


ORIGINAL ARTICLE

Effects of economic drivers on work health and safety in global supply chains: A discussion of the effectiveness of regulatory strategies and their economic contexts

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Abstract

Outlining the economic significance of the role of global supply chains (GSCs) in the organisation of the global economy, this paper initially presents some indications of health and safety outcomes in low- and middle-income countries (LMICs) where GSCs source much of the production destined for use in advanced economies. It goes on to discuss the operational dynamics of these chains and the corporate priorities that they reflect, which, it argues, do little to improve the poor work health and safety (WHS) outcomes in LMICs. It then examines evidence for the effectiveness of various private and public regulatory strategies that are claimed to bring about improved health and safety practices and outcomes among GSC suppliers in these countries. The paper critically evaluates this evidence and argues that, while there may be some examples of effective strategies and regulatory practices in particular contexts, their overall influence remains limited. It identifies and discusses the principal reasons for these limitations and concludes that the global regulation of conditions of labour – including WHS – at the end of GSCs falls well short of universal best practice and is, more generally, insufficient to counter the economic forces working against the maintenance of adequate standards of worker protection.

Keywords: globalisation; global supply chains; occupational health; occupational safety; regulation

Introduction

This paper presents a critical discussion of tensions between the economic drivers of the governance of global supply chains (GSCs) and regulatory strategies, within and around them, that seek to promote and support arrangements for work health and safety (WHS) in low- and middle-income countries (LMICs).¹ Taking a broad definition of ‘regulation’ that embraces private, public, and mixed forms, it draws on a recent critical review of a diverse range of literature on the influences on GSCs. Regulation, in this broader sense, includes methods and techniques beyond those of setting, monitoring and enforcing regulatory standards in the form of legal rules. For example, it can include economic incentives, socially constructed forms of persuasion (‘social norms’), techniques of accreditation and certification, ‘nudges’, and other measures to influence companies’ behaviour (EU-OSHA 2021; Morgan and Yeung 2007, 3–4). This broader conception of regulation also envisages that regulation can include combinations of (or interactions between) private voluntary

regulation, social governance, and public regulation, which is what is referred to in this paper as ‘mixed regulation’.

The paper’s discussion of the tensions between the economic drivers of GSCs and these regulatory strategies builds on the findings of a recently published paper based on the same sources, which explored the effectiveness of existing regulatory pathways in supporting improvements in WHS conditions at the ends of GSCs (Walters *et al.* 2024). It does so by (a) seeking to understand the role and effects of economic logics at both macro and micro levels in determining the nature of WHS practices and outcomes among suppliers in LMICs; and (b) exploring whether current supports for both vertical and horizontal – that is, both global and local – regulation of WHS are sufficient to counter the adverse effects of the profit-orientated corporate business strategies of lead firms in GSCs on the WHS practices and outcomes of their suppliers in LMICs.²

In summary, the paper argues that achieving the transfer and sustainability necessary to ensure the more widespread impact of measures to improve WHS in production at the ends of GSCs requires guidance from political institutions and policies that address the health inequalities arising from these economic logics.

The paper first outlines the methods used in reviewing the literature and seeking views of key informants, which constitute the sources of the material on which its analysis is based. It then discusses the economic significance of GSCs, particularly in relation to LMICs, explores health and safety outcomes in such countries and their possible associations with GSCs, and examines the operational dynamics of such chains and what is known about the effectiveness of existing attempts to regulate them to protect the working conditions of workers. The concluding section draws together the key points emerging from the preceding analysis and considers their implications for future policies seeking to improve WHS practices and outcomes in production and services at the ends of these chains.

Study methods

The study undertook an informed, critical review of relevant literature in parallel with a series of interviews and discussions with key informants.

Reviewing the literature: Understanding *operational* challenges undermining effective support for WHS within GSCs necessitated a search for a diverse body of relevant literatures across a range of disciplines, including global and national regulatory studies, economic geography, labour relations, business ethics and strategy, and organisation and development studies, to name a few. The method of systematic review, such as currently favoured in medical and scientific studies, variations of which can be applied in other disciplines too (Okoli 2015), was considered initially. However, the difficulty of designing such a review in a way that would adequately encompass all of the strands of the literature concerned and allow adequate exploration and critical comparison caused us to reject this approach. Instead, a critical review, with a narrative approach, was undertaken to facilitate a more comprehensive discussion of a body of knowledge that encompasses both quantitative and qualitative studies and diverse sources of data that were often not directly or systematically comparable (Grant and Booth 2009).

The review commenced with an initial wide-ranging search of titles and abstracts, using a set of terms derived from our research questions to identify relevant sources shedding light on the economic and other factors shaping the dynamics within global supply/value chain/production networks and the key regulatory measures that influence them. These terms were then narrowed in an effort to capture literature focussed specifically on WHS. This approach initially yielded few sources and broader terms were employed and combined with direct scrutiny, in order to scope the literature that implicitly or less

directly addressed WHS themes, while focusing on labour standards, voice, working conditions, fair or decent work, and so on, at the ends of supply chains. Sifting through such material, which included books and book chapters, as well as articles, revealed references to health and safety indicators, especially in relation to prescriptive WHS standards, but very few addressed influences on WHS management in conformity with principle- and process-based standards such as those of public regulatory measures on WHS in most advanced economies and found in global standards like International Labour Office's (ILO's) Health and Safety Convention 155 and guidance accompanying it (ILO 2009).

Engagement with key informants: At the outset of the study a small group of key informants were approached (N~12), and asked if they would be prepared to participate in the study as a reference group to help guide, discuss, and refine its investigation and analysis. They comprised representatives of key policy organisations and professional bodies at national and global levels, acknowledged experts in the field of the study, and representatives of the social partner organisations at global level. They shared in the design of the study and provided both oral and written feedback on its interim and final reports. A number of functionaries of the ILO (N~15), with significant experience and involvement in support of initiatives to improve labour conditions in GSCs, also took part in several discussion groups, conducted both on-line and in person, in which the brief of the review and its interim findings were explored and commented on in detail.

