Received: 1 June 2021 | Accepted: 16 December 2021

DOI: 10.1111/glob.12360

ORIGINAL ARTICLE

Global value chains for medical gloves during the COVID-19 pandemic: Confronting forced labour through public procurement and crisis

Alex Hughes[1] | James A. Brown[1] | Mei Trueba[2] | Alexander Trautrims[3] | Ben Bostock[4] | Emily Day[4] | Rosey Hurst[4] | Mahmood F Bhutta[2]

[1] School of Geography, Politics and Sociology, Newcastle University, Newcastle upon Tyne, UK

[2] Brighton and Sussex Medical School, University of Sussex, Brighton, UK

[3] Jubilee Campus, Nottingham University Business School, Nottingham, UK

[4] Impactt Limited, London, UK

Correspondence
Alex Hughes, School of Geography, Politics and Sociology, Newcastle University, Claremont Road, Newcastle upon Tyne, NE1 7RU, UK.
Email: Alex.Hughes@ncl.ac.uk

Abstract

This paper evaluates ways in which labour issues in global value chains for medical gloves have been affected by, and addressed through, the COVID-19 pandemic. It focuses on production in Malaysia and supply to the United Kingdom's National Health Service and draws on a large-scale survey with workers and interviews with UK government officials, suppliers and buyers. Adopting a Global Value Chain (GVC) framework, the paper shows how forced labour endemic in the sector was exacerbated during the pandemic in the context of increased demand for gloves. Attempts at remediation are shown to operate through both a reconfigured value chain in which power shifted dramatically to the manufacturers and a context where public procurement became higher in profile than ever before. It is argued that the purchasing power of governments must be leveraged in ways that more meaningfully address labour issues, and that this must be part of value chain resilience.

KEYWORDS

COVID-19, forced labour, global value chains, public procurement

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.
© 2022 The Authors. *Global Networks* published by John Wiley & Sons Ltd.

INTRODUCTION

This paper considers how longstanding and yet frequently overlooked labour issues in global value chains for medical gloves have been affected by, and addressed through, the COVID-19 pandemic. This has implications not only for understanding the impacts of the crisis on global value chains, but also for grasping the changing ways in which labour issues in the global economy are addressed through public sector procurement. It takes the Malaysian medical examination gloves industry and supply to the United Kingdom's National Health Service (NHS) as its focus and draws on a multi-sited study of this production network during the pandemic, specifically between August 2020 and April 2021. We show how the pandemic and the significant global increase in demand for medical gloves has altered the balance of power between medical gloves manufacturers and government healthcare procurement agencies and has had implications for the nature and visibility of labour issues and the ways in which they are addressed. We draw on Gibson's (2021, p. 84) understanding of 'multiple temporalities of vulnerability and resilience' to appreciate how the acute crisis of the COVID-19 pandemic and the shockwaves it sent through medical supply chains operates through waves of other longer running challenges regarding social justice, economic resilience and shifting geopolitical landscapes.

Global networks for the production and supply of Personal Protective Equipment (PPE) including medical gloves had rarely been in the public eye prior to 2020 and barely featured in the large social science literature on globalization and supply chains. A value chain literature predominantly researching and conceptualizing consumer goods sectors and marginalizing sectors such as PPE has emerged despite an estimated global market value for PPE of US$55.6 billion in 2019 before the pandemic (Grand View Research, 2020). Production and sourcing of medical gloves, aprons and protective face wear such as shields, visors, goggles and respirator masks for several decades have followed similar patterns of globalization to those for consumer goods such as fashion apparel, including significant production in regions of low-cost labour (British Medical Association, 2021; Gereffi, 2020; Sandler et al., 2018). And yet, whilst media, public and academic attention to global supply chains for consumer goods proliferated since the 1990s, commentary on those for PPE and other medical equipment before the pandemic was very limited (for some examples, see Bhutta, 2017; Nadvi, 2002; and Sandler et al., 2018). This has been partly due to the relatively low public profile of intermediate goods and partly because the practices of government procurement have received far less critical attention than the sourcing of consumer goods by brands (Hughes et al., 2019).

Since the start of the COVID-19 pandemic, however, that position has shifted dramatically with significant increases in global demand for PPE to protect against viral transmission. Now, a bright spotlight shines on the production and sourcing of PPE, raising pressing concerns about government as well as private sector procurement (Pattisson, 2020a; Trueba et al, 2021), about dependency on international production networks and Just-In-Time distribution systems for intermediate goods needed for healthcare and other service provision (Dallas et al., 2021; Gereffi, 2020), about the environmental implications of huge volumes of disposable materials (Rizan et al., 2021) and about the conditions of work for thousands of labourers enrolled in PPE production across the globe (Feinmann, 2020; Hutchinson & Bhattacharya, 2021; Upsana Khadka, 2020a, 2020b). It is the realm of labour standards, including specific problems of forced labour, in global PPE production that our paper addresses. We particularly focus on working conditions in the Malaysian industry supplying most of the world's medical examination gloves—63 per cent in 2020 (Hutchinson & Bhattacharya, 2020)—and almost all gloves used by the United Kingdom's NHS both before and during the COVID-19 pandemic (Dallas et al., 2021; European Working Group on Ethical Public Procurement, Medical Fair & Ethical Trade Group & British Medical Association, 2016).

The study concentrates on labour issues associated with the presence of forced labour, defined by the International Labour Organization (ILO) (2014) as 'all work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered himself [sic] voluntarily'.[1] Forced labour is aligned, though not synonymous, with modern slavery, which is understood as 'the severe exploitation of other people for personal or commercial gain' through methods including violence, threats, indebtedness and manipulation of a person's legal status, such as threats of deportation (Anti-Slavery International, 2021). We acknowledge critical scholarship

recognizing that various forms of unfree labour are embedded in, rather than separate from, the capitalist space economy (Brass, 2014; Rioux et al., 2020).

Following an outline of critical perspectives on global value chains,[2] modern slavery and forced labour, and responsible public procurement, which inform our paper's analysis, and scene-setting regarding the production of medical gloves in Malaysia and UK sourcing networks, the paper will address four sets of questions in turn and as follows: (i) How have global value chains for medical gloves responded to, and been reshaped by, significantly increased demand during the COVID-19 pandemic? (ii) How have forced labour issues in the Malaysian medical gloves sector been affected by the pandemic and pressure on production? (iii) In what ways has the COVID-19 crisis rendered these labour issues more visible to the public and industry practitioners? (iv) How is responsibility for labour standards in the sector refracted through the pandemic, how is it being re-articulated through the shifting balance of power in the global value chain, and with what remaining shortcomings?

RESEARCH METHODS

The paper draws on multi-sited, mixed-methods research conducted, for the most part remotely, during the COVID-19 crisis and specifically between August 2020 and April 2021. It was funded by the Modern Slavery and Human Rights Policy and Evidence Centre and the Arts and Humanities Research Council in the United Kingdom. The study took a whole supply chain approach and is informed by key actors in Malaysia and in the United Kingdom. Data were collected by means of an interview-based survey with 1491 workers employed across multiple large Malaysian gloves manufacturing companies and identified through the team's established networks (corporate details not provided, to protect the anonymity of participants) and 14 semi-structured interviews with Malaysian medical gloves manufacturers, UK government officials, suppliers and NHS procurement managers. Whilst the market for medical gloves manufactured in Malaysia (the dominant location of production) is global, with the United States representing the largest market (Top Glove, 2021), we will show that the United Kingdom is also a significant buyer influencing labour standards.

