

Gender and COVID-19: Workers in global value chains

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Abstract. *This article presents a framework to analyse the gendered impact of COVID-19 on workers in global value chains (GVCs) in the business process outsourcing, garment and electronics industries. Distinguishing between the health and lockdown effects of the pandemic, and between its supply- and demand-related impacts, the authors' gendered analysis focuses on multidimensional aspects of well-being, understands the economy as encompassing production and social reproduction spheres, and examines the social norms and structures of power that produce gender inequalities. Their findings suggest that the pandemic exposes and amplifies the existing vulnerabilities of women workers in GVCs.*

Keywords: *gender, women workers, COVID-19, global value chains, business process outsourcing, electronics industry, garment industry.*

1. Introduction: Crises, gender and global value chains

The COVID-19 pandemic has caused a major shock to global value chains (GVCs) that were already in the process of significant transformation, and is having profound implications for workers. Unlike the financial crises of 1998 and 2008, the pandemic is a two-pronged shock: a public health emergency that directly threatens worker safety and an economic crisis that has caused a contraction in demand and disrupted supply at different times. The globally dispersed structure of GVCs has made them particularly prone to disruption during the pandemic. Similar to the “great trade collapse” of 2009 (Baldwin 2009), the contraction of trade has been more severe than that of gross domestic product (GDP): trade in global merchandise fell by 7 per cent in value terms and by 5 per cent in volume, while GDP declined by 3.8 per cent in 2020 (WTO 2021). Although the WTO predicts a “strong but uneven” global recovery in 2021, the impacts on workers have been severe and may be long-lasting.

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Studies show that women bear the brunt of economic and social disruptions accompanying health and economic crises, and that they are affected both disproportionately and differently (UN 2020). The dual nature of this crisis has compounded the challenges for women workers, who have remained largely invisible in the GVC literature, with some notable exceptions (for example, Barrientos 2019; Bamber and Staritz 2016). In this article we ask the question: what are the different pathways by which the pandemic affects women workers in GVCs and how do gendered institutions and norms shape them? We focus specifically on women workers in the labour-intensive and low-wage segments of GVCs, who constitute some of the most vulnerable groups in these networks. While it is premature to make a full empirical assessment, our aim is to present a framework to trace the gendered pathways that produce consequences for women workers in GVCs, taking account of the distinct nature of the pandemic – a health crisis combined with an economic recession, triggering both supply disruption and demand contraction. We illustrate these pathways through a review of available evidence from 2020 – drawing mostly on rapid assessments, and media and civil society reporting – in three industries: business process outsourcing (BPO),¹ electronics and garments. Our contribution lies in analytically distinguishing the health and lockdown effects of the pandemic on workers, as well as its supply- and demand-related impacts, across the sites of production and social reproduction. This allows us to obtain a multidimensional view of the various factors that have been consequential for women workers during the pandemic, and to illustrate how these have worked in practice. By bringing the perspective of social reproduction to the analysis of crises in GVCs, we attempt to identify the gendered impacts on labour.

We selected these GVCs because they illustrate the differences between the supply disruption and demand contraction channels of the pandemic's impact. BPO was largely affected by supply disruption, the garment industry was most severely affected by demand contraction, whereas the electronics industry experienced both supply disruption and demand contraction, depending on the sub-industry. These industries also differ in other ways that can offer a fuller understanding of the gendered impact of the pandemic on workers in GVCs. First, the electronics industry has one of the most geographically dispersed GVCs, comprising a high share of manufactured intermediate goods trade when compared with the garment industry, which is significantly less fragmented (Rynhart, Chang and Hyunh 2016; Sturgeon and Kawakami 2010). Second, both industries are also important sources of employment for low- to medium-skilled workers in developing countries, though their share of female employment differs: in the garment industry, between 1990 and 2014 the female share of employment averaged at over 60 per cent for 14 countries in the global South that are significant players in GVCs; in the electronics industry the share was a little over 30 per cent (Tejani and Kucera 2021). In contrast to the garment and electronics industries, BPO creates largely white-collar jobs for a relatively more educated workforce. Third, in terms of technological uptake, the electronics industry is a leader in the

¹ BPO is a segment of the larger information technology and business process management industry and comprises the offshoring of enterprise resource, human resource and customer relationship management (Gereffi and Fernandez-Stark 2010).

adoption of robotics while the garment industry and BPO are at an early stage of adopting Industry 4.0 technologies.

We find that the pandemic has exposed the persistent vulnerability of low-wage workers, raising questions about the viability of the GVC model as a pathway to sustainable development and decent job creation. The pandemic is ongoing and still evolving, with outcomes for workers varying according to the spread of the virus and the nature of the policies adopted. Although we focus mainly on the aspect of gender in this article, migrant status, education, ethnicity, race, caste, nationality, sexual orientation and age are also important factors that determine workers' structural position within GVCs and affect outcomes. Because our framework analyses the main mechanisms of the pandemic's consequences, it is necessarily stylized and not intended to be exhaustive.

This article sets out our framework in the second section, followed by an empirical review of the three industries under study in the third section. The fourth section concludes.

