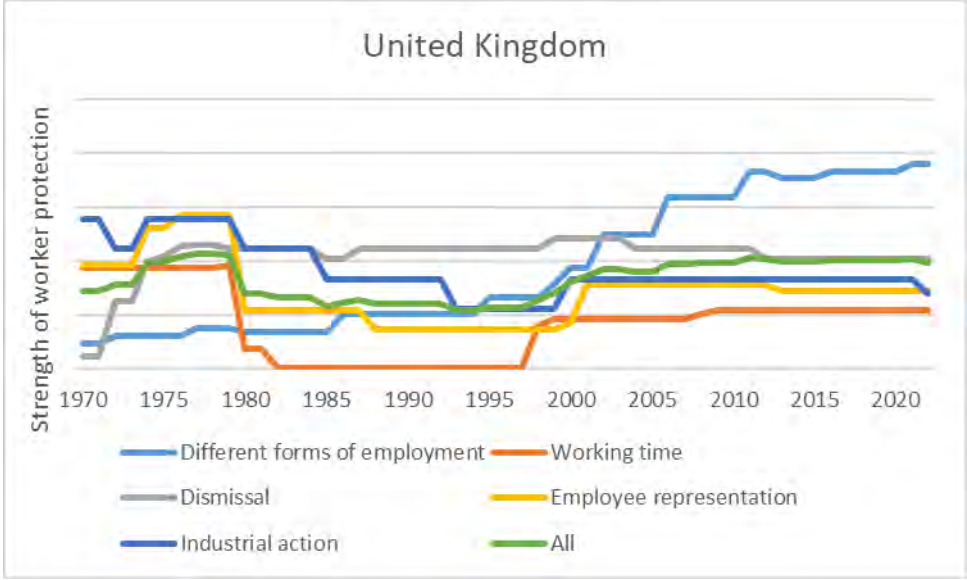


For explanations and sources, see Figure 1.

Figures 6 and 7 provide more detailed information on trends in labour protection in the UK and China over the period of the study. In these charts, the trends for each of the individual sub-indices are represented and the aggregate score are shown.

The UK chart shows that following a period of substantial worsening of labour rights in the 1980s, associated with changes to laws on working time and collective labour law (employee representation and industrial action laws) in particular, levels of worker protection recovered from the mid-1990s. This was largely due to the influence of EU standards. The implementation of the EU working time directive in 1998 led to a partial restoration of the working time protections which had been removed in the early 1980s. In addition, the UK's adoption of directives in part-time, fixed-term and temporary agency work led to the significant uptick in the 'different forms of employment' score. Dismissal protection was broadly stable between the mid-1970s and the present day. Among the more recent codings, the influence of the UK Supreme Court's decision in *Uber*, confirming that platform workers have sufficient employment status to claim minimum wage and working time protections, is shown by a rise in the score for 'different forms of employment', while, on the other hand, the introduction of laws limiting the right to take industrial action in certain essential services, coupled with changes to the laws governing the right to protection against dismissal for participation in industrial action, is signified by a decline.

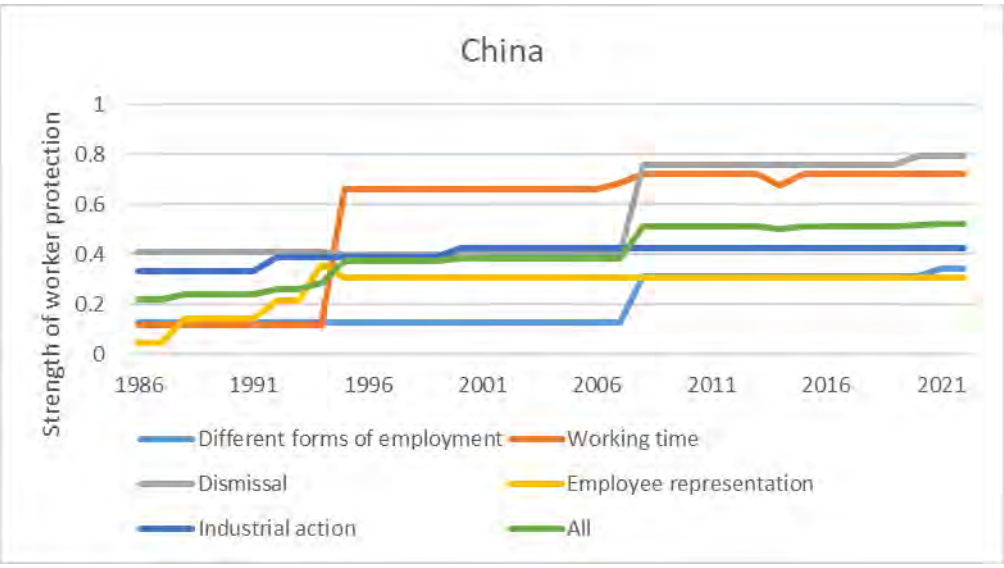
Figure 6. Labour laws in the UK



For explanations and sources, see Figure 1.

Figure 7 breaks down the Chinese score into the aggregate score and the five sub-indices. Chinese laws are coded from 1986, the year in which the Provisional Regulations on the Implementation of the Labour Contract System in State-Owned Enterprises were adopted. The sub-index scores which show the most substantial increases over time are those relating to working time regulation and dismissal protection. These changes mostly reflect the influence of the Labour Contracts Act 2007. The score for 'different forms of employment' reflects the adoption of the 2021 Guiding Opinions on Protecting Workers in New Forms of Employment. Although the Guiding Opinions are not legislation as such, they are coded here on the basis of their functionally similar effect in regulating the basis on which labour classification decisions are made. Account is also taken of recent case law. The Chinese codings also reflect the relatively important role, by international standards, accorded to standards governing worker participation in codetermination processes, and the respect accorded to collective labour rights, including the right to strike, in China.

Figure 7. Labour laws in China



For explanations and sources, see Figure 1.

5. Econometric analysis using the Cambridge index

5.1 Econometric method: hypotheses, data and approach to regression analysis

The next step is to conduct an econometric analysis capable of identifying statistical associations between the key variables of interest and drawing related causal inferences. The hypothesis we wish to test is the claim that changes in labour laws have economic impacts of both a distributional and efficiency-related

kind. Specifically, we test the hypothesis that stronger labour laws lead to an increase in the share of national income devoted to wages and salaries as opposed to dividends and profits (distributional effect), and to increases in productivity and employment and a decrease in unemployment (efficiency effects).

For the purposes of this analysis, the independent or causal variable is the strength of worker protection provided by legal regulation, as measured by the scores on the CBR-LRI index. Data on the dependent or outcome variables (labour share, productivity, unemployment, and employment) are sourced from the World Bank's World Development Indicators, the IMF's World Economic Outlook Database, and the International Labour Office's ILOSTAT database. Productivity here is measured as the level of output per hour of labour input.

