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HANDBOOK OF THE INTERNATIONAL POLITICAL ECONOMY OF PRODUCTION

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The *Handbook of the International Political Economy of Production* offers a comprehensive, state-of-the-art overview of the changing world of global production. The book explores the topic in a range of directions, including the human material 'used' in production across the globe and alternatives proposed from different quarters.

Chapters cover the geography of why and where jobs are moving in both manufacturing and services. The doubling of the world's available labour supply after the opening up of the planned economies in Europe and Asia has sharply tilted the balance of power towards giant corporations. Labour and the politics of work is analysed in a number of key countries. Possible signs of a recovery of organized labour's negotiating power on this vastly expanded playing field are discussed in separate chapters, and a complete overview is provided of labour research networks currently active. This important volume addresses topics relating to the human and natural basis on which production rests, from the consequences of the exploitation of the body and mind to sex work, biotechnology, and the prospects for ecological re-balancing.

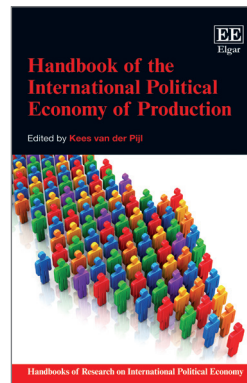
Written by a team of authors from fourteen different countries and comprising some of the biggest names in contemporary social science as well as topical specialists, this Handbook will prove a critical resource to political economists at all levels, trade unionists and NGO activists in the labour and human rights sphere, politicians and journalists.

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736 pp Hardback 978 1 78347 020 4

Jan 2015 £185.00 (UK/RoW) • March 2015 \$295.00 (N/S America)

Elgaronline 978 1 78347 021 1



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5. Apple's iPad City: subcontracting exploitation to China

Jenny Chan, Pun Ngai and Mark Selden

INTRODUCTION¹

Many image-conscious technology companies, probably none more than Apple in our digital age, have professed ideals of corporate citizenship, environmental, labour and social responsibility in their supplier codes of conduct. This is in part a response to the growing anti-sweatshop movement in the electronics industry from within the United States, Europe, and more recently Greater China (Smith et al. 2006; Litzinger 2013). Violations of factory workers' fundamental rights in export-oriented industry nevertheless remain intractable, prompting scholars and practitioners in corporate responsibility to promote the leverage of private and public power to create 'just supply chains' (Locke 2013; Mayer and Gereffi 2010; *Boston Review* 2013). The main effort of public-private partnerships is to call on a shared commitment of the national governments, transnational corporations, and non-governmental labour organizations to better protect workers.

This chapter assesses the direct impact of Apple's outsourcing practices on manufacturing workers' conditions in China. We focus on workers' lives at the world's largest supplier of Apple products, Taiwanese-owned Foxconn Technology Group (hereafter Foxconn), which are shaped by both *state policies* and *global capital* played out inside the factory. The consolidation of high-tech electronics production in China and elsewhere potentially strengthens state regulation or 'public governance' of transnational firms (Mayer and Gereffi 2010: 15–17). In our close study of the Apple–Foxconn relationship in China, however, we have not observed the 'positive role' of the Chinese government 'in promoting collaborative buyer–supplier relations' (Locke 2013: 19), even when international capital is concentrated at the national, local and firm levels. Instead,

¹ The authors wish to thank Debby Chan, Jeffery Hermanson, Pauline Overeem, Scott Nova, Isaac Shapiro, Michael Burawoy, Peter Evans, Richard Appelbaum, Nelson Lichtenstein, Jeroen Merk, SACOM (Students and Scholars Against Corporate Misbehaviour), and the University Research Group for their support.

workers face foreign giants such as Apple and Foxconn that enjoy the full backing of the local state. We document for China the ways in which the integration of the electronics manufacturing industry in a global division of labour has intensified labour conflicts and class antagonism.

Foxconn has risen to become the largest employer of industrial workers, with 1.4 million employees in China alone. Between 2010 and 2014, we collaborated with an independent University Research Group to carry out fieldwork on Foxconn's labour practices and production systems in twelve major Chinese cities, where Foxconn runs giant manufacturing sites and research and development centres (Pun et al. 2014). Foxconn has more than 30 factories across China; the surveyed factories are based in eastern, central and western China, from Shenzhen in Guangdong, Chongqing, Shanghai, Tianjin, Beijing and others, to the 'iPad City' in Chengdu (Sichuan). Because Apple is the world's most profitable electronics company, Foxconn the largest employer of workers, Apple its largest client, and China the largest producer and exporter of electronic goods, this study concentrates on the seminal Apple–Foxconn relationship in order to chart its consequences for labour.

With government officials prioritizing economic development rather than advancing labour and human rights, we highlight a range of abuses resulting in a wave of suicides among Foxconn workers in 2010 and a deadly industrial explosion at one of the new Foxconn factory complexes in May 2011, as well as continuing worker abuses including illegal overtime and forced student labour to the present. External monitoring of Foxconn conditions by the Fair Labour Association, we show, provided public relations cover for Apple and other firms that pay for its surveys, but failed to curb flagrant corporate abuses or strengthen workers' rights.

The next section reviews the changing geography of manufacturing and the growth of Asian electronics contractors in global outsourcing. It follows with an account of Foxconn's high-speed expansion across China. We enter the iPad city where workers producing this signature Apple product are struggling for fundamental rights to a work–life balance, decent wages, and a safe and healthy working environment. As production requirements tighten under intense market competition, and the speed of the line relentlessly increases, labour crises have also intensified. The conclusion sheds light on the social movement forces for justice.

LABOUR, OUTSOURCING, AND THE RISE OF ASIAN ELECTRONICS CONTRACTORS

Capital concentration and consolidation are inherent to capitalism. As Karl Marx wrote in *Capital* (1990: 929), ‘one capitalist always strikes down many others’. Corporations exploit spaces of uneven development at home and abroad to maximize profit. Capital transforms favoured rural and urban sites for industrialization, while excluding ‘other regions of the globe’ from ‘new waves of economic transformation’ (Webster et al. 2008: 1). From the 1980s, with the demise of central planning in the Soviet Union, central and eastern Europe and China, and the promotion of ‘free trade’ in other emergent economies, the global structure of industrial production has fundamentally shifted. Through corporate outsourcing, restructuring, mergers and acquisitions, large companies expand market share at home and abroad. Leading firms such as Apple and IBM, known as the ‘chain drivers’ or ‘market makers’, once produced many of their products in-house in their own countries. In recent decades they have preferred to set up hierarchically structured networks of independently-owned suppliers to produce their commodities (Hopkins and Wallerstein 1986; Gereffi 1994; McKay 2006). Offshore mass production increased by leaps and bounds. By 2000, 50 per cent of global manufacturing production was in developing countries with production organized through global supply chains, and the trend accelerated thereafter (quoted in Mayer and Gereffi 2010: 3).