2. Conceptual framework

2.1. Well-being, social reproduction and power structures

Feminist analyses of gender and work in times of crises use some foundational approaches. First, social and economic impacts are routinely analysed within the broader framework of well-being, which is conceptualized as a multidimensional space not limited to wages and employment but also incorporating health, autonomy, agency and other important aspects of life (Floro 2019; Pearson and Sweetman 2011). The broader framework of well-being is intrinsically important as a theoretical framework to analyse the goals that women seek to achieve through employment. For women, GVCs have been a source both of expanded employment opportunities and of greater autonomy, voice and agency in the household (Kabeer 2008). These employment effects are often seen as a positive force for gender equality, but they are more complex than this and can be contradictory. Employment has also often created exploitative working conditions for women, violating their rights, undermining their dignity and endangering their health (Bamber and Staritz 2016).

Second, feminist analysis builds on the understanding of the economy as encompassing the spheres of production and social reproduction, and emphasizes the disproportionate burden on women of unpaid care work in the household due to social norms (Elson 2010). This care work is necessary in order to sustain life. It involves providing food, emotional and material care for children, the elderly and the infirm, and maintaining a clean living space, but it acts as a constraint on women's participation in paid work and education. Gendered analyses of past crises consistently emphasize the heavy burden of unpaid and paid care work borne by women, even though the employment effects varied from case to case (Pearson and Sweetman 2011).

Third, gender-aware analyses understand social and economic processes as being embedded within gendered structures and institutions that are characterized

by asymmetries of power, suffused with social norms and where men and women have different roles and positions (Elson 2010; Pearson and Sweetman 2011). The impact of crises on workers in GVCs is also mediated by these gendered institutions including the household, workplace, educational system and social norms, which shape women workers' opportunities, vulnerabilities and bargaining power with respect to work.

GVCs are marked by starkly asymmetric power structures in which lead firms in the global North capture most of the profits while suppliers mostly operate in highly competitive and low-value-added environments in the global South. In the garment industry, although suppliers in China, Malaysia and the Republic of Korea have been successful in upgrading to become full-package suppliers, the rest of the industry in Asia and sub-Saharan Africa remains focused on assembly or cut-make-trim that is intensely competitive and has low margins (Gereffi and Frederick 2010; ILO 2020). The electronics GVC consists of lead firms, contract manufacturers and platform leaders that create hardware and software technologies for products across companies (Sturgeon and Kawakami 2010, 11). Given the highly "modular" – standardized, codified and formalized – nature of electronics products, manufacturing firms can be quickly substituted for each other and their market power and profitability remains low due to intense competition (Sturgeon and Kawakami, 14). Growing supplier consolidation and geographic concentration in electronics has brought most original design manufacturing (that is, manufacturing and design services) under the control of firms from Taiwan (China). The BPO industry is highly concentrated and dominated by large information technology (IT) firms that are headquartered in developed countries, along with some mature firms in India that provide services to customers through a network of delivery centres in low-cost developing countries (Gereffi and Fernandez-Stark 2010). At the low-value end of the BPO chain, routine services that are easily codified and transferable predominate, though higher-value-added services, such as human resources, require more coordination between the buyer and the seller (Fernandez-Stark, Bamber and Gereffi 2011).

During the COVID-19 pandemic, these structural asymmetries have allowed lead firms and buyers to squeeze suppliers in the global South, with dire consequences for workers, whose bargaining power was already low. The long history of notoriously poor health and safety conditions, low and precarious wages, worker abuse, wage theft and the use of trafficked labour in garment and electronics GVCs is well documented (Verité 2014; Anner 2018; Know the Chain 2020). In electronics, foreign migrants are at a high risk of "forced labour" conditions – the use of violence, intimidation, manipulated debt, retention of identity papers or threats of denunciation to immigration authorities – if they want to keep their job. A survey of the 49 largest information and communications technology companies found that they were making little effort to address these conditions in their supply chains, particularly with regard to the persistence of recruitment fees and the suppression of collective bargaining (Know the Chain 2020). In the BPO industry, workers are made to sign punitive confidentiality agreements that make them liable for damages of at least two years' pay for talking to the media or divulging information about rights violations (Lee 2020).

