



Labour market effects of integration into GVCs: Review of literature

Anirudh Shingal

The relationship between trade and labour in a world with GVCs is the subject of relatively recent research. In this paper, we review this developing literature. Our review suggests that integration into GVCs is associated with greater employment opportunities, income gains for workers and better working conditions. However, these benefits depend on the position of the firm in the value-chain and may have also contributed to the skilled-unskilled labour divide. Moreover, despite more opportunities for women employment, gender differences persist and competitive pressures emanating from lead buyers in GVCs affect the nature and sustainability of any gains. Recognition of these attributes has also led to research on the development of workforce linked to GVCs as this is an important tool for facilitating the integration of domestic firms into GVCs, value-chain upgradation and managing the consequent adjustment process for workers. This literature also highlights the crucial role that firms, industry associations, NGOs/international agencies and the government play in bridging the skill-gap between developing country workers and the requirements of global industries.

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Abstract

The relationship between trade and labour in a world with GVCs is the subject of relatively recent research. In this paper, we review this developing literature. Our review suggests that integration into GVCs is associated with greater employment opportunities, income gains for workers and better working conditions. However, these benefits depend on the position of the firm in the value-chain and may have also contributed to the skilled-unskilled labour divide. Moreover, despite greater opportunities for employing women, gender differences continue to exist and competitive pressures emanating from lead buyers in GVCs affect the nature and sustainability of any gains. Recognition of these attributes has also led to research on the development of workforce linked to GVCs as this is an important tool for facilitating the integration of domestic firms into GVCs, value-chain upgradation and managing the consequent adjustment process for workers. This literature also highlights the crucial role that firms, industry associations, NGOs/international agencies and the government play in bridging the skill-gap between developing country workers and the requirements of global industries.

Keywords: GVCs, employment, wages, literature, review

JEL codes: F10, J00

1 Introduction

Traditional theoretical and empirical literature on trade and labour markets did not systematically address the employment effects of integration into value chains, regional or global. The emergence of value chain integration and the recognition by scholars of its role in international trade and economics have now led to some work on the employment effects of integration into global value chains (GVCs) in the literature. Most of this work is based on the analyses of case studies, though there is some both theoretical and empirical work on outsourcing/offshoring. However, the publication of new databases such as the

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OECD's TiVA (Measuring Trade in Value Added, 2011) and the World Input-Output Database (WIOD; Timmer et.al., 2012) have recently led to other empirical work on this subject.

In this paper, we review the literature on the labour market outcomes of GVCs. In doing so, we do not consider the already existing huge literature on the nature, definition and determinants of GVCs. Following Baldwin & Yan (2014), GVC-literature can be classified into two broad categories. The first studies the theoretical rationale for GVCs (Findlay, 1978; Dixit and Grossman, 1982; Markusen and Venables, 2007; Grossman and Rossi-Hansburg, 2008; Baldwin and Venable, 2010; Costinot, et al. 2013; Baldwin and Robert-Nicoud, 2014), their governance types and determinants (Gereffi et al. 2005; Antràs and Chor 2013), and impacts of GVCs on trade patterns and factor prices (Yi 2003; Kohler 2004). The second category is based on case studies of individual companies/selected industries such as textile/apparel, agricultural products and offshoring services. More recently, this literature has also begun addressing the magnitude and growth of GVC trade (Hummels et al. 2001; Kimura et al. 2007; Sydor 2011).

We organize our own review to address three main questions: (1) How have GVCs altered labour market scenarios? (2) What is the impact of GVC integration on labour market outcomes such as employment, wages, composition of the labour force, working conditions and bargaining power of workers? (3) How is public policy aiding GVC integration/upgrading and facilitating the consequent adjustment processes? We begin however by providing a brief overview of the theoretical and empirical trade and labour market literature in "mainstream" Economics.

2 Theoretical literature

We provide a background of the theoretical trade and labour market literature in "mainstream" Economics drawing on the excellent review provided by Hoekman & Winters (2007).

2.1 Trade and employment

Neoclassical economists recognized the influence of macroeconomic policy and shocks and major trade policy changes on levels of economic activity in the short run. However, in the long run, they postulated the labour market to clear itself absent any distortions; the equilibrium wage would thus be determined by the intersection of labour demand and labour supply. In-keeping with this 'full employment' or 'exogenous employment' assumption, most trade policy analyses thus consider the long-run level of employment as a datum and only study its allocation across sectors.

In contrast, the structuralists reject Say's Law and postulate "that trade and trade policy shocks can affect employment permanently by creating or destroying jobs with little or no adjustment in the sectors of the economy not directly

affected by the shock or by any induced growth” (Hoekman & Winters, 2007). Structuralism thus reminds us that for those affected by trade policy reform, the adjustment path can be sufficiently long and painful.

However, theoretical models combining trade with labour market frictions (e.g. matching, efficiency wages, minimum wages) have no clear predictions while models taking adjustment costs into account predict possible temporary increases in unemployment.