The longitudinal coverage of the CBR-LRI, extending to several decades, makes it possible to use time-series techniques which are suitable for identifying long-run structural changes in an economy. An advantage of this type of time-series analysis is that it we can conduct a granular analysis of individual countries.

With over 100 countries in the Cambridge index, it is possible to carry out a panel data analysis, of the kind which can be used to identify general trends. Studies using the CBR-LRI to construct a cross-national panel include Deakin et al. (2013) and (2014) and Adams et al. (2019). These papers report mostly positive impacts on employment, productivity and labour share, and unemployment falls, from pro-worker adjustments to labour laws, although the effects vary over time (with more positive impacts emerging after initial negative shocks) and size (mostly small magnitudes are reported). The advantage of a large panel (in the Adams et al. 2019 paper, over 100 countries) is that the results can be regarded as generalizable; the disadvantage is that it is not possible to say anything about individual countries. A time-series analysis which focuses on one country at another time can provide this latter type of insight, complementing the wider panel-based studies.

We use a vector autoregression (VAR) approach, of the kind which is designed to model the dynamic behaviour of a country's economy. An advantage of VAR models it that they do not make strong a priori assumptions about the relative ordering of variables over time, allowing their interaction to emerge from time trends. In an unrestricted VAR, which we employ here, we can see how far changes in a given variable are related to their past or lagged values, as well as to changes in other variables and their lags.

We present our results as impulse response functions (IRFs). An IRF models the dynamic response of one variable to a change in another. The results are shown graphically. The horizontal axis in each graph represents the period of time over

which the impact takes effect, and the vertical axis indicates the size and direction of the effect. If the regression line moves above zero for a given period, we are observing a positive impact of the causal variable (here, an increase in labour protection) on the outcome one (productivity, employment, unemployment or labour share).

The extent of the movement indicates the degree of responsiveness of the economic variable to the change in the legal one. More precisely, the units shown on the vertical axis show the magnitude of the response to a single unit standard deviation in the value of the impact variable.

It is inherent in the model that we would expect to see the regression line return to zero after a certain period of time. Convergence back to zero does not necessarily indicate that an effect, having been initially positive, is then negative; rather, the effect itself is dissipating. The slope of the convergence line gives an indication of whether the effect is more or less long lived. It may be that a succession of positive and negative effects can be observed before the point of zero convergence is reached.

An IRF analysis is understood to be capable of identifying a causal effect as opposed to a simple correlation, at least in the sense of identifying precedence: if we observe an impact, it is evidence of the response of one variable to a change in the other in an earlier time period. This so-called 'Granger causality' makes use of the presence of lagged or past values in the data (Granger, 1969). To say that one variable 'Granger causes' another means that previous values of the first variable help predict the current value of the second one, taking into account the impact past values of the second one on its current value. The Appendix contains a more formal description of the model we use.

The IRF is illustrated graphically by a central line, with bands either side (the shaded area in the graph) showing a 95% confidence interval. If a zero result, indicating no effect, falls within the 95% confidence interval, it is conventional to infer that the null hypothesis, of a zero effect, cannot be ruled out. Where we see wide confidence intervals containing the zero result, we should regard the result as at best provisional or exploratory. However, such results are not without interest, as they may indicate the direction of the impact and the duration of the effect, and can be used to interpret or complement findings in respect of which the null hypothesis can be more securely ruled out.

Conversely, it should be borne in mind that obtaining a result in which the zero effect falls outside the 95% confidence interval does not mean that the result is 95% likely to be true. It means that *if* the hypothesis were true, the odds of getting the result by chance are very low. We must have reason to believe in the

hypothesis in the first place. In this sense, theoretical priors are not just desirable in statistical analysis, but essential. Where we observe, for example, a positive impact of labour laws on productivity via an IRF which moves above the zero line, the statistical association is insufficient *in itself* for us to draw the conclusion that the effect actually exists. It is the statistical result in conjunction with the prior theoretical understanding of the phenomenon which gives us reason to think that the result we obtain is evidence of a real causal effect.

It is sometimes said that a statistical process of this kind is better at identifying the 'effect of a cause' than it is the 'cause of an effect' (Gelman and Imbens, 2013). What this means is that statistical techniques can identify whether one variable impacts on another, in the sense of making a difference, negative or positive, to its value. Thus we can in principle see what difference labour law makes to, for example, productivity, all other things being equal. What we cannot observe is what causes productivity in general. A phenomenon such as productivity is highly likely to be caused by multiple factors, which interact in various ways. Where a complex phenomenon is 'overdetermined', in the sense of being simultaneously the result of several sufficient causes, it is not generally possible to say that any of them is the unique or necessary cause without which the effect could not occur. It is unlikely that labour regulation is a necessary cause of productivity growth, for example, given that many other factors are in play. It is possible, however, that labour law can contribute positively to productivity and related economic outcomes, which is what our analysis is intended to establish, one way or another.

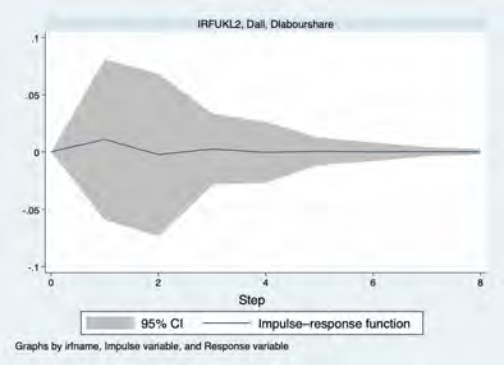
Deriving a finding of causation from a statistical association involves a degree of interaction between a finding and the hypothesis or model which it sets out to test. If an association of a certain kind is observed, we may be in a position to confirm, or to revise as the case may be, the model which motivated the empirical inquiry. In the final analysis, 'the search for causal explanations is, in statistical terms, an attempt to improve our models so as to reproduce the patterns we see in the world' (Gelman and Imbens, 2013: 6).

5.2 Empirical results: estimating the impacts of labour laws on employment, unemployment, productivity and labour share in the UK and China

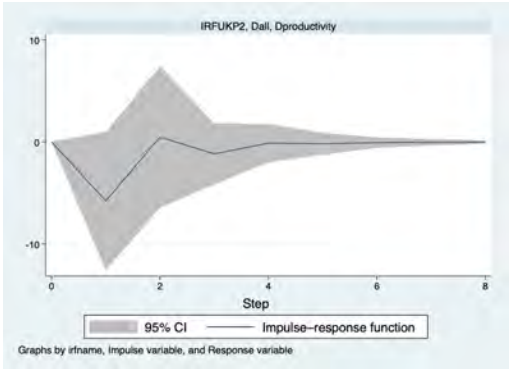
We firstly present our results for the UK. In Figure 8 we see the impacts of labour laws as a whole, that is, the aggregate score for all five sub-indices, on the variables of interest. We see a positive impact on employment and a negative one on unemployment. In these two cases the horizontal zero line falls outside the 95% confidence interval. The effects of sizable: for every single unit standard deviation increase in the labour law score (meaning that it is becoming more protective) we see changes several orders of magnitude greater for employment

(growing) and unemployment (reducing). We also see effects which persist: the slope of convergence is shallow in both cases.