The survey, conducted in workers' own languages and mostly online, covered questions focused on a wide range of labour issues, including those corresponding to the following 11 ILO indicators of forced labour: *abuse of vulnerability; deception; restriction on movement; isolation; physical and sexual violence; intimidation and threats; retention of identity documents; withholding of wages; debt bondage; abusive working and living conditions; and excessive overtime* (Special Action Programme to Combat Forced Labour, 2012). The survey also asked workers about the impacts of the pandemic on their working and living conditions. Table 1 provides a breakdown of the survey sample by nationality and gender, with

TABLE 1 Breakdown of survey respondents by nationality and gender[10]

Nationality	Number (% of total)	Number (%) male
Nepal	653 (44%)	601 (92%)
Bangladesh	598 (40%)	594 (99%)
Indonesia	105 (7%)	25 (24%)
Myanmar	49 (3%)	19 (39%)
Malaysia	35 (2%)	18 (51%)
Vietnam	28 (2%)	0 (0%)
India	10 (0.7%)	10 (100%)
Pakistan	9 (0.6%)	9 (100%)
Sri Lanka	4 (0.3%)	4 (100%)
Grand Total	**1491**	**1280 (86%)**

TABLE 2 List of corporate and government interview sources (named if requested)

Interview Code	Role of Interviewee	Date
Medical gloves manufacturers		
M1	Quality Manager	05/03/21
M2	Sales & Marketing Manager	23/03/21
M3	Social Responsibility Manager	21/04/21
Medical gloves suppliers/intermediaries		
S1	Manager	30/03/21
S2	Director	26/03/21
S3	Sales & Marketing Manager	31/03/21
Procurement representatives		
P1 (NHS Supply Chain 1)	Category Tower Director	01/03/21
P2 (NHS Supply Chain 2)	Sustainability Manager	05/03/21
P3	Director of Procurement	24/02/21
P4	Category Manager	22/03/21
P5	Director of Procurement	08/03/21
Government Departments		
G1	Role Not Provided	08/04/21
G2	Role Not Provided	29/04/21
G3	Coordinator (x2)	19/03/21

most participants being male (1280) and from Bangladesh and Nepal (1251), reflecting the demographic composition of the workforce in this sector according to corporate interviewees (see also Low, 2020 for statistics on migrant workers in Malaysia by country of origin and sector). Data from the workers' survey were used to generate descriptive statistics on the pattern and extent of issues connected to the forced labour indicators (Bhutta et al, 2021).[3]

The semi-structured interview questions for government and supply chain actors were designed to understand the manufacture, supply and procurement of medical gloves both before and during the pandemic; labour standards specified in contracts and how these are monitored; legislation affecting gloves production and procurement; and perspectives on the opportunities for, and barriers to, positive change regarding labour standards in the Malaysian medical gloves sector. Table 2 presents a list of these interview sources and the codes referred to in the paper. Data from these interviews were first coded into themes, and content then scrutinized to understand and connect these themes.

CRITICAL PERSPECTIVES ON GLOBAL VALUE CHAINS, FORCED LABOUR AND RESPONSIBLE PUBLIC PROCUREMENT

Our specific questions on global value chains and labour issues in the medical gloves sector are all pitched at the intersection of three themes in the social sciences—the changing organizational and regulatory geographies of production and trade; the tackling of modern slavery and forced labour in the global economy; and responsibilities of the state (as an influential buyer) for labour standards through its procurement as well as its regulatory roles. We reflect on how the COVID-19 crisis is implicated in all three of these areas, following Gibson's (2021) notion that the pandemic presents not simply as a single event with linear effects, but rather operates through the histories, geographies and trajectories of multiple challenges and crises.

Global value chains

There is a large social science literature capturing the geographies and organization of supply chains through an era of global economic liberalization, structural adjustment, deregulation and export-orientated industrialization in the latter part of the 20th century and early part of the 21st. Conceptual frameworks of Global Commodity Chains (GCCs) (Gereffi, 1994), Global Value Chains (GVCs) (Gereffi et al., 2005) and Global Production Networks (GPNs) (Coe et al., 2004) have been influential in mapping global supply chains for a wide range of sectors through this era, from consumer goods to traditional commodities, and theorizing the workings of power in those supply chains. That work has captured the power and influence of corporate 'lead firms' in dictating the terms and conditions of global networks of production and supply, particularly in consumer goods sectors. However, more recent work has paid greater attention to the influence of the state—as facilitator, regulator, producer and buyer (Horner, 2017). Until very recently there has been a dearth of work on the public sector's global supply chains, and yet the frameworks have much to offer their scrutiny.

There is no space in the paper to review the relative merits of the different frameworks; detailed reviews abound elsewhere (see, for example, Bair, 2008). Whilst we acknowledge that each framework has something to offer analysis, in this paper we adopt the terminology and insights of the GVC framework. We do so in part because of the framework's focus on governance, attending to the organizational forms, inter-firm linkages and modes of coordination through which power and influence operate in the supply chain (Gereffi et al., 2005). We also do so because recent papers assessing the dynamics of PPE supply chains during the COVID-19 pandemic have tended to work with GVC framings (Dallas et al., 2021; Gereffi, 2020), offering analytical consistency. GVC scholarship previously critiqued for being firm-centric more recently makes room for the state and other non-firm actors such as civil society organizations. The notion of 'multi-polar governance' added to GVC theorization is particularly important in this regard. It suggests that value chains can be characterized not only by unipolar governance, for example 'where "lead firms" play a dominant role in shaping the chain', but also by multipolar governance involving a 'plurality of drivers and driving mechanisms' both within and external to the chain (Ponte & Sturgeon, 2014, p. 215). This is pertinent to labour standards in the medical gloves sector, which we show to be shaped by multiple state and corporate influences.

In light of the COVID-19 pandemic, GVC and other cognate scholarship speculates on the possible demise of global value chains that for several decades have been the emblem of the neoliberal economy (Free & Hecimovic, 2021). The economic impacts of the pandemic appear to be increasing broader geopolitical momentum for protectionism and strategies aimed at onshoring or reshoring and automating manufacturing (Gereffi, 2020). However, we follow Gereffi (2020) and Dallas et al. (2021) in acknowledging the ongoing relationships between global value chains and the influence of nation states, rather than suggesting a future where global value chains *either* prevail *or* wither. Dovetailing with Gibson's (2021) sense of COVID-19 operating through other challenges and shifts, Gereffi (2020) acknowledges that the pandemic works through broad-scale geo-economic changes reshaping the organization of production and trade, including the 2008–2009 recession, the US–China trade war and the rise of economic nationalism over the past few years. We would add the process and impacts of Brexit to that list in the context of UK public procurement—during the pandemic, Brexit meant that the United Kingdom operated outside of the European Union's (EU's) organization of PPE procurement (see Wise, 2021). Through these changes, Gereffi (2020) foresees a degree of onshoring and significant automation in the future, but also a growth in 'near-shoring' and regional supply chains. He sees a continuation, though not further expansion, of global value chains and suggests that moves to foster their resilience will require more focus on inventory holding and will also benefit from tightening regulation on the part of governments in both purchasing and producing countries, alongside stronger partnerships in the supply chain. We pick up the implications of some of these current and future shifts in our analysis of medical glove value chains and labour issues, but for a broader discussion of reshoring and implications of COVID-19 for global supply chains, see Vanchan et al. (2018) and Bryson and Vanchan (2020), respectively.

Understanding modern slavery and forced labour in the global economy

'Modern slavery' since the late 1990s has become the rubric under which policymakers, non-governmental organizations (NGOs) and other advocates address the worst forms of labour exploitation. Advocates' emphasis has been on eradicating modern slavery from the global economy, including in global value chains, and focused on identification of victims, their rescue and rehabilitation. In this 'global politics of rescue', modern slavery is understood within a criminal justice framework of perpetrators and victims, and eradication efforts often packaged with anti-human trafficking (McGrath & Watson, 2018). The related term 'forced labour' also has gained prominence since, and is conceived by anti-slavery advocates as one form of modern slavery (Brace & O'Connell Davidson, 2018). The ILO's 11 forced labour indicators have subsequently become a key framing for improving working conditions (Lerche, 2007).

Suggested in the critical literature on the framing of modern slavery and forced labour is a fundamental conceptualization of modern slavery/forced labour within a binary of unfree/free, either enslaved or freely employed (LeBaron, 2015). Critics argue that modern slavery sits squarely within the normal operations of capitalism as one form of labour control among many (Rioux et al., 2020), and the complexity of employment relations entail a fine gradation of freely chosen employment along a spectrum rather than a dichotomy.

Pertinent to our research is the observation that the criminal justice framing of modern slavery elides the structural determinants of unfree labour relations such as social relations of inequality and debt (LeBaron, 2014; LeBaron, 2015; Natarajan et al., 2020). The issue of debt, for instance, illustrates key dynamics through which people are 'adversely incorporated' as 'unfree' labour into the global economy (Phillips, 2013). Migrant workers may take on debt to enable foreign employment. They may be compelled to do so by structural conditions of poverty and inequality and with resulting debt bondage.

States can actively construct unfree labour vulnerabilities through regulation of labour mobility, labour markets and businesses (LeBaron & Phillips, 2019), for example, restrictive visa conditions can discourage documented workers from leaving abusive conditions. Labour market intermediaries such as recruitment agencies and labour subcontractors also figure prominently in discussions of unfree labour (Barrientos, 2013). Labour subcontracting can blur lines of responsibility for ensuring labour rights, with subcontracted workers often employed on worse conditions. Migrant workers are especially susceptible due to a vast 'migration industry' (Gammeltoft-Hansen & Nyberg Sørensen, 2013; Sarkar, 2017, p. 187), including recruitment fees and work permit costs.