The economic significance of GSCs

It is widely accepted that GSCs are a significant feature of the global economy. A decade or so ago, in a conservative calculation, the ILO estimated that, in 2013, in 40 Organisation for Economic Cooperation and Development (OECD) and emerging economies, 453 million jobs were GSC-related and that approximately one in five workers worked in such jobs (ILO 2015). It also suggested that in these same countries, the number of GSC-related jobs had increased rapidly during the previous two decades, from 296 million jobs in 1995. The study further revealed that most of this increase had been driven by emerging economies, where GSC-related jobs had grown by an estimated 116 million (Kizu et al 2019). Meanwhile, Amengual et al (2020) note that the large branded companies that are lead firms in GSCs in the clothing, electronics, retail, and foodstuffs sectors globally are linked to the employment of an estimated one in three workers in these sectors world-wide. More widely, it has been estimated that more than half of all global trade passes through GSCs (World Bank 2020) and a substantial part of this involves production and supply of goods from LMICs.

The pace of growth of GSCs slowed due to the 2008 global recession, and there was serious disruption during the COVID-19 pandemic (Panwar et al 2022). Accounts suggest these processes may have increased exposure for many workers (Brown 2021). They also produced considerable discussion of ways in which supply chains might be made more resilient together with speculation that a further effect of the pandemic might be greater localisation of production and services (Nikolopoulos et al 2021). There is, however, little evidence of the extent of the possible impact this change may have had on WHS in LMICs. Subsequent to the pandemic, most GSCs have quickly recovered (UNCTAD 2022).

There is a substantial literature devoted to explaining the growth and significance of the role of GSCs in the global economy and assessing their benefits and challenges. Much of it points to how GSC participation is associated with higher growth in Gross Domestic Product (GDP) per capita, raised productivity, gains in poverty reduction, more skills transfer, and employment creation (World Bank 2020, Chapter 3). Economic literature views the comparatively recent development of GSCs, and their substantial presence and influence, as the outcome of a number of supportive technical, structural, organisational, and political

factors. These include rapid growth of information and communication technologies (ICTs), and political changes and shifts in economic policies, leading, among other things, to the removal of trade barriers and increases in the proportion of the world participating in the capitalist system – which have further been made possible by rapid developments in the structure and organisation of global transportation (see for example, Introduction in Ponte *et al* 2019).

Collectively, these changes facilitated sourcing of production from locations where labour costs were considerably cheaper. Supported by global, regional, and national economic policies, this acted to increase the extent to which firms in capital and technology-intensive industries, such as vehicle manufacture and electronics, increased the use of foreign-manufactured parts and components in their own production. It also increased the extent to which intermediate input producers, including those situated in LMICs, and often with support from national economic development strategies, were able to manufacture these intermediate parts for export. At the same time, the literature notes that large and global firms changed their structure and their business models to accommodate (and encourage) these more decentralised forms of production, contracting out production and other activities while seeking to retain control over key elements of the ownership, intellectual property, quality, pricing, and profits involved. In parallel, in recent decades, large retailers and global brands have also increasingly sought to take business advantage of opportunities provided by swifter transportation and ICT to seek low-cost offshore suppliers of most categories of consumer goods, including clothing, footwear, sports goods, toys and so on, as well as food and other agricultural produce. In so doing, they encouraged manufacturing companies to place less reliance on integrated supply networks and to instead rely more on sourcing from independent suppliers: a shift that blurred the distinction drawn between ‘producer driven’ and ‘buyer driven’ chains and prompted recognition that the governance of supply chains could take a number of different forms, reflecting a host of structural and relational differences, including the nature of the activities involved, their locations, their structural complexity, and the distribution of economic power (see *e.g.* Dallas *et al* 2019).

Governance of countries, including LMICs, hosting the supply of this production, has meanwhile increasingly recognised the economic benefits associated with access to foreign markets and has encouraged its development, with participation at the firm level seen as acting as a force for the increased prosperity of workers as well as for the upgrading of their skill sets, thus both improving standards of living and increasing workers’ labour market flexibility. This brief outline of key economic and wider business influences on GSCs, of course, disguises a much more complex reality in which general trends have neither developed apace everywhere nor remained static anywhere. Indeed, the rapid, uneven, and often multifactorial nature and pace of change is one of the acknowledged features of GSC-facilitated economic globalisation (Ponte *et al* 2019, 1–21).

For the purposes of the present account, the message of the GSC literature that is most relevant is the problematic relationship much of it identifies between GSC-facilitated economic development and social development. From an employment perspective, social development includes improvement in labour standards, social protection, and social dialogue, and therefore encompasses improved WHS practices and outcomes. Additionally, however, a work-related health perspective on social development would include the nature and extent of the structures and processes in place to support the prevention and amelioration of work-related ill-health, not only within work organisations but also outside of them. Among other things, this literature suggests that GSC-fuelled economic development does not necessarily mean improved labour conditions or a reduction of social or health inequalities (see for example, Barrientos *et al* 2011; Rossi 2013, among many others). Instead, the evidence indicates that poor labour conditions are frequently found at the ends of GSCs in many sectors, especially in LMICs, where their presence and

