

Flexible workforces and low profit margins: electronics assembly between Europe and China

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Edited by

Jan Drahoukoupil, Rutvica Andrijasevic and Devi Sacchetto

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Introduction

Rutvica Andrijasevic, Jan Drahokoupil, Devi Sacchetto

This book investigates restructuring in the electronics industry and in particular the impact of a ‘Chinese’ labour regime on work and employment practices in electronics assembly in Europe.¹ Electronics is an extremely dynamic sector, characterized by an ever-changing organizational structure, as well as cut-throat competition, particularly in manufacturing. Located primarily in East Asia, electronics assembly has become notorious for poor working conditions, low unionisation and authoritarian labour relations. However, hostile labour relations and top-down HR policies are not unique to East Asia. They have become associated with the way the sector is governed more broadly, with a number of Western companies also coming to rely on such practices.

Recent waves of restructuring have seen a number of electronics manufacturers assume new roles in global value chains, developing service and design functions. Multinationals with roots in East Asia, China and South Korea in particular have thus emerged in this sector. Some of them – Huawei being a case in point – have started to challenge lead firms such as Apple, managing to advance product development functions and to establish their own global brands. A number of these multinationals have located their production capacities in Europe. Central and eastern Europe in particular has become a base for greenfield investment in electronics assembly (see Sass 2015). This has raised concerns about the working conditions and labour relations in these plants. Are these companies recreating the authoritarian labour regimes and poor working conditions associated with electronics assembly in China and other developing countries? Have workers been able to establish effective institutions of collective representation in these firms?

1. The present volume emerged from the seminar ‘Forms of Labour in Europe and China. The Case of Foxconn’ held at the University of Padua in June 2014. The workshop brought together scholars, practitioners and activists to discuss the transnational politics of labour and workers’ struggles and featured most of the contributions contained in this book.

There is a surprising shortage of research into mainland Chinese multinational firms and the work and employment practices they export to their subsidiaries in Europe. Currently there are only a couple of examples of this strand of research. These are Burgoon and Raess's (2014) study of the implications of Chinese FDI for organized labour in Europe and Zhu and Wei's (2014) case study of a Chinese takeover of a motorcycle company in Italy. The majority of studies adopt an economic perspective and examine particular features of Chinese investment, such as location, motivation and modes of entry (Brennan 2010; Rios-Morales and Brennan 2010; Zhang, Yang and Van Den Bulcke 2012; Zhang, Duysters and Filipov 2012; Meunier 2014).

This book focuses in particular on Foxconn, the world's largest electronics manufacturing service provider. Foxconn is best known as the main assembler of Apple's iPhone and iPad and for the harsh working conditions in its mainland Chinese factories. These have come under close activist and scholarly scrutiny, which has brought to light the firm's militarized disciplinary regime, unhealthy and unsafe working conditions, worker suicides, excessive and unpaid overtime, forced student labour and crammed factory dormitories (Chan and Pun 2010; Pun and Chan 2012; Chan, Pun and Selden 2013). This despotic management model prompted scholars to identify Foxconn as the epitome of 'bloody Taylorism' (Lipietz 1987). Foxconn's manufacturing centre is in mainland China, where it employs around 1 million people in 32 factories. In addition, it has more than 200 subsidiaries around the world. However, despite Foxconn's expansion into East Asia, Latin America, Australia and Europe, there has been very little academic research on the firm's work regimes outside mainland China.

Foxconn has become an important employer also in Europe, establishing factories in Czechia, Slovakia, Hungary and Turkey. Foxconn's most important European site, Czechia, has become a hub for the export-oriented electronics industry. However, little is known about working conditions and employment relations in these factories. The aim of this book is to provide insight into Foxconn's assembly plants in central and eastern Europe and into the electronics industry more broadly. Foxconn is used as a case study to examine similarities and differences in work organisation and labour practices between its factories in mainland China and those in Europe. By comparing Foxconn assembly plants in Europe, this book makes visible the ways in which the social and institutional context, on one hand, and labour force composition, on the other, shape variations in work and employment relations across different countries.

This book asks questions about the labour regime that Foxconn has exported from mainland China to Europe and the factors influencing the adaptation of the firm's practices in different European countries. The objectives are, first, to investigate the export of work and employment practices from Foxconn's Chinese to its European subsidiaries and second, to examine whether and how work and employment relations established in mainland China have been adapted to the social actors and institutional context of the European host country.

The contributions show that in order to study the application and adaptation of multinationals' work and employment practices in Europe, analyses of internationalization (home and host country effects) must include also considerations of the ways in which the state, labour and trade unions shape firms' labour management. This book suggests further that work organisation and labour relations should be examined by paying attention to the particular nature of the electronics industry and especially the restructuring of supply chains and the role of brand-name companies in creating asymmetrical relations, imposing cost-cutting pressures and preventing labour organization and representation. Taken together, the chapters capture the overlapping influences of actors, sites and institutions, as well as the power relations between them as these inform the workings of multinationals across borders.

The volume is organized in three parts. First, we consider the dynamics of global production networks in the electronics industry and highlight the implications of the electronics industry's governance model. We also analyse the business strategy pursued by Foxconn across the world. Second, we present case studies of Foxconn's European production sites, analysing the role of local institutions and individual actors. Finally, we discuss the challenges involved in organizing workers and opportunities for improving working conditions in the electronics industry through labour representation.

1. The electronics industry and the changing organization of production

The continuous restructuring of global production networks is examined in detail by Peter Pawlicki, who argues that the hierarchical governance model of the electronics manufacturing service providers (EMS) and original design manufacturers (ODM) allow brand-name companies to

push cost pressures down the chain and ultimately to the weakest link, namely the workers. The basic organizational characteristic of electronics supply chains is the dis-integration of product development and product manufacturing. While lead firms – such as Apple, Cisco, Dell, HP, HTC, Lenovo, LG, Microsoft and Sony – are increasingly focusing on product development and marketing, contract manufacturing companies specialize in producing electronic devices in huge industrial complexes located predominantly in mainland China.

By outsourcing the highly commoditized process of manufacturing to their suppliers, such as Foxconn, lead firms can focus on the most lucrative parts in the production process, namely product innovation, branding and marketing. Given the low profit margins for electronics assembly, EMS providers such as Foxconn are, as shown in Gijsbert van Liemt's analysis of the Foxconn business model, gradually refining their design skills for a very narrow range of high-volume products so to move beyond simple assembly work and raise their profit margins. By building up and expanding its design capabilities, Foxconn is now increasingly able to offer design, development, test and marketization services, joining the Chinese companies that managed to upgrade their functions in the global production network and started to invest in both developing and developed markets.

The work organization and employment relations in Foxconn's Chinese operations are characterized by military discipline and ideology, task simplification and intensive work combining production and reproduction of labour power in huge industrial compounds. However, as argued by Chris Smith and Yu Zheng in their analysis of labour strategies in Chinese MNCs, Foxconn should not be taken to epitomise *the* Chinese model of employment relations. China, they argue, does not present a single integrated model in terms of development patterns, work organization and employment relations. Chinese firms with different ownership structures indicate persistent differences that in turn suggest that there is not a single dominant labour process model, except perhaps a management focus on tight cost control, competition and authoritarian control. As China lacks an integrated model to export, Smith and Zheng suggest, any assessment of the work organization and employment practices of Chinese firms needs to be careful not to confuse the application of practices by the new arrival with the utilization of practices already present within the host country.

2. Foxconn in Europe

Which work and employment practices are exported from mainland China to firms' European subsidiaries? Are these practices applied consistently across all of a firm's European subsidiaries or are there variations from one country to another? Do companies adapt their practices depending on the specificity of the national context and which factors influence this adaptation? What role is there for the trade unions and industrial relations institutions?

In order to address these questions the contributors in the second section examine the European operations of Foxconn in Czechia, Turkey and Hungary. Foxconn's strategy of expansion in Czechia is analysed by Marek Čaněk. Czechia has developed into an important hub for export-oriented electronics assembly and represents Foxconn's most important European site. Foxconn has two factories in the country: one in Pardubice (brownfield) and the other in nearby Kutná Hora (greenfield), where it employs about 6,200 workers, either directly or indirectly. Foxconn's labour strategy relies on segmenting the internal workforce into direct and indirect workers employed by temporary work agencies (TWA) and subcontractors. Both the direct and the indirect workforce face high levels of flexibility that is enabled partly by the Czech Labour Code (provisions on TWAs) and partly by an apparent lack of enforcement (the use of subcontractors). Čaněk shows that Foxconn has adapted its management practices to the local context; in particular the firm has hired, directly or indirectly, a multinational workforce comprising Slovak, Bulgarian, Romanian, Mongolian, Polish, Vietnamese and Ukrainian workers. This adaptation was driven by the opposition of the existing trade union and the local Czech workers to the new labour regime (just-in-time production, 12-hour shifts and an hour-bank system, culture of military discipline and dormitories) introduced by Foxconn.

Čaněk's discussion of Foxconn's plants in Czechia highlights the role of the state in creating advantageous conditions for capital's accumulation and expansion. This topic is taken up by Devi Sacchetto and Rutvica Andrijašević in their chapter on Foxconn's operations in Turkey where the firm has been able to implement a flexible working pattern, weaken the trade unions and undercut workers' opposition due to business-friendly labour laws approved by successive governments in the past thirty years. Located within the European Free Zone (EFZ) in western Turkey close to the city of Çorlu, Foxconn has benefitted from various tax

breaks, including complete exemption from VAT and from taxes on profits and wages, and customs duties free export to the EU. As another means of driving down labour costs, Foxconn has made use of two government-run programmes to recruit workers. The first provides internships for high school students and the second, funded by the government through local employment centres, involves apprenticeships geared towards unemployed people. The current Turkish Labour Act also allows Foxconn to average out an individual's working hours over a two-month period (hour-bank system), enabling the firm to avoid paying for overtime. Finally, a stringent legal environment for trade union activity has permitted Foxconn to pressurise its workers to give up their union membership.

The role of the state in failing to protect workers in the FDI-dominated economy is further explored in Irene Schipper's comparison of four electronics plants in Hungary (Foxconn, Flextronics, Nokia and Samsung). Schipper analyses the working conditions, wages, health and safety and workers' representation, demonstrating the ways in which changes to Hungarian labour law introduced in 2012 have facilitated greater working time flexibility, higher employment flexibility, cost cutting measures related to wages, the shifting of risks from the employers to workers and the corrosion of trade union rights. Schipper concludes therefore that rather than protecting the workforce from poor labour practices these legislative changes enhance workers' vulnerability and legalize labour exploitation.

These three country cases show the importance of the social and institutional context in the host country for the ways in which Foxconn has adapted its work and employment strategies in its European subsidiaries. By taking labour as a dynamic actor rather than a static input into production, the contributors illustrate a global process of differentiation. Czech, Turkish and Hungarian factories present some analogies with, as well as a number of differences from Chinese plants. In the case of Czechia we may note how the use of dormitories, as in China, is fundamental to the management of just-in-time production process. In the Turkish factory, the use of student interns and apprenticeships funded by the government is very similar to that of Chinese factories that rely heavily on student labour. Finally, the Hungarian case highlights how the state and its labour regulations enable Foxconn to achieve extremely high levels of labour flexibility.

At the same time, we may note strong differences between Chinese and European factories. The most important is that of the hour-bank system in its European plants allows Foxconn to obtain flexible use of labour to meet the needs of just-in-time production. Furthermore, temporary work agencies in Czechia and Hungary play a key role in managing and stratifying the labour force. Contrasting the idea of a global homogenization of production, the European case studies show the importance of distinctive national contexts. At the same time, by making clear the similarities between plants in China and Europe, the contributions suggest the importance of paying attention to the systemic practices of capital. What is needed therefore is, first, a more detailed analysis of why TNCs apply some but not other practices and second, greater differentiation between practices stemming from MNCs' headquarters, local actors within the subsidiary and those imposed by the global supply chain.

3. What room for labour representation?

The difficult situation of workers in the sector begs important questions: how much room is there for labour organizing and what would be effective ways of facilitating worker voice in this sector? The contributors to the third section of the book all attempt to address these questions from different viewpoints.

Wolfgang Müller considers the specific features of the electronics sector and examines how much room there is for better pay and working conditions. He suggests that, given the complexity of the electronics sector's global production networks, any initiatives and organizing geared towards improving pay and working conditions should focus not on one assembler only but rather on the whole of electronics supply chain with the aim of changing the distribution of profits in it. The mark-up model used in the sector leads to the paradox that, while actual labour costs in production are almost insignificant, any increase in labour costs is translated into a much higher increase in the mark-up and final price. This leads to the perverse consequence that with a – for the sake of argument – 100 per cent pay rise, the factory price will rise by just 2 euros, from 100 to 102 euros, while the retail price rises from 500 to 545 euros. From the increase of 45 euros only 2 euros go to the workers, while 43 euros go to the OEMs, the distributors, retailers and VAT. What is needed to enforce bigger changes in the EMS sector is a coordinated effort between local union initiatives, international solidarity organizations and NGOs.

The difficulty of opening up spaces for labour representation within the electronics sectors is also illustrated by Vera Trappmann in her study of conflicts around labour representation in the European subsidiaries of a US brand-name MNC, one of the biggest players in the electronics sector and a key Foxconn client. She illustrates the repeating pattern across European subsidiaries of the MNC which more or less systematically tried to destabilize and destroy labour's voice both at the national level via union substitution measures and at the transnational level by suppression of the European Work Council (EWC). The MNC denied the EWC's rights to information and consultation, prevented other forms of labour organization at the national and transnational level and used restructuring to cut labour standards and to get rid of its cost-intensive and unionized workforce. Trappmann's chapter testifies to the difficulty unions face in attempting to alter leading brand-name companies' employment practices in the electronics sector. What options are there for workers' resistance and what forms of struggle can be developed in such tightly-controlled and highly-competitive supply chains?

Two next chapters tackle this questions directly, one looking at labour protests in Poland and the other at China. Małgorzata Maciejewska illustrates labour conflicts at several electronics plants in Poland located within a special economic zone. Following the initial successful unionisation and a strike aimed at improving working conditions, contracts and wages, electronic assembly plants owned by Chinese, Taiwanese and Korean companies enforced large-scale dismissals and criminalized the strikers and the union. Besides being reported to the local police for alleged criminal activity, the union was also asked to pay 22,500 euros to cover company losses caused by the strike. As a further anti-union practice, the companies have pursued union substitution measures by forming a committee of office workers willing to collaborate with the management, which in turn silenced the previous demands of production workers.

Maciejewska suggests that the union's bargaining position was too weak for two main reasons: first, flexible production fragments the workforce and introduces temporary employment that gives upper hand to the employer, and second, special economic zones completely detach workers from their social surroundings and thus weaken any support workers might receive from local communities. The analysis also highlights the weakness of industrial relations institutions in Poland and the lack of

support from the state for effective social dialogue that could underpin decent working conditions.

While strikes in the electronics assembly industry in Europe are few and far between, the situation is quite the opposite in mainland China where workers' collective actions have steadily intensified since the mid-1990s (Friedman 2014). These actions include legal action, such as suing subcontractors or companies, collective actions such as sit-ins and strikes, and even suicides. The major force behind these actions are migrant workers from the countryside who are becoming pro-active in voicing their dissatisfaction and in defending their rights. According to official statistics, between 1993 and 2005 the number of mass protests increased from 10,000 to 87,000 and the number of participants from 730,000 to more than 3 million (Pun 2016: 136).

It is against this backdrop that Jenny Chan, Ngai Pun and Mark Selden discuss labour protests at Foxconn plants in mainland China. Besides the stoppages, sit-ins, demonstrations and even riots that occur regularly at Foxconn's plants, particularly noteworthy industrial action took place on 23 September 2002 at Foxconn's Taiyuan factory in Shanxi province, where a riot by tens of thousands of workers caused the shutdown of entire production lines and the manufacturing of the iPhone 5. Workers' leaders demanded that both the union and the company act more responsibly towards the workers. As Chan, Pun and Selden note, in response to mounting worker strikes and other forms of action, and hoping to restore 'social harmony', Chinese leaders adopted two strategies. The first is to settle labour disputes and 'buy stability' by brokering cash settlements to resolve immediate grievances. In 2013, China spent as much as 769.1 billion yuan (about 105 billion euros) on 'stability maintenance', which exceeded the total annual military budget. The second strategy is to mediate labour disputes through the local unions and government officials to restore 'social stability'. For Chinese workers whose right to strike was removed in 1982, the importance of collective action lies in the possibility to establish worker-driven unions and/or autonomous workers' organisations that would guarantee fair elections and collective bargaining.

4. A way forward?

The chapters featured in this book demonstrate the practical and theoretical relevance of adopting an integrated framework for understanding the workings of contemporary electronics industry, as well as for developing initiatives that would provide workers with greater protection. Such an integrated framework is attentive to the dynamics and power relations within global electronics production (brand-name company and its relations with suppliers), the relevance of national institutions for a firm's internationalization practices, the composition of the workforce and the role of the state in facilitating capital's expansion and in formalizing capitalist–labour relations.

While this integrated framework might seem quite ambitious, in the Afterword to this book Ferruccio Gambino argues that even such a framework is still insufficient. His bold and powerful intervention, written in a reflective style that sets it apart from other contributions in this book, suggests that a broader outlook on labour relations in the electronics industry is needed in order to achieve social and political change. He believes that the cornerstone of the contemporary process of accumulation is the drive to extract as much labour-power as possible from living human beings, in parallel with the maximum extraction of the riches of the natural world, regardless of present and future devastation. The immediate consequence of such a drive is an increase in the speed of production, an upsurge in work hazards and heightened aggression against nature.

In order to understand the global expansion of production, Gambino contends that there is a need to pay attention to three interrelated areas: technological development, working conditions and the extractive industries. By considering these three areas together it is possible to observe the speeding up of industrial production, as well as acceleration in the rhythms of life. This does not entail simply that workers work longer hours and do more overtime but also that spheres of production and reproduction are now merged together. Workers increasingly live at work, either in large-scale dormitories as in Foxconn plants in mainland China, or in smaller-scale residences in Europe, in order to be always ready to work. Moreover, as family life and children are prohibited in the dormitories, the merging of production and reproduction remove workers from any form of home life and from a possible form of generative community. This interlocking of production and reproduction processes

is crucial, Gambino suggests, because it enables new modalities of worker exploitation by extending employers' control beyond the workplace.

As several chapters demonstrate, the electronics sector is characterized also in Europe by the proliferation of anti-union practices and the destruction of effective labour voice. The efforts to institute transnational labour representation have been mired in difficulties. There is a need to address weak industrial relations institutions in central and eastern Europe, where much of electronics production is located. Labour inspectorates should actively enforce the labour code and the principle of equal conditions for all workers. Effective strategies must also focus on covering the entire value chain rather than individual companies. The institute of end-user liability would help authorities and trade unions in addressing working conditions of migrant and agency workers that are often left without effective representation.

The discussion of the interlocking nature of the productive and reproductive spheres offers a possible way forward in that it draws attention to two aspects that are key for trade unions' organizing strategies. First, they show the importance of considering the dynamic composition of the workforce, in particular workers' nationality, gender, class, age and citizenship status. These social factors, often used by the employers to achieve differentiation and segmentation in the workplace, could be used by the trade unions to identify the needs and priorities of different groups of workers and consequently to develop more inclusive unionisation strategies.

Second, the merging of the productive and reproductive spheres suggests the necessity for trade unions to extend their activities beyond the workplace. A stronger national unions' position would be achieved by extending activities into dormitories and local communities so not to leave the organisation of migrant labour completely in the hands of agencies. Taken together, these two approaches could lead to a broadening of the trade unions' membership base and the establishment of new social and political ties with workers' communities. This would offer opportunities for mobilization both within and across national borders.

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Part 1

Electronics industry and the changing organization of production

Chapter 1

Re-focusing and re-shifting – the constant restructuring of global production networks in the electronics industry

Peter Pawlicki

1. Introduction

In 2010, as a result of the tragic 14 suicides (and four more suicide attempts) at Foxconn the world came to learn more about how the electronics industry operates.¹ Although lauded as a high-tech industry, the electronics industry in general, and one of its most prominent representatives Foxconn in particular, is characterized by inhumane working conditions: low wages, long working hours, neglect of health and safety regulations and forced labour, to name just a few (Chan and Pun 2010; SACOM 2010; Verité 2014). Despite visual differences between factories in the electronics industry and in the garment and shoe industry – here the super clean and bright plants and there the frequently cluttered, dim and hot sweatshops – labour conditions are often comparable, as workers' earnings barely exceed minimum wage levels, working hours are characterized by excessive overtime and a depreciating work organization that hinders any professional development (Gereffi et al. 2002).²

The world also learned that many electronic products are not manufactured by brand-name companies themselves. Although their smartphones, laptops, monitors and MP3 players are branded by Apple, Dell, HP or Sony they are manufactured by companies that most people have never heard of. This led some authors to dub this production model 'stealth manufacturing' (Sturgeon 1997, 1999; Lüthje 2001). This production model – contract manufacturing – has enjoyed incredible success in the electronics industry over the past 25 years and is the centre of the ongoing restructuring of its global production networks (Henderson

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1. Number of reported suicides at Foxconn's factories: 2011: 4; 2012: 1; 2013: 2. Foxconn is not the only company where suicides and suicide attempts occur, but due to its size and public exposure as Apple's biggest supplier most reports focus on Foxconn.
 2. Minimum wage levels are constantly below subsistence levels. For further information on the living wage see the discussion at: www.goodelectronics.org

1989; Henderson et al. 2002). Through fragmentation and specialization, the entire electronics supply chain has gradually been segmented into individual and decentralized units linked by market-based relationships. Electronic products that in the past were produced by a single vertically integrated company, such as IBM, are now developed and manufactured through a complex supply chain comprising myriad – often highly specialized – suppliers. However, economic dynamics and control imperatives have spurred a dialectical development whereby re-integration and centralization at specific points in the complex supply chains have occurred.

Fragmentation and centralization (Ernst and O'Connor 1992) have facilitated dynamic, ever-changing development of the organization of the electronics industry, as companies are constantly re-focusing on the product markets they serve, their capabilities and their functions. Specialization is facilitated by technical modularization that makes it possible to divide an electronics system along the lines of particular components by standardizing the interfaces between them and to allocate the manufacturing of these components to different suppliers. Although brand-name companies – or original equipment manufacturers (OEM) – are divesting from manufacturing, product design and increasingly also development activities they are still able to control their global production networks through standard-setting and procurement strategies (Lüthje et al. 2013). Re-integration occurs on the manufacturing level, as specialized contract manufacturing companies such as Foxconn, Flextronics, Quanta or Pegatron have not only grown to enormous sizes, but are constantly looking for opportunities to integrate new functions, as well as product categories. Simple contract manufacturing companies have developed into electronics manufacturing service providers (EMS) and original design manufacturers (ODM), becoming powerful network organizers themselves. Their ability to offer standardized manufacturing and product design services worldwide has standardized the organizational interfaces in the electronics industry, allowing brand-name companies to easily hand-off production and switch between suppliers.

Internationalization through the relocation of manufacturing and product development operations has been characteristic of the electronics industry since the 1960s (Angel 1994). The industry is in a constant process of re-shifting as it searches relentlessly for the optimal geographical structure of its global networks of production and innovation, within an ever-changing framework. Its search for low-cost manufacturing locations has had a devastating effect on electronics

industry locations in Europe and North America, where almost all manufacturing capabilities have been offshored. With their highly fragmented work organization, low wages, poor labour conditions and anti-union stance EMS and ODM companies do a disservice to workers and to the regions where they set up shop.

Foxconn is currently the largest contract manufacturing specialist worldwide. The Taiwanese company has changed the electronics industry fundamentally with its focus on vertical integration. Before Foxconn demonstrated that a highly integrated EMS company is not only able to survive but to outpace industry growth, the entire industry saw further vertical specialization as the only remedy to the ever low and falling profit margins of contract manufacturing specialists. Most other EMS/ODM companies have followed suit, while utilizing various forms of integration, ranging from building up in-house capabilities to tightening control over their own supply networks through long-term relations. However, the contract manufacturing model has a built-in glass ceiling as EMS and ODM companies cannot venture into the profitable area of own brand-name products without losing their manufacturing customers.

By describing the development of the complex structure of the electronics industry this chapter argues that the hierarchical networks of the EMS/ODM model with their complexity and flexibility are characterized by structural problems that negatively impact work organization and labour conditions. The EMS/ODM model allows brand-name companies to push cost pressures down the chain, which almost always affects the weakest link – the workers (Palpacuer 2008). To develop this argument, first we present some data on the current situation in the electronics industry, with a special focus on contract manufacturing. Second, we give a detailed account of the evolution of the contract manufacturing production model in the electronics industry. In the last part of this chapter we discuss the enormous social costs of the highly flexible industry organization in more detail.

2. Current situation in the electronics industry

The electronics industry is dominated by huge companies that churn out electronic devices for increasingly worldwide markets and organize innovation processes at almost frantic speed. Customers know the electronics industry through the brand-names they read on their

notebooks, smartphones or monitors. The myriad complex and simple components inside these devices, as well as the process of developing and manufacturing a functioning system is hidden from them. The basic organizational characteristic of the complex supply chains that allows the production of these devices is the disintegration between product development and product manufacturing. While lead firms – such as Apple, Cisco, Dell, HP, HTC, Lenovo, LG, Microsoft and Sony – are increasingly focusing on product development and marketing, contract manufacturing companies specialize in manufacturing these electronic devices in huge industrial complexes that are located around the world (Sturgeon 1999; Sturgeon and Lee 2004; Lüthje et al. 2013).

Foxconn³ is currently by all accounts the biggest contract manufacturing company (see Table 1). By revenue the Taiwanese behemoth is bigger than its four followers taken together, while considering its workforce, with over one million employees worldwide, the company dwarfs the entire electronics industry. Even compared with lead firms Foxconn’s 2013 revenue only trailed Samsung and Apple and was on a par with HP (Table 2). Foxconn’s dominant position has effects on both the way contract manufacturers organize their production systems and Foxconn’s relations towards lead firms. Foxconn is known for its high level of vertical

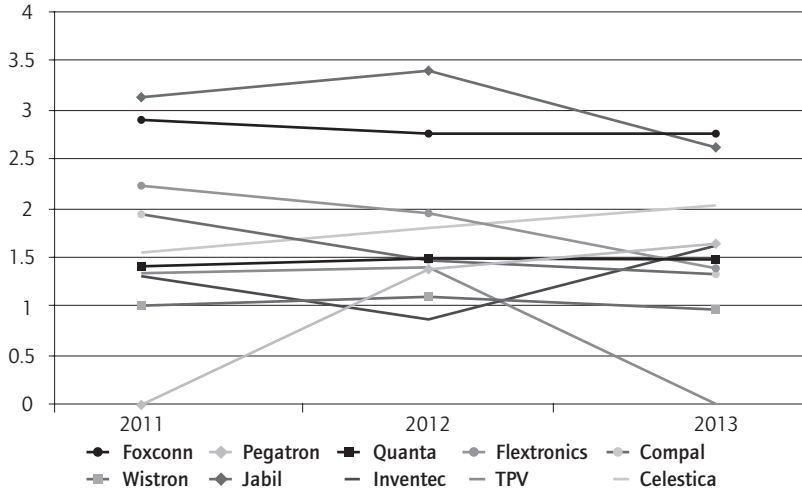
Table 1 Top 10 contract manufacturing companies, 2013

Company	Nationality	2013 Revenues (US\$M)	Employees worldwide, app. (in thousands)
Foxconn	Taiwan	115,697	1,230
Pegatron	Taiwan	31,439	104
Quanta	Taiwan	29,134	60
Flextronics	US (Singapore)	24,680	150
Compal	Taiwan	20,944	43
Wistron	Taiwan	20,658	700
Jabil Circuit	US	18,293	177
Inventec	Taiwan	15,265	23
TPV	China	11,973	32
Celestica	Canada	5,796	22

Source: Circuits Assembly, <http://circuitsassembly.com/ca/index.php/magazine/23871-ems-top-50-1406>, Bloomberg, author’s research

3. Foxconn Technology Group is the trading name of Hon Hai Precision Industry Co, Ltd. Sometimes the names are used interchangeably.

Figure 1 Top 10 contract manufacturing companies, operating margins, 2011–2013 (in %)



Note: Operating margin is defined as: Operating margin = Operating income ÷ Net sales
 Source: SEC Filings, Company Annual Reports

integration. The company does not focus only on system assembly, but manufactures many of the (simple) components of the system, ranging from plastics, through cables to metal parts.⁴

System assembly is characterized by mostly low profit margins, leading to ‘razor thin’ margins at most contract manufacturers, and huge problems during the reoccurring crises (see Figure 1; Harris 2014; Lüthje et al. 2013). Its high level of vertical integration, in addition to its enormous size, allow Foxconn to realize higher profit margins than its competitors (Figure 2). Most of Foxconn’s profits derive not from system assembly but from producing various components which the company then provides through its production system for its customers. Companies such as Jabil are able to achieve high profit margins with their focus on high margin products, such as medical technology.

4. Additionally, Foxconn is constantly expanding its business focus. In recent years the company has entered such field as manufacturing automation and robotics, solar power, mobile network services and online retailing, to name just a few.

Comparing gross profit margins between contract manufacturers and lead firms confirms that the latter are the beneficiaries of the disintegration between product innovation and manufacturing (Figures 1 Figure 2). Global production networks are a form of industry organization that facilitates the polarization of profit opportunities through the uneven distribution of capabilities to capture value added (Linden et al. 2007; Harris 2014). Lead firms focus on product innovation as well as product branding and marketing and simultaneously outsource the highly commoditized process of manufacturing. This allows them to focus on the most lucrative parts in the production process, leaving the capital intensive manufacturing to their suppliers. Contract manufacturers need to offset the margins problem through economies of scale – the sheer size of their operations – standardization and vertical re-integration. However, as we will see below, the picture is not as homogeneous as sketched here. With companies such as Samsung and Lenovo lead firms that are vertically integrated are becoming successful again.

Table 2 Various electronics lead firms, 2013

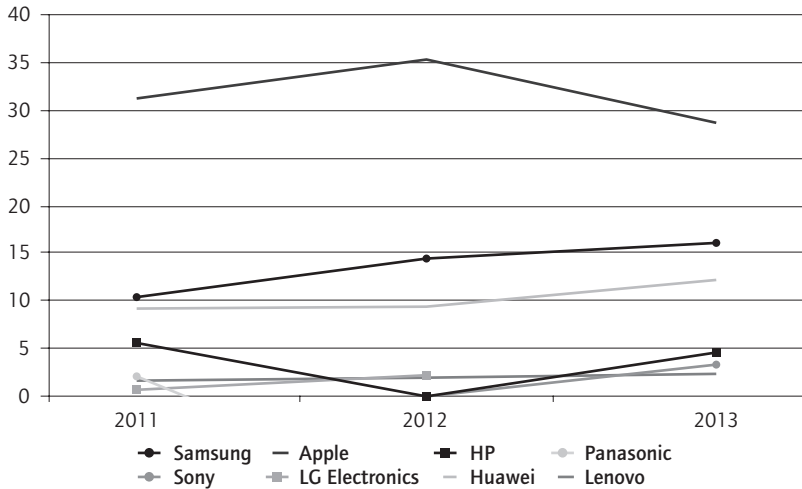
Company	Nationality	2013 Revenues (US\$M)	Employees worldwide, app. (in thousands)
Samsung Electronics	South Korea	213,342	326
Apple	US	170,910	98
HP	US	112,298	317
Panasonic	Japan	75,800	293
Sony	Japan	75,410	140
LG Electronics	South Korea	54,237	82
Huawei	China	39,460	140
Lenovo	China	38,870	35

Note: Table 2 summarizes data for brand-name electronics companies. One has to be cautious with the comparison as the scope of activities and markets of these companies varies.

Source: Bloomberg, author's research

The country of origin of lead firms and contract manufacturers reflects the traditional international division of labour, where companies from industrial nations occupy the central and profitable parts of the supply chain, while companies from latecomer countries specialize in manufacturing. However, with Samsung, LG Electronics and especially with Lenovo and Huawei seminal shifts in the international division of labour are already becoming evident. Only recently brand-name companies in

Figure 2 Various electronics lead firms, operating margins, 2011–2013 (in %)



Source: SEC Filings, Company Annual Reports

the electronics industry originated from the countries/regions: North America, Europe and Japan. Companies from South Korea and China were not known and these locations were perceived as the workbenches of the world. This has already changed as increasingly brand-name companies from South Korea and in recent years also from China are able to take considerable shares in various electronics markets.

3. Development of complex global production networks in the electronics industry

3.1 Contract manufacturing and beyond

The roots of the contract manufacturing industry can be traced back to the 1980s when highly specialized companies such as Intel, Microsoft and Cisco became increasingly important by specializing on key components of the PC and thereby contradicting the traditional model of production and innovation. The traditional model of vertical integration centred on manufacturing of the key elements of electronic systems and entire systems, combined with technological development and process know-how. The various components of these electronic systems were linked through proprietary standards that closed them off from other competing

firms. The aim of corporate strategies was thus control over technological development and product manufacturing.

Vertical integration was superseded by a new, more modular production system. Based on open but owned quasi-standards defined by Intel's x86 microprocessor architecture and Microsoft's DOS/Windows software, entire systems – for instance PCs – could be assembled using standard components, including microprocessors, memory, motherboards, disk-drives, displays and operating systems (Cusumano and Gawer 2002). This technical modularization facilitated the development of the 'horizontal computer industry' (Grove 1996; see Figure 3) in which the various parts of the whole value chain developed into vertically specialized industries, integrated by increasingly complex global production and innovation networks. Processes until then organized within the boundaries of one firm were now commercialized and distributed among highly specialized suppliers. Borrus and Zysman (1997) coined the term 'Wintelism' for this modular industry organization, blending the names of the central firms of this model – Windows and Intel – into one expression. 'Wintelist' firms derive control solely from technological development that enabled the creation of new markets through a constant flow of breakthrough innovations. Manufacturing and process knowledge was now only regarded as an unnecessary cost factor. The interest of financial markets in fast profits and share price growth were an important driver in realizing the potential technical modularity that provided for development of the horizontal electronics industry.

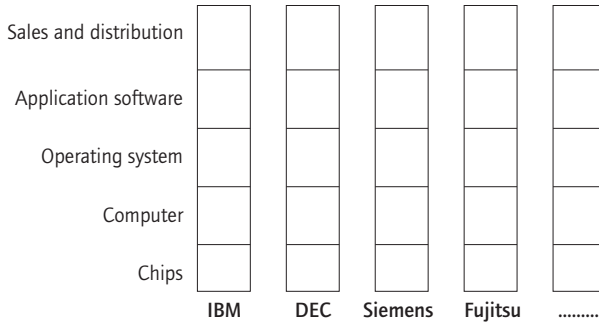
The rise of the contract manufacturing industry

In the 1980s Solectron⁵ was the first contract manufacturing company in the electronics industry to supply printed circuit board assembly (PCBA) for IBM's PC business. Other US contract manufacturers such as Jabil Circuits, Flextronics, Sanmina, Celestica or SCI followed suit. In the 1990s these initially small companies specializing in PCBA grew into multibillion enterprises with global operations. Their initial growth was facilitated by outsourcing programmes in the mid-1990s, as manufacturing was no longer regarded as a core competency by high-tech companies but became a cost factor that burdened profit margins (Sturgeon 1997). This development was spurred by financial markets that saw a huge opportunity for fast stock price gains when high-tech companies outsource their manufacturing operations.

5. Solectron, once the leader in electronics contract manufacturing, was acquired by Flextronics in 2007.

Figure 3 The dynamics of industry organization

The vertically integrated computer industry (ca. 1980)



The horizontal, or vertically specialized computer industry (ca. 1995)

Sales and distribution	Retail stores	Superstores	Mail order
Application software	Word	Word perfect	etc.
Operating system	DOS/Windows	OS/2	Mac UNIX
Computer	Compaq	Dell	Packard Bell HP IBM etc.
Contract Manufacturers	Solectron	SCI	Flextronics IBM etc.
Chips	Intel Architecture	Motorola	RISCs

Source: Grove (1996)

Lead firms from the United States were the first to sell entire plants to contract manufacturers, securing future product manufacturing through supply contracts. European electronics companies such as Alcatel or Siemens followed suit in the late 1990s. This growth phase resulted in complex and heterogeneous global production networks of contract manufacturing companies as they had to manage various manufacturing operations, with diverse production systems in many locations, in both central and peripheral regions (Lüthje et al. 2002). Their initial strategies included gradually downsizing manufacturing in high-cost locations, while offshoring to newly built-up advanced manufacturing locations in low-cost locations such as Brazil, Mexico, Central and Eastern Europe, Malaysia and Indonesia.⁶ Although some manufacturing capacities were also offshored to China, the country was not at the centre of these initial contract manufacturing activities.

6. It is important to keep in mind that low cost locations are not characterized by low wages alone but by a specific political economy. Only the interplay between a regulatory setting (export processing zones, prohibition of trade unions, tax breaks) and an institutional framework (migrant labour, forms of workforce provision) make low cost locations possible.

In their new locations contract manufacturers could establish uniform production systems and supplier networks that allowed for a standardized and flexible high-volume production of various products for different customers within the same plant. Through the development of a differentiated location structure electronic contract manufacturing companies created low-cost, high-volume production capabilities on a global scale and enabled lead firms to organize parts of their production activities in the form of a 'one-stop shop' (Lüthje et al. 2002; Lüthje et al. 2013). This form of production organization was based on highly standardized interfaces between lead companies and contract manufacturers to enable a quick and frictionless hand-over of the developed product and ramp-up of its production. These standardized interfaces facilitated corporate strategies aimed at high flexibility by lead firms. Manufacturing was shifted both between various locations, as well as between contract manufacturing suppliers, while second sourcing arrangements reduced supply risks and in addition lowered dependency on a single contract manufacturer (Pawlicki 2005).

To develop the interfaces between lead firms and contract manufacturers while increasing gains from high-volume manufacturing the standardization on the technical level continued. Similar or even the same components were used in competing products, leading to a reduction of sources to differentiate. Software, especially the user interface and software-enabled services, as well as branding became the central focus of lead firms' strategies for differentiation.

Re-integration for survival

While setting-up their global production networks electronics contract manufacturing companies also started to develop beyond their initial simple contract services. They were moving towards integrated electronics manufacturing services (EMS) through turn-key production networks (Sturgeon 1997). Besides PCBA and systems manufacturing/assembly EMS also comprised new product introduction, component purchasing with supplier and inventory management, global distribution and logistics, combined with customs clearance and after-sales/retail and repair and warranty services (Sturgeon and Lee 2004; Lüthje et al. 2013). One of the major drivers of vertical re-integration on the manufacturing side was the need to find sources of revenue and profits to be able to offset the very low profit margins in systems assembly (Lüthje et al. 2013; van Liemt 2007). Extending their services towards EMS contract manufacturers also became lead firms and organizers of

their own supplier networks, as they used the developing supplier networks in the electronics industry.

The crisis of the electronics industry in 2000–2001 led to a restructuring of the EMS industry as lead firms passed on their financial problems to EMS companies, for example, by forcing them to bear most of the costs for huge inventories. This was possible as vendor-managed inventory systems were already in place.⁷ Faced with huge costs and overcapacities EMS companies had to lower their cost structure considerably, driving their search for even cheaper labour and more integrated production organization that would allow for economies of scale.

Additionally, the aftermath of the New Economy crisis saw a centralization of relationships between lead firms and EMS companies. HP is an informative example: already before its merger with Compaq, HP started a huge restructuring of contract manufacturing in 2002 and sped up this centralization programme after the merger in 2004. The number of EMS companies was reduced from more than 10 to only three and EMS cooperation was centralized at HP's corporate level. HP also resumed exclusive responsibility for purchasing key electronics components such as chips, motherboards and hard disk drives (Lüthje et al. 2013). These strategic decisions allowed HP to regain power in the supply chain by lowering the bargaining power of EMS companies. As most lead firms followed suit a considerable reorganization of the global production networks of the electronics industry took place. Purchasing key components was an important source of additional revenues and profits for EMS companies that were now forced to cut costs to stay profitable. EMS companies reacted with further vertical integration and the centralization of their own supply chains, reducing substantially the number of their suppliers and standardizing components further.

Foxconn's stellar rise began in the aftermath of the New Economy crisis as it was the first proponent of the very integrated manufacturing model in the contract manufacturing industry. This gave Foxconn a competitive advantage that the company was able to use, while it also forced its

7. With vendor-managed inventory systems lead firms buy components, already stocked at a supplier's plant, only at the moment when they are taken out of the warehouse for production. The bursting of the 'new economy bubble' left EMS companies with a huge amount of electronic components they could no longer sell to their customers and which lost quickly value.

competitors to reconsider their corporate strategies. Its high levels of vertical integration made the cost cuts possible that brand-name companies were looking for, while Foxconn was still able to earn enough money to invest in expanding its business. The Taiwanese contract manufacturer origins of the 1970s lie in plastic components that it later expanded into modules, circuit boards and enclosures. Its huge manufacturing and R&D capabilities in components and modules reward Foxconn with healthy gross margins that help the company to counterbalance the very low margins of system assembly and provide it with a means of underquoting its competitors (Pick 2006). Foxconn's increasingly large manufacturing operations were highly suitable for the centralized supply chain management of brand-name companies as the Taiwanese supplier could deliver a whole range of electronic products.

3.2 Product design as the new game

The organizational re-focusing of the continuously restructuring electronics industry is being amplified by the growing importance of original design manufacturing (ODM). ODM goes beyond providing manufacturing services by offering product design as an additional service. Taiwanese contract manufacturing companies developed this model of integrated product design and manufacturing in the notebook market as early as the 1990s. Their goal was to move beyond simple assembly work to raise their profit margins by gradually refining their design skills for a very narrow range of high-volume products (Sturgeon and Kawakami 2011). Lead firms can choose from a variety of fully developed products and customize these, or cooperate with ODM firms on the development of new products. The final product delivered by the ODM firm – which also owns the design – is sold by the lead firm under its brand name. More than 90 per cent of notebooks are currently produced using the ODM model.

In recent years ODM has become the predominant model of contract manufacturing in the electronics industry. Product portfolios are constantly growing, while product life cycles are shrinking, leaving lead firms with problems keeping up with the competition in product markets and in meeting the demands of financial markets for profit growth. Overhead costs for increasingly growing innovation capabilities seem too big for many companies, especially as many product categories do not generate the required return on investment. In particular, entry-

level/low-cost products are perceived by lead firms as an area in which product design can be outsourced in addition to manufacturing. Furthermore, big lead firms as well as small start-ups can focus on proprietary IP that will allow them to differentiate their products in the market and leave all other product development to their ODM supplier (Carbone 2014). Sourcing from ODM entry-level mature products, which are highly commodified and lack breakthrough innovation possibilities, allows lead firms to focus their resources on leading edge products with higher profit margins and technological leadership opportunities (Lüthje et al. 2013).

EMS providers such as Foxconn and Flextronics now increasingly offer design, development, test and marketization services, by building up and expanding their design capabilities. Some companies – such as Flextronics – have even built up chip design capabilities. For EMS providers the move towards the ODM model promises higher profit margins and higher levels of control over their supply chain. As the complexity of electronics systems is rising, while product life cycles are becoming shorter, the integration of manufacturing process knowledge and experience is becoming essential for successful and fast product development and quick ramp-up of high-volume manufacturing.

A complete reversal?

The proliferation of the ODM model has had substantial effects on the global production networks of the electronics industry. The restructuring during the mid-2000s led to centralization of the EMS industry and to the integration of numerous manufacturing capabilities, while China has become the centre of electronics manufacturing. The integration of product development and design is a move beyond the manufacturing level and constitutes another major step in the process of re-integration in the electronics industry. However, while product design, engineering and manufacturing once again are integrated within one organization there seems no turning back towards the traditional model of vertical integration. Global supplier networks are so well developed and despite the re-integration on the manufacturing side show such levels of specialization, that they offer unprecedented flexibility that both lead firms and EMS/ODM providers will not abandon.