For instance, Matusz (1994) finds that trade liberalization can either raise or lower employment in the presence of wage rigidities. In contrast, Matusz (1996) finds trade liberalization to increase employment in a monopolistic competitive set-up if firms pay efficiency wages, pointing to greater benefits than in perfect competition. Davidson, Martin and Matusz (1999) bring search into the trade model and find that unemployment can go either way post-liberalization. “These are complex models with complex and ambiguous results, but at least they admit the possibility that trade reform could have adverse long-run consequences for employment” (Hoekman & Winters, 2007).

Finally, the recent literature on “outsourcing/offshoring” suggests that low-skilled workers in routine jobs tend to be adversely affected by such trade liberalization.

2.2 Trade and wages

A review of the theoretical literature along this dimension suggests that trade can contribute to wage inequality through: (1) Increased specialization (Heckscher-Ohlin-Samuelson (HOS) framework; skilled-unskilled inequality expected to increase in high income countries); (2) Increasing returns to scale when firms are heterogeneous (“new-new” trade theory: wages higher in exporting firms; those firms tend to be larger than non-exporters); and (3) Trade going hand-in-hand with technological change (e.g. foreign affiliate trade: when trade and FDI go together). Endowment-based theories of comparative advantage such as Heckscher-Ohlin suggest that distributional impacts of trade and trade liberalization operate through the effects induced by changes in the relative price of tradable goods emanating from liberalization and related changes that allow for trade expansion. Thus, once labour has adjusted across industries, wage effects only depend on product price changes induced by greater trade.

However, the simple Heckscher-Ohlin prediction of trade resulting in a redistribution of employment away from import substituting and towards export-oriented production is based on the assumption of homogenous firms and products, and inter-industry specialization and trade. In the real world, most trade is of the intra-industry type, reflecting trade in intermediates or exchange of differentiated products between countries with very similar factor endowments. In contrast, “the Heckscher-Ohlin-Samuelson (HOS) prediction of inter-sectoral reallocation is partly driven by the assumption of homogeneity among producers within the same sector” (Haltiwanger et.al., 2004).

In the real world of intra-industry trade in differentiated products, Jansen and Turrini (2004) suggest that much of the labour market effects of trade would

also be intra-industry in nature. While forces of comparative advantage are still likely to associate increased imports with employment reductions and greater exports with more jobs (Greenaway et.al. 1999), this may not happen in practice for two reasons. Firstly, output changes occur within the same industry, so that firm-level heterogeneity plays an important role in driving job losses or creation within sectors. Secondly, there is scope for reducing price-cost margins as well as opportunities to exploit economies of scale and to innovate through quality upgradation, product differentiation, etc.

Finally, recent formal models such as Melitz (2003) explicitly incorporate firm-level heterogeneity. In the Melitz (2003) model, producers have heterogeneous productivity levels and intra-industry trade gets reallocated among firms in response to greater foreign competition, leading to changes in their relative performance. Eaton and Kortum (2002) obtain similar results in a different model.

3 Empirical evidence

In Chapter 1 of ‘Policy Priorities for International Trade and Jobs’ (OECD, 2012), as part of the International Collaborative Initiative on Trade and Employment (ICITE) project co-ordinated by the OECD, Newfarmer & Sztajerowska have conducted an extensive review of the empirical trade and employment literature and come up with the following generalizations:

- Trade can play a powerful role in contributing to rising incomes and creating jobs, but trade reforms must be embedded in supportive policies to be effective. “Unstable macroeconomic policies, inadequate property rights, lack of public investment in overcoming supply-side constraints and socio-political” (OECD, 2012) constraints are responsible for trade openness failing to provide a growth stimulus.

- Productivity growth is one of the main channels through which trade increases income. Import-competition forces domestic firms to become more efficient besides providing access to inputs of international calibre. “Exporting creates incentives for firms to invest in the most modern technologies, scales of production and worker training. The combined effect is a process of continual resource reallocation, shifting capital and labour into activities with higher productivity” (OECD, 2012).

- Higher productivity firms in tradable activities typically pay higher wages to their workers; these workers also tend to be more-skilled and employed in less routine jobs. In contrast, low-skilled workers and workers in routine jobs are less able to make trade-induced transitions. They either fall into unemployment or are compelled to take lower paying jobs.

- Employment gains in exporting sectors do not fully compensate for employment losses in import-competing sectors, leading to periods of higher unemployment. Policies supporting flexible factor movements into new sectors can thus help minimise adjustment costs.

- Trade in services, supplied via mode 3 (FDI/commercial presence) and

mode 1 (cross-border) through outsourcing or offshoring has had positive employment and wage effects in developing countries, with seemingly minor effects in OECD labour markets.

- “Trade does not play the wage-equalising role within developing countries that is envisaged in elementary trade theory” (OECD, 2012). The heterogeneous firm literature points to several channels through which trade may exacerbate wage inequality. For instance, trade embodied in skill-intensive FDI increases skill premium among wage workers.

- Trade does not systematically undermine working conditions in developing countries along any metric - job quality, safety, child or female labour. “Rather trade may contribute to better working conditions, either directly through FDI and labour standards, or indirectly through growth effects” (OECD, 2012). However, there are cases of abusive working conditions in high-pressure/quick-turnaround/low-skilled jobs in both tradable and non-tradable sectors, which need to be addressed by public policy.