Responsible public procurement: Confronting modern slavery/forced labour through state purchasing?

In the realm of UK legislation, the terminology of modern slavery has been used in recent years to begin to address labour issues at a national and global scale. The 2015 UK Modern Slavery Act places transparency obligations on private businesses to disclose their exposure and mitigation activities to modern slavery. Amongst the many criticisms of the UK Modern Slavery Act is the exclusion of the public sector and its substantial buying power. Proposed amendments would require public bodies with budgets over £36 million to produce statements, but at the time of writing there is no definite timetable for amending legislation. Using public procurement rules to support political goals is a common occurrence, including strategies to (re)localize production, though the intention of public procurement policy is not easily aligned with the stimulation of the desired effects in supplier practices (Harland, et al., 2019). Methven O'Brien and Martin-Ortega (2019), as part of an edited collection on public procurement and labour standards, identify both opportunities and challenges when it comes to leveraging state purchasing power for social good in global supply chains.

In the face of widespread labour issues in its global supply chains, the private sector has witnessed responsible sourcing initiatives and introduced ethical codes of conduct to address social sustainability including the mitigation of modern slavery. For critique of their effectiveness, see for example LeBaron et al. (2017). Public procurement

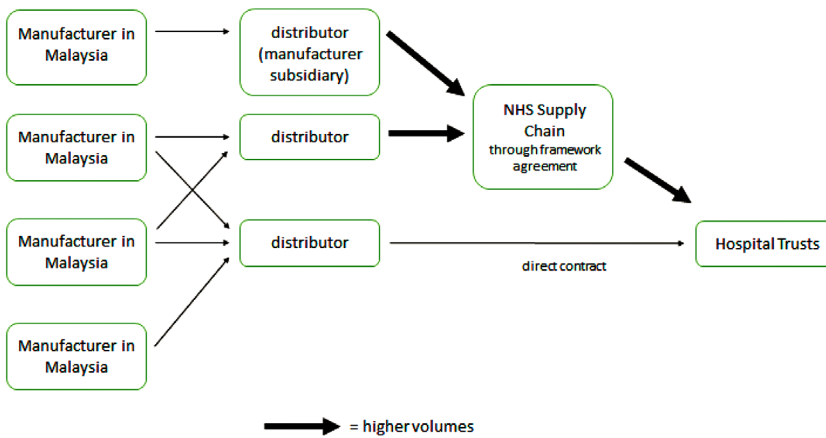

FIGURE 1 Medical examination gloves value chain for NHS England before the COVID-19 pandemic

however has not kept pace, despite the accountability of public bodies, and only recently attention has begun to shift towards the impacts that public procurement can have on the occurrence of modern slavery in value chains, both local and global, and on human and labour rights abuses more broadly (OECD, 2020). Coupled with a cost focus in recent decades of UK public procurement, its value chains and due diligence mechanisms have been largely unprepared and faced significant challenges during the COVID-19 pandemic (National Audit Office, 2020). Despite this new interest to mitigate modern slavery in public procurement, public buyers are mainly limited to exercising pressure on first-tier suppliers to undertake action, as public procurement departments currently do not have the capabilities to manage value chains in a way that the private sector does (Hughes et al., 2019).

GLOBAL VALUE CHAINS FOR MEDICAL GLOVES BEFORE THE PANDEMIC: UK SOURCING NETWORKS AND MALAYSIAN PRODUCTION

Sourcing medical gloves for the UK's NHS

To capture the geography of networks and organizational dynamics of supply chains for medical examination gloves, the GVC framework is instructive. Whilst production of some of the more technologically complex PPE and medical equipment is located in some middle to high income countries, production for relatively simple PPE commodities takes place predominantly in regions of low-cost production (British Medical Association, 2021; Gereffi, 2020; Sandler et al., 2018). This is the case for medical gloves, with more than half the world's production located in Malaysia (Dallas et al, 2021). Unlike many consumer goods industries, for simple PPE commodities including medical gloves, value chains are characterized neither by corporate 'lead firm' buying power, nor by models of direct purchasing where relations between buyers and producers can sometimes be close. Rather, they are marked by long and complex linkages and arms-length relationships where intermediary suppliers can hold sway (Gereffi (2020). Figure 1 depicts these fragmented value chains between Malaysia and the United Kingdom prior to the pandemic, taking procurement for NHS England as a focus.

Pre-pandemic, procurement of PPE and other medical equipment, including medical examination gloves, for use in the NHS in England was predominantly conducted by NHS Supply Chain on behalf of hospital trusts, regional hubs and other healthcare organizations. Procurement in other home nations was coordinated by National Services Scotland, NHS Wales and the Department of Health in Northern Ireland. NHS Supply Chain performs sourcing and logistics roles for the NHS, and since 2018 has been coordinated by Supply Chain Coordination Limited (SCCL), a managing organization owned by the Secretary of State for Health and Social Care.[4] NHS Supply Chain organizes purchasing through

11 Category Towers, with cost-saving as a major factor driving procurement (Interviews, M1, S1 and S3). Contracts for supply of a product are issued through a competitive process, leading to framework agreements normally running for 2 years with optional extension for a further 2 years (Interview, P1). Framework agreements are typically issued across many suppliers (intermediaries/distributors), some of whom organize production from within their own corporate structures and some of whom contract production out to outside manufacturing firms. Whereas NHS trusts can technically procure items independently, in practice NHS Supply Chain supplies around 95 per cent of goods to England (including gloves). Medical examination gloves are purchased through Category Tower 2—*Sterile Intervention Equipment and Associated Consumables*, and prior to the pandemic, annual supply was estimated at 2 billion units (Interview, G1, P1).

The contract tendering process in England, as for the whole of the United Kingdom, is framed by the 2015 UK Public Contracts Regulation, which in turn is shaped by the World Trade Organization General Procurement Agreement and by EU Procurement Directives, which seek to support fair, transparent and open competition. There have been long-standing provisions and guidelines on incorporating labour standards into the NHS procurement process. The Ethical Procurement for Health workbook was launched in 2011 (second edition 2017) by the British Medical Association, the Department of Health (now Department of Health and Social Care) and the NHS Sustainable Development Unit, and provides guidelines on inclusion of labour rights protection into contracts (Sustainable Development Unit et al., 2017). Furthermore, NHS Supply Chain instigated a Labour Standards Assurance System (LSAS) in 2012, with four levels of progress from 'Foundation' to 'Progressive' based on suppliers' incorporation of labour issues into purchasing policies and practice, including monitoring, corrective action and review (Sandler et al., 2018). Suppliers under a Framework Agreement are expected to reach at least Level 1 after 6 months of contract award, and at least Level 2 after 18 months (Interview, P1). Assessment is largely desk-based, but pre-pandemic required suppliers to arrange an annual independent audit of labour standards of their sub-contracted manufacturers (Interview, P2). The 2014 revisions to EU Procurement Directives made it possible to include sustainability and social criteria in contracts, which are incorporated into the 2015 UK Public Contracts Regulations.

At the time of writing, there is a Green Paper under consultation on *Transforming Public Procurement* and Government plans for a Procurement Bill, with the objective of simplifying and speeding up public procurement, emphasizing value for money, flexibility in adding new suppliers to contracts and a reference to 'social value' in the Green Paper (although it is unclear how that will be incorporated into policy and procedure) (Interview, G2). Overall, in terms of labour standards in medical value chains, the GVC notion of multipolar governance is pertinent, given that influence derives from a blend of these state (including intra-state relations), commercial and third sector 'driving mechanisms' both within and outside of the chain (Ponte & Sturgeon, 2014, p. 215).

Production, employment and labour regulation in Malaysia

The Malaysian gloves sector began the production of nitrile synthetic rubber gloves in the 1990s (Lebdioui, 2020). More than 250 companies were established by 1990, dropping to under 100 by 2005 after the impacts of the 1997/1998 financial crisis. The industry consolidated further and is now dominated by a small number of key companies. The 'Big Four' responsible for the majority of gloves production are Top Glove, Hartalega, Kossan and Supermax (Bengtsen, 2021b), with a second tier of smaller manufacturers (Hutchinson & Bhattacharya, 2020). Many medical gloves factories operate within the Klang Valley area encompassing parts of Selangor and Kuala Lumpur. By 2020 at the onset of the pandemic, the Malaysian medical gloves sector accounted for 63 per cent of the global market in medical gloves (Phoonphongphiphat, 2021). The Malaysian Rubber Gloves Manufacturers Association (MARGMA) estimated that in 2019 the Malaysian rubber gloves industry employed 71,800 people of whom 39 per cent (28,000) were Malaysian nationals and 61 per cent (43,800) were foreign migrants (Hutchinson & Bhattacharya, 2020). Contemporary production, though still predominantly located in Malaysia, is now highly automated across the sector so that most migrant workers are employed in packing and quality control roles, earning basic rates of pay.