The interfaces within the innovation model of the electronics industry have evolved further, propelled by the rise of ODM. Lead firms had in-depth experience in both system and component development, making

them highly informed and demanding customers for technology providers such as chip companies. Although some ODM companies have invested in chip design capabilities they lack profound experience in components.⁸ Chip companies such as Qualcomm, Intel or Mediatek need to provide their experience in both component development and systems design within so-called reference designs to their ODM customers. These reference designs enable ODM companies to complete product design by focusing on application software, drivers and industrial design. While ODM companies acquire engineering and product development capabilities, the major decisions on core technologies are still controlled by lead firms and chip solution suppliers (Pawlicki 2014). The proliferation of the ODM model drives a triangular restructuring (Lüthje and Pawlicki 2009) as technology suppliers such as chip developers and chip foundries are becoming increasingly important alongside lead firms.

Vertically specialized lead firm – the only way?

The vertically specialized and network-based industry organization dominated the electronics industry in the 1990s and 2000s with specialized lead firms, suppliers and EMS companies. However, industry organization is never as uniform as many management consultants and textbooks would like it. The strategic decision to outsource huge parts of a company's value chain to suppliers is always embedded in the home country's formal and informal institutions, financial market pressures, industry relations and management planning periods. The institutional arrangements of a nation's political economy form a framework that facilitates specific tendencies in corporate strategies (Hall and Soskice 2001).

Japanese companies were significant exceptions within the vertically specialized electronics industry. Up until recently they firmly adhered to the vertically integrated model, keeping most of their manufacturing capabilities in-house. The little outsourcing Japanese companies did was with Taiwanese ODM companies, as this allowed for very tight cooperation and strict control over the manufacturing process that yielded the required quality standards. For quite a long time analysts and academics, proponents of vertical specialization, struggled to explain how such integrated companies could be successful. This was also the case with companies such as Nokia. Only recently did Japanese companies start to

8. Knowledge of component development and – even more – of their integration into a working system is the basis of systems development.

outsource considerably more to EMS providers. The adherence to vertical integration was not the main cause of the demise of either Japanese companies or Nokia. Wrong strategic decisions, a sluggish innovation process and missed market opportunities were much more important factors in their current economic problems (Bouwman et al. 2014).

However, the departure of the most important proponents of vertical integration does not imply its disappearance as new dominant players have emerged that favour a corporate strategy centred on manufacturing. Samsung and Lenovo are vertically integrated lead firms that operate their own substantial manufacturing facilities, while making use of the existing highly developed supplier networks in complex and flexible ways. Although Samsung and Lenovo are quite different, as the former is probably the most highly integrated electronics company worldwide, whereas the latter is moving towards a more integrated model, both companies perceive manufacturing as central to their corporate strategy and their innovation model.

The emergence of Samsung and Lenovo is not just another organizational cycle of the constant re-focusing and re-shifting of the electronics industry. Although there is still no substantial body of research on the specific characteristics of Asian companies, initial data suggest that at least companies from China and South Korea are more open to a higher level of vertical integration, as well as longer planning periods. China has already moved beyond being the manufacturing base of the world and now offers a huge and dynamic market, while Chinese companies have started to invest in both developing and developed markets. It will be interesting and important to trace the development of Chinese multinational companies and their impact on industry organization in the future.

3.3 Shifting geographies of production

The cost-cutting strategies of lead firms forced EMS companies to search for locations that allowed for the necessary cost reductions. China, offering very low wages, favourable financial incentives, a specific institutional framework and, in addition, a seemingly inexhaustible workforce, now became the centre of manufacturing activities for the electronics industry. EMS companies started to concentrate their manufacturing in China, focusing not only on the benefits of low wages but also pushing economies

of scale to unprecedented levels by developing huge plant complexes. Within only a few years massive production capacities were built up in China, initially on the coastal Guangdong region, with Guangzhou and Shenzhen, as well as Shanghai, with Suzhou and Nanjing. The Guangdong province in particular has developed into the most important location for high-volume electronics worldwide. Today the production of electronics, especially smartphones, is not possible without companies located in China, as many of them have developed near monopolies in the supply chain (Gordon and Chanoff 2012).

The shift to China affected locations in central and eastern Europe, Brazil and Mexico. Already started or announced production was offshored to Chinese locations, as a previously regionally organized production was abandoned in favour of a more centralized one (Pawlicki 2005). Former high-volume manufacturing locations, such as Hungary, were confronted with huge restructuring problems, as they were now regarded as higher-cost locations. This often resulted in downsizing and refocusing, as production moved from high-volume, price-sensitive products towards low-volume and higher-value products (Plank and Staritz 2013). Additionally, these locations were used by contract manufacturers as flexibility buffers, extending the already existing hire and fire policies that contributed to the poor labour conditions (Lüthje et al. 2013).

The massive influx and build up of manufacturing capacities from various industries – electronics, garments, automotive, chemicals – has led to a very rapid development of China's coastal strip, triggering problems especially for production models based on a low-cost environment. Labour costs have been exploding due to labour market shortages, rising living costs and the strategy of regional and local governments in China to control social tensions through regular and often substantial rises of minimum wages (Butollo and ten Brink 2012; Zenglein 2011). Simultaneously, the continuous stream of tens of thousands of migrant workers to the coastal regions is fading, leaving companies with a huge problem as turnover rates are still enormous. Additionally, the central government's strategy of upgrading industrial production in the already developed regions is pushing out simple manufacturing operations. Since around 2011 many companies – such as Foxconn, Wistron, Quanta, Inventec and Pegatron – have been implementing a strategy of targeting second-tier cities in China's west. Having developed their experience in setting up high-volume production operations in the coastal region they were able to establish major manufacturing complexes in cities such as Chongqing, Wuhan or

Chengdu quickly. This drive to the west was fuelled by tax incentives and favourable policies offered by regional and local governments.⁹

The increasingly centralized supply chain management of lead firms and the geographical re-shifting in the aftermath of the New Economy crisis facilitated Foxconn's stellar rise to become the overall dominant force in the EMS industry. The company was one of the first EMS providers to almost completely focus its manufacturing operations on China. Foxconn's aim for economies of scale is visible in its huge manufacturing locations – the so-called Foxconn factory cities that can house up to 400,000 employees. Its first and up to now biggest complex is Foxconn City in Longhua, Shenzhen, that includes 15 factories, worker dormitories, stores, banks, restaurants and a hospital. Although Foxconn also has a global presence, with regional hubs in Mexico, the Czech Republic and Brazil, its manufacturing operations are still very much focused on China (see Table 3).

Not all EMS companies aim for this level of centralization and vertical integration. Flextronics has integrated industrial parks in China, Hungary, Poland, Brazil and India, while also developing regional integration through the organization of production processes across several locations in one region (Lüthje et al. 2013). Already in 2001 Flextronics started to consolidate its high-volume manufacturing activities in its industrial parks. Within these industrial parks manufacturing and logistics operations are co-located with suppliers, making it possible to provide comprehensive manufacturing services ranging from sheet metal fabrication, PCBA, plastic moulding, system assembly, logistics and even customs services. Currently Flextronics has locations in 21 countries worldwide, mostly in low-cost locations but still also in high-cost locations (see Table 3).

ODM's growing importance entails a further shift towards Asia. Because almost all ODM companies originating from Taiwan have strong historical ties to mainland China, their above average growth in recent years has led to a build-up of even more manufacturing operations in China. Table 3 indicates that companies from Taiwan are fairly conserva-

9. There are initial signs that the 'go west' drive might already be going into reverse as the considerable incentive programmes offered by the new regions and cities are running out. Some big ODM companies have announced plans to re-shift their production to coastal locations.

tive about internationalizing beyond Asia. Even big ODM suppliers, such as Pegatron, have only a few manufacturing locations in other regions of the world. While major parts of electronics manufacturing have already moved to Asia, with China as the main location, the proliferation of the ODM model implies that product design and development is also moving away from its traditional locations in the United States, Japan and western Europe (Lüthje and Pawlicki 2009). This is leading to growth of the geographical dispersion of the global production networks of the electronics industry. While the innovation interfaces to lead firms still often necessitate the location of some product development capacities in the United States and Europe, most EMS/ODM companies' R&D centres are located in Taiwan, China and other Asian countries. As the dynamic lead markets are now in China, India and other Asian countries these specific geographies of the innovation system are about to change (Pawlicki 2014).

Table 3 Worldwide manufacturing locations of EMS/ODN companies, 2013

Company	Locations
Foxconn	Taiwan (HQ), Brazil, China, Czech Republic, Hungary, Indonesia, Malaysia, Mexico, Slovakia, Turkey, Vietnam
Pegatron	Taiwan (HQ), China, Mexico, Czech Republic
Quanta	Taiwan (HQ), China; Brazil, Canada, Germany, USA – configure to order final assembly centres
Flextronics	USA/Singapore (HQ), Austria, Brazil, Canada, China, Czech Republic, Germany, Hungary, India, Indonesia, Ireland, Japan, Malaysia, Mexico, Poland, Philippines, Romania, Taiwan, Turkey, Ukraine, USA
Compal	Taiwan (HQ), Brazil, China, Mexico, Poland, Vietnam
Wistron	Taiwan (HQ), China, Malaysia, Mexico, Czech Republic
Jabil Circuit	US (HQ), Brazil, China, Hungary, India, Italy, Ireland, Malaysia, Mexico, Poland, Singapore, Ukraine, Vietnam
Inventec	Taiwan (HQ), Czech Republic, India, Mexico, USA
TPV	Hong Kong (HQ), Brazil, China, Poland, Russia
Celestica	Canada (HQ), China, Ireland, Japan, Malaysia, Mexico, Romania, Singapore, Spain, Thailand, USA

Source: Company websites, author's research

4. The price of flexibility

Industry organization, power relations between particular companies and labour conditions in the electronics industry have been driven for at least the past 30 to 40 years by excessive profit expectations, offshoring dynamics and increasingly fast innovation cycles (Angel 1994; Pawlicki 2014). The pace of both organizational and technological change in the electronics industry is unparalleled in any other branch of the global economy. However, as other industries increasingly add electronic components to their products – for example, automotive, machinery, medical – the idea seems to be spreading of a highly flexible industry organization that relies on low-wage work performed under oppressive labour conditions, in countries in which industrial relations are often characterized by weak or even no trade unions.

The very low profit margins are the biggest challenge for EMS and ODM companies, and also one of the biggest drivers of their almost continuous organizational re-focusing and geographical re-shifting. As we have seen, the distribution of profit margins is very unbalanced between lead firms and their EMS/ODM cooperation partners, which are also pressured to take most of the risks, for example, through specific inventory schemes. For lead firms to stay flexible, stabilize their supply chain and keep their dependence on a single supplier as low as possible, second sourcing strategies are widespread, further amplifying the problems of EMS/ODM companies. Additionally, markets for electronics are highly cyclical, characterized by phases of high production volumes followed or preceded by average or even low demand. Christmas season together with the introduction of new product variants are especially important moments of cyclicity. Contract manufacturers have to provide above-normal manufacturing capacities for a short time and then to cope with over-capacity (Harris 2014).

The specific organization of the electronics industry has profound effects on labour conditions and work organization at EMS/ODM companies (for details on these issues see other chapters in this volume). Highly fragmented work organization, low wages and almost permanent overtime – which very often is the only income opportunity that raises monthly wages above the minimum wage level – are characteristic of the industry. During peak season, overtime becomes a requirement for fulfilling the last-minute orders of lead firms. The shares of agency and temporary workers soar during these times. Health and safety standards

are very often not observed, while most of the safety regulations in the industry are in place to safeguard not the workers but the fragile electronic products. Such oppressive labour conditions drive workers to change employers in search of even very small advantages; as a result, there are very high turnover rates at EMS/ODM companies in China of up to 30 per cent (SACOM 2010).

In addition to flexibility the networked electronics industry offers lead firms opportunities to cut costs by locating their manufacturing in locations where workers earn very little and regulations are very lax, while protecting lead firms from possible reputational risks. Although this protection is limited – the various reports by NGOs such as SOMO/Good Electronics or SACOM have prompted widespread public debate – lead firms still often hide behind the fact that the violations regarding overtime, wage, health and safety and so on did not happen within the boundaries of their organization strictly speaking. Accountability within supply chains is reduced to corporate social responsibility reports and schemes and occasional audits performed by external auditing firms. Lead firms often argue that it is not possible for them to have detailed insight into the various manufacturing locations of their numerous supply chain partners. However, as Harris (2014) argues the process of due diligence performed by lead firms before a supplier is awarded a place in their supply chain is so detailed that they are very much aware of the labour conditions in the plants in which their products are manufactured. In an age in which enterprise resource planning systems enable companies to collect, store, manage and interpret data from almost any of their business activities nearly in real time, it is only a rhetorical question why lead firms do not have more detailed insight into their supply chain in relation to urgent questions about labour conditions.

The vertical specialization of the electronics industry allows lead firms to offload costs and risks onto their suppliers. While the dis-integration at the top is developing further, as product design and development are now also being outsourced, there are processes of re-integration at the level of manufacturing. However, this is not leading to further use of already known models of vertically integrated industry organization but rather to an industry model based on hierarchical networks with polarized and simultaneously interdependent partners linked through asymmetrical relations. Additionally, triangular restructuring is increasing the importance of technology suppliers, such as chip developers and chip foundries, which are partly taking over the role of providing system

development knowledge, positioning themselves between lead firms and EMS/ODM companies (Lüthje and Pawlicki 2009; Pawlicki 2014).

Faced with low profit margins and highly cyclical markets and pushed by lead firms to incur most of the risks, costs and a service-based business model EMS/ODM companies are constantly looking for sources of revenue, cost reduction and standardization. The re-integration at the manufacturing level is an important process that is leading to a new phase of industry organization and new geographies of innovation (Lüthje and Pawlicki 2009; Pawlicki 2014). This translates into future problems for Europe as a location for the electronics industry. Western Europe ceased to be a manufacturing location for the electronics industry some years ago. While EMS/ODM companies built up considerable manufacturing operations in central and eastern Europe the dynamic development and upgrading of Chinese operations have had a negative effect on them, reducing their role more often than not to simple regional fulfilment centres (Lüthje et al 2013; Plank and Staritz 2013). The semiconductor industry is an illustrative example of the importance of the interface between manufacturing and R&D. Shifting chip manufacturing towards South-east Asia has facilitated a geographical shift in the global innovation networks of the semiconductor industry towards this region (Pawlicki 2014). With the automotive and telecommunications industry Europe still has some outlets and manufacturing operations that are important for the electronics industry. However, there is an imminent danger that major parts of R&D in the electronics industry will move out of Europe. Innovation initiatives at the EU level too often focus only on pure research and development activities, forgetting almost completely the importance of manufacturing in the innovation process. The call for a real industrial policy that focuses on the entire value chain of an industry should not be perceived as a traditionalist cry for more state influence, but the result of a realistic assessment of how innovation is driven by both manufacturing and research.

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Chapter 2

Hon Hai/Foxconn: which way forward?

Gijsbert van Liemt¹

1. Introduction

Hon Hai/Foxconn, the world's leading contract manufacturer, assembles consumer electronics products for well-known brand-names. It is also a supplier of parts and components and has strategic alliances with many other such suppliers. Despite its size (over a million employees; ranked 32 in the Fortune Global 500) and client base (Apple, HP, Sony, Nokia), remarkably little information is publicly available on the company. The company does not seek the limelight, a trait that it shares with many others operating in this industry.

Quoted on the Taiwan stock exchange, Hon Hai Precision Industry (HHPI) functions as an 'anchor company' for a conglomerate of companies.² As the case may be, HHPI is the sole, the majority or a minority shareholder in these companies and has full, partial or no control at all. Many subsidiaries use the trade name Foxconn and that is why this chapter refers to the company as Hon Hai/Foxconn. Among its many subsidiaries and affiliates are Ambit Microsystems, Cybermart, FIH Mobile, Fu Taihua Industrial, Hong Fujin Precision and Premier Image.

After a near hundredfold increase in sales in the first decade of this century Hon Hai/Foxconn's sales growth slowed down drastically. The company is facing several challenges: slowing demand growth in its core (electronics) business; a weakening link with Apple, its main customer; rising labour costs and a more assertive labour force in China, its main production location; and pressure from its shareholders.

1. Copyright 2015 Gijsbert van Liemt. The author gratefully acknowledges the comments received from Carin Håkansta and Jan Drahokoupil.

2. Bloomberg counted over 230 companies owned or controlled by Hon Hai Precision (Bloomberg.com 22.03.2013).

This chapter discusses how the company is coping with these challenges. It is organized as follows. After a short introduction on the structure of the consumer electronics industry (Section 2), the chapter provides some basic facts on Hon Hai/Foxconn (Section 3) before asking how the company managed to grow so fast (Section 4). Then it looks into the challenges the company is currently facing (Section 5) and how it is dealing with these challenges (Section 6). It ends with a conclusion (Section 7).

The chapter is entirely based on secondary sources. To present a reasonably accurate picture and in addition to what little information the company itself provides, a large number of print and online sources were consulted. Unfortunately, these rarely provide ‘hard’ information but typically refer to ‘industry sources’ or ‘sources familiar with the company’. The picture that emerges is far from complete.

2. Contract manufacturing in consumer electronics

This section³ introduces the main industry players and how they interact. Several groups of players are active in the electronics hardware industry. In addition to the well-known brand-names (Apple, HP, Dell, Samsung, Sony, Lenovo) these are: original design manufacturers (ODMs), such as Quanta, Asustek, and Compal (nearly all Taiwan-based); contract manufacturers (CMs), such as Hon Hai/Foxconn, Flextronics, Pegatron and Jabil Circuit; suppliers of key components (microprocessors, visual displays, hard drives, cameras); as well as thousands of suppliers of non-key components.

Schematically, the industry is best depicted as a pyramid with the brand names at the top. A second layer consists of Hon Hai/Foxconn, other contract manufacturers, ODMs and suppliers of key components. In the third layer suppliers of sub-assemblies are found. Suppliers of simple components occupy the lowest layers.

The brand-names focus on product conception, marketing, design and the purchasing of key components, and rely on contract manufacturers for detailed design, engineering, assembly and logistics (Kawakami,

3. van Liemt (2007) and van Liemt (2007a) are important sources of this section.

2011),⁴ as specified by the brand-names. Original design manufacturers design, develop and manufacture products for the brand-names; they own the corresponding patents.

The brands compete in the end-consumer market. The contract manufacturers and original design manufacturers compete for work from the brands. The biggest contract manufacturers employ more people than the brands that have outsourced their most labour-intensive activities.

The boundaries between the different groups of players are anything but static. Except for the most successful brands and some suppliers of key components, all operate with narrow margins. Many are keen to move into higher value-added activities. Several contract manufacturers also offer design services (and so enter original design manufacturer territory). Some original design manufacturers (for example, HTC) have started selling under their own brand-name. Even brand-names are looking to expand into higher value-added activities: for example, HP is actively increasing the weight of its IT consultancy services.

A further complicating factor is that certain brand-names (Samsung, Sony) also supply components to their competitors. Apple and Samsung may be fierce competitors in the end-consumer market (and regularly in conflict over intellectual property issues), but Samsung also supplies Apple with key components. Indeed, while Samsung's smartphone sales in China are suffering from strong competition from the likes of Apple and Xiaomi, its semiconductor sales are booming thanks in part to demand from these very rivals (Mundy 2015).

Consumer electronics is a highly volatile business. Rapid innovation and short product cycles cause strong fluctuations in sales volumes. New products may fail to generate the demand expected; or they may be a great success, with sales volumes far exceeding expectations. In both cases it is critical that production can be adjusted rapidly up or down. How to cope with demand fluctuations is thus a principal management challenge for all players (and their workers).

4. However, some vertically integrated original brand manufacturers (OBMs) continue to do manufacturing 'in-house'. Pawlecki (in this volume) provides a more elaborate discussion of vertical integration in the electronics supply chain.

Market leaders can make good, sometimes very good profits. But those that fail to keep up can fall fast and far and even see the continuity of their operations threatened. Earlier market leaders – such as Blackberry, Motorola and Nokia – have seen their market share all but disappear. Who remembers Siemens mobile phones or IBM PCs?

Relations within the industry are complex. Negotiations between buyers and suppliers take place in great secrecy. Reportedly, they are tough and have become tougher over the years. Suppliers of key components have more bargaining power than suppliers of standard components. Whenever and wherever possible, buyers try to pass on to their suppliers the uncertainty that they encounter in the market place. The pressure on prices is constant. Naturally, suppliers resist this pressure; they also seek longer-term commitments from their customers (contracts are typically renegotiated with every new product revision).

Who selects component suppliers? Brands select and negotiate directly with their suppliers of key components. For non-key components the situation varies. Having the freedom to choose their own suppliers is an important bargaining issue for contract manufacturers, especially for a company such as Hon Hai/Foxconn, which produces many components ‘in-house’ and has strategic alliances with other suppliers.

Contract manufacturers are not a homogenous group. Many are niche players. A few specialize in large volumes. Some are specialists in medical or automotive; others in telecoms and consumer electronics. Some specialize in products with short life-cycles; others in products with longer life-cycles. A few also do design work (and thus resemble original design manufacturers). The biggest (such as Hon Hai/Foxconn) offer a broad range of services. Hon Hai/Foxconn assembles products with long life-cycles, such as games consoles but mass assembly of short-cycle consumer electronics is its main – if by no means only – business (see also the next section).

3. Hon Hai/Foxconn (HHF): the company

Among the select group of top contract manufacturers with world-wide operations, Hon Hai/Foxconn stands out for its size (it is the biggest of them all) and its rapid growth in sales and employment.

Hon Hai/Foxconn is headquartered in Taiwan, where it employs around 46,000 people. On mainland China it operates some 30 industrial parks. Its main manufacturing site in Shenzhen-Longhua ('Foxconn City') is the size of a small town with (as described by Lüthje et al., 2013) fifteen major factory buildings, each housing production for one major brand-name customer, and large-scale facilities for metal stamping and manufacturing, plastics injection moulding, cable assembly and other auxiliary functions.

Over the years, the company has expanded its activities to Brazil, Czechia, Hungary, India, Japan, Mexico, Slovakia, Turkey, the United States and Vietnam among others. Hon Hai/Foxconn employs over one million people (1,290,000 in late 2012), up from 508,000 in 2007 and 130,000 in 2004. Acquisitions are, of course, partly responsible for this rapid increase in employment (and sales).

The numbers employed are not evenly spread among locations. The large majority are employed in Taiwan and China where production sites typically employ tens, if not hundreds of thousands of people (Shenzhen: 390,000; Zhengzhou: 192,000; Chengdu: 110,000) (Mishkin and Pearson 2013). In contrast, outside China and Taiwan their number is typically counted in the hundreds or thousands: Vietnam: 10,000; Jundiaí (Brazil): 3,000; Pardubice (Czechia): 5,000; Nitra (Slovakia) fewer than 4,500 (*ibid.*; The China Post; Reuters).

Best-known for its vast numbers of assembly line workers the company also employs tens of thousands of engineers, toolmakers and other skilled workers. Research and development is concentrated in Taiwan but the group also has research centres in Japan, China and the United States.

3.1 Origin and development

Hon Hai Precision Industry (HHPI) started life in 1974 in the Taipei suburb of Tucheng making plastic dials for black-and-white TVs with just a few employees. Over the years, HHPI expanded its range of products and activities from plastic moulding to include cables and connectors, Personal Computer (PC) enclosures and PC (sub-) assembly. In the 1980s and 1990s, like other contract manufacturers, Hon Hai/Foxconn benefited from the rapid increase in demand for PCs and from the trend among brand-names to outsource manufacturing.

From the mid-1990s sales growth accelerated (between 1996 and 2006 sales more than doubled every other year). In the 1990s all leading contract manufacturers grew annually in the double digits thanks to rapid growth of demand in the electronics and communications industries, and to the trend among brand-names to outsource more and more activities. Mergers and acquisitions were a further source of growth. By the turn of the century, the burst of the 'dot.com boom' affected the contract manufacturers in two contrasting ways. Lower market demand left them with considerable overcapacity due to depressed sales. But they received a growth impulse thanks to the brand-names' accelerating divestment.

By the late 1990s Hon Hai/Foxconn was still the smallest of a select group of top contract manufacturers but in the new century it benefited as no other, first, from the world-wide surge in demand for mobile phones and since 2007, from the growing popularity of Apple, its main client. By 2006, it had become the world's leading contract manufacturer. Six years later it was the dominant contract manufacturer, selling over four times as much as Flextronics, long the world's number two contract manufacturer. All in all, sales increased from USD 1.2 billion in 1998 to USD 117 billion (!) in 2011, when its rapid expansion came to a halt (2014 sales: USD 132 billion). Its profits also went up but not at the same rate. Net income margins dropped to below 2.5 per cent in 2012 from 4.6 per cent in 2007 (company information; Fortune; FT).

The company has grown through a combination of internal growth, the construction of new sites ('greenfield' investments) and mergers and acquisitions. Investments in China have typically been greenfield investments. Mergers, acquisitions and minority participations have been the preferred method in Taiwan (and, more recently, in Japan), typically as a means to acquire technology and know-how. Examples are Ambit Microsystems (acquired in 2003), Premier Image Technology (2005), Chi Mei Optoelectronics (2008) and Champ Tec Optical (2011). Outside China and Taiwan its investments were often in facilities that were divested by some major customer. Examples are Motorola (Mexico), HP (Australia), Sony (Mexico) and Cisco (Mexico). For a historic overview, see Annex 1.

Most well-known US, European, Taiwanese and, increasingly, Chinese and Japanese brand-names have made use of Hon Hai/Foxconn's services. Hon Hai/Foxconn assembles tablets for Amazon and Nokia; LCD TVs for Sharp and Sony; games consoles for Microsoft, Nintendo

and Sony; desktop PCs for HP; notebooks for Acer, Asustek, Dell, HP and Sony; (smart) phones for Amazon, Blackberry, Huawei, Motorola, Nokia, OnePlus, Sony and Xiaomi; digital still cameras (DSCs) for Fuji, Olympus and Panasonic; set-top boxes for Cisco; servers for IBM; robots for Softbank; and touch screens for Tesla.

But Apple Inc. is its main customer by far, contributing between 40 and 50 per cent to Hon Hai/Foxconn's total revenues. The iPhone is the main driver of Apple's growth and accounts for over half of its sales⁵ and an even larger share of its profits.

The successful launch of the iPhone (in 2007) and the iPad (in 2010) turbo-charged Hon Hai/Foxconn's production growth. It also made Hon Hai/Foxconn highly dependent on the success of Apple's products. Likewise, Apple depends on Hon Hai/Foxconn for the timely production and delivery of its products. From the outside, the relationship appears to be beneficial for both parties. Nonetheless, Apple now makes increasing use of other contract manufacturers. Taiwan-based Pegatron became a supplier of low-cost versions of the iPhone in 2011 and of other Apple products in 2012. For now, Hon Hai/Foxconn continues to be Apple's main assembler.⁶

4. Sources of growth

Quality, high customer orientation, and its integration with component suppliers are widely seen as Hon Hai/Foxconn's key selling points. Other competitive advantages are: operating in China; scale economies and cross-subsidization; no ambition to sell under its own brand-name; and the drive and determination of chairman Terry Gou.

5. 63 per cent in early 2015.

6. According to Deutsche Bank, Hon Hai/Foxconn received 79 per cent of Apple's iPhone orders in 2013, with the remaining 21 per cent allocated to Pegatron. Hon Hai/Foxconn's share was expected to fall in 2014 to 74 per cent, with 23 per cent for Pegatron and 3 per cent for Taiwan-based Wistron. For iPad assembly orders, Hon Hai/Foxconn's 69 per cent share was expected to drop to 63 per cent in 2014 with Compal getting 7 per cent and Pegatron 30 per cent (Focustaiwan 18 December 2013).

4.1 China

Hon Hai/Foxconn was early in setting up large-scale production capacity in China when labour costs were low. These costs have since increased but China's proximity to Taiwan, the size and dynamics of its domestic market and the presence of a vast number of suppliers continue to be a competitive advantage.

Thanks to generous official support China offers a high level of production flexibility. Local and provincial authorities are generally quick to provide the required permissions and infrastructure that facilitate an early production start. They help with recruiting workers; they pressure local vocational schools to place their students (including those not enrolled in technical subjects) as interns at electronics factories, even when the latter provide minimal learning opportunities (Pun et al. 2012).

Operating in China also offers a high level of labour flexibility⁷ (see Box 1).

Box 1 Labour flexibility in China

Operating in China offers producers high levels of numerical, pay and working-time flexibility. *Numerical flexibility* results from a combination of institutional factors, business strategies and government policies. China's electronics assembly plants typically employ tens of thousands of migrant workers. Because of the *hukou* household registration system it is very difficult for poor, unskilled rural migrants to obtain urban *hukou* and this limits their access to subsidized public housing, education, health care, pension and unemployment benefits. Typically, they live in company-provided dormitories on or near the production site, which facilitates production flexibility. Migrants work long hours and do monotonous work at rapid pace, often under stressful conditions. Turnover rates are high. Even employers who offer relatively good benefits have turnover rates between 30 and 60 per cent (Lüthje et al. 2013). Some 20–30 per cent of Chinese workers do not return to their factories after the Lunar New Year (Shanghai Daily 2013).

7. Duhigg et al. highlight Hon Hai/Foxconn's 'breathtaking' speed and flexibility when (Apple's former CEO) Steve Jobs insisted on fitting iPhones with scratch-resistant glass screens just weeks before launch: 'New screens began arriving at the plant near midnight. A foreman immediately roused 8,000 workers inside the company's dormitories and each employee was given a biscuit and a cup of tea, guided to a workstation and within half an hour started a 12-hour shift fitting glass screens into bevelled frames. Within 96 hours, the plant was producing over 10,000 iPhones a day...' (Duhigg et al. 2012).

Overtime pay makes up a sizeable part of overall compensation and this provides employers with both pay and *numerical flexibility*. When business is slow, employers offer less overtime work and this prompts many workers to leave on their own initiative (the employer saves on redundancy payments). Migrants are keen to work overtime because they cannot survive on their basic wage alone. But this eagerness is easily abused when, because of a sudden surge in demand, they feel pressed into working long hours that far surpass the legal maximum permitted.

New legislation⁸ has greatly improved the protection of workers' rights but the problem is enforcement. Local and provincial authorities frequently do not enforce labour laws and give priority to the demands and interests of local businesses with whom they typically have close and warm relations (Estlund et al. 2014; Xu 2013; Luthje et al. 2013; Zou 2014). Workers do not get much help from the trade union. Leading officials of the ACFU (All-China Federation of Trade Unions, the only permitted trade union) are career civil servants; enterprise-level union officials are typically recruited from the ranks of management (Estlund et al. 2014; Zou 2014). Labour NGOs have in part filled the void but these operate under close surveillance by the authorities.

4.2 Scale economies and cross-subsidization

Hon Hai/Foxconn's capacity to supply large volumes quickly constitutes a key selling point. Few competitors have the minimum scale necessary (or, indeed, the ambition) to handle the large volumes that Hon Hai/Foxconn routinely handles. Hon Hai/Foxconn can underbid its rivals thanks to huge economies of scale and to its power to negotiate lower prices from suppliers. It wins mass assembly contracts by offering to work with narrow margins.⁹ These are compensated for by the higher margins it makes on in-house produced parts and components. Put differently, Hon Hai/Foxconn views mass assembly contracts as a way to generate income from the sale of parts and components.

8. Such as the 1994 Labour Law, the 2008 Labour Contract Law (LCL) and the 2008 Law on Labour Dispute Mediation and Arbitration (LLDMA).

9. According to JPMorgan, between 2010 and 2012 Hon Hai assembled the iPad for zero profit in an extreme, yet ultimately unsuccessful effort to persuade Apple to remain exclusive (FT, 24 June 2014).

4.3 No ambition to sell under its own brand-name

All major contract manufacturers are keen to improve their narrow profit margins. Some now sell own-branded products (for example, HTC and Acer); others produce high(er) value-added components or are diversifying away from mass assembly of electronics products. Foxconn chose to acquire (and establish strategic alliances with) manufacturers of key components.

Its long-standing policy not to compete with its customers is probably a smart strategy. It saves expenditure on branding and marketing; it avoids potential conflicts with its brand-name customers (and enhances its attractiveness as a partner); and it dampens sales fluctuations. Indeed, to Hon Hai/Foxconn it makes no great difference whether Apple, Xiaomi or OnePlus is China's market leader in smartphones, as long as all of these are assembled by the Hon Hai/Foxconn group – as they are.

4.4 Founder Terry Gou is the dominant force in the company

His drive and determination have been (and continue to be) crucial for the company's expansion (see Box 2).

Box 2 Terry Gou

Terry Gou (Gou Tai-Ming), born in 1950, a graduate of Taiwan's College of Marine Technology and Commerce, is a strategist with a good nose for new trends and a demonstrated ability to manage a complex and diverse group of companies. He has the drive and determination that characterize self-made men and is well-connected politically. He is one of Taiwan's wealthiest men (estimated net worth: 5.1 billion USD in 2013) owning a little over 12 per cent of HHPI's shares.¹⁰ His management style is not uncontroversial, however, and he has trouble coping with criticism. He has been called both 'the King of Outsourcing'¹¹ and 'the Shame of Taiwan'.¹²

10. In addition to other investments, such as stakes in Hon Hai/Foxconn's affiliates Innolux Corp. and Sharp (now Sankai) Display Products (SDP).

11. Business Week (8 July 2002).

12. Professor Huang Te-pei, one of over 150 Taiwanese academics who called for an end to sweatshops and urged the Taiwanese government to stop offering economic incentives to companies like Hon Hai Precision Industry (Taipei Times, 14 June 2010).

In characterisations, the words 'discipline', 'customer orientation' and 'drive' come up frequently: 'a strong leader with a passion for excellence' (Apple's CEO Tim Cook); 'vision and the guts to do anything in a big way' (Dell's former chief Asia procurement Max Fang¹³); 'a highly-driven individual who ... holds extreme views on how workers should be treated' (Parry et al., 2010); 'stringent work ethic that demands discipline, super efficiency and accuracy' (Taipei Times, 27 June 2005); 'running his company like an army' (Normile 2004).

5. Hon Hai/Foxconn's challenges and plans for the future

After years of tempestuous sales growth Hon Hai/Foxconn is now sailing in calmer waters. The exceptionally high growth period in which sales increased by a factor of 100, from USD 1.2 billion in 1998 to USD 117 billion in 2011 has come to a halt, to be followed by a period in which sales showed only marginal increases to reach USD 132 billion in 2014.

In fact, Hon Hai/Foxconn is facing several challenges. Some are the same as those faced by others who are active in the industry, some are company-specific. Paramount is the declining demand growth in those segments of the consumer electronics industry that have traditionally provided much of Foxconn's business. Sales have also been affected by Apple's policy of diversifying its supplier base. Most of Hon Hai/Foxconn's production is concentrated in China, where rising labour costs and a more assertive labour force constitute a third set of challenges. Enhanced shareholder pressure is a further management challenge.

In response to these challenges the company has taken a number of initiatives. It is diversifying its product and customer base. It is shifting assembly activities away from China's coastal zones (where assembly workers are increasingly hard to find) and it wants to make more use of robots. It is spinning off existing activities and expanding into new areas. We will first take a closer look at the challenges and then discuss the company's strategies.

13. Both quoted in Balfour et al. (2010).

Worldwide demand growth for personal computers (PCs), tablets and smart phones is slowing down after many years of impressive growth. World PC sales peaked in 2012 and are forecasted to continue to decline (worldwide 2014 sales volume declined by over 15 per cent). World tablet sales are stagnating (2014 sales volumes were 3.2 per cent lower than in 2013). Demand for smartphones is still growing but at lower levels than before. In addition, sales growth of smartphones takes place mainly in emerging markets where sales prices are below those in mature markets. But even these emerging markets are not expected to show more than 16 per cent annual growth in the years to come.¹⁴

Apple Inc. and the Hon Hai/Foxconn group work closely together and will continue to do so in the future. Hon Hai/Foxconn assembles most of Apple's products and supplies many components used in Apple's products. But Apple is careful not to become overly dependent on Hon Hai/Foxconn and that is why it is making increasing use of other contract manufacturers.

In 2014/15 Apple's sales reached a record high thanks to the iPhone 6, but it is unclear whether this momentum can be maintained. iPhones constitute well over half of Apple's sales and profits; any slowdown in iPhone sales would affect the company and its suppliers hard. Short term, a lower share of higher iPhone sales may make no great difference in Hon Hai/Foxconn's business volume. Long term, Apple's strategy of also using other assemblers may well prove to be a blessing in disguise as it forces Hon Hai/Foxconn to look for and develop other business opportunities (see also the next section).

China's declining and ageing labour force (Cai et al. 2012) is making it more difficult to attract migrant workers to assembly operations in China's coastal zones. In addition, the new labour laws, together with NGO campaigns to raise workers' awareness of their rights, have made the workers more confident when facing their employers. The latest generation of migrants is less inclined to work as much overtime as previous generations were and this affects working time flexibility.

HHPI long ago ceased to be a growth stock; the company's share price performance has been mediocre in recent years. Investors have expressed concerns about the fact that chairman Gou does not have an obvious successor (not unreasonable given his dominant role in the company) and

14. Source: IDC.

about HHPI's business model (notably its financial reporting, working conditions, board composition and lack of transparency¹⁵), prompting an uncharacteristically defensive reaction from Chairman Gou.¹⁶

6. Dealing with the challenges

Hon Hai/Foxconn has taken a number of strategic steps in response to the above challenges. It is diversifying its product and customer base (as it has done throughout its existence), relocating production, accelerating automation, spinning off activities and expanding into a whole range of new areas.

Diversify the product base

Hon Hai/Foxconn regularly invests in new and existing ventures (see Annex 1). But for an outside observer it is next to impossible to say whether any such initiative is Hon Hai/Foxconn's own idea (because it foresees a new, attractive business opportunity), or whether it is connected to a new project or product for one of its clients.¹⁷ Displays are clearly seen as a growth area; the company now manufactures displays for smartphones, tablets, laptops, all-in-one (AIO) desktops, and TVs; for business, medical and educational uses; and for video walls. Cameras are another.

Diversify the customer base

This is, and always has been, an ongoing process. Examples of 'new' Hon Hai/Foxconn clients are China's mobile phone brands Xiaomi and OnePlus, US electric automaker Tesla and Nokia (for tablets).

Shift production location

Within China, Hon Hai/Foxconn has moved production away from the coastal zones to inland locations, such as Zhengzhou and Chengdu. The company is planning to build a large manufacturing facility in Indonesia. Expansion in India is also on the cards.

And then there is 'reshoring'. Several US business leaders have committed themselves to 'bring back' jobs to America. Big electronics brands are leaning on their contract manufacturers to relocate business to the United

15. see: www.robeco.com, 2 July 2014.

16. 'Please be patient ... I am also a shareholder, so if it's bad for Hon Hai, it's also bad for me' (quoted in FT, 26 June 2014).

17. Or both.

States. Hon Hai/Foxconn plans to produce cables and connectors in Harrisburg, Pennsylvania using robotics and automated technologies.

Automation

Hon Hai/Foxconn has long wanted to automate its factories. Interestingly, it wanted to develop and build these robots ('Foxbots') 'in-house' and announced in 2010 that it would produce and install one million robots by 2015. But by 2013 only 20,000 Foxbots had been produced (10,000 of which are installed at Foxconn Shenzhen). While still an impressive figure, the company may have underestimated the complexities involved in making and installing Foxbots and overestimated the degree to which certain tasks can be automated.

Nonetheless, the company is committed to continue down this path and has established alliances with robot developers. It is producing robots for third parties, such as the popular 'Pepper' robot for Softbank Robotics.

Spin off existing activities

A candidate for a separate listing on the stock exchange is Hon Hai/Foxconn's cable and connector manufacturing unit Foxconn Interconnect Technology Limited ('FIT'), formerly known as HHPI's Network Interconnection Business Group ('NWInG'). SDP, in which Mr Gou holds a 37.6 per cent stake, is another candidate. The plan to list electronics retailer Cybermart Worldwide was abandoned.

Expand into new areas

Hon Hai/Foxconn is active in electronics retailing in Taiwan and China, but it is unclear how successful these ventures are; Cybermart was sold; Media Markt China was discontinued. It is also active in both retail and B2B e-commerce.

Hon Hai/Foxconn affiliate Ambit Microsystems won a license in Taiwan's 2014 4G spectrum bidding and purchased a stake in Taiwan's Asia Pacific Telecom (APT), both at a cost of several hundred million US dollars.

Smart electronic vehicles is another new area. The electric car supply chain is generally seen as less complex than that of petrol-powered vehicles. Barriers to entry are comparatively low. Hon Hai/Foxconn already produces touch screens for Tesla Motors, as well as electric car batteries and other car parts. Hon Hai/Foxconn has ample assembly expertise and can buy in most parts, just like Tesla does.

Hon Hai/Foxconn has long placed great importance on developing an intellectual property rights portfolio. Among the firms applying for patents it is number one in Taiwan and among the top ten in the United States; it has sued top Japanese companies for alleged patent infringement; and sold to Google patents related to head-mounted displays.

Hon Hai/Foxconn has also entered other new(ish) areas such as fibre-based internet services, servers and storage, solar energy and cloud computing. It has built a low-power data centre in Guizhou Province.

7. Conclusion

In the forty years since it started operating back in 1974, Hon Hai/Foxconn has reached annual sales of USD 132 billion, attained 32nd place in the *Fortune* 'Global 500' and created jobs to over one million people, a remarkable achievement by any standards. Thanks to its high customer orientation, determined leadership, high production and worker flexibility and generous support from the authorities it has managed to benefit as no other from the outsourcing trend among makers of personal computers (PCs) and, later, the popularity of its mobile phone customers.

However, Hon Hai/Foxconn has reached a crossroads. Faced with a slowdown in demand growth for consumer electronics, a more assertive workforce in China and enhanced competition for Apple contracts and from new competitors it is diversifying and aiming to become a high-tech services company. It employs thousands of engineers and R&D personnel. However, so far the 'new' areas present a mixed picture. Some have not brought the expected success (electronics retail); others may have proved more complex than anticipated (robotics). For yet others (telecoms) it is simply too early to tell.

Assembly will continue to generate a steady stream of revenue. Employment levels have been stable since 2012. Sales growth has been modest. Profit levels have been improving, possibly an indication that the company's greater attention to margins is paying off (but little is known about the contribution of each business activity to overall profitability). As it has done in the past, there are good reasons to assume that Hon Hai/Foxconn will successfully adapt to new trends, circumstances and challenges.

Meanwhile, the gap between Hon Hai/Foxconn's high-tech ambitions and its more down-to-earth assembly operations appears to be widening, inevitably raising the question of whether the new activities – once they have reached critical mass and a steady stream of profits – should continue to operate together within one and the same company. To this pertinent question there is no easy answer, given that the cash-flow from assembly provides a source of finance for its high-tech ventures and that a high share of component sales relies on demand generated by assembly.

Abbreviations

ACFTU	All-China Federation of Trade Unions
APT	Asian Pacific Telecom
AR	Annual Report
B2B	Business to Business
BW	Business Week
CCM	Compact Camera Modules
CEO	Chief Executive Officer
CM	Contract Manufacturer
DSC	Digital Still Camera
EICC	Electronics Industry Code of Conduct
FIH	Foxconn International Holdings (now: FIH Mobile)
FIT	Foxconn Interconnect Technology
FT	Financial Times
HHPI	Hon Hai Precision Industry
HP	Hewlett-Packard
LCD	Liquid Crystal Display
LCL	(China' s) 2008 Labour Contract Law
LLDMA	(China' s) 2008 Law on Labour Dispute Mediation and Arbitration
NWInG	(Foxconn' s) Network Interconnection Group
ODM	Original Design Manufacturer
OBM	Original Brand Manufacturer
PC	Personal Computer
PCB	Printed Circuit Board
R&D	Research and Development
SAR	Semi-Annual report
SDP	Sakai (Sharp) Display Products
TG	Terry Gou

USD	United States Dollar
VP	Vice-President
WSJ	Wall Street Journal

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All links were checked on 05.01.2016.