Transnational giants seek to partner with a small number of highly efficient and strategically located contractors, while diversifying risks and minimizing costs through supply chain management. ‘Global supply bases’ have emerged in India, Brazil, Mexico, South Africa, Vietnam, and other rapidly developing economies, but above all in China, where production activities and market transactions are taking place at competitively low price, high speed, and in huge volumes (Sturgeon et al. 2011; Bonacich and Hamilton 2011; Henderson and Nadvi 2011).

Large contract manufacturers have been upgrading and growing in size and scale. Richard Appelbaum (2008) finds that East Asian contractors, ranging from footwear and garments to electronics, have been integrating vertically in their supply chains. Joonkoo Lee and Gary Gereffi (2013) explain the co-evolution process that capital accumulation of smartphone leaders have advanced alongside the innovation within their large assemblers. Electronics manufacturers provide value-added services, component-processing, and final-assembly in ‘one-stop shopping’ to technology firms such as Apple (Dedrick and Kraemer 2011) and retail giants.

Giant manufacturers, rather than small workshops, are better able to

'respond to shortening product cycles and increasing product complexity' (Starosta 2010: 546), thus becoming powerful players in just-in-time production networks. They serve multiple clients to climb the global value chains. Not only production tasks, but also inventory management and logistics, are being concentrated in strategic factories, resulting in ever stronger mutually dependent relations between buyers and suppliers.

Boy Lüthje (2006: 17–18) observes that in recent decades brand-name firms have focused on 'product development, design, and marketing', gaining a larger share of the value created in trade even as they abandon hardware manufacturing. Subject to strong demands from global brands, manufacturers and electronics service providers in China and other countries compete against each other to meet production speed, pricing, and quality goals, shaving profit margins (Ross 2006).

As we show in the case of Apple and Foxconn, it is Apple that dominates the relationship and imposes its will on its contractors. Given its considerable market share, Apple dictates price-setting and the timing of product delivery, at times resulting in intense pressures for Foxconn and other workers, and above all, health and safety hazards (Chan and Pun 2010; Pun and Chan 2012; 2013; Chan 2013; Chan et al. 2013). At the industry level, facing strong competition, Apple seeks to lower costs, strengthen control over suppliers, and speed up to release newer products. The *buyer-driven* pattern is characteristic of numerous American, European, Japanese and South Korean transnationals that dominate the electronics industry (Lüthje et al. 2013).

Searching for cheaper, disciplined and more pliant labour, global buyers – in Western and Asian countries alike – have exported capital (thereby circumventing tighter labour regulatory systems within certain nations). The resulting 'successive geographical relocation of capital' has been facilitated by efficient transportation and communications technologies, regional and international financial services, and access to immigrants and surplus labour (Silver 2003: 39; Harvey 2010; Harrison 1997). The 'race to the bottom', however, has rarely proceeded without labour, social and/or environmental challenges at sites of new investment (Cowie 2001; Silver 2003; Chen 2011; Jang and Gray, this volume). China, in its opening to foreign capital and international trade since the early 1980s, well exemplifies all these processes – and in an extreme form, where hundreds of millions of workers are being drawn into global production chains. Some aggrieved workers have taken aim at reputation-conscious large companies to defend their rights and interests. The question remains whether, and under what conditions, workers can effectively challenge the combination of corporate and state power to raise labour and social standards.

THE FOXCONN EMPIRE

Foxconn – the name alludes to the corporation’s ability to produce electronic connectors at nimble ‘fox-like’ speed – supplies components and finished products not only for Apple, but also for IBM, Microsoft, Google, Intel, Cisco, GE, Amazon, HP, Dell, Motorola, Nokia, Panasonic, Sony, Toshiba, Fujitsu, Nintendo, Samsung, LG, Sony Ericsson, Acer, Huawei and Lenovo, a Who’s Who of global electronic producers including two of China’s own leading tech companies. Its parent corporation, Hon Hai Precision Industry Company, was founded in Taipei in 1974. In these four decades, Foxconn has successfully integrated production processes from raw material extraction to component manufacture to final assembly (Foxconn Technology Group 2009: 10). In July 2013, *Fortune* Global 500 ranked Foxconn 30th on the list, up 13 places from the previous year, with annual revenues of US\$132 billion, far higher than most of its corporate customers, with the notable exception of Apple (which had US\$156.5 billion in sales).

In outsourced production, Foxconn competes on ‘speed, quality, engineering service, efficiency, and added value’ to maximize profits (Foxconn Technology Group 2009: 8). In the 1990s, Apple, Lucent, Nortel, Alcatel and Ericsson ‘sold off most, if not all, of their in-house manufacturing capacity – both at home and abroad – to a cadre of large and highly capable US-based contract manufacturers, including Solectron, Flextronics, Jabil Circuit, Celestica, and Sanmina-SCI’ (Sturgeon et al. 2011: 236). In 2002, Apple contracted Foxconn to assemble Macs, and established the long-term business relationships that continue to the present (Interview, 7 March 2011). Since 2004 Foxconn has led the electronics manufacturing sector in market share, surpassing long-time rival Flextronics to become the world leader (Pick 2006).

Currently Foxconn captures more than 50 per cent of the world market share in electronics manufacturing and service (Dinges 2010). Under the leadership of founder Terry Gou, Foxconn has ridden the waves of successive revolutions in information and communications technology to vastly expand its ‘6C’ product lines. Their products are computers (desktops, laptops and tablets), communications equipment (mobile phones and smartphones), consumer digital (music players, cameras, game consoles and TVs), cars (automotive electronics), content (e-book readers) and health-care products. In all of these, Foxconn has achieved state of the art technologies while simplifying production processes to reduce workers to repetition of simple motions throughout ten to twelve-hour days.