- Evidence on trade-related volatility indicates that risks to workers’ incomes may be on the rise with integration. Given the accelerating pace of integration and technical changes, this subject deserves the attention of policy makers.

4 GVCs have altered labour market scenarios

Trade economists have recently begun to recognize the importance of GVCs in theoretical and empirical research. Participation in value-chains is characterized by countries specializing in a particular segment of a production process as opposed to final products. Empirically, the phenomenon is documented by a rise in trade in intermediates, or ‘vertical specialization’ (when traded intermediates are used for further exporting).

With value-added trade, “the relationship between trade and employment becomes more complicated. The labour content associated with a country’s foreign trade is no longer simply of two kinds – domestic labour contained in exports and foreign labour contained in imports” (Jiang & Milberg, 2013). With GVC trade, there are three additional categories of employment to consider: “foreign labour contained in exports, domestic labour contained in imports and third-country labour contained in a country’s imports” (Jiang & Milberg, 2013).

De Backer (2011) further points out that GVCs and employment is a complex issue because: (1) While labour market losses of GVC-integration are visible and concentrated, gains tend to be more hidden and diffused (2) There is a small impact on aggregate level of employment, but a larger effect on composition leading to ‘winners and losers’. This said, offshoring leads to lower costs, higher productivity and hence to extra jobs and GVC-integration to international specialisation, which implies an international division of labour.

In fact, Newfarmer & Sztajerowska (2012) conclude in their empirical review that offshoring and production-sharing arrangements have created new opportunities for raising productivity through specialisation. This suggests that these activities are more complementary to than substitutes for jobs in OECD coun-

tries, though some offshored activities have led to a downward pressure on select import-competing occupations in the OECD.

Moreover, services trade, supplied via mode 3 (FDI/commercial presence) and mode 1 (cross-border) through outsourcing or offshoring has had positive employment and wage effects in developing countries, with seemingly minor effects in OECD labour markets.. This said, the re-allocation of resources within countries also highlights the importance of labour market regulations.

Taglioni and Winkler (2014) maintain that GVCs can benefit labour markets through three mechanisms. (1) Demand effect: GVC participation tends to be characterized by higher demand for skilled labour from MNCs/other GVC participants. While MNCs may temporarily bid away human capital by paying higher wages or offering enhanced employment benefits, this effect tends to get diffused with a rise in the productivity of domestic firms or with market adjustment to tightening labour supply. (2) Training effect: Local firms participating in GVCs are more likely to receive training from MNCs or their international buyers. (3) Labour turnover effect: Knowledge embodied in the workforce of participating firms such as MNCs or their local suppliers moves to other local firms.

According to OECD (2013), participation in GVCs changes the composition of the labour force. Low-skilled jobs tend to be more affected. This is accompanied by downward pressure on wages and the bargaining power of workers. There could also be an improvement in working conditions (fewer hours of work, lesser accidents), though Visser and Van Dijk (2006) and Knorringa and Peggler (2006) present an alternative viewpoint on this wherein pressures from economic globalization make it unlikely that workers in relatively low-skilled production activities enjoy improvements in working conditions. Moreover, ethical sourcing may improve conditions for core workers in core supplier firms, but not for smaller/weaker firms and the indirectly employed.

Other work (for instance Bamber et al. 2013) also suggests that GVC participation generally tends to lead to job creation and to higher employment growth. Moreover, according to Gereffi et al. (2011) greater gains are felt when MNCs contribute to workforce development, forge linkages with local firms, and engage with local institutions in the development of local industry.

However, the impact of GVC participation on economic development depends upon the depth of domestic integration into the global economy (Bamber et al., 2013). Shortcomings in local institutions (financial markets, infrastructure, human capital, local industry networks) limit the ability of domestic firms to benefit from opportunities for GVC participation (Fernandez-Stark et al., 2012a, 2013).

Finally, opportunities for local firms to increase productivity and upgrade to higher value added activities depend on (i) the type of GVCs (ii) the business and institutional environment and (iii) their capacity to move towards increased technological sophistication and domestic value added creation (OECD/WTO/UNCTAD, 2013).

5 GVCs and labour market outcomes

Some of the recent work on outsourcing/offshoring in the economics and trade literatures also considers the impact of these firm sourcing decisions on the labour market. Since outsourcing/offshoring is an illustration of the internationalisation of production inherent in GVCs, we begin by reviewing their labour market effects, following the brief review provided in IMF (2013).

GVCs increase aggregate and long-term employment through the reallocation of tasks across and within countries. The impact of GVCs on employment emanates from a complex array of channels (Görg, 2012). To begin with, trade in tasks increases the productivity of the offshoring firm leading to an expansion of sales that in turn generates employment. Offshoring also results in firms being able to offer intermediate and final goods at lower prices. Thus employment can grow “through an expansion of activity of other businesses that can acquire cheaper inputs or through an increase in demand of final consumers that see their real incomes surge” (IMF, 2013). However, the emergence of GVCs has also led to a global reallocation of jobs, with labour-intensive manufacturing jobs in particular moving from advanced economies to low-wage developing countries, especially in East Asia (World Bank, 2012). Moreover, by redefining the comparative advantage of countries across tasks rather than industries, GVCs also lead to a reallocation of jobs within countries across different occupations (Grossman and Rossi-Hansberg, 2008).