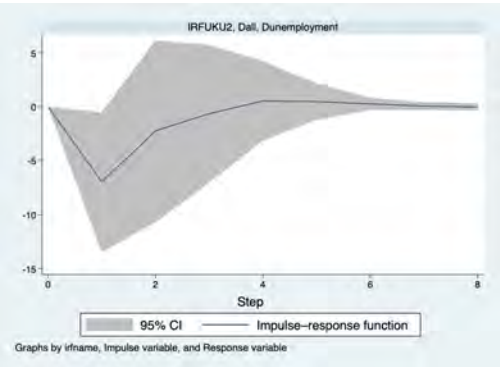
Figure 8. Impacts of changes in labour laws (aggregate) in the United Kingdom



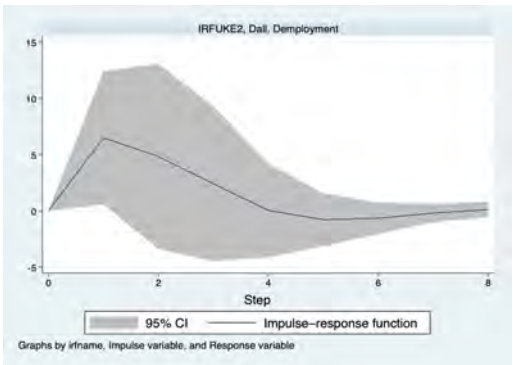
8a. UK: labour law (aggregate) on labour share



8b. UK: labour law (aggregate) on productivity



8c. UK: labour law (aggregate) on unemployment



8d. UK: labour law (aggregate) on employment

Notes: the central line shows the impact of the aggregate labour law score on the variable of interest. The shaded area indicates the 95% confidence interval. See text for an explanation of the method.

Sources: CBR-LRI (Adams et al., 2023) for legal data; World Development Indicators (World Bank), World Economic Outlook Database (IMF), and ILOSTAT (International Labour Organization), for economic variables.

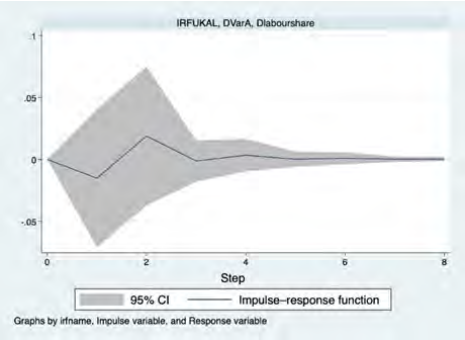
It should be noted that what we are observing here, and in each of the IRFs charts we present, is not the impact of any single legal change, but the average effect over the full 53 years of data that we have available. Altogether the index records over 70 changes in labour law rules in this period, around half of which increased protection and half of which reduced it.

For productivity, we see a negative effect in the first period followed by an increase in the second one, leading to a very small overall positive impact before convergence. Here the zero line remains within the 95% confidence interval, so the null hypothesis of no effect cannot be ruled out. For labour share, a small positive impact is observed, and here again there is a wide confidence interval containing the zero line.

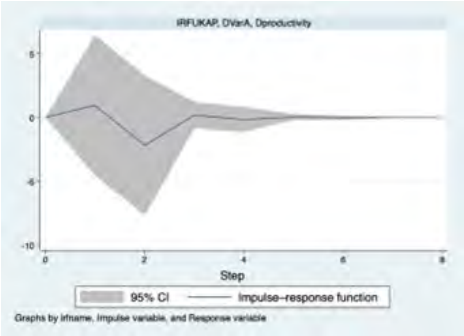
For the overall labour law score, then, we can conclude that the strengthening of protections leads to employment increases and unemployment falls. The results for productivity are less clear cut: an initial fall followed by a rebound resulting in a very small overall increase, and a low measure of statistical significance. The results for the labour share are too small and statistically uncertain for clear conclusions to be drawn.

The results for the individual sub-indices enable us to explore more closely the effects of certain types of laws (Figures 9-13). We observe a statistically significant effect in the case of working time laws: they increase employment and decrease unemployment, mirroring the result we achieve for the aggregate labour law score. In other cases we observe wider confidence intervals so we cannot so clearly rule out zero effects, but some trends can be observed. Increases in employment and decreases in unemployment are observed for the sub-indices on different forms of employment and employee representation. The only sub-index positively correlated with unemployment is the industrial action one. For productivity, we see a complex picture. In the case of working time, employee representation and industrial action, an initial fall in productivity is followed by a rise. This is consistent with the possibility that firms respond negatively to an increase in regulatory commitments in the short term, but, over time, as they adjust to a new regulatory regime, experience productivity gains, as labour is used more efficiently. In terms of the distributional effects of labour laws, positive impacts on labour's share of national income are most clearly observed in the case of the working time and industrial action indicators.

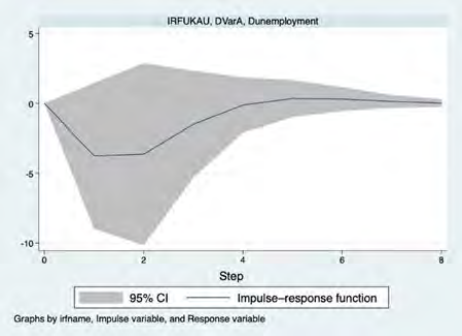
Figure 9. The impacts of laws governing different forms of employment in the UK



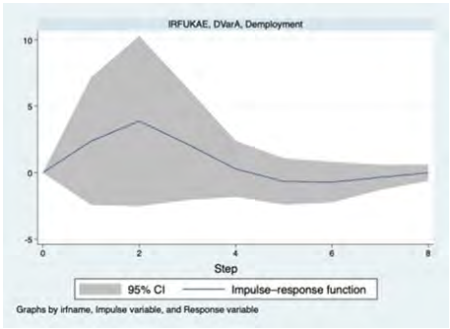
9a. UK: DFE laws on labour share



9b. UK: DFE laws on productivity



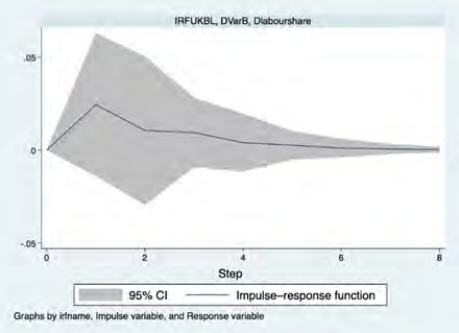
9. UK: DFE laws on unemployment



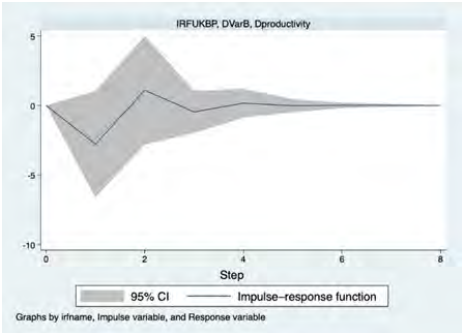
9d. UK: DFE laws on employment

Explanations and sources: see Figure 8.