Industry analysts note that ‘manufacturing operations in China were responsible for more than 75 per cent of aggregate [electronics

manufacturing services] industry growth in 2010 [US\$347 billion], and the country is expected to continue carrying the burden of driving worldwide growth' (Dinges 2011). Foxconn boasts that 'China is not the only one globalizing' (*Bloomberg Businessweek* 2010). The sprawling industrial empire has more than 200 subsidiaries around the globe,² but the overseas Foxconn operations are dwarfed by the mega factories in China. Working outside of China enables Foxconn's customers to get quicker turnaround on orders, reduce labour and transportation costs, and avoid some import taxes (Andrijasevic and Sacchetto 2013). Nevertheless, the enterprise's most extensive operations by far are in China.

Facing fierce competition, Foxconn strives to tighten labour processes, control costs, and expand engineering and manufacturing technologies to maintain its position as 'the most trusted name in contract manufacturing services' (Interview, 25 October 2010). It recruits mostly teens and young adults to run the assembly lines. 'Over 85 per cent of Foxconn's employees are rural migrant workers between 16 and 29 years old', a Chinese human resources manager said (Interview, 14 October 2011). Foxconn in this respect is emblematic of the national pattern. Official data in 2009 showed that of all rural migrants, 42 per cent were between 16 and 25 years old and another 20 per cent were between 26 and 30 (China's National Bureau of Statistics 2010).

From the 1980s, rural migrants have moved from constituting a marginal part of the Chinese industrial labour force to dominating it in numerical terms, reversing the situation prior to market reform in which their movement had been severely limited by state restrictions on rural-to-urban migration. They are the mainstay of the new urban industrial labour. In Shenzhen, the rapidly growing city just across the border from Hong Kong in southern coastal China, Foxconn's more than 500 000 employees (Foxconn Technology Group 2010a; 2010b) were churning out a wide array of electronic devices, day and night. It was here that in the first five months of 2010, at least 12 'jumps' – attempted and completed suicides of Foxconn workers who leaped from high-rise factory dormitories – were reported by local and international media.

The Foxconn 'campus', as the managers like to call it, organizes production and daily labour reproduction activities in a self-contained environment. The Longhua complex of 1.75 million square metres – larger

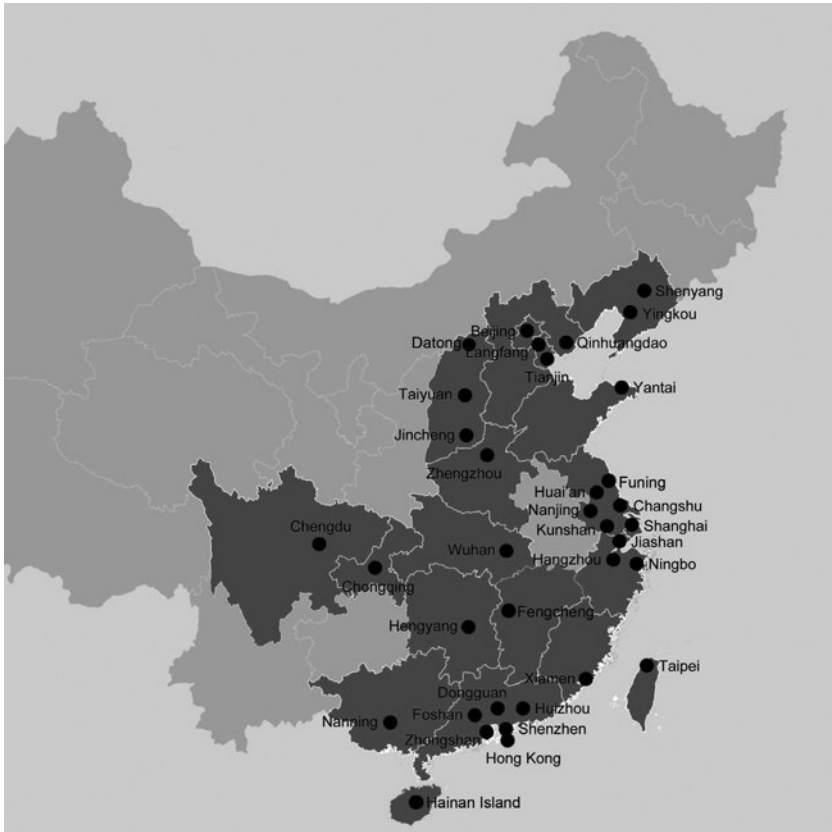
² Foxconn has worldwide production facilities in Taiwan, China, Japan, South Korea, Australia, New Zealand, Malaysia, Indonesia, Singapore, Vietnam, India, United Arab Emirates, Russia, Finland, Sweden, Denmark, Germany, Czech Republic, Slovakia, Hungary, the Netherlands, Austria, Turkey, Ireland, Scotland, Brazil, Canada, Mexico, and the United States.

than the entire new 'University City' in Shenzhen – includes factories, warehouses, dormitories, banks, two hospitals, a post office, a fire brigade with two fire engines, an exclusive television network, an educational institute, a library, soccer fields, basketball courts, tennis courts, track and field, swimming pools, cyber theatres, shops, supermarkets, cafeterias and restaurants, an employee care and support service centre, and even a wedding dress shop. The complex is equipped with advanced production facilities since it is the model factory for customers, central- and local-level governments, and visitors from media organizations and other inspection units.

Foxconn has manufacturing complexes not only in Shenzhen and all four major Chinese municipalities of Beijing, Shanghai, Tianjin and Chongqing, but also in fifteen provinces throughout the country (see Figure 5.1). Below we look beyond its gleaming facilities to the daily lives of its workers.

Foxconn is building a production network in which vertical integration, flexible coordination across different facilities and 24-hour continuous assembly bolster its market competitiveness. Its expansion has been intertwined with the Chinese state's structural reforms since the 1980s, and in recent years, the company has kept pace with the Chinese state's call to prioritize inland development in the lagging western region (Hung 2013; Selden and Perry 2010). In 1988, Foxconn launched a small processing factory in Shenzhen, the first special economic zone opened up to foreign trade. In the 1990s, Foxconn diversified its production lines and locations in step with Deng Xiaoping's 1992 call to prioritize the coastal regions to spearhead export-oriented development. Major production clusters were established in two coastal regions: the Pearl River Delta in the south and the Greater Shanghai Delta in the east. In 2001, the company became one of China's leading exporters following the country's accession to the World Trade Organization and further liberalization of international trade, and it has maintained and strengthened this position ever since (Foxconn Technology Group 2009: 6).