This said, GVCs can be associated with short-term unemployment for certain types of workers. Reallocation of jobs across and within countries takes time and low-skilled workers/workers with industry-/occupation-specific skills are especially likely to face significant adjustment costs in the short-term. In the presence of labour markets frictions, the process of reallocation can lead to short-term unemployment. Recent literature has exploited both industry-level (Amiti and Wei, 2005; Crino, 2010) and worker-level data (Liu and Trefler, 2008; Ebenstein et.al 2014) to identify these effects. Results from this research show that an “increase in offshoring to low-income countries can increase short-term unemployment for certain occupations in advanced economies, but this effect (when positive) is economically very small. These studies also find that the adverse employment effect of offshoring is stronger for low-skill workers and for workers specializing in less complex tasks, as these occupations are more easily tradable” (IMF, 2013).

Value chains may also be affecting the distribution of income within countries. Empirically, GVC-expansion since the 1980s has coincided with a significant increase in within-country income inequality in a number of advanced and developing economies, stimulating a debate on the longer term impact of GVCs on income distribution. While most work finds skill-biased technical change to be the dominant force driving the growth of within-country inequality (Katz and Autor, 1999; IMF, 2007; Jaumotte et.al, 2012), some studies also suggest the role of offshoring as a possible contributing factor (Pavcnik, 2012). “Offshoring can affect inequality by increasing relative demand for high-skilled workers both in developed and in developing countries (Feenstra and Hanson, 1996, 1997, 1999),

by reducing job opportunities for workers in advanced economies whose occupations are more easily offshored to low-wage countries (Ebenstein et.al 2014), and by increasing wages of workers in firms that offshore relatively to workers in firms that source domestically (Amiti and Davis, 2012; Hummels et.al. 2012)” (IMF, 2013).

That workers in GVC-firms may get higher wages seems to find some validity in recent empirical work. Using propensity-score matching and difference-in-difference methods, Baldwin & Yan (2014) examine whether the integration of Canadian manufacturing firms into a GVC improves their productivity. They find that more productive firms tend to self-select into joining GVCs. Moreover, the 28% of Canadian manufacturing firms that participated in GVCs during 2002-2006 tended to be more productive and larger, and to pay higher wages.

Shepherd (2013) comes up with a slightly nuanced conclusion in his review of GVCs and employment in developing countries for the OECD. In the absence of much direct work on the employment effects of GVCs, he extrapolates from the extensive empirical work undertaken on firm internationalisation and labour markets to draw inferences on the likely labour market effects of GVCs. In doing so, he “focuses on the labour market impacts of three processes that lie at the core of GVC development: importing, exporting and foreign direct investment (FDI)”.

According to Shepherd (2013), the available empirical evidence suggests that labour market outcomes are influenced by the type of activities undertaken by GVC participants. Illustratively, many GVC firms are vectors of technological upgrading that increases the relative demand for skilled labour. In these cases, GVC participation is linked to higher relative wages for skilled workers, but also greater wage inequality between skilled and unskilled workers. However, he finds the evidence on labour outcomes to be more mixed for pure processing (assembly) trade. The limited data available on firms engaged purely in such activities suggests that they do not systematically pay higher wages compared to domestic firms. This is the reverse of the finding for foreign-owned firms, exporters and importers in general.

Shepherd (2013) thus concludes that “the labour market effects of GVCs in developing countries are likely to be broadly positive, but highly case specific”. His “review therefore concludes with two case studies—electronics in Asia and services in Chile—that demonstrate the complexity of the issues involved, and the role of complementary policies in areas such as human capital development”.

In a similar vein, since the other significant body of work addressing the effects of GVC-integration on labour markets is case-study driven, we review this literature next.

5.1 Case studies

In his review of the labour market impacts of GVC-integration, Nadvi’s (2004) main points also find resonance in Bair & Gereffi (2001) and Kaplinsky et al. (2002) that also consider labour and employment issues.

First, jobs offered by final producers and core supplier firms in ‘greenfield’ locations¹ often provide better labour conditions vis-à-vis local alternative employment opportunities. This generates new and relatively better-paid employment in a specific locality (Nadvi, 2004).

Second, “GVC participation is frequently associated with strongly segmented and differentiated employment conditions, increasing insecurity and longer hours, especially at the furthest end of the value chain” (Knorrisinga & Pegler, 2006).

Third, the initial euphoria of employment in GVC supplier firms soon lends to workers beginning to feel the physical and emotional pressure and stress of new work systems as well as not feeling either more skilled or more secure in their jobs. Thus, “while there may be a redistribution of global employment which favours specific poor areas, from a qualitative and global perspective increased competitive pressures are felt most acutely on the last and weakest link in the chain – new groups of workers in poor areas” (Knorrisinga and Pegler, 2006).

This said, these case studies also suggest that when firms enter as incipient producers in GVCs, firm upgrading and improvements in local labour conditions are both significant and often occur simultaneously.

Barrientos et al. (2003) summarize independent studies on ethical trade (also available at www.ethicaltrade.org). These studies indicate that core workers in core supplier firms are more likely to successfully meet international labour standards. However, this picture becomes more variegated for indirectly employed workers/smaller firms and farmers supplying to core suppliers of global buyers.

