THE NEW SCHOOL

THE NEW SCHOOL FOR SOCIAL RESEARCH

Sheba Tejani and Sakiko Fukuda-Parr

Gender and Covid-19: Workers in global value chains

February 2021

Working Paper 04/2021

Department of Economics

The New School for Social Research

Gender and Covid-19: Workers in global value chains

Sheba Tejani and Sakiko Fukuda-Parr

This paper presents a framework to analyse the gendered impact of Covid-19 on workers in global value chains, illustrating the channels of transmission using the business process outsourcing, garments and electronics industries. Keeping the well-being of workers as a central focus, we analyse the impacts of the pandemic through health effects and lockdown measures. Our gendered analysis of these pathways focuses on multi-dimensional aspects of well-being, understands the economy as encompassing both production and social reproduction spheres, and examines the social norms and structures of power that produce gender inequalities. As the pandemic accelerates automation in GVCs, we also examine the likely consequences for women workers who are expected to lose out as a result. The paper argues that the pandemic exposes and amplifies the existing vulnerabilities of women workers in GVCs. The distinctive nature of the pandemic is likely to alter the course of the GVC model with its effects on labour varying by industry, geography, and the structural position of workers.

Key words: gender, Covid-19, global value chains, BPO, electronics, garments, framework, automation, supply disruption, demand contraction

I. Introduction: Crises, Gender and GVCs

The Covid-19 pandemic has triggered a global crisis unleashing widespread unemployment, loss of livelihoods, and multiple social and economic consequences. Such crises are never neutral in their effects. Emerging evidence over 2020 has shown that low income countries and marginalized populations within them are disproportionately affected by the global economic downturn and face a more difficult recovery (UNCTAD 2020). Studies show women are affected both disproportionately and differently, and bear the brunt of economic and social disruptions that accompany health and economic crises (UN Women, 2020c). In multiple ways, the pandemic is revealing the structures of inequality within and between countries, and in transnational economic processes. Analysing these unequal effects would help us to understand the impact of the pandemic and the policy interventions needed. This paper focuses on the impact of the pandemic on women workers in the labour-intensive and low-wage segments of global value chains (GVCs).

The pandemic is a unique shock to GVCs involving both supply disruptions and demand contraction. Unlike the financial crises of 1998 and 2008, the pandemic directly threatens worker safety and disrupts supply. Unlike previous health emergencies, it has global reach and has triggered a worldwide recession. The unequal consequences of the pandemic along North-South and gender lines pose a significant challenge, particularly for low wage labour. Although previous crises have led to the restructuring of particular industries, the global scale of Covid-19 and the fragilities it has exposed may well alter the course of the GVC model altogether.

The pandemic has exposed the persistent vulnerability of low-wage workers, and raises questions about the viability of the GVC model as a pathway to sustainable development and creation of decent jobs. Though their socio-economic effects have been complex and often contradictory, GVCs have been a springboard for industrialization, providing strategic entry points into global markets by integration into growth sectors through low wage labour. For women, GVCs have opened up opportunities for paid work that led to greater autonomy, voice and agency in the household, though at the same time bringing exploitative working conditions that often violated their rights, affronted their dignity and endangered their health (Bamber and Staritz 2016).

While it is premature to make a full empirical assessment, our aim is to present a framework for tracing the consequences of the pandemic on women workers, taking account of the distinct nature of the pandemic – a health crisis combined with an economic recession triggering both supply disruption and demand contraction. It shows stylized pathways that capture how these impacts are mediated by gendered institutions. We illustrate these pathways by review of available evidence – drawing mostly on rapid assessments, media and civil society reporting - in three sectors: business process outsourcing (BPO), electronics and garments.

We select 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; garments most severely by demand contraction; while electronics experienced both supply disruption and demand contraction depending on sub-industry. These industries also differ in their geographic dispersion; importance for women's employment; type of product offered; and technological intensity and can help us to more fully comprehend the gendered impact of the pandemic on workers in GVCs. Electronics is one of the most geographically dispersed GVCs with a high share of manufactured intermediate goods trade as compared to garments, which is significantly less fragmented (Rynhart et al., 2016; Sturgeon and Kawakami, 2010). Both industries are also important sources of employment for low- to medium-skilled workers in developing countries though their share of female employment differs substantially: for garments the female share of employment averaged at over 60% for 14 countries in the global south that are significant players in GVCs between 1990 and 2014; while in electronics it was a little over 30% (Tejani and Kucera, forthcoming). In contrast to garments and electronics, BPO provides largely white-collar jobs for a relatively more educated workforce. Finally in terms of technological uptake, the electronics industry is a leader in the adoption of robotics while apparel and BPO are at an early stage of adopting Industry 4.0 technologies.

The paper starts by setting out our framework, and is followed by an empirical review of the three sectors. The third section explores the potential effects of automation and reshoring. The final section concludes.

II. Conceptual framework

Gendered institutions, social norms and power structures

Conventional frameworks for analysing the impacts of crises on workers that focus on employment outcomes are too narrow for understanding gendered impacts. They do not take full account of the opportunities and constraints women face in the labour market, nor the context of gendered structures and institutions within which crises take place. These institutions, such as the firm, workplace, household, and educational system, are characterized by asymmetries of power, suffused with social norms, and place men and women in different roles and positions (Elson, 2011; Pearson and Sweetman, 2011). This is why we focus in this paper on worker well-being more broadly. Our focus is this paper is on gender inequalities though migrant status, education, ethnicity, race, caste, nationality, sexual orientation and age are also important factors determining workers' structural position within GVCs.

A key factor that influences women's opportunities for employment is the socially ascribed responsibility for unpaid care work within the household—providing food, clean living space, emotional and material care of children, elderly and the infirm—necessary to sustain life. Previous crises have shown the rise in burden of care, triggered by a fall in household incomes and austerity induced decline in public services, to be one of the main mechanisms by which economic crises affect women's lives (Antonopoulou, 2014; Pearson and Sweetman 2011). Rapid surveys during this pandemic show sharp increases in unpaid care work for both men and women but much more so for women than men (UN Women, 2020c).