influence have been major drivers of export-orientated production. Far from economic development resulting in a levelling upwards, this literature identifies many cases in which weak health and social protection structures and processes have not been significantly improved by the involvement of GSCs. Evidence further suggests that non-standard forms of work have been increasing in many LMICs where GSCs play a significant role in export growth and employment (Lee 2020). Other studies indicating economic globalisation to have accelerated the rise in the number of informal jobs point in the same direction (Bacchetta et al 2009). That is, the critical GSC literature, alongside that on social development in LMICs more generally, suggests that GSC-prompted development does not always guarantee that all the forms of paid work thus created or promoted contribute to improved health outcomes or lead to either universal or equitable access to improved health status or other forms of social gain for the workers concerned.³ Acknowledgement of this is further reflected in the sector-based literature on GSCs, which highlights their contribution to maintaining and even increasing the (often gendered) presence of poor and unhealthy jobs in sectors like textiles, food, and agriculture (Barrientos 2019). This literature makes the point that in such scenarios, issues of health and safety cannot be easily disentangled from other aspects of labour regimes and the contexts in which they occur, nor from wider public health infrastructures and access to care in these contexts (see, for example, O’Laughlin 2013; Mezzardi 2015). Therefore, while there may be little dispute concerning the contribution of GSCs to overall economic development in the LMICs in which work associated with them is a significant feature, there remains considerable debate over the distribution of the benefits of this development and the degree to which a parallel and equitable social development can be claimed to have taken place alongside it. As will be clear from the section that follows, both quantitative estimates and qualitative studies suggest progress in this respect in many LMICs in which GSCs source production is far from ideal.

Health and safety outcomes in LMICs and their association with GSCs

There is a substantial body of evidence indicating the presence of poor WHS practices and outcomes at the ends of GSCs. It includes a host of reports produced by organisations like the Oxfam, Social Accountability International, Labour Behind the Label, the Clean Clothes Campaign, the Canadian Maquila Solidarity Network, and the US Worker Rights Consortium. It also includes many similar reports from multi-stakeholder initiatives such as the Fair Labor Association in the US and the Ethical Trading Initiative in the UK, and independent, private sector benchmarking organisations such as Know the Chain, Corporate Human Rights Benchmarks, The Industry We Want, and the Better Buying Index.⁴ The evidence also encompasses the occurrence of major disasters, such as the fire at Ali Enterprise, killing 289 workers in 2012 and the Rana Plaza building collapse in 2013 that killed over 1,100 workers and injured 2,000 more (Brown 2015; Claeson 2015), and a significant number of in-depth research accounts, which detail poor health and safety practices among supplier firms in GSCs, and cite many examples of similar cases (see, for example, Prentice and De Neve 2017; Hasle and Vang 2021; Longoni et al 2013; Locke and Samuel 2018).

At the same time, it might be anticipated that the influence of multinational buyers (see further below) would lead to improved WHS practices and outcomes where export-orientated production is facilitated by GSCs. However, direct comparisons reliably demonstrating this are few. In the case of manufacturing industry, Distelhorst and Fu (2018) reviewed the findings obtained from such studies. Their analysis revealed only limited and mixed research findings in relation to non-wage working conditions, including WHS. They concluded that the *‘limited evidence available suggests that health and safety conditions tend to be better in exporting factories’* (2017, 14–15). But they cite only two studies

in support of this, one from Mexico (Verhoogen 2008) and the other from Myanmar (Tanaka 2017) and point to significant limitations with both.

Turning to the wider literature addressing WHS conditions and outcomes in LMICs, while there is widespread agreement that the presence of poor WHS practices and outcomes is common in sectors and countries in which GSCs source production (see, for example, reviews by Fuller 2022; Kabir *et al* 2019; Abdalla *et al* 2017; Lam *et al* 2017; Sandoval and Bjurling 2014, to cite a few), there are further challenges in establishing clear associations between poor health and safety outcomes and the role that GSCs play in economic development. Nevertheless, as the next section demonstrates, existing literature is strongly suggestive of such associations.

Quantitative estimates of work health and safety outcomes in LMICs and its association with the presence of GSCs//

Limitations of national data, especially in LMICs, have meant that global data on WHS outcomes need to be based on quantitative *estimations* of national contributions to the global burden of harm arising from work.

Over the last two decades or so, a series of such quantitative estimates commissioned by the World Health Organisation (WHO) and the ILO have described the global burden of death, illness, and injury arising from work. From their outset, they have highlighted the substantial incidence of work-related deaths, injuries, and disease in the world, while at the same time noting that calculations probably underestimate the true scale of the burden (see, for example, Leigh *et al* 1999; Morrel *et al* 1998).

The different methodologies used in the early estimates were brought together in a collaboration between the ILO and WHO that commenced in 2016 and led to joint estimates based on a review of data from 2000 to 2016 (WHO/ILO 2021). These estimates suggest that in 2016, globally, 1.9 million people died from occupational risk factors. Work-related disease accounted for 81% of this mortality, and deaths from work injuries made up the remaining 19%. They further highlight a marked global imbalance in such harm, noting that a 'disproportionately large number of work-related deaths occur in workers in South-East Asia', and suggested that, in relative terms, the death rates for South-East Asia and the Western Pacific were, respectively, 30% and 10% higher than the global rate. Moreover, it was observed that the total work-related burden of disease was likely to be substantially larger.

In short, regardless of their different approaches and their underestimation, global estimates consistently reveal a substantial burden of harm resulting from causes that are widely understood to be preventable. They also consistently indicate that this burden is proportionally greater in parts of the world to which the production of goods and services traded in advanced market economies has been increasingly outsourced in recent decades. Furthermore, although the estimates show signs of improvement in the incidence of work-related deaths, injuries, and ill-health in advanced economies, they don't find such trends in the LMICs to which production is outsourced. Indeed, they suggest that, if anything, in these countries evidence points to trends in the opposite direction.

While there is a long-standing argument that poverty and under-development lead to higher mortality and morbidity, there is little in this global analysis to indicate that economic development, in which GSCs are credited with playing an important part, has resulted, as might be expected, in significant improvement in work-related mortality and morbidity in countries in which GSC-facilitated industrial development has taken place.