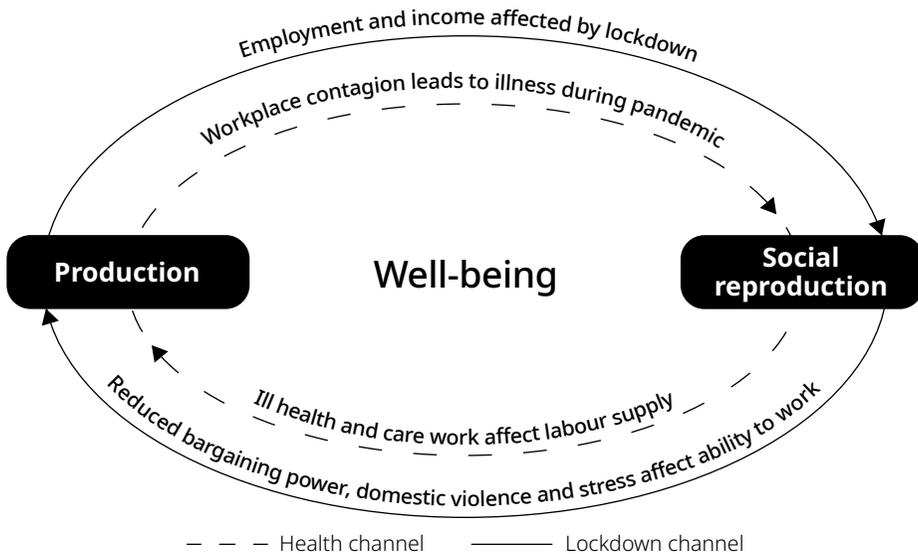
In their study on call centres, Holman, Batt and Holtgrewe (2007) found that third-party providers tend to offer lower wages, have lower rates of unionization and employ a greater share of temporary workers than in-house call centres. Despite the high work intensity, pressure, long hours and health risks of night work, unionization in BPO has remained limited (D’Cruz and Noronha 2013).

2.2. A gendered framework to analyse the impacts of the COVID-19 pandemic on workers

Our framework, shown in figure 1, analyses the gendered effects of the pandemic on well-being via two channels: (i) the health channel, and (ii) the lockdown channel. The framework traces these impacts across the sites of both production and social reproduction, and identifies gendered institutions where social norms and weak bargaining power lead to unequal outcomes for women. Figure 1 depicts our entire framework as a circular diagram with effects flowing from the sphere of production to that of social reproduction (and back) for both channels.

In the health channel (dashed line in figure 1), workplace contagion leads to worker illness and affects social reproduction as a result of the loss of income, decline in consumption and rise in care work. In turn, ill health and increased care work affect the supply of labour to the productive sphere. In the lockdown channel (solid line in figure 1), the employment and income losses of workers in the productive sphere affect basic provisioning in social reproduction. But the lockdown itself produces new constraints on the ability to work owing to increased household work, homeschooling and gender-based violence that affect women in particular, as well as restrictions on transport and mobility. It also further reduces the bargaining power of workers. These channels, which are discussed in further detail below, are separated here for analytical purposes but

Figure 1. A framework for the gendered analysis of COVID-19 on workers in GVCs



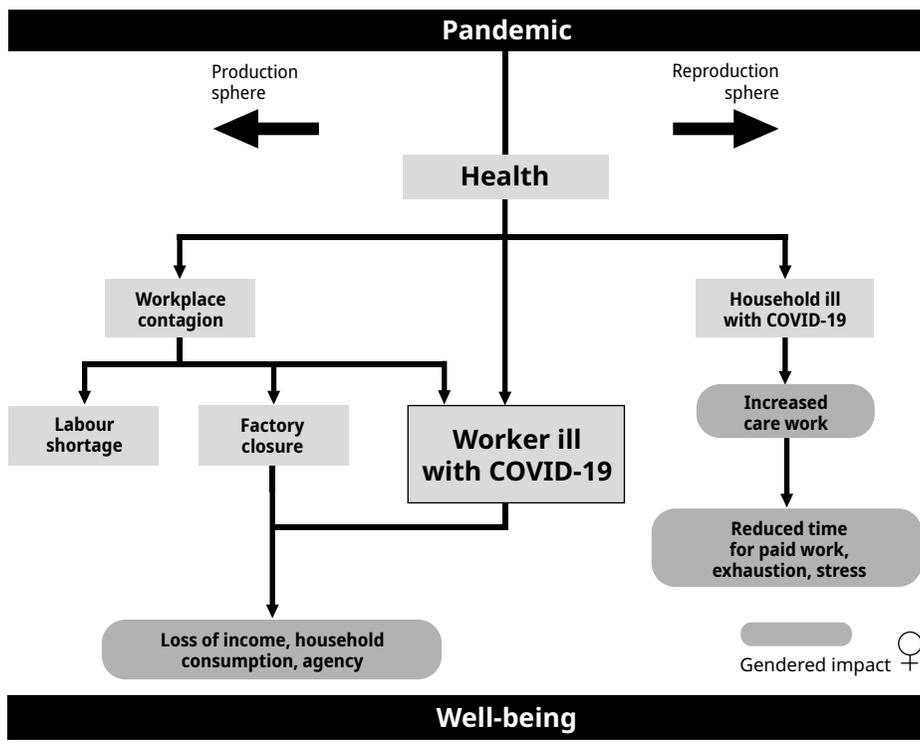
they are, of course, not mutually exclusive and may overlap and operate at the same time. Furthermore, with the adoption of working-from-home practices in industries like BPO, the spheres of production and social reproduction are increasingly indistinguishable, creating new opportunities but also new constraints for women workers. The structure of GVCs has contributed in different ways to exacerbating the effects of the pandemic on workers, which we highlight at different points in our discussion.

2.3. The health channel

The emergence of the pandemic threatens the health of workers in the workplace, both directly and through its impact on the household. Figure 2 lays out the chain of consequences of: (i) workplace contagion; and (ii) workers and household members falling ill, resulting in increasing care work. Gendered impacts are represented by rounded nodes.