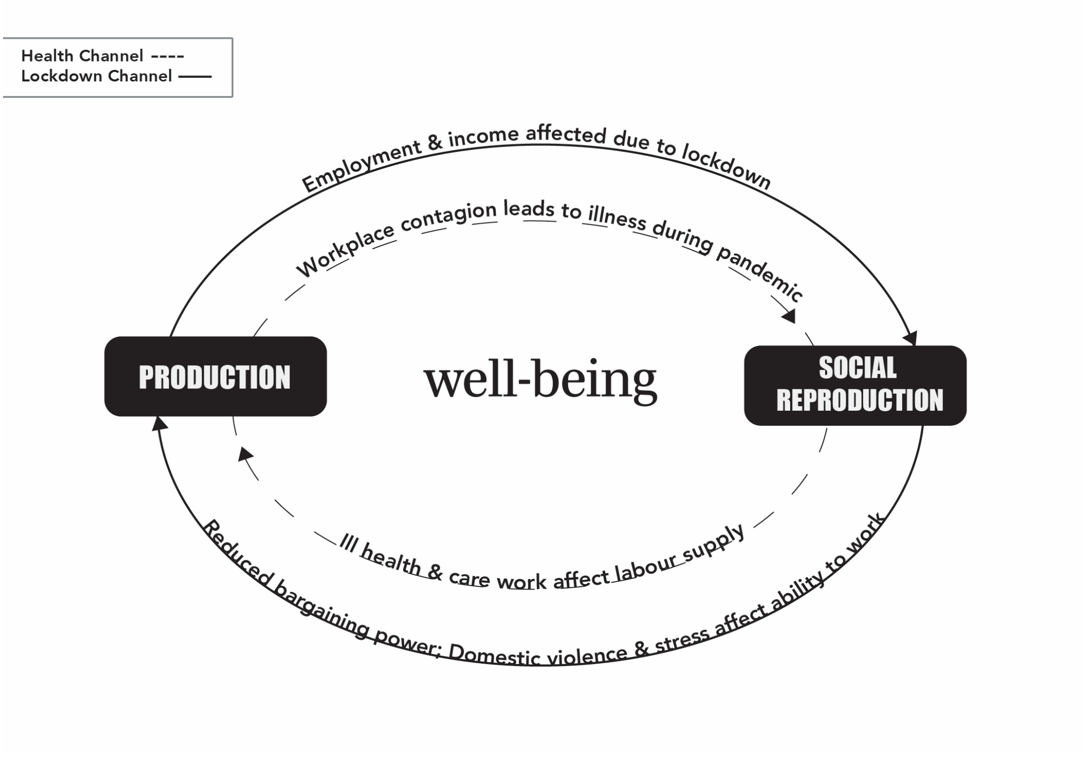
Unpaid work acts as an important constraint on women's paid work and education, and has repercussions for the economy as a whole. Feminist economists have argued that the economy must be understood as encompassing material production and social reproduction, the production of labour and human capital through unpaid care work that takes place outside the market (Elson, 2011). The spheres of market production and nonmarket social reproduction are mutually interdependent. Social reproduction is essential to sustain life and provides labour for material production, while material production provides resources for social reproduction. Another important gendered institution that influences women's employment opportunities in GVCs is education. Social norms and institutional barriers that discourage girls from studying mathematics, engineering and sciences later prevent women benefitting from technological upgrading.

GVCs in general, and the three under study in particular, are marked by starkly asymmetric power structures where lead firms capture much of the financial gains and wield considerable market power while manufacturers or suppliers operate under highly competitive and low-margin environments. These power structures translate into weak bargaining power of workers in supplier firms on whom the burden of adjustment often falls. The long history of notorious health and safety conditions, low and precarious wages, worker abuse, wage theft, and use of trafficked labour in garments and electronics GVCs is well documented (Verité, 2014; Center for Global Workers Rights, 2018; Know the Chain, 2020). In electronics, foreign migrants are highly at risk of "forced labour" conditions – the use of violence, intimidation, manipulated debt, retention of identity papers or threats of denunciation to immigration authorities – to stay on the job. A survey of 49 largest ICT companies found little efforts being made to address these conditions in their supply chains, particularly the persistence of recruitment fees, and suppression of collective bargaining (Know the Chain, 2020). In BPO, 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).

A gendered framework to analyse the impacts of Covid-19 on workers

Our framework, shown in figure 1, analyses the gendered effects of the pandemic 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 social reproduction (and back) for both channels.

Figure 1: A framework for the gendered analysis of Covid-19 on workers in GVCs



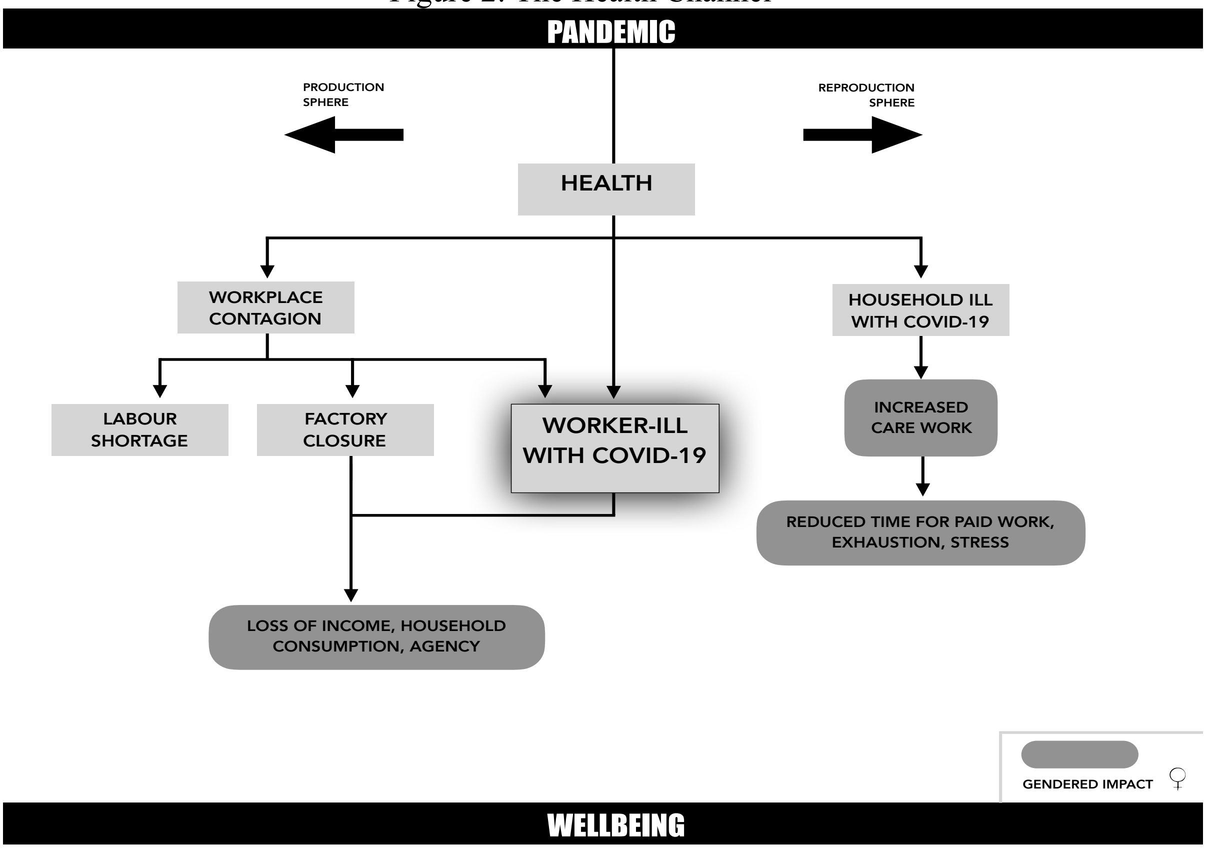
The health channel traces the impact of workplace contagion and illness on workers' well-being. The resulting loss of income, decline in consumption and rise in care work affects social reproduction. At the same time, ill health and strains in social reproduction can affect the supply of labour to the productive sphere. The lockdown channel focuses on the immediate employment and income impact of the shutdown of economic activity on workers' well-being. Within the reproductive sphere, the lockdown created new constraints on the ability to work, especially for women due to increased household and care work, home-schooling, gender-based violence, as well as restrictions on transport and mobility.