Annex 1 Hon Hai Precision Industry (HHPI) company highlights: an incomplete overview

- 1974 Starts operations in Tucheng (Taipei, Taiwan) with ten employees producing plastic dials for television sets; later on moves into TV casings, connectors and cables.
- 1988 Commences operations in Shenzhen-Longhua (Guangdong Province).
- 1991 Listed on the Taiwan stock exchange; moves into PC Chassis and Barebone.¹⁸
- 1998 Sales surpass USD 1 billion; clients include Atari, Compaq; IBM, Apple, HP and Dell.
- 2000 Becomes a Nokia supplier for plastics, metal parts and assembly.
- 2003 Acquires (Finland's) Eimo Oyj, a precision components supplier to Nokia; Motorola's mobile phone factory in Chihuahua (Mexico); and (Taiwan's) Ambit Microsystems, producer of routers and network equipment. Total sales: USD 10.7 billion.
- 2004 Surpasses Flextronics to become the world's biggest Contract Manufacturer; over 130,000 employees.
- 2005 Acquires HP's Australian computer assembly plant; invests in (Taiwan's) Chi Mei Communication Systems; joins the Electronics Industry Code of Conduct (EICC); sales reach USD 28 billion. Foxconn International Holdings is listed on the Hong Kong stock exchange.

18. Computer case with a pre-fitted motherboard and power supply (and often also other components).

- 2006 Merges with (Taiwan's) Premier Image Technology (adding 10,000 employees) to become the world's largest assembler of Digital Still Cameras (DSCs) and a leading supplier of compact camera modules (CCMs) for cell phones. Sales reach USD 40.5 billion.
- 2007 508,000 employees.
- 2008 Acquires Chi Mei Optoelectronics, Taiwan's second-largest manufacturer of LCD panels. Sales reach USD 61.8 billion.
- 2009 Chi Mei Optoelectronics merges with (Taiwan's) Innolux, assembler of flat-screen computer monitors and touch-control screens to become Chimei Innolux in 2010, and Innolux Corporation in 2012. HHPI and Terry Gou have minor stakes in the company but take over management control; acquires Sony's TV plant in Tijuana (Mexico); opens large plant outside Hanoi (Vietnam).
- 2010 Accelerates expansion in China away from the coastal zones. Starts production in Chongqing; opens the Chengdu facility with more than ten factories.
- 2011 Acquires Cisco's set-top box assembly plant in Juarez (Mexico); and (Taiwan's) Champ Tec Optical and Wcube-makers of camera lens modules for smartphones and tablets.
- 2012 Invests USD 200 million in California-based Woodman Labs Inc. maker of GoPro waterproof cameras; sales reach USD 117 bn (Flextronics USD 30 bn); 1,290,000 employees at year end (Flextronics: 200,000 employees).
- 2013 Foxbot (robot) production reaches 20,000 units. Discontinues Media Markt China, its retail joint venture with Germany's Media-Saturn Holding.

- 2014 Hon Hai/Foxconn's Ambit Microsystems wins a Taiwan 4G spectrum license and buys a stake in Taiwan's Asia Pacific Telecom (APT). Takes top Japanese companies to court for alleged patent infringement. Sells to Google patents related to head-mounted displays. Acquires a 4.9% stake in SK C&C, a leading (Republic of) Korean Information Technology (IT) services provider. Sales reach USD 132 billion (Pegatron: USD 32 billion).
- 2015 Invests USD 117 million in Softbank Robotics, a joint venture with (Japan's) Softbank and (China's) Alibaba; Invests in (China's) Ainemo, a developer of desktop family robots; establishes a joint venture with (Japan's) NEC to provide cloud services.

Chapter 3

Chinese MNCs' globalization, work and employment

Chris Smith and Yu Zheng

The fear exists that these initial Chinese investments represent a beachhead from which China will spread its own labour model into Europe and that companies which are run by Chinese masters will inevitably influence those that are not. As the president of the dockworkers' union at the Piraeus declared, 'the result is that companies not run by the Chinese are being influenced by what the Chinese are doing in lowering labour costs and reducing workers' rights'. (Meunier 2012: 8)

1. Introduction

The arrival of Chinese firms in Europe, America and the rest of the world has elicited both excitement and anxiety. As the new investors are still relatively unknown and the impact of their investment unclear, fears and protectionist rhetoric that Chinese firms present unfair competition are prevalent in the press and popular literature in both the United States and Europe. Typical of these claims is the idea that Chinese investment comes with implicit strings and can act as a 'Trojan Horse' (Meunier 2012: 7), affecting US and European norms and policies, from human rights to labour laws. In Europe one widespread narrative is the challenge posed by a new authoritarian investor with deep pockets to an open market in crisis and its welfare capitalism model. Claims are legion that all Chinese firms are state dominated. On labour issues, Chinese firms are accused of breaking rules on working hours and health and safety; using coercive forms of labour control – including withholding wages to inhibit mobility – and taking a deposits to control migrant workers, whether irregular or regular (Wu and Liu 2014); trafficking forced labour (Gao 2004); ignoring or suppressing trade unions (Burgoon and Raess 2014); paying wages below subsistence levels; and even employing prison labour on construction and civil engineering projects (Hairong and Sautman 2012).

Much of this talk is underpinned by a protectionist standpoint, or is part of a wider agenda demonizing Chinese investments. American commentators reporting that Chinese investors are hostile to trade unions is a bit rich, when US firms have resisted unionization at home and abroad for decades (Royle and Towers 2002; Almond and Ferner 2006; Ferner et al. 2013). Whenever newcomers enter a new space (whether nation or region) there does need to be caution about over-valuing nationality and reading capitalism through a myopic (and confusing) national lens. What we need to do is separate out practices that are also used by others and hence are *systemic* practices of capitalism, from those that are novel and might come from *societal* differences and, finally, practices that may be paradigmatic from a *dominant* lead country that create new trends in work and employment (Smith and Meiksins 1995).

China, as an emerging capitalist state, is the origin of burgeoning MNCs with diverse ownership structures: SOEs, joint ventures and private firms. The state-owned enterprises (SOEs) that account for three-quarters of Chinese investment overseas, possess complex ownership patterns, including central state-backed, local state invested and hybrid public-private forms (Goodman 2014). Overall, the SOEs are characterized by relatively stable conditions of production, compliance with national law and the presence of a union, although such practices are often perpetuated by the introduction of sub-systems of casualized labour relations (Cliff 2015). Chinese private firms are mostly small family firms, expanding internationally through social networks (Wu and Sheehan 2011; Ceccagno 2012; 2015). Some large-scale and established private firms, such as Huawei and Geely, are found to be working with host country institutions and developing new employment practices, rather than reproducing their home labour regimes (Gugler and Fetscherin 2011; Cooke 2012). China has become the home base for joint ventures and wholly owned subsidiaries of MNCs from the Greater China region – Hong Kong, Taiwan and Singapore. Some of these are loop-line Chinese investors: often foreign direct investment (FDI) is from the People's Republic of China, but labelled FDI to obtain benefits that go to FDI in China. Some other firms have developed their production regimes in China, such as Foxconn – the focus of this book. These Greater China firms have shaped China's economic growth as well as employment relations (Henderson et al. 2013).

Furthermore, as China's move to a capitalist state has gone through several experimental stages, it embraces a number of regional and sub-

national development models. For example, business models have been observed to be different in Guangdong, Sunan (Southern Jiangsu Province), Wenzhou (Zhejiang Province), Zhongguancun (Beijing 'Silicon Valley') and Chongqing (City) (Zhang and Peck 2014). Some distinctive employment relations are embedded in the regional development models. Structural differences also have implications for work organization and employment relations when Chinese firms relocate abroad.

China therefore does not present a single integrated model in terms of development patterns, work organization and employment relations. Chinese firms with different ownership structures show persistent differences in terms of their work organization and employment relations (Zhu et al. 2012). Foxconn carries with it imprints from its Taiwanese origins, its expanded business and production model honed within mainland China and its internationalization, dovetailing with generic movements of neoliberalism and more casualized and fragmented labour markets across the world, especially in Europe (see chapter by Andrijasevic and Sacchetto in this book). Nevertheless, Foxconn is only one case and perhaps an extreme one that could be labelled 'bloody Taylorism' (Lipietz 1987) to emphasize the use of established production models, but within more authoritarian or despotic contexts, in which the state reinforces the power of capital and high reserves of labour dampen labour activism. But the Foxconn case cannot simply be read through its *Chineseness*, because this is like forming a full picture with only one piece of the jigsaw. Rather, unpacking such 'Chineseness' will be a useful starting point for us to better understand the country-of-origin effects that often inform work and employment practices adopted by Chinese MNCs, such as Foxconn.

Any attempt to discuss the Chinese model in the EU must also take into account the host country contexts that can impede and challenge the same strategies in different ways and with different outcomes. A major problem with using the framework of an integrated Chinese capitalist firm moving from China to Europe and applying or adapting (Abo 1994) practices from home or in the new host society (central to the Japanization and Americanization debates in the past, Elger and Smith 2005) is that China patently lacks an integrated model to export and the EU, while a space of 28 countries with free movement of labour, is nevertheless not an integrated 'host' society. While national institutional regulations persist across the EU, there are also new developments, such as posted workers, social dumping and casualization, that allow workers

to slip through regulatory cracks and for new segmented labour markets to be created (Caro et al. 2015; Friberg et al. 2014; Refslund 2014). These new spaces can create segments for migrant workers, brought from low-wage economies within or outside the EU through employer or contractor or employment agency dependent routes, as a result of which they are living in marginal conditions and institutionally separate from their host society. These new structures in Europe's labour market mean that when new capital comes – such as Chinese firms – they can utilize these new practices and reproduce marginalization and segmentation, rather than simply conform to an EU-wide set of 'host' practices or specific practices in individual host countries. When newcomers do not conform to EU or country institutional rules a common reaction to these firms – especially new arrivals that stand out in the society, such as the Chinese – is to stigmatize and nationalize/ethnicize the practices they apply as something alien and new, when in fact they may only be reproducing (and perhaps extending or adding their own colour to) what already exists or is emerging in the new regional spaces of differentiating European labour markets. Therefore when we assess the work and employment practices of newcomers we must always be careful not to confuse the application of practices by the new arrival, rather than the emergent practices within the structure of the labour market.

With these brief analytical caveats to approaching Chinese companies overseas, this chapter reviews what we currently know about the nature of work and employment inside Chinese MNCs' overseas operations, especially in Europe. We will examine the scale and pattern of Chinese outward foreign direct investment. We aim to compare what we know about work and employment in China – which is fragmented between continued paternalism, modern human resource management and coercive forms of labour control – with the situation of Chinese MNCs overseas, especially in Europe. There is limited research into work and employment relations in overseas Chinese MNCs and our conclusion calls for more research to address our knowledge gap.

2. Chinese work and employment practices – home and away

In China the transition from state socialism to capitalism has been accompanied by many attempts to frame the nature of 'home-based' work and employment practices (Liu and Smith 2016). Attention has been

given to the way labour is attached to employment and organizations, with heavy use of internal migrants, an internal passport (*hukou*) system, casualization of labour contracts and radical breaks from former long-term bonds of dependency between worker and workplace (Lee and Friedman 2010; Kuruvilla et al. 2011). A very mixed picture of Chinese labour process emergences as an outcome of some 30 years of theorizing and empirical engagement with reform and transformation.

In an early work, Lee (1998) compared labour regimes in Hong Kong and China to note that in China there was what she called 'disorganized despotism'. A massive unskilled, rural migrant work force has arisen and a lack of properly functioning social institutions providing welfare or representing workers' interests. This has led to a situation of managerial domination inside factories, with unfettered power to discipline workers and control recreation relations, not just lives in the factories (Lee 1998; Smith 2003; Smith and Ngai 2006; Chan and Ngai 2009; Lüthje et al. 2013a). High labour turnover was initially the primary means of labour resistance, although with the new generation of Chinese workers (those born after 1990) strikes and workplace resistance were added to high labour churn as a sign of new found freedoms (Liu 2014; Zhang 2015).

In follow-up research, Lee (2007) divided labour regimes in China into two industry types: 'sunrise' (export-oriented, assembly factories around the coast – what can be referred to as the 'Guangdong model') were contrasted with 'sunset' industries (reforming and declining former SOEs in the North). She suggested that each possesses its own labour regime, labour supply and working class politics. More recently, Lüthje et al. (2013a) tried to further differentiate production regimes within China. These authors identified four divergent patterns of work organization: SOEs, joint ventures, private export-oriented manufacturers and low-end subcontractors. The state-owned enterprises are characterized by relatively stable conditions of production, compliance with national law and the presence of a union. The joint ventures tend to copy traditional Western company styles, paying higher wages and investing in skills and education. While individual labour contracts are commonly used to regulate employment relations, written collective agreements do not exist. The private export-orientated manufacturers diverge into high-end and low-end producers, which exhibit different labour sub-regimes – with divergent wages, working hours, labour intensiveness and more or less hostile managerial regimes. And finally, there are low-end subcontractors, particularly in the garment, toy and shoe industries. '[M]odern manufac-

turing technologies are combined with massive flexibilization of employment and large-scale exploitation of migrant workers, including long work hours, violation of legal standards and low wages and usually no presence of unions' (Zajak 2012: 84–86).

Against the reading of a mixed China labour story, others see rather a dominant form of 'bloody Taylorism' (Lipietz 1987), epitomized by an extended reading of the work regime enunciated by Foxconn. As chapters in this book make clear, this labour regime is characterized by military discipline and ideology; task simplification; and intensive work combining production and reproduction of labour power in huge industrial compounds that function like enclosed cities (Pun and Chan 2010; and this volume).

Such despotic employment relations are enabled by China's national institutions, but are they also *enclosed* by national institutions? Studies on how changes in China and in global markets have affected some of these models may shed some light on a potential answer. In particular, the low-wage export-orientated model faces upward pressure on wages, the rising cost of materials, a rising yuan (until recently) and more rigid labour legislation (after the implementation of 2008/2009 Labour Contract Law), alongside unprecedented external dynamics (for example, slackening global demand after the 2008 global financial crisis). Added to which the Guangdong local government has expressed a desire to move up the value chain (Zhu and He 2014). Such institutional pressure has affected the export-oriented manufacturing model only to some extent.

In a systematic study of two sectors (LED lighting and textiles and garments), Butollo (2014) observes increased use of high value technology and declines in labour use as the capital intensity of these industries expands, but he does not observe a corresponding rise in wages or improvements in working conditions. He suggests an underlying 'low cost, low trust, high control' managerial regime across a range of sectors, impervious to typical levers of change, such as labour shortages, upskilling and rising capital intensity of industry, all of which have not shifted Chinese management from its tight control regime. Firms that did not shut down in the recession moved within China to cheaper production sites and new entrants to the export sector 'went west' and not to the coast. Some others internationalized to other Asian countries, such as Vietnam and Malaysia, in order to maintain or prolong the low-cost labour regime (Zhu and He 2014).

Differences in employment and work systems in China suggest there is not a single dominant labour process model, except perhaps a management focus on tight cost control, competition and authoritarian control. When MNCs expand overseas for the first time the question is always whether they are taking what they know and do with them, or running away from home-country practices to develop new ways of working in host societies (see Elger and Smith 2005 for a review). It might be that many of the practices prevailing in China cannot move overseas, as they are tied to Chinese-based institutions. However, as shown by existing research on MNCs, firms can potentially preserve their labour policies through internal and external migration. As noted in the work of Sacchetto and Andrijasevic (2014, see chapter in this book) in the Czech Republic Foxconn used migrant labour from Romania and Bulgaria in order to lower labour costs and recruited through agencies to segment the workforce; this would seem to exemplify the transfer of rigid labour controls found in China. We must also not forget that the MNC is not an integrated actor doing the same things everywhere. This misses the importance of firm strategy, which can choose or be pushed through internal politics to do different things in different contexts. To further the understanding of Chinese MNCs in Europe, we must first know where they are and who they are.

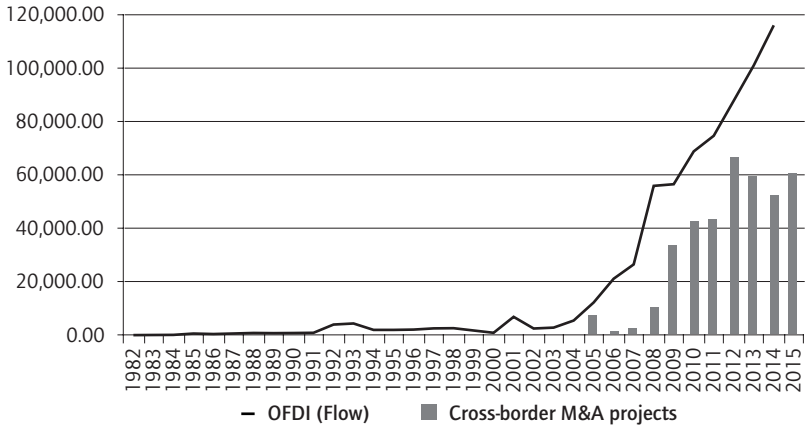
3. Outward foreign direct investment from China

Chinese outward foreign direct investment (OFDI) is still relatively small in scale. Total OFDI worldwide was 870.4 billion US dollars by mid-2014, including both actual investment projects and investment contracts (UNCTAD 2015). Its growth, however, has been impressive, although uneven. The average growth rate of Chinese OFDI during between 2005 and 2014 was 40 per cent (ibid.). By 2013, 15,300 Chinese investment entities had established nearly 25,400 overseas business units in 184 countries. Total overseas employees number 1.97 million, while 967,000 were recruited locally (MOC 2014).

The surge of Chinese OFDI in the early 2000s stemmed from the country's 'Go Global' policy, which linked Chinese OFDI to the nation's development strategy (Voss et al. 2010). It is not random, but top down and directed. Early Chinese OFDI was concentrated in developing countries, but investment in developed countries is rapidly catching up. Excluding investment to some offshore financial centres and potential

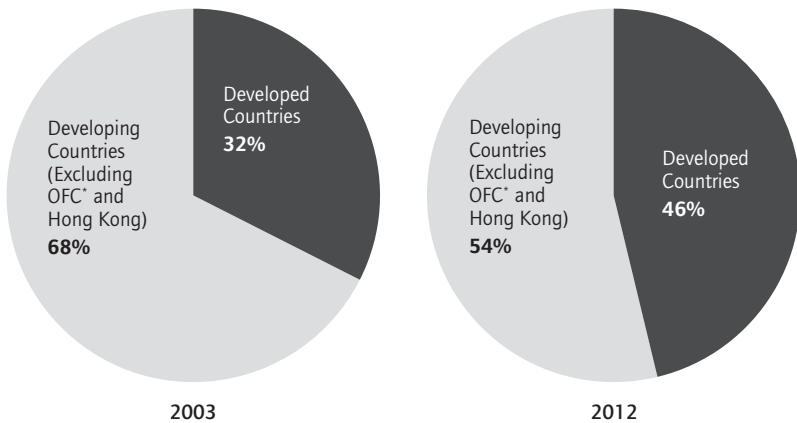
round-trip investment (often through Hong Kong) (see Figure 1), the share of investment in developed countries has been on the rise, from 32 per cent in 2003 to 46 per cent in 2013.

Figure 1 China's OFDI and cross-border acquisitions, 1982–2006 (million \$US)



Source: Authors' calculation

Figure 2 Chinese outward foreign direct investment flow worldwide 2003 vs. 2012 (million \$US)



* Off-shore Financial Centres

Source: Authors' calculation based on UNCTAD's *Bilateral FDI Statistics*

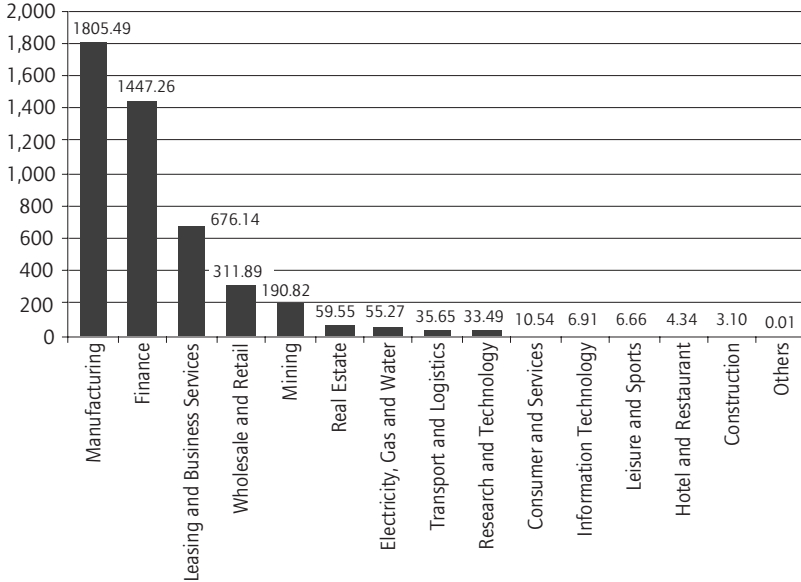
Europe accounted for 8.1 per cent of Chinese OFDI stock by 2013. China's FDI stock reached 103.87 billion US dollars by mid-2014, which is just over 1 per cent of the EU's total inward FDI stock. By number, 75 per cent of investments are made by private firms. By value, in contrast, more than 72 per cent is from state-owned enterprises. Seven deals account for the overwhelming share of the total SOE deal value: CIC's purchase of GDF Suez's exploration business (3.2 billion US dollars), Yantai Wanhua Polyurethanes's purchase of BorsodChem Zrt (1.7 billion US dollars), PetroChina's purchase of INEOS Group's European assets (1.0 billion US dollars), Sinochem's acquisition of Emerald Energy (878 million US dollars) and ChemChina's acquisition of Rhodia Silicones (504 million US dollars) and Drakkar Holdings (507 million US dollars). These firms also top the ranking of biggest government-controlled investors, together with China Ocean Shipping Group (Hanemann and Rosen 2012).

The strong involvement of SOEs in investment stands out, which creates the impression that

increasingly, Chinese companies are showing an appetite for infrastructure projects that can build up chains of influence and help with distribution channels in Europe, such as ports (for example, Piraeus in Greece, Rijeka in Croatia), airports (for example, Parchim airport in Germany, Larnaca in Cyprus) and railways (for example, in Slovenia and Hungary). (Meunier 2012: 3)

In reality, Chinese OFDI is much more diverse in terms of both industrial sectors and investment destinations. Although the resource sector receives the largest share of Chinese OFDI, the manufacturing and service sectors are catching up. In Europe, a high share of Chinese investment has gone into a handful of large-scale acquisitions in capital intensive sectors, in particular the energy sector. The wholesale and retail sector has attracted the largest number of Chinese invested projects. In the manufacturing sector, Chinese firms have targeted in particular the automotive industry (for example, Geely's purchase of Volvo Cars in Sweden, Great Wall Motors in Bulgaria, BYD automobiles in Hungary and London Taxi Company in the United Kingdom, with a major investment announced in March 2015 (BBC 2015); industrial machinery (for example, Sany's acquisition of Putzmeister in Germany); and information and communication technology (for example, Huawei in Hungary, China Unicom in the United Kingdom). The financial services sector has also attracted Chinese investors in selected countries (for example, ICBC in the United Kingdom).

Figure 3 Chinese OFDI flow by industry sector, 2013 (million \$US)



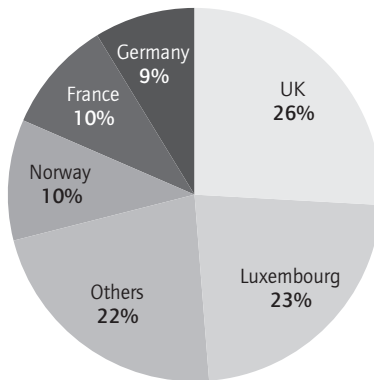
Source: MOFCOM Annual Statistic Report on China's Outward Foreign Direct Investment 2014

Geographically, most Chinese investments are in 'old Europe': the EU15 attracted more than 85 per cent of total investments between 2000 and 2013. The top destinations are the United Kingdom and Luxemburg, followed by France, Norway and Germany – from 2005 to 2014, those five countries received 78 per cent of the annual investment in the EU (Figure 4). Outliers are Hungary and Greece, with both countries receiving one large-scale investment that pushed them up the rankings. China has favoured mergers and acquisitions in western European countries. Hungary received a 1.9 billion US dollar investment in the chemical sector from the sale of BorsodChem to Yantai Wanhua Polyurethanes. Greece awarded China's COSCO a long-term lease in the port of Piraeus, which was tied to an investment of more than 700 million US dollars for modernization of the port's container terminal. Sweden fares well in the European ranks, thanks to the 1.5 billion US dollar acquisition of Volvo Cars by Geely and related follow-up investments. The new EU member states of central and eastern Europe, by contrast, have seen almost entirely greenfield investments (Hanemann and Rosen 2012: 4). Hungary in 2010 received more OFDI from China than all other CEE countries combined. Another high performer is Romania, attracting

several greenfield manufacturing investments. This includes a plant of Shantuo Agricultural Machinery Equipment to produce tractors (Hanemann and Rosen 2012). The speculation is that

The rise of Chinese investment in CEE countries can be explained by a combination of CEE economies serving as a manufacturing base supplying Western Europe and the perception that the political climate is more conducive to Chinese investments than in Western Europe. (Meunier 2012: 3)

Figure 4 Chinese OFDI stock in selected EU countries by the end of 2013



Source: MOFCOM Annual Statistic Report of China's Outward Foreign Direct Investment 2014

If we compare levels of Chinese OFDI with those of Japan, then we can see that by 1974 over 85 per cent of all Japanese OFDI, excluding investments in facilities for processing timber and pulp for the Japanese market (which are heavily concentrated in western Canada), was found in developing countries, although there were considerable services investments in the United States. Infrastructure projects are more common in developing countries for the obvious reason that it is in these countries where there is a lack of investment in these areas and improving road, airports and ports is often designed to both assist with exporting raw materials to China and importing finished goods from China. China is different from the earlier Japanese pattern inasmuch as it is more widespread globally and not just focused on Asia, but there are also some similarities in the spreading of investments from Asia. Japan's OFDI focused on Asia, with over 50 per cent by 1997. Korea exhibited a similar pattern and by 1978 it had more than half of its OFDI going to Asia. As

Korea developed the distribution of OFDI shifted – following a pattern that China looks likely to reproduce – so by 1994 Korea's OFDI in Asia had fallen to about 41.9 per cent, with North America hosting 35.3 per cent of Korean OFDI and Europe 12.8 per cent.

4. Employment, firm size and working practices in Chinese firms overseas

The globalization of Chinese business has attracted theoretical attention, especially around questions of motivation, strategy and differences between the patterns of 'Chinese' OFDI compared with more established or 'Western' practices (Berning and Holtbrügge 2012; Deng 2012). What remains far less researched is how the management of work and employment relations practices within different types of Chinese MNCs develop outside China as they interact with diverse host national contexts. As pointed out earlier, a number of key characteristics of Chinese firms have presented significant challenges to investigating work and employment of Chinese investment firms through the lens of existing frameworks.

One of these characteristics is that Chinese investment firms are relatively small, which makes aligning the Chinese case with the existing debate on the internationalization of work regimes problematic. A survey of Chinese firms in Italy by Pietrobelli and colleagues (2010) had data on employment for only 52 of the 68 companies they surveyed, but this revealed that 38 per cent of the companies were small or very small (with 10–50 employees). This result was in keeping with those in the United Kingdom. Only 10 out of the 169 Chinese invested firms have employed more than 150 employees. The majority of Chinese operations have fewer than 25 employees. But as noted above, investments have been increasing in scale and a bifurcation of Chinese firms by size may be emerging. Major investments are from SOEs or Chinese MNCs and not small firms that are produced through labour-based social networks, not capital accumulation on a larger scale.

Another challenge is that the thesis of global transfer of 'national paradigms' is built on the assumption that firms reproduce their advantages that originated in the home country through the diffusion of management practices. Many Chinese MNCs start their internationalization because they lack competitive advantages at home (Child and

Rodrigues 2005). The representative 'country of origin' advantages of Chinese firms, however, are believed to be bound to China— with access to pools of educated, inexpensive labour; strong state support; a large internal market permitting experimentation and segmented marketing; and legacies of collective and coercive labour management regimes. The implication is that there are incentives to remain at home for Chinese MNCs and that there is no standard model of working that is 'firm specific and codified' and available to be transferred through the international firm as work and management practices remain tied to Chinese institutions and not Chinese firms. This echoes much the same conclusion that was reached about the Japanese management practices prior to the take-off of Japanese FDI in the mid-1970s. Before the 1970s, it was thought the Japanese firm was 'embedded within Japanese society, tied through social networks, national institutions, cultural practices and state policies to the territory of the country' (Elger and Smith 2005: 3). When Japanese OFDI accelerated, there was an intense research focus on the management and work organization practices of Japanese firms abroad. A broad conclusion then was that that there was uneven (by sector and country) transfer and transformation of Japanese management practices through the experience of internationalization (see Elger and Smith 2005 for a review). Internationalization allowed for a more complete understanding of the distinct character of the Japanese firm. We suggest the same strategy could be adopted in understanding the Chinese firm. We follow Child (2009) in questioning the cultural-relativist or country-centred approach to the problem as this starts with the unrealistic claim that China has totally 'unique' management practices, rather than analysing the content and meaning of these practices within their context and diversity and through comparators from others elsewhere. This approach allows us to distil the core ingredients of a Chinese management system through the internationalization of Chinese firms.

4.1 A fledgling new employer? Adapting, ignoring or reforming local rules

Research into Chinese MNCs in Europe and their attitudes towards local institutions remains very patchy. There is a lot of rhetoric based on simplistic assumptions about Chinese investment and the openness of European economies to receive this investment, alongside changes in the nature of work and employment. The reasoning is based on China being

a new capitalist state with money, power and influence over a crisis-ridden and fractured European economy. Typical of this rhetoric is Meunier (2012; 2014a and 2014b) who in various publications rings the (American) alarm about Chinese investment in Europe. An example is the quote at the beginning of this chapter. It seems that investment from emerging countries is 'scarier' than other forms of investment (see Aguzzoli and Geary 2014 for a similar discourse on Brazilian investment in Canada).

Such a simplistic reading of Chinese OFDI's dominance in Europe is questionable and Chinese firms have been found to be adapting their strategic approach in the face of institutions in various EU countries (Jacoby 2014). Workplace-based research on Chinese MNCs in EU is very rare and therefore a definite picture is not available. What empirical research does exist does not help as it presents a mixed picture. Zhu and Wei's (2014) recent case study based on a Chinese takeover of an Italian motorcycle company suggests that the Chinese MNC is very capable of taking a pragmatic approach and embracing local norms. They observed that the newly acquired Italian subsidiary grew by offering technical workers *temporary* contracts because this was a standard practice in Italy due to the relative surplus of technically qualified labour. This is in contrast to the situation in China, where qualified technical workers were offered *long-term* contracts as a standard retention measure due to the shortage of such workers. We are reminded here that investment by Chinese firms is subject to economic calculations as with other private firms and it is misplaced to treat China differently: 'The selection of investment targets requires arduous work by Chinese firms and is undertaken for commercial reasons, not at the behest of back-room political strategists' (Hanemann and Rosen 2012: 6).

What we know from studies outside the EU is that Chinese MNCs take a fairly pragmatic approach in dealing with labour market institutions in the host country. One, possibly the best known Chinese MNC Huawei does not impose an ideological 'no union' policy, but works with the locality (Cooke 2012). Despite their strong preference for labour sourced from China, some SOEs, due to pressure from local unions, have to use local workers and work with local institutions (Lee 2009; Chen and Orr 2009; Corkin 2012; Mohan 2013). This kind of selective adaptation is likely to be what Chinese firms take with them to the EU.

Host country institutions are never passive or simply embrace whatever employment practices are brought by MNCs. Europe's trade unionists do

not see FDI through value-laden nationalist lens, but much more in terms of the length of investment and the attitudes of investors towards local institutions. One of the few studies to examine this notes:

the labor officials with whom we spoke generally do not perceive Chinese investors differently than other foreign investors, be it American, Japanese, or else [sic]. Union leaders and works councillors do not look upon foreign investors through the prism of the national origin of capital. Instead, two lenses appear to be prevalent, whether the investment is driven by short- or long-term profitability considerations ('finance' vs 'productive' investments); and how foreign investors take comfort in relation to labor laws and practices. (Burgoon and Raess 2014: 185)

4.2 Global mobility? Workforce control through expatriation

The development of employment practices in China has often been linked to the retained internal mobility of Chinese workers (Knight and Song 2005). As Chinese firms internationalize, control of labour mobility has also been one of the central issues. Heavy use of employees sourced from the home country has been reported as a consistent feature of Chinese FDI (Cooke 2012; 2014; Zheng and Smith 2015). For example, the Turkish subsidiary of Huawei in Istanbul employed 1,000 employees, but 200 of them were Chinese – a high expatriate rate (one in five) looks to be unique within the framework of internationalization, even in a country such as Turkey where wage costs are not as high as in western Europe. Huawei subsidiaries in India had 30 per cent expatriates (Cooke 2012: 1844) – again exceptionally high. Huawei has more domestic employees than those working in the 140 overseas subsidiaries, but from 2008 more revenue was generated overseas than in the PRC. Like many Chinese MNCs Huawei has a competitive advantage in having a large pool of inexpensive workers in the home territory and therefore one of the reasons for OFDI is not to evade the high costs of domestic labour, as in the case of many western MNCs and Chinese MNCs try to create internal employment structures to continue to access labour reserves at home.

As a developing country, Chinese people (students, workers, entrepreneurs) seek international opportunities and therefore move independently of MNCs and can provide a source of labour for newly

arriving Chinese firms. Europe experienced an accelerated growth of its Chinese population, from 0.60 million in 1980 to 2.15 million in 2007 (Wu and Latham 2014: 304). While the United Kingdom and France have the biggest Chinese populations (1.1 million between them), southern and smaller European economies have seen the highest rates of Chinese population growth: Italy increased from 70,000 in 1998 to 300,000 in 2008; Spain from 35,000 to 168,000; and Romania, from 3,000 to 10,000 (ibid.: 305). Increased trade between Europe and China, increased consumer power in China, internationalization of higher education and internationalization of Chinese firms are all factors associated with the increased presence of Chinese people working in Europe. A feature highlighted in Wu and Latham's (2014) discussion of Chinese migration to Europe is the 'transnationality of Chinese entrepreneurs' (who move quickly across European countries (especially the Schengen treaty zone); the continued strong links to China, strong ethnic-communities (often characterized by 'closure, segmentation and fragmentation' (ibid.: 316) and a blend of legal and illegal movements.

The internationalization of Chinese firms and the mobilization of Chinese workers both demonstrate attempts to retain coercive controls over the freedom of Chinese workers overseas to move to other employers and move around the labour market. Chinese workers are there because they follow controls, they are more focused on work and as migrants usually living in company-based industrial dormitories they are tightly controlled and more likely to focus on work during the contract period and submit to compulsory overtime, which is resisted by local workers and work flexibly with less voice, which again is often against practices pursued by locals. Ethnic enclaves of Chinese businesses overseas reinforce home-country habits, as do language barriers, lack of awareness of host society practices or hostility in host societies towards new migrants. Lee's (2009) work on Chinese managers and workers working in Africa as extended expatriates (Zheng and Smith 2015) in Chinese MNCs, suggests patterns of tied employment, not unlike Kafala practices in the Middle East (Roper and Barria 2008; Khan and Harroff-Tavel 2011), all of which equates with unfree labour. In this context simply changing employers or moving out of ethnic enclave employment into local society employment can be seen as an aspect of class struggle or labour resistance and the assertion of mobility rights by Chinese workers (Wu and Liu 2014). These struggles and constraints are an important part of Chinese workers' international experience.

What warrants further investigation is the contestation between an emerging force of capitalist firms and a wider pool of labour. Altreiter, Fibich and Flecker (2015) argue that as work relocation and labour mobility increase, employment conditions and labour relations may be undermined 'through a dis-embedding of employment relations' (ibid.: 67). Chinese firms, being a new force in international capital and with the capacity to deploy an international workforce, produce this changing mobility of work and workers. So far, however, no empirical evidence supports the emergence of such a context-free model from Chinese firms overseas. However, we have observed a split between the employment practices adopted to manage Chinese workers and locals. This leads to our last point about diverging employment practices among a global workforce.

4.3 A double-faced master? Diverging employment practices in Chinese MNCs

Several authors have observed a dualism in Chinese subsidiaries: directly employed and indirectly employed workers on different labour contracts, benefits and wages. Some authors argue that management dualism denotes learning by absorbing 'advanced' local practices and diffusing them back to the home firm rather than transferring from home base to subsidiaries (Zhang and Edwards 2007). In particular, Chinese MNC subsidiaries in developed countries tend toward 'localization' due to their purpose of asset-seeking, tangible or nontangible (Cooke 2008).

Others may argue that dualistic features of employment reflect what some see as the emerging dualism in China. Zhang's (2008; 2015) study of the Chinese auto industry suggested there were dual labour management systems, what she called 'lean-and-dual'. While both contract workers and agency workers worked side by side with formally employed direct workers, for formal workers there was 'hegemonic control', with high wages, generous benefits, better working conditions and relatively secure employment, while for agency, contract and other temporary workers (close to 50 per cent of the workforce) there were 'despotic labour controls': lower wages and insecure employment. But this is not especially a Chinese pattern, as parts of the auto industry in the United Kingdom – the BMW Mini-plant in Oxford, for example – has just such a pattern, with 800 of the 2,500 workers recruited through agencies and on insecure contracts (Macalister and Pidd 2009). Similarly, Nissan in

Canton and Mitsubishi in the United States use temporary workers in 40–50 per cent of positions and are winding back regular employees (Jaffe 2014).

It seems therefore that agency workers are becoming a generic or systemic (not national) feature of employment in the some industries, allowing manufacturers to adjust more easily to changes in demand, both up and down and not something particular to one country or company. This highlights the need, as mentioned at the beginning of this chapter, for researchers and policymakers to examine employment and work organization practices in context, case-by-case and to separate systemic from local and dominant best practices, rather than to project linear movement towards either divergence or convergence (Smith and Meiksins 1995).

5. Conclusion

China is emerging from a developing to a significant globally dominant economy. ‘Very few transitional economies have undergone industrial restructuring, urbanization and the adoption of various market-oriented reforms simultaneously, as China is now doing’ (Cai 2010: 22). However, three decades of reform have created a puzzle when it comes to characterizing the nature of work and employment in the Chinese firm. Heterodoxy and diversity rule and China-centred research has not answered the question of what constitutes a ‘Chinese way of managing people’. The problem, we suggest, may be that the research focus has been ‘country centred’ and not ‘practices centred’. Given the size and diversity of China, researchers have produced models and ideas that reflect back that diversity, without any clear direction and implication for the evolution of the Chinese firm as it internationalizes. From being the main site for foreign direct investment, we are now witnessing quantum growth in Chinese outward foreign direct investment (OFDI) and this new development has created further puzzles about whether China ‘abroad’ is following ‘Western’ patterns (in terms of international company forms, strategies, motivations and competitive advantages); HR processes (recruitment, selection, rewarding, expatriation) and norms (conforming to local institutional rules and laws); or breaking from these norms; or coevolving new rules between firms and local states/governments. Paradoxically, we suggest that we will better understand the Chinese firm at home by studying the management practices of Chinese firms overseas

in a variety of sectors, countries and regions. We anticipate that what Chinese firms are doing overseas will also influence what they do at home – that there will be some coevolution in practices – as the testing of practices within the overseas context both legitimates and institutionalizes them for application at home. Moreover, given the stepping up of Chinese OFDI, we can no longer begin an accurate characterization of what working practices are within Chinese firms, without the international dimension being brought into the picture.

There is interaction between home and international practices where Chinese firms are internationalizing; therefore research needs to study the dynamic interaction between the continued changes to the old system within China and the ‘modernization’ processes evolving through internationalization. ‘The complexity and range of organizations and environmental sectors in China make it unlikely that a single, all-encompassing Chinese theory of management will prove adequate’ (Child 2009: 70). However, by studying the Chinese firm outside China we will have a more robust understanding of the core characteristics of the Chinese business system overall.

We are just starting to examine the impact of Chinese investment on work and employment relations in Europe. One line of argument is that Chinese firms are a threat to EU institutions and labour practices. This assumes that Chinese investors are integrated (when they are diverse) and homogenous in policy terms, when there may be sector and ownership differences within Chinese investments, as well as in the different host-society institutional environments. Another line is that Chinese are new players and as such they will take time to learn the local rules. However,

there appears to be a shared sentiment among practitioners, market and academic analysts that Chinese investors initially got many things wrong due to a lack of experience in dealing with business and labor in Europe, *but they have learnt to allay concerns*, for instance by pledging to safeguard jobs or embrace collective-bargaining practices. (Burgoon and Raess 2014: 186, *emphasis added*)

The problem with this line is that it assumes that local rules are immutable, when they are changing (the rise of flexible working across all European countries, for example) and it assumes stasis, when both newcomers and local environments are dynamic.

China is not set in stone either, but in a period of transition, and there might be some co-evolution of employment relations at home and overseas. In a recent review of labour relations in China, Liu (2014: 117) noted that

the evolving Chinese labor regime has met growing resistance from workers, as reflected in the rising number of labor protests that circumvent both the legal system and state corporatist arrangements. However, the authoritarian labor regime has caused worker activism to be fragmented and lack cross-factory, cross-region mobilization and actions. Nevertheless, several notable changes in worker activism with the potential to unmake the authoritarian labor regime have emerged in the past several years.

When we look at Chinese MNCs overseas there is no reason to assume that the patterns of the emerging labour struggles at home will not find their way into Chinese firms overseas.

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Part 2

Foxconn in Europe: do local institutions and actors make a difference?

Chapter 4

Building the European centre in Czechia: Foxconn's local integration in regional and global labour markets

Marek Čaněk¹

1. Introduction

Foxconn decided to expand its production in Europe at the end of 1990s, which coincided with the launch of the Social Democratic government's push to attract more FDI to Czechia.² Pardubice, a town of 100,000 inhabitants 100 km east of Prague, became its preferred destination due to its geographical proximity to Western markets, good infrastructure, relatively low wages and skilled workforce. At first an assembly plant, it has evolved into a European centre of Foxconn operations and has also undergone industrial upgrading. Among other things, this was related to the opening of a new factory in Kutná Hora in the vicinity of Pardubice.

Drawing on previous research on Foxconn in Czechia (Andrijasevic and Sacchetto 2014; Andrijasevic and Sacchetto 2015; Sýkora et al. 2015), articles from (especially) the Czech media and interviews carried out with Foxconn employees and trade unions, this chapter analyses Foxconn's expansion strategy, the development of a fragmented multinational workforce, working conditions and employment relations, including the role of trade unions.

Foxconn's regimented culture and demands on employee flexibility were initially contested by the workers. However, the company was able to implement intensive work processes and a flexible working-time system based on long shifts. The company seems to treat its workers within the legal limits of the Labour Code and other obligations. Nevertheless, this has allowed for very high flexibility and cost reduction due to the 11.5 hour-long shifts and the introduction of time accounts. Moreover, Foxconn has developed the practice of outsourcing its assembly lines to

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1. The writing of this chapter was supported by the Technology Agency of the Czech Republic under the project TDO20368 ('Prevention segregation and support social integration of foreign workers in companies of manufacturing industry in the places of their workplaces and residences').
 2. The evolution of state policy towards FDI is analysed in detail in Drahoukoupil (2009).

subcontractors, which externalises potential risks connected with the second element of its flexibility strategy, namely employing migrant workers through labour-market intermediaries (cf. Altreiter, Fibich and Flecker 2015). This practice used by multiple companies in Czechia has been investigated by the Labour Inspectorate and may be found in violation of EU and national rules as it circumvents the employment relationship and violates the principle of equal treatment of workers.