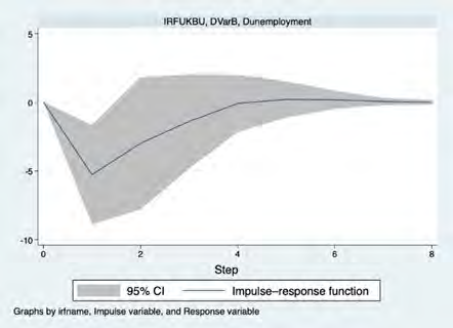
Figure 10. The impacts of laws governing working time in the UK



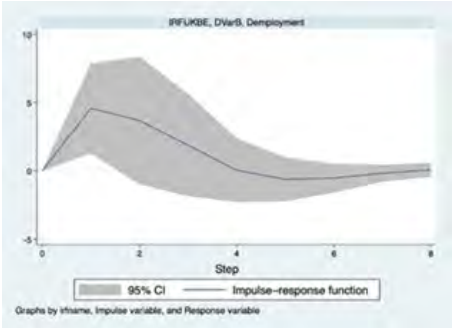
10a. UK: working time laws on labour share



10b. UK: working time laws on productivity



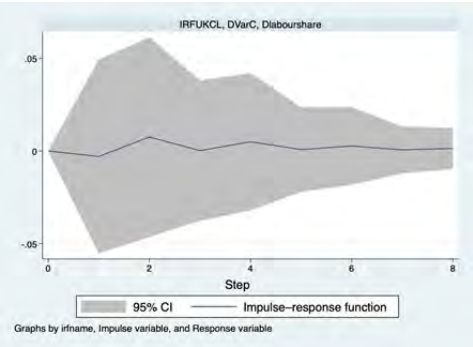
10c. UK: working time laws on unemployment



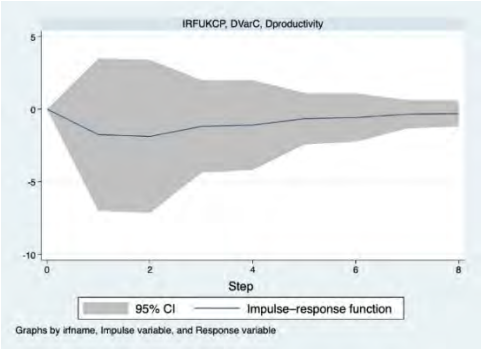
10d: working time laws on employment

Explanations and sources: see Figure 8.

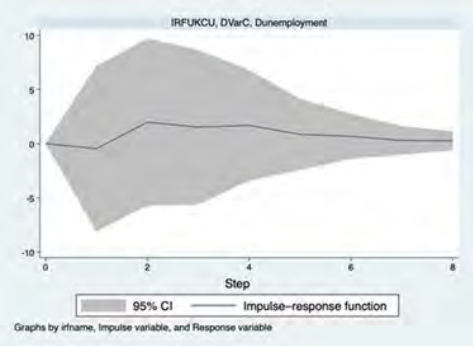
Figure 11. The impacts of dismissal laws in the UK



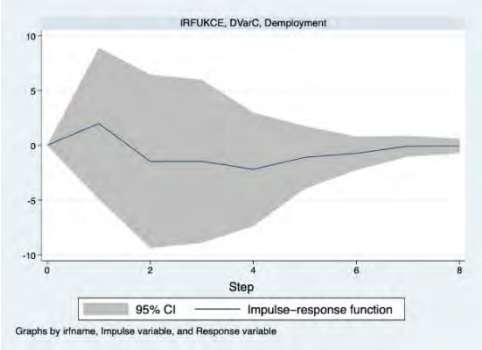
11a. UK: dismissal laws on labour share



11b. UK: dismissal laws on productivity



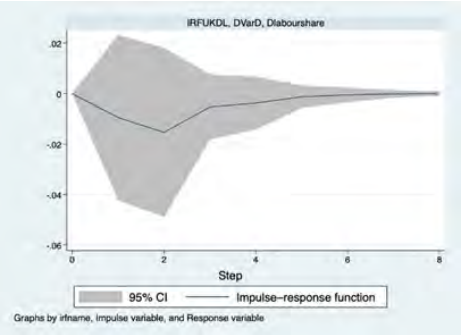
11c. UK: dismissal laws on unemployment

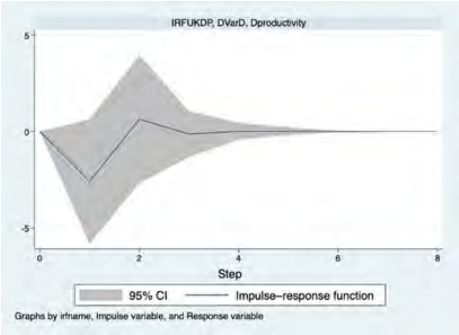


11d. UK: dismissal laws on employment

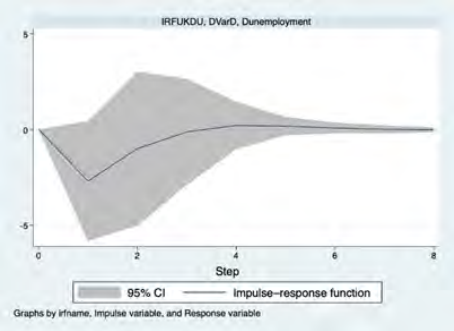
Explanations and sources: see Figure 8.