Workplace contagion is a significant factor leading to factory closure and continues to be a significant source of supply disruption in GVCs. The structure of GVCs inherently puts factories under immense pressure to keep to their production schedules. The business model seeks to minimize inventory and optimize flexibility, making production delays extremely costly, particularly in “time-sensitive” industries like garments and electronics. Exposure to COVID-19 posed a serious threat to workers in all three industries

Figure 2. The health channel



in 2020, especially where workplaces were cramped, poorly ventilated and inadequately sanitized.

Contagion in the workplace has a direct effect on the health and well-being of the worker, and risks spreading the disease through the household, with the knock-on effects of reducing consumption and overall well-being. Women are disproportionately exposed to contagion if they represent a larger share of the workforce, particularly where workplace health protection measures are inadequate and if they have underlying health vulnerabilities. Although there is little evidence of women being more susceptible to infection, they bear the brunt of the mounting burden of care work, gender-based violence in the household and mental health pressures.

2.4. The lockdown channel

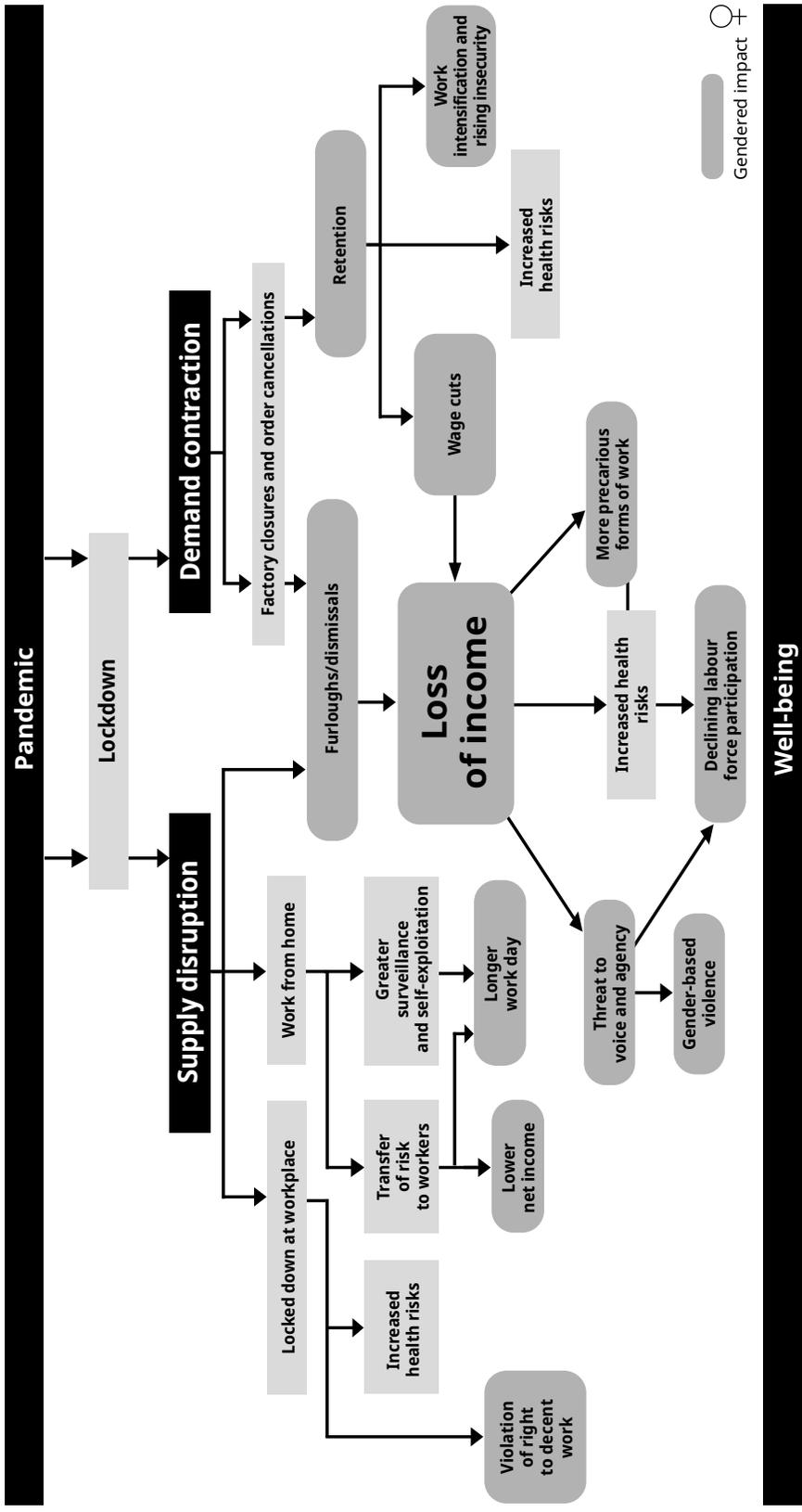
Lockdowns affected workers through two main pathways: through supply disruptions within GVCs and the contraction of demand in end markets. Supply disruptions are characterized by the temporary under-utilization of capacity and have been caused by shipment delays, raw material shortages or lockdown restrictions during the pandemic. But where demand was intact, production has eventually recovered. In the case of demand contraction, job and income losses for workers can become permanent owing to shrinking labour demand brought on by widespread firm closures and industrial distress. It is thus important to distinguish between these two channels to assess the impacts on workers.