Finally, we also discuss how the projected evolution of GVCs towards greater automation and reshoring accelerated by Covid-19 may affect workers. Though these impacts are mostly conjectural, we believe they will be critical going forward and differentially impact women. Because women tend to be concentrated in low-skilled repetitive tasks that are at high risk of automation, they face the possibility of rising job losses within GVCs. For different reasons, they also have fewer opportunities to gain from new demand for high skill workers and greater job polarization by skills and gender are likely to result.

Health channel

The emergence of the pandemic threatens the health of the worker in the workplace directly, but also through its impact on the household. Figure 2, lays out the chain of consequences due to: (i) workplace contagion; (ii) household members falling ill leading to increased care work; and (iii) mental health and rise in domestic violence. Gendered impacts are conveyed through rounded nodes.

Figure 2: The Health Channel



Workplace contagion is a significant factor leading to factory closure and continues to be a significant source of supply disruption. With the onset of the pandemic, the exposure to contracting Covid-19 posed a serious threat to workers in all three sectors, particularly 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 multiple knock-on effects of reducing consumption and well-being overall. Women are disproportionately exposed to contagion if they represent a larger share of the workforce, particularly with inadequate workplace health protections, and if they have underlying health vulnerabilities. While 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.

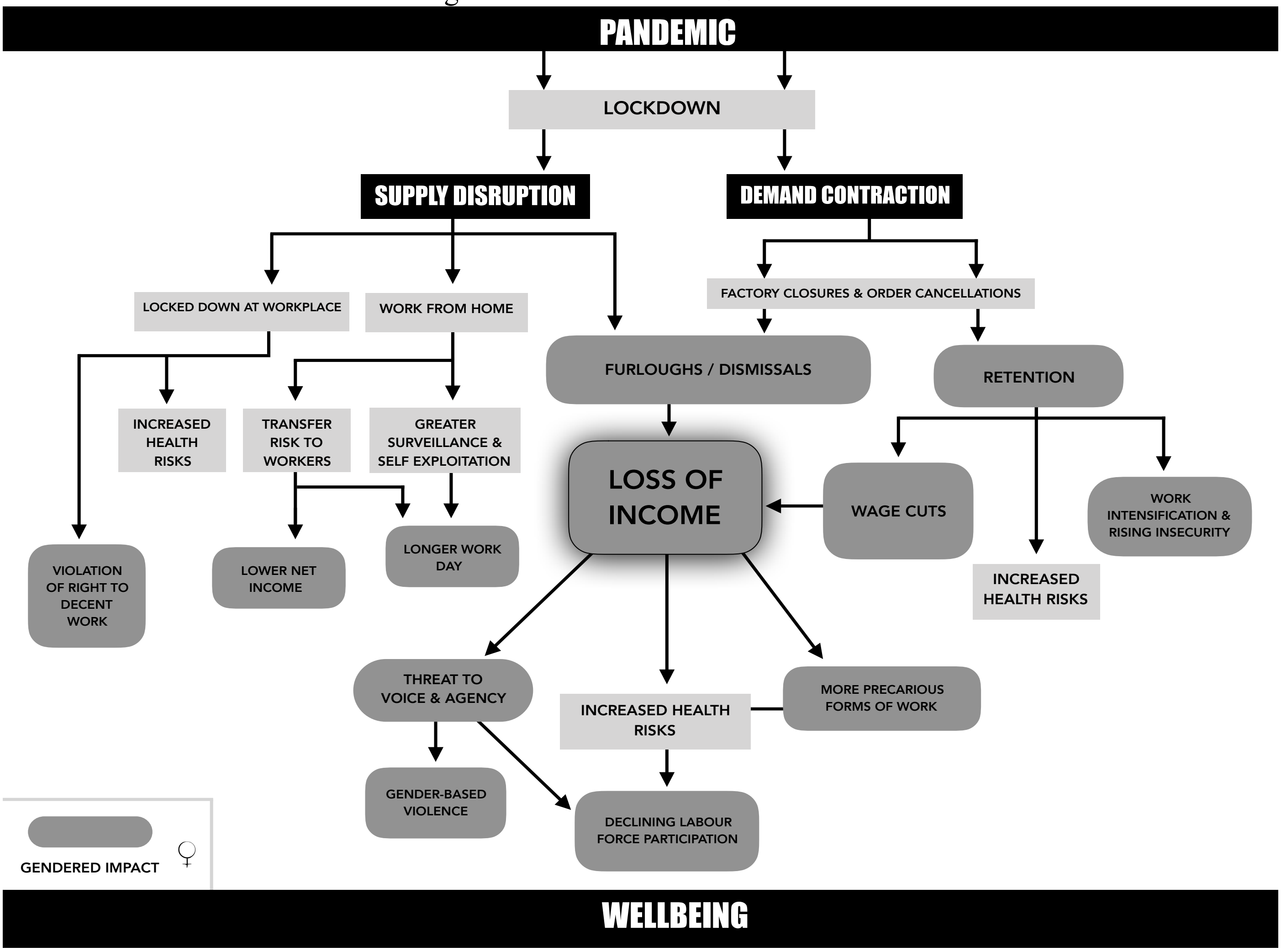
Lockdown channel

The lockdowns affected workers through two main pathways: 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. With demand contraction, on the other hand, job and income losses for workers can become permanent due to shrinking labour demand as a result of 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 lockdown to worker well being. Both supply disruption and demand contraction led to furloughs and dismissals though with greater severity in the latter. This led to a greater loss of income for women workers in the lower segments of GVCs, which are often feminized in terms of the number of women employed and flexibility of jobs. The 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. It has been found that gender based violence has risen sharply under the pandemic, with some countries reporting as much as an increase of 30-50% (UN Women, 2020c). Women are 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 are exacerbated by the difficult conditions of the pandemic (AFWA, July, 2020). Women are reportedly suffering disproportionately from the added stress of life under the pandemic (UN Women 2020c; AFWA 2020). Together these effects may lead to 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. For women, these risks are greater as they have fewer options to obtain alternate jobs due to breadwinner norms, job rationing, gender segmentation in the industry, as well as constraints of increased care work.

In the case of supply disruption and where demand was intact, new work arrangements including living at the workplace and working from home emerged. But these came with new risks such as violations of the right to decent work, overhead costs and longer working days. In the demand contraction channel, the workers that were retained in employment in factories and workplaces faced additional health risks, work intensification, insecurity and wage cuts.

Figure 3: The Lockdown Channel



Some caveats to our analysis are that the responses to Covid-19 are still evolving and ongoing, with outcomes for workers varying by the nature of policies adopted. In addition, our representation of the linkages between the pandemic and well-being of workers are necessarily stylized in order to capture the main mechanisms of the impact and not intended to be exhaustive. The following section illustrates these pathways through a discussion of the production segments of BPO, electronics and garments GVCs.

III Short-term impacts in BPOs, Electronics and Garments

Our analysis of three different GVCs reveals that gender based vulnerabilities in employment persist and become magnified in the pandemic, regardless of sector. However, workers in industries that suffered mainly from supply disruptions due to the lockdown such as BPO, and to an extent electronics, 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 be in the most precarious position as severe demand contraction alongside an industry-wide churn lead to permanent job and income losses. The asymmetrical distribution of power and profits along the chain, whether between buyers and suppliers or firms and workers, has meant that workers have suffered the most severe effects of Covid-19. This is amply evident in the unpaid furloughs, dismissals, non-payment of wages, workplace contagion and health risks that workers endured in the first months of the pandemic.

