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# Workers' Grievances in Electronics Manufacturing in China:

A Study of Dell's and HP's Supply Chains



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## Acknowledgements

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Electronics Watch is an independent monitoring organisation that helps public sector organisations work together, and collaborate with civil society monitors in production regions, to protect the rights of workers in their electronics supply chains.

Globalworks is an independent not-for profit enterprise. Our mission is to shed light on labour rights and human rights violations by collecting workers' online voices and grievances. We wish to assist corporations, organisations, and authorities to prevent further rights violations and identify paths to remedy.

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## I. Executive Summary

This study seeks to understand electronics workers' grievances in China through the lens of their social media posts, collected with Social@risk™ a platform for qualitative and quantitative analyses of large text corpuses. The quantitative sample consists of 1.3 million posts from January 2014 to April 2018. The qualitative analysis sample includes 600,000 posts from January 2016 to April 2018. All posts are related to 38 final assembly and original design manufacturers (ODMs), suppliers to Dell and HP. The insights in this report are derived from a mixed method approach, combining qualitative and quantitative analyses. Our findings bring to the fore the following rights violations and grievances:

**Forced labour:** Workers are sometimes not allowed to quit their job in line with the Chinese labour law but instead have to wait until management releases them or forfeit wages. Dispatch workers are not assigned to regular shifts, when there are not enough orders. As a result, they may have to stay on at the factory for extended periods in order to fulfil work contracts that are defined by a fixed number of working hours.

**Student labour:** Although the ratio of posts mentioning student labour has declined over time, it is still one of the more pervasive topics. Students complain that they are forced to go through internships that are not related to their subjects, and that they do not know how much they earn or how much the school deducts from their salary.

**Freedom of association:** Few posts mention strikes, trade unions, labour bureaus, NGOs, or lawyers in relation to rights violations. On the other hand, workers do discuss desperate acts of protest where groups of workers threaten to commit suicide by jumping from the factory roof. The silence about legitimate avenues of influencing working conditions in combination with evidence of worker discontent raise serious concerns about repression of fundamental worker rights.

**Discrimination:** Since 2016 there is a rising number of job advertisements restricting employment to Han Chinese (they main ethnic group in China). People with tattoos, died hair or scars from cigarette burns are sometimes excluded from recruitment. Age limits for workers fluctuate with production cycles. Dispatch labour entails higher social and economic risks compared to regular employment.

**Underage labour:** Mentions of underage employment (between 16-18 years) vary between different suppliers. We find mentions fluctuating in parallel with production cycles next to declining trends of underage mentions.

**Excessive working hours:** Overtime is a necessity for workers to make ends meet. Screenshots of working hour accounts indicate that they work up to 140 overtime hours, nearly four times the legal maximum.

**Safe and healthy working conditions:** Workers write about physical hardships such as unbearable pain in their feet and legs, dizziness, infected eyes, rashes, and ear pain. Living conditions at the dorm are frequently described as harsh due to filth, and the lack of private space for resting. Workers' posts mention psychological grievances such as managers cursing, shouting, and bullying. There are mentions of sexual harassment. There are pictures documenting suicides.

**Legal and living wages:** An analysis of several hundred recruiting posts suggests that workers' basic wage follows the legal minimum wage while the gap between living wage estimates is widening.

## 2. Introduction

In China, as in many other countries, a new type of online worker solidarity is emerging. Workers “talk” about working conditions in social media and online forums. Workers exchange information with their peers, voice grievances, and advise each other in order to tackle everyday rights violations as well as work and life challenges in general. This report is an effort to demonstrate that these social media posts provide deep insights into working and living conditions and the risk of rights violations. Collection and analysis of these posts can therefore be a valuable component of worker-driven monitoring. While dialogue with workers is not possible through this research methodology, the access to large volumes of data allows us to better understand the scope of risks that workers face and identify priority issues for improvement. We seek to make workers’ voices heard, detect harm to workers, and identify salient human rights risks.

This study examines China’s flagship sector for export production processing: Electronics. We screened social media posts from workers and other stakeholders related to 38 final assembly and ODMs<sup>1</sup>, suppliers to Dell and HP which they have listed publicly.<sup>2</sup> We report general findings based on analysis of about 1.3 million posts. We present practices as workers describe them in social media. We also show trends in online discussions about labour issues. Finally, this study features a new quantitative approach to measure and compare online grievances in Dell’s and HP’s supply chains (Section 5).