2. Establishment and expansion of Foxconn in Czechia

In May 2000 Foxconn bought what remained of the former socialist electronics company, Tesla. This made possible the rapid commencement of production as early as August of the same year. The fact that Foxconn chose a brownfield site for its operations was appreciated by the city of Pardubice, which had been concerned about the use of buildings of the former Tesla factory, spread over four areas covering about 36 hectares (Doubrava 2000a). Foxconn eventually bought the land and buildings of the bankrupt HTT Tesla, paying 102 million CZK (around 2.9 million euros³) (Kačer 2000). Although the value of the land was probably higher, this investment was favoured as likely to bring jobs and support the local economy.

Tesla Pardubice used to be an important producer of electronics in socialist Czechoslovakia. It dates back to 1919 when the company Telegrafia was established. It produced mainly telephone switchboards and, later on, radio receivers. After the Second World War the company was nationalised and became part of the national company Tesla. It produced TV sets, computers, tape recorders and radiolocators for military production. A trade union, part of the branch Metalworkers' Organisation (KOVO), was also present in the plant.

After 1989 the company stopped being competitive, lost its COMECON markets and went through a failed privatisation attempt after the HTT company run by a 'previously unknown group of four army officers' took the company over, beating the French company Thomson CSF in 1993 (McNally 1995). The decline of HTT Tesla throughout the 1990s was gradual, which meant that the unemployment rate in Pardubice did not increase dramatically at a particular point in time (Kostlán 2002).

3. Based on the exchange rate of 31 Dec 2000, cnb.cz; 1 EUR=35.09 CZK.

Foxconn's localisation strategy reflected a mix of factors, including state policies of FDI support, labour market and migration policies, supply of suitable workforce (mostly for low-skilled and semi-skilled positions), weak labour, the availability of the EU's free-trade area and proximity to its main customers (Andrijasevic and Sacchetto forthcoming). As will be seen, Foxconn developed here into the centre for Europe, the Middle East and Africa, known as the EMEA region.

After the start of its Czech operations Foxconn soon became an important company in both the Pardubice region and the Czech and European context. It was the first major foreign direct investment after 1989 in the electronics industry in Pardubice, but others were soon to follow (for example, Matsushita). It received tax incentives from the Czech government (see Table 1, p. 98). At the Czech level Foxconn became a major company measured by annual revenue. Already in 2003 it entered the list of ten biggest companies and has been in the top five in recent years. In terms of exports it became the second biggest exporter after Škoda Auto with about 3.7 per cent of total Czech exports in 2008 (Lüthje et al. 2013: 139). Net profits have been much lower than those of other companies with similar revenues due to Foxconn's generally low margins (Prandi 2013).

While in 2000 Foxconn produced and shipped about 41,000 iMacs, a year later the new hall for the assembly of Compaq desktops enabled the production of 10,000 PCs per day (Hospodářské noviny 2001). In 2012 about 38,000 desktops were produced daily in Pardubice (Prandi 2013). Gradually, new parts of production and services were added. In 2002 new mass metal production was introduced, including a metal pressing shop and a paint shop. In 2004 there was a new pressing and a paint shop, as well as a repair and service centre. Meanwhile, logistics were also being developed to enable Pardubice's Foxconn to become the logistics centre for the EMEA. Jim Chang of Foxconn CZ saw the role of the Czech operations in the following way: 'Foxconn CZ is on the way to fulfilling its aim of becoming the central production point in Europe and to fully serve the EMEA region and provide complete services from one place' (Seiner 2007).

Foxconn's Pardubice site was deemed insufficient after a few years and it was decided to build a new plant at a different location, Kutná Hora, in central Bohemia, about 50 km from Pardubice. The Czech government provided tax incentives once again (see Table 1). The initial, more

Table 1 FDI subsidies received by Foxconn in Czechia

Company	Type of investment project	Investment (mil. EUR)	Newly created jobs	Granted Incentives
FOXCONN CZ s.r.o.	Production	78.67	1 930	Taxes
Foxconn Technology CZ s.r.o.	Production	97.22	6 400	Taxes
FOXCONN CZ s.r.o.	Production	43.39	656	Taxes
FOXCONN Network Technology CZ s.r.o.	Production	19.17	744	Taxes
Foxconn Technology CZ s.r.o.	Strategic service centre/repair centre	0.48	125	Taxes

Company	Ceiling of state aid (mil. CZK)	Aid intensity	Location	Application – Year	Decision
FOXCONN CZ s.r.o.	–		Pardubice	2000	2001
Foxconn Technology CZ s.r.o.	815,09	0.30	Kutná Hora, Pardubice	2007	2009
FOXCONN CZ s.r.o.	456,47	0.40	Pardubice	2010	2011
FOXCONN Network Technology CZ s.r.o.	192,34	0.40	Pardubice	2011	Cancelled
Foxconn Technology CZ s.r.o.	39,43	3.29	Kutná Hora	2013	2014

Aid intensity is defined a share of state aid in eligible costs. It is calculated here as $[\text{ceiling of state aid}]/[\text{value of investment}]$, as published by CzechInvest.

Source: www.czechinvest.org/dwn-investicni-pobidky

ambitious growth plans were reined in after the 2008 economic and financial crisis.

The modern plant in Kutná Hora specialises in the production of servers (including expensive customised servers for HP), racks, cloud solutions and other services. This, together with other parts of production in Pardubice – for example, hi-tech production of cartridges at the rate of 1,000 per hour (Prandi 2013) – show that more sophisticated kinds of production have become part of Foxconn operations in Czechia, requiring a more skilled workforce than in Pardubice. Despite industrial upgrading, desktop assembly is still at the core of Foxconn's operation. Further changes are planned, with investments in automation, research and data

centres that were announced in a memorandum signed by Foxconn's chairman Terry Gou and Czech Prime Minister Bohumil Sobotka in summer 2015 (Ministry of Industry and Trade of the CR 2015).

The growth of Foxconn in Czechia has been tied to relocations of production to the factories based in this country, for example from HP's Erskine plant in Scotland (Times Scotland 2005; McCourt 2010) or more recently from Foxconn CZ's now closed Shushary plant in Russia (Appleapple.top 2015). On the other hand, some production has been moved elsewhere (for example, to Foxconn's Turkish plant, production of notebooks to China). These decisions are made in collaboration with Foxconn's main customers. Currently, the most important customers are HP (desktops, servers, cartridges) and Cisco (routers, switches, servers); in the past Foxconn also produced desktops for Apple, Acer, Compaq and Lenovo, mobile phones for Nokia, as well as set top boxes or LCD screens of many different brands (interview on 6 March 2015).

When deciding where to locate the production of particular products or product parts the management weighs up a number of aspects, including the price of production as against logistics. This may be illustrated by the production of chassis in Czechia for particular customers. It might have been cheaper to produce them in China, but production in Czechia means that logistical problems disappear. Expansion of production is also related to continuous negotiations with Foxconn's customers with the aim of persuading them that outsourcing of production would be cheaper. Thus Foxconn is able to increase its share in the production of particular items, their logistics and other services (interview on 13 April 2015).

Foxconn in Pardubice and Kutná Hora has grown into a major producer that will probably remain an important part of the European electronics industry for some time. The development of Foxconn sites in Czechia has been very far from unidirectional.

3. Employment structure

Employment at Foxconn grew steadily until 2008. The rise in employment was interrupted and the composition of the workforce was influenced by the global economic and financial crisis, the decisions of the company, Czech migration policies and the rising availability of circular unemployed EU mobile workers from eastern and south-eastern Europe.

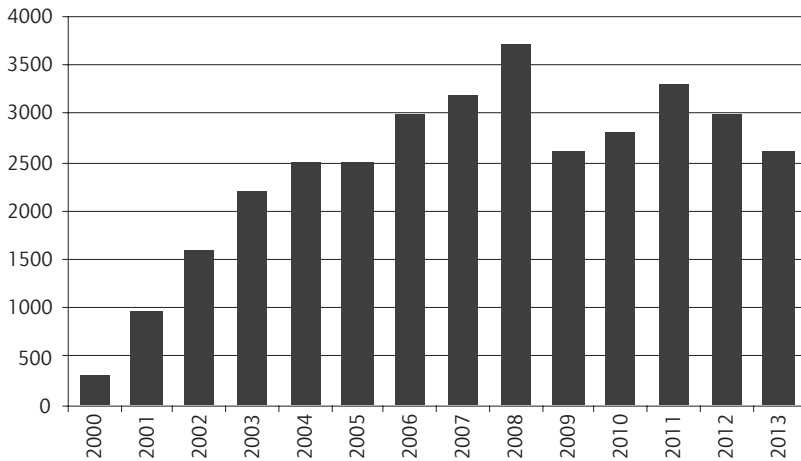
From a few hundred workers in 2000 the workforce reached the current level of about 5,000 workers (of whom around 2,000 are indirect) at the Pardubice plant and about 1,200 workers (around 300 of them indirect) at the Kutná Hora plant. The recruitment of more and more workers meant that Foxconn could partially offset job losses in other companies that were downsizing in the area, in the chemical and other industries. However, having reached a threshold of workers willing to work and commute under the prevailing conditions at Foxconn from Pardubice and the surrounding area, Foxconn in Czechia relatively soon became characterised by a multinational workforce composed of both direct and indirect workers, with different kinds of rights, contracts and social positions (Andrijasevic and Sacchetto 2014). The indirect workforce – composed mostly of migrant workers – has ranged from about 30 to 50 per cent of the total in manual positions, with indirect workers constituting the majority in some departments (see below).

Temporary migrant workers were initially recruited from Slovakia and already made up a quarter of all employees in 2001 (Macháček and Milata 2001). Unlike some other multinational corporations in the electronics industry in Pardubice (for example, Matsushita, which employs mainly Czech and Slovak workers) the Foxconn factory has become integrated in the regional (European) and global labour markets to a much greater degree. Both EU and non-EU employees were recruited, either through external temporary workers agencies or directly by Foxconn. Foxconn has employed foreign managers and skilled workers but also workers for low-skilled assembly line jobs. The Czech project of the ‘competition state’ (creating advantageous conditions for capital accumulation by MNCs) supported liberalisation of migration policies (Čaněk 2014). Foxconn seemed to support this by lobbying the Czech government and especially the Ministry of Industry and Trade (Čižinský and Kušnířáková 2011).

From autumn 2008 the Czech government started to implement restrictions on the migration of non-EU citizens. Foxconn started to recruit

indirect workers mostly from among EU citizens in Bulgaria, Romania, Slovakia and Poland. It also kept a smaller number of Mongolian and Vietnamese workers as part of its core workforce, the majority of whom have been Czech (Andrijasevic and Sacchetto 2014). The number of Foxconn core employees dropped substantially after 2008, as can be seen from the development of Foxconn CZ's employment statistics,⁴ which recorded a 30 per cent decrease, from about 3,700 employees in 2008 to about 2,600 in 2009 (Table 2). This decrease can only be partially explained by decisions regarding the outsourcing of some tasks (for example, building maintenance, cleaning) to external companies (interview on 13 April 2015).

Figure 1 Number of core workers employed by Foxconn CZ



Source: Official annual reports from justice.cz

4. Apart from Foxconn CZ there currently exist Foxconn Global Services Division, Global Logistics Solutions, Global Services Solutions and Foxconn Network Technology, which are all related to Pardubice operations of Foxconn. The Foxconn Technology is operating in Kutná Hora.

4. Early contestations of Foxconn's regimented culture

At the very beginning of Foxconn's establishment in Pardubice, the first industrial relations conflict broke out. While the investment was supported by the Czech government, its Czechinvest agency and the town's mayor, it soon met with protests by the company's workers and the metalworkers trade union KOVO. Foxconn has thus been one of the more contested investments by Asian multinational corporations in Czechia (cf. Veverková 2010). The industrial relations conflict at the start of Foxconn's operations was widely reported in both local and national media (which is the main source of information for describing this period).

The first Foxconn employees were somewhat taken aback by the company's disciplined working practices, based on assembly line production with increasing speed, strict conditions concerning leaving the workplace and security precautions. Assembly line production was new to Tesla. Such demands on the workers led some journalists to question whether 'Czech employees would accept them' (Krčál 2000). The pay offered by Foxconn in the range of 8,000 to 10,000 Czech crowns was criticised as low by the trade unions. However, for some employees, especially women, the main issue was not the wage but the abrupt changes in production output: 'You just can't plan anything. Your life has to be totally subordinated to the needs of the employer. There's tons of compulsory overtime for 12,000 [Czech crowns] a month. However, try to find a job in Pardubice where women can get this money!' A few Czech workers also complained to a newspaper (Prouza 2002).

It was especially during the first training courses and at the beginning of production that some workers complained about the regimented culture. One article, entitled 'Taiwanese shock their Czech workers' (September 2000) cited the reactions of a few employees:

Some working methods, transferred from China to Central Europe, have shocked Czech workers. 'I have been a driver for about a quarter of a century and now I should get used to opening the door for the boss whenever I reach the destination. Before that even his predecessors who were three times older did not ask for this', one of the company chauffeurs [complained]. ... 'Whoever leaves the [assembly] line for example when going to the toilet needs to ask the supervisor who watches the clock. You can't return to your place,

however. You become a part the reserve and hope that somebody's kidneys let them down [and you take his/her place in the assembly line]. This is because your wage is lower when you're standing by the wall'. (Seiner 2000a)

Two petitions were organised by workers in a short span of time complaining about, for example, the absence of water in the workplace, unpaid bonuses for overtime, work discipline, insufficient hygiene or security at the workplace. One petition was signed by almost a hundred workers and sent to Foxconn's management, the Labour Office, the Ministry of Labour and Social Affairs and the mayor of Pardubice (Biben 2000). According to the trade unions Foxconn expected that each employee worked overtime as not enough people were recruited for the planned shifts. The head of the trade unions feared that the 'working conditions would be adapted to Chinese ones' due to the relatively low wages (Pardubické noviny 8/8/2000). Those who were most dissatisfied with the working conditions and Foxconn's corporate culture left (Balada 2000).

Foxconn contested most of the demands as unsubstantiated. After the takeover of HTT Tesla Foxconn refused to communicate with the trade unions and at first did not recognise the existing collective agreement. The workers' protests and media pressure eventually made Foxconn recognise the trade union. The Pardubice municipality partially mediated the industrial relations conflict. The representatives of the trade unions and the workers cited in the media interpreted the agreements with Foxconn as a compromise. A 40 year-old woman said: 'Both sides had to temper their demands but I admit that the Taiwanese taught us a lesson. We met about half-way through and I don't intend to leave for a different job. Things could work this way' (Seiner 2000b).

The first industrial relations conflict that Foxconn encountered in 2000 in Pardubice can thus be understood as a process of local embedding. The introduction of a fast-paced and completely new assembly line production, together with demands for overtime and 'Chinese' managerial practices were opposed by the workers. The Foxconn managers, however, soon managed to introduce a strict working regime and high productivity comparable with other plants in China, Scotland and Ireland (Kučera 2000). The creation of a 'standard factory' after 'long years of loafing' (ibid.) was welcome by Foxconn's customers. Supposedly the Vice President of Compaq said in 2003: 'Terry [Gou]'s efforts at building a standard factory in Czech have built an excellent paradigm for

suppliers among Compaq's supply chain' (Chang in Tony Fu-Lai Yu, Ho-Don Yan 2014: 309).

5. Trade unions and the organising of workers

The transfer from Tesla to Foxconn meant two important things for the trade unions at Foxconn. First, due to the brownfield investment Foxconn also inherited the former Tesla trade union. Although initially resisted by the Taiwanese MNC, it managed to survive. Second, the trade union inherited property from socialist times, which gave it some economic independence (for example, paying a trade union representative).

The trade union at Foxconn has represented workers in both the Pardubice and Kutná Hora plants. A separate trade union could have been formed at the Kutná Hora plant, but Foxconn intervened; it preferred to have only one negotiating partner. Trade union density is relatively low – about 10 per cent – and has been relatively stable. Members pay dues worth 1 per cent of their wage (25 per cent is transferred to the metalworkers trade union Kovo), but they receive most, if not all of the money back through various family and other subsidies; these come from the returns on the aforementioned property. Currently, Foxconn pays the salary of the trade union representative, while the trade union pays the salary of an economist (interview on 7 March 2015).

One of the main areas of activity for the trade union is the negotiation of the collective bargaining agreements, where the focus is on wages and elements of the flexibility regime. The first collective bargaining agreement was signed in 2000 and signified the acceptance of the trade union by Foxconn. Only in 2002 did Foxconn wages rise for the first time. Since then each collective agreement has contained a clause on wage rises (interview on 21 February 2015).

Currently, the usual wage of a core worker (an operator) is between 14,000 and 17,000 Czech crowns. Foxconn kept wages at the average Pardubice regional level. At comparable companies, however, it seems that recently wages have risen more quickly than at Foxconn. The trade union has generally been critical of the low wages, especially of blue-collar workers in comparison with other industries (for example, the car industry), as well as the rising living costs. However, it has also exercised wage moderation, being aware of wage levels at other Foxconn plants

globally. In other areas, the trade union has successfully negotiated bonuses (higher than those in the Labour Code), more holidays and the provision of catering to workers (interview on 21 February 2015).

The collective agreement covers only core workers and not the indirect ones working for Foxconn's subcontractors, where there is no trade union presence. The migrant workers have been better represented by the NGO Most Pro in case of individual grievances (Andrijasevic and Sacchetto 2014).

Information is scarce about some localised struggles and protests, including work stoppages. A case in point was the protest against working conditions and for higher wages in the former Apple division in Kutná Hora. Here Foxconn's separation into particular companies and divisions proved to be problematic for the trade unions; supposedly, trade union members were not offered further contracts in other divisions once the Apple division closed down (Andrijasevic and Sacchetto 2014). The most common reaction in the case of worker dissatisfaction among both Czech and migrant workers has been to leave the company (Andrijasevic and Sacchetto forthcoming).

There have also been cases of different groups of workers in conflict. For example, ethnic Czechs complained about the hygiene conditions, pointing to the presence of migrant workers. The multifarious divisions among the workforce are most evident between direct and indirect workforce. The trade union has been too weak to address the unequal conditions between these groups. Its main focus has been the situation of core workers, which weakens the union's overall position, especially in view of the high proportion of indirect workers (Andrijasevic and Sacchetto 2014).

6. Local strategies of labour flexibility

Employment at Foxconn is still characterised by high levels of flexibility in relation to lean management, product changes and growing competition. Most important is numerical flexibility because most employees work in assembly, where the required skills are low. Turnover of employees is high. Planning of production and the number of assembly line workers needed in particular periods has become even more complicated and less precise than before because in the past few years the main

customer, HP, has been losing out in the PC market to Lenovo (Bott 2015). Foxconn's flexibility regime in Czechia is composed of a few main elements that will be presented below to complement the preceding descriptions.

First, various working time arrangements have been experimented with. Work accounts have been used to change working time based on current labour needs. Therefore every week core workers may face a different working time (for example, one week six shifts and another week just two). Over a period of 26 weeks working time needs to equal 26 weeks at 37.5 hours/week. For Foxconn this means that overtime bonuses are minimised and it does not have to pay for down-time. For core workers for whom overtime represented an extra part of their salary, however, this means a loss. On top of that, shifts may be changed only 48 hours before they start. This condition was included in the collective bargaining agreement between Foxconn and the trade unions signed during the economic crisis after 2008 (interview on 21 February 2015).

Currently, there are three shifts for core workers of 11.5 hours, combined with the work accounts. At first production at Foxconn was organised on the basis of one eight-hour shift or two or three shifts 7.5 hours long. After that there were four shifts of 11.5 hours in order to be able to organise production on Saturdays and Sundays. Subsequently, Foxconn returned to the system of three shifts, but the length of 11.5 hours remained the same (interview on 21 February 2015).

The long shifts in combination with periods of high production increase the weariness of the workers. In particular workers with children do not like having to work at the weekend. It is common that women leave Foxconn after returning from maternity leave because they find it hard to combine the shifts and child care. The consequences of such flexible planning of production thus tend to affect women more than men. They are also harder for older people.

Second, Foxconn has used a strategy of externalising a substantial part of the workforce by contracting temporary work agencies (TWA) (Andrijasevic and Sacchetto 2014). The indirect workforce – mostly migrant workers constructed as an ideal workforce⁵ (McKenzie, Forde

5. There is a hierarchy of migrant workers; for example, Mongolian workers are valued highly and have become part of the core workforce. On the other hand, Bulgarian workers rarely become core workers.

2009) – has ranged from 30 to 50 per cent of total manual workers. However, they can even represent the majority in some departments. The two Slovak TWAs that currently supply workers to Foxconn, however, have acted as subcontractors rather than temp agencies. They lease assembly lines from Foxconn and as a result neither they nor Foxconn need to make sure that the conditions of direct and indirect employees are similar, as would be the case for temp agency employment according to the Labour Code. Whether Foxconn is thus guilty of regulatory evasion (Berntsen and Lillie 2015) has been investigated by the Czech Labour Inspectorate.

Subcontracting has been used by Foxconn to distance itself (Merk 2011) from its responsibility for wages and working conditions with the TWAs. Some of the TWAs were criticised a few years ago by a local NGO, *Most pro lidská práva* (currently called *Most Pro*) for not providing social or health insurance (or providing falsified health insurance cards), not respecting holidays, delays in payment of maternity benefits, threatening workers, partly paying envelope wages or asking workers to sign an agreement on the termination of the work contract at the very beginning of the contract or changes of the legal names of the TWAs. After a particular media case involving Bulgarian workers who complained about long working hours, unpaid overtime and other labour rights violations (E15.cz 2010), Foxconn eventually stopped cooperating with one of the TWAs, VVV Tour. The number of complaints received by *Most Pro* from migrant workers has gone down, which may be an indication of Foxconn's changing strategy in relation to subcontractors. Most current issues for migrant workers concern the sometimes high level of precariousness in wages and working conditions (for example, unstable income, living conditions in some dormitories and so on).

Third, a variant of the dormitory labour regime was introduced in which dormitories serve as places where workers are readily available to be sent to work, as well as places in which they can be controlled by Foxconn's subcontractors (Andrijasevic and Sacchetto 2014; Sýkora et al. 2015). In 2001 Foxconn was considering building its own dormitory for 1,800 employees close to the factory. Following a petition and local opposition in Pardubice to the building of this dormitory (Seiner 2001) Foxconn has relied on external providers of workers (subcontractors) and of accommodation; thus Foxconn in Czechia usually does not provide accommodation or only temporarily to its own employees.

Thanks to the current system of shifts Foxconn is able to produce without any interruptions and may cancel shifts for both direct and indirect workers at a time of low production to save labour costs. There are, however, a number of issues related to the sustaining of such a flexible labour regime (Peck 1992). First, it is crisis-prone because, especially in times of economic upswing and job opportunities elsewhere in Czechia (for example in the car industry) or in other parts of Europe, Foxconn and its subcontractors have difficulties retaining workers. This is even more the case with EU citizens who are free to move in the European Union labour market. Second, the partial disembeddness of migrant workers from surrounding society (Altreiter, Fibich and Flecker 2015) may create animosities towards these workers. This has happened, for example, in the area with the largest isolated dormitory Hůrka on the periphery of Pardubice, where about 600 migrant workers live. The attitudes of the inhabitants of the local town have ranged from neutral to very negative (Sýkora et al. 2015).

7. Conclusion

This chapter analysed the multifaceted and complex development of Foxconn in Czechia in the older Pardubice plant and the very modern one in Kutná Hora. Although establishment in Pardubice in 2000 proved to be advantageous for Foxconn, it inherited the trade unions as part of the brownfield investment. The trade unions' and first Foxconn employees' opposition to its disciplined and culturally different practices played an important role in how the company became embedded in the local environment.

Almost from the beginning of its production the company has relied on the employment of a multinational workforce. It started with the temporary employment of Slovak workers and it continued to integrate regional and global workers from other EU and non-EU countries, especially as indirect workers through subcontractors. Both direct and indirect workforce workers are subject to high levels of flexibility. Although the fragmentation of the workforce and the trade union representation of only core employees has weakened the Foxconn workers, there are limits to flexibility with both direct and indirect workers. Foxconn has faced high fluctuation of workers and difficulties in retaining workers especially in times of economic growth.

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Chapter 5

The case of Foxconn in Turkey: benefiting from free labour and anti-union policy

Devi Sacchetto and Rutvica Andrijasevic¹

1. Introduction

Starting from the 2000s Foxconn invested in Czechia, Slovakia, Hungary, Russia and Turkey, implementing a territorial diversification strategy aimed at getting nearer to its end markets. This chapter investigates the development of Foxconn in Turkey where the multinational owns a plant with about 400 workers. A few kilometres from the city of Çorlu and close to highways, ports and international airports, the plant enables Foxconn to implement an efficient global supply chain. We illustrate this process by examining the company's localisation within a special economic zone, underlining the economic advantages derived from such a tax regime, bringing labour costs down to the Chinese level and obtaining proximity to European, North African and Middle East customers, thus lowering logistic costs. We also analyse the roles of labour flexibility and trade unions. In order to impose far-reaching flexibility on its workers Foxconn put in place a range of strategies, including an hours bank system, multi-task operators and the recruitment of apprentices thanks a special programme funded by the state. We show how these have been crucial for Foxconn's just-in-time production contrasting its labour turnover problem. Finally, we highlight how the company has been able to implement a flexible working pattern, weaken the trade unions and undercut workers' opposition, thanks to favourable labour laws approved by successive governments in the past thirty years.

1. The data and reflections presented here are part of a larger research project investigating Foxconn's production in Europe. We conducted ethnographic fieldwork in Turkey in September 2013, performing 29 interviews in the area of Çorlu. We would like to thank Guran Nulenc, who assisted us in conducting most of the interviews. All interviewees were aware that they were talking to university researchers, were informed about the scope of the research and gave their consent to be interviewed. Interviews with workers were conducted outside the workplace environment. Additionally, all workers' names have been replaced by pseudonyms and any other information distinctive enough to lead to identification has been removed.

2. Looking for a hub

Foxconn's factory is located within the European Free Zone (EFZ) in western Turkey close to the city of Çorlu. The Taiwanese multinational manufactures desktop computers exclusively for Hewlett & Packard (HP), which played a considerable role on the location process. Location within the EFZ was crucial for both Foxconn and HP, for several reasons, including low costs, government support, a wide pool of trained workers, the difficulty of unionising the workers and proximity to the markets. The EFZ was opened in 1999 and houses 150 companies with a total labour force of around 3,500; it is located within a large, enclosed and closely monitored area.² In 2011 the total trade volume of EFZ was 2.06 billion USD, of which 55 per cent was for export and 45 per cent for the domestic market (Ministry of Economy 2012; Kavlak 2012: 13). FDI flow was 18.5 million USD, the second highest among Turkey's Free Zones.

Foxconn, by locating its plant within the EFZ, benefits from various tax breaks, including complete exemption from VAT and from taxes on profits and wages, provided that it exports at least 85 per cent of the Free on Board (FOB) value of the goods produced. Moreover, since the establishment of the EC–Turkey Customs Union in 1996, exports to the EU from domestic businesses in Turkey have been free from customs duties. These advantages are very important, as Esen, a former manager, explains, 'If they don't pay tax on wages, their labour costs are pretty much the same as in China' (Interview no. 1, ex-manager, male, 40 years old, Çorlu, 7 September 2013).³

Foxconn, like other multinationals, was looking not only to lower manufacturing – and particularly labour – costs but also to reduce its tax. As Geyikdağı and Karaman (2013) underline, some FDI by multinationals in Turkey are also for the purpose of modifying their costs and profits, using transfer pricing techniques to avoid or evade payment of taxes. Locating in different countries enables multinationals to create an artificial price structure, shifting some costs and profits where it is more advantageous for them. The manipulation of prices can be done for various aims, such as to show low profits or losses in one country or to send funds

2. There are three models of FZs in Turkey: public/public, build/operate/transfer and build/operate. The European FZ at Çorlu is a build/operate model founded by private actors and established on private land (Kavlak 2012: 22).

3. According to our calculations, Foxconn could save at least around 300,000 euros per year on wages.

abroad (Milberg and Amengual 2008). Foxconn factories in Czechia could, for example, sell semi-finished products to Foxconn's Turkish subsidiaries for assembly in Turkey at very low cost to obtain a high profit in Turkey, where there is complete tax exemption. In fact, to increase exports, the government adopted the Law on Free Zones (FZ) in January 2010 and established new incentives for investors. Thus for multinationals, FZs offer a good opportunity to allocate production and profits and to avoid high taxation in other countries. Consequently, in 2011 exports rose by almost 60 per cent and exceeded domestic sales for the first time since the establishment of the FZs (Ministry of Economy 2012; Kavlak 2012: 37).

Foxconn has also benefited from government support during the process of carrying out feasibility studies and the initial recruitment of the workforce. Foxconn obtained permission to operate in the EFZ from the Ministry of the Economy in 2009 and started to recruit people at the end of 2010, after an analysis involving consultations with members of the government as well as directors of local schools. HP and Foxconn managers met with the Investment Support and Promotion Agency of Turkey (ISPAT), a government organisation reporting directly to the Prime Minister and responsible for foreign investments, and later signed an agreement with the Ministry. The initial recruitment of workers was through advertisements and the media. At public presentations with local government participation Foxconn claimed that there would be expansion up to 2,000 employees in a few years. Many workers were attracted by Foxconn's factory, seeing it as technologically advanced and with a better working environment than the textile and mechanical sectors. The rapid industrial development in the area around Çorlu gave Foxconn a chance to draw on a labour force that has already been trained to do industrial work.

From a white-collar perspective, people speak relatively good English; from an educational perspective there are many technical universities in Turkey. When we look at blue-collar workers on the production line we see that, in this region, although they didn't have specific electronics experience, there is a big automotive and textile workforce, so they are used to working with processes, they are used to following instructions. So we were confident that there was a big enough labour-pool with enough factories in the region to ensure that workers understand the discipline of factory working and the type of shift patterns that factories operate. (Interview no. 28, manager, male, 45 years old, Istanbul, 17 September 2013).

The choice of manufacturing goods in Turkey is linked not only to labour but also to logistics issues, as a manager explained further: ‘When you compare factory cost with supply chain cost it is actually a fraction of the number. Actually the biggest cost today is logistics and how you transport the materials backward and forward’ (Interview no. 1, ex-manager, male, 40 years old, Çorlu, 7 September 2013). The European Free Zone where Foxconn’s plant is located is just a few kilometres from Pan-European Corridor 4, the main arterial road linking Istanbul with Bulgaria, Greece and central Europe. Such positioning puts Foxconn near its customers, as well as its other manufacturing sites. The Turkish factory is a stage in the company’s strategy of moving closer to its end markets, along with Foxconn’s manufacturing sites in Europe: two in Czechia, two in Hungary, one in Slovakia and one in Russia.⁴ The Pardubice factory in Czechia is the central base for Europe and sets the pace for production in the other European plants (Andrijasevic and Sacchetto 2014). In fact, the first employees recruited for the Turkish plant were sent for several months’ training in Pardubice.

3. Labour force composition

In 2014 Foxconn employed about 400 workers and achieved a trade volume of 208 million USD. Unlike Czechia, where the workforce is split between local core workers (60 per cent) and EU migrant agency workers (40 per cent), the labour force in Turkey is made up of Turkish women and men aged between 25 and 45 who are hired directly on open-ended contracts. Assembly line workers earn just above the minimum wage level fixed by the government, 300–350 euros, which is periodically revised. The wages of group leaders are not much higher than those of the workers, at around 380–420 euros per month, and the earnings of the white-collar employees rise gradually as they move up the pecking order. Foxconn hires workers beyond the local labour market, targeting people living in villagers and cities from the surrounding areas and recruits women for factory work. In fact, on top of the long day in the factory there is also 20–60 minutes of travelling time in the dozen or so buses provided by the company. While the labour force is relatively homogenous, we consider here two groups in particular, Muhacir Bulgarians and women

4. In 2015 Foxconn closed the St Petersburg plant: <http://appleapple.top/hp-closed-the-plant-near-st-petersburg-and-moved-production-to-the-czech-republic/> [20 December 2015].

workers, to show the relevance of the workforce composition to the production process.

Foxconn employs a high percentage of Bulgarian Turks known as Muhacir Bulgarians, most of whom came to Turkey in 1989 to escape ethnic cleansing during the final months of the communist regime in Bulgaria. In the twentieth century ethnic Turks from Bulgaria immigrated to Turkey in several waves: 1921–28, 1950–51 and 1989. In the summer of 1989, about 300–400 thousand Muhacir Bulgarians were forced by the Bulgarian government to move to Turkey in order to escape discrimination and forced assimilation (Elchinova 2005: 87; Vasileva 1992). They settled in various towns, depending on their networks, and formed large communities in the cities of Ankara, Bursa, Çorlu, Edirne, Istanbul and Izmir (Nichols et al. 2003):

I was born in 1983 in Silistre, Bulgaria. I'm 30 years old. My family migrated here in 1989. First, the [Bulgarian] government forbade our religious practices. Then they banned our language and education in Turkish was forbidden, so we had to leave. We came here because some relatives of ours had already moved here in 1979 and we decided to join them ... I remember the day the Bulgarian and Romanian army came to our village: they closed down our schools, they beat us with clubs; I had my ribs broken, my grandfather was beaten while he was praying. After I recovered my family decided to sell everything and come here ... I have both Turkish and Bulgarian [citizenship] ... If you had asked me five years ago I would have replied that I would never go back to Bulgaria, but now it's different, I'm seriously considering moving there. Because five years ago Bulgaria was a poor country but now with all the aid from the EU, the financial situation has changed and even though workers' conditions have not improved too much, it's possible to live a comfortable life there ... The EU is good! I've been to Germany in 2001, my father worked there for one year. (Interview no. 3, male, 32 years old, Çorlu, 8 September 2013)

In contrast to local Turkish workers, many Muhacir Bulgarians have dual citizenship – Bulgarian and Turkish – and are therefore more mobile and consider looking for work in the EU, as Bulgarian citizens. Muhacir have a different attitude to life and work than locals: they have a more secular worldview and live a 'modern' lifestyle, are better educated, the women are generally more free and do not wear headscarves, and husbands and

wives have less unequal relationships (Nichols et al. 2001: 9–10). Muhacir women study longer and have a higher participation in the labor market than local Turks (Cesur-Kılıçaslan and Terzioğlu 2010). Managers prefer Muhacir Bulgarian men and women to local Turkish workers as the former are more qualified and are seen, as expressed by the manager of the EFZ we interviewed, more disciplined at work (Interview no. 8, male, 55 years old, Manager European Free Zone, Çorlu September 2013). Moreover, Muhacir women are more likely to get hired for factory work than local Turkish women as they are also willing to work the night shift (Nichols et al. 2001: 15).

In Turkey, although in the gendered division of labour inside the household women are held to be responsible for care work, they are able to play an active role in the labour market. FZs offer new employment opportunities, particularly to women, who account for 82 per cent of workers there (Kıvılcım 2008: 2). Data from 2007 show that women are mainly employed in the agricultural and fishery sectors (37 per cent), where their participation surpasses that of men (17 per cent), as well as in so-called elementary occupations, where their presence is again higher than that of men (17.8 per cent for women and 12.7 per cent for men) (Ince 2010: 61). The most important difference with regard to the conditions of women in Turkey is the division between rural and urban areas and between the west of the country, which is most industrialised and the east of Turkey, where patriarchal gender roles and values are widespread (Ince 2010; Gündüz-Hoşgör and Smits 2008). In the cities and in the western regions women have higher labor force participation rates and are often employed in the industrial sector. Traditional gender roles and values strongly limit women's position in the labour market, in particular in rural areas. But employers regard rural women as more passive and harder working and, therefore, more reliable. Critiques of stereotypical representations of women concentrate on women's resistance, as demonstrated by the strike in the Antalya FZ in 2006. Fougner and Kurtoğlu's (2011: 366) account of women's mobilisation concerns broader forms of resistance to exploitation and patriarchy. In fact, women workers are daily creating alternative forms of relations inside and outside the workplace, which is leading to strong tensions in Turkish society.

In the case of Foxconn, women workers can suffer from patriarchal power relations, but their behaviour, whether inside or outside the workplace, is not passive. Nevertheless, as already mentioned, in the gendered division of labour inside the household women are considered respon-

sible for care, they are able to play an autonomous and active role. We can note this behavior in the high divorce rate among women at Foxconn and in the more general presence of women in the local labour market. As for the rest of the labour force, managers prefer to take on young women and are often prejudiced against women in their 30s or older, considering them too slow to work on the assembly line:

Because this work requires manual skills, I asked the HR office to hire young people, between 20 and 28 years old, because they learn faster and also because this job is not appropriate for older people. My team was a young one. The other group was held back because older women worked in it. I used to make fun of them, calling it 'the seniors' line'. (Interview no. 4, male, 34 years old, Çorlu, 8 September 2013)

Inside the Foxconn plant there is a clear division of labour between men and women: pre-testing is fully staffed with women, while the assembly line is mixed. This is because production is seen as physically more demanding and hence less suited to women:

It's simple work, that's why they prefer to send women to pre-testing. Men are mostly in production where the work requires using tools like screwdrivers, or in packing where there are heavy weights to carry. For some specific work in production they send women because they have small hands. (Interview no. 11, women, 43 years old, Çorlu, 10 September 2013)

Gender therefore plays a large part in the company hierarchy and men hold the majority of managerial positions. During our fieldwork there was only one woman group-leader working in production, although in the past there were three of them, one in the warehouse and another in packing. As explained by a female employee, managers prefer men in this position, but at the same time, not all workers want to become group-leaders because one needs to juggle the pressure from managers and the needs of workers:

At the moment all group-leaders are men. One of the reasons might be that the general manager is quite tough and strict and not everyone has the nerve to deal with him, especially women. Another thing that makes the work of group-leaders more difficult is turnover, because new workers need training. Even if you know

your job well no one acknowledges it. The wage is low, too. I don't want to be a group-leader. It's a difficult job, you have to deal with workers and implement management orders. (Interview no. 11, women, 43 years old, Çorlu, 10 September 2013)

The large presence of women at the Foxconn plant, as well as their relegation to the lower end of the company's hierarchy, resembles the position of women in the Turkish labour market more broadly. These data highlight the difficulties women face escaping from certain sectors of the economy and also in achieving career development due to cultural values and gender roles that still determine, independent of their qualifications, women's position in the labour market (Ince 2010: 56).

4. Labour process flexibility

Foxconn operates just-in-time production based on specific customer orders so as to cut costs by reducing storage or warehouse time. Each manufacturing site usually serves different markets. The factories within the EU supply European clients and the Turkish one supplies Middle Eastern and North African customers, as well as local ones. This system reduces waste and requires less investment. Just-in-time production is based on a form of neo-Taylorism in which operations are broken down into micro-movements (Lüthje et al. 2013; Peña 1997) and managed through the control of the workers' time and space. At the Foxconn plant, these often trivialised and repetitive operations are regulated through a high-speed computerised assembly line. The relevant data are stored on the computers that control the assembly line. Thanks to the barcode system, computers make it possible to record step by step the pace of production and to identify at which work station and which workers are responsible for faults: 'The shop floor control system is a live system. You put each part in the computer; there is a barcode and the reader reads the part. When it reads it and it shows green then it is working. If not, you know the part has a problem' (Interview no. 1, male, 40 years old, Çorlu, 7 September 2013).

Production targets are demanding and are constantly monitored. The two assembly lines produce about 5,000 computers in 24 hours at a rate of 110–115 computers per hour. Management resorts to different methods to ensure high production targets, such as competition between the two assembly lines and among workers in general and bonuses equal to 10

per cent of the wage for the assembly line that achieves the targets. Control of the space and workers' movements is realised through CCTV cameras: 'There are CCTVs everywhere and the management is watching people. It is called a shop-floor control system. It is a standard system at Foxconn' (Interview no. 1, Çorlu, male, 40 years old, ex-manager, 7 September 2013). The computer systems used on the assembly lines, as well as the CCTV cameras, mean that department heads can constantly manage and monitor production and often identify in real time any errors or sabotage that may occur.

To fulfil customers' orders, just-in-time production demands several forms of flexibility inside the plant. These are, first, multi-task operators; second, an apprenticeship scheme; and third, variable working hours (hours bank system). Multi-task operators are workers who are trained to take up different positions and perform several production tasks. The figure of a multi-task operator, who is moved between jobs and departments, is pivotal to meeting immediate production needs. At the same time, however, this type of worker might undermine the efforts of other workers and facilitate the management's strategy of cutting costs. As multi-task operators are moved between different departments, they might be more expert in completing one task than another and hence inadvertently hinder other workers in reaching their production targets and earning monthly bonuses.

The management avails itself of two government-run programmes to recruit temporary workforce and cut labour costs. The first provides internships for high school students and the second, funded by the government through local employment centres (IŞKUR), involves apprenticeships geared towards unemployed people. Both groups have a fairly similar experience: the training period is shortened to a few hours and then trainees are placed on production lines alongside regular workers. While each year Foxconn staff selects a considerable number of apprentices directly at the Işkur offices, it only takes a handful of students. Foxconn visited vocational and technical schools in order to set up students' internships as early as the feasibility study stage to select the location of the plant. Students from these schools have to complete compulsory practical training either as a summer traineeship or as training for three days a week for the duration of their last year of school. Through traineeships Foxconn avails itself of a temporary workforce that works alongside the regular workers, meaning they work the same hours and do the same tasks, but are paid only one-third of the minimum wage.

The Işkur scheme for the unemployed is based on the 264-hour apprenticeship and lasts for about nine weeks. In June 2012 alone the company took on 50 apprentices, or about 12–15 per cent of all Foxconn employees, who were paid between 7.5 and 9.3 euros per day by the government for eight hours' work. However, the work placement scheme often does not correspond to the reality of factory work:

The basic training was only for one week and that took place in the school; after that we worked like a Foxconn employee, but I got my wages from İŞKUR. Let me give you an example – when you apply for a job the first thing they tell you is this: 'İŞKUR may tell you that the working hours are 8 per day, but our working hours are 10 per day and you have to abide by this.' In other words, Foxconn management gives out the message that 'whatever İŞKUR says, they can say what they want, I get my way.' (Interview no. 18, male, 48 years old, Çorlu, 11 September 2013)

The Işkur scheme allows Foxconn to operate a selection processes through which it can recruit in a more cautious way and reduce labour costs, as one of these apprentices explains: 'I had an interview with the managers and they said they'd hire me but I had to do an apprenticeship course first. So I did these two months where I was paid 20 Turkish lire (7.5 euros) a day for ten hours' work' (Interview no. 18, male, 48 years old, Çorlu, 11 September 2013). At the end of this period apprentices and interns are supposed to be hired, but quite a few of them leave before then. So far, the apprentice system has been a success, so much so that Foxconn received an official award from the government unemployment agency Işkur.