Business Process Outsourcing

The BPO industry was primarily affected by supply disruption and illustrates the pathways of transmission to workers in that channel shown in Figure 3. The demand for many offshore services did not abate during the pandemic; in fact, for travel and hospitality industries call volumes and back-end processing needs increased manifold. In the BPO industry, workers who were able to commute continued to work onsite at firms despite employee concerns about safety during the first phase of the lockdown in India (Reuters, 2020a). Others reported having to work longer, being stigmatized by neighbours and losing housing due to potential exposure to Covid-19 as well as reluctance to ask for leave for fear of dismissal (Bhattacharya, 2020). Many workers faced a stark choice of either risking infection by working or not earning at all. While staying overnight at the workplace was not previously uncommon in BPO, workers at one call centre 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). Along with health risks, for women, being locked down along with male co-workers at the workplace also carries the risk of sexual harassment and abuse.

However, strict lockdowns meant that most BPO workers were unable to commute to the workplace leading to massive furloughs or temporary leave (Frayer and Pathak, 2020; Mendonca, 2020; Reed et al, 2020). In the Philippines, a survey of 146 respondents revealed that four in 10 workers were on “no work, no pay” contracts or had “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 workers surveyed received any financial assistance from their companies or the government (BIEN, 2002b). Some firms such as the UK’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 (AFP, 2020).[1]

In the IT-Business Process Management industry, women are concentrated in relatively lower-valued BPO and over-represented in routine, insecure and low-paid occupations, particularly call centres where their “feminine social skills” are considered an asset (Nasscom, 2016; PSA, 2012; PSA, 2015; Domingo-Cabarrubias 2012, p. 77). Furloughs had a gendered impact on employment for two reasons: first, voice-based functions where women are concentrated were most affected during the crisis (Mendonca, 2020). Second, women disproportionately lost their incomes

---

[1] See Virgin Media’s press release at: https://www.virginmedia.com/corporate/media-centre/press-releases/virgin-media-creates-more-than-500-customer-contact-centre-jobs-to-keep-the-country-connected

because of insecure and flexible contracts: 75% of employees with no work- no pay status and 70% of those with floating status in the Philippines were women (BIEN, 2020a).

As shown in Figure 3, the loss of wages have further consequences. Where workers were retained, an alternative of working from home emerged in the BPO sector, but not in electronics and garments. Indian industry body Nasscom (2020a) found that 70% of companies achieved a greater than 80% transition to work from home within a month of the lockdown. Similar developments were reported in the Philippines. A work from home strategy is likely to become part of the industry's business as usual protocol (Nasscom, 2020a) and the gendered consequences are worth considering. First, as displayed in Figure 3, working from home will involve greater micro-surveillance through technological tools in order to ensure that levels of productivity do not slacken (Thompson, 2020; Bhattacharya, 2020). Work intensification and self-exploitation can result, 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 the 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 is a concern.

The work from home arrangement effectively transfers numerous operational risks 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; AFP, 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). Thus workers need to make additional and prior hardware investments on behalf of firms to even be considered for a position. Women, who make up a larger share of floating workers, and tend to have lower purchasing power and own fewer assets than men, are relatively disadvantaged in this situation.

Garments

Garments is one of the most severely affected sectors. Revenues for 2020 are expected to decline by 25-30%, raising uncertainties about the future course of the GVC (ILO, 2020; McKinsey 2020). Though the outbreak in Wuhan dramatically slowed down exports of fabric and other raw materials, causing a supply disruption, the GVC was even more heavily hit by the demand contraction triggered when the contagion spread to Europe and North America. Orders were abruptly cancelled, leading to factory closures, layoffs and wage cuts. The sector thus illustrates the pathways of gendered impact through demand contraction (Figure 3). We illustrate the process as one that reflects the stark asymmetries of power by gender, income and market control. It shows the vulnerability of workers who are predominantly female and located in the countries of the South, and the power of the consumers, retailers and global brands located in the North who set the conditions of payment and employment.