During the global financial crisis in 2008, Chongqing municipal government, the only municipality directly under the central government in inland China and the gateway to consumer markets in south-western regions, launched a Warm Winter stimulus plan to subsidize 1500 businesses (Dreyfuss 2009). Going west, Foxconn swiftly set up a computer assembly plant in the Xiyong Microelectronics Industrial Park in Chongqing, where the corporate tax rate was slashed from 25 per cent to 15 per cent (Interview, 15 March 2011). Despite the contraction of American and European demand for consumer electronics, in 2009, Foxconn generated a solid NT\$1.96 trillion (US\$67 billion) in sales (Foxconn Technology

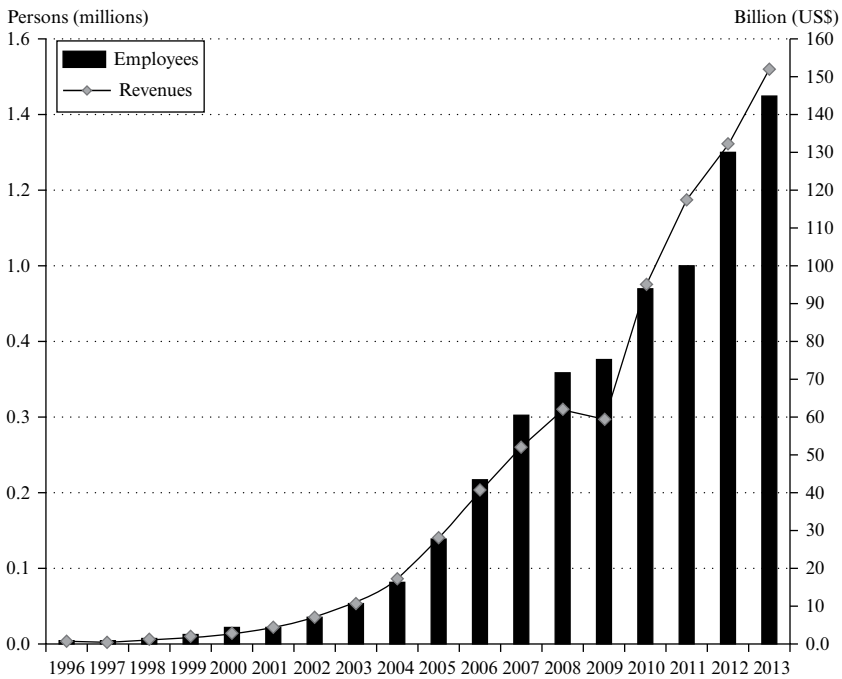


Source: Foxconn.

Figure 5.1 Foxconn's locations in Greater China

Group 2010: 5). Following the economic recovery, the company reported a stunning 53 per cent year-on-year increase in revenues to NT\$3 trillion (US\$102.5 billion) in 2010 (Foxconn Technology Group 2011: 4). The employee suicides at Foxconn's China facilities that year, and the subsequent pay rise, did not seem to impact on revenues.

'In twenty years,' some business executives suggest, just two companies will dominate global markets, 'everything will be made by Foxconn and sold by Wal-Mart' (Balfour and Culpan 2010). A wild exaggeration that ignores the central fact of Foxconn's dependence on Apple and other international electronics firms, but the hyperbole is emblematic both of the changing character of the world economy and consumption patterns,



Source: Foxconn.

Figure 5.2 Foxconn employees and revenues, 1996–2013

and of the manufacturing company's startling rise in scale of employment and revenues in China, East Asia and the world.

While Apple's profit margins are far higher than Foxconn's (Chan et al. 2013), as of fiscal year 2013, Foxconn's revenues reached an unprecedented high of US\$133.2 billion (Fortune Global 500 2014), thanks to the large orders of Apple and other clients. Figure 5.2 shows the increase in number of employees and annual revenues of Foxconn since 1996, according to the earliest publicly accessible company data, to 2013.

Foxconn's astonishing expansion across geographic regions was predicated on its ability to secure contracts from Apple and other international brands, an outcome facilitated by its ability to forge an alliance with the Chinese state at both central and local levels. The company's access to labour, especially young productive workers in low-wage regions, has enabled it to achieve economies of scale. Recent Chinese government statistics show that the eastern coastal region is still the primary destination for rural migrant workers nationwide. However, as enterprises build

new factories in regions with lower wages, central and western China have narrowed the gap: in 2009 more than 90 million migrants worked in the eastern region, around 24 million in the central region, and nearly 30 million in the western region (China's National Bureau of Statistics 2010). This trend has since continued.

THE APPLE–FOXCONN RELATIONSHIP

Apple leapfrogged Google in 2012, and Samsung in 2013, to become 'the world's most valuable brand' (Brand Finance 2013). In recent years, 'approximately 40 per cent of Foxconn revenues are from Apple, its biggest client', a Foxconn production manager reported (Interview, 10 March 2011). Another 20 per cent come from HP, while the remainder is provided by multiple customers (Interview, 21 March 2011). Foxconn's heavy dependence on Apple has been a source of its rise and profit, but the company remains vulnerable as Apple retains the option to employ other contractors as well to squeeze Foxconn's profits. Our group interviews with two mid-level production managers reveal that during the 2008–09 global financial crisis, Foxconn was forced to cut prices on components, such as connectors and printed circuit boards, and assembly, to retain high-volume orders. 'Margins were cut. Still, the rock bottom line was kept, that is, Foxconn did not report a loss on the iPhone contract' (Interviews, 10 November 2011; 19 November 2011). How did Foxconn manage to stay in the black while cutting its margins? By charging a premium on customized engineering services and quality assurance. The upgrading of the iPhones since 2007 has in part relied on Foxconn's senior product engineers' research analyses and constructive suggestions. Foxconn's edge in technology and services served the company well in the crisis.

In 2009, in the wake of the global recession, the Chinese government froze the minimum wage across the country for one year. Foxconn accommodated Apple's and other corporate buyers' squeeze while continuing to reduce labour expenditures, including cuts in wages (overtime premiums) and benefits (productivity bonuses and quarterly prizes). Nevertheless the pressure was on the manufacturing company and frontline workers and staff.