The hidden harms of reverse subsidies

There is a further long-standing argument in the literature suggesting that GSCs have facilitated the export of risks from high-income countries to newly industrialising poor

countries by shifting the location of risky industrial production to them (Rosen 2002; Hale and Wills 2005; Levenstein 2009; Heyman and Earle 2010; Brown 2017).⁵ Recent literature exploring the concept of ‘reverse subsidies’ points in the same direction in arguing that the purchase of labour at prices well below its cost in advanced economies is a key factor in the generation of higher profits secured by global brands through GSCs and the monopsony positions they occupy as purchasers (see Nathan et al 2022). And while, in relative terms, this might serve as a contribution to the economic development of the industrialising LMICs to which risks of production in advanced economies have been transferred, it offers little to suggest that a reduction in the social inequalities that lead to a concentration of the disadvantaged in poor jobs has followed.

Using statistical techniques similar to those used in environmental impact evaluation analysis, researchers following this line of reasoning have mapped the human consequences of lead firms in GSCs exploiting such reverse subsidies. For example, using data from a world multi-regional input-output data base often used to calculate the extent of GSC-facilitated work and trade, along with that from databases maintained by organisations reporting on work safety, Alsamawi et al (2017) suggest a method for developing a measure of national WHS ‘footprints’, which includes not only domestic indicators of WHS outcomes but also those embodied in imports facilitated by the GSCs through which countries acquire their goods and services. A similar technique has been applied more generally to (in)decent work by Garcia-Alaminos et al (2020). These studies demonstrate a considerable burden of harm being ‘imported’ into the footprint of high-income countries, along with the goods and services that are traded in their markets as the result of GSC activities. Using an elaboration of this approach, Malik et al (2021) have mapped such footprints for clothing and footwear supply chains supplying products consumed in European Union markets. Their results link EU member state markets for textile products with considerable harm in the form of fatal and non-fatal injuries sustained in the production of these goods in LMIC source countries.

In summary, although questions of causation in the association between GSCs and WHS outcomes remain incompletely answered, the combination of evidence from several different sources presents a compelling case for arguing, as many observers of GSCs have previously done, that poor WHS practices by suppliers in these chains contribute to the greater incidence of poor health outcomes evident in newly industrialising LMICs. Such conclusions are only reinforced by the fact that many other studies of occupational health, epidemiology, toxicology, ergonomics, and hygiene in workplaces in LMICs report excessive exposures to risks, inadequate risk management, and consequent poor health and safety outcomes on scales, normally, no longer experienced in advanced market economies. They are also supported by studies mapping associations with patterns of excessive work-related harms in the source countries of products traded in the markets of advanced economies. Thus, such analyses frequently identify measures of poverty, weaknesses in regulatory infrastructures, and inadequate systems for social protection as contributing to an environment in which increases in poor work-related health outcomes might be anticipated as a product of new export-orientated industrialisation in LMICs. As we will argue in the following section, analysis of the economic drivers of GSCs goes some way to explaining why GSCs might be expected to contribute to such increases and why the corporate efforts of lead firms have been largely ineffective in countering them.

Operational dynamics of GSCs and their influences on the health and safety of workers in LMICs

A consideration of what is known about the governance and operational dynamics of GSCs, and the effectiveness of the various strategies claimed by lead firms to achieve and sustain

improved standards of WHS among their suppliers, enables further insight into how the economic and business drivers of GSC operation support or hinder the contribution of these chains to social development and, more specifically, to improved and sustainable WHS practices and outcomes. This section therefore outlines some key elements of the operation of GSC from an organisational perspective and discusses how these help explain the paradox evident in the effectiveness of their support for improved WHS.

GSCs are primarily driven by business considerations. This may seem obvious. It nevertheless needs reiterating when considering how their dynamics might be harnessed to secure improvements in WHS (or some other social goal), for business objectives do not, necessarily, align with ways of achieving goals of social development. While the business benefits of effective WHS management are often claimed, the extent to which WHS management has, as a result, become a core element of business and is prioritised as such remains variable (Walters and James 2020). Moreover, what is being considered here is not the organisation and arrangements for WHS made by the lead firms in their own organisations, but rather, the extent to which lead firms are able to ensure that their suppliers in LMICs are able to introduce and maintain the WHS standards of practice that lead firms require. Lessons from studies of organisational change, restructuring, contracting, and subcontracting from advanced economies point to the difficulties involved in conducting effective management of WHS issues in such fragmented and distanced relations (Weil 2014).

Supply chains are relational phenomena, involving exchanges between (often multiple) buyers and sellers, and incorporating the commercial objectives of a variety of organisations (see e.g. Marchington and Vincent 2004). They feature varying degrees of conflict and collaboration, depending on the extent of the mutuality existing between the interests involved, and the balance of commercial and market power between contracting parties. Their operation is further shaped by aspects of their surrounding institutional and social environments, as well as by the preferences of key managerial actors. All these factors are likely to influence the extent to which WHS is prioritised or overlooked and where requirements desired by one party by another may be difficult to achieve. As a result, to understand the dynamics taking place within GSCs and the labour-related outcomes they generate, including in relation to WHS, attention needs to be directed to three key influences:

- (i) *drivers* underlying purchasing decisions;
- (ii) *relational dynamics* subsisting between buyers and suppliers; and
- (iii) *institutional contexts* within which they are situated and the implications these carry for their behaviour.

Drivers – A large and long-standing literature, notably within the fields of transaction cost economics and the resource-based view of the firm, explains under what circumstances businesses decide that it is preferable to outsource the production of goods and services in preference to producing them in-house (see e.g. Espino-Rodriguez and Padron-Robaino 2006). This literature makes clear that a range of motives may inform subsequent purchasing decisions. They may be predominantly cost-orientated, reflecting a desire, for example, to cut the management expenditures associated with internal production, to reduce direct labour costs, or to gain the benefits of the economies of scale of specialist manufacturers more widely. Alternatively, placing reliance on external sources of supply may result primarily from quality considerations and a desire to gain access to required resources, such as specialist expertise.