The abrupt cancellations led to 54% of factories shutting down most of their operations. In Bangladesh, this has affected some 2.17 million workers (ILO 2020a). In addition to furloughs and dismissals, wages were withheld, delayed or reduced. This affected particularly those who do 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 closure, 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, April 2020; AFWA, July, 2020).

The consequences are dire for these workers, the majority of whom are women. The support received was patchy. The layoffs and furloughs did not come with any income or severance pay; a survey in Bangladesh found 72% of factory owners reported they could not provide income to furloughed workers and 80% could not pay any severance pay to those dismissed (Anner, 2020). 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 *force majeure* clauses to justify their violations of the terms of the contract" (Anner, 2020, p. 1). In Bangladesh for example, by mid-March, about 46% of suppliers reported that "a lot" or "most" of their orders already at completion stage were cancelled by buyers; 91% of them refused to pay for the production costs and 72% for the raw materials (Anner, 2020).

Some governments took action to support workers: Cambodia mandated $70 payment (about 37% of minimum wage), paid by employers ($30) and the state ($40) (AFWA, May 2020. Indonesia introduced a benefit package of some $240 conditional on completing online training programs; Myanmar's policy was to provide 40% of salaries to workers but from "registered factories"; while Sri Lanka guaranteed about $27 as income support (AFWA, May 2020). However, accounts of workers reported by civil society organizations indicate these efforts were 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 chronically food insecure. The loss of income put them on edge, unable to meet their basic necessities, with food insecurity being "the most pressing concern" (AFWA, May 2020).

Though many garment factories closed, many also remained open or reopened, with some given special permission to operate in countries with a general lockdown mandate–including in Cambodia, Indonesia and Myanmar (AFWA, May 2020). The use of dormitories to house migrant workers in electronics is a common practice though the risk of infection in these cramped quarters is now a major issue. Workers report they were not given paid sick leave when they showed symptoms, as retaliation against workers who demanded more protective equipment and paid sick leave (AFWA, July, 2020). There are fears that where there are labour shortages, workers would be vulnerable to being intimidated into taking on additional working hours. Moreover, the precarious working conditions--the low wages, the long working hours and lack of adequate healthcare and social protection provisions—have left workers with no savings, and vulnerable (ILRF, April 2020).

These employment effects overlap with other forms of disadvantage. The closing of childcare facilities have been major constraints for young mothers to continue or return to work. Patterns of layoffs and hiring analysed by AFWA (May, 2020) 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 as schools are 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 constrains the return to work and labour supply (Figure 1). Loss of employment would also be expected to have consequences for the female worker's status in the family, and her ability to allocate resources, for example for food and children's health and education.

Electronics

The pandemic has disrupted the electronics industry through both demand contraction and supply disruption, though this varies by sub-industry. Demand contraction has been a major shock; for example the semiconductor market is estimated to decline by 5 to 15% in 2020, including for PC and servers, wireless communications, consumer electronics, automotives and industrial applications (Deloitte 2020c). The industry with its distributed structure is highly susceptible to supply disruption along the chain with shortages and delays in delivery of raw materials, components and subassemblies. Supply disruption started at the very onset of Covid-19 with the lockdown in Wuhan followed by South Korea, that is an important manufacturing hubs for major companies like Apple and Samsung (Deloitte, 2020c). The government mandated shutdown of Samsung factories in Daegu cut off supplies for screens and chips had a serious ripple effect on the entire supply chain in China, Japan and elsewhere. Overall, the entire electronics industry suffered significant losses in the first quarter of 2020 and is projected to decline further (Meticulous Research, 2020). However, surveys indicate that some segments such as PCs and gaming hardware rebounded in 2020 because of the shift to working from home, with positive spillover effects on semi-conductors, graphics processors and software industries (Deloitte, 2020d)

The disruption has also led to many factory closures with loss of wages and severance pay leading to inability to meet basic needs (BHRRC, n.d.). Reports by human rights organizations document accounts of workers with serious consequences for their livelihoods, and violations of their human rights, labour rights and legal entitlements: in Vietnam the effects of supply disruption and 30-50% cancellations of orders led to workers losing 50-60% of income; in Indonesia, factory closing led to thousands of workers being laid off, and without payment of severance pay mandated by law (Electronics Watch, 2020a). Worker exploitation appear to be increasing as employers threaten retention of wages, introduce suspension of collective bargaining and wage increases, and continue production even in contradiction to government advice (Weber, 2020). Most of the workers in low-skilled occupations in electronics have short-term employment contracts. In Asia, women make up much as 60% of electronics workers in Indonesia, 81% in Philippines, 74% in Thailand and 75% in Vietnam and do repetitive work that is also at high-risk of automation (Rynhart, 2016 et al., p. 16). 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 n.d., Electronics Watch, 2020a; 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.

To date there is no systematic study on the gendered effects of the pandemic in any of the three GVCs. Further research is needed to explore whether women were more likely to be dismissed because of male breadwinner norms, and whether those sectors with predominantly female and migrant workers were particularly affected. Many electronics workers are migrants, either from other regions of the country or abroad (ILO, 2007). For example, in Malaysia, 50% of the workers in Malaysia's electronic industry were from other countries of Asia (Verité, 2014). These workers were stuck, either unable to go home due to travel restrictions imposed by the lockdown, as in India, Malaysia and Indonesia. While surveys show a sharp increase in unpaid care work, gender violence and mental health, there are no GVC related studies. Further research would contribute to understanding the gendered effects of the pandemic on workers.

IV Automation, reshoring and nearshoring

Covid-19 has vividly highlighted the risks of labour-intensive production and the adoption of disruptive Industry 4.0 technologies is expected to accelerate with significant gendered implications for employment. Women are over-represented in routine or repetitive tasks that are more easily automated as compared to those requiring complex cognitive skills and judgement (Chang and Hyunh, 2016; Brussevich et al., 2018). Technological upgrading has also been associated with a defeminization of employment in manufacturing because social norms favour men for higher skill positions and gender segregation in vocational training, education and access to on-the-job training endures (Tejani and Milberg, 2016; Kucera and Tejani, 2015). Automation will lead to both job displacement and job creation while increasing the possibility of reshoring or nearshoring, particularly in garments and BPO, as the labour requirements for production shrink. The frontline automation technologies that could be deployed in all three sectors are labour-displacing and would have a disproportionate impact on women workers.