The main piece of legislation regulating industrial relations in Malaysia is the 1955 Employment Act,[5] incorporating provisions on contracts, wages, working time, labour contractors and the employment of foreign workers. The Act applies to all employees, inclusive of migrant workers,[6] and addresses issues associated with forced labour indicators including excessive overtime, contract substitution, withholding of wages, debt bondage and abusive living and working conditions. The Immigration Act 1959/1963 and the Immigration Regulations 1963 govern migrant workers' entry and stay in the country. All non-citizens require an entry permit or pass to enter Malaysia. Migrant workers are issued with a Visit Pass (Temporary Employment) (VP TE), on condition of passing the Foreign Workers' Medical Examination (FOMEMA). THE VP TE enables a stay of 12 months after which it must be renewed if the worker remains in employment. The Immigration Regulations prohibit a change of employer or employment, meaning that a migrant worker's VP TE is tied to a single employer and workers are unable to change their employer. There have been points at which the Bangladeshi government has sought to eliminate recruitment brokers and the Nepalese government has sought to prevent their workers from moving to work in Malaysia due to concerns over high recruitment fees leading to debt bondage. The Malaysian government has also implemented bans on Bangladeshi workers due to similar concerns (Low, 2020), but fees have continued to be paid by workers to recruitment agencies, often via brokers, to seek employment in the sector (Upsana Khadka, 2020a, 2020b). The Employment Act provides that contracts of service do not prevent any employee from joining trade unions or participating in their activities.[7] However, under the Federal Constitution, only citizens have the right to form associations. There is thus a limited political role for organized labour.

CONFRONTING FORCED LABOUR IN GLOBAL VALUE CHAINS FOR MEDICAL GLOVES DURING THE PANDEMIC

Increased demand, accelerated sourcing and the shifting balance of power in the value chain

Through the COVID-19 pandemic, the consumption of medical examination gloves in the NHS increased at an unprecedented rate. We focus in these sections on the value chains supplying the NHS in England, where annual use went from around 2 to 7.5 billion units (Interview, G1). With similar increases across the world, colossal demand overwhelmed established procurement systems and global value chains. In England, as demand overwhelmed NHS Supply Chain in Spring 2020, an exceptional move was made with the Department of Health and Social Care stepping in to manage additional procurement. Whilst contracts in the Framework Agreement, complete with the due diligence checks already in place, continued to be handled by NHS Supply Chain with existing suppliers and their outsourced manufacturing base, a parallel supply chain was also set up by the Department of Health and Social Care. To enable this, Regulation 32 of the UK Public Contracts Regulations 2015 was triggered. This exempted contracting organizations from following usual procurement procedures and timetables and allowed new contracts (some 45) to be negotiated and set up urgently (Interviews, G1 and P1). Medical examination gloves have been demand managed through this process, effectively operating a 'push model' (Interview, P2), whereby trusts have little to no choice regarding which brands of gloves they are receiving (Interviews, P5 and P6). In the case of the parallel supply chain, due diligence was conducted but much more rapidly than in the case of a normal contract and often working through governmental institutions such as embassies and high commissions to check on manufacturers' credentials and ensuring swiftly that those contracts had modern slavery statements embedded in them (Interview, G1). Figure 2 depicts the supply chains for medical examination gloves for the NHS in England during the pandemic.

From the manufacturers' side, the pandemic created massive demand for gloves and resulted in price increases, which quadrupled according to some manufacturing interviewees (Interviews, M1, M2). This created a spot market and price escalation, with pricing power moving significantly to manufacturers. Moreover, purchasers no longer delayed payments (Interview, M3), which can reduce incentives to change labour practices (Interview, M1). The allocation of gloves by manufacturers and first-tier suppliers appears to have been governed in part by longer-term

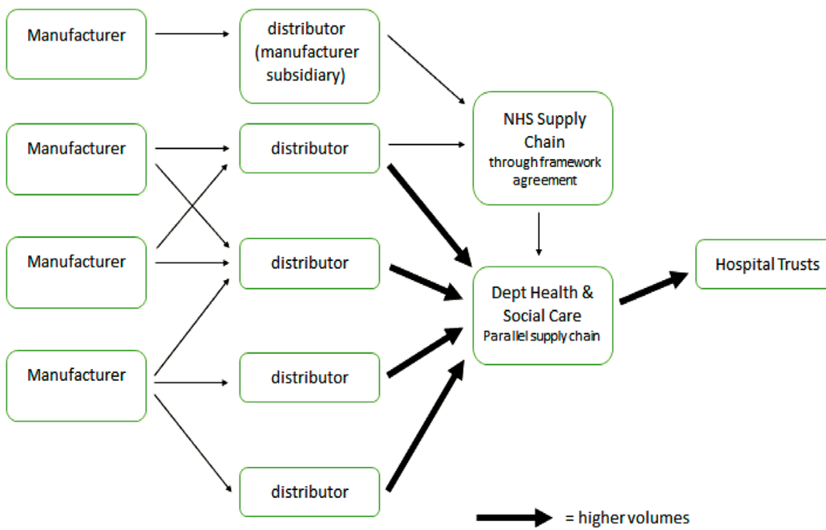

FIGURE 2 Medical examination gloves value chain for NHS England in the COVID-19 pandemic

economic strategic logic and in part by an ethical discourse, with manufacturers reporting prioritization of long-standing customers as a strategic consideration but also with reference to loyalty and avoiding price-escalating spot markets (Interviews, M1, S2).

The COVID-19 pandemic has caused the Malaysian medical gloves industry to grow at an unprecedented rate. In 2019 MARGMA predicted a growth rate for the global industry of 12 per cent for 2020, to reach production of 300 billion pieces by the end of the year and Malaysian companies expected to produce 188 billion of this (Hutchinson & Bhattacharya, 2020). The Ministry of Trade and Industry announced in September 2020 a revised estimated demand of 330 billion units, with Malaysia to produce 220 billion of those (Malay Mail, 2020). Demand in 2021 was expected to increase further to 420 billion pieces with Malaysia expecting to supply 280 billion of that total (Reuters, 2021a). The global market was estimated to have a value of US$30.9 billion in 2020.[8] Malaysia's earnings from gloves exports increased by 103 per cent in 2020, more than doubling to RM 35.3 billion ($8.6 billion) (Reuters, 2021a).

Through the pandemic there has therefore been a dramatic shift in the balance of power towards the manufacturers. Record profits have been documented, with Top Glove reporting revenue of US$1.8 billion in 2020, which was a 51 per cent increase from the previous year. In terms of pricing, a box of 100 nitrile gloves cost US$32 in 2021 compared with US$3 before COVID-19 (Tognini, 2021). What had previously been a buyer's market swiftly became a seller's and this put decision making about distribution, pricing and payment terms more firmly in the hands of manufacturers. In many cases, this switch in influence has operated through existing, fragmented supply chains and contracts. But it also has worked through the parallel supply chain set up by the Department of Health and Social Care, where traditional forms of contracting have been bypassed (Gereffi, 2020). The achievements of the medical gloves sector in responding to the COVID-19 crisis have been referred to as an example of 'adaptive and effective' global value chains (Dallas et al., 2021, p. 8). But against this backdrop of success, there are questions about the implications for labour.

Labour under pressure: Entrenched and deepening forced labour issues

The pandemic increased demand for workers to meet rising medical gloves production needs. At the same time, it has made it difficult to hire new workers due to the government freezing foreign labour recruitment as part of restrictions to contain the virus. The industry is reported to need growth of 32 per cent in its workforce, or 25,000 workers

(Hutchinson & Bhattacharya, 2021). In September 2020, MARGMA announced industry concerns that the shortage of workers would negatively affect export earnings (Reuters, 2020). Firms have turned in part to increased automation and hiring of local workers, despite their higher wages, to address the shortage (Hutchinson & Bhattacharya, 2021). The government has attempted to promote employment of citizens during the crisis. To do so in July 2020, it prohibited the hiring of migrants in all but three sectors—agriculture, construction and plantation work. However, in August 2020 the restriction was lifted. New migrant recruits were still prohibited, but businesses could hire Malaysia-based migrant workers who had lost jobs due to the pandemic (Khadka, 2020a).