'Apple tightened the control over Foxconn by splitting iPhone and iPad orders with Taiwanese-owned Pegatron, a manufacturing unit spun off from Asustek, in the aftermath of the spate of worker suicides [in 2010]' (Interview, 15 December 2011). By pitting its suppliers against each other, and investing in research, design and marketing, the American giant reaps

Table 5.1 *Apple's revenues by product segments, 2010–12*

	2011 (ended 24 September)		2012 (ended 29 September)	
	Millions (US\$)	%	Millions (US\$)	%
iPhone	45 998	42.5	78 692	50.3
iPad	19 168	17.7	30 945	19.8
Mac	21 783	20.1	23 221	14.8
iPod	7 453	6.9	5 615	3.6
iTunes/Software/Services ^a	9 373	8.7	12 890	8.2
Accessories	4 474	4.1	5 145	3.3
Total	108 249	100	156 508	100

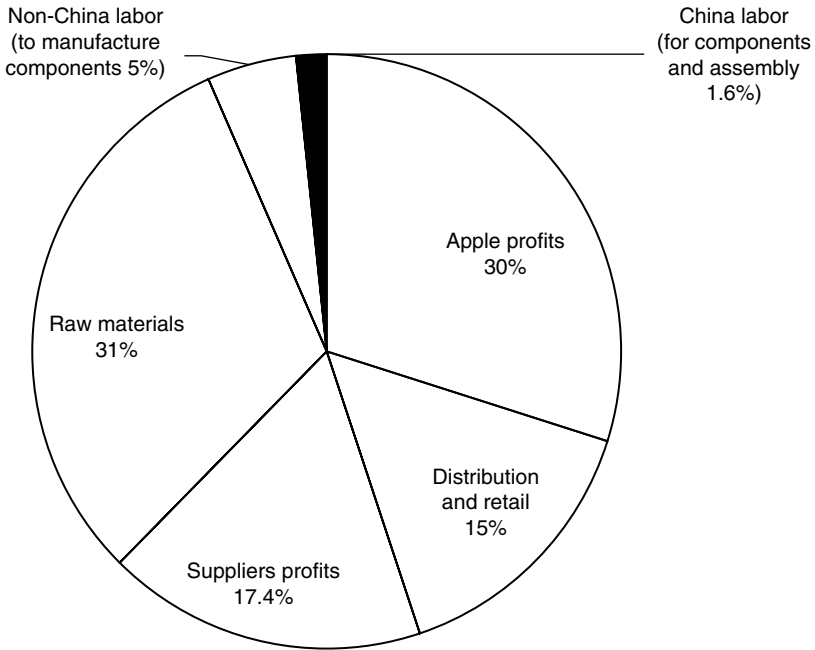
Note: a. Includes revenue from sales on the iTunes Store, the App Store, the Mac App Store, and the iBookstore, and revenue from sales of licensing and other services.

Source: Adapted from Apple's (2012a) reclassified summary data.

very high profits and commands a leading position in the consumer electronics market. Table 5.1 shows Apple's revenues generated from sales of its branded products and services. The signature Mac computer has now been far surpassed by the iPhone, with the iPad following in second place.

From keyboards and mice to touch-based controls, *Time* magazine immediately recognized the iPad as one of the '50 best inventions' of 2010. A cost and profit analysis of an iPad reveals the economics and corporate power relations underlying Apple's global business model. Where profit margins are often in the single digits in the low-end computing market, Apple retains 30 per cent of the sales price of the US\$499 iPad, even more if it is sold through Apple's retail outlets or online store. In contrast, labour cost for the iPad in China is estimated at only 1.6 per cent, or US\$8 (see Figure 5.3). Although Apple does not disclose its contracts with Foxconn, there is no doubt that Chinese workers who assemble much of the iPad receive a small share of the value it generates, while Apple enjoys extraordinary profit margins.

The iPad has bolstered the profit margin for Apple in the worldwide tablet market, placing it ahead of strong competitors like Samsung. Incredibly, Apple (2012c) sold three million upgraded 'new iPads' in the first three days of its release in March 2012 – that is, one million iPads a day in the American market – making it dominant in global tablets. For Christmas shoppers, in December 2012 Apple introduced the fourth-generation iPad running on a new operating system iOS 6 (competing with Google's Android application system), and the lighter and thinner 7.9-inch



Source: Adapted from Kraemer et al. (2011: 11).

Figure 5.3 Distribution of value for the iPad

iPad mini in white and silver or black and slate. ‘Few brands are as loved in China as Apple’, exclaims *The Economist* (2012). Shoppers flocked to visit Apple’s three-storey store, the largest in Asia, on the Wangfujing shopping street in the heart of Beijing. In this era of the mobile technologies revolution, the production cycle and delivery schedules are shorter than ever, the pressures on workers higher.

INSIDE IPAD CITY

Foxconn Chengdu, legally registered as Hongfujin Precision Electronics (Chengdu) Ltd and known as iPad City, began operation in October 2010. All workers at this new production site are responsible for making iPads, serving only Apple. The factory labour force grew to 50 000 employees in March 2011, making it one of the city’s biggest employers in its first half-year of operation in the provincial capital of Sichuan, south-western

China. As of December 2012, it expanded to 165 000, and recruitment continued (Interview, 29 January 2013).

Andrew Ross (2006: 218) noted that in Chengdu ‘it was impossible not to come across evidence of the state’s hand in the fostering of high-tech industry’. In the years since the 7.9 magnitude earthquake struck Sichuan in May 2008, the provincial government has made efforts to attract investments to fund reconstruction. In the autumn of 2010 the officials subsidized the construction of the gigantic Foxconn Chengdu production complex and high-rise 18-storey dormitories, designating it as ‘the Number One Project’. Foxconn CEO Terry Gou returned the compliment, praising the government: ‘I’m very much impressed by the efficiency of local government departments that led to the start of the project. Foxconn will add investment to make the [Chengdu] factory one of Foxconn’s key production sites in the world’ (quoted in *Chengdu Weekly* 2011).

Village, township, city and provincial-level governments in Sichuan all offered Foxconn free labour recruitment services. A worker commented (Interview, 23 March 2011), ‘Foxconn is hiring, and the whole city has gone crazy. Local officials grab people and ask if they’d be willing to work at Foxconn. The government has made it an official task. Officials at every level have a recruitment quota. Isn’t this recruitment crazy?’

Many workers are taking advantage of job opportunities opening up in or near their native place, rather than moving to distant provinces. Clearly the inland city of Chengdu is the new frontier for Foxconn and the electronics industry generally. Factory management, facing stiff procurement orders and tight shipment deadlines, turns again and again to overtime work. Posters on the Foxconn workshop walls read (our translation):

Value efficiency every minute, every second.
 Achieve goals or the sun will no longer rise.
 Execution is the integration of speed, accuracy and precision.
 There is no best way, but always a better way.
 The devil is in the details.