Figure 3 lays out the transmission channels from the lockdown² to worker well-being. The structure and attributes of GVCs created specific conditions and consequences for workers through the lockdown channel. First, the massive global trade of intermediate inputs in GVCs makes them highly susceptible to supply shocks at each stage of production during a pandemic. This became amply clear when early outbreaks of COVID-19 in Wuhan (China), and then in the Republic of Korea, caused major input shortages in the garments and electronics industries.³ Severe disruptions in air, land and ocean freight and logistics at different stages of the pandemic also created ripple effects across GVCs (IFC 2020). Second, demand shocks tend to be transmitted more rapidly through GVCs because the decline in final goods exports affects the demand for intermediates, which may fall even more steeply as existing inventories are used for production rather than placing new orders in a climate of uncertainty (Ferrantino and Taglioni 2014). This tends to compound the knock-on effects on workers in GVCs. Third, the dominance and market power of lead firms in the global North has allowed them to shift numerous risks and costs to suppliers in the global South, with devastating impacts on workers, an issue we discuss in greater detail in section 3.

² The global scale of lockdowns during COVID-19 was unprecedented although their extent, duration and nature varied considerably between countries. We abstract from these differences for analytical purposes.

³ See DHL (2020) for a summary of the transport disruptions that impacted supply chains in early stages of the pandemic.

Figure 3. The lockdown channel



As seen in figure 3, both supply disruption and demand contraction lead to furloughs and dismissals though these effects are exacerbated and likely to become permanent in the case of demand contraction. Women employed in the lower tiers of GVCs are often casual or flexible workers who are most likely to be dismissed and furloughed, and are disproportionately affected by the resulting loss of income. Such material loss threatens subsistence and increases health risks. Because monetary income increases a woman's voice and agency within the household, the loss of employment weakens bargaining power and may be associated with domestic violence and greater mental stress. Gender-based violence has risen sharply during the pandemic, with some countries reporting increases of 30–50 per cent (UN 2020), and women have suffered disproportionately from the added stress that it has caused (AFWA 2020a). Some have been trapped in lockdown with abusive partners, unable to call for help or escape to family or neighbours. In the workplace, abusive treatment and sexual harassment have been exacerbated by the difficult conditions brought on by the pandemic (AFWA 2020b). Together, these effects have led to many women dropping out of the labour force altogether. Rising social and economic vulnerability due to income loss can lead to a slide into more precarious work. These risks are greater among women as they have fewer alternative job options due to breadwinner norms, job rationing and gender segmentation in the industry, in addition to the constraints created by increased care work.

In the case of supply disruption, and where demand has remained intact, new work arrangements have emerged, including living at the workplace and working from home. But these have come with new risks, including violations of the right to decent work, higher overhead costs and longer working days, especially for women. In the demand contraction channel, workers who have been retained have often faced additional health risks due to non-compliance with social distancing norms in the workplace or inadequate protective equipment. Retained workers have also faced wage cuts along with an intensification of work and rising insecurity, as illustrated in the following section.

3. Short-term impacts in the BPO, garment and electronics industries

Our analysis of three different GVCs reveals that gender-based vulnerabilities in employment persist and have been magnified during the pandemic, regardless of industry. However, workers in industries that have suffered mainly from supply disruptions due to lockdowns – such as BPO and, to some extent, the electronics industry – are in a better position to protect their jobs and incomes through the continuation of work, whether at home or in factories, even if it comes with new risks and vulnerabilities. The highly feminized garment industry appears to have been in the most precarious position as severe demand contraction and an industry-wide churn have led to permanent job and income losses. The asymmetrical distribution of power and profits along the chain has meant that workers have suffered the most severe effects of the COVID-19 crisis. This is amply evident from the unpaid furloughs, dismissals, unpaid wages, workplace contagion and health risks that workers endured in the first months of the pandemic.

3.1. Business process outsourcing

The BPO industry has been primarily affected by supply disruption and illustrates the pathways by which this disruption has been transmitted to workers, as seen in figure 3. In many industry-specific services or verticals such as IT, telecommunications, financial technology, healthcare and e-commerce, demand stayed intact or rose, while in travel and hospitality call volumes spiked temporarily owing to cancellations, before collapsing (Deloitte 2020a; Oxford Business Group 2020; Williams 2021). Some firms such as the United Kingdom's Virgin Media and Australia's Telstra and Optus operating in India and the Philippines began to reshore and recruit workers in their home countries to cope with surging demand during the lockdown (*The Economic Times* 2020).