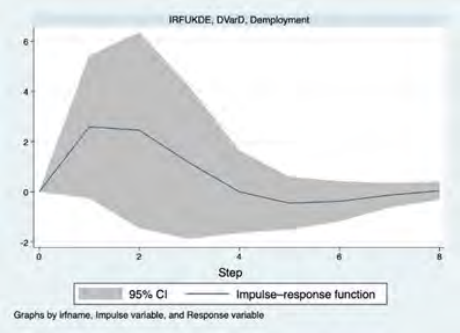
Figure 12. The impacts of employee representation laws in the UK





12a. UK: employee representation laws on labour share 12b. UK: employee representation laws on productivity

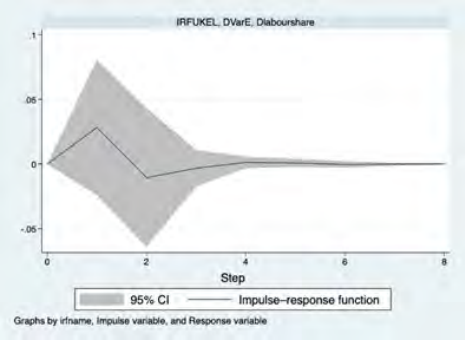


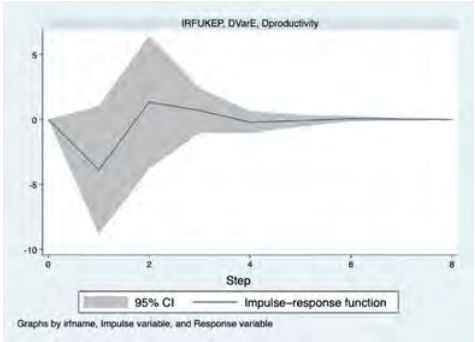


12c. UK: employee representation laws on unemployment 12d. UK: employee representation laws on employment

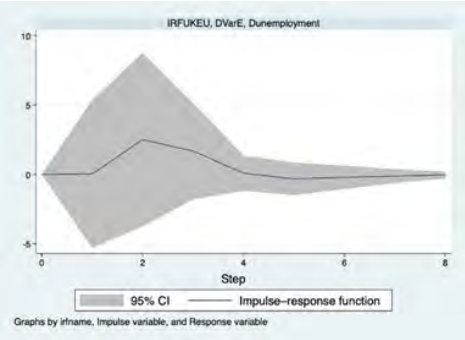
Explanations and sources: see Figure 8.

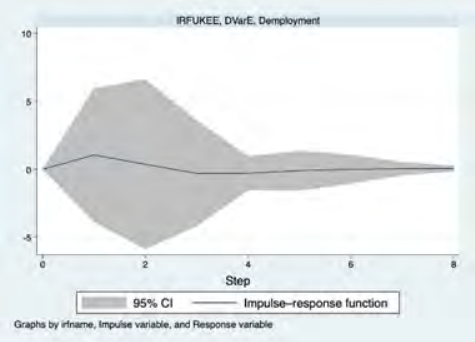
Figure 13. The impacts of industrial action laws in the UK





13a. UK: industrial action laws on labour share 13b. UK: industrial action laws on productivity



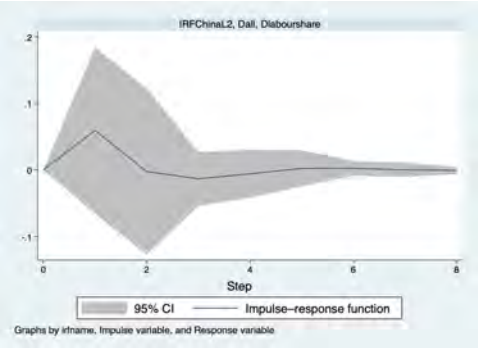


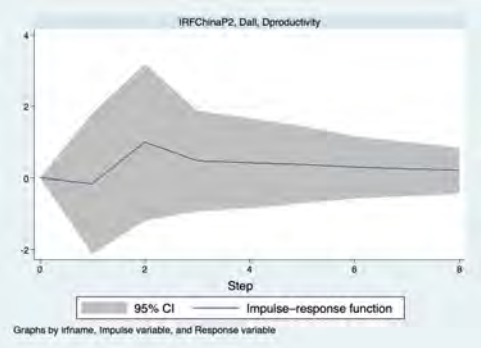
13c. UK: industrial action laws on unemployment 13d. UK: industrial action laws on employment

Explanations and sources: see Figure 8.

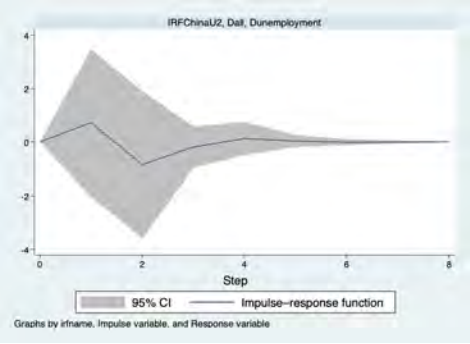
Turning now to China, we firstly report the aggregate results (Figure 14). These show an increase in the labour share and, after an initial fall, in productivity. Unemployment rises initially, and then falls. There is no clear result for employment. All these results are affected by wide confidence intervals, but are telling a consistent story: labour laws are positive for the labour share, while their efficiency effects, while delayed, are also positive, with productivity rising and unemployment falling after an initial negative 'shock'.

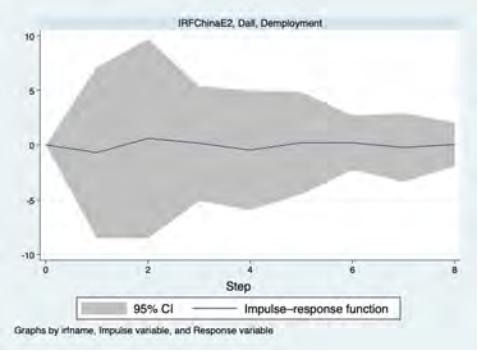
Figure 14. The impacts of changes in labour laws (aggregate) in China





14a. China: labour law (aggregate) on labour share 14b. China: labour law (aggregate) on productivity





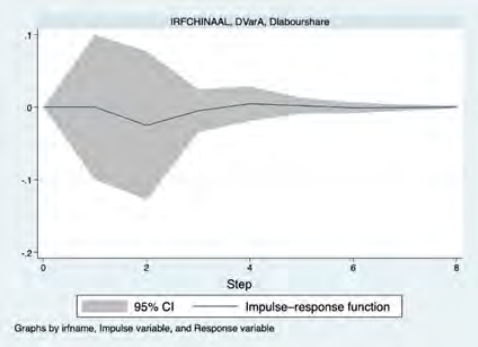
14c. China: labour law (aggregate) on unemployment 14d. China: labour law (aggregate) on employment

Explanations and sources: see Figure 8.

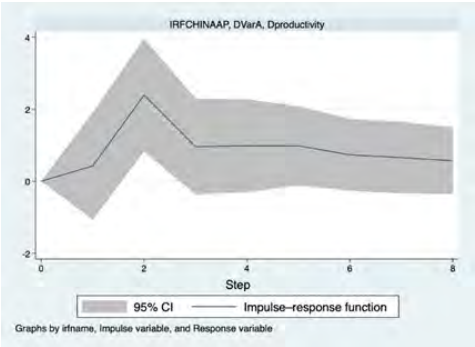
A deeper dive into the results for the sub-indices provides a more complete picture (Figures 15-19). In the case of the laws on different forms of employment and on dismissal protection, there is a positive impact on productivity, which is both statistically significant (the zero line falls outside the 95% confidence internal) and sizable (with the response several orders of magnitude greater than the impulse). There is statistically significant positive impact of working time laws, but a negative impact of industrial action law, on the labour share. The employment results are again unclear, with fluctuating impacts and wide

confidence intervals. With respect to the unemployment indicator, we see initial rises followed by falls for three of the indicators (different forms of employment, dismissal protection and industrial action laws), although the first two cases the confidence intervals are such that the null hypothesis, of no effect, should not be ruled out. The only statistically significant result for unemployment is with respect to industrial action law, which sees a sharp initial rise followed by an equally sharp reversal, with a very small decrease prior to convergence back to zero.