However, while ethical trade may improve labour conditions in specific GVCs, Barrientos (2000) maintains that it cannot substitute for a broader development strategy in developing countries. In fact, strong codes of conduct can push out weaker/smaller suppliers paying lower/more irregular wages to poorer workers. This in turn may lead to an increasing share of smaller and weaker producers being cut-off from attractive supply chain and upgrading opportunities; in contrast, a relatively small group of workers in core suppliers and global brand name companies may be able to claim large benefits from full ethical sourcing. “This may increase the gap between a relative elite of local firms supplying to GVCs with improved labour conditions, and a mass of local firms ruled by a ‘race-to-the-bottom’ with deteriorating labour conditions” (Gibbon & Ponto 2005).

Against this background, we provide a more detailed review of case studies on GVC and labour market outcomes in developing countries.

5.1.1 Specific case studies from a special 2004 edition of the Journal of International Development

This sub-section considers evidence from value chain studies on Vietnamese and Bangladeshi garments, Vietnamese and South African textiles, and Kenyan and South African horticulture conducted by scholars affiliated with the Institute of

¹This is the term for poor areas that became attractive due to the supply chain logic of continuously searching for cheaper locations with sufficient skills for entry into GVCs.

Development Studies (IDS), Brighton. Some of this research was published in a special 2004 edition of the *Journal of International Development*.

A review of these case studies shows that GVC-participation can lead to significant employment and income gains. Kabeer and Mahmud (2004) document the generation of 1.6 million “new” jobs in Bangladeshi export garment sector; most of the new jobs went to women employees. Similarly, Nadvi and Thoburn (2004) document a 132 per cent increase in employment in the Vietnamese garment industry during the 1990s. According to Humphrey et al. (2004) estimates, Kenya’s export horticulture directly generated employment for close to 100,000 persons. In contrast, import liberalisation created pressures on Vietnamese and South African textile firms, resulting in job losses. For instance, Nadvi and Thoburn (2004) report that Vietnamese textile employment fell by 30 per cent during the 1990s, largely on account of the restructuring of state-owned enterprises that dominate the country’s textile industry. Roberts and Thoburn (2004) report a similar fall in employment in South African textile manufacturing in the latter half of the 1990s.

These case studies also provide evidence of income gains for workers engaged in these GVCs. McCulloch and Ota (2002) document such gains in Kenya’s horticulture sector; median incomes for horticulture pack-house workers were found to be 60 per cent higher than those not employed in export-oriented horticulture pack-houses. Moreover, horticulture smallholders had median incomes almost six times those of non-horticulture smallholders, with contract farm workers also earning substantially more than non-horticulture smallholders. Kabeer and Mahmud (2004) and Kabeer and Tran (2003) report similar gains for garment workers in Bangladesh and Vietnam; wage levels for Bangladeshi export-oriented garment workers were double that of other non-traded wage workers. “In Vietnam, Kabeer and Tran (2003) found that among the most marginalised segments of the women’s urban labour force in Hanoi or Ho Chi Minh City, those employed in garment manufacture were ‘likely to be better-off [than similar workers in non-traded sectors]. . . in the sense that they earn higher wages for roughly similar working hours and they enjoy higher levels of social protection’ (2003: 17–18).”

These case studies further revealed that benefits vary according to the position of the worker within the value chain. Workers involved in higher value-added activities or employed by firms supplying to higher ends of the value-chain tend to fare better than those at the lower-end of the export chain. McCulloch and Ota (2002) provide evidence of this in Kenyan export horticulture pack-houses: “workers who undertake higher value-added tasks involved in preparing, processing and packaging vegetables earn significantly higher mean incomes than waged workers on farms either owned by the leading Kenyan export horticulture companies or on farms that work on a contract basis for such horticulture exporters”. Kabeer and Mahmud (2004) provide similar evidence for Bangladesh’s garment sector: “workers in export processing zones (EPZ) where export units were either foreign owned and/or were manufacturing for high value branded retailers had average wage levels roughly 70 per cent higher than those prevailing in non-EPZ garment units”. Similar evidence for Vietnamese garment work-

ers was provided by Kabeer and Tran (2003) and Nadvi and Thoburn (2004): “Vietnamese garment workers “employed in joint venture units (with significant foreign investment) and state-owned enterprises (SOEs) earned higher average wages than those in the private, small-scale and cooperative sectors of garment production”.

Evidence from these case studies also suggested that working conditions for workers and employment practises were better in horticulture export pack-houses and in larger garments and textiles firms that were more export-oriented (especially Bangladeshi EPZ units and Vietnamese SOEs), thus running parallel to employment hierarchies. Workers in pack-houses or in large garment firms were also more likely to have better and more formalised employment contracts. According to Kabeer and Mahmud (2004), “over 60 per cent of Bangladeshi garment EPZ workers had formal labour contracts compared to only 10 per cent of other garment workers”. This said, the numbers of hours worked was a key concern at all levels of employment and in both garments and horticulture sectors.