Apple and other buyers want their tablets fast to meet Chinese and global demand. Apple CEO Tim Cook, who succeeded the late Steve Jobs in August 2011, put it this way: ‘Nobody wants to buy sour milk’ (quoted in Satariano and Burrows 2011). And elsewhere, ‘Inventory. . . is fundamentally evil. You want to manage it like you’re in the dairy business: If it gets past its freshness date, you have a problem’ (quoted in Lashinsky 2012: 95). Tracking demand worldwide, Apple adjusts production forecasts *daily*. Streamlining the global supply chain on the principle of market efficiency and ‘competition against time’ is Apple’s goal.

Frontline workers in outsourced factories frequently pay the price. If a target is not fulfilled, Foxconn Chengdu workers have to stay on the production line to finish it, sometimes working an entire twelve-hour shift. Worse yet, workers frequently report that overtime is not fully documented, with the result that overtime wages are unpaid or under-paid. This happened when line leaders under-reported extreme (and illegal) overtime hours, fearing punishment by higher-ups. In another situation, workers were often required to work on Saturdays and Sundays during the production peak season. While they should be paid double in accordance with the law, they were instead given rest days during low seasons to offset the overtime premiums. Grievances about pay, work stress and unreasonable production demands sometimes culminated in open conflicts.

In holding Foxconn and other suppliers responsible for the problem, Apple ignores its own purchasing practices, such as order specification and sales forecasting, and the direct impact of its production deadlines on suppliers' capacity to schedule working hours (Ruggie 2012).

Louis Woo, special assistant to Foxconn's chief executive, explained to the journalist in an American Public Media programme (*Marketplace* 2012) the kinds of pressures that Apple or Dell applies:

The overtime problem – when a company like Apple or Dell needs to ramp up production by 20 per cent for a new product launch, Foxconn has two choices: hire more workers or give the workers you already have more hours. When demand is very high, it's very difficult to suddenly hire 20 per cent more people. Especially when you have a million workers – that would mean hiring 200 000 people at once.

Foxconn continues to hire more workers, including teenage student interns in the name of skills training and business-school cooperation, and at the same time imposes compulsory overtime on the labour force during the peak production months.

SELLING LABOUR OR SELLING LIFE?

During the spring of 2011, at the still-under-construction Foxconn Chengdu plant, shimmering aluminium dust often filled the air. The iPad's casing is aluminium, and polishing creates a large amount of dust. All around the factory area was not only metallic dust but also piles of sand, stones and soil, and the roads were uneven. The entrance to the factory had some crudely placed wooden boards creating a small path between two uneven sand piles for workers who daily passed through the makeshift pedestrian thoroughfare to enter the factory. Construction materials such

as steel bars and cement were stacked everywhere. Some factory floors in Zones A, B and C had already been put into production, even though auxiliary facilities such as toilets and canteens were not fully accessible.

In the entire month of March 2011, most production workers in Foxconn Chengdu logged long hours of overtime with only two rest days. Fan Chunyan (interviewees' names have all been changed), a 22-year-old female worker, attended compulsory unpaid work meetings every day: 'I report to the line leaders 15 to 20 minutes earlier for roll call. Leaders lecture us on maintaining high productivity, reaching daily output targets and keeping discipline.' On the factory floor, 'toilet breaks during the working hours are also restricted. Meal times were occasionally shortened or even cut to finish the production quotas of the day' (Interviews, 18 March 2011; 20 March 2011). Machinery was never left idle. The well-lit factory floor was visible throughout the night from afar.

Apple, by introducing myriad changes in the design of its sophisticated devices, each with multiple variations to suit consumer tastes, relentlessly drives the pace of production with each new model and holiday season.³ Not long after the original iPad was introduced in April 2010, Apple reinvented the iPad to boost sales. A company press statement dated 2 March 2011 reads, 'While others have been scrambling to copy the first generation iPad, we're launching iPad 2, which moves the bar far ahead of the competition and will likely cause them to go back to the drawing boards yet again' (Apple 2011).

'When we have work,' Duan Dong, a 19-year-old male worker said, 'half of our income is from doing overtime' (Interview, 5 March 2011).

I didn't go home during the Spring Festival holidays in early February [2011] even though my village was nearby. Instead I did 78 hours of overtime work that month [more than double the 36-hour legal limit for overtime under the Chinese Labour Law], thereby earning an additional 1090 Yuan, which added to my base pay of 1060 Yuan, gave me a total of 2150 Yuan [US\$338].

Excessive overtime was the norm. Dong's co-worker, Ouyang Zhong, married with a one-year-old daughter, had returned from home after a brief family reunion. That same month, he worked 44 overtime hours.

³ Apple (2012b: 8) describes two major sources of production-time pressure, which are transferred to outsourced suppliers, in its annual financial report filed to the United States Securities and Exchange Commission: 'The Company has historically experienced higher net sales in its first fiscal quarter [from September to December] compared to other quarters in its fiscal year due in part to holiday seasonal demand. Actual and anticipated timing of new product introductions by the Company can also significantly impact the level of net sales experienced by the Company in any particular quarter.'

Zhong emphasized that 'without overtime, it's hard to get by' (Interview, 6 March 2011). Many workers are eager to maximize overtime as the only way to send home money. Others, however, are hard pressed to survive the long hours and intense pace but have no choice other than to accept overtime assignments. Day and night, they toil under dangerous conditions, risking health and safety.

Workplace hazards monitoring, more specifically ductwork inspection and ventilation system review, had largely given way to meeting impossibly high iPad production targets. Foxconn's polishing workers are responsible for transforming raw aluminium into shiny stainless iPad casings. Each polishing machine produces metallic dust as it processes and grinds with ever greater refinement. Microscopic aluminium dust clouds the air. It coats workers' clothes. A young female polishing worker described the situation, 'I'm breathing aluminium dust at Foxconn like a vacuum cleaner.' The polishing workshop windows were tightly shut so that workers 'felt as if we were suffocating' (Interview, 24 March 2011). 'Some tearing and pain also occur as the tiny solid aluminium particles are rinsed from my eyes by tears', Ma Quan, a 20-year-old worker, explained to us in Sichuan dialect (Interview, 23 March 2011). He added: 'Everyone in the workshop is wearing a thin gauze mask, with a centre section of activated charcoal, but it doesn't have an airtight seal and provides no protection. Some of us are suffering from shortness of breath.'