Risk considerations, such as around reliability, are also involved, and may, however, outweigh potential cost advantages, as has been noticeable in the post-Covid environment,

for example, (Paul and Chowdhury 2021). The need for production orders to be of a certain minimum size may also limit the scope that exists to externalise the supply of goods and services (and subsequently transfer supply contracts to other suppliers). More widely, pressures from consumers and other social actors may influence global buyers to pursue social as well as economic objectives (Donaghey et al 2014; Barrientos et al 2011). At the same time, research findings highlight the way in which these socially orientated logics can be, at least partially, undermined by economic drivers (Huq and Stevenson 2020). In doing so, they indicate that price, quality, and delivery requirements invariably form central influences over the way in which GSCs are structured and operated.

Relational dynamics – The type of goods and services being purchased has important implications for the nature of supply relationships sought by buyers. This is well demonstrated by the different types of supply chain governance distinguished by Gereffi and colleagues (Gereffi et al 2005; Frederick and Gereffi 2009), who distinguish five types of such governance – market, modular, relational, captive, and hierarchical. They argue that which of these types is adopted is determined by (a) the complexity of information sharing that a demand requires, (b) how far the information for ‘production’ can be specified in relatively precise terms, and (c) the level of supplier competence that is available. Their framework shows how supply relationships can, as a result, differ considerably in terms of the depth of interactions involved and the extent to which they are marked by mutuality and trust.

It is also clear that, notwithstanding the linkage identified by Gereffi and colleagues, buyers do not always have the capacity to establish the type of supply relations they desire. Disparity in power may create difficulty in establishing trust-based inter-organisational relationships. Meanwhile, those engaged in chains with relatively loose, market-based, trading relations may lack the leverage needed to secure supplier compliance with their demands (Riisgaard and Hammer 2011). As a result, threats from global buyers to withdraw business from overseas suppliers unless they comply with their requirements may not necessarily be effective (see e.g. Amengual et al 2020).

Much of the research conducted on relations within GSCs has focussed on ‘first tier’ situations involving global buyers and the suppliers with whom they contract directly. Less attention has been paid to relations between first-tier suppliers and those they contract locally. Yet, it seems likely that this lower-tier subcontracting will be more marked by the type of asymmetric power relations assumed to exist at the first-tier level. They can also be anticipated, at least in some national and industry contexts, to encompass most workplaces and a substantial proportion of the workers involved in the production of goods for global buyers overall (see e.g. Alamgir and Banerjee 2018). Governance of supply chains is therefore often likely to vary along their length, with the result that compliance with any WHS requirements imposed by lead firms may similarly vary.

Institutional contexts – Approaches global buyers adopt towards the establishment and management of supply relationships are likely to reflect aspects of their home country business environments (Henderson et al 2002). The literature on ‘national business systems’ (Whitley 1999) and ‘varieties of capitalism’ (Hall and Soskice 2001) both point to how these institutional contexts influence the strategies and practices of firms. They also highlight how national business contexts can differ in the extent to which they facilitate collaborative, as opposed to more transactional, relations between buyers and sellers (Herrigel 2010) and how governments vary in the extent to which they exert influence over matters like the corporate social responsibility (CSR) of firms (Gond et al 2011; Kang and Moon 2012), as demonstrated by national variation in the adoption of Business Human Rights Due Diligence legislation, including elements relevant to WHS conditions.

Vertically, there are variations in the ‘home’ institutional contexts (and influences) of global buyers, and differential exposures to other forms of formal and informal regulation operating at the international, sector or firm levels. A minority of global buyers, for

example, are covered by International Framework Agreements concluded with global unions that commit them to uphold certain labour standards (Williams *et al* 2015) or have signed up to multi-stakeholder arrangements, like the Ethical Trading Initiative, the Fair Wear Foundation, the Fair Labor Association, or the Electronics Industry Citizenship Coalition, embodying similar commitments and usually including some addressing work safety. Some larger buyers may also face concerted pressures from unions, Non-Governmental Organisations (NGOs), and/or other civil society actors to improve such standards in their supply chains (Short *et al* 2020). These exist against the backcloth of a variety of international standards, including some, that are legal instruments and others that are voluntary.

The home business environments of suppliers, meanwhile, represent a potentially important horizontal source of institutional influence (and variation) over the nature and operation of supply relationships. Despite the notion, not infrequently found in the literature on private regulation, that LMICs represent 'regulatory voids' that necessitate filling with transnational standards, these so-called 'empty spaces', as Bartley and Child (2014, 38-45) note, may in fact be a 'crowded space' in which local actors, agendas, and rules cumulatively create local production cultures that structure managers' and workers' expectations. Local labour laws may facilitate or undermine desired standards of behaviour on the part of global buyers (Locke 2013; Huq and Stevenson 2020). In some cases, unions may have the capacity to advance the interests of workers while in others they may not. And suppliers may also, albeit relatively rarely, fall under the umbrella of local, sector-based multi-stakeholder initiatives, aimed at supporting the improvement of labour conditions including those of WHS.

It is also clear that suppliers, like global buyers, are not necessarily passive recipients of surrounding institutional demands. Individually and collectively, parties in the supply chain may, for example, proactively seek to shape such demands through political lobbying and connections. Governments in some developing countries may, moreover, be sympathetic to such lobbying given their desire to support the participation of local firms in the global economy via GSCs or to secure remittances to their economies facilitated by labour supply chains. Indeed, such a desire may generate a range of government responses aimed at ensuring the competitiveness of local firms, vis a vis those in other countries. On the one hand, these may include upgrading education and training arrangements (Gereffi and Fernandez-Stark 2016). On the other, they may include union suppression, the creation of labour law frameworks facilitative of flexible, insecure, and low-cost forms of employment, and the limited enforcement of protective regulatory standards as ways of avoiding the adverse effects of regime shopping by buyers in sectors like clothing and footwear (see e.g. Bair *et al* 2020; Alamgir and Banerjee 2018).