Despite evidence of more opportunities for women workers in these case studies, clear gender differences in wages and employment conditions continued to persist. Dolan and Sutherland (2003) sampled Kenyan fresh vegetable pack-houses and farms and found women to account for over 60 per cent of the workforce. However, average wages in Kenyan export horticulture were higher for male workers. Dolan and Sutherland (2003) attributed this to a gendered division of labour within the industry: women workers were found to be concentrated in “unskilled” work categories (harvesting, packing, grading and sorting) that were also less well remunerated. Barrientos and Kritzing (2004a) also observed a sharp gender division in wage levels and employment contracts between men and women in the South African export horticulture sector: male workers were found to earn higher wages as permanent or contract farm workers compared to women workers in similar positions; they also managed to obtain employment for longer time periods and were more likely to be engaged in higher skilled tasks. Nguyen et al. (2003) too found male textile workers in Vietnam to have higher wage levels, with sharply gender-divided jobs. For instance, “women workers tended to be concentrated in weaving, spinning and knitting activities while male workers were engaged in a wider range of technical and mechanical jobs. Thus, men’s jobs were not only considered more skilled but also more easily transferable to other sectors” (Nguyen et al. 2003: 9).

Notwithstanding the employment and income gains for workers in Bangladesh, Vietnam, South Africa and Kenya from participation in garments and horticulture export value chains, competitive challenges within the global chains were found to affect the nature and sustainability of such gains. Thus, “consolidation amongst retailers, more stringent demands on quality assurance, health and labour standards and price pressures from new competitors led to lead firms demanding lower prices, higher quality and faster turnaround from their suppliers” (Nadvi, 2004). Suppliers were compelled to undertake more of the less profitable tasks within the chain as lead firms pushed these functions down. Such pressures were found to necessitate more flexible patterns of employment,

which had important consequences for workers.

Evidence from these case studies further suggests that “global value chain pressures are associated with increasing casualisation of labour and excessive hours of work”. Having to economize on wage costs implies that employers reduce their reliance on permanent workers, “who (at least technically) enjoy statutory rights on employment security, paid holidays and unemployment benefits” (Nadvi, 2004). Kritzinger et al. (2004) and Dolan and Sutherland (2003) document the growing use of casual and seasonal contract labour, both amongst farms and in pack-houses in South African fruit exports and Kenyan fresh vegetable exports. Nadvi and Thoburn (2004) also find contract labour to be a significant form of labour organisation in the Bangladesh export garment industry. Such casualisation allows employers to respond to seasonal demand peaks and lower their wage costs by avoiding legal and social protection to retrenched workers while still being able to meet their buyers’ codes of conduct and stringent delivery schedules. However, such contract employment can have significant adverse social, economic and psychological effects on local workers. This underlines the need for more ethical buying practices, involving creating better employment conditions and changing buying practices “so that order scheduling does not impose excessive overtime demands on workers” (Nadvi, 2004).

In sum, evidence from these case studies points to significant gains for developing country workers from GVC-participation. The more labour-intensive sectors such as garments and horticulture have witnessed a rise in employment levels. There is more work for particular groups of poorer and more vulnerable workers, especially women. However, gender divisions of labour also imply that women are less likely to obtain the technically higher skilled and better remunerated jobs and there are clear employment hierarchies even among women workers – better-educated women tend to obtain better remunerated jobs at higher points in the value-chain in both garments and horticulture. Thus, while GVC-employment also benefits less well-educated women, unskilled and migrant workers, they also remain more vulnerable to changes in employment patterns that have led to a greater reliance on contract labour with the associated adverse effects. For instance, Bezuidenhout et al. (2003) and Barrientos and Kritzinger (2004b) found the retrenched workers in the South African horticulture and textile industries to be living in abject poverty and unable to access work, especially given South Africa’s high unemployment levels .

5.2 Jobs in value-added trade

The publication of new databases such as the OECD’s TiVA (Measuring Trade in Value Added, 2011) and the World Input-Output Database (WIOD; Timmer et.al., 2012) have recently led to other empirical work on this subject, providing evidence for employment generated by integration into GVCs.

Jiang & Milberg (2013) use the WIOD to provide estimates of the five categories of employment generated by integration into GVCs over 1995-2009 for a panel of 39 countries that cover 85 percent of world GDP. In 2009, the countries in their panel were found to generate close to 88 million jobs globally through

their participation in GVC trade; this accounted for nearly 14 percent of total trade-generated jobs in that year. With the exception of China, countries that demand the most labour as a result of integration into GVCs are the large developed economies. The import content of exports was found to generate demand for close to 44 million jobs within their 39 countries in 2009. Finally, third-party intermediates contained in imports generated a labour demand for about 39 million jobs, while the export content of imports created a demand for nearly 5 million jobs in their results.

Gasiorek et.al. (2015) also use WIOD data to explore India's integration into GVCs inter alia examining the employment embedded in India's exports to the world and its top five partners. They find value added trade to play a significant role in India's employment generation with "export jobs" having risen from 37.9 mn in 1995 (10% of total employment) to 75.3 mn in 2011 (16% of total employment).