A third and final aspect of just-in-time production is working hours flexibility, which is achieved through overtime and the so-called working hours bank system. Workers, whether male or female, alternate on a weekly basis between day and night shifts in a roster system like the ones in the company's other factories in Europe and China. Employees work between 10 and 12 hours a day for five or six days a week, but sometimes less if they're not needed. In Turkey, legally stipulated working hours are 45 per week and a maximum of 11 hours per day. Currently, the 2003 Labour Act allows Foxconn to average out an individual's working hours to 45 a week over a two-month period, which can be extended up to four months by collective agreements. In unionised plants workers are able to control this flexibility but in non-union firms, such as Foxconn, the

organisation of overtime and the hours bank system are managed by employers (Dereli 2013: 22-3). At Foxconn, working hours are much more variable than in other local factories and can range from 30 to 60 per week. This flexible working pattern permits workers to earn the minimum working wage (i.e. 45 hours per week), regardless of the amount of hours they work. On the other hand, overtime rates are rarely paid because the company manages working-time in such a way that workers do not exceed the average of 45 hours a week in two months. Crucially, as a result of this averaging, the extra time worked in any particular week is not paid as overtime, but carried over to subsequent weeks, so that the average weekly amount of hours worked is always 45. This creates conflict in the workplace, also because Foxconn changes the shifts for the express purpose of not paying overtime at the end of the period:

Everyone talks about lean manufacturing – that means zero waste in packaging, zero waste in labour hours. It can also mean that everybody in the factory is encouraged to come up with ideas on how to work more efficiently: why do you bring that pallet from here to here every day – why don't you just get it delivered here? They are always trying to take the waste out of a process. So when the customer has high fluctuation in demand, we are always looking to match this demand in the least wasteful way and be as competitive on price as we can. Labour agencies [in Czechia] help us to do that – they work with multiple companies and say – OK this month Foxconn needs 100, next month they only need 50, but company B and company C need people so they shift people between companies – and this is a good model when it works. In Turkey we have not found that solution. We found that demand can still go up and down but within the flexible working conditions we have with our employees we are balancing the workload over a two-month period, right. So in one month we will work up to the maximum 60 hours per week, next month they may work 30 hours per week so the average is 45 hours. I would say that today we still have some time wastage. I am sure when you interview the employees they will tell you that some days we send them home because there is no work and because they are all permanent employees and there is 0 per cent flexibility, I am paying wasted hours at the end of the month. And that is the reason why they leave my company. Because they see that their friend works over 45 hours and gets their wages – I work on average 47 hours and only get salary for 45 so it could be a

factor. (Interview no. 28, manager, male, 45 years old, Istanbul, 17 September 2013)

As the manager put it, Foxconn frequently changes employees' working hours by sending them text messages a few hours before their shifts are due to start. The effect on workers is pretty clear, as a worker explains: 'They send a text at six every afternoon to say whether we'll be starting work at eight or at ten that evening. The unpredictability of my shifts is a constant bone of contention between my husband and me' (Interview no. 15, woman, 39 years old, Çorlu, 11 September 2013).

Harsh working conditions provoke a high turnover of employees inside the factory, about 20-30 per cent a year, particularly among manual workers, who stay at Foxconn a few weeks or months and then leave. Labour turnover is often supported by workers, who prefer to resign because they can easily find another job. At the same time, Foxconn can fire workers also for small matters, such as refusing to do overtime. There are many reasons for firing people, but for workers losing their job is not a major blow, because of the wide availability of manufacturing work in the area.

I was fired. During a meeting with managers, we discussed something that happened on the night shift. The manager decided to fire a friend of mine without compensation because he was chewing gum and I objected to his decision. I was accused of protecting this worker and two days later I was fired. But my friend got to stay. (Interview no. 4, male, 34 years old, Çorlu, 8 September 2013)

5. For and against trade unions

The key issue for Foxconn workers, and for workers in other factories in the EFZ, is the question of trade unions, who face strong opposition from the state. In fact, labour unions in Turkey have a very precarious existence and operate within an extremely strict legal environment (Adaman et al. 2009). In 1980 with the aim of attracting foreign capital, the military government implemented an economic shift from import substitution to a market-oriented strategy and put in place subsidies for exporters, a programme of privatisation and restrictions on trade union activities by banning the right to strike in the FZs for the first ten years of their activity (Arnold 2010: 620). After less than two decades of freedom (1962–1980),

this new economic policy heralded by the military restricted union activities. Within the framework of EU negotiations the latter was amended and the government abolished restrictions on labour mobilisation and trade union activities, although provisions on FZs remain in force (Ustubici 2009). It is the state authorities' intolerance of union activities that enables and sustains these anti-union practices and has led to a decline in union membership from 27 per cent in the 1970s to 10 per cent in the 2000s (Cam, 2002; Fougner and Kurtoğlu 2011: 358).

The only real kind of negotiating that exists in Turkey takes place within unionised factories (Fougner and Kurtoğlu 2011; Çelik 2013). Collective bargaining can take place only in relation to individual establishments or all establishments belonging to the same employer. The competency mechanism is considered the biggest obstacle to collective bargaining as the union needs to demonstrate it has unionised 50 per cent plus one in the plant and 10 per cent of the workers in the industry to bargain (Nichols et al. 2002: 39; Fougner and Kurtoğlu 2011: 358). This long and complex competency mechanism destroys the essence of unionisation and the right to collective bargaining, as shown by the fact that in 2011, only 370,000 workers or 3.5 per cent had collective bargaining coverage in the private sector, the lowest level in Turkey's multiparty era (Çelik 2013: 44).

Until 2012 workers had to make an appointment with a notary in order to get a certificate to join a trade union, but now they can register their membership online. Act No. 6356 on collective bargaining, passed at the end of 2012, has only partly improved the situation because now workers who want to join a union have to register themselves on a government-run website and are therefore exposed to direct scrutiny by the state. The government can also defer any kind of strike action for reasons of national security or public health.

The most important and traditional union in Turkey is Turk-Is, that was long considered 'a bastion against communism and militant class unionism in the context of the Cold War' (Yildirim et al. 2008: 371). While Disk, the Revolutionary Workers' Trade Union Confederation, was closed down by the military in 1980 and its leaders imprisoned, Türk-iş was able to survive and gain significant advantages over other unions thanks to a tradition of lobbying and negotiation. In fact, Türk-iş has pursued a policy of 'class compromise', avoiding active engagements in workers struggles as it is proved by the recent attack that workers in the automotive sector

launched against Turk Metal (Korkmaz 2015). Disk was established in 1967 by a group of leftist unions from Türk-İs and in the 1970s took a militant road, which was one of the reasons it was closed down by the military in 1980. Disk was able to resume its activities only in 1992, and it is still considered a left-wing Confederation, although it appears to be less radical than it once was. Finally, Hak-İs was set up in 1976 and is the unions of Muslim workers, with a strong belief in the cohesion of employers' and employees' interests.

In Çorlu, trade unions inside factories face difficulties, as in other areas of Turkey. Since 2002 it has been possible to organise workers in the FZs, but unions can enter only if they have members inside factories. At the Foxconn plant, a number of workers used to be members of the Turkish Metal Union (TMU), which is active in the automotive, white goods, electronics, iron and steel sectors. As union membership in Turkey is industry-based, the workers automatically retained their membership when they moved from the factory they previously worked at, such as Volkswagen, to Foxconn. TMU is a member of the biggest Turkish union, Türk-İş, and the links between the two are close as the president of the TMU is also the General Secretary for Organisation of Türk-İş. The representatives of TMU in Çorlu explained that they do not have a particularly active recruitment process: 'We'd rather wait for workers to approach the union. We don't put pressure on workers to enrol.'

Foxconn does not underestimate the influence of unions or the impact that workers' mobilisation can have on factory labour. Indeed, the experience of the Korean Daiyang factory in the Free Zone⁵ where workers attempted to unionise in 2013, which led to a fierce confrontation between the workers and the police, is still fresh in Foxconn workers' minds. Foxconn hired a number of unionised workers during its first few months in Turkey, but management soon remedied this oversight and made these workers give up their union membership:

When I changed my job I thought my union membership would end automatically. But actually it's not like that. When I started at Foxconn managers learned somehow that some of us were members of the union. A group-leader came to us, to each of us who were trade union members, and told us we had to resign from the union.

5. <http://www.industrial-union.org/industrial-outraged-by-savage-union-busting-in-turkey> [20 December 2015].

Then they sent us to the HR office. At the office there was a public notary, called and paid by Foxconn, who made us sign a letter saying that we are resigning from the union. He told us that they will fire us if we do not sign. (Interview no. 10, male, 27 years old, Çorlu, 9 September 2013)

At Foxconn, as elsewhere in the private sector, anti-union practices are so common that Turkey was recently identified as guilty of significant labour violations, including restrictions on freedom of association, a difficult collective bargaining process, limitations on the right to strike, discrimination against workers because of union membership and imprisonment of union leaders (ITUC 2012: 209).

6. Conclusion

In this chapter we have provided an overview of the Foxconn factory in Turkey, which enjoys a tax-free regime and benefits strongly from its proximity to customers. Foxconn's reasons for locating the factory here include a state willing to support international investment, opportunities to sell products in a sub-continental market thus avoiding customs duties and limits on importing finished products, proximity to the customer base, favourable labour policies, availability of a semi-skilled, low-cost workforce and weak union presence. Multinationals invest in different areas characterised by a considerable range of social and legal regimes to organise their supply chains (Mezzadra and Neilson 2013).

Having a plant in a Free Zone in Turkey enables Foxconn to obtain economic and labour benefits and, at the same time, to reach customers in European, North African and Middle Eastern countries.

In addition, the workforce composition and the labour process indicate the basis of Foxconn's location strategy. Comparing the plants in Turkey with others in Europe (Sacchetto and Andrijasevic 2015) and in China (Pun and Chan 2012; Chan, Pun and Selden in this volume), we can note a relative homogenisation of machinery, operations in assembly lines and organisation of production. But there is considerable variance in the composition and management of the workforce from both a social and a legal perspective. Recruitment policies, labour management methods, wage levels and scheduling systems are devised differently for each area. The firm's ways of dealing with employees in different countries to

prevent them from getting organised and developing strategies of resistance are another important factor.

Moreover, the state plays a crucial role in lowering labour costs and limiting trade union activities in general and within the FZs in particular. The state therefore enables Foxconn to achieve manufacturing flexibility and, at the same time, hinders workers from developing strategies of resistance. However, as labour is not a passive entity (Smith 2006), both the company and the state are forced to keep on inventing additional forms of exploitation and control. Facing difficulties in organising themselves and fending off management pressure, workers in Foxconn factories have developed a classic strategy of exit, as indicated by the high labour turnover. Workers' mobility is an instrument of self-defence against the severe working conditions, also because trade union power is weak inside and outside the European Free Zone.

Our research highlights that Foxconn, like other multinationals, has established a worldwide supply chain, taking into consideration different national legislations when deciding where to invest and weighing up opportunities to obtain a reliable workforce without the presence of strong and conflictual trade unions.

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Chapter 6

Electronic assembly in Hungary: how labour law fails to protect workers

Irene Schipper

1. Introduction

This chapter provides an overview of labour practices at four foreign electronics multinationals operating in Hungary and analyses the role of the Hungarian state as legislator in protecting workers' rights in its FDI-dominated economy, in which the electronics sector is prominent. Hungary has embraced participation in the global electronics supply chain as a manufacturing location as a means to upgrade its own industry.

In the mid-1990s, a number of countries in the central and eastern European region emerged as new manufacturing hubs in the global electronics industry. Hungary was the first to open up its economy to FDI. With the establishment of free trade zones the country became especially attractive for large greenfield projects for assembling imported goods for export, using cheap local labour.¹ Hungary's efforts to become a manufacturing hub have resulted in investments by electronics companies that engage in mainly labour-intensive, low-skilled or semi-skilled manufacturing. They have attracted electronics manufacturing services companies, such as Foxconn, for whom costs, speed and flexibility represent a competitive edge. Keeping labour costs low is essential for these companies to improve their gross margins, which are low compared with those of brands, such as Apple and HP (Harris 2014). To retain these companies Hungary has to compete with other countries with labour-intensive electronics manufacturing, typically low-wage countries in Asia.

A number of workers' rights violations are systemic in these low-wage countries with labour intensive electronics manufacturing. For many years, SOMO (Centre for Research on Multinational Corporations) has been researching labour conditions in electronics factories in low-wage

1. See also Sass (2015).

countries, such as Malaysia, Mexico, Thailand, the Philippines, Indonesia and India, but primarily in China. This research is conducted together with local labour groups and trade unions. In all these countries the same problems occur. These systemic problems include wages that are too low to cover everyday needs, 12-hour shifts, mandatory overtime, unpaid overtime, obstruction of trade union rights, widespread use of agency labour, wage deductions, such as punitive fines, exposure to health and safety dangers, discrimination and harsh treatment by management.

This chapter analyses whether the systemic problems associated with the labour practices of global electronics manufacturing multinationals in low-wage countries are also found at those companies present in Hungary. It is also questioned whether the revision of Hungarian labour law in 2012 has been adequate to protect electronics workers against these systemic problems.

The underlying research for this analysis was conducted in 2011 and 2012 by the Hungarian consumer organization Association of Conscious Consumers (ACC) and SOMO.²

The chapter is structured as follows. First, the characteristics of the electronics sector in Hungary and the revised Hungarian labour law are presented. Thereafter, four Hungarian subsidiaries of foreign electronics manufacturing multinationals are introduced (Foxconn, Flextronics, Nokia and Samsung), followed by a description of labour conditions and labour relations at these companies.

2. The electronics sector in Hungary

According to the Hungarian Investment Promotion Agency, Hungary is the largest electronics producer in central and eastern Europe (CEE), providing 25 per cent of CEE output. Hungary is closely followed by the Czech Republic (23 per cent), Poland (17 per cent) and Slovakia with 12 per cent of CEE output in 2013. The electronics manufacturing sector represented 5.3 per cent of Hungary's GDP in 2011. Foreign ownership

2. This research and similar SOMO research on labour conditions are published under the banner of the makeITfair campaign. This awareness-raising campaign, that ran from 2007 until 2013, aimed to inform European consumers about the workers' rights violations in the supply chain of consumer electronics, with a special focus on ICT products, such as mobile phones, games consoles and computers.

of Hungarian firms is widespread; around 90 per cent of electronics industry production in Hungary derives from foreign multinational electronics corporations.³

In the economy of Hungary in general, FDI plays a crucial role. The stock of FDI in Hungary⁴ is the highest as a percentage of GDP in Central Europe. Since the transition from a socialist to a market economy in the 1990s, FDI has facilitated productivity growth, technological modernization, export capacity and job creation (Henger 2014). Most new job creation in 2014 by FDI flow was in services, followed by the automotive and electronics sectors.⁵

According to a brochure published by the Hungarian Investment and Trade Agency in 2012, the electronics sector employed 112,184 people, and included 8,300 enterprises, 170 of which are medium-sized or large companies. On average, 92 per cent of electronics production is destined for export.⁶ Companies with more than 250 employees dominate the Hungarian electronics sector. These include electronics manufacturing companies such as Foxconn (Taiwan), Jabil Circuit (US), Flextronics (Singapore/US), Sanmina-SCI (US), Zollner (Germany) and Videoton (Hungary). There are also global brand companies, such as General Electric, Samsung, Bosch, IBM, Electrolux, Alpine, National Instruments, Philips, Siemens, Clarion, Honeywell and Ericsson.⁷

The electronics sector has played a prominent role in Hungary's export-oriented development strategy. Participation in this industry was embraced as a means to modernize and upgrade the local industry. The idea was to start with low-wage export activities, which should eventually lead to more value-added production. Furthermore, access to new technology and knowledge spillovers to local firms would lead to economic upgrading and subsequently to social upgrading as the higher-value activities would require more skills and promise better working conditions. The question of whether Hungary has succeeded in this is

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3. Website of the Hungarian Investment Promotion Agency (HIPA), <http://hipa.hu/Content.aspx?ContentID=ab2f830e-4dba-4e3a-9b4a-a1b030b2a52a>
 4. EUR 80.6 billion at the end of 2013 (accumulative).
 5. HIPA website, <http://hipa.hu/en/Content.aspx?ContentID=55b9ce7c-a1ad-4797-a50b-035a7f3docea>
 6. 'Challenge the crisis by investing in the Hungarian electronics sector', Hungarian Investment and Trade Agency, 2012.
 7. HIPA website, <http://hipa.hu/Content.aspx?ContentID=ab2f830e-4dba-4e3a-9b4a-a1b030b2a52a>

addressed by Plank and Staritz (2013). Their analysis shows that the potential positive effects from the investment of foreign multinational electronics companies in Hungary have remained low and below expectations. To a certain extent, internal economic upgrading has taken place; more knowledge-intensive activities have been integrated in multinational electronics companies. This includes the transfer of some R&D-related activities by brand companies such as Nokia, Ericsson and Siemens and by electronics manufacturing companies such as Flextronics. However, the establishment of local electronics suppliers and new local electronics companies to absorb potential spillovers never took place. The globally organized production networks give no room for potential local suppliers, apart from some non-electronics supplies, such as packaging or catering.

The Hungarian electronics sector is thus still based on a significant amount of labour-intensive activities that require a limited number of skilled workers, while the majority of work can be done by un-/semi-skilled workers (Plank and Staritz 2013: 19). Furthermore, as a low-cost location Hungary faces stiff competition from other central and eastern European and Asian countries.

In the early years of the new millennium Hungary was perceived as a 'higher-cost' location within the wider central and eastern European low-cost region. The first relocation pressures were felt when IBM relocated its hard-disk-drive plant to China in 2002. Flextronics moved further east to Ukraine to assemble circuit boards for the Hungarian Nyiregyhaza plant. Similarly, TDK relocated a Hungarian plant to the Ukraine and Artesyn moved production to Romania. Philips replaced part of its Hungarian production capacity by subcontracting from firms based in Ukraine (Plank and Staritz 2013: 13). More recently, the Nokia plant in Komárom was closed down (July 2014). Microsoft, which has bought Nokia's handset business, decided to relocate production from Hungary, as well as from China and India, to Vietnam, which is the new growing low-cost production hub.⁸

8. <http://www.zdnet.com/article/microsoft-moves-nokia-manufacturing-from-china-to-vietnam>

3. The new labour law

The new Hungarian labour law, which came into effect on 1 July 2012, seems to be a retrograde step by the Hungarian government in the so-called ‘race to the bottom’. In this ‘race to the bottom’ governments deregulate the business environment and lower taxes in order to attract or retain FDI, resulting in lower wages, worse working conditions and less environmental protection.

This downward plunge is currently taking place between low-wage countries, such as Malaysia, Thailand, the Philippines, Indonesia, Vietnam, India and China, where manufacturing hubs for ICT production have emerged. These countries are competing in terms of wages, labour laws that facilitate flexibilization, and tax and trade incentives to attract foreign investment. Such practices do not necessarily favour the host country and certainly not its labour force. The ICT sector is a very competitive sector and the profit margins for manufacturing are small. The pressure to continually cut costs poses a challenge and one strategy is to play countries off against each other.

Whatever reasons Hungary may have had to reform the labour law (the record low FDI flow in 2009 and 2010,⁹ the crisis or the low employment rate), it was certainly not the only country to do so; several European national legislators have been making adjustments to labour laws to promote enterprise ‘flexibility’. This is justified by the European Commission with the argument that making labour markets more flexible is one of the best responses to the crisis (Clauwaert and Schömann 2012). Hungary’s reforms are certainly among the most drastic, with far-reaching consequences for workers.

Looking at developments in various European countries, four main areas of labour law changes have been identified by Clauwaert and Schömann; working time, atypical employment, redundancy rules and industrial relations structures (Clauwaert and Schömann 2012). Hungary has delivered more than its share in all these areas.

A key feature of the new labour law is that it allows collective agreements – or works council agreements where there are no unions – to regulate

9. <http://ieconomics.com/hungary-foreign-direct-investment>

work differently from what is stipulated by law. The new law allows employers to use such agreements to derogate from legal provisions for their own benefit, to 'enhance flexibility'. Many derogations of this kind concern working time. For example, by agreement the reference period for calculating working time can be extended to twelve months; the maximum number of overtime hours per year can be extended from 250 to 300; the scheduling of daily working time can be split up over the day into two periods; and the allocation of vacation time can be decided unilaterally by the employer. By agreement it can also be decided that wage supplements will be included in the basic wage (thereby lowering the basic wage) and it can be decided that employees have to provide a one-month basic wage guarantee to the employer when their job involves the handling of cash or valuables (Tóth 2012). It requires a strong trade union or works council to protect workers against such derogations from the law at employees' expense. Workers rights are also undermined by the new law's provision that works council agreements can take over the role of collective agreements when there is no union, while works councils are not given the same protection as trade unions or the same rights regarding wage bargaining, strikes and collective action. Besides that, SOMO has observed a strong management influence on works councils in earlier research in central and eastern Europe, resulting in 'yellow' works councils.¹⁰

Another feature of the new law is that risks have been shifted from the employer to the employee: for instance, in case of an unavoidable external event, such as a power cut, the employee is no longer entitled to receive the basic wage. At the same time, there is an increased compensatory burden on employees for causing harm to the employer: if an employee is deemed to have caused harm through negligence, then they are obliged to pay as much as four months' absence payment as compensation.

Some changes have resulted in less employment protection as the new law allows for dismissal even during sick leave. The period of probation has been increased to three months, too (Tóth 2012).

The higher flexibility offered by the new law and the diminishing rights of employees and trade unions make it possible to reduce labour costs. Some unions have reported that if an employer exercised all the options

10. Research for the union federation FNV in Romania, 2011.

offered by the new labour code to cut wages and flexibilize work arrangements, it could save 30 per cent on its total wage bill. The way to go about this is to conclude a works agreement with a works council that includes all possible derogations on flexibilization and cost-cutting (Tóth 2012: 9).

One result of the new labour law is that establishing a works council cannot no longer be seen unequivocally as a positive development. For example, it may be an employer-friendly works council whose sole purpose is to deviate from the law on working time and wages. It may be intended to keep out trade unions with bargaining power. Apart from the possibility of shifting union prerogatives to works councils, some trade union rights are diminished. For example, the legal protection against termination of employment is no longer provided for all trade union officials, but only for a minimum of two and a maximum of six, depending on the workforce (Gyulavári and Hős 2012).

4. Four Hungarian subsidiaries of foreign electronics manufacturing multinationals

The four companies are Foxconn (Székesfehérvár), Nokia (Komárom), Samsung Hungary (Jászfényszaru) and Flextronics International (Budapest, Tab and Zalaegerszeg). After introducing the companies, the research results on working conditions are presented.

The research data on all four companies were obtained through interviews with factory workers, trade union and management representatives during the period September–December 2011. Experts in labour relations and the Hungarian electronics sector were also consulted. The research was conducted by the Hungarian Association of Conscious Consumers (ACC), the Centre for Research on Multinational Corporations (SOMO) and the Hungarian Social Research Institute (TÁRKI).¹¹ The interviews with factory workers, trade union representatives and experts were coordinated and conducted by TÁRKI; SOMO and ACC participated in part of the interviews. SOMO was responsible for the management interviews.¹²

11. The field research was coordinated by Olívía Béládi from TÁRKI.

12. SOMO researchers were Irene Schipper and Kristóf Rác; Zsófia Perényi participated in the research for ACC.

The workers' interviews were conducted outside the factory premises in an informal setting, allowing workers to feel safe to speak openly about their working conditions. The interviews were carried out individually and, in some cases, in focus groups consisting of two to five people. Interviews were voice recorded, with four exceptions. The method of 'snowball sampling' was chosen to select workers: each interviewee was asked to suggest other potential interviewees and to help the research team in approaching them (contacts, references). In Jászfényszaru, which is a village, the researchers went from door to door to find interviewees, who were guaranteed anonymity. The number of interviews with factory workers at the four companies is distributed as follows: 19 interviews at Nokia Komárom, 22 at Samsung Jászfényszaru, 20 at Foxconn Székesfehérvár and 23 at Flextronics Zalaegerszeg.

4.1 Foxconn

At the time of SOMO's research in Hungary in 2012, Foxconn had two subsidiaries in Hungary (see Figure 1):

- PCE Paragon Solutions Kft ('PCE'), a 100 per cent owned subsidiary of Hon Hai (Foxconn), Taiwan;
- FIH Europe Kft. ('FIH'), a 100 per cent owned subsidiary of Foxconn International Holdings, Ltd, based in Hong Kong.

FIH was the principal supplier of Nokia's mobile phone assembling factory in Komárom. PCE manufactured at two Hungarian sites: Komárom, where it leased a building from FIH for the assembly of GSM network devices, and Székesfehérvár, where the company assembled servers and laptops for IBM and Acer. The revenues of all three sites together amount to over 1 billion USD per year, which is around 1 per cent of Foxconn's global revenue.¹³

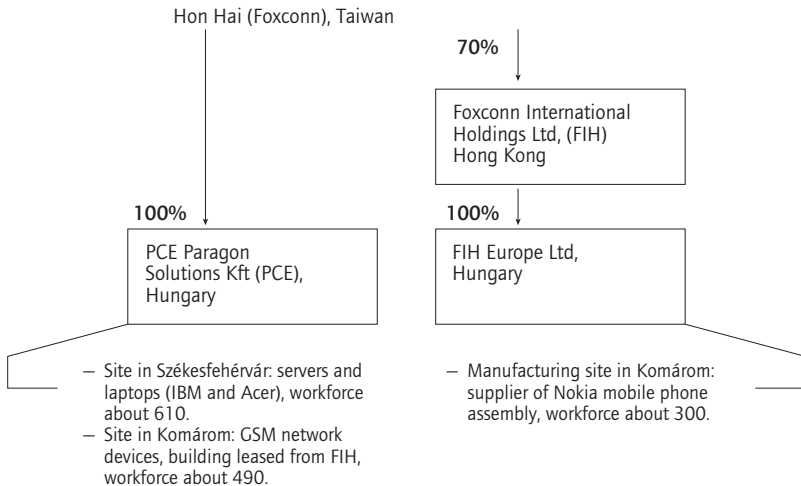
SOMO's research in 2012 concerned PCE in Székesfehérvár. Employees of this factory either lived in Székesfehérvár or commuted from neighbouring villages within a vicinity of around 40 km from the factory. At the time of the research Foxconn had around 1,400 employees in

13. Global revenue of Hon Hai Precision Industry Co. Ltd (doing business as Foxconn) was 102 billion USD in 2011. Hon Hai Precision profile on Forbes.com, <http://www.forbes.com/companies/hon-hai-precision/> (12 September 2012).

Hungary, of whom 300 worked at FIH in Komárom, 490 at the PCE plant in Komárom and 610 at the PCE plant in Székesfehérvár. Of the 1,100 PCE employees, 700 were permanent employees.

Foxconn's Székesfehérvár plant is almost exclusively supplied by Asian suppliers. (The motherboards, video cards, processors, cooling fans, power supplies and hard drives all come from Asia.) Locally purchased material amounts to around 2 per cent of all supplies and consists mainly of packaging material.

Figure 1 Hungarian subsidiaries of Hon Hai (Foxconn), 2012



Source: ACC and SOMO, 'The Flex Syndrome', 2012

On 15 August 2014, PCE Paragon Solutions closed its site in Székesfehérvár and relocated production to the PCE site in Komárom. The Komárom production is housed in a company-owned building (in Székesfehérvár they operated in a leased building). With the merger of the two sites, the workforce has doubled to 800 people in the Komárom factory. Almost 200 new employees were recruited, according to managing director Peter Talos,¹⁴ mostly former employees of Nokia.¹⁵

14. News Bites, 26 September 2014, 'Foxconn expands in Komárom (Hungary)'.

15. DmEurope, 17 November 2014, 'Majority of laid off Nokia plant staff in Hungary find jobs'.

4.2 Nokia Komárom

Nokia began its operations in Hungary in 2000. At the time of the research, the Komárom plant was still producing. It was one of Nokia's nine assembly plants for the assembly of mobile phones.

Production at the Komárom plant took place in 'production islands' instead of on a regular production line. Within such an island, employees can shift the type of work they wish to do among one another.

Employee numbers at the Komárom plant fluctuated over the years. In 2000, the company started with 800 employees, which rose to 5,000 by 2008. At the time of research in 2011, the plant employed around 4,000 people, of whom 3,000 were employed directly in production work. In March 2012, the company announced the dismissal of more than half its employee base in Komárom. During 2012, a total of 2,300 workers were laid off, as production work shifted to Asia. In July 2014 the factory closed.

Of the four companies discussed in this chapter, Nokia is the only company that employed a significant number of migrant workers. Around 40 per cent of the workforce was Slovakian, Komárom being located near the Slovakian border. Of the four companies researched, Nokia workers had to travel the furthest distances to their workplace (a 100–120 km radius).

4.3 Samsung Hungary

Samsung Electronics Co. Ltd (Korea) began its operations in Hungary in 1989. Samsung Hungary Ltd is the fifth largest exporter in the country, with a revenue of around 4 billion USD in 2010. The company has four plants in Hungary: in Szigetszentmiklós, Göd, Tatabánya and Jászfényszaru. The research of makeITfair was focused on the latter plant, which is Samsung's largest.

Samsung also has a production facility in Transylvania (Romania), mostly manufacturing computer monitors and Blue Ray players and a Slovakian subsidiary producing LCD panels. All the Samsung plants in central and eastern Europe produce principally for the European market.

The Jászfényszaru plant is mainly involved in assembling LCD televisions – more than 10 million are produced here every year, equal to around

46,000 television sets daily. A total of 60 per cent of the components are sourced from abroad; this is done by the international purchasing department of Samsung.

At the time of the research, the Jászfényszaru plant employed 2,142 people: 1,470 were contracted by Samsung and 672 employed were through agencies. Of the 1,470 workers, 1,100 were directly engaged in the production process, including line workers (also called operators) and logistics employees; 370 employees were indirect, working in HR, finance and as office staff. The 672 agency workers were mainly line workers. The gender ratio is approximately 50/50. The plant does not employ migrant workers. Most of the workers live in the 20 to 30 villages and towns within 80 kilometres of the plant. Samsung has free transportation to and from the factory. Most residents of Jászfényszaru commute by bike.

4.4 Flextronics International

The Singapore-based electronics manufacturer Flextronics moved part of its operations to Hungary in 1998. In 2012, Flextronics was the largest electronics manufacturing services provider in Hungary. Hungary is the company's most important European construction hub, in which 10 per cent of its global production takes place. Over the years, Flextronics has taken over production plants from several national and international electronics companies, including Hajdú, Solectron and Neutronics.

Flextronics has a wide and diverse range of activities in Hungary, including the assembly of mobile phones, computers, printers, copy machines, car electronics, washing machines, television control panels and motherboards and other surface-mount technology (SMT) panels. The logistics services include warehousing and after-market services, including spare parts management and product repair.

Currently, the company has operations located in Budapest, Pécs and Tab and two industrial parks in Sárvár and Zalaegerszeg. The company's biggest site is Zalaegerszeg, where assembly is done for several computer brands, including Lenovo, HP, NEC and Data Domain, and several brands in the automotive industry. At the time of the research, the factory's main client was Research In Motion (RIM), for which Flextronics Zalaegerszeg was assembling BlackBerry smartphones. Flextronics employs around 12,000 people, making it one of the biggest

employers in the electronics sector in Hungary. The workforce has been growing since Flextronics established its operations in Hungary, making current employee numbers the highest ever. Most of the employees – around 8,000 – work at the Zalaegerszeg site (which was also the focus of the research). At the time of research, the gender ratio was around 60 per cent male and 40 per cent female. The factory employs temporary workers – usually hired through an employment agency – as well as permanent ones.

Flextronics is one of the main employers in Zala county. Flextronics Zalaegerszeg also hires its employees from remote parts of the country, including Baranya county in the south and Borsod county in eastern Hungary. Even ethnic Hungarians living on the other side of the border in Romania (Transylvania) are recruited.

4.5 Working hours and overtime

Hungarian legislation allows companies to use the so-called time-bank system: within this system working hours and overtime are not counted within one working day, but are calculated as an average over a longer time period. With the time-bank system, the employer has more flexibility in assigning working days, distributing overtime work and thus compensating for overtime hours within a specific time period. The time-bank system was a serious issue for the interviewed workers of all four companies, mainly because the system frustrates the payment of overtime at overtime rates (see Table 1). Only when the average is more than 8 hours per day and more than 48 hours per week will overtime be paid. A long reference period works out negatively for workers.

Nokia had the harshest reference period, covering six months. Samsung had a four-month reference period, Flextronics three months and Foxconn one month. These reference periods are much longer than laid down in ILO Convention No. 1, Art. 2c, which states that a 12-hour shift is permissible only if the average number of hours over a period of *three weeks or less* does not exceed eight hours per day and 48 hours per week. Hungary's new labour law allows the extension of the reference period up to 12 months if this is agreed in a collective agreement or works council agreement.

Table 1 Working hours, shifts and breaks at the four companies featured in the research

	Foxconn	Flextronics	Nokia	Samsung
Time-bank system by company	Monthly work schedule	3-month period	2011: 3 months 2012: 6 months	4-month period
Shift model	Two 8-hour shifts; from 06.00 to 14.00 and from 14.00 to 22.00	Two 8-hours shifts: from 06.00 to 14.00 and from 14.00 to 22.00. In peak season: three 8-hour shifts or four-shift model operating 24-hours per day ^b	Two 12-hour shifts; from 06.00 to 18.00 and from 18.00 to 06.00	Unit V1: one 8-hour shift in the morning Unit V2: two 12-hour shifts, in day and night shifts
Division of shifts	Predominantly on weekdays, 5 days a week	Two 8-hours shifts 5 days a week on weekdays. The three 8-hour shift is from Monday to Saturday	A pattern can be: 3 day shifts, 3 days off, 3 day shifts, 3 days off, 3 night shifts, 3 days off, etc. ^a	Unit V2: 3 day shifts 3 days off, 3 night shifts, 3 days off
Breaks	2 x 20 minutes	1 x 20 minutes 1 x 10 minutes	2 x 20 minutes 4 x 10 minutes (80 in total)	V1: 1 x 20 minutes 2 x 10 minutes V2: 3 x 20 minutes

Notes:

^a The shifts are organized in four patterns (A-B-C-D).

^b At the time of the research, the facility used the four-shift model with four 8-hour shifts.

Until June 2011, the employees worked 12 hours per day.

Source: own research

In theory, the system allows workers to work longer than 60 hours per week (this is used as a maximum in various standards and codes of conduct),¹⁶ but in practice, no working week of 60 hours or more was found at any of the companies featured in the research.

Twelve-hour shifts – one of the major issues in this industry – were found at two of the researched companies: Nokia and Samsung were both running two 12-hour shifts, day and night. Flextronics had 12-hour shifts until June 2011, while Foxconn had two 8-hour shifts.

The breaks – on average, 40 minutes for an 8-hour shift – were also an issue for some workers; for example, they complained that, after queuing up for security checks, the break times are too short for eating or even

16. See, for example, the EICC Code of Conduct.

going to the toilet. This was especially the case at Flextronics, which also had the shortest break times of all the researched companies: 30 minutes in total for an 8-hour shift.

At Foxconn the workers indicated that the breaks are usually enough, but some reported that occasionally the factory floor management shortens their breaks to 10 or 15 minutes in order to increase production numbers. This was not disputed by the management, who simply pointed out that, according to labour law, workers are entitled to *one* 20-minute break when the working time exceeds six hours, so even when the second break is shortened, the workers still receive more break time than they are strictly entitled to under the law.

Management and workers differ on the use and functioning of the time-bank system: while company management stresses that the time-bank system is advantageous for workers because it protects them from dismissal during off-peak seasons, workers only experience the fact that hours that used to be paid at an overtime rate are not paid as such anymore.

4.6 Wages

The most commonly heard complaints from Foxconn Székesfehérvár workers concerned low wages: 'I think in [Székes]Fehérvár Foxconn is the company which pays you the least. Also, our benefits are low.' Foxconn management, however, while admitting that the lowest skilled and least experienced operators have a below average income compared with the market rate, they claim that as soon as unskilled workers move up in the grade table and become more experienced, their income increases to around the median of the relevant market.

Table 2 is based on workers' interviews. It should be noted that it does not provide a complete picture: for example, various additional benefits are not included because they vary too much per company (for example, Nokia employees get benefits worth about 225,000 HUF per year and Flextronics provides a 15,000 HUF monthly housing allowance). However, the table gives an impression of the basic wages (as take-home payments) and the common allowances.

Table 2 shows that the workers were right that Foxconn has the lowest starting wages for operators; Nokia offers the highest, with Samsung and

Table 2 Net wages and benefits per month based on workers interviews in last quarter of 2011

Wages and benefits	Foxconn		Flextronics	
	HUF	EUR	HUF	EUR
Net basic wage per month operators	60,000–90,000 ^a	€ 231–283	80,000–100,000	€ 318–355
Technicians	100,000–120,000	€ 355–425	100,000–153,000 ^b	€ 355–542 ^b
Shop floor bonus	6,000 per month	€ 21 per month	5 per cent ^e	
Shift allowances	15 per cent afternoon shift 30 per cent night shift		n.a.	
Meal vouchers per month	8,000	€ 28	10,000	€ 35
Wages and benefits	Nokia		Samsung	
	HUF	EUR	HUF	EUR
Net basic wage per month operators	85,000–115,000	€ 301–408	85,000–90,000 ^d	€ 301–319 ^d
Technicians	n.a.		150,000	€ 532
Shop floor bonus	Yearly bonus of 2–8 per cent ^c		10,000 cash and an LCD TV worth 135,000 per year	€ 35 cash and an LCD TV worth €477 per year
Shift allowances	15 per cent day shift 25 per cent afternoon shift 40 per cent night shift		n.a.	
Meal vouchers per month	5,000 per month + 855 per day	€ 18 per month + € 3 per day	6,000	€ 21

Notes:

^a Starting wage without experience between 60,000–80,000 HUF and with experience basic wage is between 75,000–90,000 HUF.

^b Including line leaders and debuggers.

^c The percentage depends on overall company performance.

^d Wages at Samsung are composed of 75 per cent basic wage and 25 per cent bonus. There is a performance bonus that depends on the employee's production performance and the attendance bonus, which is paid for every day that the worker is present.

^e The 5 per cent bonus is given based on performance and economic climate.

Exchange rate: 1 HUF = 0.00354562 EUR, 1 EUR = 282.038 HUF (28 October 2012).

Source: own research

Flextronics in-between. The latter three companies provide an income for their operators equivalent to the living wage¹⁷ of 83,941 HUF (294 EUR) or slightly higher. The exception is Foxconn, where operators with limited or no experience earn below the living wage level. It has to be noted that this living wage level (294 EUR) is calculated for a one-person household. However, according to the calculations of the Hungarian statistical office, the living wage of a four-person household (two adults and two children) is 243,429 HUF (853 EUR).¹⁸ Operators with the highest incomes from the four researched companies are not able to earn enough for families with two children or more, even if both parents are working.

For all four companies, the net basic wages for unskilled workers are lower than the average net monthly earnings of a manual worker in the manufacturing sector in Hungary (381 EUR).¹⁹

4.7 Health and safety

At Samsung and Nokia, where 12-hour shifts were used, employees had difficulties standing for the whole of their shift. The most common problems are dizziness, back-aches, tiredness and problems related to rhythm changes between day and night shifts. Nokia had started to offer workers the possibility of sitting when desired and offered the longest break times of the companies featured in this research. A few months prior to the research, the 12-hour shifts at Flextronics were changed to 8-hour shifts. At the time of the 12-hour shifts, the ambulance from the local hospital came several times a week to the Flextronics factory to pick up workers who had become unwell; fainting, suffering from symptoms of fatigue, high blood pressure and stress (this was called the 'Flex syndrome' by the workers). This was an extreme situation of a kind that SOMO had not encountered before. This situation shows that working conditions were too demanding at this factory and that health and safety procedures were sub-optimal. Causes of workers becoming unwell include the severe work pressure, long shifts and short breaks, in which,

17. 'Létminimum, 2011' [Subsistence minimum], Hungarian Central Statistical Office, June 2012, <http://www.ksh.hu/docs/hun/xftp/idoszaki/letmin/letmin11.pdf>, (14/11/2012)

18. 'Létminimum, 2011', Hungarian Central Statistical Office, June 2012, <http://www.ksh.hu/docs/hun/xftp/idoszaki/letmin/letmin11.pdf>, (14/11/2012)

19. 'Average net monthly earnings of manual workers in the national economy (2008-) NACE Rev. 2', Hungarian Central Statistical Office, http://www.ksh.hu/docs/eng/xstadat/xstadat_annual/i_qli032.html (14/11/2012)

as already mentioned, workers cannot rest and eat properly. Since the introduction of the 8-hour shifts, however, the situation has improved and interviewees mentioned that the ambulance visits only rarely occur.

The harsh treatment by middle management was of specific concern at Flextronics. Workers complained (also in internet blogs) about shouting, the use of inappropriate language and threats of dismissal and disciplinary warnings. At Samsung there were also complaints about the strict work discipline and the fact that talking was not allowed during production work.

4.8 Temporary workers

On average, at the four researched companies, the minimum level of temporary workers was around 15 per cent (see Table 3). During peak season, this percentage could rise to 50 or even 60 per cent. Foxconn had the lowest rates of temporary workers in peak season and Samsung the highest. During an EICC stakeholder meeting in Mexico – at which SOMO, as well as Samsung, Flextronics and Foxconn were present – one of the recommendations formulated by companies and stakeholders was that companies should agree on an acceptable maximum percentage of temporary workforces; a maximum of 30 per cent during peak season was suggested.²⁰ A workforce consisting of 50 per cent temporary agency workers or even more is undesirable and excessive. In general, agency work is precarious work: it is non-standard employment that is paid less, is less secure and offers less protection. Excessive use of agency labour erodes the labour conditions of many workers.

Some differences have been reported for the companies in this research in terms of wages and benefits. Because agency workers at Foxconn do not work full time (70 per cent), they receive a wage that is on average 10,000 HUF less than that of their permanent colleagues. Also, the monthly meal vouchers – which amount to 8,000 HUF a month for permanent workers – tend to be less for temporary employees (4,000–6,000 HUF). Furthermore, agency workers spend a proportionally higher

20. Agency labour was discussed during the EICC stakeholder meeting in Guadalajara, Mexico in April 2010 (see also the briefing paper ‘Temporary agency work in the electronics sector’, SOMO, 2012, p. 6, <http://makeitfair.org/en/the-facts/reports/temporary-agency-work-in-the-electronics-sector>).

Table 3 Employment rates of temporary workers at the four companies

	Foxconn	Flextronics	Nokia	Samsung
Use of temporary workers in September 2011	25%	30%	15%	30%
Ratio of temporary workers ^a	15%-35%	Tries not to exceed 50% ^b	15%-50%	15%-60%

Notes:

^a The ratio (percentage of temporary and permanent workers at the site) can fluctuate substantially between low and high production seasons.

^b According to VASAS (Hungarian Metalworkers' Federation) the number of temporary workers often exceeds the number of permanent workers at the Zalaegerszeg site.

Source: own research

amount of their wages on transport if they work only part-time (70 per cent) at Foxconn, which most of them do.

At Flextronics, there was a difference in meal vouchers (agency workers get 5,000 HUF worth of meal vouchers per month, while their permanent colleagues get around 10,000 HUF), but only in the first year of employment. At Nokia and Foxconn, the wages of agency workers became equal to those of permanent employees after a year of employment; this was mandatory under the legislation at the time of the research. On 1 December 2011, EU legislation²¹ came into force making it mandatory for both the hiring company and the agency to provide the same level of allowances – including meal allowances – from the beginning of the employment period, not only after a year.

At all companies, temporary agency workers do have a chance of getting a permanent contract. At Nokia and Flextronics (the two companies with a trade union), it was possible in theory for temporary agency workers to join the trade union, but in practice hardly any temporary worker is unionized.

The biggest issue for temporary agency workers at all factories is their job insecurity. When there is enough work, agency workers are summoned. However, in times of lesser demand, or when orders are cancelled, it is the agency workers who are the first to get the message to stay at home. One can argue that this kind of job insecurity is inherent to the nature of agency employment and that job security is not the responsibility of the

21. EU Directive 2008/104/EC on Temporary Agency Work.

hiring company. However, it is the responsibility of a company to endeavour to provide stable employment for its employees²² and not to make excessive use of temporary agency labour.