Automation will be one amongst a range of strategies that may be deployed to deal with the fallout of Covid-19, manage risk and build resilience to future shocks. In BPO the strategic emphasis will be on enhancing organizational flexibility by shifting to more dispersed and remote workplaces while building the necessary digital infrastructure (Deloitte, 2020a; Nasscom, 2020b). The severe demand contraction experienced in garments is expected to accelerate a major reshaping and consolidation of the industry that was already underway before the pandemic. Changing consumer preferences including a growing demand for eco-friendly products, and a shift to flexible small batch production for capsule collections—limited editions of clothing that transcend seasons—will shape future strategies (McKinsey, 2020a; Mehltretter et al., 2020). In electronics, where the geographic concentration of value chains presents a challenge, lead firms are likely to be reconsidering sourcing and manufacturing locations (Deloitte, 2020c, p. 5).

In BPO, robotic process automation (RPA) appears to be poised for the most rapid growth encouraged by discounts and trials offered during the pandemic,[2] though emerging cloud computing technologies that are comparatively more flexible and have lower entry costs may become more important in the future (Kearney, 2016; Kearney, 2017). Deep learning or AI technology used to build voice agents and chatbots is an emerging technology but performance is improving rapidly and uptake has risen during the pandemic (Hao, 2020).[3] Rather than full automation in labour intensive garment sewing, semi-automation and the use of cobots may gain traction due to existing technical constraints, but the lack of co-investment by buyers and their preference for arms-length relationships with suppliers remain structural impediments (Suh, 2020; McKinsey, 2020c; Kucera and Mattos, 2020; Jones, 2020). It is possible the sector could be split into two paths: some brands may shift to sourcing from more professionalized manufacturers who will invest in technological upgrading, while others will seek to cut costs through low wages in the increasingly competitive environment (ILO, 2020b). Three disruptive technologies are likely to shape the electronics sector: robotic automation, 3D printing, and the Internet of Things (IoT). Of these, robotics are currently most widely used and expected to have the most significant job displacement effect going forward.

Because RPA and cloud computing can be adopted onshore, they can potentially slow or reverse services offshoring as business is redirected to established providers based in rich countries. Apart from the sizable job losses that result (Kearney 2017, Credit Suisse 2017, ILO, 2017), the overall employment intensity of BPO is expected to decline with only 1 new job created for every 4 lost (Kearney 2017). Women are not in a strong position to gain new high-skill jobs that will be created as they are globally under-represented in science, technology, engineering and mathematics fields and make up only 22% of AI professionals worldwide (WEF, 2018; ILO, 2017). In garments, although sewing jobs in which women are concentrated (Staritz and Bamber, 2016; Barrientos, 2019) have been relatively protected so far, the use of cobots can lead to significant job displacement as well as reductions in working hours (Kucera and Mattos, 2020). If combined with nearshoring or reshoring, its effects would be more severe. New higher skill jobs in the operation and maintenance of computer controlled equipment will be created alongside relatively deskilled jobs, such as feeding fabric into machines, potentially leading to greater job polarization (Kucera and Mattos, 2020). In electronics, the use of cobots will mean that workers engaged in repetitive work at the low end of the value chain will lose out. Women make up more than half the number of such workers in Asian countries as outlined earlier and will be disproportionately affected

---

[2] http://www.outsourcingportal.eu/en/covid-19-will-further-drive-robotic-process-automation-uptake-amongst-enterprises-in-apac

(Rynhart, 2016 et al.). Thus rising job polarization can exacerbate existing patterns of gender segmentation and expand the use of short-term contracts to enhance flexibility while cutting benefits, intensifying work and raising insecurity.

IV. Conclusion

This paper has presented a framework for a gendered analysis of the pandemic's impact on women workers in GVCs through the channels of health effects and lockdown measures in the immediate aftermath. Our preliminary analysis based on news articles, industry studies, indicative surveys and reports by civil society and international organizations suggests that the garment industry--the largest employer of women in GVCs--has been the most severely hit. Through the severe contraction of demand and simultaneous disruption of supply, the pandemic has reinforced existing fragilities in the industry with critical consequences for women workers. In electronics, production was affected by both supply disruption and demand contraction. BPO, on the other hand, was largely and temporarily affected by supply disruption and is expected to accelerate in the medium-term as businesses expand services offshoring as part of cost-saving measures. The BPO industry also shifted to working from home fairly rapidly, workers were less exposed to workplace contagion as compared to garments and electronics where this 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. Women who occupy the labour intensive and low-value added rungs of these chains have not only faced dramatic job losses and income declines but also increased burdens of care work, rising gender-based violence and mental stress that has affected their ability to continue paid work. It is critical that the rights to freedom of association, decent work and collective bargaining are protected to ensure that the economic contraction resulting from Covid-19 does not turn into an occasion for the further repression of labour. Rather than unilateral measures such as the decision by seven Indian states to suspend all labour laws save for the one prohibiting child labour (Bhat, 2020; Rathi and Chatterjee, 2020) tripartite consultations between governments, firms and labour unions is the need of the hour. Social policies also matter; countries that already had social protection systems in place such as South Korea, China and Malaysia 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 (World Bank, 2020; IMF, 2020; Electronics Watch, 2020b).

The BPO and garment GVCs are poised for waves of consolidation in the future while automation in all three industries is expected to accelerate as a way to build resilience to future shocks. Automation appears to be more feasible in electronics and BPO than garments at the moment and is likely to affect women's occupations to a greater degree. At the same time, gender segregation in the labour market and breadwinner norms create further impediments for women trying to find alternative employment. Thus we find that the pandemic's effects both illustrate and deepen the vulnerabilities of women that arise from their role at the lowest wage end of the GVCs, and the social norms that define gender roles in the household and the labour market. The increasing feasibility of nearshoring or reshoring along with the emphasis on lower ecological footprints are likely to substantially reshape the GVC model in the process. Those in nearshore locations will gain but the demise of the labour-intensive—and often feminized—export-oriented model of development may well be nigh.