If the masks are useless for preventing the aluminium dust's toxic effects, they do help Foxconn pass factory inspections. Although workers were constantly coughing and complaining of a sore throat, Foxconn managers and Apple engineers and product development teams dispatched to the Chengdu factory apparently prioritized the hourly production figures.

'Apple is committed to ensuring that working conditions in Apple's supply chain are safe, that workers are treated with respect and dignity, and that manufacturing processes are environmentally responsible': the very first commitment made by Apple (2012e: 1) in the opening line of its Supplier Code of Conduct rings hollow. Four colleagues of Quan had already quit their jobs long before their six-month probation was over. In the polishing workshop, workers put on cotton gloves, but the finest particles penetrate through the flimsy material to their hands. Workers simply wash their hands and bodies with soap and water, without knowing the exposure level of aluminium dust in their workshop. After work Quan took off his cotton gloves and looked helplessly at both his hands covered in aluminium dust. Encouraged by other workers, he relayed their shared health concerns to his line leader, only to hear words that left the workers feeling distraught (Interview, 27 March 2011): 'The factory conditions are absolutely safe!'

SPEED-UP, FIRE AND EXPLOSION

Repeated warnings from workers and labour activists about the dangers of aluminium dust on the eyes, lungs and skin of human beings had fallen on deaf ears (Students and Scholars Against Corporate Misbehaviour 2011a, 2011b). Instead, a Foxconn media statement dated 7 May 2011 reads:

We have made tremendous progress over the past year as we work to lead our industry in meeting the needs of the new generation of workers in China and that has been confirmed by the many customer representatives, outside experts, and reporters who have visited our facilities and openly met with our employees and our management team (quoted in *IDG News* 2011).

This and numerous other public relations statements, ignore the deep concerns of workers and make no mention of pressing grievances, demonstrating Foxconn's failure to conduct a comprehensive risk assessment of its workplace health and safety conditions, or even to recognize the need for such an assessment. On one point, the company statement is all too accurate: 'customer representatives', that is, Apple, visited the facilities and raised no significant issues concerning health and safety.

Two weeks later, on 20 May 2011, an accumulation of aluminium dust in the air duct on the third floor at Foxconn Chengdu Building A5, Zone A, provided fuel for an explosion (Duhigg and Barboza 2012). The metallic dust was ignited by a spark in an electric switch. Dense smoke filled the workshop. 'We barely escaped with our lives. It's terrifying,' the workers told us as they recalled the 'black Friday evening' (Interview, 23 May 2011). Firemen arrived at the scene around 7:30 p.m. Ambulances and company vans brought male and female victims who were either seriously burnt or had lost consciousness to the emergency units at the Sichuan Chengdu People's Hospital and other hospitals. In the midst of lightning and thunder that night, some workers could not hold back their tears in the rain.

The hectic daily work schedule was only disrupted by the Foxconn Chengdu aluminium-dust explosion that killed four workers and severely injured at least eighteen others (Apple 2012d: 15). Apple's statement reads (quoted in Branigan 2011): 'We are deeply saddened by the tragedy at Foxconn's plant in Chengdu, and our hearts go out to the victims and their families. We are working closely with Foxconn to understand what caused this terrible event.'

But where, before or since, has Apple stepped in to assure that Foxconn take steps to protect the health and safety of workers, or accepted its own partial responsibility for death and injury? It was business as usual. On

17 December 2011, only seven months after the Foxconn Chengdu explosion, combustible aluminium dust fuelled another blast, this time at a Shanghai-based supplier to Apple, injuring 59 workers (Apple 2012d: 15). In the blast, young men and women suffered severe burns and shattered bones, leaving many permanently disabled.

HOW DO THE CHINESE STATE AND COMPANIES UNDERMINE WORKERS' RIGHTS?

Immediately after the aluminium-dust explosion at Foxconn, government officials and the police took control of the hospital wards. China's State Council Information Office moved swiftly to curb the media. 'In regard to Foxconn's Chengdu plant explosion [on 20 May 2011], all media and websites are to wait for an official report. No independent reports, re-posts, or recommendations will be allowed' (*China Digital Times* 2011). Similarly, the Sichuan Provincial Propaganda Department announced: 'With regard to Foxconn's Chengdu iPad 2 plant explosion, no independent reporting can be conducted. Unauthorized reports will be immediately deleted' (*China Digital Times* 2011). The blackout on the Chinese press was complete. There could be no more graphic indication of the coordination between the party-state and the corporation at the expense of workers' occupational health and lives.

The clash between worker safety and high pressure production targets was evident at iPad production sites. Foxconn closed the polishing workshops for one week to 'cooperate with government investigation' (Interview, 29 May 2011). Under mounting social pressure, Apple sent its Supplier Responsibility management team and 'external experts' to check 'all suppliers handling aluminium dust and put stronger precautionary measures in place before restarting production', as publicly communicated in its January 2012 annual report (Apple 2012d: 15). Fast-paced production of iPads resumed shortly. Despite the establishment of new safety guidelines, Apple's ordering, pricing, and delivery demands directly conflict with their own supplier compliance programmes and local legal requirements, while maximizing profits.

Just three months after the deadly explosion, local government officials launched a large-scale recruitment campaign to support Foxconn in ramping up the iPad exports. Between September 2011 and January 2012, Foxconn Chengdu recruited more than 7000 'student interns' to work on the assembly line, making up approximately 10 per cent of the company labour force (Interview, 13 December 2011). Contrary to our research findings, the Fair Labour Association (2013: 5), which received funding

from Apple for its investigation of Foxconn, ‘found *no interns* had been engaged at Chengdu since September 2011’ (our emphasis).⁴

Sichuan municipal and local-level governments directed full-time vocational school students under their jurisdiction to perform ‘internships’ at labour-hungry Foxconn Chengdu factory complex. To spur schools, governments disbursed funds to schools that fulfilled company target numbers of student interns. If schools failed to meet the human resources requirements, education bureaux would hold up funds for the schools (Interview, 12 December 2011). In this way, Foxconn enlarged its labour recruitment networks with schools, drawing on the assistance of local government officials and teachers to utilize student labour, rather than hiring new workers.