4.9 Worker representation

Under Hungarian labour law, a works council has to be elected at companies or independent company sites with more than 50 employees. In Hungary, the majority of companies with more than 250 employees are compliant. As indicated in Table 4, Foxconn was the only company in the research which was non-compliant; at Foxconn Székesfehérvár there was no trade union or works council. The main reason given was that workers have not called for the formation of such a representative body. This is confirmed by the workers' interviews; there have been no serious attempts in the past to form or join a trade union or works council. The main reasons given by the interviewed workers is the lack of interest and an overall feeling of aversion and pessimism towards the idea that the formation of a trade union could contribute to any change in their working conditions.

Table 4 Worker representation at the companies featured in the research

	Foxconn	Flextronics	Nokia	Samsung
Trade union at work place level	No	Yes	Yes	No
Works council	No	Yes	Yes	Yes

Source: own research

In Hungary, representation through works councils goes hand in hand with a union presence at a company. Companies with a works council but without a trade union are almost non-existent; 70 per cent of the works councils are either entirely or overwhelmingly made up of trade unionists. Samsung is one of the exceptions: they have an elected works council but no trade union. This substantiates Samsung's strong anti-union image worldwide and puts the failed attempt to set up a union in Hungary in context.

²². The right to job security, ILO Tripartite Basic Principle, Art. 25.

With the assistance of VASAS Metal Workers' Federation, there has been an attempt to create a trade union at Samsung. However, the company management was against the idea and the temporary workers who were involved in the attempt could not stay. Permanent employees did not have an active role in the attempt. Almost all employees interviewed for this research knew about the attempt to set up a trade union:

They wanted to form a trade union, but it was suppressed, it didn't happen. They were told that it cannot be done, that it's forbidden. Management told us to forget about it. No one was allowed to sign up as a member. [Local] company management wasn't OK with the thought of a trade union, neither were the Koreans. In Korea there are no trade unions.²³

In the management interview with Samsung it was said that there had been no serious attempt to form a trade union. According to the management, this is due to Hungarians' discontent and bad experience with unionism during Hungary's Communist era, when trade unions were the 'transmission belt' of the Communist Party. At Samsung, workers and management clearly have different views on the functioning of the works council: while management sees it as a successful mechanism for solving complaints, the workers say that the council's real function is simply to channel information from the management to the workers.

At both Nokia and Flextronics, the union presence indeed goes hand in hand with the presence of a works council. Both companies have a collective agreement. Flextronics inherited the union from its predecessor. Around 8 per cent of Flextronics' total Hungarian employee base is unionized. At the Zalaegerszeg site, this percentage is around 30 per cent. At Nokia Komárom, 34 per cent of the workforce is unionized. Both sites are well above the 10–15 per cent national average.

5. Conclusions

Going back to the research question, if the working conditions typical of global electronics manufacturing multinationals, wherever they operate, can also be found in Hungary, it can be confirmed that the researched companies are no exception on many issues.

23. Samsung repair technician, November 2011.

The research detected very low wages; lower than the average manufacturing wage in Hungary. Even operators from the four researched companies with the highest incomes are not able to earn enough for their families, even if both parents are working. The lowest wages were paid by Foxconn, the only company in the research without a trade union or a works council.

Overtime payments can be avoided by means of the time-bank system. Two of the companies had 12-hour shifts and the health and safety issues identified are particularly related to these 12-hour shifts and short break times. In peak season the companies make use of a high percentage of temporary agency workers (50 to 60 per cent of the workforce). At two of the companies mature industrial relations are lacking or even suppressed. At one company, workers mentioned harsh treatment by management.

Some issues which are often found in Asian production facilities, but which were not detected in Hungary, are gender discrimination, excessive overtime work, punitive fines or wage deductions for mistakes made by operators, the use of hazardous chemicals or abusive student labour.

The answer to the other question – Has the revision of Hungarian labour law in 2012 been adequate to protect electronics workers against the systemic problems in the electronics industry? – is ‘no’, on the contrary. The main changes in Hungarian labour law focus on facilitating higher working time flexibility, higher employment flexibility, cost cutting measures related to wages, the shifting of cost risks from the employers to workers and the corroding of trade union rights. These law changes rather legalize the typical poor labour practices than protect workers from it.

It is worth noting that in all the management interviews it was said that the company has no difficulties complying with the company code of conduct (for three of the researched companies this is the EICC code) because the Hungarian laws ‘are stricter because they are in line with EU laws’. In other words, they are suggesting that Hungary is not a risk country for labour rights violations because it is an EU country. This is clearly a misperception of the current labour laws; Hungary has introduced some exceptional provisions to facilitate a far-reaching flexibilization of labour at the expense of internationally recognized workers’ rights. Making use of these provisions as a manufacturing

company can lead to the violation of ILO standards, especially those related to working hours and overtime payments and the right to collective bargaining. Although the companies featured in the research are all acting in accordance with Hungarian labour law, one might ask whether a company is acting with social responsibility when it exercises the options made available by current Hungarian legislation. After all, the industry's CSR code (the EICC code) encourages members to go *beyond* mere legal compliance, drawing upon internationally recognized standards when these offer more protection.

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Part 3

What space for labour representation?

Chapter 7

Foxconn economics: how much room for better pay and working conditions?

Wolfgang Müller

1. Introduction

Foxconn has been and still is the target of trade unions, labour solidarity groups and NGOs all over the world because of its horrific working conditions, especially at its huge plants in mainland China. While this critical perspective is more than justified there remains the simple question of whether there is a real chance of enforcing better pay and working conditions? Would this require more trade union clout at Foxconn and more CSR initiatives to scrutinize the company and its clients (for example, Apple)? Or are there economic fundamentals in the electronics manufacturing sector that would hinder the demands of Foxconn's workers and prevent the bigger pay rises needed for a decent living?

It is argued that although it is by far the biggest contract manufacturer Foxconn is stuck in a business that is hyper-competitive and genuinely low-margin, with intense pressure on costs, especially labour costs. Moreover, Foxconn is part of a highly integrated and flexible supply chain commanded by the electronics OEMs, mainly Apple. These Foxconn customers – the lead companies in electronics – make huge profits by ruthlessly enforcing cost-cutting from their suppliers.

But because other mainly Taiwanese and Chinese contract manufacturers for Apple and other companies face the same margin pressures and constraints as Foxconn it is highly improbable that they will unite to negotiate better terms with their customers unless faced by labour and international pressure.

We shall argue that the initiatives and organizing drives to improve pay and working conditions at Foxconn must therefore focus not only on Foxconn, but also on the other contract manufacturers and, indeed, on the whole supply chain.

As China is the global manufacturing hub in electronics and as the official Chinese unions are increasingly outspoken about working conditions at Foxconn there might be an opportunity for sector-wide initiatives to improve working conditions at the contract manufacturers. An initiative for a cross-border union workshop on pay and working conditions at the contract manufacturers might be a useful step in strengthening international coordination.

2. The rise of Foxconn

Contract manufacturing or assembly is the main business of Foxconn and of other Hon Hai affiliates. Foxconn is the main affiliate of the Taiwanese Hon Hai Precision Group which as a public company is listed on the Taipei stock exchange. In this chapter the name Foxconn is used for the Hon Hai group as a whole.

Foxconn has undergone spectacular growth. It has risen from being one of many invisible Taiwanese firms in the electronics supply chain to being world champion of flexible contract manufacturing. Foxconn has acquired an ever-increasing share of a growing market to manufacture desktops, laptops, games consoles and computer servers for the big IT brand names. Only four times between 1995 and 2010 did Foxconn's sales growth fall below 30 per cent per annum; indeed, on eight occasions the growth rate surpassed 50 per cent. Manufacturing the extremely successful iPhones and iPads for Apple gave an additional push to the successful Foxconn growth story. According to some estimates, worldwide about one third of all products in the areas of communications, computers and consumer electronics are now manufactured and delivered by Foxconn.

This spectacular growth experienced its first blow in 2010, when Foxconn CEO Gou told the media that he would be cutting the growth target to 15 per cent because the company was getting too big. The news sent Hon Hai's stock down, before rebounding again ahead of the next iPhone release.

According to estimates by Morgan Stanley, in 2012 Foxconn accounted for 65 per cent of Apple's product costs (COGS cost of goods sold in Apple's annual report). On the other hand, Apple orders have contributed up to 50 per cent of Foxconn's revenue in recent years. In 2013 Foxconn got about about 65 billion US dollars or 51 per cent of its total revenue,

from its biggest customer Apple, up from 48 percent the previous year (The Economist, 6 July 2013). In 2007, Apple had contributed only 17 per cent to Foxconn's sales. That means that Apple depends on Foxconn and Foxconn on Apple. But that relationship is very unbalanced, as we shall see.

The Foxconn business model has focused on driving sales. Profits were second in line, but followed with ever-increasing sales. As the figures show this approach has been successful over the last 15–20 years and has made Foxconn the undisputed king of contract manufacturing.

But the Foxconn success story might be coming to an end. The product markets the company focuses on are maturing. That means less growth, more competition and smaller profits. Foxconn's main customer Apple is diversifying its manufacturing supply chain away from its sole dependency on Foxconn. Ever cheaper new entrants in the markets for mobile handsets are eating into the premium margins for Apple, Samsung and so on and will add to the margin pressure on their suppliers. Finally, it is becoming increasingly difficult for the huge Foxconn operations in China to find and retain good workers.

Foxconn now faces a slowing smartphone market, alternative Apple assemblers and an already weak outlook for non-Apple devices, such as PCs and servers. Orders to manufacture low-priced phones for the Chinese brands Xiaomi and Huawei will not stop Hon Hai missing the 15 per cent growth target declared in 2010 for a third straight year because those devices are cheaper and bring in less revenue per unit. Therefore there is not much hope that the declining Apple share, and continued weakness in the rest of the tech sector will be compensated for by another Hon Hai affiliate, FIH Mobile, landing orders for fast-growing Chinese brands Xiaomi and Huawei. (FIH is listed separately on the Hong Kong stock exchange, although it is more than 70 per cent owned by Hon Hai and its revenue goes into the Taipei-listed parent's consolidated financials.) Xiaomi and Huawei are gaining market share by being very price competitive, which is not much of an upside to its suppliers. And FIH still needs to make up for the loss of revenue from its former big customers Nokia, Motorola, Sony and BlackBerry.

Growth in smartphone sales will halve in 2015, from 26 per cent in 2014, according to IDC research. PC sales will contract by 3 per cent. The average smartphone will sell for 19 per cent less in 2018 than the average

297 US dollar price tag in 2014. Even if technology is improving, the price will still come down (Financial Times, 18-5-2015).

Foxconn believes it can double in size yet again. Executives talk of Foxconn becoming one of the world's top 20 businesses with about 240 billion US dollars in sales in 2020, with revenues growing by 15–20 per cent a year in the coming three years. But revenue growth at Foxconn tumbled to 1.3 per cent in 2013 and only partially recovered to 6.5 per cent in 2014. Analyst estimates compiled by Bloomberg point to a 4.7 per cent sales increase in 2015 and 9 per cent next year (Bloomberg, 17-11-14). Without new growth drivers after the iPhone, single-digit sales growth rates are likely over the next two to three years.

Foxconn's fortunes mirror those of the tech industry overall, especially smartphones. The smartphone market is growing, but the pace is declining and the prices of phones that have the greatest market potential – mid to low-end – are ever-falling.

At the same time, Apple is diversifying its supplier base. Foxconn's virtual monopoly on Apple orders is over. Other contract manufacturers, such as Compal and Wistron, now receive orders from Apple, too. Pegatron, with more than 100,000 employees, and Quanta are also getting a larger share of Apple's orders. Pegatron has picked up more iPhone and iPad contracts. Quanta manufactures the Apple Watch in addition to manufacturing iMac computers. A handful of other Taiwanese and Chinese names are likely to join Apple's list of assemblers.

3. Foxconn's profit margins: more pressure building up?

The profits Foxconn's huge operations generate are miniscule compared with those of its main customer, Apple. JP Morgan estimated that Foxconn assembled the iPad from early 2010 to mid 2012 for zero profit in an effort to persuade Apple to remain exclusive, but ultimately without success (Financial Times, 24-6-2014). Foxconn's net profit margin has fallen from above 6 per cent a decade ago to around 2–3 per cent now. Foxconn's profits are still growing but profit growth on a year-by-year basis fell from 37 per cent in 2009 to 13 per cent in 2013. Foxconn so far has focussed mainly on growth on the assumption that scale is the best protection against the cut-throat competition of the EMS business, with

a view to escaping the profit margin pressure. But this assumption has not worked out. While Foxconn more than doubled its sales between 2007 and 2013 its net income grew by just 40 per cent.

One might be tempted to compare Foxconn with another heavyweight of the internet economy, Amazon. Amazon is barely profitable but dominates online retail markets (except China) worldwide. Amazon and Foxconn have shared the growth imperative as the way to success. Double-digit growth can deliver nice profit sums while margins are still anaemic compared with other businesses. Amazon has built up a quasi-monopoly via the tentacles of an eco-system that goes from inventory and logistics via payments systems to web services and cloud computing.

But Foxconn is stuck in the hyper-competitive middle of the electronics supply chain where scale is only a temporary fix. Upstream, the designers of components with high IP content make enormous margins, as do the firms downstream that market the finished products. But midstream assemblers do not. Electronic manufacturing as a commodity means that there are always smaller competitors grabbing for a piece of the Apple pie, sometimes at the expense of net profit. The Taiwanese manufacturer Pegatron, which has landed iPad and iPhone orders for its Chinese factories with about 150,000 workers, reported a meagre 0.8 per cent operating margin in 2013, while Foxconn reported 2.8 per cent for the same year.

However, as Anthony Harris showed in his 2014 study 'Dragging out the best deal. How billion dollar margins are played out on the backs of electronics workers' (http://goodelectronics.org/publications-en/Publication_4109/at_download/fullfile), the reported small operating margins of Hon Hai and the other EMS providers do not give the full picture. In running the EMS business other factors come into play that offer some room for improving margins.

One factor is the cost adjustment to the bill of material (BOM), which covers the cost of all materials needed for the final product. While Apple and the other OEMs select the chip suppliers and so on and negotiate the material prices, the EMS provider buys the materials and then sells them back to the OEMs at the factory price. But because material prices are constantly changing, the EMS providers can charge a slightly higher price percentage for the materials at the factory price than they bought them for. With materials representing about 95 per cent of the factory selling

price for the finished product, a windfall of 0.2 per cent on material prices can improve the real EMS margin a lot.

Another factor is the financing of the materials. Hon Hai and other EMS providers clearly have so much leverage over their suppliers that they can force them to finance the materials delivered. With materials being 95 per cent of their expenditure this represents a huge balance sheet advantage for the EMS providers and creates a big opportunity for increasing EMS margins. If 95 per cent of the costs are financed by the suppliers and paid by the customer, the EMS providers can generate a double-digit margin on real costs, namely factories, maintenance and labour. Even producing at zero or sub-zero nominal cost, Foxconn can generate a real margin.

Foxconn has developed several answers to escape declining growth and the continuous pressure on its already small profit margins: in line with the 'Go west' strategy of the Chinese government Foxconn has moved large parts of its operations towards cheaper inland provinces (Chongqing, Chengdu-Sichuan, Zhengzhou-Henan) to get more willing provincial and local governments and cheaper workers and to boost margins. But that advantage will not last long. Because of tax holidays granted to its new plants, the firm's effective tax rate dropped from 25 per cent in 2011 to 18 per cent in 2013 (The Economist, 6-7-2013). But the gains will soon be eroded by higher inventory and logistics costs (because of the more remote locations), rising pay and fading subsidies. Within a few years the shift will bring no net benefit to gross margins. And there are already reports about the Chinese central government targeting the 'sweetheart' tax deals with multinationals and Taiwanese companies.

Foxconn now develops and produces its own components. Making more parts in-house brings higher returns. Foxconn is increasingly making components such as batteries, lenses, speakers and touch panels. Foxconn has now built a plant which churns out new touch screens. Foxconn already has a LCD joint venture with Sharp. There were media reports in 2013 about a Foxconn plan to buy a stake in the troubled Japanese technology firm and to help finance Sharp's glass-panel research, which would fit into the Foxconn strategy to diversify into the higher-margin components business. Almost everything Foxconn makes has glass display screens. According to other reports Foxconn is working with Apple and Sharp on a range of high-definition televisions. Foxconn wants to learn how to make screens better and cheaper. By using its

manufacturing savvy to scale up any breakthroughs, it plans to boost Sharp's sales and pocket a share of the gains. But according to the latest reports (Financial Times, 22-9-2015) Foxconn has still not yet decided whether it will put money into Sharp or, more specifically, into Sharp's display technology business, which is its largest revenue generator, but also its largest loss maker due to cheaper competition from China and is set for a spin-off.

But developing and manufacturing electronic components is risky insofar as the process of commodification of single-function components is fast, and there is always the threat of losing out to the competition. Foxconn has learned this the hard way: another subsidiary of Hon Hai group produced all iPhone casings as recently as 2011; now other suppliers have taken this business for the iPhone 6 (Financial Times, 18-05-2015).

The way out of this squeeze on the component makers is to develop sophisticated products with new singular features, with more IP content. Foxconn has announced the hiring of 10,000 engineers and developers to make components that stand out and that command higher margins for a longer time.

4. Can Foxconn robots (Fox-Bots) drive profits and wages?

Another strategy aimed at getting the company to stand out in the EMS pack and to obtain higher margins is to improve the efficiency of its production lines, especially on new campuses that are purpose-built for automation. There has been a lot of media reporting about the Foxconn project to replace workers with legions of robots. But Foxconn's previously stated goal of 1 million robots was 'a generic concept' rather than a specific target, according to Foxconn representatives. Automation will be key to keeping labour costs under control in the long term and diffusing the bad reputation Foxconn has earned because of its treatment of its workers. No wonder that company chairman Terry Gou once complained when visiting a zoo: 'Insofar as human beings are also animals, I get headaches managing one million animals' (Frankfurter Allgemeine Zeitung FEZ, 10-07-2014). According to Foxconn spokesmen the company aims to get robotic arms to perform mundane tasks currently done by workers. According to analysts the highly segmented and structured assembly processes (325 steps to assemble an iPad) are

best suited for automatization. One so-called ‘Fox-Bot’ with a price tag of about 25,000 US dollars could replace up to four workers.

The business logic behind Foxconn’s robotics project is to increase the productivity, efficiency and reliability of EMS by a big leap. As the prices of robots go down and the wages of Foxconn’s Chinese workers go up there is a break-even point for Foxconn where replacing workers with robots makes sense. When Foxconn can take the lead in this process it will command higher profits for quite a while and distance itself from the other EMS providers. When the Foxconn robots are developed and manufactured in-house there are other advantages: Foxconn can make robotics a highly profitable business segment of its own and make inroads into the future.

Moving up the value chain means fewer Foxconn workers, but with more complex tasks and probably higher wages. This double-edged process is reflected in discussions in the social media in China: some commentators complain that Foxconn is dumping its workers after ruthlessly exploiting them, while others cheer the automatization as an inevitable process for China’s development.

Another Foxconn strategy is diversification. Foxconn has – unsuccessfully so far – used its huge cash reserve of 17 billion US dollars (2014) to expand into electronics retail. Its Chinese joint venture with the German Saturn-MediaMarkt group has been shut down. It has also acquired 4G spectrum licenses in Southeast Asia. But it takes time to make money in the telecoms business and to recoup the investment in the 4G licenses. Foxconn has also established itself in the ‘Big Data’ business, focusing on its manufacturing expertise with a huge data centre in Guiyang in the interior province of Guizhou, probably supported by big public subsidies (China Daily, 28-5-2015).

But Foxconn’s contract manufacturing business is still generating 80 per cent of its revenue and in this segment the continuous double-digit growth story seems to be over. As Hon Hai Precision Group’s share price lags behind, some of Foxconn’s biggest shareholders (Hon Hai founder and boss Terry Gou is the single biggest investor, followed by US investment fund Black Rock) are calling for higher payouts. During the past few years Hon Hai has distributed only 18–19 per cent of its annual profits to its shareholders. That is not much compared with smaller EMS companies such as Pegatron or Compal, which distributed 54–60

per cent of annual profits to their shareholders. Foxconn has instead used most of its cash for further expansion. That has worked fine for 10–15 years, but with the growth story reaching its limits impatient investors may start asking for their money.

5. The strengths and constraints of being the biggest contract manufacturer

Foxconn is basically a contract manufacturer or so-called EMS (Electronic Manufacturing Services) provider. EMS means that the company not only does the assembly of electronic products but delivers complete product designs and handles the logistics and after-sales services. Despite being the market leader in the EMS business Foxconn is caught in a trap: between companies such as Qualcomm (mobile chips) and Samsung (memory chips and more) that develop and control the core electronic components with high value added and therefore high margins and, on the other side, the OEMs, such as Apple and HP, which control the brand and the marketing of the finished products. Assembling electronic products from pre-fabricated components or developing and producing commodity components adds little value. As the break-downs of the costs of iPads or iPhones have repeatedly shown, the costs of assembling the final product, putting the components together, are next to nothing. According to estimates by IHS the total product cost of an AppleWatch is just 84 US dollars, while Apple charges customers 350 US dollars; that translates into a gross margin on the AppleWatch of around 75 per cent (Financial Times, 23-05-2015).

This unbalanced electronics supply chain relationship with the power tilted towards the OEMs (such as Apple) is the reason why Foxconn's profit margins are very low and are constantly under pressure. Contract manufacturing in electronics is by default a highly competitive business. The competition is fought mainly over price and scale, logistics and delivery time. The stakes of entering the EMS business are low in terms of capital intensity and sophistication of manufacturing processes. Foxconn and the other EMS providers need scale, good IT systems, rigid discipline on the shop floor and control of a constant supply of cheap labour.

The power of the OEMs is magnified when suppliers are more or less totally dependent on orders from a single customer. That is illustrated by

the insolvency of Wintek, a Taiwanese manufacturer of touch screens for iPhone 4, and the closure of two Wintek plants with more than 7,000 jobs in Dongguan in the Pearl River Delta last winter. In 2012 customer Apple switched to a different touch screen technology for its iPhone 5. In 2013 Apple opted for film-touch panels in its iPads rather than the glass-touch panels (OGS panels) made by Wintek. The background of the Wintek insolvency is ever-growing competition between makers of some smartphone components (screens, lenses, speakers) and therefore still lower margins. Previously, two or three companies shared a single Apple order. Now there are up to 10 competitors for one commoditized component (Financial Times, 12-12-14). The same fate applies to the companies that offer electronic assembly as a commodity.

Table 1 Estimated Hon Hai revenue share per customer 2013

Apple	39%
HP	20%
Sony	6%
Dell	4%
Acer	3%
Other	28%

Source: Barclays, quoted from: Financial Times, 11-12-2013

Electronics manufacturing is (at least up to now) not comparable with manufacturing processes in, for example, machine-tool companies, where skilled workers assemble high-precision machinery, but also compared with sophisticated production lines in the automotive sector where complicated gears are manufactured and where their proper functioning depends on precision in terms of nanometres. The know-how in those production processes is often incorporated in tool sets and machinery developed in-house; the proper functioning of these production environments is controlled by skilled workers. Therefore companies in those businesses sometimes command double-digit margins (more than the German premium car brands).

But the manufacturing of IT and electronic products basically involves assembling components for the final product. The different assembly tasks can be learned within a few minutes or hours and require only a certain level of subtlety. Industry standards in hardware and software have been the technical basis for the commodification of computers in the 1990s and the ubiquity of electronics in everyday life today. Electronic

products could be developed and scaled from off-the-shelf components, such as chips, disks and screens. The assembly of these commoditized components can take place anywhere, in garages or in huge Foxconn campuses.

The business of the contract manufacturers in electronics is asset-light compared with chip manufacturing or the manufacturing processes in the automotive industry, where an investment of about 1 billion US dollars is needed to build a new plant. The fixed capital needed for a new Foxconn campus is mainly for buildings and infrastructure. So the investment needed to start an EMS business is low compared with other industries. While the EMS business has been dominated more or less by Taiwanese companies in the past ten years there are hints that newcomers from mainland China are entering this business.

Foxconn still stands out of the EMS pack because it was quick to establish itself as the contract manufacturer with the biggest facilities and the biggest workforce. The scale, the sheer size of Foxconn's operations was the guarantee for its OEM customers that new market trends in consumer electronics could be exploited immediately. As happened with PCs fifteen years ago and with laptops or mobile phones ten years ago and now with the smartphones, the factor time-to-market is decisive for the OEMs in winning the gold rush. It takes only a few months until a 'cool' new product is already obsolete. Foxconn rode on the waves of Apple's success because it was able to deliver huge volumes of new iPhones and iPads within weeks. As the world's largest outsourced manufacturer grows even bigger, it is becoming ever more indispensable to Apple as well, even if much smaller contract manufacturers now also get Apple orders.

Getting half one's revenue from one client is a risky proposition, but it is a great boon when that customer is the one industry player posting sustained growth in the anaemic PC and consumer electronics market. Still, that is not helping Foxconn to achieve its growth and profit targets. The firm could also try demanding higher prices. There are signs that it is ready to move away from a low-price strategy, instead stressing reliability and high-volume capabilities. But it is a big question whether Foxconn can persuade Apple, the world's most powerful electronics firm, to cough up more money.

6. Foxconn's labour relations: any hope of bigger improvements?

Under its flagship unit Hon Hai Precision Industry Co Ltd, the group currently employs about 1.3 million people in total and more than 1 million people in China during peak production times, making it one of the largest private employers in the world. As has been shown, due to the segmentation of the supply chain in the electronics industries and the winner-takes-all logic that favours IP content and marketing savvy over mundane and fungible tasks such as electronics assembly the EMS business is low-margin and low-wage with constant pressure on workers. As with other low-margin and asset-light industries with high labour input – for example, retail, WalMart – keeping wages in check is the order of the day.

While labour costs represent only 2 per cent of the EMS selling price, they represent upwards of 40 per cent of the real EMS manufacturing cost. Herein lies the main tension between the EMS provider and their workers, because mere fractions of a per cent in labour costs have a cumulative effect on millions of products and on margins.

In China, Foxconn has experienced a dramatic rise in labour costs within the past few years. According to a Hon Hai spokesman Foxconn's labor costs have more than doubled since 2010, when the company faced intense media scrutiny following a spate of worker suicides. The spokesman confirmed that Foxconn has kept its workforce basically stable in recent years and that the company plans to reduce its overall headcount. The rise in labour costs is due mainly to government policies in China which in recent years have increased regional minimum wages by double-digit figures. As the wages at Foxconn are only slightly above the regional minimum wage floor in China and as this exerts strong pressure on its employees to put in overtime to make a living there are numerous complaints from employees about the OEMs scrutinizing Foxconn to stick to the legal limit of 60 hours per week. The other factor in Foxconn's rising labour costs in China are growing labour shortages as the labour force has started to shrink and migrant workers opt for more rewarding jobs.

It is difficult to judge how far the international pressure on Foxconn after the suicides and the demands from Apple, which has sent the Fair Labor Association (an US outfit criticized for corporate white-washing)

regularly to check labour conditions at Foxconn, have also contributed to the increase in labour costs.

Can the rise in Foxconn's labour costs go on? Probably not. A simple calculation demonstrates the dilemma: a labour cost increase of 100 US dollars per month for 1 million Foxconn workers in China (in wages or in social security contributions) would cost the company about 1.2 billion US dollars per year. With a profit margin of 2–3 per cent, dim prospects of margin increases and with Hon Hai overall revenues of about 130 billion US dollars in 2013, such an increase, while not enough for a decent living for workers, would erase about half of Hon Hai's operating income.

As Anthony Harris has demonstrated, direct labour costs for the workers who assemble the products represent only about 2 per cent of the factory selling price Foxconn is charging. About 95 per cent of the selling price is determined by material content. But in relation to the retail price, manufacturing labour costs amount to only about 0.5 per cent or 2 euros for a phone or tablet with a retail price of 500 euros. The secret behind this creation of money out of thin air is the non-added-value percentage mark-up pricing model applied everywhere in the electronics sector. Along the supply chain, from components suppliers through the assembly factory to the retail outlet, prices are factored up by a percentage of the goods' value. The EMS selling price gets a percentage margin added every time it moves down the supply chain. For example, 30 per cent for export logistics, management and margin; another 30 per cent for the distributor in Europe for logistics, risk and labour; the store adds its percentage and so on. This standard business model mark-up on the EMS selling leads to the paradox that while the price the actual labour cost in production becomes almost insignificant, any increase in labour costs is translated into a much higher increase in the mark-up and hence the final price.

The mark-up model leads to the perverse consequence that with a 100 per cent pay rise the factory price will rise from 100 to 102 euros, while the retail price rises from 500 to 545 euros. From the increase of 45 euros only 2 euros go to the workers, while 43 euros go to the OEMs, the distributors, retailers, VAT and so on. Another perversity of this business model is the impact of VAT on the retail product, around 20 per cent in Europe. VAT is about five times the total manufacturing cost of the phone or tablet.

Therefore any hope that Foxconn and the other, smaller EMS providers for Apple will stick together and enforce higher prices from their customers without pressure from governments and from labour is probably vain. As Apple has shown with the production ramp-up of the iPhone 6 the richest company on the globe in terms of market valuation is master not only of brand marketing and the 'cool factor' but also the global supply chain (Financial Times, 18-05-2015). Apple has huge clout and ample experience in managing the supply chain in order to get millions of gadgets in the stores with each product launch and at the same time to squeeze its suppliers. There are a lot of smaller Foxconn contenders which have successfully scrambled for a piece of the lucrative Apple pie. Pegatron will assemble more than a quarter of all iPhones in 2015 (Financial Times, 23-6-2015). While their shares were going up, Hon Hai shares have fallen since the product launch last September on the news that Apple has diversified its manufacturing base. This is not a mood in which Foxconn managers are likely to be lenient towards workers' demands.

7. Strategies to improve pay and working conditions at Foxconn

Therefore the unions and the solidarity movements that fight for better working conditions in the electronics industries have an uphill task to impose change on contract manufacturers such as Foxconn, which constantly operate with very low margins, while the spoils go to Apple and others. Without targeting the whole supply chain in consumer electronics with the aim of changing the distribution of profits within the supply chain there is not much room for substantial improvements for the workers in electronics assembly.

This is not to say that the fundamentals of the EMS business prevent any changes in pay and labour conditions. But it needs coordinated efforts that integrate local union initiatives with international solidarity organizations and NGOs to enforce bigger changes in the EMS sector. As experience has shown the initiative – or the absence – of local unions plays the decisive role in targeting the low-wage sector in general. According to studies of the textile and garment industries in Southeast Asia local unions have the biggest impact on pay and working time in this low-wage sector, while labour NGOs and international solidarity groups can mainly influence occupational health and safety issues (Chikako Oka: The role of unions in Cambodia, quoted in: Boecklerimpuls 7-2015).

In this context it is encouraging that the All-China Federation of Trade Unions (ACFTU) is finally targeting labour conditions at Foxconn. This might be an important step forward as China is by far the biggest manufacturing base for Foxconn and for the other contract manufacturers. It is difficult to imagine any major changes in labour conditions in the global EMS sector without changes in China.

Hitherto, Chinese government officials and ACFTU officials have kept more or less silent about the labour conditions at Foxconn because of the importance of the company for local and regional labour markets and for the Chinese economy. Also after the suicides at Foxconn and after the sporadic, sometimes violent clashes between workers and supervisors not only at many Foxconn campuses all over China, but also at Pegatron near Shanghai, the Chinese unions kept a low profile. Foxconn workers reported repeatedly that they had never heard of any union activities within the company. The double-digit pay increases for Foxconn's employees in China were basically driven by Chinese government policies and through the setting of regional minimum wage levels (in which the Chinese unions are involved). But the pay increases have not been the result of union activities within Foxconn or targeted at Foxconn in their own role as defenders of workers' interests and as counterparts of Foxconn management.

That silence seems to be over. At an ACFTU press conference in January 2015 ACFTU vice-president Guo Jun criticized Foxconn for setting a negative example for other industries by forcing too much overtime on its employees (China Daily, 28-1-2015). This could encourage other companies to maximize their profits through too much workload and could lead to depression and other mental illnesses and to higher suicide rates. ACFTU official Guo Jun stated there would be no changes unless such bad HR policies are punished.

It remains to be seen whether this really marks the beginning of a coordinated union effort in China. Without such an effort in China it is difficult to imagine that local labour initiatives can take on Foxconn. In any case, conditions for organizing workers in the EMS sector in China are difficult because of the very high fluctuation, the high use of agency workers and internships, the absence of a stable core workforce and the low degree of the EMS workers' production power compared with the automotive sector, for example. On EMS assembly lines each worker can be replaced within a few hours. Against these weaknesses it needs a strong signal from the unions to make an impact.

An initiative by the global union federations with a focus on manufacturing for a cross-border union workshop on pay and working conditions at the contract manufacturers or EMS services could contribute to better international coordination. It could set up a union framework for the whole sector, not only for Foxconn. It could help to establish common standards for pay and working conditions in this sector. While EMS is the dominant model of production organization in electronics assembly there are also other production models, in which electronics assembly is vertically integrated within one group (Samsung). Labour unions with their international contacts can make a strong push for sector-wide standards and counterbalance the fragmentation in the supply chain where the big OEMs such as Apple or HP dominate their suppliers and dictate the terms and conditions for the products the EMS companies deliver and therefore implicitly for their workers.

To date, these common labour standards for the EMS sector have been missing. But despite the lamentable state of union coordination at the international level there might be a chance to develop an accepted basic set of working conditions in the EMS sector. The public all over the world is quite aware of the plight of the workers at Foxconn. And at the same time obviously no union at the national level has real traction at Foxconn or other EMS providers and therefore nothing to lose but perhaps much to gain. As pay levels differ from country to country and also within countries an initiative on sector-wide standards should therefore focus on other issues. Experience from China shows that working hours and overtime payments and regulations are basic problems; any major progress on that issue could force the EMS employers to raise basic pay substantially. At the same time, it is a 'must' for the unions to regularly monitor the situation on the shop floors of the EMS providers. Up to now this task has been more or less left to occasional visits from NGOs or undercover internships by students and interested academics, not to mention corporate 'white-washing' initiatives.

In this context international solidarity initiatives and NGOs can help to improve the situation of the employees at Foxconn or at other contract manufacturers mainly by denouncing the poor working conditions in the media. But they cannot make up for shortcomings of union organization and their local structures; they cannot do the necessary organizing work. And there is a real danger that those initiatives and NGOs sometimes help Apple and other OEMs to white-wash their image and return to business-as-usual only a few weeks after scandals receive major media coverage.

There is no indication at all that the suicides and scandals at Foxconn have hurt Apple's revenues and the super-growth story. Apple and the other OEMs, the customers of the contract manufacturers, have now adapted to public scrutiny of problems in their supply chain and are skilled at managing their CSR image. Soon after the first wave of suicides of Foxconn workers Apple asked the Fair Labor Association (FLA) in the United States to regularly monitor labour issues at Foxconn, mainly with regard to overtime, health issues, child labour and other legal requirements in China. But of course Apple did not ask the FLA to investigate pay issues at Foxconn, for example if wages without overtime are sufficient to make a decent living. That would have meant changing the distribution of profits between Apple and Foxconn. It is the same story with customer Microsoft, which demands that its suppliers give paid leave to US workers without any indication that Microsoft would pay for it. (<http://www.ft.com/intl/cms/s/o/ceb8cab6-d3ce-11e4-99bd-00144feab7de.html#axzz3Vqz3tuiz>).

The segmentation of the supply chains in many industries, where mainly internal relations within one company are replaced with myriads of external, market relations between companies, with legal responsibilities limited to the different companies, are a fact of modern production and business structures. There is probably no way back. But an organizational model in which the main players in the whole supply chain, mainly the OEMs, shed all their responsibilities for the supply chain and for public and labour issues within the chain while taking most of the profits is not necessary. Companies have to take on legal liability for decent working conditions in their supply chains. Workers and also unions at Foxconn or other EMS providers must have the chance to sue Apple or other OEMs if their working conditions do not meet the basic legal provisions about overtime and so on or the self-imposed CSR requirements. After several human catastrophes in the garment sector in Bangladesh the European Centre for Constitutional and Human Rights (ECCHR) has called for such legislation at the European level. These proposals apply also to the companies in the EMS sector and to their customers, such as Apple. Garment workers from Bangladesh have now sued some major German retailers about their responsibility for the Rana Plaza garment factory disaster in Bangladesh. It remains to be seen whether the German courts take up the case of the workers without clear legislation about supply chain responsibilities.

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Chapter 8

Transnational organizing in Europe: a case study of a multinational company in the electronics sector

Vera Trappmann

1. Introduction

Multinational companies have emerged as an effect of increased global competition. The ‘global firm’ (Bartlett and Ghoshal 1998) or ‘exportive firm’ (Taylor et al. 1996) takes the home country management approach and replicates it abroad, treating the global market as an integrated whole. Global firms tend to reduce the variety of business models and eventually lead to convergence, especially with regard to labour relations and human resource management practice. There is a debate concerning the extent to which MNCs are capable of transferring their business models to subsidiaries and whether host country institutions and organizational characteristics might hamper easy replication of those of the home country (for an overview of the debate see Smith and Meiksins 1995; Smith 2005). Recent research has proven the importance of sectoral differences with regard to country-of-origin effects. Meardi et al. (2013) and Ferner and Edwards (1995) argue that variations in the impact of MNCs’ global policies on employment relations can only be studied in relation to each individual firm. Nevertheless, some authors expect a broad global convergence around only one model, namely that of the United States, given the huge number of MNCs headquartered there.¹

US labour relations are characterized by weak trade union density, low collective bargaining coverage and conflict where there are works councils (Katz and Derbshire 2000). Management style is characterized by centralization and bureaucratic control of the type identified by Chandler (1977). US MNCs are generally hostile towards unions and characterized by a strategic and centrally-directed non-unionism transferred to subsidiaries from headquarters (Royle 2001; Dickson et al. 1988).

1. According to estimates, about 50 per cent of MNCs are US-owned, http://www.forbes.com/2008/04/02/worlds-largest-companies-biz-2000globalo8-cx_sd_o4o2global_land.html

The ‘Americanization’ of business in Europe has been hotly debated in recent years; trade unions and labour representatives in particular are extremely worried by it. While the scope of the phenomenon has been identified, less is known about *how* anti-union approaches are played out in practice (Ferner et al. 2005). Ferner et al. (2005) argue that US MNCs’ anti-union policies outside the United States range from ‘high-road’ union substitution to aggressive ‘low-road’ union avoidance (2005: 704). The current contribution analyses one US MNC and its anti-unionism in the electronics sector.² The case is particularly interesting for its hard-line policy on the part of the US headquarters and the European management. The chapter will deal with anti-union policies at the European level and in selected countries in central and eastern Europe. Concerning the EU level, while the company used to have a European Works Council (EWC), conflicts between European level management and labour representatives led to its dissolution. Regarding central and eastern Europe (CEE), I present the headquarters’ union substitution policies, creating incentives for employees to resist the establishment of unions by using a range of innovative employment policies (cf. Beaumont and Townley 1985).

The chapter is based on research carried out since 2011, in particular desk research and interviews with works councils at different European sites of one multinational company in the electronics sector. It is important to note that the author has also been an adviser to IG Metall, a German trade union, in the process of setting up new ways of transnational organizing in the electronics industry. This chapter was thus written from the perspective of a participant in trade union activities and less from an academic position. The chapter starts with a brief description of the company, analysing the impact of business development on forms of labour organization and focusing on restructuring and social dumping. It continues with an analysis of labour organization in the company at the European level, basically the EWC, but also other more innovative forms that emerged in response to the specific problems of the EWC.

2. The company is one of the major customers of Foxconn’s European sites and therefore particularly interesting within the framework of the present volume; if a company is itself hostile to labour, it will be less concerned with bad labour policies at its suppliers.

2. The company in brief

The multinational company (MNCE) is an US-based global company, one of the biggest players in the electronics sector, with the highest business volumes among IT companies. While initially it concentrated on the production of printers, today it produces personal computers, printers, server technology and other IT infrastructure, and offers a full range of services and software programming. According to the business magazine *Fortune*, MNCE is among the ten most important companies in the world. MNCE has more than 1 billion customers in more than 170 countries and has approximately 300,000 employees worldwide, of whom more than 75,000 are based in Europe.

MNCE is a multi-divisional enterprise, subordinating its national production and services under geographical business units that report profit and loss only to the US-based central management, which is solely responsible for strategic planning, monitoring and resource allocation among divisions (compare Williamson 1975; Bartlett and Ghoshal 1998). The European operations are thus integrated under one European management; there are still national managements, but subordinate to the European level.

MNCE entered the European market in 1959 with locations mainly in the old member states of the EU. In the 1990s, MNCE expanded its business to central and eastern Europe. Since 2009 there has been a shift in employment numbers: employment increased at sites in the new member states, while in the old member states, employment has been reduced. We clearly see a process of offshoring and relocation here, with Bulgaria and Romania benefitting most. The current workforce in the new member states is about 4,000 workers each in Bulgaria and in Romania, approximately 1,800 workers each in Czechia and Slovakia and about 3,000 workers in Poland. The largest units are always located in capital cities: Sofia, Bucharest, Prague, Bratislava and Warsaw.

Workers are mainly full-time; agency workers make up around 20 per cent of the MNCE workforce in central and eastern Europe. The number of agency workers is higher in old EU member states. Other business strategies aimed at reducing labour costs also mainly affect western European countries, where labour costs are higher. The main practices for reducing labour costs include outsourcing of divisions to local, lower cost service providers.

The qualification profile of workers is fairly diverse; most have higher education, although backgrounds vary considerably, ranging from IT, through foreign languages to a degree in history. People work as programmers or as service personnel, operating and managing customers' requests or dealing with system integration projects and consulting. The age level varies across countries, with workers in the new member states being the youngest – typically under 30 years of age – while in the old member states the percentage of those over 50 years of age is substantial.

The representation of workers' interests at MNCE faces huge challenges. The unionization rate across all countries is fairly poor. In the new member states in central and eastern Europe, labour representation is generally weak, particularly in the electronics sector; at MNCE it is almost absent. In most countries in the region, there is no labour representation at company level.

Headquarters have put in place a number of instruments to channel communication with the employees. These are union substitution measures that create incentives to choose non-union status (compare Beaumont and Townley 1985). The two most widespread institutions are employee forums and wellness programme groups. Employee forums consist of elected representatives who moderate communications between management and employees. The body has no rights and no power; it just advises management on employees' concerns and needs. Employee forums function as a 'bridge between management and employees' (interview with a member of an employee forum), which optimizes communications from a management standpoint. The wellness programme groups organize benefits for the employees, from reduced gym membership to health training. Employees working in a wellness programme are supposed to identify the needs of employees and design offers that answer those needs and promote good health. Both instruments are soft regulation bodies with no power or representational rights; their aim is to give employees a feeling of participation.

The low trade union representation is a huge obstacle for effective labour representation in the European Works Council. It is not unusual that management members become members of the EWC. Also at western European sites, trade union membership is low, reflecting the trend of weak unionization in the IT sector. However, even in where there are well established union structures or works councils, labour representatives have difficulties negotiating with the management. Because of the

management structure, national management has been deprived of negotiating power in relation to labour representatives. National management is thus becoming merely the bureaucratic administrator of upper management decisions; even if they wanted to, they have little or no scope for negotiation with local labour. The former MNCE manager for Germany left the company in 2013 because he was frustrated by his lack of influence over MNCE's strategic development in the country; for example, he could mere look on as an entire site was closed.

Across the EU, there are no sectoral collective agreements regulating wages; the only existing sectoral agreement in Spain was terminated in July 2013 and the employer was reluctant to negotiate a new one. Plant-level collective agreements also only exist in Spain and the United Kingdom; at the other sites, wages are negotiated individually between human resources and employees. As a consequence, workers complain that no pay rises have occurred. Only in the United Kingdom, where union density stands at 25 per cent, do workers benefit from negotiated pay increases.