The dynamics of supply chain governance and operations therefore carry significant implications for employment conditions within supplier organisations – including those affecting WHS. Indirectly, price, quality, and delivery demands of buyers may impact the type of workers sought and the contractual basis on which they are employed, their pay and other benefits, and the length and distribution of working hours. Directly, buyers may act to overtly shape employment arrangements in supplier organisations. Lakhani *et al* (2013) have noted, for example, that they may seek to influence the employment relations strategies adopted, employee skills and knowledge, and stability of employment through the tenure and type of workers employed. They have further argued that the extent and nature of these influences will tend to differ across the forms of supply chain governance distinguished by Gereffi and colleagues.

Consequently, in some circumstances, buyers may attempt to positively influence WHS conditions in supplier organisations and how far they do so is likely to vary considerably due to a range of market, relational, and institutional factors. Though, as shall be seen in the next section, this does not mean that the resulting change will necessarily be

‘adequate’. Indeed, questions arise over what standards should be used to judge this. For example, should judgements be based on some sort of relative comparisons with the employment conditions existing within the ‘home’ operations of global buyers, those specified in international standards, like ILO conventions or standards utilised in local labour laws or human resource policies and practices?

The effectiveness of regulation in countering the influence of business drivers

As noted in the Introduction, a recent paper, based on the same sources as those used in the present study, explored what is known about the nature of the regulatory measures⁶ that have been used to influence health and safety practices in production and services at the ends of GSCs, their effectiveness, and the factors that support or constrain their impact (Walters et al 2024). In doing so, the paper discussed a range of private, public, and mixed regulatory pathways that have been brought to bear in one way or another on the operation of GSCs, with the aim of promoting improved WHS practices and outcomes among export-orientated suppliers. As will be seen, these echo the above discussion of institutional influences in pointing to the potentially important regulatory roles of GSC buyers and suppliers, host and home countries, NGOs, unions, and other social actors.

Private voluntary regulation by lead firms in GSCs

In relation to systems of private corporate regulation favoured by lead firms in GSCs, the research literature sheds a rather mixed light on their impact on improving OSH practices. On the positive side, studies indicate, for example, that the audit systems used to monitor compliance often identify weaknesses in prevailing employment conditions – (Locke 2013; Scherrer and Radon 2019) and so provide a platform from which to bring standards into line with those required (see e.g. Kuruvilla and Bae 2021, 106–111). The same audits also, however, show that supplier employment standards, including for WHS, often fall below those specified in corporate codes of conduct and international requirements (Locke 2013; Kuruvilla and Bae 2021; Esbenshade 2004; O’Rourke 2002; LeBaron and Lister 2015). Studies further indicate that there is often little corroborative evidence to suggest that, once identified through auditing systems and the like, faults are remedied in effective or sustainable ways.

In short, the regulatory literature points to a significant body of evidence showing the performance of private voluntary regulation to be very mixed and generally disappointing as a consequence of problems with monitoring and enforcement of compliance, the willingness and capacity of suppliers to comply, and the often contradictory, business motivations of buyers (Esbenshade 2004; O’Rourke 2003; Le Baron and Lister 2015; Brown 2017; Kuruvilla 2021). Exploring the latter further, the present paper indicates that research points to how tensions frequently exist between the economic logic underlying the upstream business strategies of buyers and the social strategies embedded in their policies to protect and enhance labour standards. As a result, while the latter strategies are intended to counter the detrimental consequences of the price, delivery, and quality demands emanating from the former, they are simultaneously undermined by them (see eg Risgaard and Hammer 2011; Locke 2013; Alamgir and Banerjee 2018; Amengual et al 2020). For example, there is evidence showing that cost pressures exerted by global buyers may encourage such suppliers to sub-contract work to smaller firms and workers and even to the informal sector of the host country’s economy, including homeworkers – thereby raising the possibility that they may simultaneously act to improve OSH standards in first tier supplying organisations while encouraging work to be outsourced to less accessible

organisations in which such standards are lower (Anner 2020; Alamgir and Banerjee 2018; Huq and Stevenson 2020; Soundararajan and Brown 2016).

Other forms of GSC regulation

These weaknesses have stimulated the development of a range of other regulatory pathways, which operate both vertically (e.g. through GSCs and home state regulation) and 'horizontally' (e.g. through public and private regulation and social governance in source states). They include other forms of private voluntary regulation, such as when clusters of GSC supplier firms in the same geographical area in source countries take initiatives to act collectively to improve working conditions in ways that better account for local contexts and perspectives, while still enabling economic gains for the firms involved (Gereffi and Lee 2016, 33). They also encompass, as previously noted, international framework agreements between Global Union Federations (GUFs) and (usually single) Multi-National Enterprises (MNEs) (Egels-Zanden 2009; Rosado Marzan 2014, 1749), and multiple-stakeholder initiatives involving combinations of MNEs, unions and NGOs, such as the well-known, (now superseded?) 'Accord on Fire and Building Safety in Bangladesh', which created a legally binding agreement between two GUFs (UNI and IndustriALL) and eight affiliated Bangladesh unions, on the one hand, and more than 200 garment sector MNEs, on the other, and is widely seen to have been successful (Anner 2021, 624–626). Occasionally, in more exclusive 'labour centric paths', workers have additionally mobilised to address power imbalances and participate in setting standards and monitoring compliance, using more traditional approaches to the representation of workers' interests. In relation to these, findings show compliance with codes of conduct is better in workplaces where collective agreements have been concluded or effective worker participation committees exist (see eg Pike 2020). However, the comparative weakness of unions in most LMICs and the challenges of global coordination are barriers to success in such approaches (Anner 2021).