The interns have become a huge source of cheap and disposable labour in China. In the summer of 2010, for example, Foxconn hired as many as 150 000 student interns, 15 per cent of its 1 million workforce at the time (Foxconn Technology Group 2010). Even though interns and entry-level workers have the same starting wage at the company, unlike employees, interns enjoy none of the insurance protections regulated by local government. Nor are they eligible for productivity bonuses, regardless of how well they do their jobs. They are subject to the same treatment as regular workers including alternating day and night shifts monthly, and extensive overtime, defying the letter and the spirit of the national education and labour laws as well as Apple’s own labour code. A 17-year-old student intern told us (Interview, 4 March 2011), ‘Come on, what do you think we’d have learned standing for more than ten hours a day manning the machines on the line? What’s an internship? There’s no relation to what we study in school. Every day is just a repetition of one or two simple motions, like a robot.’

Apple claims to exercise its power of ‘private governance’ to improve workers’ lives involved in outsourced electronics production (Locke 2013: 6–9), which is based on the asymmetric power structure in its global supply chain, either on its own or in partnership with the Fair Labour Association and other non-governmental organizations. ‘The same leverage [of large

⁴ In the absence of financial independence from companies that support it, we raise questions about the Fair Labour Association’s (FLA) ability to fulfil its mission to protect workers in the global economy. Between 2012 and 2013, the FLA received from Apple membership dues of US\$250 000, plus ‘well into the six figures’ audit fees for conducting its investigation at Foxconn Chengdu (and two other Foxconn factories in Shenzhen) (Weir 2012). The FLA ostensibly scrutinized Apple’s corporate behaviour, including its purchasing practices and supplier code enforcement. In practice, the systemic abuse of student workers at Foxconn factories in Chengdu and other cities (such as Yantai in north-eastern Shandong province) were not mentioned, let alone ended.

firms] that can be used to demand lower prices and better quality from suppliers,' in the analysis of Frederick Mayer and Gary Gereffi (2010: 8), 'can also be used to press for better labour practices.' Foxconn workers and interns, however, testify that iPads are produced under unethical and unsafe conditions. The promises of corporate care and responsibility, again and again, are broken.

In a capitalist global labour regime, Garrett Brown (2010), coordinator of the Maquiladora Health and Safety Support Network, emphasizes that the corporate social responsibility policies 'have been fatally undermined by the "iron triangle" of lowest possible per-unit price, highest possible quality, and fastest possible delivery times.' At the same time, the Chinese state, despite its strong capacity of regulating labour markets and workplace conditions, has colluded with capital in the race of economic globalization. Notwithstanding China's significant legal reforms in recent decades, workers confront managerial despotism at the point of production (Gallagher 2005; Lee 2007; 2010; Friedman and Lee 2010). Foxconn's unions, even when they are largest in the industry, remain extremely weak. Not unlike their peers in the foreign-invested enterprises, Foxconn workers are not institutionally represented, while student interns are not even eligible for union membership. Attempts in reorganizing grassroots unions have been proceeding at a snail's pace (Pringle 2013; Butollo and ten Brink 2012). In the face of explosive labour unrest, in Foxconn and beyond, the government has been compelled to accommodate some worker demands in the interests of securing a measure of social stability (Lee and Zhang 2013; Lee and Hsing 2010; Selden and Perry 2010). But worker grievances and collective resistance are widespread.

CONCLUSIONS

'Taiwan's history of economic growth is also a history of technological catastrophes.' Thus Hsin-Hsing Chen (2011: 563) highlights the suffering of 1395 former workers of RCA (Radio Corporation of America), who were poisoned by trichloroethylene at the workplace and diagnosed with cancer. In response, RCA shut down the Taoyuan factory and migrated elsewhere, without compensating the terminally ill. This worker tragedy is not an isolated example. With American, Taiwanese and international capital entering China, workers are similarly subject to life-threatening risks of globalized electronics production.

Apple, together with other firms, has created a global consumer class with its products and through Foxconn and other subcontractors it has simultaneously contributed to the creation of a new Chinese working class.

Foxconn, given its corporate power and intricate ties with the Chinese government at all levels, has manufactured not only signature electronic goods for global brands, but also occupational injuries and deaths, while refusing to accept even minimal responsibility. Chinese workers, through popular writings on micro-blogs, open letters, videos, poems and songs, as well as in growing numbers of walkouts, strikes, riots, sit-ins, and legal protests, unveil the harsh reality behind the mainstream discourse of ‘corporate ethics’ and ‘social harmony’. The following lyrics convey the sense of the heavy human cost behind transnational manufacturing.

A Worker’s Requiem

My body stretches long
lying within a bare building
obstructing the cityscape,
sealed tightly in cement
burying my story

With each mouthful of toxic dust inhaled
profit is exhaled
following prices’ rise and fall
each annual fireworks squander
burning my breath

Back bent I furtively twitter
computers nibble away life
backpack heavy on shoulder
muscles and bones strained to the limit
concealing my hardship

My body conveys a message:
reject this false prosperity
leave the corner of darkness—
strained body and soul embrace each other
still you and I will not yield

Teardrops accumulate,
collecting sediments of months and years of weight
of course, dreams are repeatedly shattered
but spirits always sing in the wind
of a worker’s story.

Mininoise, Hong Kong grassroots folk band
(Translated by Gregory Fay and Kyoko Selden)

In the course of our ongoing research and support work, some Foxconn workers have joined hands with students, scholars and independent

labour rights groups to pressurize brands to respond to their demands. An important goal is to 'create a sense of moral accountability' to urge the target corporations (Seidman 2007: 32), in this instance particularly both Apple and Foxconn, to live up to their professed global corporate citizenship ideals. In the tightly integrated production supply base, such as China, 'the potential geographical ramifications of disruptions' can be extensive (Silver 2003: 6). The new international division of labour and the growing realization of worker precarity creates 'opportunities for counter-organization', as attested by the rise of transnational labour movements and anti-sweatshop campaigns (Evans 2010: 352; Webster et al. 2008).

The young cohort of Chinese workers are calling for dignified treatment and economic justice. The form of labour resistance will change as workers find employment closer to their native place and can draw on local social networks. With new factory operations in booming inland cities, a substantial proportion of rural workers are being recruited from within their home province and even their home prefecture or town. Foxconn, with its large-scale operations in China's west, well exemplifies the trend. With a greater sense of entitlement associated with belonging to a place, and perhaps more social resources to bring to the fight for their interests, working-class power could emerge in factories and in worker communities.