3. Business internationalization and its impact on labour organization

3.1 Restructuring

The Dot.com crisis of 2001 prompted a change in MNCE's business strategy. Like many other IT companies at that time MNCE hoped that intense internationalization would solve the crisis (Boes and Kämpf 2008). The growing internationalization resulted in several rounds of strategic restructuring, which have involved a large number of mergers and acquisitions during the past 15 years. The initial big merger was in 2002, when MNCE merged with the then largest producer of personal computers. MNCE almost doubled its personnel from 80,000 to 140,000. In 2008, MNCE bought another big software company and increased its workforce by 150,000. Today MNCE has about 300,000 employees. While this strategy increased market power, from the start the mergers and acquisitions brought many problems for workers. Two are particularly important.

First, the expansion of the company led to a multitude of different working conditions and pay systems, which were not regulated by one collective agreement that would guarantee the same standards for everyone at least

in one country. On the contrary, at each site workers experienced different standards in terms of working hours, pay or company pension scheme. In many cases, MNCE tried to lower the better standards and put pressure on workers who did not accept a new working contract with the new conditions. MNCE suggested that those workers would not be promoted or would not benefit from any kind of wage rises in the future (interview with former MNCE works council member, 2011). This pattern marks the European-wide MNCE strategy of individualizing working contracts to make labour costs as flexible as possible for the employer. Not only are employees' working conditions different in different subsidiaries, but also employment contracts and working conditions within subsidiaries and within divisions differ widely, allowing MNCE to adapt employment costs to market conditions every time they recruit new people. Particularly after the economic crisis in 2009, new workers tended to be recruited at lower wage levels than those already in employment, thus indicating a long-term degradation of working conditions in the company.

Second, before international expansion, MNCE had a distinct corporate culture, which expected a huge commitment to and identification with the corporation, characterized by strong ties between management and the workforce, leading towards hostility against all organized forms of labour interests. Works councils at MNCE therefore were often considered only as the workers' 'spokesmen' in relation to individual problems that needed clarification with the management (interview with former MNCE works council, 2011). A typical way of dealing with frustration or dissatisfaction was financial compensation. Works council members were often promoted to higher management positions as a way to tame potential opposition. Hostility was even greater against unions, which management regard as interference. However, acquisitions or mergers with other companies and in particular with the early two, brought in workforces that were used to stronger labour representation, with strong and often unionized works councils. MNCE more or less systematically tried to destabilize and destroy labour's voice. The most radical example involves the closure of an entire site of the first acquisition in 2002 in Cologne, a site that was known for its very active works councils. This was read as a warning sign against active forms of labour interest representation (interview with former MNCE works council, 2011). This incident was not unique, but part of a repeating pattern. The most recent incident was the closure in 2013 of a site in Germany belonging to the second merger company, which was largely unionized and where the union activist chair of the European Works

Council used to be employed. The site was also known to be cost-intensive due to the high average age of workers and a share of 10 per cent workers with disabilities (interview with trade union officer, 2013).

3.2 Offshoring and social dumping

Since the late 2000s, the search for cost efficiency has gained a new quality, doubling the number of employees in the new member states, such as Poland, Bulgaria and Romania, while in Germany and the United Kingdom personnel has decreased by 20 per cent due to the relocation of production eastwards. In addition, the company is shifting production even further east, to India and China, as well as south to Brazil. In countries such as Romania the establishment of additional capacities has been linked to the formation of a shared service centre, the outsourcing of certain divisions and services previously performed in other countries, mainly call centre operations and some elements of HR management, such as wage administration. While these off-shoring practices are not a new phenomenon in the sector (see Boes and Kämpf 2009 and Cooke 2007 for examples of HR shared service centres), the range of relocation from old member states to new member states in central and south eastern Europe has intensified during the economic crisis.

As an alternative to further relocation, the management has put pressure on sites in the old member states to lower their labour costs. This was most evident in Spain, where the national management demanded a number of concessions from employees, such as renouncing their annual pay indexation right and accepting an extension of possible daily working hours and in general longer working hours per year for the same wages. Furthermore, the management demanded that employees renounce all collective agreements regulating wages, which would have constituted a breach of Spanish labour law. Most of these claims have been rejected due to the Spanish unions' capacity for counteraction at MNCE. However, even without breaking the law, the amendments to Spanish labour law introduced in 2013 gave multinational companies such as MNCE enough room to lower labour standards. These 'reforms' affect collective agreements: company level agreements now have priority over sectoral ones, the possible extension time of agreements has been reduced and collective dismissals may be imposed more easily without costly redundancy packages. Employers can now introduce 'internal flexibility' (changes in job tasks, location and timetables) without the need for union

or works council consent; new contract forms have been introduced, allowing more ‘flexibility’: and, most worryingly, employers have the right to reduce wages without union consent (Meardi 2014).

According to the new regulations, at the Spanish sites existing workers were replaced by new ones who received only a fraction of the wages of the former personnel. According to estimates of the unions at the Spanish sites, 70 per cent of the employees have been downgraded and earn less than 1,000 EUR a month, compared with 4,000 to 5,000 EUR a month formerly. At the same time, the share of agency workers has been increased. In addition to cost efficiency considerations, there was also a tendency to dismiss workers who were older than 40 years of age and those who worked in strongly unionized units, which weakened collective workers’ representation considerably (interview with Spanish works council, 2013).

4. Transnational labour representation

4.1 European Works Council

The above-described situation of weak labour representation at national level makes it clear that for a global company such as MNCE only transnational labour representation make sense for workers. The EWC was founded at the company in 1996, which turned out to be one of the largest EWCs in the EU. The EWC represents 27 countries and has 44 members.³ According to the literature on EWCs, however, this EWC – as I will show – barely represents a symbolic EWC (the least effective labour representation) (Lecher et al. 2001); although formally constituted, it does not really operate effectively. Even compared with other symbolic EWCs in multinational companies the situation at MNCE is bad. It was only in 2011 with the election of a new steering committee that the poor quality of the EWC’s functioning became an objective for change. The new steering committee wanted to give the EWC more power and therefore

3. The elections of EWC delegates were organized by local management. In some central and eastern European countries there were rumours that elections were not carried out transparently and that managers became delegates. If members are unionized, however, we know from research that the impact of an EWC can be huge: though the expectations of CEE members with regard to the impact of an EWC are quite low (Tholen/Hemmer 2005), positive effects for members are informational advantage and a kind of legitimacy (Meardi 2002); also, local union fragmentation can be halted by the need to agree on a common EWC member (Voss 2006) and awareness can be raised that relocation is a permanent threat also for CEE sites (Dehnen 2010).

proposed signing a new and better EWC agreement. The European management opposed a new EWC agreement and continued its form of cooperation, characterized by a lack of consultation and providing only minimal information. No strategic or important issues that affect employment was discussed during EWC meetings. While this lack of information and consultation has been well documented elsewhere, the situation at MNCE escalated. The EWC employee representatives considered that fundamental legal rights conferred on EWCs were neglected by the management; in particular, training for EWC members was challenged, and external experts were not approved.⁴ Furthermore, when a huge restructuring was planned for the entire corporation – merging two MNCE divisions – the EWC only learned from the media that 29,000 jobs would be lost, representing about 8 per cent of total employees, of whom 8,000 would be lost in the EU. The EWC declared its dissatisfaction with the level of information given by the management and accused MNCE management of failing to provide adequate information to employee representatives at the national level, as well as of violating the information and consultation rights given by the EWC agreement. The EWC announced, first, that it would like a judicial decision on the right for external experts to discuss these far-reaching restructuring plans, and second that it would terminate the current EWC agreement as the EWC cannot work and fulfil its role for the workforce given the limited information they received.⁵ However, before the first court hearing took place, an MNCE lawyer asked to postpone the hearing and for negotiations to be resumed. MNCE's European management feared negative press and therefore agreed to a new EWC agreement. The new agreement was to be registered under UK law and the existing EWC would be the negotiating body for the new agreement. Management also agreed that the EWC would receive training about UK legislation and could work with experts chosen by them. This concession by the European management was not the end of the story, however, but the beginning of further rounds of negotiations that led eventually to the EWC's dissolution.

4. Management even checked passports to prevent the participation of non-MNCELEC employees, such as experts, before EWC meetings.
5. The new agreement should be reached within one year, negotiated by an internal new negotiation body consisting of 13 members elected out of the members of the existing EWC. A new EWC has to be set up if local managements of at least two European countries demand its establishment. The EWC also assumed that a new EWC could be established under UK law. The biggest share of the workforce is located in the United Kingdom and thus it would be natural to set up the EWC under UK law. Although the UK has implemented only a minimalist adaptation of the new Directive it would still offer a better standard than the old agreement.

When an EWC dissolves, a company – upon request – has to establish a so-called special negotiating body (SNB) consisting of representatives from each country in order to discuss the conditions of a new EWC agreement. The formation of an SNB, however, is not without risks for labour representation. First, it can take a long time and thus leave workers of the company without any form of representation at European level. Second, because members of the SNB are elected individually in each country, there is a huge risk that management will become delegates to the SNB or obtain substantial influence over delegates in countries that lack labour representation. In the case of MNCE, it turned out that, after the election of the SNB, less than half the members were unionized. The negotiations between the SNB and the management are ongoing. So far, there has been no break in the negotiation culture. Management continues its policy of impeding dialogue. It refuses to provide interpreters for members who do not speak English well. Furthermore, the members of the SNB have not received preparatory training, which again violates their rights laid down in the EU Directive.

The experiences of the EWC at MNCE call for a new analytical category. Its information and consultation rights are violated so it cannot be classified as a participatory EWC. However, the labour representatives have been very active, so it cannot be classified as purely symbolic. It is an active EWC that confronts an obstructing European management, which eventually led to open and even legal conflicts. I propose enlarging the EWC classification to include a new ‘conflictual’ type.

4.2 Other forms of transnational representation

Given the formal weakness of the EWC, during its existence the EWC board mobilized as much support as possible. Their attempts are fairly unique in the electronics sector. First, they built up a transnational alliance of trade unions operating at MNCE in October 2012 – the so-called MNCE European Alliance – to build up a parallel forum for exchange and communication for the time the EWC was not operating.⁶ Second, the EWC organized transnational support across the company’s

6. Members of the MNCELEC Alliance included works councils that are unionized and trade union representatives of the respective countries, as well as works councils (mostly from CEE countries) that are not yet unionized but are considering the foundation of an MNCELEC enterprise union.

sites for unions to ensure that the elections to the SNB respected union candidates and were organized in a fair and transparent manner. Third, the EWC directly contacted MNCE central management at headquarters to gain more public attention, assuming the last thing the CEO wanted was negative press.

The MNCE European Alliance is of particular interest as it represents a new form of transnational labour organization. Its objective is to coordinate ad hoc trade union responses to corporate decisions across Europe. It aims at coordinating strategies against workforce reduction; supporting collective bargaining; and increasing union membership in the company in order to improve working conditions. Their focus is thus a bit different from that of a EWC as it tries directly to support the establishment of unions at company sites in countries in which management opposes unions. It is thus explicitly union oriented. The most recent case is that of Bulgaria, where the foundation of a trade union – the first at the company in one of the new member states – provoked strong resistance from the management. To give some examples of the type of resistance I myself experienced as a delegate to an international union networking event: potential participants in the networking event from CEE countries did not get travel permission from their local managers and potential participants from Bulgaria were repeatedly asked by the local management not to go. Local management did not participate despite being invited. Nevertheless the attendance was fairly good and numerous participants joined the local union afterwards.

5. Conclusion

This contribution has shown the impact of a US MNC on labour organization in Europe. The company has systematically undermined fundamental labour rights and standards guaranteed by law, European directives, collective bargaining and codetermination. The question posed at the beginning of this chapter – concerning the extent to which business in Europe has come under the negative influence of US-based MNCs – can be answered straightforwardly: in the electronics sector, this influence is rampant. This is alarming for anyone interested in European labour organization. The example under study goes beyond what we know from the literature in terms of denying the EWC's rights to information and consultation, preventing other forms of labour organization at the national and transnational level and cutting back labour standards. In

particular, the practice of restructuring in an attempt to get rid of cost-intensive and unionized workforces is alarming for European labour.

In the case under study, the multinational company has transferred its business model and its ideas about business and profit-making to the EU and the negative effect on employment has been EU-wide, regardless of the different host-country institutional contexts. The analysis has shown that managers who deviate from corporate strategy will be pushed to resign, while works council members are likely to be fired or threatened. The only actors trying to resist are trade unions and unionized works councils. However, we have seen that a traditional representation body such as a EWC rapidly comes up against a wall. Despite being very active and conflictual the EWC was not able to change any corporate strategy. This is not only frustrating for the members, but puts a serious question on the table: how can European labour standards and ideas about good business practices be protected? New forms of labour representation, such as the union-based Alliance, are an experiment that show the degree of international solidarity and an increasing networking capability among unions across Europe. Beyond that, however, new forms are needed to effectively counterbalance some of the negative employment practices stemming from US MNCs. The immediate reactions of MNC management towards any negative press might indicate its Achilles heel, especially as a corporation that puts a lot of emphasis on corporate social responsibility. However, it would be better to find institutional solutions based on more than attacks on corporate reputation.

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Chapter 9

'Union busting is disgusting': labour conflicts at LG corporation in Poland

Małgorzata Maciejewska

1. Introduction

The case of the electronics industry in Poland, as a part of global production chain, provides the ground for an analysis of a new power dynamic between global capital and workers in Poland. Investigation of this process points to the emergence of new labour conflicts within the framework of the expansion of international investments in Poland and opens up a more general reflection on the relations between very flexible production, as found in the electronics sector, and its consequences for work organization, working conditions and workers' scope for organizing themselves.

As indicated in many studies on the electronics industry (Chan et al. 2008; Ho et al. 2009; Os and Theuws 2009; Haan and Schipper 2009; Perényi et al. 2012; Overeem 2012; Pun et al. 2013; Chan et al. 2013), global production and the supply chain have two intertwined characteristics: due to the extent of the links in the chain and their inter-relations, it is as complex (or even complicated) as it is flexible. The intricate relations between suppliers, main producers and the brand company have been well described by Esther de Haan and Irene Schipper (2009: 2): 'We are no longer looking at a classic example of supply chain responsibility, with one company at the top of the pyramid working down the tiers, but it more resembles a web with spiders weaving from different knots.' The spider's web metaphor refers to the fact that the electronics industry, with its multi-layered supply system, has increased competition between the numerous companies involved in the production of a particular electronic consumer good. This is now one of the key mechanisms of profit-making in the sector.

This mechanism has very direct consequences for the health and lives of electronics industry assembly workers. To increase their competitiveness, the brand company and the main producer(s) impose financial and time

pressure on the suppliers, who, in order to counterbalance their costs during downtimes or to keep up with the schedule of orders and still extract profits, shift the costs of production onto the workers by increasing labour productivity, introducing changes in work organization and new technologies but without raising wages (Palpacuer 2008). The intensification of work in such flexible production also requires flexible employment. The assembly plants – especially those at the bottom end of the particular section of the supply chain or those that have only one customer – use flexible forms of employment that can be easily increased or reduced depending on the annual production cycle. This enables them to stay ahead in the market (Maciejewska 2012).

Apart from adjustments of or improvements in the work process and the introduction of new technologies, the profitability of the major electronics corporations can also be attributed to their relatively high mobility. The ‘spider’s web’ supply chain enables major producers to either offshore or move production to places where operating costs are lower. In other words, transnational electronics corporations have the ability to shift their costs of production in various ways, either by partially downloading them lower down the production chain – contracting some of their assembly processes to other, cheaper companies (providing the same or better technologies for lower prices) – or by moving their plants where conditions are more favourable (such as a cheaper labour force or tax incentives). To use Beverly Silver’s (2003) terms, in electronics we can observe both rapid spatial and technological fixes. The industry, as a very flexible and relatively mobile one, can thus well adapt itself to changing economic conditions and global competition.

The findings of this chapter and its analytical framework¹ are influenced by a number of key studies of how the flexibility and complexity of electronics supply chains impact on workers’ lives. For example, this

1. Most of the data presented in this paper were collected for the author’s PhD research project on transition and the development of Special Economic Zones in Poland, carried out between 2011 and 2013. Part of the research project was grounded in participant observation at one of the electronics assembly plants in Poland, where the author was employed as a temporary worker and worked on the production line from October until December 2011. The analyses included in this chapter are partly derived from the author’s previous publications: Maciejewska (2012), *Exhausted bodies and precious products: women’s work in a Special Economic Zone for the electronics industry in Poland*; Mrozowicki and Maciejewska (2013), *Conflicts at work in Poland’s new capitalism: worker resistance in a flexible work regime*. For the full report on working conditions in Special Economic Zones at LG see: Maciejewska (2013) *Zmęczone ciała i bezcenne produkty. Warunki pracy kobiet w specjalnej strefie ekonomicznej przemysłu elektronicznego*.

approach was embedded and developed in research projects carried out in Shenzhen electronics assembly plants in China (Pun et al. 2010), in factories in Silicon Valley in the United States (Pellow and Park 2002) and in so-called 'maquiladoras' in Mexico (Fernandez-Kelly 1983; Ruiz and Tiano 1987). Those analyses are inscribed in a research tradition that aims at social and political intervention in public and academic discourse by bringing to light bottom-up perspectives on working conditions in what Pun Ngai (2005) calls 'global workplaces'. In this tradition the objective of intervention is not solely to write an article and expand knowledge, but – most importantly – to take part in a networking process to help workers to organize. Along with this goal comes the methodology of direct and engaged participation by the researchers in the lives, work and struggles of the communities or groups exposed to different mechanisms of oppression. The premises underlying such methodology embody a claim that the knowledge production process is inextricably linked with collective action in those communities or groups. In other words, the knowledge produced in such research is both an outcome of and a tool for social struggles.²

Drawing on the above-described analytical framework, in this chapter we investigate how the characteristics of electronics manufacturing in (a part of) LG's supply chain shape labour relations and influence the collective actions in the industry. I will first briefly describe the conditions in the electronics industry in Poland and, by pointing to the history of its new greenfield investments, analyse Poland's role in the global production and supply chain. Second, by exploring the case of LG Corporation, I try to explain how flexible production, flexible working conditions and organizing strategies are intertwined, presenting a close-up view of three examples of union activities in one of LG's locations in Poland.

The main goal of this chapter is not only to point to the similarities between the different locations of global electronic production and Poland's role in it, but also to study the underlying micro-processes in order to understand workers' options when it comes to organizing and struggle in such global workplaces as LG's electronic assembly plants.

2. See, for example, Stewart, Garvey and McKearney (2013) and the publications of the Friends of Gongchao (<http://www.gongchao.org/>) and SACOM – Students and Scholars against Corporate Misbehaviour (<http://sacom.hk>).

2. Poland in the electronics industry's global supply chain

At the beginning of 2014 the mainstream media hailed Poland as the European 'tycoon of electronics' when the predicted value of production – both household goods and personal electronics – reached nearly 14 billion euros (the highest among EU countries).³ From the perspective of long-term macroeconomic indicators, the statement has a kernel of truth. In fact, from 2005 to 2010 total revenues in the industry increased by 126 per cent, the value of sold production doubled (Table 1) and between 2000 and 2012 exports increased ninefold.⁴ This 'success story', however, has its dark underside, expressed explicitly by one of the state's information agencies: 'Poland has become the European leader in household goods production ... and European empire of LCD TV production ... due to low labour costs ... the acquisition of Polish enterprises by foreign investors [and] public aid' (Garbacz 2010: 2, 4). At present, all electronics producers are located in Poland's Special Economic Zones, where they make use of such incentives as income and property tax exemptions and EU funds. Located mainly in rural areas, the Zones draw their workforce from local communities with high unemployment. Thus, having created a 'business-friendly' environment by privatizing state-owned enterprises and land, providing cheap labour and offering generous incentives for the private sector, Poland has become part of the global electronics supply chain.

Since the late 1990s the electronics industry in Poland, similarly to the retail industry, has developed quite rapidly. The process was embedded in the economic crisis of the early 1990s in the aftermath of the systemic shift from a state planned economy towards capitalism. Poland's major state-owned electronics enterprises underwent radical restructuring, which first led to huge indebtedness and then to bankruptcy. As in other branches, the changes were the result of both new macroeconomic policies and the shift in the geopolitical situation. Together they brought about the collapse of the electronics sales market (as electronics in Poland were produced mainly for the army) and an influx of cheap duty-free Western products. The economic crisis of the early 1990s triggered the creation of new business incentives, such as tax exemptions provided by

3. According to press releases (Mazurkiewicz 2014).

4. According to the information of the Institute of the Electronics Market export value grew from USD 1.4 billion in 2000 to USD 12.6 billion in 2012 (retrieved from: <http://www.ire.pl/index.php?module=htmlpages&func=display&pid=21, 6.03.2015>).

the Polish government in the form of Special Economic Zones (legally established in 1994 along with ratification of the agreement establishing the World Trade Organization). However, the real development of new greenfield investments in the electronics sector speeded up in the mid-2000s, when major corporations such as LG, Sharp, Dell, Toshiba, Funai and TCL decided to locate their assembly plants in Polish Special Economic Zones (which happened between 2006 and 2007). With them came their subcontractors – mostly Chinese, Taiwanese and Korean companies, such as TPV, Flextronics, Dong Yung, Heesung, LG Innotek, LG Chem and Chung Hong.

At present, all major electronics companies in Poland are part of transnational corporations and the industry itself is dominated by the production of liquid-crystal-display television sets (LCD TVs). More than 20 million TV sets are produced every year and the biggest player on the market is LG, producing 13 million TV sets: 5 million in Mława in north-eastern Poland by LG Electronics and 8 million in Biskupice Podgórne in south-western Poland by LG Display.⁵

The production of LCD TVs mainly involves assembling semi-finished products (mounted mainly by the subcontractors of the main producers), including monitors, printed circuit boards, back light units and finished products, such as TV sets. The basic parts (such as cables, plastic frames, different kinds of ports and connectors and other small electronic components, such as antennas) come to Poland mainly from South Asia. Thus, much like in other places that are part of the global economy, the Polish industry is characterized by a very thick and complicated production and supply web, which makes it hard to track down all the relationships between brands and their subcontractors. However, the spatial trend in this chain can be observed. As calculated by the Polish Ministry of the Treasury, 90 per cent of LCD TVs and monitors assembled in Poland are sold abroad and production constitutes more than half of total sales in the EU. This points to the role played in the chain by the Polish market, looking in particular at the LCD TV market. Hence, the electronics industry in Poland could be defined as a kind of 'intermediate

5. All data, if not stated otherwise, are derived from the Statistical Yearbook of Industry (2007–2014) published by the Central Statistical Office of Poland (GUS), and the author's own calculations based on these data. The data concern only the production of electronics (excluding household goods), defined by GUS as 'manufacture of computer, electronic and optical products'. The data on the volume of LG's production come from company press releases.

binder' in the production process, where finished and semi-finished products are assembled from Asian parts and exported to western Europe. In other words, Poland in the global supply chain could be defined as an assembly stopover between the transnational corporation based in Asia and western European markets.

3. LG case study

The Special Economic Zone for LG (LG Zone) in Biskupice Podgórne was established in 2005 and together with LG in Mława (established in 1999 in the Warminsko-Mazurska SEZ) it became the European centre for LCD TV production. Since the beginning of LG's operations in Poland, the company has been among the 100 biggest enterprises, usually occupying a position in the top 25⁶. In the two locations, excluding suppliers, LG employs 4,200 workers (8.2 per cent of total employment in electronics) and, as stated earlier, it produces 13 million TV sets a year.

Coming to Poland was a strategic decision for LG to expand its sales market and increase its competitiveness in the electronics industry, especially against the other major Korean corporation, Samsung. It could be argued that the process of off-shoring production to eastern Europe simultaneously lowered distribution costs, brought operational savings (thanks to tax exemptions and government grants) and enabled LG to use the relatively cheap Polish labour force. In effect, the strategy secured the interests of South Asian capital in Europe.⁷ Another reason for coming to eastern Europe could be connected to the waves of strikes that hit the LG group in Korea between 2000 and 2002. Although it was mainly the LG-Caltex oil workers who went on strike, the LG group (which owned 50 per cent of LG-Caltex) was threatened with severe financial losses.⁸ Another possible reason for coming to Poland was the slow process of decreasing the production of LCD TVs in Newport, Wales, between 2004 and 2006, as reported by the *The Daily Telegraph*, because of an 'increasingly competitive market [and] falling prices for computer

6. According to the 2012 *Polityka* ranking of the top 500 enterprises in Poland, accessible at: <http://www.lista500.polityka.pl/rankings/show>, 5.03.2015.

7. In 2011 the minimum wage of a production worker in Samsung's plants in Korea was 600 euros, while in Poland it was 340 euros before tax.

8. The information is derived from *Corporate Research Project*, retrieved from: <http://www.corp-research.org/LG>, and from *The Wall Street Journal*, retrieved from <http://online.wsj.com/public/resources/documents/info-skstrikes04.html>, 5.03.2015.

products'.⁹ Indeed LG's 'equilibrium' could be sustained by moving to the much cheaper Poland. In comparison to the United Kingdom's minimum wage, which in 2006 was 5.35 GBP per hour,¹⁰ the Polish minimum wage at that time was 0.98 GBP per hour. Apart from that, the Polish government agreed to establish a new Special Economic Zone expressly for LG, with long-term tax exemptions.

In contrast to the first generation of SEZs in Poland (created in the late 1990s), the LG zone was a new project, which meant that the investor, not the government, chose its location. Production in the zone started in 2007; at present there are nine assembly plants, most of which produce parts for LG TVs. The zone itself is on an isolated lot near one of the main highways connecting Poland with Germany. Located 20 km from the biggest city in the region – Wrocław – it can be reached by workers by two city bus-lines (from Wrocław) or by company buses coming from other towns and villages in the Lower Silesia region. While the components are imported from 'all over the world' (mainly China and Indonesia) the workforce is 'imported' from all over the region, mainly its poorer districts where the high rate of unemployment (up to 20 per cent) creates few job opportunities, leaving almost no alternatives to employment in the zone. The majority of workers spend from two to four hours per day commuting to and from work, traversing sometimes more than 160 kilometres each day. Having no alternatives besides working on the production line in the zone, the workers are forced to extend their working day to 12–13 hours. The average wage of a production worker in the zone is approximately EUR 500 net; however, the majority of temporary workers earn the minimum wage of EUR 325 net. Low wages force workers to do overtime up to six days per month, which, coupled with commuting, leaves little time to rest and take care of one's household. During production peaks, the shifts almost never last 8 hours and are usually extended to 10, 12 or even 16 hours. As a result, some working weeks can last up to 60–70 hours.

The work and production dynamic in the zone is ruled by two interrelated regimes: gender and temporary employment. In the LG zone, hiring a feminized work force is a conscious management strategy: young and

9. <http://www.telegraph.co.uk/finance/2945769/Swan-song-for-LG-Electronics-as-Newport-plant-shuts.html>

10. According to information taken from: <https://www.gov.uk/national-minimum-wage-rates>, 5.03.2015.

unskilled women workers are perceived as easily subsumed under the labour regime, subordinate and prepared to work for low wages. They are both a very cheap and a flexible labour force. During the production peaks (in autumn and spring), temporary employment in the LG zone, mainly recruited by temporary work agencies, can reach up to 50 per cent of the workforce. Thus flexible employment is the basic ground for cyclical production (with its peaks and downturns), which could not be performed otherwise. Temporary women workers – needed only for a short time during the production peak in the autumn – are easily replaced or dismissed during production downtimes in the summer, a strategy that sustains the rhythm and fluctuation of production. Temporary workers are assigned to the simplest manual tasks which do not require long training, and they earn the lowest wages in the industry. Thus, as pointed out by many feminist researchers (Elson and Pearson 1981; Mitter 1986; Pun 2005), ‘quick’ and ‘nimble’ female bodies constitute the foundation of arduous, labour-intensive work and profit-making in the flexible chain of electronics production.

4. (Anti)union practices in the LG Zone

Unionization in the zone reveals another side of the ‘flexible’ work regime composed of long hours and low wages. As an effort on the part of labour to gain (some) control over its working and living conditions, unionization inevitably impinges on the assembly process of the electronics industry. To put it simply, flexible production leaves nearly no room for workers’ demands, not only in terms of wages but also in terms of influencing production cycles, especially work schedules and the reference period for calculating working time, including overtime. Nevertheless, however difficult it might be to organize young people with no prior union experience, who originate from many different towns and villages and whose lives are subordinated to a very exacting mode of production, there have been some efforts to do so. The conflicts that arose as a result are quite instructive.

In the Zone under consideration here the outburst of work conflicts culminated in several protests and one strike between 2011 and 2012. The conflicts were preceded by unionization in the Zone, which created a background for the collective expression of workers’ discontent. The first union committee was organized at LG Heesung in 2007, and few years later (between 2009 and 2010) other committees came into existence at

LG Display, LG Electronics and LG Chem. The unionization was due to the efforts of the regional secretariat of NSZZ Solidarność (in Lower Silesia) to organize the greenfield investments in the Zone.¹¹ Another committee of a different union, the All-Poland Trade Union Workers' Initiative (a smaller but more militant union, see Mrozowski and Antoniewicz 2014), was established at the end of 2011 at the Chung Hong plant.¹²

The process of unionization in the Zone overlapped in time with the rapid development of production and an overall good economic situation for the electronics industry in Poland. Following Meardi's (2012) argument about greater labour assertiveness in labour demands when the economy or a business is doing well, the unionization in the Zone in 2010/11 might not be coincidental. The year 2010 was significant for electronics in Poland; all major indicators – such as sales, employment, production volume and revenues – point to constant growth in the industry until 2010 and a substantial fall in the following years. Between 2005 and 2010 sales in electronics grew by 119 per cent, reaching a level of 38.9 billion PLN, while average employment grew by 40 per cent, reaching the highest peak in the industry since transition. Looking from the micro-level of the main player in the Zone – the LG Electronics plant – since 2007 (when actual production started) and up to 2010 net profit increased by 63.1 per cent (from 16.5 million PLN in 2007 to 26.9 million PLN in 2010).

Table 1 Electronics industry in Poland, 2005–2012 (selected indicators)

	2005	2010	2012
Employment (yearly average in thousands)	46.2	64.7	54.4
Sold production (in billions PLN)	17.7	38.9	34.7
Amount of produced TV sets and computer screens (in millions)	6.7	26.3	20.5
Revenues from total activity (in billions PLN)	19.4	43.9	37.1

Source: GUS, Statistical Yearbook of Industry (2007–2014)

11. As stated in the interviews with Chung Hong workers (where NSZZ Solidarność did not succeed), the main tool used by union organizers from NSZZ Solidarność to convince workers was questionnaires on bullying in the plant. However, the workers from Chung Hong did not consider the bullying issue their most important problem.
12. The author took part in the organizing process and helped the workers to contact union activists from the Workers' Initiative.

Other important factors in unionization in the Zone are the employment and working conditions, as well as the experience (qualification and skills) of the core workforce.¹³ For instance, at LG Electronics, LG Chem and Chung Hong, the most active groups in the union's committees were composed of workers with high qualifications and experience in electronics production. The workers were employed at the beginning of production and also occupied crucial posts for the production process, such as technicians or main machine operators. For example, the union at the Chung Hong plant managed to organize all technicians and main machine operators, who were able to gain control over the pace of work by influencing the speed of the line and the number of PC boards produced each hour. Moreover, at the Chung Hong plant, out of 83 union members 40 per cent were employed on open-ended full-time contracts, 17 of whom started the union.

Although there are many other intertwining factors (which go beyond the scope of the available data), it could be argued that economic developments in the Zone and in the electronics industry in general, coupled with the position, knowledge and experience of the workers, created the basis for better bargaining power and influenced unionization in the plants.

Unionization, although successful at first, soon enough incurred the wrath of the employers. This took the form of repression of union leaders and other anti-union practices, which led to the conflicts in the Zone. In 2010, several months after the establishment of the first union in the Zone, LG Chem dismissed 45 of its workers, 12 of whom happened also to be core union organizers in the plant. The main arguments offered by the company's management focused on the economic downturn in electronics production and the poor performance of the dismissed workers. The dismissals were also the result of annual fluctuations in the production process. They took place right after the production peak (before Christmas) when orders fell nearly to zero and most of the plants were temporarily shut down. However, the downturn and the fluctuation of production also happened to coincide with the expiry of the three-year employment contracts (all dismissed workers had fixed-term contracts with only two weeks' notice, which in the Polish legal context constitutes lower employment stability and Labour Code protection), signed by the majority of the workforce when the plant started the production in 2007.

13. The term 'core workforce' refers to the workers who are directly employed by the companies in the Zone, thus it excludes temporary workers.

Hence from a legal perspective, as well as from the management point of view, the workers were not dismissed; simply, the company did not prolong their contracts. Nevertheless, the union pointed to a deliberate employer strategy of union busting: in their opinion, the expiry of the contracts enabled the company to get rid of the leading company level unionists. The dismissals triggered the first large protest in the Zone. In February 2011 100 union members from both LG Chem locations (in Biskupice Podgórne and in Mława) occupied the gates to the plant. However, the protest was ineffective as the union did not manage to interrupt the production process or encourage other workers to join the picket line.

In 2012 a similar situation developed in the other plant – LG Electronics – where five union organizers were dismissed on the same grounds (their contracts were not prolonged). The new contracts offered to the rest of the employees were also temporary and fixed-term, lasting up to five years. LG Electronics' management argued that the Special Economic Zone provides them only with temporary benefits and time-limited permission to operate, thus it is fully justified to use temporary employment (fixed-term contracts). Here, as well as in the earlier case, the Act on Trade Unions and the Labour Code could not protect the union leaders against such practices, and according to the union, the dismissals were once again an excuse to dismantle the union committee with legal tools. Although there was no direct reaction from other committee members or other workers (perhaps because of the defeat of the previous protest and the lessons learned from it), the regional secretariat of NSZZ Solidarność organized a small picket in a front of the voivodship office (the headquarters of the regional Social Dialogue Committee¹⁴), demanding that the regional government of Lower Silesia take action and limit the scope of fixed-term contracts, which, in the union's view, were deliberately used by employers to weaken trade union organizing. Like the conflict at LG Chem, this case also ended up in the Labour Court, although without success for the union, as the workers did not win their jobs back.

Despite the social and union protests, the meetings at the regional Social Dialogue Committee and the labour court cases, the companies effectively

14. This is a tripartite committee composed of the regional representatives of employers, government and trade unions at the national and regional levels. The committee, among other things, mediates in labour conflicts.

managed to interrupt further unionization in the Zone. The company enjoyed particular success at LG Chem, where there is no union at present; at LG Electronics the union committee, although weakened, still exists.

Another labour conflict broke out in the Zone in 2012, when 29 workers of the LG supplier Chung Hong went on strike.¹⁵ After 10 days, to put down the protest the management resorted to a lockout and dismissed all the strikers. The direct source of the friction, as in the other cases, was dismissal of the core union organizer. However, as described by the workers themselves, the reasons for social dissent were much more complex. Since 2011 the conditions of work had worsened, wages had decreased by a quarter and the fluctuation of work schedules and workforce had increased. At the same time, the corporation was building a new plant in the same zone and the introduction of new technologies which improved the production lines led to further automation of the assembly process. This new management policy, called 'processing cost innovation', was the basic driver of work intensification. There were job cuts at the manual assembly works and since then the work of six people has been performed by three. In effect, the excessively high piece rates during the production peak were impossible to meet. The side effects of the processing cost innovation policy were: the tightening of control and discipline over the workers, as well as further flexibilization of work schedules and employment conditions. Thus, as claimed by the union, production conditions became unbearable. This situation, coupled with the management policy of 'no negotiations with the union', triggered the strike, the first in the LG Zone's history.

Behind the lockout and its aftermath there was an underlying strategy. The companies in the LG Zone are advised by a law firm contracted at the beginning of production in the Zone. Legal support involves mainly consultancy in investment processes (advising on tax issues and corporate law), but also (as the union soon found out), the firm provides 'comprehensive services in the area of labour law for manufacturing'.¹⁶ The same company advised LG Chem and LG Electronics to dismiss the unionists, using the excuse of collective lay-offs at the end of the year. However, the strategy introduced in Chung Hong was unique, well known

15. For more information on this see: Mrozowicki and Maciejewska, 2013; Friends of Gongchao, 2013.

16. The quotation comes from the firm's website.

in the United States and the United Kingdom as so-called 'SLAPP' (strategic lawsuit against public participation) suits, aimed mainly at causing financial damage to the union. The first 'slap' took place during the strike when all members of the strike committee received a demand for payment to cover the company's losses caused by the strike, amounting to 22,500 euros. Another two 'slaps' were delivered soon after the lockout. The company reported two instances of alleged criminal activity to the local police, the first an illegal strike and the second illegal fund-raising by the union. Without going into details, the union's lawyer stated that the efforts to criminalize the strikers and the union in general, although unprecedented in the context of union busting in Poland, were permissible under Polish law. Fortunately for the union, all cases were dismissed by the courts. Union busting practices in Chung Hong evoked different acts of solidarity with striking workers: there were several protests in the LG Zone and in other locations organized by the union and local groups of activists; the union together with other non-governmental organizations and social media also launched a social campaign against tax exemptions and labour law violation in Poland's Special Economic Zones.¹⁷

Last but not least, the law firm used one more union busting tactic that is quite well known to Polish trade unions, especially to small, militant ones such as Workers' Initiative. Soon after the lockout, a new union was established at the Chung Hong plant. The new committee, organized mainly among office workers, started to cooperate with the management, silencing the previous demands of the production workers. The same sequence of events took place at LG Electronics and LG Display, where the committees fully cooperated with management, having nearly no influence on working conditions. At LG Electronics, after the conflict, the union committee reached agreement with management on 'partnership relations, especially mutual respect for the freedom to unionise'.¹⁸ At LG Display the management promised the union committee it would introduce a 'zero tolerance policy for accidents at work'.¹⁹ Both of these agreements are covered by the Polish Labour Code. Thus paradoxically,

17. The developments during and after the strike were documented in a film titled 'Special Exploitation Zones', produced by one of the union activists (available at: <http://en.labournet.tv/video/6596/special-exploitation-zones>).

18. Information retrieved from: <http://www.solidarnosc.org.pl/stara/pl/aktualnosci/porozumienie-z-lg-electronics.html>, 5.03.2015.

19. Information retrieved from: <http://solidarnosc.wroc.pl/zero-wypadkow-w-lg-display/>, 5.03.2015.

though initially very hostile to unions, the management in the LG Zone found a way to make use of the unions and appropriate them for the sake of uninterrupted production and social peace.

At first glance one could conclude that the action undertaken by the unions was a complete failure. But this picture of a weak union and a strong employer is far too simplistic. The union's bargaining position was too weak not only against the employers collaborating with the regional government and the law firm, but also in the face of flexible production and employment. Finally, it was too weak with regard to the location of the Zone, which is completely detached from social surroundings. The unions' strategies were maladapted mainly because they could not foresee or overcome many obstacles. We can only assume that a strike would be more successful if it was organized during the production peak (when workers' bargaining position is more powerful than during downtimes) or if the union used more resources to build up a coalition with workers in other plants.

If we consider that a trade union is a tool for balancing unequal power relations in the workplace, we clearly see that in the context of the complex organizational and political machinery created in the Zone, the tool no longer works. However, the conflicts also unveiled that machinery and exposed its instruments and tactics. Since the outbreak of labour conflicts in the LG Zone, the discourse on Special Economic Zones in Poland has changed. Thanks to the protests, strike and social campaign, the homogeneous and consistent success story of the Zones presented in the public debate and academic analyses was broken, creating a space for new critiques of such facilities. The experience of the resistance and the new critiques could constitute a toolbox for the future. Nevertheless, new forms of union activism and union organizing that could go beyond the legalistic approach and workplaces are needed.

5. Conclusions

The electronics industry all over the globe is characterized by flexibilization of production and working conditions (on many different levels). As I have argued, the history of greenfield investments in electronics in Poland confirms its similarities with other sites in the industry's global production and supply chain. The evidence points to the broad scope of its flexibility in terms of its mobility and organizational adaptation. The

above investigation of the LG case study reveals the mechanisms of flexible production with its 'spider's web' supply chain and the complex machinery of the Special Economic Zones. The example of the Chung Hong plant also provides an insight into how the almost constant restructuring and shifting of the production process – which involves further flexibilization and intensification of work – can create a basis for turning anger into action that gives workers a voice in the public debate. On the other hand it also indicates on the micro scale just how flexible managerial techniques can be, not only in terms of intensification of work or simply shutting down or selling the plant and moving production to other locations, but also in terms of the suppression of workers' resistance.

Union activism is severely impeded in the modern electronics factories located in the Special Economic Zone. This is mainly the result of the temporary work regime introduced to maximize profits by combining flexible forms of employment and production. Assembly plants in the Zone were initially used as 'laboratories' of modern capitalism, testing new forms of employment and work regimes, relying on the legal and social environment created by the state. They subsequently became common in the Polish economy. The disciplinary and structural work regime – flexible production with its fluctuations, the system of suppliers and low labour costs connected with high unemployment – have created a new workforce which is feminized, strongly subordinated and detached from local communities. Thus the workplace is excluded from locality and from the functioning of the community. Because work is temporary and there are no alternatives to factory work, it is possible to increase forms of oppression by suspending workers' rights. And, as shown in the LG Zone case study, traditional unionism (formal organizing and negotiations in the workplace) no longer meet the needs of such workers and can be easily co-opted and appropriated by the management. The sparks that set off resistance and sharp conflicts between labour and capital, which multiply in the Zones, call for different modes of collective action: on one hand, bottom-up initiatives tailored to the particular workplace, the dynamic of production and employment, and on the other hand, building broad alliances with workers in other workplaces and social movements, which give visibility to conflicts inside factories. The geographical, disciplinary and structural conditions of work in Zone factories call for a rethinking of the strategy of union activism. New industries require new forms of struggle. Poland's young working class, cut off from the work and union experience of older generations, still has to develop its own tools of resistance.

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Chapter 10

Labour protests and trade union reforms in China

Jenny Chan, Ngai Pun and Mark Selden

1. Introduction

With China's reintegration into the global economy since the 1970s and the relaxation of state restrictions on labour mobility, young rural migrants have become the core of the new industrial working class. By 2014, nearly 274 million Chinese internal migrants were drawn into non-farm work in booming towns and cities, an increase of 48.5 million from 2008, when the National Bureau of Statistics began to monitor the employment conditions of the rural migrant labour force in the aftermath of the global financial crisis (National Bureau of Statistics 2014; 2015). China's economy was hit hard as exports had comprised one-third of gross domestic product (GDP) in value, but it recovered quickly in the latter half of 2009 (Wong 2011: 3). In 2014, China surpassed the United States – in terms of purchasing power parity – to become the world's largest economy (IMF 2014). While its extraordinary growth rates have begun to slow, China's trade and investment activities are having a significant regional and even global impact.

Through the close-up study of Foxconn workers – the largest industrial workforce of the world's most powerful electronics contractor – we aim to draw out the intensification of contradictions among labour, capital and the Chinese state in global production. The fragmentation of labour and the diversification of ownership in the hands of Chinese and international capital have profoundly challenged both workers and trade unions. This chapter considers Foxconn workers' struggle for labour rights, the nature of union representation at the giant Taiwanese-invested firm and the joint responsibility of the enterprise and the government for the protection of workers. Between summer 2010 and spring 2015, we, together with our research team, interviewed Foxconn worker activists to learn about their collective protests against managerial abuses. Without trade union representation and support, workers improvised their organizing and negotiation methods. In our discussion of labour

dispute mediation and settlement, we assess the changing corporate and government responses to labour challenges in globalised China.