Turning to conditions of work and using the eleven ILO Forced Labour Indicators (ILO, 2014) as reference points, our research finds evidence of labour issues associated with the presence of forced labour in the sector during the pandemic. Some issues identified around six indicators—*abuse of vulnerability*, *deception*, *physical and sexual violence*, *intimidation and threats*, *retention of identity documents* and *withholding of wages*—are present and longstanding, though not significantly altered by the pandemic. Other issues associated with *restriction on movement*, *isolation*, *abusive working and living conditions* and *excessive overtime*, are also longstanding but have been exacerbated by the pandemic, either through the direct health and safety risks of COVID-19 or from the pressures placed on production by increased global demand for gloves. Issues connected to one indicator—*debt bondage*—have improved during the pandemic. *Debt bondage* is longstanding and has received more attention during the crisis with attempts made at redress, for reasons highlighted in the next sections.

Regarding the set of longstanding labour issues associated with *abuse of vulnerability*, *deception*, *physical and sexual violence*, *intimidation and threats*, *retention of identity documents* and *withholding of wages*, the restrictive conditions of work permits, which tie workers to one employer and the preference for workers to serve 3 years unless they pay their way out, heighten worker vulnerability. Regarding deception, deceptive acts are most evident at the recruitment stage. Our evidence pertains to workers recruited pre-pandemic and with the migrant recruitment freeze in place, new instances of workers realizing deception on arrival in Malaysia will have decreased. The effects of pre-pandemic deceptive practices remained evident through 2020 as described above. Our research did not extend to the actions of migration brokers in workers' home countries during the pandemic, and we are unable to confirm if deceptive practices ceased there with the recruitment pause. Our evidence indicates deception as a systemic feature of recruitment processes which will likely begin again when foreign recruitment is restarted. Workers can be promised or accept terms of employment concerning wages, working hours, job roles and working and living conditions during recruitment, which differ from the actual terms of employment when they arrive in country. How deception within recruitment operates in a world where there is greater scrutiny of gloves supply chains will be an area for close observation.

Concerning physical or sexual violence, 6 per cent of surveyed workers report that they have experienced this. Regarding intimidation and threats, before migrating almost a third of surveyed workers reported that their recruitment agency via brokers had threatened or intimidated them to prevent them from speaking about recruitment fees. Post-migration, workplace intimidation is centred around ensuring productivity and inhibiting workers from raising individual and collective grievances—18 per cent of the surveyed workers did not feel comfortable reporting grievances. Concerning the retention of identity documents, 60 per cent of surveyed workers reported that their recruitment agency and/or the associated brokers had kept their passports (for between 4 months and a year) whilst processing their job applications, with the issue being felt most severely by Bangladeshi workers. Eight percent of workers surveyed had their passports kept by the company from upwards of 13 months. This highlights the role of mediating recruitment agencies in creating some of the labour problems. Withholding of wages does not appear to be a major issue in the industry, although some irregularities may occur.

In terms of the labour issues associated with forced labour indicators that have been most clearly intensified by the pandemic, one area has of course concerned restrictions on movement. Longstanding restrictions on movement mainly concern the difficulties workers experience in leaving contracts, as explained above in terms of abusing workers' vulnerability. Glove companies usually pay for the yearly work visa only if a worker works until the end of it, otherwise workers are responsible for the cost. Moreover, almost a third of surveyed workers signed a document stating that they cannot leave their job before the end of the contract. There is also evidence that COVID-19 and the worker shortage

has been decreasing the ability of some workers to take leave. Forty-two percent of surveyed workers reported not being able to take leave freely without the payment of a deposit, and medical leave was also difficult to obtain. Isolation was also exacerbated during the pandemic, as both factories and workers' accommodation are often located in difficult to reach zones, in industrial areas located relatively far from the city. In terms of working and living conditions during the pandemic, most workers surveyed were generally comfortable with the safety of working conditions. Accommodation, however, has been a key issue of concern, with more than half of surveyed workers reporting it to be congested. Crowded accommodation also leads to other problems, including a lack of privacy, not having enough toilets and overheating. In late 2020, the industry was hit by a series of COVID-19 outbreaks affecting factories across the sector, with thousands of cases among workers. The Malaysian government identified overcrowded and substandard dormitories as a key reason for the outbreaks (Reuters, 2021b).

Regarding overtime work, our research confirmed long working hours. Those surveyed worked a mean average of 12.02 h a day. Twelve hours is the longest working time (exclusive of breaks) permissible under Malaysian law. Workers report that overtime is mandatory and are often well-disposed to this, as they view it as an opportunity to increase earnings. However, even with these long hours permissible in law, some evidence suggests that workers were pushed over these limits during the pandemic. Eight percent (119) of surveyed workers reported working 14 h as the longest continuous time worked. Some workers in the survey indicated working even longer hours, up to 15 h (six workers), 16 h (four) and even 18 h (one). Moreover, many workers in our survey reported not receiving their statutory entitlement of a rest day per week. A working week of 6 days or a work month of 26 days is the legal maximum, with workers entitled to a rest day each week, totalling four a month. More than half of surveyed workers reported receiving this within the 3 months prior to the survey date. However, 10 per cent reported receiving no days off, 31 per cent just one day off a month and a further 4 per cent either 2 or 3 days.

One indicator of forced labour—*debt bondage*—has been longstanding and a major problem in the Malaysian medical gloves sector, but which has improved during the pandemic. High recruitment fees, often paid by workers taking out loans, mean that workers are tied to their employer at least until debt is repaid. More than half of the surveyed workers report taking out a loan at an average amount of $2560. Indebted workers indicate an average time to pay off loans of 11.7 months. This demonstrates that, particularly in the first year of their employment, many workers in the medical gloves industry are at a high risk of debt bondage. Gereffi's (2020) observation about the imperatives of PPE production to seek out and engender low-cost production would support the view that debt bondage is an example of forced labour embedded in the capitalist logics of these global value chains (Phillips, 2013). A quarter of surveyed workers, however, reported receiving some reimbursement of fees from their company at the time of survey in the pandemic, and we explain some of the reasons for this in the following sections.

PPE in the spotlight: Increasing the visibility of forced labour

In terms of how the pandemic has effected change of varying kinds, including positive as well as negative impacts, it is salutary to observe the role of media and advocacy work, as well as academic engagement, in placing issues such as labour rights violations on commercial and public agendas. Significant attention has been paid in the GVC and related literature to the agency of exposés and consumer and civil society campaigns in compelling 'lead firms', often high-profile brands, to develop and improve labour codes of conduct and social auditing for their supply chains (Hughes et al., 2008).

In the case of the public sector's supply chains prior to the pandemic, including those of the UK's NHS, the roles of critical journalism and campaigning have been limited in effecting change, though the influence of the Medical Fair and Ethical Trade Group of the British Medical Association has been important. An explanation for this is the low risk posed by stories of poor labour standards to purchasing organizations' reputations, where PPE and other medical commodities are low-profile, intermediate goods and when the NHS and broader public bodies have appeared to come under less scrutiny for their procurement roles than buyers in consumer goods sectors. Another explanation is that the

fragmented and arms-length global value chains, where the intermediary supplying firms have largely held sway, have the effect of distributing responsibility and making it difficult to know where the critical spotlight should shine. In light of those explanations, what has changed through the pandemic?

First, PPE as intermediate goods became exceptionally high profile very swiftly, as they became so vital to the control of COVID-19 transmission. Second, the shift in the balance of power towards the manufacturers and attention to the dominant locality of production, Malaysia, made for a clearer focus of attention. Labour rights activists have for some time been drawing attention to issues in the Malaysian production of medical gloves (European Working Group on Ethical Public Procurement, Medical Fair & Ethical Trade Group & British Medical Association, 2016), as well as some articles in the media (see, for example, Bengtsen, 2019; Ellis-Petersen, 2018), but through the pandemic these stories received more airtime as PPE's profile rose and the record profits of the manufacturers could be more shockingly juxtaposed with cases of poor working conditions.

News articles through the pandemic reported conditions of work in Malaysian factories producing medical gloves, with manufacturers frequently named and direct links made to UK sourcing including for the NHS (Quinley, 2020). Moreover, explicit references were made to 'modern slavery' (Lovett, 2021a, 2020b) and 'forced labour' (Pattisson, 2020b). Ongoing labour issues such as low wages (in some cases as little as £7 per day) and excessive working hours were reported to be continuing during the crisis (Pattisson, 2020a). Reports of passports being confiscated and recruitment fees continuing to be charged to migrant workers by agencies also featured, along with the risk to workers of contracting and transmitting COVID-19 in the context of crowded worker accommodation and transportation (Hall, 2020). Channel 4 news covered the same issues in June and November in 2020, and news articles appeared internationally (Bengtsenen, 2021a; Harper, 2020). Allegations of labour rights abuses against Top Glove, one of the largest Malaysian glove manufacturers, heavily featured, discussed below. So how did this increased visibility of labour issues and increasing strategic prioritization of PPE procurement affect the tackling of forced labour issues in value chains for medical gloves, and what are the significant regulatory gaps and problems remaining?