Some advanced economies have, meanwhile, taken regulatory action to improve working conditions in export-orientated production while remaining congruent with liberalising economic policies, by inserting 'social clauses' within trade agreements (Corley-Coulbaly *et al* 2022). These seek to use the potential access to large consumer markets in advanced economies facilitated through GSCs as leverage to compel governments in LMICs to implement labour protections and enforce them better (Dawson *et al* 2021). Here again, evidence for their success is patchy.

State authorities have also sometimes placed requirements on public buyers to procure goods and services from suppliers who can demonstrate compliance with specified labour standards. At the global level, the ILO's *Labour Clauses (Public Contracts) Convention (No 94)* of 1948, the *United Nations Guiding Principles on Business and Human Rights* (UN 2011; Methven O'Brien and Martin-Ortega 2020, 259), and the *OECD Guidelines for Multinational Enterprises* 2011 (see also OECD 2011, 2017) each include such requirements, and advanced economies have sometimes enacted them via National Action Plans on Business and Human Rights.

Vertical disclosure, transparency, and due diligence measures addressing labour rights issues arising from the use of supply chains also occur in the home states of some lead firms (see LeBaron and Rühmkorf 2017). The more robust of such measures are found in requirements like the French *Duty of Oversight Act*, enacted in 2017 (Brabant *et al* 2017; Savourey 2020), and similar provisions in Germany (*Act on Corporate Due Diligence Obligations in Supply Chains*) enacted in July 2021 (see Gustafsson *et al* 2023; and Weihrauch *et al* 2023) and Norway (the *Transparency Law*) enacted in June 2021 (see Osborne Clarke 2021; Lafarre and Rombouts 2022, Krajewski *et al* 2021). Such provisions have also been recently introduced at EU level (Villiers 2022) following the adoption of the Corporate Sustainability Due Diligence Directive in April 2024. These laws effectively add a degree

of legal force to various global standards relating to labour conditions in general, thereby helping to make them legally enforceable in the home state jurisdictions of large companies at the heads of supply chains and a possible source of influence on the ‘vertical’, extra-national, business dynamics within GSCs.

Most writers on GSCs also acknowledge the *potential* role of host state regulation to improve WHS in supplier firms of LMICs at the ends of GSCs: either horizontally on suppliers themselves or as a contribution to the ‘layering’ of regulatory measures (Bartley 2011) on GSC relations overall. In relation to the latter, it has been observed that domestic WHS regulation can *potentially* operate in concert with other regulatory approaches, but only if these properly address other important aspects of the structure and organisation of work – such as the predominance of micro and small firms, the informal economy, and the weakness of support for participatory health and safety management in the absence of a substantial presence of organised labour.

From the perspective of regulating economic affairs, these regulatory pathways create a complex landscape of actual and potential regulatory configurations. In theory, they encompass both horizontal and vertical forms of influence and inputs from a large cast of actors who may play roles in the creation, oversight, and enforcement of a particular regulatory initiative. Crucially, this ‘brings to the table’ other voices whose views and interests likely differ, to a greater or lesser extent, from those of buyers and suppliers. Moreover, empirical findings suggest that to some degree they possess a potential to mitigate tensions between the economic and social logics of buying and supplying firms within GSCs, leading to:

- implementation of legal WHS duties and obligations that serve to raise organisational priorities to protect workers from injuries and ill health;
- support for workers’ voice, unions, and other civil society actors sufficient to enable the economic logics that are detrimental to WHS interests to be challenged (Hammer 2023);
- creation of reputational risks that prompt buyers and/or suppliers to accord a higher priority to health and safety matters in organisational decision-making.

However, as Walters et al 2024 recently argued, the evidence to support such effects in relation to any of the particular regulatory pathways outlined above is limited and case-specific. It therefore remains questionable whether, even in combination, these pathways are sufficient to create a significant shift in WHS practices and outcomes in the range of LMICs where GSCs currently source production and services.

Conclusions

Taken together, quantitative estimates provide persuasive evidence indicating that comparatively poor WHS outcomes are prevalent in most of the countries and regions of the world in which GSC sourcing of production in LMICs is concentrated and where growth of their role in economic development has been marked. Associations described in the literature don’t necessarily demonstrate a direct, causative relationship between the presence of GSCs and continuing (or worsening) poor health and safety outcomes. However, they provide little support for the argument that better WHS outcomes invariably accompany the forms of economic development largely favoured both by governance in newly industrialising LMICs and by global economic policies more widely.

Meanwhile, as the literature on outsourcing and the indirect influence of third-party buyers in supply chains highlights, there are strong theoretical underpinnings supporting a causative link between GSCs and poor WHS outcomes that are further supported by the

literature describing the structure of the economies and the limits of regulation in these LMICs (see for example Nathan *et al.* 2022; Bartley 2020). In particular, the former strongly suggests that issues of WHS rarely loom large in the business motivations that drive the creation and operation of GSCs. These conclusions are reinforced by the third strand of analysis undertaken in the paper, which indicated that even where buyers *do* impose required labour standards via corporate codes of conduct and the systems of audits used in these private corporate forms of regulation *do* serve to identify violations of required standards and highlight areas where improvements in supplier employment practices can be demanded, there is a very mixed and limited picture of their impact on improving WHS standards overall. In fact, the available evidence indicates that the cost and delivery requirements of lead firms often undermine their attempts to positively influence WHS standards in supplier factories by encouraging them to find means of avoiding the potential damage to their profitability that such attempts involve.