In the BPO industry, workers who were able to commute continued to work on-site at firms despite their concerns about safety during the first phase of the lockdown in India (*Business Standard* 2020). Others reported having to work longer hours, being stigmatized by neighbours and evicted from their homes owing to their potential exposure to COVID-19, as well as being reluctant to ask for leave for fear of dismissal (Bhattacharya 2020). Many workers faced a stark choice between risking infection at work and losing their income. Although staying overnight at the workplace was not previously uncommon in the BPO industry, workers at a call centre servicing Amazon in Cebu City in the Philippines were forced to sleep "in hundreds" on the floor in "subhuman conditions" to continue working through the lockdown (Lee 2020). In addition to the health risks of such arrangements, locking women down with male co-workers in the workplace also carries the risk of sexual harassment and abuse.

However, strict lockdowns meant that most workers were unable to commute to the workplace, leading to mass furloughs or temporary leave (Frayer and Pathak 2020; Mendonca 2020; Reed, Ruehl and Parkin 2020). In the Philippines, a survey of 146 respondents revealed that four in ten workers were on "no work, no pay" contracts or had a "floating" status, which is a practice of keeping regular employees on standby for up to six months without pay (BIEN 2020a; Macareg 2020). Only a handful of the workers surveyed were receiving any financial assistance from their companies or the government (BIEN 2020b).

In the IT-business process management industry, women are concentrated in relatively lower-valued BPO and are over-represented in routine, insecure and low-paid occupations, especially in call centres where their "feminine social skills" are considered an asset (PSA 2015; Domingo-Cabarrubias 2012). In this context, furloughs have had a gendered impact on employment for two reasons. First, voice-based functions have been the most affected during the crisis (Mendonca 2020). Second, women disproportionately lost their incomes because they held insecure and flexible contracts: in the Philippines, women accounted for 75 per cent of workers with a "no work, no pay" status and 70 per cent of those with a floating status (BIEN 2020a).

As shown in figure 3, lockdown has further consequences. Where workers were retained, the alternative of working from home emerged in the BPO industry. In India, 70 per cent of companies had put more than 80 per cent of their staff on work-from-home arrangements a month after the beginning

of lockdown (NASSCOM 2020a). Similar developments were reported in the Philippines. Work-from-home strategies are likely to become part of the industry's business-as-usual protocols (NASSCOM 2020b) and the gendered consequences are therefore worth considering. First, as displayed in figure 3, working from home will involve greater micro-surveillance through technological tools to ensure that levels of productivity do not decline (Thompson 2020; Bhattacharya 2020). This can result in work intensification and self-exploitation, especially as the boundaries between home and the workplace become increasingly fuzzy. For women who must spend even more hours on unpaid work during the pandemic, the demands are particularly onerous and lead to longer days. Although working from home may enable women to combine paid and unpaid work more flexibly, reports indicate that many are simply not able to stay in the labour force because of their increased workload during the pandemic (Bhattacharya 2020). As working from home becomes the new normal, greater confinement and seclusion for women who may already face restrictions on mobility are a concern.

Work-from-home arrangements also effectively transfer numerous operational risks and costs from firms to workers, which affects net income and the length of the working day. In crowded quarters, with poor logistical support and irregular broadband connectivity, BPO workers in the Philippines reported a rise in working hours to meet productivity targets that were not adjusted to account for these disruptions (BIEN 2020c; *The Economic Times* 2020). Most workers also had to bear the costs of high-speed internet connections and electricity that cut into their earnings (Apolinar 2020). Companies now prefer to hire new recruits who already own some technical equipment rather than using workers on floating status (BIEN 2020c). As a result, workers need to make additional and prior hardware investments to even be considered for a position. Women, who make up a larger share of floating workers, tend to have lower purchasing power and own fewer assets than men, are relatively disadvantaged in this situation.

3.2. The garment industry

The garment industry is one of the most severely affected by the COVID-19 crisis. At the time of writing, revenues for 2020 were expected to decline by 25–30 per cent globally (ILO 2020; BoF and McKinsey 2019), taking a heavy toll on countries dependent on this industry. For example, in Bangladesh export earnings contracted by 18 per cent in 2020, largely on account of the garment industry, which experienced order cancellations amounting to some US\$3 billion and lay-offs affecting 1 million out of 3.5 million workers (IMF 2020). Though the COVID-19 outbreak in Wuhan (China) dramatically slowed down exports of fabric and other raw materials, causing a supply disruption, the GVC was even more heavily hit by the contraction in demand as the contagion spread to Europe and North America. Orders were abruptly cancelled, leading to factory closures, lay-offs and wage cuts. This industry thus illustrates the pathways of gendered impact through demand contraction (figure 3). Our analysis shows the vulnerability of workers who are predominantly female and located in the countries of the global South, and the power of consumers, retailers and global brands, all of whom are located in the global North and who set the conditions of payment and employment.

The abrupt cancellations led to factories shutting down most of their operations. In addition to furloughs and dismissals, wages were withheld, delayed or reduced. This affected in particular those who did not have an employment contract, such as migrant, daily-wage and home-based workers. Reports from the Asia Floor Wage Alliance on conditions in Cambodia, India, Indonesia, Myanmar, Pakistan and Sri Lanka document a variety of situations where factories obliged workers to accept lower wages than had been agreed, refused to pay workers because of factory closures, or where the factory owners or contractors “absconded or refuse to answer the phone calls of workers, leaving workers with no assurance of pay” (AFWA 2020b, 8).