2. A new Chinese working class

The integration of Asian manufacturers in global production networks and tight delivery schedules for consumer electronics products have enhanced workers' bargaining power at the workplace level. In her longitudinal survey of world labour movements since 1870, Beverly Silver documents the rise of new working class forces in sites of capital investment at specific historical conjunctures. She defines 'workplace bargaining power' as the power that 'accrues to workers who are enmeshed in tightly integrated production processes, where a localized work stoppage in a key node can cause disruptions on a much wider scale than the stoppage itself' (Silver 2003: 13). In contemporary social struggles, Frances Piven (2014: 226) succinctly discusses the nature of 'interdependent power' and highlights the fact that employers are dependent on workers' consent to labour, perhaps more than ever before. She writes:

Distinctive features of contemporary capitalist economies make them exceptionally vulnerable to the withdrawal of cooperation; in other words, to the strike power in its many forms. These features include extended chains of production, reliance on the Internet to mesh elaborate schedules of transportation and production, and just-in-time production doing away with the inventories that once shielded corporations from the impact of the production strike.

China's centrality in manufacturing and exports suggests the possibility that workers can build on their organizing experience of recent decades to expand labour rights.

China had long prepared for its accession to the World Trade Organization in 2001. The government at all levels has slashed subsidies and cut off bank loans to inefficient small and medium-sized state-owned industrial firms, while providing incentives to domestic private and foreign-invested companies, thereby catching up with neighbouring East Asian economies and the rest of the developed world. Under intense market competition during the 1990s, many old factories went bankrupt, were privatized or restructured, throwing an estimated 35 million to 60 million people out

of work (Lee 2007; Solinger 2009; Hurst 2009). In the three years from 1997 to 2000, the only officially recognized Chinese trade union organization – the All-China Federation of Trade Unions (ACFTU) – whose strength had been centred in state-owned industrial enterprises, lost at least 17 million members (Traub-Merz 2012: 28). The socialist working class has undergone a drastic change. The restructured or privatized firms are increasingly compelled by market forces to reduce the cost of labour and of social insurance that does not directly contribute to profitability. In recent years, with the consolidation of profit-making state-owned enterprises, China's industrial system has been divided into three segments 'consisting of large, central-government firms; hybrid local and foreign firms; and small-scale capitalism' (Naughton 2010: 441). It is in this framework that we highlight the dominance of gigantic Asian-invested manufacturers, notably Foxconn, which have access to cheap land, human resources and numerous privileges from local governments across China.

Foxconn, like many of its competitors, recruits mostly teens and young adults to run the assembly lines. 'Over 85 per cent of Foxconn's employees are between 16 and 29 years old', a human resources manager said.¹ With more than one million employees, Foxconn is the largest private employer in China. This dramatic labour growth has been made possible in part by the global shift of manufacturing. During the 1980s, many of the world's technology firms abandoned low value-added hardware production and electronics assembly to concentrate on design, research and development (R&D), marketing and customer service (Ernst 1997; McKay 2006). Outsourcing is clearly a way to cut costs and shed benefit 'burdens'. In 1981, for example, Apple Computer (later the famed Apple Inc.) contracted offshore facilities in Southeast Asia to ramp up upgraded Apple II personal computers, such as those in Singapore (one of the original four Asian tigers, along with South Korea, Taiwan and Hong Kong). Michael Scott, first CEO of Apple Computer from 1977 to 1981, commented: 'Our business was designing, educating and marketing. I thought that Apple should do the least amount of work that it could and ... let the subcontractors have the problems' (Moritz [1984] 2009: 208-9). In 1984, Apple launched Macintosh to compete with rivals

1. All interviews, unless otherwise stated, were conducted by the authors and independent research team members (from Hong Kong, mainland China and Taiwan) between June 2010 and May 2015. The authors keep the digital files, interview transcripts and field notes in confidence.

in the computer market. By the end of the 1990s, Apple, Lucent Technologies, Nortel, Alcatel and Ericsson – among many others – ‘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). We may add to this list Foxconn, a rising Taiwanese contractor, which grew steadily as it fine-tuned and assembled personal computers, smartphones and video game consoles for global brands.

3. Working for Foxconn

In 2013, Foxconn’s imports and exports reached US\$ 244.6 billion, equivalent to 4.1 per cent of the total trade value of China (Foxconn Technology Group 2014: 3). Foxconn is a key node in the global production network, in which the assembly and shipment of finished products to world consumers continues around the clock, 365 days a year. Container trucks and forklifts rumble non-stop, serving a grid of factories that churn out iPhones, iPads and other electronic products for Apple and other companies. Today, Foxconn has more than 30 manufacturing complexes in Beijing, Shanghai, Tianjin, Chongqing and in 16 provinces throughout China. It runs multiple manufacturing facilities in many provinces (see Figure 1).

‘There’s no choosing your birth, but here you will reach your destiny. Here you need only dream, and you will soar!’, a Foxconn recruitment banner reads. ‘Foxconn believes that employees are its most valuable intangible asset and the lifeblood of its business’, claims the company report for 2010 (Foxconn Technology Group 2011: 6). Foxconn’s promise of higher pay, better conditions and career development has attracted many job seekers, who queued up outside the company recruitment centres on hiring day. The gigantic 1.75 million square metre Longhua complex in Shenzhen city, South China, includes multi-story factories, warehouses, dormitories, banks, two hospitals, two libraries, a post office, a fire brigade with two fire engines, a kindergarten, an exclusive television network, an educational institute, a book store, soccer fields, basketball courts, tennis courts, track and field, swimming pools, cyber theatres, shops, supermarkets, cafeterias, restaurants, guest houses and even a wedding-dress shop. At its peak in 2010, Foxconn Longhua ‘campus’, as the managers like to call it, had more than 400,000 workers. Behind the

Figure 1 Foxconn locations in Greater China, 1974–2015



Sources: Foxconn Technology Group websites

image of ‘a warm family with a loving heart’, the life of a Foxconn worker is isolated.

The factory dormitory houses a massive migrant labour force without the support of family networks. Whether the worker is single or married, he or she is assigned a bunk space (upper or lower bunk) for one person. The ‘private space’ consists simply of one’s own bed behind a self-made curtain with little common living space. With roommates assigned to different departments and often working different shifts, it is difficult to socialize.

‘Growth, thy name is suffering’: this is one of *Gou’s Quotations*, a collection of Foxconn chief Terry Gou’s work philosophy. ‘Outside the lab’, Gou emphasizes, ‘there is no high-tech, only implementation of discipline’. Posters on the Foxconn workshop walls intone:

Value efficiency every minute, every second.
Achieve goals or the sun will no longer rise.
The devil is in the detail.

Every second counts towards profit. ‘I take a motherboard from the line, scan the logo, put it in an anti-static bag, stick on a label, and place it on the line. Each of these tasks takes two seconds. Every ten seconds I finish five tasks’, a worker reported. Electronics parts are assembled quickly as they move along 24-hour non-stop conveyor belts. We ‘work even faster than the machines’. In a group interview, several women employees discussed a ritualistic punishment that they had to endure. Their collective experience was articulated most clearly by one worker.

After work, all of us — more than 100 people — are sometimes made to stay behind. This happens whenever a worker is punished. A girl is forced to stand at attention to read aloud a statement of self-criticism. She must be loud enough to be heard. Our line leader would ask if the worker at the far end of the workshop could hear clearly the mistake she had made. Often girls feel they are losing face. It’s very embarrassing. She starts to cry. Her voice becomes very small ... Then the line leader shouts: ‘If one worker loses only one minute [failing to keep up with the work pace], then how much more time will be wasted by 100 people?’

During our fieldwork, we learned about the responses of rank-and-file workers and the Foxconn trade union to the tragedy of employee suicides. Foxconn shocked the world when the ‘12 leaps’ — the attempted and successful suicides of young migrant workers who leaped from high-rise factory dormitories in Shenzhen — took place during the first five months of 2010 (Chan and Pun 2010; Pun and Chan 2012, 2013; Chan 2013; Pun et al. 2014). Xu Lizhi (his real name) wrote of a screw that fell to the ground in perhaps his most desolate reflection on life and death at Foxconn:

A Screw Fell to the Ground

A screw fell to the ground
 In this dark night of overtime
 Plunging vertically, lightly clinking
 It won't attract anyone's attention
 Just like last time
 On a night like this
 When someone plunged to the ground.
 — Xu Lizhi (1990–2014), 9 January 2014
 (Translated by Friends of the Nao Project)

Like a screw in a machine, Foxconn dictates that Lizhi and each of his co-workers, together with other ‘means of production’, are organized into a 24-hour non-stop operation dedicated to satisfying the insatiable global consumer demand for the electronic gadgets that now seem to define our civilization.

4. China's largest union – the Foxconn company union

Foxconn's union mission statement is identical to the Chinese official rhetoric. It tells workers, ‘when there's trouble, seek out the trade union’. By December 2009, ‘unions had been set up in 92 percent of the Fortune 500 companies operating in China’, including Foxconn and Wal-Mart, and this trend has continued since (Liu 2011: 157). As of December 2012, the Chinese trade union federation had a total membership of 258 million (*China Labour Statistical Yearbook 2012* 2013: 405–406) — surpassing the ITUC (International Trade Union Confederation) global membership of 176 million workers in 161 countries and territories excluding China. The attainment of this high level of unionization in large profitable enterprises is impressive. This stands in sharp contrast to Europe, the

United States, Australia and many other countries, where in recent decades private-sector labour unions have shrunk to a small percentage of the workforce, due to corporate restructuring, job exports to China and elsewhere and the replacement of core regular labour with part-time and temporary labour.

But what has the union been doing for Foxconn workers? From 1988 (when Foxconn set up its offshore factory in Shenzhen on the northern border of Hong Kong in Guangdong province, South China) through 2006, Foxconn, like many other wholly owned foreign-invested enterprises, evaded its legal responsibility to establish a trade union. Chinese leaders, in response to mounting worker strikes and other forms of action in an era of rampant inequality, have supported greater participation of workers in union organization in the hope that enterprise-level unions will help to maintain social stability (Friedman and Lee 2010; Pringle 2011; Chan and Selden 2014; Friedman 2014). On the last day of 2006, under pressure from the Shenzhen government and Shenzhen Federation of Trade Unions, the first step toward unionization was finally taken when local union officials signed up 118 Foxconn workers as members, out of the 240,000 workers at the factory (IHLO 2007). Taking immediate control of the newly formed union, beginning from 2007, Foxconn founder and CEO Terry Gou appointed his special personal assistant, Chen Peng, as chairwoman. She has held the position ever since. Under her leadership, Foxconn's union executive committee expanded from four representatives at the beginning in January 2007 to 23,000 representatives in December 2012, with general membership reaching 93 per cent of its million-strong workforce in China (Foxconn Technology Group 2014: 14). Foxconn is the country's biggest union.

Ms Chen, leading the Foxconn trade union, not only failed to investigate the workplace factors responsible for workers' depression but also made insensitive public comments that 'suicide is foolish, irresponsible and meaningless and should be avoided' (*China Daily*, 19 August 2010). In July 2010, Apple (2011: 18) assembled a team of suicide prevention scholars and medical professionals to conduct a 1,000-plus questionnaire survey at Foxconn Longhua, asking workers 'about their quality of life, sources of stress, psychological health, and other work-related factors'. The detailed findings were kept for internal reference only. In August, Apple (2011: 19) commended Foxconn for 'hiring a large number of psychological counselors, establishing a 24-hour care center, and even attaching large nets to the factory buildings to prevent impulsive

suicides'. Concerning the direct production pressure being transferred from Apple to the factory floor, however, the annual Apple Supplier Responsibility Progress Report was completely silent.

Discipline and punishment notwithstanding, Foxconn management, facing a young cohort of workers with higher education and greater mobility, has been struggling to retain and motivate workers, while imposing ever more demanding production quotas. Female and male union staff reports for duty, seven days a week, at the newly established Employee Care Center. In August 2010, the union organized public speaking contests on the theme, 'The company loves me, I love the company'. It also set up a 24-hour 'care hotline', first at the Shenzhen plants and then at all 30-plus company factories across China. The union staff promises to 'listen to your heart, solve your problems — anytime, anywhere'. Five years on, the company-run hotline and counselling service at the Employee Care Center is still in place.

Li Xiaoxiang, a 17-year-old worker said,

After the suicide wave, we were soon required to take part in the 'Cherish My Life' rally in August 2010. Since then, the union has organized day trips, picnics, hiking, fishing, singing contests, concerts, dance shows, basketball tournaments, and annual partner matching parties on Valentine's Day. These could help workers relax to some extent. However, we're exhausted from work.

Besides entertainment, the most frequent union activities were the box-sealing competitions. He explained that 'box-sealing is what happens after products are stuffed into boxes; the box is sealed. This is one operation on the production line. The competition is to see who can seal the boxes fastest.' The thinly disguised productivity-raising game is framed as a team-building activity. He added, 'I'd say the union doesn't act according to workers' needs; rather the activities are based on company needs.'

At Foxconn, workers can call 78585 — the hotline's phonetic equivalent in Mandarin is 'please help me, help me'. When some workers lodged complaints, however, their caller identities were reported to management. Since learning of this breach of privacy, workers have hesitated to use the hotline or counselling services. They mock the company care centre, dubbing it the 'supervision centre', while the internal hotline is the 'management hotline'. If the hotline was of little use to workers seeking

help, it did help Foxconn create an impression that it cares, while tightening the grip of management over workers.

5. A mass suicide threat

Corporate management has prioritized labour controls with an emphasis on profit, organizational flexibility and production efficiency. In recent years labour disputes have grown in number as Foxconn accelerated its move to lower-wage interior regions, engendering new sources of grievances and open conflicts (Chan, Pun and Selden 2013, 2015, 2016). In early 2012, soon after the Chinese New Year holiday, thousands of workers were transferred from Shenzhen to central China's Wuhan city. Workers could accept the transfer or lose their jobs. Not only were their wages cut, but the move resulted in a loss of welfare benefits. Su Hualing (a pseudonym), 19, explained her anger: 'My health insurance plan cannot be transferred from Shenzhen to Wuhan. Are my employer's contributions to the Shenzhen social security scheme over the past two years all gone? I am told that I can only claim my own premiums, but not those of the employer'. This is despite the fact that she and many other transferees remain Foxconn employees.

The Shenzhen government department kept the 10 per cent monthly contributions made by Foxconn based on Hualing's basic pay. The inability of rural migrant workers to carry their health insurance benefits and pensions to new localities when they change jobs, due to the lack of coordination between government administrative institutions, has been a chronic problem throughout China (Frazier 2011, 2014). Foxconn did not compensate its workers for their loss of entitlements. Instead, it stated that the Shenzhen government had not permitted the company to carry forward the insurance premiums for its transferred employees, thus pinning blame for the problem on the local government.

Nor did the Foxconn union act on workers' behalf in safeguarding their legal rights. The subordination of the union to enterprise management is a major obstacle to the protection of workers' rights and interests in grievance resolution. As a result, Hualing and her co-workers had no choice but withdraw their own individual payments from the insurance account from the Shenzhen Human Resources and Labour Security Bureau. They were unable, however, to recoup the payments that the employer had made in their names.

The loss, due to Foxconn's forced transfer policy, was not limited to health insurance and pensions. The basic monthly pay at the new plant Foxconn Wuhan (1,350 yuan) was 13 per cent lower than in Shenzhen (1,550 yuan). Worse still, during February and March 2012, managers cancelled workers' weekend overtime pay (which should be double hourly wage rates), replacing it with compensatory time off.

In April, nearly 200 workers in a mould-stamping workshop took the lead in walking off the factory floor. On the roof of the three-story building, they chanted slogans to boost their morale. The spectre of suicides quickly drew public attention. Local government officials were forced to step in to the worker-management negotiations. After a standoff of more than 10 hours, the protesting workers did not manage to have the business group chief removed from his position, but they won hard-earned weekend overtime wages.

6. Labour dispute mediation and settlement

Time and again, settlement of high-profile worker protests through government mediation is undertaken to restore 'social harmony'. Local officials have skilfully developed 'protest absorption' techniques to settle labour disputes on the ground, with the primary goal of maintaining socio-political stability (Su and He 2010; Lee and Zhang 2013). In many labour confrontations, either employer or government officials require workers to elect representatives, generally limited to five, to engage in talks. With the small number of worker representatives elected, matters are brought under control – this strategic intervention marks the formal beginning of fragmentation and co-optation of worker power. While state intervention with the backing of the police can demobilize and defuse workers' action, this 'reflects a low degree of institutionalization of industrial relations in China' (Chen 2010: 122).

With workers' growing awareness of the opportunities presented by the fact that giant corporations such as Foxconn face pressures to meet quotas for new models and holiday season purchases, they have come together at the dormitory, workshop or factory level to voice demands or to stage protests. Access to the internet and social networking technology also enables workers to disseminate open letters and to 'tweet' urgent appeals for support. They present the plight of their working lives to media agencies and credible labour support groups, hoping to 'create a

sense of moral accountability' to urge the target corporations to live up to their professed global corporate citizenship ideals (Seidman 2007: 32). Some have joined with cross-border campaigning groups, such as the Hong Kong-based Students and Scholars Against Corporate Misbehavior (SACOM), to pressure companies to respond to their demands. This alliance of workers and non-governmental labour organizations in organizing, in our view, is a response to limitations of workplace-based dispute resolution institutions and constraints in union organizations.

Experienced officials, including government trade union leaders, aim to prevent labour conflicts from escalating and to discourage workers from taking grievances with bosses and/or local governments to court. Outside the legal institutions and formal labour dispute mediation procedure, as Mary Gallagher (2014: 87) observes, 'the state has struggled to maintain its labour system through more direct management of labour disputes'. She characterizes this as 'the activist state', in which Chinese officials make extensive use of discretionary power to intervene in labour disputes. One frequently used strategy, analysed in-depth by Xi Chen (2012, 2013), is to 'buy stability' by brokering cash settlements to resolve immediate grievances, with funds directly paid by the company or by local government. Protests, if handled properly, can provide a safety valve that preserves the legitimacy of the state, even when the state is increasingly burdened by a ballooning stability maintenance fund. In 2013, China spent as much as 769.1 billion yuan on 'stability maintenance', which exceeded the total annual military budget (Reuters, 4 March 2014), rather than enabling workers to exercise their fundamental rights to freedom of association. It is unclear how long this government interventionist strategy will remain viable, particularly when workers' basic rights and interests are routinely violated.

Labour relations are contentious. A 21-year-old high-school graduate, who had worked at Foxconn for two years, wrote an open letter to Foxconn's founder and CEO Terry Gou. The opening passage reads:

A Letter to Foxconn CEO, Terry Gou

If you don't want to be loudly awakened at night from deep sleep,
If you don't want to constantly rush about again by airplane,
If you don't want to be investigated again by the Fair Labor
Association,
If you don't want your company to be called a sweatshop,
Please treat us with a little humanity.

Please allow us a little human self-esteem.
Don't let your hired ruffians rifle through our bodies and belongings.
Don't let your hired ruffians harass female workers.
Don't let your lackeys treat every worker like the enemy.
Don't arbitrarily berate or, worse, beat workers for the slightest mistake.

You should understand that working in your factories:
Workers live at the lowest level,
Tolerating the most intense work,
Earning the lowest pay,
Accepting the strictest regulation,
And enduring discrimination everywhere.
Even though you are my boss, and I am a worker:
I have the right to speak to you on an equal footing.

The sense in which 'right' is used is not narrowly confined to the realm of legal rights. On behalf of the shared interests of workers living 'at the lowest level' in society, the worker leader called for a public talk with CEO Terry Gou 'on an equal footing'. He also demanded that senior management and the company union act responsibly toward workers. His open letter ends with three reminders:

1. Please remember, from now on, to treat your subordinates as humans, and require that they treat their subordinates, and their subordinates, and their subordinates, as humans.
2. Please remember, from now on, those of you who are riding a rocket of fast promotions and earning wages as high as heaven compared to those on earth, to change your attitude that Taiwanese are superior.
3. Please remember, from now on, to reassess the responsibilities of the company union so that genuine trade unions can play an appropriate role.

Free election of union leadership is crucial to win legitimacy and popular support. Chinese workers are accumulating organizing skills and demanding with greater persistence their rights to decent wages, safe and healthy working conditions, and responsive union representation. In

response, Foxconn has proclaimed that workers would hold genuine elections for union representation. A December 2013 Foxconn statement reiterated that ‘we have worked hard to enhance employee representation in the [union] leadership’ and to raise employee awareness of the union’s role in ‘promoting worker rights’.² More than one year and a half had passed. As of summer 2015, however, Foxconn had neither disclosed the specifics of a plan for democratic union elections nor clarified the rights and responsibilities of workers’ representatives.

7. Conclusion

China’s emergence as a global economic power could not have occurred without the painstaking efforts and hard labour of rural migrant workers. Given China’s pre-eminence as the twenty-first century’s largest economy and its continued integration into, and transformation of, the global capitalist system, victories by and defeats of working people in China will be of world historical significance. Our analysis reveals how dependence on management severely undermines the capacity of unions to represent workers, resulting in a distancing of workers from the union, one that is particularly evident in moments of crisis. Deepening conflicts at the point of global production, however, are fuelling labour insurgency. The ‘race to the bottom’ has rarely proceeded without labour, social and environmental challenges at sites of new investment.

With Foxconn and other large companies building subsidiaries and relocating workers from coastal to interior regions, workers’ protests are spreading throughout China. A young generation of workers, whose parents were the pioneers of internal migrant labour in the initial period of market reform, is now filling China’s workplaces. As the backbone of the nation’s industrial development, these younger, better-educated workers have considerably higher expectations than the first wave of rural to urban migrants. Aspiring to earn living wages, develop technical skills, enjoy comprehensive welfare and organize democratic trade unions, they face immense obstacles in the prevailing order at Foxconn and other corporations. Critically, as long as the government does not rigorously enforce laws and regulations protecting workers, employers like Foxconn feel free to ignore state restrictions on overtime and health and safety in

2. Foxconn Technology Group’s seven-page statement to the authors, dated 31 December 2013, pp. 4–5.

order to meet global manufacturing and logistical imperatives. But if fair elections and collective bargaining were guaranteed, beginning with Foxconn's 30 or so factories, this would be a landmark event for workers across China.

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Afterword

The early outsourcing of the electronics industry and its feeders

Ferruccio Gambino¹

1. If computers could speak out

In an interdependent world with more than seven billion neighbours, each and every work situation is relevant to our lives. The sympathy for and even participation in the plight of people who happen to be employed in the electronics industry have been evident in this volume produced on the basis of research work carried out in several countries. We hope that, besides the results we reap here, the seeds that we have planted will bear fruit in the future.

Once the wage stage is set, first enter human beings working for a pittance or for a living, later enter machines. As a case in point, people crunching numbers for a wage were called ‘computers’ early in the twentieth century, and everywhere they have been replaced by machines. Still, computers are among the first machines in history that can listen to their producers, talk to their users and incorporate the results of their use. They can gather stories about how they were made, who their producers were, how these producers were feeling while designing, programming, mining, and manufacturing digital devices, from early operations to assembly-lines, down to final box-sealing, and beyond. In other words, these are machines that could speak out and tell consumers about the lives of producers, their working conditions and wages in research and development, in the extraction of so-called raw materials as components, in production, in transport. Briefly, they could tell us a lot about the segments of the lives that have been consumed in these processes.

However, those who are interested in knowing the conditions in which computers, telephones and other electronic machines are developed have had to look over and above a twofold smokescreen. One has been the endemic invisibility of the workers in the industry, who are isolated from

1. I am grateful to professor Steven Colatrella for his comments on this paper.

the public debate, which in these times pays little attention to working conditions. The other smokescreen is the hermetic corporate atmosphere in electronics, a secretive industry, as has been rightly remarked here. Electronics has become a reticent industry, thus joining the industrial-military complexes and the oil industry.

My initial question is: contrary to what happened in auto and other industries in the Atlantic world that was already unionised by the 1940s, why has any attempt at self-organisation by workers met such formidable obstacles in electronics in the past 40 years? Three obstacles spring to mind: the harsh discipline on the assembly lines and adjoining residential quarters, the exacting times of delivery to a demanding global market and the solid agreements among industrial power elites and public institutions both to keep manufacturing for North Atlantic demand in other continents away from Western research and design for digital products and to grab necessary minerals at knockdown prices, regardless of the social and political consequences, particularly in Africa. So far, a tacit and barely readable postulate in these agreements is that no self-organisation from below (and sometimes not even a timid and patronising unionisation) shall see the light of day. How long this state of affairs can last is a matter of speculation for some, of concern for others.

2. Harsh discipline

Worldwide, the campaigns against the race to the bottom in working conditions, now more than three decades old, are far from being won. Indisputably some of the worst versions of that race have been checked. However, within the dire framework of global environmental risks, unprejudiced observers still have to insist on the fact that long work schedules, poor working conditions and harsh regimentation are part of a larger drama involving the health and even survival of human beings.

More generally, in modern times industry has been at the core not only of large-scale production but also of pollution of organic life for almost three centuries. Suffice it to quote here two well-known historians of science:

By 2012, more than 365 billion tons of carbon had been emitted in the atmosphere since 1751. Staggeringly, more than half of these emissions occurred *after* the mid-1970s – that is, after scientists

had built computer models demonstrating that greenhouse gases would cause warming. (Oreskes and Conway 2013: 45)

Industry has often developed with little interest in working people's well-being. To take this point a little further, I insist on what I believe to be the contemporary cornerstone of the process of accumulation, namely the drive to extract as much labour-power as possible from living human beings, in lockstep with the maximum extraction of the riches of the natural world, regardless of present and future devastation. The immediate consequence of such a drive is work acceleration with all its appendices, work hazards and heightened aggression against nature in vastly different regimes of exploitation. These trends will not go away in the natural course of things, nor thanks to a miracle worked by some saviour.

It is appropriate that a visible thread in the contributions to this volume is the attention being paid to working conditions in the global electronics industry. The peculiar relationship that links Foxconn with Apple is just a case in point. Its study has shed some light on living labour in the industry, in China as elsewhere. Neither Apple nor Foxconn were pioneers in being at the giving and receiving end of subcontracting large production orders. Other firms preceded them in establishing outsourcing at intercontinental distances in the early 1990s. However, the scale and the duration of the relationship between Apple and Foxconn are remarkable. They characterise an almost twenty-year series of collaborative deals in which Apple has collected rich rewards, while Foxconn has tried – often successfully – to make its own gains, despite its weaker position. Both have agreed on how they treat industrial workers in China: workers under tight control, long hours on the lines, overtime at management's will and more than 60 per cent of the workers living at work, where some amenities on so-called campuses are no more than cosmetic attempts to mitigate the squalor of dorm rooms where double-bunk beds for six to twelve workers and locked gates for all at night are the norm.

On a much smaller scale, living and working arrangements in central and eastern Europe and in Latin America leave a modest measure of individual choice to workers in the electronics industry who are looking for a place to live. Low-end hotels, condemned and cursorily refurbished buildings, pensions, private arrangements, with free entrance at all times at night are the norm for migrant workers. However, no matter how long the leash in living arrangements may be, the long work schedules and the

low wages are aimed at keeping workers available to operate within a 'looming syndrome of flexibility', as it has been aptly called, characterised by an availability for work at any time, and often with arrangements barring any legal claim to overtime pay. In these countries the flexibility syndrome in digital manufacturing has already lasted for more than a decade.

National differences in working conditions and in wages are critical, but an expanding trend towards international convergence towards some of the harsher traits of the Foxconn model is disquieting, particularly in the realm of casualisation, long work schedules, denial of paid overtime, a ban both on any attempt at self-activity by the rank and filers and even on paternalistic trade unions.

Working people in electronics manufacturing have been struggling with scarce resources to move towards a decent life despite adversities deriving from both public institutions and private business. We should take a long view of their current plight. Beginning in the mid-1980s North American and Western European electronics has become the most globalised industry, surpassing textiles and apparel. While textiles and apparel have been outsourced to selected industrial areas in Asia since the 1950s, and electrical appliances since the 1960s, manufacturing in electronics has been established predominantly in the People's Republic of China since the 1990s. The pool of labour there consists of cohorts of teenagers and young adults who have migrated as second-class citizens from the countryside to the industrial areas.

The subcontracting of electronic manufacturing to China is a system that promotes a high turnover of workers and that consequently needs a continuous supply of young people. When Foxconn and other electronic subcontractors cannot find enough recruits from close or remote pools of young migrants for their plants, they even recruit students at vocational and technical schools, particularly at peaks of demand (see Chan et al. in this volume). Recruitment of teenage students would be impossible without the active support of central and local institutions, from local authorities to teachers. Would this recruitment in school and public support be possible in electronic manufacturing elsewhere? There are early signs that the institutional space for study-work programmes within technical schools is expanding – in Europe, for example – while reducing the scope of long-established systems of apprenticeship.

As for workers in their twenties and early thirties in electronics, as well as in other sectors, two issues are noteworthy worldwide, although national differences remain important. The first concerns daily reproduction, which is an ordeal of routine compression to minimal economic costs for those who live and work in the factory-dormitory regime, a policy that corporations have derived from early Chinese industrialisation and that they have pursued since they moved industrial operations to China. The general deprivation that male and female workers have been subjected to has developed on a huge scale in industrial plants and adjoining dorms. Hundreds of thousands of individuals have been concentrated in each of the huge Foxconn plants. Such dimensions had never been reached in the previous five centuries of capitalism (Freeman 2013).

Even more striking is a particular characteristic of such places. In human history it had never happened, as far as we know, that not a single child has been allowed to sleep legally in a non-military perimeter containing from 200,000 to 400,000 people at any time. In other words, non-military areas where life cannot be legally transmitted from generation to generation are taking hold and expanding. Usually, even in the most trying situations adult people used to feel, if not the actual presence, at least a penumbral trace of children, of their voices and their play. The absence of signs of the transmission of life from one generation to the next around the industrial sites of factories has permeated Foxconn plants elsewhere, in Europe as well as in Mexico (Cecchi and Sacchetto 2014). Children must stay elsewhere, usually far away from their parents, who often are migrants. A silent exclusion of infants and children has been enforced not only in industrial areas but also in relation to the parents who are economically constrained to live at work.

A corollary of this state of affairs is the effacement of the notion of 'proletarian'. For more than two thousand years proletarians have been understood to be people of the lowest layer of the non-enslaved population belonging to a state, those who possess only the children (*proles*) under their authority. In recent decades, apart from the one-child policy in the People's Republic of China, the freedom to have children has been undermined in many industrial countries, not by law but through economic constraints that can be summed up in the categories of social instability and the precarious wage. In other words, to give birth to children is becoming indefinitely postponable to young adult people. This delay combines with other factors that cause couples to renounce having

children. Even in the lower depths of poverty in the nineteenth and twentieth centuries the drive to accumulate had not turned into a social predicament that would induce proletarians to be childless.

Any labour regime involving living at work is a peculiar variation on modern and contemporary total institutions (Goffman 1961). In comparison with the pattern of total institutions, a labour regime of living at work offers a peculiar threefold variant, two aspects leaving some spatial latitude, one seizing individuals at their roots. First, those who have relatives and friends or, alternatively, wages that allow them to avoid living at work are usually free to do so. Second, even those who live at work are free to get out of their rooms daily and experience a modicum of recreation in their lives, provided that they go back to their dwellings and to their work according to schedule before the gates of the dorms are locked. A third aspect concerns the fact that the disciplinary regime warps the intimacy of those who live at work. They are constantly invigilated by some authority so that they behave in accordance with rules that are dictated from above, in particular to avoid any promiscuity and observe strict temperance. In other words, the long chain of slave quarters, mining camps, workhouses, poorhouses, company towns, concentration camps and isolated compounds under surveillance is far from fading away.

Legally, living at work and availing oneself of the right of locomotion for some hours in the day would not bar a woman and a man lodging in separate dorms from marrying, but in fact it is impossible for couples to form a functioning family within a regimented compound under the shroud of a twelve-hour daily work schedule. This stifling lack of freedom to reproduce was applied only for short periods of time and against selected groups during early modern slavery in the Americas. In short, when the power to reproduce depends on the vagaries of corporate profits, that power vanishes. The separation of work from other human activities has morphed into the tyranny of work at the expense of any other human activity. The conflict between the reasons of accumulation and the reasons of life is bound to smoulder, at the very least, with long-term consequences.

3. The structures of consumer demand morphing into the strictures of acceleration

In general, as much as the production of electronic commodities is kept at a distance from public view, most consumers of electronic products

keep themselves at a distance from social relations in the industry. Undoubtedly, software tends to draw more attention than hardware, as research has concentrated on software to respond to the needs and feelings of potential buyers. By contrast, hardware has mainly looked dull. Later it has proved itself to be a decisive factor in the success of the personal computers of some big brands, first of all Apple. In software the list of innovations that have been presented as strokes of genius is long. That list would be shorter if non-profit-oriented pioneers and public expenditure on electronics were given their due for results that were appropriated by newly founded corporations (Mazzucato 2013).

As to hardware, the visual and tactile elements of electronic products have been and remain indispensable in the process of alluring potential customers. Since the 1990s Apple's care for the sensory effect of its products on the public has become obsessive. Paradoxically, the enticement of digital hardware that had been rated as irrelevant (much like the low quality of primal digital printing machines) in the early years of personal computers has taken on an unexpected importance since the 1990s. It has been accompanied by the growth of demand. In its turn, the growth of demand has catalysed the speeding-up of work to feed ever more demanding global assembly-lines on a much larger scale than its historical precedent, the United States automobile industry early in the twentieth century. Once again, the frenzy of new products has structured the regimented order both of speed-up for assemblers, and of volumes of output and sales for technicians, engineers and salespeople.

There is ample room for further research on these groups. In particular, salespeople in electronics are on the lower rungs of income in the United States, with approximately \$25,000 annual net salary at Apple stores in 2012. Salaries of engineers with at least a bachelors degree in global electronics have been kept in check by increasing the number of educational institutions and facilities in the field. In the United States a special immigration policy to attract electronic engineers and technicians, particularly from Asia, has combined with outsourcing some of the skilled operations there. German employers have complained of a looming scarcity of electronic engineers, possibly with the aim of controlling salaries by attracting young skilled people from abroad.

So-called employee loyalty has meant renunciation of any attempt at unionisation in most electronics firms, not only among salespeople, technicians and engineers, but also among assembly-line workers.

Business-provided prevention of unions has even led a corporation to plan a company town in California (Albergotti 2013).

Some of the current difficulties facing organisational efforts in working class self-activity derive from the early outsourcing of electronics. Counterfactually, if in 1913 Henry Ford had started a pattern-setting move towards outsourcing auto assembly lines to meet the surging demand for cars around 1910, would the social conflict in the United States leading to unionisation in the 1930s have happened? Among the infinite possible outcomes at home, let alone abroad, one may consider that such conflict would have been nipped in the bud, or procrastinated. Moreover, if the sit-ins in the Detroit and Flint auto plants had not taken place for everybody to see, how would the reorganisation of militant trade unions after the Second World War have fared internationally? We do not know. What is certain today is that nobody can legitimately put the blame on workers in Asia or in Central Europe or in the Atlantic area for the seemingly slow pace of self-organisation in electronics. Workers did not land on digital devices, the lords of digital devices landed on them. We should be grateful to these workers for what they have been doing to resist exploitation and to avoid the race to the bottom in a rugged landscape of extreme working conditions and frantic Asia and North Atlantic demand.

4. Layers of command

Electronics has evolved from the military-industrial complex in the 1950s and 1960s to become the leading industry early in the twenty-first century. Until the late 1970s the three-tier hierarchy in software was simple and martial: the managers at the top and in descending order the analysts, and the programmers who were experiencing a crisis of social identity, as Philip Kraft found when he studied their circumstances at work (Kraft 1977). The production of hardware was a task of electronic engineers, technicians and skilled workers, and was the turf of established oligopolies. On the West Coast of the United States, young hackers were active in the digital anti-oligopoly and anti-profit movement. Silicon Valley anti-establishment communities arose in the wake of 1968, some of them later turning up in the crucible into the new electronic oligopolies, while others regrouped as radical activists.

As the Asian electronics industry developed concurrently, and as global demand for digital items was rising exponentially, a new international

division of labour in US electronics was in the making. While research and development remained by and large in the United States, manufacturing moved tentatively to East Asia, and to a minor extent to central and eastern Europe. This move was no novelty. Since the 1950s US direct investments abroad have leaned on large pools of labour in East Asia, particularly in the four so-called Asian tigers, for apparel and electrical products. In the 1980s the novelty was that a new and rising industry such as electronics had hardly developed large plants at home before moving abroad. Textiles, the leading industry in the nineteenth century, and auto, the leading industry in the twentieth century had developed on native ground, had been unionised on native ground and had remained guarded when moving abroad (Gambino 1975).

In contrast, electronics corporations moved to outsourcing in East Asia in little more than a decade, the 1990s, regardless of proximity to consumer markets, thus increasingly depending both on international logistics and on the hosting governments' precautions against workers' possible attempts at self-organisation. The US President's question to Apple's CEO Steve Jobs in 2012: 'Why can't that work come back?' was a plea for an explanation and not a demand to bring the electronics industry back home. Steve Jobs' straightforward refusal: 'Those jobs aren't coming back', not only spoke volumes about current decision-making in investment and employment, but harked back to the critical edge of offshoring as described by the *New York Times* in immediate and unconditional support of that refusal: scale of overseas factories, cheaper workers, flexibility, diligence and industrial skills (Duhigg and Bradsher 2012). The Apple CEO's seemingly rude reply to his President enshrouded a resigned attitude to employment by the executive power and a staunch resolve to maintain global discipline by Apple, while avoiding workers' direct adversarial trajectories. In other words, if the price to be paid for industrial outsourcing is to lean on otherwise hostile regimes, the price seems to be fair as long as the *entente cordiale* between North Atlantic corporations and Asian governments moves on both high profits and a peculiar version of indirect rule.

However, when the issue is the extraction of primary materials for electronics, predatory policies prevail over indirect rule. These notes would be reprehensibly truncated if the least lit aspects of the electronics industry were ignored: the arenas in which the extraction of minerals, and in particular of tantalum, has taken place have been an essential part of the electronics industry and not a peripheral appendage to it. Tantalum

is a strategic component for the manufacturing of digital products. It is found in composite columbium-and-tantalum-bearing ores, or coltan for short. So far, these minerals have been mined predominantly in Australia and Africa, where the east of the Democratic Republic of Congo (Eastern Congo for short) has been the most important source of continental extraction for almost fifteen years, although part of its extraction of coltan has been attributed to other countries, especially Rwanda, so that its origins in war-torn eastern Congo could be denied. Uncertainties remain about the quantities of tantalum that some countries, particularly in Africa, have mined since the late 1990s (Jerven 2012). Other countries involved in mining coltan are Brazil, Canada, China, Kazakhstan and Russia (United States Geological Survey 2013). Potential future mines are currently being explored in every continent, possibly leading to a new scramble for raw materials.

Contrary to reports by campaigners who oppose the extraction and trade of conflict-charged minerals, eastern Congo does not hold 80 percent of known stocks of tantalum-bearing ores, at least after the first decade of the twenty-first century. Michael Nest has calculated that Congo and surrounding countries have about 10 per cent of the reserves of tantalum (Nest 2011). In his courageous and documented volume *The Looting Machine*, Tom Burgis writes:

The real figures might be much higher, given that reserves elsewhere have been much more comprehensively assessed ... Depending on the vagaries of supply chains, if you have a Playstation or a pacemaker, an iPod, a laptop, or a mobile phone, there is roughly a one-in-five chance that a tiny piece of Eastern Congo is pulsing within it. (Burgis 2015: 30)

Thanks to the boom in mobile phones at the beginning of the new millennium, prices for tantalum ores rose tenfold in the course of the year 2000. As eastern Congolese young men left farms and grabbed picks in their attempt to make a living in dire times, warlords that had organised their militias during the first years of the Congo war press-ganged others into mining. As much as the rising price of tantalum has not benefitted former farmers, it has sustained the warlords in their rush to make money quickly, while they were striking deals of co-belligerence with military officials and were bringing coltan to the *comptoirs* (trading houses) where international traders from all continents could easily buy it. United Nations investigators have documented how the implicated European

and Asian companies purchased or pillaged Congolese minerals (UN Security Council 2001, cited in Burgis, p. 32 and footnote 6, p. 254). The crucial moves have regularly consisted of quick smuggling of the minerals (and especially coltan) out of the country. Once coltan is abroad, it can be easily declared conflict-free and clean. Then to the predators go the spoils.

While states endowed with stable public institutions, such as Australia, have developed large-scale industrial mining operations of coltan, in eastern Congo most coltan mining is done by hand. Over the years, the warring militias have waged a myriad of conflicts to finance themselves by exploiting press-ganged miners digging at gun point.

In Africa, and particularly in eastern Congo and neighbouring countries, the resource curse has made lands rich in resources much poorer and exponentially more conflict-ridden than lands endowed with fewer resources, at a time when technocrats have been extolling the contributions of the new technologies to a more connected society, and when some self-satisfied moralists have concluded that the demise of forced labour worldwide is already in sight. No matter how the arrangements for the supply of minerals will change, the history of the first twenty years of frantic demand for tantalum to use in digital products has been written in letters of blood in Africa. It is the history of one of the cruellest scrambles for resources, in a so-called market where guns have regulated business, while many American, Asian and European corporations skirted round the subject, at the very least until Section 1502 of the Dodd-Frank Act was signed in 2010, if not later (Smith 2014: 6). Dire developments in Central Africa as well as elsewhere do not bode well for transparency in the extraction and trade of minerals

5. Acceleration as an invisible thread

I shall conclude with a plea. In the scenario of this research project the secret agent has been time, as in the cryptic title of Joseph Conrad's novel. The natural limits to acceleration in industrial work may be yet to be reached. New experiments in physical and psychological human endurance have been under way for a long time, particularly in the military as well as in sport, and probably will continue to expand into commodifying fields of animal reproduction.

It is plausible that the individual's psychic defence mechanism has not yet been corroded, thus putting limits to some forms of extreme acceleration of the pace of work, in electronics as in other industries. One cannot take the poor breaks in a twelve-hour work schedule as serious attempts to create islets of relief. Social movements like those of 1968, and the early green campaigns have tried to resist the compulsion to accelerate performance at work as well as elsewhere. In general, it would have taken much more than a 1968 to set new rules on the intensity of industrial production. The entire set of background assumptions of modernity, be it in the political sphere, or in the economy, or in education, or even in the biological rhythms of living organisms has depended on the undisputed dogma of acceleration. What appears to be increasing speed is in fact expansion of the forces of production in their seemingly inexorable and progressive march. While people in modern societies experience a general scarcity of time, the plight of exploited individuals in mass production has been much more specific and dramatic as they have been compelled to race against a tyrannical clock splitting seconds on regimented assembly lines, in transportation and on computers. They have been actively isolated, but they should not remain isolated.

Only at its best moments, for instance in newly unionised auto plants in Detroit and Flint in 1937, was the newly formed United Auto Workers Union solid enough to impose limits to the intensification of work. Only 1968 had the power to abolish work with constantly raised arms on auto assembly lines in continental Europe. Until the issues of industrial speed-up and acceleration in the rhythms of life become legitimate subjects of debate and campaigns in the political arena – like global warming and environmental pollution – there is no foreseeable end to underground or overground streams of unrest.

No open debate, no public arena can survive for long if people have to work very long hours – and for low wages – while vital decisions about their lives are taken in distant boardrooms, with all the phantom features of faceless oracles. Not even a system of political representation, let alone a vigorous democracy, will survive for long under such circumstances. This project will achieve its aim if it helps to encourage a debate by and for working people who are enclosed in their factories, dorms, compounds, ships, company towns and company cities in a seemingly solid, and in reality shaky industrial order.

At the cost of iteration, all work situations are relevant to lives, present and future. They are relevant in China as well as in central and eastern Europe; in Mexico as well as Brazil; in eastern Congo as well as Cupertino, California. Rates of profit and rates of exploitation may differ widely in electronics from country to country, and nonetheless they are the source of a long and invisible warp winding the globe.

Socially meaningful situations should be considered with unfettered analyses of power relations at workplaces as well as elsewhere. This is my final exhortation. As a corollary I observe that hardly any research on workers and work has been at safety distance from scholarly disaster if the researchers have been unsympathetic towards those who do the heavy lifting.

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