It is also clear from the literature that the state regulatory capacities of LMICs, together with their poorly developed infrastructures for health and social welfare, are unable to provide significant support for securing substantive compliance with standards of good practice from export-orientated firms at the ends of GSCs any more than they have in relation to these standards elsewhere in their economies.

The literature was also found to point to a number of other potential ways of augmenting the effects of private regulation and thereby tilting the balance between corporate business and social responsibility strategies in favour of improved WHS practices at the ends of supply chains. In particular, initiatives which treat labour as an actor (rather than merely a production input), socially embedded and capable of shaping industry trajectories at firm, industry, and even global levels, show some signs of success by ensuring voices of interests other than buyers and suppliers are brought to the table to support the protection of workers from the harmful effects of decisions dominated by the economic considerations of buyers and suppliers. This is true, for example, of the former Bangladesh Accord. It is also true of interventions combining support for engagement from workers and their organisations with the promulgation of the business logic that ‘good health and safety is good for business’, such as in the ILO’s Better Work Programme (Better Work 2022). Currently, however, evidence of the effectiveness of such initiatives is restricted to comparatively few cases. Moreover, it would seem unrealistic to expect their more widespread development and effective operation without additional direction from global economic and regulatory policies and a political will on the part of governance in both home and host states to recognise the downside of the policies that have driven economic growth in recent decades.

Unfortunately, there is little sign of such developments at the present time. In the face of the hegemony of capital over global economic affairs, organisations in which labour once had some say and which in theory exist to protect and promote labour rights, and garner support from member states internationally, such as the ILO, have been unable to achieve fundamental regulatory changes in relation GSCs, despite on-going discussion over many years (Thomas and Turnbull 2021). Instead, the ILO has focused on adopting more generic ‘declarations’ such as the 1998 *Declaration on Fundamental Principles and Rights at Work* to which WHS was added in 2022. These approaches, which themselves are difficult to secure in the face of objections from employers’ organisations and many governments, are made within the framework of ‘soft law’ strategies to mitigate the harmful effects of freedoms enjoyed by capital that are enshrined in neoliberal approaches to political and economic policies. Their success remains questionable. Most of the evidence for it, such as that claimed by Politakis (2022) in relation to the recent inclusion of WHS, in the *Declaration* is tautological. It merely demonstrates that the requirements of the *Declaration* and those of the Conventions it prioritizes have found their way into many instruments of soft law, including bilateral free trade agreements; the UN Guiding Principles on Business

and Human Rights; OECD Guidelines for Multinational Enterprises; and the UN Global Compact. Reference to them is also made in private CSR codes and in the World Bank's guidance for its operations and in those of regional development banks. But this 'evidence' amounts to little more than a circular argument because it says little about how effective the operation of such measures has been. The evidence that *does* exist concerning such effectiveness, moreover, suggests that these 'soft law' initiatives have had rather limited operational significance and transferability and, as a result, are not a substitute for the global and national political leadership currently missing from these and other efforts to mitigate the damaging effects of business concerns with profit and economic growth.

Notes

1 The terminology used to describe the structures that facilitate these business relations varies. Supply chains, value chains, commodity chains, networks and so on, are frequently used and distinctions between their meanings and contexts are also discussed in the literature. However, for the sake of simplicity, this article follows the generic definition used by ILO/OECD/IOM/UNICEF (2019):

'Global supply chains represent goods and services that cross international borders for consumption or as inputs for further production'.

The definition does not distinguish between established and emerging economies involved in the production and transfer of the goods and services. However, as is made clear in the text, the focus of the present article is on those chains that facilitate the production of goods and services in emerging economies and their trading in markets of developed countries.

2 We take the horizontal regulation to encompass all forms of regulation, including any relating to the responsibilities of supply chain actors, developed in a particular national context by governments and non-state actors such as firms, NGOs, worker organisations etc. We conceive of vertical regulation as governance through GSCs by, for example, private regulation and home state human rights due diligence regulation.

3 It is also the case that largely for structural reasons, the visibility of the relationship between work and health may be different for different categories of workers. Homeworkers' work-related health issues, for example, have a very low visibility, as do those of migrant workers where further structural features of their employment and domicile, (that may also be facilitated by GSCs), act to reduce the visibility of the relationship between their work and their health.

4 See for example: Worker Rights Consortium: 'Worker Rights Consortium Factory Assessment Hansae Vietnam Co., Ltd. (Vietnam); Findings, Recommendations, Status Update'. Available at <http://www.workersrights.org/freports/WRC%20Assessment%20re%20Hansae%20Vietnam%2012.6.16.pdf>; Fair Labor Association: 'Foxconn Investigation Report; Appendix 1, Part 1, Fu Tai Hua Industrial (Shenzhen) Co. Ltd'. Available at http://www.fairlabor.org/sites/default/files/documents/reports/appendix_1.1_sci_findings_guanlan.pdf.pdf; Clean Clothes Campaign: 'Fatal Fashion; Analysis of Recent Factory Fires in Pakistan and Bangladesh: A Call to Protect and Respect Garment Workers' Lives'. Available at <https://cleanclothes.org/resources/publications/fatalfashion>; and many others.

5 The *International Journal of Occupational and Environmental Health* (1995-2018) – the official journal of the International Commission on Occupational Health (ICOH) from 2009 until it ceased publication in 2018 – published many editions in which editorials link detailed studies of WHS risks, exposures, and outcomes in LMICs in Africa, the Middle East, South Asia, and China with outsourcing and the business strategies of MNEs as bearing responsibility for the extent of these risks and their outcomes.

6 As is common in current regulatory studies literature, in this paper, 'regulatory measures' refer not only to public regulation but also to private and mixed forms of regulation.

7 It is been replaced by the International Accord for Health and Safety in the Textiles Industry, which seeks to maintain the approach established by the original Accord in Bangladesh and extend it to textiles operations in other LMICs.

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