The consequences for these workers – the majority of whom are women – have been dire and the support they have received has been patchy. A survey in Bangladesh found that 72 per cent of factory owners reported that they could not provide income to furloughed workers and 80 per cent could not afford severance pay for those dismissed (Anner 2020a). This stems at least in part from the fact that in cancelling orders, the brands and retailers declined to pay for the raw materials and production costs, by making “dubious use of general *force majeure* clauses to justify their violations of the terms of the contract” (Anner, 1). In Bangladesh, for example, towards the end of March about 46 per cent of suppliers reported that “a lot” of or “most” orders that were already at completion stage were cancelled by buyers; 91 per cent of them refused to pay for the production costs and 72 per cent for the raw materials (Anner). Over the course of 2020, production began to stabilize, but supplier factories came under continued pressure as brands and retailers negotiated increasingly unfavourable terms – price cuts sometimes below costs of production and prolonged payment schedules – and “treating their suppliers’ increasing desperation as a source of bargaining leverage” (Anner 2020b, 2).

In some countries, such as Cambodia, Indonesia, Myanmar and Sri Lanka, the government provided garment workers with limited wage subsidies and benefits (AFWA 2020b). However, accounts of workers’ experiences reported by civil society organizations indicate that this assistance was either inadequate or difficult to access, particularly for migrant and home-based workers. Even before the pandemic, garment workers were living on a daily wage and were suffering from chronic food insecurity. The loss of income pushed them to the edge, unable to meet their basic necessities, with food insecurity being “the most pressing concern” (AFWA, 16).

Though many garment factories closed, many also remained open or reopened, some being given special permission to operate in countries with a general lockdown mandate, including in Cambodia, Indonesia and Myanmar (AFWA). The use of dormitories to house migrant workers in the garment industry is a common practice and the risk of infection in these cramped quarters has become a major concern. Furthermore, workers have reported that they were not given paid sick leave when they showed symptoms, in retaliation against workers who demanded more protective equipment and paid sick leave (AFWA 2020a). There are fears that where there are labour shortages, workers are vulnerable to being intimidated into taking on additional hours of work. Moreover, the low wages, long working hours and lack of adequate

healthcare and social protection have left workers without any savings and in a vulnerable situation.

These employment effects overlap with other types of disadvantages. The closing of childcare facilities has made it difficult for young mothers to continue working or to return to work. Patterns of lay-offs and hiring analysed by AFWA (2020b) reveal that trainees, daily wage earners, contract workers and home-based workers were the first to be laid off, while those living near the factory and younger workers were invited to return to work. There are also reports of adolescents being recruited when the schools were closed. These effects link the reproductive and productive sectors. As displayed in figure 3, the return to work then exposes workers to infection while the lack of childcare facilities limits the return to work and the labour supply (figure 1). Loss of employment would also be expected to have consequences for women workers' status in the family, and their ability to allocate resources, for example, to food and to children's health and education.

3.3. The electronics industry

The pandemic affected the electronics industry not only through demand contraction, which varied by sub-industry, but also, and more severely, through supply disruption. In fact, the industry's globally dispersed structure makes it highly susceptible to supply disruption along the chain owing to shortages and delays in the delivery of raw materials, components and sub-assemblies. Supply disruption started at the very outbreak of the COVID-19 pandemic following the lockdowns in Wuhan (China) and, later, in the Republic of Korea, which are both important manufacturing hubs for major companies like Apple and Samsung (Deloitte 2020b). The government-mandated shutdown of Samsung factories in the Republic of Korea which cut off supplies for screens and chips, had a strong ripple effect on the entire supply chain in China, Japan and elsewhere. Lockdowns and supply disruptions led to production disruptions, combined with shrinking global demand for consumer goods with electronic components. This, in turn, led to reduced working hours, furloughs and lay-offs. Overall, the entire electronics industry suffered significant losses in the first quarter of 2020 (Meticulous Research 2020). However, there was a rebound in the second half of the year and the industry as a whole experienced 3 per cent contraction in 2020.⁴

This disruption also led to many factory closures resulting in loss of wages and severance pay, leaving workers unable to meet their basic needs (BHRRC 2020). Reports by human rights organizations document accounts of workers whose livelihoods were seriously threatened by the situation, which resulted in violations of human rights, labour rights and legal entitlements. In Viet Nam, the effects of supply disruption and the cancellation of 30–50 per cent of orders led to workers losing 50–60 per cent of income; in Indonesia, factory closures led to thousands of workers being laid off, without the severance pay mandated

⁴ Statista, "Estimated growth rates for the global electronics industry from 2019 to 2021, by region". <https://www.statista.com/statistics/268396/estimated-growth-rates-for-the-electronics-industry-by-region/> (accessed 5 February 2021).

by law (Electronics Watch, n.d.). Worker exploitation appears to have increased as employers threatened to hold back wages, introduce suspension of collective bargaining and wage increases, and continue production even in contradiction of government advice (Weber 2020). Most of the workers in low-skilled occupations in the electronics industry have short-term employment contracts. In Asia, women make up as much as 60 per cent of electronics workers in Indonesia, 81 per cent in Philippines, 74 per cent in Thailand and 75 per cent in Viet Nam, and they do repetitive work that is also at high risk of automation (Rynhart, Chang and Hyunh 2016). The gender wage gap has historically been significant, and has been increasing in most countries (ILO 2007).