6 Role of public policy

Public policy can play a vital role in helping domestic firms integrate into GVCs, facilitate their upgradation as well as the consequent adjustment process for workers in particular. Education and skill policies can play a very important role in this regard. For instance, Bamber et al. (2013) maintain that effective and responsive education and workforce development policies are critical to enabling gainful participation in GVCs. In their background paper for the OECD on GVC upgradation in developing countries, Fernandez-Stark et al. (2012b) write that it is imperative for workforce development to focus on bottleneck positions, whose scarcity impedes upgrading into targeted GVC activities. Bamber et al. (2013) further suggest that improving labor mobility, skills certifications and regulations governing employment of foreign nationals can help fill short term bottlenecks; however, the long-term goal should be to upgrade the general skill level of the workforce. Writing on this subject, Gereffi et al. (2011) maintain that developing countries wanting to upgrade must focus on technical education; upgrading into higher-value pre- and post-production services requires development of managerial and design talent. Finally, Bamber et al. (2013) suggest that developing countries should especially consider complementarities between national systems of innovation and workforce development institutions in devising strategies for industrial/GVC upgrading.

In fact, the Duke University Center on Globalization, Governance & Competitiveness (CGGC) undertook a massive research project² "Skills for Upgrading: Workforce Development and Global Value Chains in Developing Countries between 2009 and 2011" (Gereffi et al., 2011).

This project examined the role of workforce development in four industries (apparel, fruit and vegetables, offshore services and tourism) in 19 developing

²More information on this project can be found at <http://www.cggc.duke.edu/gvc/workforce-development/index.php>.

countries that were prominently integrated into GVCs. The industries and countries included (1) fruit and vegetables (Chile, Kenya, Morocco, Jordan and Honduras); (2) apparel (Turkey, Sri Lanka, Bangladesh, Nicaragua and Lesotho); (3) offshore services (Chile, Dominican Republic, El Salvador, Guatemala, India and the Philippines); and (4) tourism (Costa Rica, Vietnam and Jordan).

Findings from this work suggest that traditional workforce development systems in developing countries do not provide the skills required by global industries, which leads to these industries seeking alternatives to overcome the shortcomings of the education system. This results in complex local arrangements supporting skills upgradation encompassing a broad range of stakeholders both within and beyond GVCs. These stakeholders include private firms, public and private institutions in education, governments, NGOs, industry associations as well as international donors.

In all the four industries studied, individual private firms were found to provide education and training for their workforce covering a wide range of basic education needs and going beyond the expected on-the-job training in firm-specific procedures. Firms were also found to engage directly with existing educational institutions to provide new courses for curriculum, teaching faculty and internship programmes to ensure that students had practical experience by the time they graduated and entered the workforce. For instance, leading Indian services providers Infosys and Wipro “have created their own in-house universities to teach students the specific skills required to cater to their clients’ needs” (Wadhwa et al., 2008). “These universities also offer a broad range of undergraduate and graduate degrees and leverage e-learning platforms to deliver content directly to their employees’ locations. By ensuring a skills match, this increased collaboration becomes an efficient and effective instrument to achieve economic upgrading in global industries” (Fernandez-Stark et.al., 2012b).

Initiatives carried out by industry associations across the four sectors included identifying industry job profiles, “creating internal training programs, and partnering with educational institutions to customize training and modify existing curricula for current and potential workers” (Fernandez-Stark et al., 2012b). These associations also established alliances with foreign universities to accelerate the skills development process; in the case of management training skills, this was accomplished through short certification programs to improve the performance of supervisors and managers in GVCs. For instance, in the Philippines, the offshore services industry association worked with Harvard Business Publishing to establish a management course; this combined online and classroom activities to improve the performance of supervisors and managers in the value chain. Similarly, in 2010, the Jordan Inbound Tour Operator Association developed and extended programs with George Washington University to offer a two-week professional Destination Management Certification Program to increase professionalism within the tourism industry (Fernandez-Stark et al., 2012b).

NGOs and international agencies were also found to play an important role in supporting SME insertion into the value chain, especially in providing training in the fruit and vegetable sector. In Kenya, Honduras and Lesotho, for in-

stance, in the absence of active industry associations or government involvement, NGOs and international agencies assumed a range of roles: carrying out specific training for standards compliance, working directly with universities, and facilitating coordination amongst stakeholders to ensure sustained participation and upgrading. Significantly, NGO contributions were found to be less successful in facilitating skills formation when such interventions were executed without close coordination with the private sector and alignment with national/international standards.

The government has also been found to facilitate workforce development to support GVC upgrading by providing three key functions: facilitation, financial support and regulatory action. This said, research findings from this project suggest that the role of the state in workforce development has been more effective in the capacity of facilitator than via direct provision of training initiatives. The two key aspects of successful state facilitation found in these case studies were coordination and information sharing.

Best practices in workforce development result from sound organization amongst all relevant stakeholders. The most effective illustration of this was found to be public-private partnerships between the private sector, industry associations, educational institutions and the government. For example, in 2007, the Chilean Committee of Ministries for Innovation established public-private councils for strategic economic sectors, including the offshore services cluster. Workforce development was one of the core issues discussed within this cluster besides international promotion, regulatory frameworks and local industry development (Gereffi et al., 2011). Such partnerships were found to facilitate stakeholders in contributing their best resources to create successful workforce development practices to support GVC upgrading, especially when this upgrading required high-level technical and analytical skills. “Bringing together multiple stakeholders with many and often divergent interests requires coordination, and the state emerges as a natural entity to invite actors to work together” (Fernandez-Stark et al., 2012b).