We have emphasized that economies and societies are constituted by gendered structures, institutions and norms. This gendered architecture spanning the household, educational system, firms and markets means that the multiple disadvantages women face before they enter the labour market are often amplified within it. Although export-oriented employment has been an important source of income, autonomy and voice for women it has also reproduced certain gender inequalities. Women have been largely employed as low-paid, temporary and flexible workers in GVCs and they have remained concentrated in routine and repetitive tasks that are most amenable to automation. For women, unpaid care work and gender-based violence within the household constitute a vicious circle that affect the ability to continue paid work and further impair the struggle for equality. In that sense, the Covid-19 crisis has starkly exposed these existing vulnerabilities of women workers who have been disproportionately affected during this time. We do not carry out a full empirical assessment of the impacts of Covid-19 at this stage. Nevertheless, we believe our framework points to important factors and mechanisms that produce gendered impacts in GVCs in the Covid-19 crisis and provide a research agenda to further probe its effects.

References

AFP. (2020). “Companies move jobs away from India as coronavirus shakes up backo offices”, *Economic Times*, April 22. https://economictimes.indiatimes.com/tech/ites/companies-move-jobs-away-from-india-as-coronavirus-shakes-up-back-offices/articleshow/75266407.cms

AFWA. (July, 2020). *The Emperor has no clothes: Garment supply chains in the time of pandemic Issue III.* AFWA.

AFWA. (May 2020). *The Emperor has no clothes: Garment Supply Chains in the Time of Pandemic Issue II.* AFWA.

Apolinar, P. (2020). “Covid-free but not stress-free: Woes of working from home in the pandemic”, BPO Industry Employees Network, June 28. https://bienphilippines.wordpress.com/2020/06/28/covid-free-but-not-stress-free-woes-of-working-from-home-during-the-pandemic/

Anner, M. (2020). *Abandoned? The Impact of Covid-19 on Workers and Businesses at the Bottom of Global Garment Supply Chains.* Center for global Workers' Rights, Penn State.

Antonopoulou, R. ed. (2014*). Gender Perspectives and Gender Impacts of the Global Economic Crisis.* Abingdon: Routledge

Barrientos, S. (2019). *Gender and work in global value chains*. Cambridge: Cambridge University Press.

Bhat, A. (2020). “Suspension of Indian labor laws to hurt low-income workers”, *The Diplomat*, June 23. https://thediplomat.com/2020/06/suspension-of-indian-labor-laws-to-hurt-low-income-workers/

Bhattacharya (2020). https://qz.com/india/1834746/some-tcs-infosys-wipro-staff-go-to-work-amid-coronavirus/

BIEN (2020a). “4 in 10 BPO workers are in floating, NWNP status during lockdown”, BPO Industry Employees Network, June 6. https://bienphilippines.wordpress.com/2020/06/06/4-in-10-bpo-workers-are-in-floating-nwnp-status-during-lockdown/

BIEN (2020b). “Gov’t, companies urged to support displaced BPO workers due to pandemic”, BPO Industry Employees Network, May 16. https://bienphilippines.wordpress.com/2020/05/16/govt-companies-urged-to-support-displaced-bpo-workers-due-to-pandemic/

BIEN (2020c). “BIEN raises challenges of Work-At-Home agents, employment woes amid pandemic”, BPO Industry Employees Network, May 30. https://bienphilippines.wordpress.com/2020/05/30/bien-raises-challenges-of-work-at-home-agents-employment-woes-amid-pandemic/

BHRRC. (n.d.). *Impacts of Covid19 on supply chain workers in the electronics sector.* Retrieved from https://www.business-humanrights.org/en/impacts-of-covid-19-on-supply-chain-workers-in-the-electronics-sector/?page=1 (accessed 8.1.2020).

Brussevich, M., Dabla-Norris, E., Kamunge, C., Karnane, P., Khalid, S. and Kochhar, K. (2018). "Gender, technology and the future of work", IMF Staff Discussion Note, SDN/18/07/.

Chang, J-H. and Hyunh, P. (2016). *ASEAN in Transformation: The future of jobs at risk of automation*. The Bureau for Employers Activities, Working Paper No. 9. Geneva: International Labour Office.

Center for Global Workers Rights. (2018). *Binding Power: The Sourcing Squeeze, workers' Rights and building safety in Bangladesh since Rana Plaza.* https://ler.la.psu.edu/gwr/documents/copy2_of_CGWR2017ResearchReportBindingPower.pdf: CGWR, Penn State.

Credit Suisse (2017). *Philippines Market Strategy: The BPO Slowdown*. Asia Pacific/ Philippines: Credit Suisse Research.

Deloitte (2020a). *Covid-19: A wake up call for the BPO industry, Part 2 of Impacts of Covid.* UK: Deloitte MCS Limited.

Deloitte (2020c). "Covid-19: A Black Swan event for the Semiconductor Industry?", Deloitte Touche Tomahatsu Limited.

Deloitte (2020d). "The computer comeback: PCs surge due to Covid-19", Deloitte Touche Tomahatsu Limited.

Domingo-Cabarrubias, L. G. (2012). "Gender matters in the call center industry: A review of the literature on the effects of call center work on women", *Review of Women's Studies*, Vol. 21, No. 2, pp. 72-95.

Electronics Watch. (2020a). *Covid-19 Updates from Monitoring Partners*, July 30. Retrieved from https://electronicswatch.org/en/covid-19-updates-from-monitoring-partners_2572029.

Electronics Watch. (2020b). "Protecting Chinese workers' rights during the pandemic: Guidance for public buyers", Electronics Watch. https://electronicswatch.org/protecting-chinese-workers-rights-during-the-2020-epidemic-guidance-for-public-buyers_2569583.pdf

Elson, Diane (2011) Gender and the global economic crisis in developing countries: a framework for analysis. Chapter 3 in Ruth Pearson and Caroline Sweetman, eds *Gender and the Economic Crisis*. Oxford: OXFAM

Hao, K. (2020). "The pandemic is emptying call centers: AI chatbots are swooping in", *MIT Technology Review*, May 14. https://www.technologyreview.com/2020/05/14/1001716/ai-chatbots-take-call-center-jobs-during-coronavirus-pandemic/

ILO (2007). *The production of electronic components for the IT industries: changing labour force requirements in a global economy.* Geneva: ILO TMIT.

ILO (2017). "ASEAN in Transformation: How technology is changing jobs and enterprises", The Philippines Country Brief, The Bureau for Employers' Activities, International Labour Organization.

ILO (2020a). "COVID-19 and the textiles, clothing, leather and footwear industries", ILO Sectoral Brief, International Labour Organization.