Refracting responsibilities through crisis: Confronting labour issues through a reconfigured global value chain

In England and covering the United Kingdom more broadly, supply chain interviewees reflected on weaknesses of the NHS's Labour Standards Assurance System (LSAS) that have become more exposed through the crisis. The system was noted to be predominantly desk-based, despite incorporating an annual independent audit of factories, before the COVID-19 outbreak. Through the pandemic, LSAS became even more desk-based and arms-length, with restrictions on in-person audits and emergency procurement that side-stepped all but the most basic due diligence processes. Moreover, in the Malaysian medical gloves industry, an existing lack of transparency regarding audit results and limited recognition within audits of high recruitment fees as a forced labour risk were noted as issues of concern (Bengsten, 2019).

Before the pandemic, NHS Supply Chain had been in the process of developing a more dynamic labour standards system of assurance, which will build in more interactive features for contract management allowing NHS buyers to review evidence provided by suppliers. The new system will also allow buyers to communicate with suppliers and work with them to improve any necessary areas (Interview, P2). In addition to LSAS revisions, the Home Office recently has developed an e-learning module, targeted at PPE procurement due to its heightened significance, and has commissioned practical guides for PPE buyers and suppliers to tackle modern slavery (Impactt Limited, 2021). Moreover, proposed amendments to the UK 2015 Modern Slavery Act that currently omit public bodies in modern slavery reporting, and the outcome of the UK Government's *Transforming Public Procurement* Green Paper and the planned Procurement Bill also have some potential to effect positive change. Government developments, the impacts of which have yet to be seen, emanate from the combined forces of EU exit and critical attention to the procurement of medical goods in the face of the pandemic.

Beyond the English and wider UK context, the response of the US government to forced labour in the medical gloves sector during the pandemic, as well as beforehand, has been significant. The US Tariff Act 1930 'prohibits the importation of merchandise mined, produced or manufactured, wholly or in part, in any foreign country by forced or indentured labor – including forced child labor'. In July 2020 and again in March 2021, the Customs and Border Protection (CBP) issued a Withhold Release Order (WRO) against Top Glove due to findings of forced labour despite the ongoing pandemic and high demand for gloves. To have the import ban lifted, the company has had to commit to addressing forced labour and engage in remediation, with workers receiving reimbursement of recruitment fees.[9] The import ban was lifted on Top Glove in mid-September 2021 (Bengtsen, 2021b). Addressing forced labour issues, most notably through the repayment of recruitment fees to workers, has worked through this WRO mechanism in the US government case, contrasting starkly with UK government approaches. Whilst the regulatory apparatus was active before the pandemic, the cases have been higher in profile during the COVID-19 crisis. Significantly, remediation in the form of recruitment fee repayment has been enabled by the record profits made by the manufacturers concerned. At the time of writing, Australia and the EU are also looking to mirror this approach of import bans when forced labour is found (Hurst, 2021; Reuters, 2021c).

For its part, the Malaysian government has attempted to address forced labour under the National Action Plan on Anti-Trafficking in Persons 2016-2020, including enhanced ethical recruitment standards. The ILO stated however that the Plan's activities were 'insufficient to achieve significant results' and cited the need for more holistic action to address the 'systemic vulnerabilities' of high recruitment fees, unclear regulations of outsourcing companies, wage deductions and employer accountability (ILO, 2018). In March 2021 the Ministry of Home Affairs launched the National Action Plan on Anti-Trafficking in Persons 2021–2025 (NAPTIP 3.0) and it remains to be seen whether it will improve on the drawbacks of its predecessor. Influenced by the critical media attention, Malaysian government efforts during the pandemic have focused mainly on identifying and enforcing employers' improvement of substandard accommodation.

Overall, amidst the pandemic, evidence of endemic forced labour, worsening in the case of some indicators, shows that current systems for addressing it are failing. The shift in the balance of power from the supplying intermediaries and buyers to the manufacturers, and the ability of manufacturers to charge higher prices for gloves has not translated sufficiently into remediation of forced labour, despite some attempts at redress, most notably through the US WRO mechanism.

CONCLUSION

Our paper shows that COVID-19 amplified labour issues connected to forced labour and unethical practices in Malaysia's medical gloves sector. It cannot be claimed that COVID-19 caused this exploitation. Rather, practices such as recruitment fees charged to migrant workers were already common and well documented before the COVID-19 pandemic. However, the pandemic has changed the settings in which this exploitation occurred, with respect to supply chain actors and workers. COVID-19 has turned the commodity product of medical examination gloves to a strategically important product emotionally connected to overseas users. Buyers who were previously willing to ignore the situation in the sector are facing questions on labour conditions despite the commonly accepted priority of supply assurance.

Despite public sector procurement having a clear mandate to prevent modern slavery, forced labour and labour exploitation more widely in their value chains, such political commitments have only rarely resulted in effective action. This is particularly concerning as public buyers order large quantities of goods and would have substantial leverage to incentivize improvement in the sector. The UK's NHS is a case in point. Our research highlights that more attention needs to be given to the translation of political commitments into public procurement practice.

Our paper also challenges the view that manufacturers are pushed into using exploitative practices by buyers and intermediary suppliers exerting their purchasing power. In the medical gloves sector, power has very clearly shifted to

manufacturers during the pandemic and buyers were largely insensitive towards prices. Nevertheless, issues associated with forced labour persisted and even deepened in some cases. Forced labour was, and is, normalized and engrained in the purchasing practice and global value chains of PPE sectors, including the medical examination gloves industry. Gibson's (2021, p. 84) view of 'multiple temporalities of vulnerability and resilience' can help understand some possible next steps. First, the significant purchasing power of governments must be leveraged in ways that more meaningfully address labour issues in value chains, and perhaps that is more likely as we witness a broader resurgence of the state. And second, as Gereffi (2020) has suggested, global value chain resilience post-pandemic requires tightening legislation in all localities of the chain and strengthening partnerships between producing, supplying and purchasing nodes. Whilst domestic production of some PPE is developing, demand exceeds that manufacturing capacity. Responsible public sector procurement involving global sourcing must therefore be combined with a debate on national resilience and access to key products required through and beyond crisis. Such responsibility, we argue, applies to all aspects of the global value chain, including labour standards.

ACKNOWLEDGEMENTS

We are grateful for the Modern Slavery and Human Rights Policy and Evidence Centre (the Modern Slavery PEC) / Arts and Humanities Research Council grant (AH/V008676/1) funding the research for this report. We thank all those participating in the survey and interviews for their time and insight, and the project interviewers for conducting and translating survey interviews. We also thank Andy Hall for his valuable advice. The views expressed in this report are those of the authors and not necessarily of the Modern Slavery PEC. We are very grateful to the journal editors and anonymous reviewers for helpful comments on earlier drafts.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings will be available in Newcastle University's institutional repository at [URL / DOI link to be created on data deposit following an embargo from the date of publication to allow for the political sensitivity of the research findings.

ENDNOTES

[1] ILO's Forced Labour Convention, 1930 (No. 29), Article 2 (1): http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C029 (accessed May 5, 2021).

[2] The paper uses the terms 'global value chains' to refer to cross-border supply chains, drawing on the conceptual framework of Global Value Chains (GVCs) (Gereffi et al., 2005). We explain this use in the section of the paper outlining critical perspectives. When referring to examples of global value chains in practice, we use the term 'global value chains'. When referring to the conceptual framework, we abbreviate to 'GVC'.

[3] These indicators represent the most severe labour rights violations, but we recognize that they are not synonymous with all labour rights violations. Evidence of these indicators may represent labour rights infringements rather than definitive forced labour, and conversely indicators may fail to capture other rights issues such as freedom of association, access to collective bargaining or discrimination. Indicators should therefore be understood as signs or clues that there is a higher likelihood of forced labour. It should also be borne in mind that practices can relate to more than one indicator.

[4] Publication Scheme—Supply Chain Coordination Limited (sccl.nhs.uk) (accessed September 16, 2021).