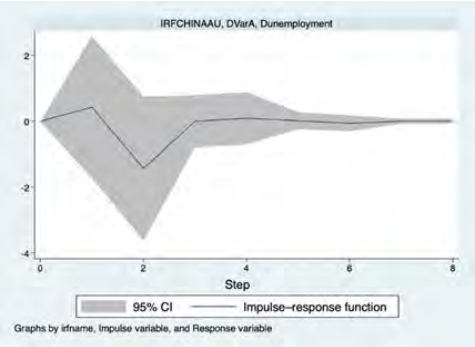
Figure 15. The impacts of laws governing different forms of employment in China



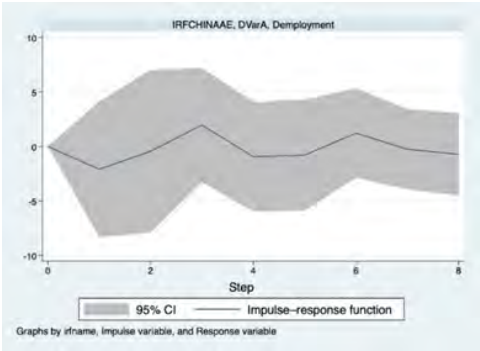
15a. China: DFE laws on labour share



15b. China: DFE laws on productivity



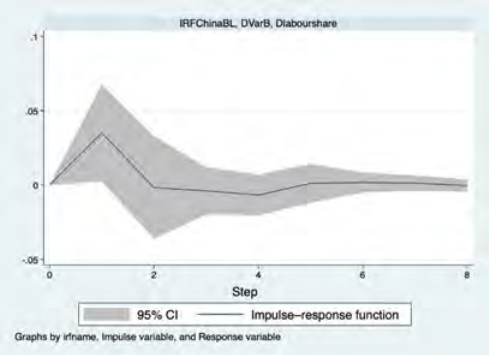
15c. China: DFE laws on unemployment



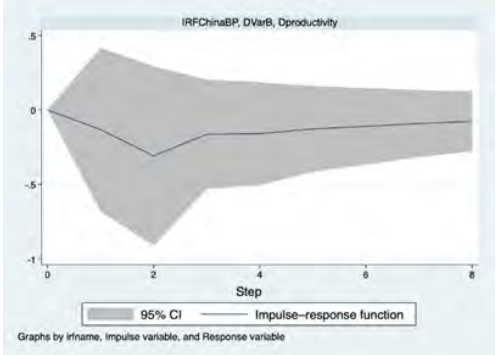
15d. China: DFE laws on employment

Explanations and sources: see Figure 8.

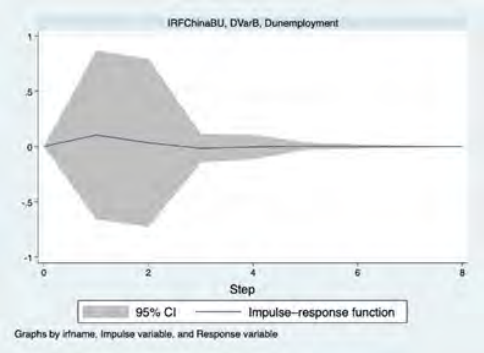
Figure 16. The impacts of laws on working time in China



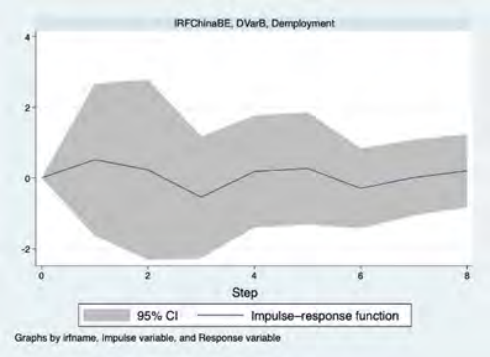
16a. China: working time laws on labour share



16b. China: working time laws on productivity



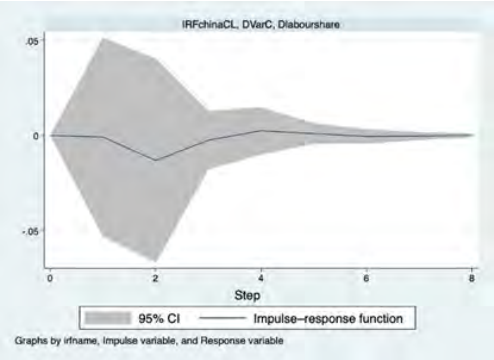
16c. China: working time laws on unemployment



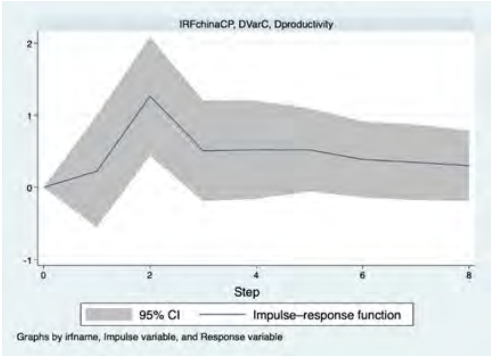
16d. China: working time laws on employment

Explanations and sources: see Figure 8.

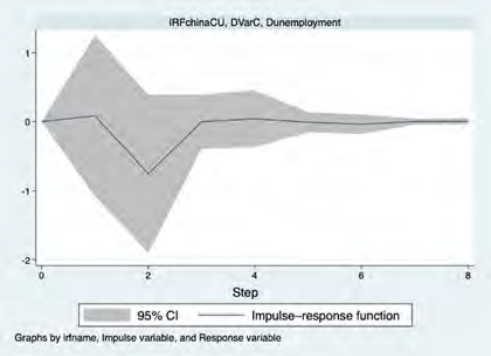
Figure 17. The impacts of dismissal laws in China



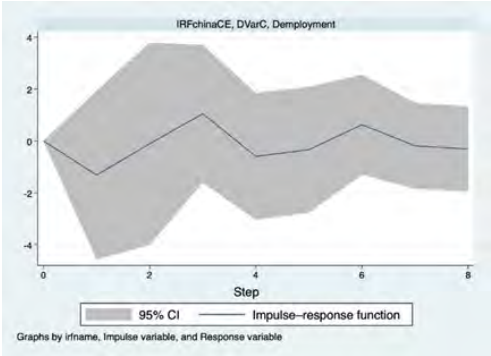
17a. China: dismissal laws on labour share.