In some cases, the government played an important role in facilitating access to important labour market information that helped upgrading by matching demand and supply for different job profiles. For instance, the National Skill Development Corporation (NSDC), a not-for-profit organization managed through a public-private partnership between the private sector (51%) and the Government of India (49%), was created in 2009 to fulfil India’s growing need for skilled labour across multiple sectors and to narrow the gap between the demand and supply of skills. The NSDC focuses on 21 key industries (including textiles and clothing, select informal employment sectors, building and construction, auto and auto components, transportation, logistics, and warehousing and packaging) and aims to “skill” and “up-skill” 500 million people in India by 2022 by fostering private sector initiatives and providing funding in skill development.

Governments have also directly financed workforce education and training for entry and upgrading in several global industries, especially via state-funded scholarships and tax incentives for training. Such financing has also been found to have a demonstration effect on local labour and firms to invest in their own

skills development. Government scholarships have been used for specific short-term training (e.g. English-language programs) and to fund young professionals seeking further education abroad as well as internship opportunities in key industries. For instance, the Philippines government was found to be extremely proactive in workforce development in the offshore services value chain via its PGMA Training for Work Scholarship.

Finally, GVC-integration and demand for skills improvements is found to result in an explosion in the number of institutions offering training for workforce development and the government thus plays “an important role in ensuring the quality of training through accreditation of universities and technical institutions without limiting the necessary flexibility to modify the curricula in response to labour demands” (Fernandez-Stark et al., 2012b). According to the authors, the creation and oversight of national certification programs is a powerful tool for developing appropriately qualified GVC labour markets in developing countries. Certifications on competence reduce recruitment and selection transaction costs, thereby increasing the level and portability of skills for certified workers and facilitating labour mobility (Gereffi et al., 2011). Successful outcomes in this regard were observed in this research for worker skill certifications that involved the government working together with industry associations and educational institutions and where skills were aligned with international standards requirements.

These studies reveal that these developing countries are involved in market-driven development (acquiring capabilities to upgrade services, providing better services, expanding the number of services or/and offering higher value added services) through significant investments in workforce training and managerial capabilities (Fernandez-Stark et.al. 2011).

These developments are found to be increasingly supported by an expanded range of public, private, and multi-sector initiatives and “far from a race to the bottom, involvement in the offshore services industry has provided developing country workers, firms, and governments with an attractive opportunity to build the skill-based competencies required to meet the demands of global service markets” (Fernandez-Stark et.al. 2011).

Apart from education and skill policies, special economic zones (SEZ) and clustering policies can address skilled labour shortages by giving access to pool of skilled labour; facilitate innovation spillovers (dynamic efficiency); contribute to addressing first-mover-externalities (learning by exporting); and provide access to high quality business services.

However, Farole (2011) concludes that the implementation of SEZs can have ambiguous implications for GVC participation. For instance, Cattaneo et al. (2013) finds that if participating firms remain focused on processing activities, SEZs do not necessarily help to create the spillovers and linkages that facilitate upgrading among domestic firms.

7 Conclusion

The relationship between trade and labour in a world with GVCs is the subject of relatively recent research. In this paper, we have provided a review of this developing literature. This review suggests that while integration into GVCs is associated with greater employment opportunities, income gains for workers and better working conditions, these benefits depend on the position of the firm in the value-chain and may have also contributed to the skilled- unskilled labour divide. Moreover, despite more opportunities for women employment, clear gender differences persist and competitive pressures emanating from lead buyers in GVCs affect the nature and sustainability of any gains. Recognition of these attributes has also led to research on the development of workforce linked to GVCs as this is an important tool for facilitating the integration of domestic firms into GVCs, value-chain upgradation and managing the consequent adjustment process for workers. This developing literature has highlighted the crucial role that firms, industry associations, NGOs/international agencies and the state play in bridging the skill-gap between developing country workers and the requirements of global industries.

As Jiang and Milberg (2013) point out, going ahead, policy designed to reduce domestic unemployment via international trade would also need to take the employment effect of GVC-participation into account. In the GVC world, jobs can be created by policies reducing the import content of domestic exports and/or expanding the export content of foreign imports keeping final exports and imports unchanged. However, such policies would need to focus on GVC analysis and industrial upgrading. More attention would also need to be given to sectoral employment composition associated with GVC trade. For some sectors in some countries, trade expansion might be absorbed mainly by foreign labour, whereas for some other sectors trade protection might create more unemployment than domestic employment. Trade policies would thus need to take into account the sectoral variation in GVC participation.

Finally, as much as developing countries are encouraged to move up the value chain, it is important to recognize that this upgradation is likely to be associated with displacement costs. Value-chain upgradation means that a firm either occupies more of the entire value-chain or moves from a lower to a higher segment of the value-chain. In a world of limited resources and binding constraints, either of this would lead to some workers losing their jobs or being made to work excessively, both of which are undesirable outcomes.

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