[5] The Employment Act 1955 only applies to Peninsular Malaysia, with the states of Sabah and Sarawak on Borneo having their own labour ordinances. The vast majority of medical gloves factories are located in Peninsular Malaysia.

[6] Employment Act 1955, First Schedule, Subsection 2(1)

[7] Employment Act 1955, s.8.

[8] Global Medical Gloves Market Report 2021: Malaysia is the dominant producer—U.S. market is estimated at $10.4 billion, while China is forecast to grow at 14.6 per cent CAGR – Market-Reporter (accessed September 09, 2021).

[9] CBP Issues Forced Labor Finding on Top Glove Corporation Bhd. U.S. Customs and Border Protection (accessed May 29, 2021).

[10] Gender data were missing for 7 participants.

REFERENCES

Anti-Slavery. (2021). *What is modern slavery? What is modern slavery?* Anti-Slavery International. https://www.antislavery.org/

Bair, J. (2008). Analysing global economic organization: Embedded networks and global chains compared. *Economy and Society*, *37*(3), 339–364.

Barrientos, S. (2013). 'Labour chains': Analysing the role of labour contractors in global production networks. *The Journal of Development Studies*, *49*, 1058–1071.

Bengtsen, P. (2019, December 22) Clean gloves, dirty practices: Debt bondage in Malaysia's rubber glove industry. *Diplomat*. https://thediplomat.com/2019/11/clean-gloves-dirty-practices-debt-bondage-in-malaysias-rubber-glove-industry/

Bengtsen, P. (2021a, March). Malaysia's dirty gloves. *Le Monde diplomatique*. https://mondediplo.com/2021/03/09malaysia

Bengtsen, P. (2021b, September 14). Debt bondage payouts flow to workers in Malayisia's glove industry. *The Diplomat*. https://thediplomat.com/2021/09/debt-bondage-payouts-flow-to-workers-in-malaysias-glove-industry/#:~:text=Debt%20Bondage%20Payouts%20Flow%20to%20Workers%20in%20Malaysia's%20Glove%20Industry,-Has%20an%20American&text=Within%20a%20year%2C%20tens%20of,one%20of%20Supermax'%20glove%20factories

Bhutta, M. F. (2017). Time for a global response to labour rights violations in the manufacture of health-care goods. *Bulletin of the World Health Organization*, *95*, 314.

Bhutta, M., Bostock, B., Brown, J., Day, E., Hughes, A., Hurst, R., Trautrims, A., & Trueba, M. (2021). forced labour in the medical gloves supply chain before and during COVID-19: Evidence, scale solutions. *Unpublished Stakeholder Report*, 57 pp.

Brace, L., & O'Connell Davidson, J. (2018). Slavery and the revival of anti-slavery activism. In L. Brace, & J. O'Connell Davidson (Eds.), *Revisiting slavery and anti-slavery: Towards a critical analysis* (pp. 3–34). Springer.

Brass, T. (2014). Debating capitalist dynamics and unfree labour: A missing link? *Journal of Development Studies*, *50*(4), 570–582.

British Medical Association (2021). Labour Rights Abuse in Global Supply Chains for PPE through COVID-19: Issues and Solutions, https://www.bma.org.uk/media/4288/ppe-labour-rights-abuse-in-global-chains-for-ppe-through-covid-july-2021.pdf

Bryson, J. R., & Vanchan, V. (2020). COVID-19 and alternative conceptualisations of value and risk in GPN Research. *Tijdschrift voor economische en sociale geografie*, *111*(3), 530–542.

Coe, N. M., Hess, M., Yeung, H. W. C., Dicken, P., & Henderson, J. (2004). 'Globalizing' regional development: A global production networks perspective. *Transactions of the Institute of British Geographers*, *29*, 468–484.

Dallas, M., Horner, R., & Lantian, L. (2021). The mutual constraints of states and global value chains during COVID-19: The case of personal protective equipment. *World Development*, *139*, https://doi.org/10.1016/j.worlddev.2020.105324

Ellis-Petersen, H. (2018, December 9). NHS rubber gloves made in Malaysian factories linked with forced labour. *The Guardian*. https://www.theguardian.com/global-development/2018/dec/09/nhs-rubber-gloves-made-in-malaysian-factories-accused-of-forced-labour

European Working Group on Ethical Public Procurement, Medical Fair and Ethical Trade Group & British Medical Association. (2016). *In good hands: Tackling labour rights concerns in the manufacture of medical gloves* (p. 26). British Medical Association.

Feinmann, J. (2020) The scandal of modern slavery in the trade of masks and gloves. *British Medical Journal*, *369*, m1676.

Free, C., & Hecimovic, A. (2021). Global supply chains after COVID-19: The end of the road for neoliberal globalisation? *Accounting Auditing & Accountability Journal*, *34*(1), 58–84.

Gammeltoft-Hansen, T., & Nyberg Sørensen, N. (Eds.) (2013). *The migration industry and the commercialization of international migration*. Routledge.

Gereffi, G. (1994). Capitalism, development and global commodity chains. In L. Sklair (Ed.), *Capitalism and development* (pp. 211–231). Routledge.

Gereffi, G. (2020). What does the COVID-19 pandemic teach us about global value chains? The case of medical supplies. *Journal of International Business Policy*, *3*, 287–301.

Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, *12*(1), 78–104.

Gibson, C. (2021). Theorising tourism in crisis: Writing and relating in place. *Tourist Studies*, *21*(1), 84–95 https://doi.org/10.1177/1468797621989218.

Grand View Research. (2020). Personal protective equipment market size, share & trends analysis report by product (respiratory protection, protective clothing), by end use (chemical, oil & gas, mining, construction), and segment forecasts, 2020–2027. (Report ID: 978-1-68038-426-0. 109 pp). Grand View Research.

Hall, A. (2020, April 17). Don't forget the people behind the PPE: migrant workers meeting the surge in demand for medical gloves. *The Telegraph*. https://www.telegraph.co.uk/global-health/science-and-disease/dont-forget-people-behind-ppe-migrant-workersmeeting-surge/

Harland, C., Telgen, J., Callender, G., Grimm, R., & Patrucco, A. (2019). Implementing government policy in supply chains: An international coproduction study of public procurement. *Journal of Supply Chain Management*, *55*(2), 6–25.

Harper, J. (2020, April 27). Rubber glove shortage exposes migrant worker abuse in Malaysia. *Deutsche Welle*. https://www.dw.com/en/rubber-glove-shortage-exposes-migrant-worker-abuse-in-malaysia/a-53256054

Horner, R. (2017). Beyond facilitator? State roles in global value chains and global production networks. *Geography Compass*, *11*(2), e12307.

Hughes, A., Morrison, E., & Ruwanpura, K. (2019). Public sector procurement and ethical trade: Governance and social responsibility in some hidden global supply chains. *Transactions of the Institute of British Geographers*, *44*(2), 242–255.

Hughes, A., Wrigley, N., & Buttle, M. (2008). Global production networks, ethical campaigning, and the embeddedness of responsible governance. *Journal of Economic Geography*, *8* (3), 345–367.

Hurst, D. (2021, August 23). *Australian Senate passes bill banning imports made using forced labour*. The Guardian. https://www.theguardian.com/australia-news/2021/aug/23/australian-senate-poised-to-pass-bill-banning-imports-made-using-forced-labour

Hutchinson, F., & Bhattacharya, P. (2020). Malaysia's rubber glove industry – a silver lining amidst dark clouds. *ISEAS Yusof Ishak Institute Perspective*, *2021*(138). https://www.iseas.edu.sg/wp-content/uploads/2020/11/ISEAS_Perspective_2020_138.pdf

Hutchinson, F., & Bhattacharya, P. (2021). Malaysia's rubber glove industry – the good, the bad and the ugly. *ISEAS Yusof Ishak Institute Perspective*, *2021*(35). https://www.iseas.edu.sg/wp-content/uploads/2021/02/ISEAS_Perspective_2021_35.pdf

ILO. (2014). *ILO indicators of forced labour*. ILO.

ILO (2018). *Situation and gap analysis on Malaysian legislation, policies and programmes, and the ILO forced labour convention and protocol*. ILO. https://www.ilo.org/wcmsp5/groups/public/–asia/–ro-bangkok/documents/genericdocument/wcms_650658.pdf

Impactt. (2021). Tackling Modern Slavery in PPE Supply Chains: A Practical Guide for UK Bodies https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/989252/Tackling_modern_slavery_in__guidance_for_public_bodies.pdf. Accessed January 18, 2022.

LeBaron, G. (2014). Reconceptualizing debt bondage: Debt as a class-based form of labor discipline. *Critical Sociology*, *40*(5), 763–780.