17b. China: dismissal laws on productivity



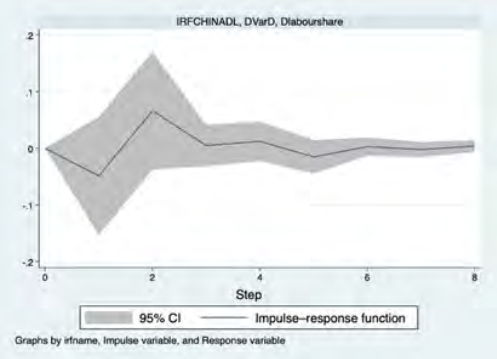
17c. China: dismissal laws on unemployment



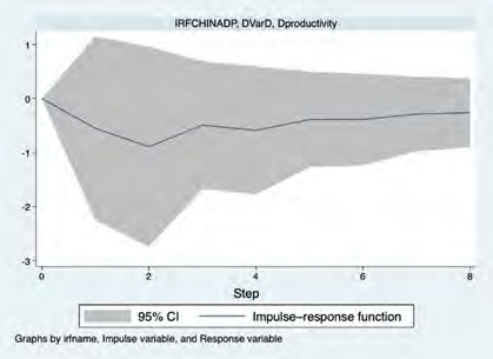
17d. China: dismissal laws on employment

Explanations and sources: see Figure 8.

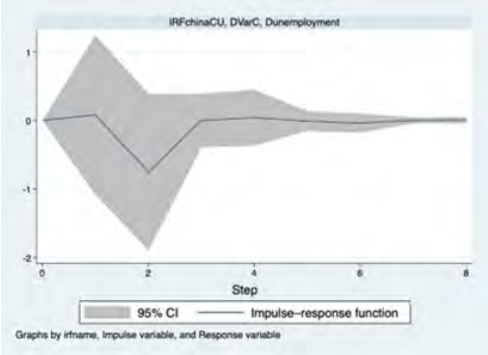
Figure 18. The impacts of employee representation laws in China



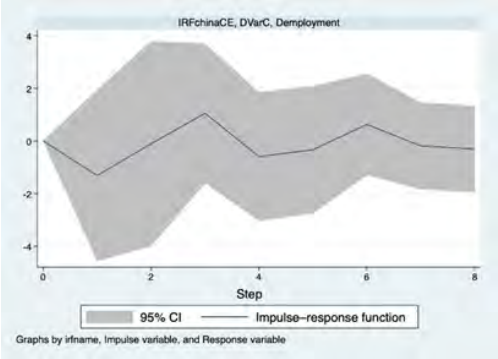
18a. China: employee representation laws on labour share



18b. China: employee representation laws on productivity



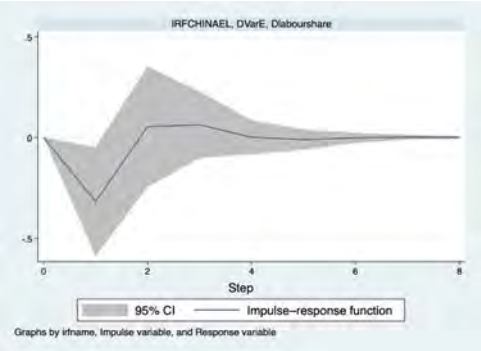
18c. China: employee representation laws on unemployment

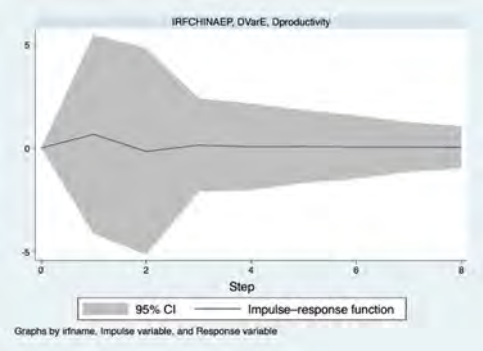


18d. China: employee representation laws on employment

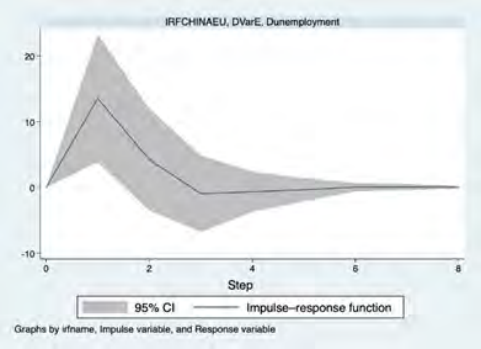
Explanations and sources: see Figure 8.

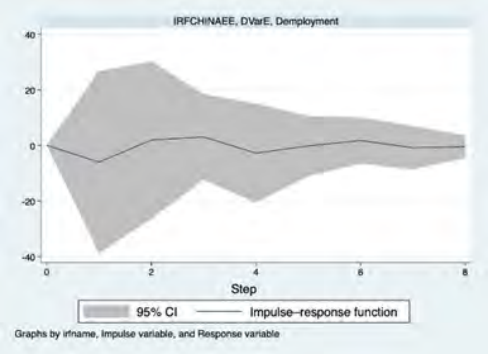
Figure 19. The impacts of industrial action laws in China





19a. China: industrial action laws on labour share 19b. China: industrial action laws on productivity





19c. China: industrial action laws on unemployment 19d. China: industrial action laws on employment

Explanations and sources: see Figure 8.

5.3 Assessment

Summing up our results, the findings for which we have the most statistically robust outcomes are the following: there is a positive relationship between labour protection and employment in the UK, and between labour protection and productivity in China. In assessing these results, a key issue to consider for the UK is whether the employment gains and corresponding unemployment falls that we observe are achieved through improvements to productivity. At the level of the aggregate labour law score, this is unclear, as we do not obtain a statistically significant result for productivity, and there is no clear evidence in any event of an overall productivity effect. When we look at individual sub-indices, on the other hand, we can observe a delayed productivity effect in the case of laws governing working time, employee representation and industrial action. The positive productivity effect suggests that working time controls increase employment not simply by sharing out the available work to more employees, but through improvements to labour quality and organisational efficiency. The positive productivity impacts of collective labour laws are also of note. Employee representation laws can be expected to improve firm-level performance given the

productivity-enhancing role of worker voice. Laws protecting the right to strike, by enabling workers to defend terms and conditions against attempts by employers to downgrade them, might be thought to play a role in disciplining capital, making it costly for firms to go down a low-wage route to maintaining profitability. Strike laws are positively correlated with a rising labour share, although also with rising unemployment, suggesting that distributional gains are not always a positive-sum gain for labour in the British context.