Where factories remained open, health precautions were reportedly introduced, but multiple accounts reveal inadequate health and safety conditions, with factories not providing socially distanced work stations, masks, cleaning and sanitary facilities, or ventilation (BHRRC 2020; Electronics Watch, n.d.; Know the Chain 2020). They also report that health safety, paid sick leave and access to quality healthcare – major demands of workers and unions – were often disregarded.

Many electronics workers are migrants, either from other regions of the country or from abroad. For example, in 2008, 50 per cent of the workers in Malaysia's electronics industry came from Indonesia (Verité 2014). Such workers were stuck, unable to go home on account of travel restrictions imposed by the lockdown. The situation was similar in India, Indonesia and Malaysia.

4. Conclusion

This article has presented a framework to analyse the gendered consequences of the pandemic on workers in GVCs through the channels of health effects and lockdown measures. Through the severe contraction of demand and the simultaneous disruption of supply, the pandemic has reinforced existing fragilities in the industry with critical consequences for women workers. Our preliminary analysis suggests that the garment industry – affected by demand contraction in high-income economies and the largest employer of women in GVCs – has been the most severely hit. The electronics industry has been affected by demand contraction but the greatest impact has come from supply disruption, which has led to wage cuts and job losses especially among migrant workers. BPO has been largely and temporarily affected by supply disruption and is expected to accelerate in the medium term as businesses expand the offshoring of services as part of cost-saving measures. At the start of the pandemic, the BPO industry shifted to working from home fairly rapidly and workers were less exposed to workplace contagion as compared with workers in the garment and electronics industries, where such a shift was not possible. Many workers in these industries had no option but to continue working on-site during the pandemic and inadequate health and safety precautions in factories left them severely exposed to the virus.

The large structural inequalities between buyers and sellers, and between employers and workers across industries have meant that workers with already low bargaining power now face greater insecurity and worsening conditions of

employment. Workers who occupy the labour-intensive and low-value-added sections of these GVCs, which are often feminized, have suffered dramatic job and income losses. At the same time, unequal burdens of unpaid care work and cases of gender-based violence within the household can contribute to a vicious circle that affects women's ability to continue paid work and further hinders the struggle for equality. Gender segregation in the labour market and breadwinner norms also make it harder for women to find alternative employment. The gendered architecture spanning the household, educational institutions, firms and markets means that the multiple disadvantages that women face before they enter the labour market are often amplified within it. Thus we find that the pandemic's effects both illustrate and deepen the vulnerabilities of women that arise from their position at the lowest wage end of the GVCs, and the social norms that define gender roles in the household and in the labour market.

At present, it is critical that the rights to freedom of association, decent work and collective bargaining be protected to ensure that the economic contraction resulting from the COVID-19 pandemic does not trigger further repression of labour. Rather than unilateral measures, such as the decision by seven Indian states to suspend nearly all labour laws, tripartite consultations between governments, firms and labour unions are needed (Rathi and Chatterjee 2020). Social policies also matter; countries that already had social protection systems in place, such as China, Malaysia and the Republic of Korea, stand out for taking some of the most proactive steps – such as employment and sickness protection as well as cash and in-kind transfers – to protect vulnerable workers (Gentilini et al. 2020; Electronics Watch 2020).⁵

Looking ahead, firms will employ a range of strategies to deal with the fallout of the COVID-19 crisis, manage risk and build resilience to future shocks. The BPO and garment GVCs appear poised for waves of consolidation and the adoption of disruptive Industry 4.0 technologies is expected to accelerate, the pandemic having vividly highlighted the risks of labour-intensive production. At the moment, automation appears to be more feasible in the electronics and BPO industries than in the garment industry, where technical and economic impediments remain. Nevertheless, the frontline automation technologies that could be deployed in all three industries are labour-displacing and would have a disproportionate impact on women workers (Tejani and Fukuda-Parr 2021). The increasing feasibility of nearshoring or reshoring, along with the emphasis on lower ecological footprints, is likely to substantially reshape the GVC model in the process.

To date there are no systematic academic studies of the gendered effects of the pandemic in any of the three GVCs, although reports by international organizations and NGOs cited here document some of these effects. This article makes an original contribution by developing a framework to analyse the gendered effects of the pandemic on GVC workers and highlighting salient themes that warrant further investigation. For instance, further research is needed to explore how gendered norms and structures of power within the GVCs shaped outcomes

⁵ See also <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19>.

for workers; whether women were more likely to be dismissed, owed wages and subjected to unsafe working conditions than men, and whether other sectors with predominantly female and migrant workers were particularly affected. While surveys show a sharp increase in unpaid care work, gender violence and mental health problems, there are no studies examining these trends in relation to GVC workers. Our framework lays out the processes and pathways by which the COVID-19 crisis produces gendered outcomes for GVC workers, setting out a research agenda to further probe these effects.

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