LeBaron, G. (2015). Unfree labour beyond binaries: Insecurity, social hierarchy, and labour market restructuring. *International Feminist Journal of Politics*, *17*(1), 1–19.

LeBaron, G., Lister, J., & Dauvergne, P. (2017). Governing global supply chain sustainability through the ethical audit regime. *Globalizations*, *14*(6), 958–975.

LeBaron, G., & Phillips, N. (2019). States and the political economy of unfree labour. *New Political Economy*, *24*(1), 1–21.

Lebdioui, A. (2020). The political economy of moving up in global value chains: How Malaysia added value to its natural resources through industrial policy. *Review of International Political Economy*, https://www.tandfonline.com/doi/abs/10.1080/09692290.2020.1844271 (*accessed 8/4/2021*).

Lerche, J. (2007). A global alliance against forced labour? Unfree labour, neo-liberal globalization and the International Labour Organization. *Journal of Agrarian Change*, *7*(4), 425–452.

Lovett, S. (2021a, March 14). Government continued to source PPE from Malaysia suppliers accused of modern slavery. *The Independent*. https://www.independent.co.uk/news/health/covid-ppe-gloves-malaysia-nhs-government-latest-b1812320.html

Lovett, S. (2021b, March 23). Labour calls on government to punish UK firms linked to PPE suppliers accused of modern slavery. *The Independent*. https://www.independent.co.uk/news/uk/politics/covid-ppe-gloves-uk-malaysia-b1821301.html

Low, C. C. (2020). De-commercialization of the labor migration industry in Malaysia. *Southeast Asian Studies*, *9*(1), 27–65.

Malay Mail. (2020, September 09). Miti: Rubber gloves export rose to RM15b for Jan-July period. *Malay Mail*. https://www.malaymail.com/news/money/2020/09/09/miti-rubber-gloves-export-rose-to-rm15b-for-jan-july-period/1901685

McGrath, S., & Watson, S. (2018). Anti-slavery as development: A global politics of rescue. *Geoforum*, *93*, 22–31.

Methven O'Brien, C., & Martin-Ortega, O. (2019). Public procurement and human rights: Towards legal and policy coherence in pursuit of sustainable market economies. In O. Martin-Ortega, & C. Methven O'Brien (Eds.), *Public procurement and human rights: Opportunities, risks, and dilemmas for the state as buyer* (pp. 225–21). Elgar.

Nadvi, K. (2002). Shifting ties: Social networks in the surgical instrument cluster in Sialkot, Pakistan. *Development & Change*, *30*(1), 141–175.

Natarajan, N. Brickell, K., & Parsons, L. (2020). Diffuse drivers of modern slavery: From microfinance to unfree labour in Cambodia. *Development and Change*, *52*(2), 241–264.

National Audit Office. (2020). *The Supply of Personal Protective Equipment (PPE) during the COVID-19 Pandemic* (p. 69). National Audit Office.

OECD (2020). *Integrating responsible business conduct in public procurement*. OECD Publishing. https://doi.org/10.1787/02682b01-en.

Pattisson, P. (2020a, April 23). NHS urged to avoid PPE gloves made in 'slave-like' conditions. *The Guardian*. https://www.theguardian.com/global-development/2020/apr/23/nhs-urged-to-avoid-ppe-gloves-made-in-slave-like-conditions-coronavirus

Pattisson, P. (2020b, September 25). UK government sourcing NHS PPE from company repeatedly accused of forced labour. *The Guardian*. https://www.theguardian.com/global-development/2020/sep/25/nhs-sourcing-ppe-from-company-repeatedly-accused-of-forced-labour-top-glove

Phillips, N. (2013). Unfree labour and adverse incorporation in the global economy: Comparative perspectives on Brazil and India. *Economy and Society*, *42*(2), 171–196.

Phoonphongphiphat, A. (2021, January 19). Thailand ramps up medical glove production as it chases Malaysia. *Nikkei Asian Review*. https://asia.nikkei.com/Business/Health-Care/Thailand-ramps-up-medical-glove-production-as-it-chases-Malaysia

Ponte, S., & Sturgeon, T. (2014). Explaining governance in global value chains: A modular theory building effort. *Review of International Political Economy*, *21*, 195–22.

Quinley, C. (2020, April 25). 'I don't feel safe': Migrants making protective gloves for hospitals allege labour abuse and exploitation. *The Independent*. https://www.independent.co.uk/news/world/asia/coronavirus-ppe-factory-malaysia-rubber-gloves-migrant-workers-a9482696.html

Reuters. (2020, September 18). Malaysia's medical glove makers struggle to meet demand due to labour shortage. *Reuters*. https://www.reuters.com/article/us-malaysia-gloves-idUSKBN2691M9

Reuters. (2021a, March 15). Malaysian rubber glove group says demand to outstrip supply until 2023. *Reuters*. https://www.reuters.com/article/us-malaysia-gloves-idUSKBN2B709W

Reuters. (2021b, February 18). Malaysia enforces requirement for improved worker accommodation to rein in Covid-19. *Reuters*. https://www.reuters.com/article/malaysia-labor-idUSL1N2KO0UA

Reuters (2021c, September 15). EU to propose ban on products made by forced labour – von der Leyen. EU to propose ban on products made by forced labour – von der Leyen. *Reuters*. https://www.reuters.com/article/eu-commission-labour-idAFS8N2O6018

Rioux, S., LeBaron, G., & Verovsek, P. J. (2020). Capitalism and unfree labor: a review of Marxist perspectives on modern slavery. *Review of International Political Economy*, *27*(3), 709–731. https://doi.org/10.1080/09692290.2019.1650094

Rizan, C., Reed, M., & Bhutta, M. F. (2021). Environmental impact of personal protective equipment distributed for use by health and social care services in England in the first six months of the COVID-19 pandemic. *Journal of the Royal Society of Medicine*, *114*(5), 250–263.

Sandler, S., Sonderman, K., Citron, I., Bhutta, M., & Meara, J. G. (2018). Forced labor in surgical and healthcare supply chains. *Journal of the American College of Surgeons, Journal of the American College of Surgeons*, *227*, 618–623.

Sarkar, M. (2017). Constrained labour as instituted process: Transnational contract work and circular migration in late capitalism. *European Journal of Sociology*, *58*(1), 171–204.

Special Action Programme to Combat Forced Labour. (2012). *ILO Indicators of forced labour* (p. 26). ILO.

Sustainable Development Unit, British Medical Association, Ethical Trading Initiative and Department of Health. (2017). Ethical Procurement for Health: Workbook. (British Medical Association, London). 73 pp.

Tognini, G. (2021, February 11). Billionaires making 'boatloads of money' from once-cheap medical gloves. *Forbes*. https://www.forbes.com/sites/giacomotognini/2021/02/11/billionaires-making-boatloads-of-money-from-once-cheap-medical-gloves/?sh = 4703edec661c

Top Glove. (2021). Update on the glove market, workers' hostels improvement and US Customs and Border Protection (CBP) WRO Status. PowerPoint Presentation. https://www.topglove.com/storage/past-investor-relations-events/August2021/2fZbQoik7RCR0RwtHFQW.pdf

Trueba, M. L., Bhutta, M. F., & Shahvisi, A. (2021). Instruments of health and harm: How the procurement of healthcare goods contributes to global health inequality. *Journal of Medical Ethics*, *47*, 423–429. https://doi.org/10.1136/medethics-2020-106286

Upasana Khadka (2020a, July 20). Brokers going for broke. *Nepali Times*. https://www.nepalitimes.com/opinion/brokers-going-for-broke/

Upasana Khadka (2020b, January 10). Why has zero-cost migration not happened? *Nepali Times*. https://www.nepalitimes.com/opinion/why-has-zero-cost-migration-not-happened/

Vanchan, V., Mulhall, R., & Bryson, J. (2018). Repatriation or reshoring of manufacturing to the U.S. and UK: Dynamics and global production networks or from here to there and back again. *Growth and Change*, *49*(1), 97–121. https://doi.org/10.1111/grow.12224

Wise, J. (2021). Covid-19: EU has lessons to learn from early response to pandemic, say auditors. *British Medical Journal*, *372*, n173. https://doi.org/10.1136/bmj.n173

How to cite this article: Hughes, A., Brown, J.A., Trueba, M., Trautrims, A., Bostock, B., Day, E., Hurst, R., & Bhutta, M. F. (2022). Global value chains for medical gloves during the COVID-19 pandemic: Confronting forced labour through public procurement and crisis. *Global Networks*, 1–18. https://doi.org/10.1111/glob.12360