ILO (2020b) "The supply chain ripple effect: How COVID-19 is affecting garment workers and factories in Asia and the Pacific", Research brief. October 2020.

IMF (2020). "Policy responses to Covid-19", Policy tracker. Washington, DC: International Monetary Fund. https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#T

Jones, S. (2020). "Covid-19 could prove a catalyst for advancing automation in apparel", *Sourcing Journal*, June 22. https://sourcingjournal.com/topics/technology/coronavirus-apparel-manufacturing-nearshoring-dap-softwear-zund-serai-gerber-214443/

Kearney (2016). *2016 A.T. Kearney Global Services Location Index: On the Eve of Disruption*. UK: A.T. Kearney, Inc.

Kearney (2017). *2017 A.T. Kearney Global Services Location Index: The Widening Impact of Automation*. UK: A.T. Kearney, Inc.

Kucera, D. and F. B. Mattos (2020). "Automation, employment and reshoring: Case studies of the apparel and electronics industries", *Comparative Labor Law & Policy Journal*, Vol. 41, No. 1.

Lee, D. (2020). "Amazon contractors enduring 'subhuman' conditions in Philippines", *Financial Times*, April 2. https://www.ft.com/content/8b7bc787-4f33-4909-85f0-8df36d165b69

Macareg, P. (2020). "In limbo: Regular BPO employees on 'floating status' left with no pay", *Rappler*, June 17. https://amp.rappler.com/business/263949-in-limbo-regular-bpo-employees-floating-status-left-no-pay

McKinsey (2019). *The State of Fashion 2019*. London: McKinsey & Company

McKinsey (2020a). *The State of Fashion 2020: Coronavirus Update*. London: McKinsey & Company.

McKinsey (2020c). *Time for Change: How to use the crisis to make fashion sourcing more agile and sustainable*. London: McKinsey & Co.

Mehltretter, S., V. Arun, Shalosky, W., and K. Dowding. (2020). "Covid call to action: Supply chain resiliency beyond the pandemic", Expert Insights, A.T. Kearney. https://www.kearney.com/covid-19/article/?/a/covid-call-to-action-supply-chain-resiliency-beyond-the-pandemic

Mendonca, J. (2020). "Covid-19: No outsourcing for these business processing management companies", *Economic Times*, March 31. https://economictimes.indiatimes.com/tech/ites/no-outsourcing-for-these-business-processes/articleshow/74901302.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

Meticulous Research. (2020, May). Retrieved from https://www.meticulousresearch.com/covid-19-article/semiconductor-and-electronics-industry-amid-global-covid-19-crisis

Moon, J. (2020, March 19). Why coronavirus spells trouble for smartphones. *Financial Times*.

Nasscom (2020a). *CEO Pulse Review: Covid-19 impact on Indian tech sector: Economic, business, tech impact analysis*. Noida: National Association for Software and Service Companies.

Nasscom (2020b). *Navigating Covid: Indian tech sector benchmarks and way forward.* Noida: National Association for Software and Service Companies.

Pearson, Ruth and Caroline Sweetman eds. (2011). Gender and the Economic Crisis Rugby: Practical Action Publishing in association with Oxfam GB

PSA (2012). "2010 ASPBI - Business Process Outsourcing (BPO) Activities: Preliminary Results", Philippines Statistical Authority, Reference No. 2012-774, Republic of the Philippines. https://psa.gov.ph/content/2010-aspbi-business-process-outsourcing-bpo-activities-preliminary-results

PSA (2015). "2012 CPBI - Business Process Outsourcing (BPO) Activities : Final Results", Philippine Statistical Authority, Reference No. 2015-27, Republic of the Philippines. https://psa.gov.ph/content/2012-cpbi-business-process-outsourcing-bpo-activities-final-results

Rathi, A. and S. Chatterjee (2020). "Indian states' decision to suspend labour law amid COVID-19 crisis is delirious policy-making not backed by empirical analysis", *Firstpost*, May 22.

Reuters (2020a). "Covid-19: India's outsourcing sector struggles with work-from-home scenario", *Business Standard*, March 25. https://www.business-standard.com/article/companies/covid-19-india-s-outsourcing-sector-struggles-with-work-from-home-scenario-120032500438_1.html

Rynhart, G., Chang, J-H., and Hyunh, P. (2016). *ASEAN in Transformation: Electrical and Electronics: On and off the grid*. Bureau for Employers Activities, Working Paper No. 13. Geneva: International Labour Office.

Staritz, C. and P. Bamber (2016). *The gender dimensions of global value chains*. Issue Paper. Geneva: International Centre for Trade and Sustainable Development.

Sturgeon, T. J. and M. Kawakami (2010). “Global value chains in the electronics industry: Was the crisis a window of opportunity for developing countries?”, Policy Research Working Paper No. 5417, The World Bank.

Suh, M. (2020). “Automated cutting and sewing developments”, *Textile World*, March 26. https://www.textileworld.com/textile-world/features/2020/03/automated-cutting-sewing-developments/

Tejani, S. and D. Kucera (forthcoming). “Defeminization, structural transformation and technological upgrading in manufacturing”, *Development and Change*.

Thompson, C. (2020). “What if working from home goes on…forever?”, *New York Times*, June 9. https://www.nytimes.com/interactive/2020/06/09/magazine/remote-work-covid.html?searchResultPosition=1

Frayer, L. and S. Pathak (2020). “India’s lockdown puts strain on call centers”, *National Public Radio (NPR)*, April 24. https://www.npr.org/2020/04/24/841698386/indias-lockdown-puts-strain-on-call-centers

Reed, J., Ruehl, M. and B. Parkin (2020). “Coronavirus: Will call centre workers lose their ‘voice’ to AI?”, *Financial Times*, April 23. https://www.ft.com/content/990e89de-83e9-11ea-b555-37a289098206

UN Women. (2020c). *Policy Brief: The Impact of COVID-19 on Women.* New York: UN Women.

Weber, Felicitas. (June 2020) With labour exploitation worsening during Covid, tech giants must allow workers to join unions. Comment, *Reuters Events* https://www.reutersevents.com/sustainability/labour-exploitation-worsening-during-covid-tech-giants-must-allow-workers-join-unions

WEF (2018). *The global gender gap report 2018*. Geneva: World Economic Forum.

World Bank (2020). “Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures”, version 10. Washington, DC: World Bank.