In the Chinese case, productivity gains are associated with unemployment falls. The results for employment are less clear cut. Overall, however, we see a clearer connection in the Chinese than in the British one between labour protection and improvements to productivity. In the case of laws relating to different forms of employment and to dismissal protection, the positive impact of worker protection on productivity is sizable and statistically significant. There is some evidence that the positive impact of legal change on jobs growth is delayed, as unemployment firstly rises and then falls as labour protection increases. This is consistent with the idea that a rise in labour protection works as an 'shock' to which firms respond by laying workers off, substituting capital for labour in an initial phase; in a later phase, as the benefits of increased capital intensity flow through, firms resume hiring, and the effect on employment is positive in net terms as firms reap the benefits of productivity gains. There is also evidence in China that stronger labour laws are correlated with a higher labour share of national income: this is most clearly the case with respect to laws regulating working time.

The results we report are average effects, and so we cannot say anything about the impact of any particular legal change. However, when we place them in the context of long-term trends in economic development and labour regulation, certain patterns emerge.

The UK is a mature economy which was both the first industrial nation and the first in the world to put in place legislative standards for factory employment. China is a fast growing middle income country which has experienced a period of rapid industrialisation, with manufacturing at its core, for the past few decades. In Britain in the second half of the nineteenth century, and in China since the last decades of the twentieth, improvements in labour productivity were achieved at the same time as worker protections were being strengthened and extended. A period of sustained economic growth is undoubtedly a propitious one for the enactment of labour rights. But the direction of causation may not be working just one way: stronger labour laws can contribute to productivity improvements, and thereby to growth.

In the period of our study, labour law in the UK has been highly volatile, with numerous changes, and three distinct periods: an initial period of rising protection between 1970 and 1979, one of decline between 1980 and 1995, and a steady and mostly sustained recovery since, which, however, has not seen the overall level of worker protection return to where it was before 1979. The labour share of national income, having fallen steeply from 1979, began to pick up again in the mid-1990s. After a decline following the global financial crisis, it has been rising since 2013 (Teichgräber and Van Reenan, 2021). This chronology, suggesting that worker protection and the labour share tend to rise in tandem, can be read with our finding of a causal connection between labour laws and the labour share to suggests that labour laws are capable of having positive distributional effects for workers. In China, there is a similar picture, which a fall in the labour share from the 1980s going into reverse, initially from 2008 and then more decisively from 2010 (Zhang et al., 2023). This is sometimes attributed to an increase in legally binding minimum wages (ILO, 2016), but it is noteworthy that the Labour Contracts Act also came into force in 2008.

For most of the period of our analysis, the rate of productivity increase in Britain has lagged behind that of other developed economies, a trend which has become particularly clear since the financial crisis in 2008 (Van Reenan and Yang, 2023). Prior to 1979, British labour laws were broadly speaking on a par, in terms of overall protection, with those of other western European countries. Since that time, labour law in Britain has fallen behind the western European average, as has its productivity performance. While there may be many reasons for the UK's relatively weak productivity performance, including a lack of capital investment and weakening public infrastructure, it would seem that its comparatively weak labour laws may also have been a contributory factor. For the UK, there is a danger of regressing to a low-wage, low-productivity regime, in which economic weakness is used as a pretext for cutting back on labour protections, or at least for not improving them. The idea that labour laws are an impediment to growth would then become a self-fulfilling prophecy.

China is at a different juncture in its economic development. Labour productivity in China has been steadily increasing as its industrialisation has advanced, although it remains below that in more highly developed economies (ILO, 2016). Labour productivity is understood as having an important role in closing the 'middle income gap' which China is now in the course of traversing (Zhang, 2017). In this context, at least maintaining, and possibly extending, the floor of rights contained in the Labour Contracts Act would have implications for sustaining China's productivity performance, as well as for its progressive distributional effects.

6. Conclusion

In this paper we have explored the question of the economic effects of labour laws, using evidence newly available from the 2023 update of the Cambridge Leximetric Database. Part of that database, the CBR-LRI index, codes for changes in labour laws around the world between 1970 and 2022. We employed time-series econometric techniques to test for the presence of a causal impact on changes in labour law on four economic indicators. Three of these are efficiency related: productivity, employment and unemployment. The fourth, labour's share of national income, is a measure of the distribution of gains between labour and capital.

We carried out parallel country studies for the UK and China. Our analysis enables us to identify the average effect of an increase in labour law protections in each country over the period covered by the dataset (1970-2022). The key findings are as follows: for the UK, stronger labour laws are associated with an increase in employment and a fall in unemployment. For China, stronger labour laws are associated with an increase in productivity and a fall in unemployment.

Our dataset enables us to identify the impacts of particular types of labour law rules. For the UK, the finding that stronger labour laws generate employment gains is clearest in the case of laws governing working time. For China, the positive productivity effects are clearest in the cases of laws regulating flexible work and dismissal protection.

We also find that labour laws in the two countries tend to increase the labour share of national production. This effect is mostly clearly associated, in both countries, with working time laws. In the UK, it is associated also with the laws protecting the right to take industrial action.

The finding that labour laws can have positive employment and productivity effects might seem to contradict much of the policy advice given by international agencies, in particular the OECD, IMF and World Bank, over the last few decades, but it is consistent with a changing consensus in the research literature, and is also with the greater neutrality with which agencies have formulated their policy advice in recent years. The result is also theoretically supported. It has long been recognised that labour laws have a role to play in ensuring that capital is more productively used. It would be timely for policy makers to consider a new consensus, in which labour laws are seen as having a core role to play in ensuring sustainable development and growth.

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Appendix: Econometric model

We use a vector autogressive (VAR) model to estimate the impacts of labour laws on a number of economic variables (employment, unemployment, productivity and labour share). The legal variable is regressed individually against each of the economic variables in turn.

The bivariate linear autoregressive model of two variables X_1 and X_2 takes the following form:

$$X_1(t) = \sum_{j=1}^{p} A_{11,j} X_1\ (t-j) + \sum_{j=1}^{p} A_{12,j} X_2\ (t-j) + E1\ (t)$$

$$X_2\ (t) = \sum_{j=1}^{p} A_{21,j} X_1\ (t-j) + \sum_{j=1}^{p} A_{22,j} X_2\ (t-j) + E2\ (t)$$

where p is the maximum number of lagged observations, the matrix A contains the coefficients of the model, and $E1$ and $E2$ are residuals.

If the variance of $E1$ (or $E2$) is reduced by the inclusion of X_2 (or X_1) in the first (or second) equation, we can conclude that X_2 (or X_1) Granger causes X_1 (or $X2$) (Pesaran et al. 2012). In other words, X_2 causes X_1 if the coefficients in A_{12} are jointly significantly different from zero, which can be tested by an F-test of the null hypothesis that $A_{12} = 0$.

Considering the previous equations, $A(l)y_t = \varepsilon_t$, where L is the lag and defined as $Ly_t = y_{t-1}$ and $A(L) = I_k - A_1 L - \cdots - A_P L^P$ is a matrix polynomial, in this framework the impulse response function defines the response of y_t to this impulse by setting one factor of ε_t to 1 and all other factors to zero.