### 2.1 Limitations Chinese social media data

An analysis of social media posts about rights violations and unfair practices needs to be context sensitive and highlight the limits of online information. For the case of China, it is important to note that government authorities practice systematic internet censorship and remove social media posts that are, in the eyes of political or economic elites, a disturbance. In particular calls for strikes or other forms of collective action are not permitted. In addition, all information that may evoke public anger or catch public attention may be subject to censorship. Netizens face severe consequences when authorities consider their online conduct to be damaging.<sup>3</sup> The boundaries between permitted and forbidden information are blurred. Internet users, therefore, are prone to censor themselves and avoid topics or formulations that they perceive as contentious. They may also seek to find alternative ways to express

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<sup>1</sup> ODM (Original Design Manufacturer) is a company that designs and manufactures a product, as specified, that is eventually rebranded by another firm for sale.

<sup>2</sup> The HP supplier list was retrieved from . The Dell supplier list was retrieved from in May 2018. We list all suppliers included in this study in Appendix 1.

<sup>3</sup> For an overview on Internet censorship and as a reference for the statements above, see “Freedom on the Net 2018 Report” published by Freedomhouse and available at <https://freedomhouse.org/report/freedom-net/2018/china>

themselves in order to avoid censorship.<sup>4</sup> Finally, certain labour issues are avoided in public conversations due to stigmatisation, shame, trauma, or marginalisation. For example, sexual harassment, rape, or violence at the workplace are rarely discussed in public. Furthermore, underage workers are less likely to post their work-related grievances on social media platforms because many of them try to disguise their age to increase income by working overtime.

We have been able to discern certain traits of the online worker community such as:

- Online worker solidarity is seldom organised.
- Workers write about individual rather than collective issues.
- Workers post and tell their stories while moving between different websites and groups.
- As the virtual world of workers expands, concerns about trust increase. Who is a peer and who pretends to be one?

## 2.2 Reliability of Chinese social media data

Despite censorship, surveillance and laws repressing online protests and complaints, worker solidarity in the virtual space thrives. The government's effort to silence netizens often fail because information sharing is interactive and involves many participants. Flows of information on working conditions, grievances, or advice are embedded in a context of cues and direct responses that allow readers to engage in a critical assessment of the informants and their sources. There are many different means that allow social media users to verify their workplace identity without giving up personal anonymity. Most important in this context are pictures, references to factory or dorm issues that only an insider can know, as well as many-to-many dialogues with the aim to triangulate the accuracy of statements and information.

Workers protect their online anonymity and at the same time provide evidence for being authentic. For example, workers post:

- Pictures of relevant events or documents
- Details about their living conditions in dormitories, which are so specific that their peers recognize them as being authentic
- Details about their working conditions in factories, which are so specific that their peers recognize them as being authentic
- Support each other's claims with comments and adding more information
- Discredit impostors or fake claims

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<sup>4</sup> For a discussion on the factors driving and encouraging self-censorship, see <http://www.inquiriesjournal.com/articles/1093/3/an-explanation-of-self-censorship-in-china-the-enforcement-of-social-control-through-a-panoptic-infrastructure2018>. We list all suppliers included in this study in Appendix 1.

## 3. Research Design

Even though independent labour action is politically repressed in China, workers still can write about their grievances in social media and connect to peers in order to solve individual problems. Through social media, workers become engaged in each other's lives. This worker-to-worker or peer-to-peer support is a plausible way of organising workers' interests and solidarity. When we systematically combine their posts, we can build a collective voice that helps us to understand grievances and human rights risks. In this report, we use qualitative and quantitative analyses to put single voices into a larger context. We look at working and living conditions at original design and final assembly manufacturers in China supplying Dell and HP. Besides information from workers, we occasionally include social media posts from other stakeholders that reveal insights about social and economic issues shaping the lives of workers and their families.

### 3.2 Informed consent and data integrity

Due to political repression, we cannot ask workers for consent to use their posts. We, therefore, did not collaborate with workers to conduct this report, and no worker was encouraged to post any kind of information on social media. We never interfered with workers' online conversations. Social media data collected for the purpose of this study are kept anonymous and encrypted. We do not use direct citations in order to prevent back-tracing. When we use pictures, we blur anything that could identify an individual.

### 3.3 Method

Data collection and analysis for this report were conducted with Social@risk™, a framework for scraping social media in combination with qualitative content analysis and quantitative trend analysis of labour rights violations.

#### 3.3.1 Data collection and pre-structuring

Our analysis rests on four steps: data sourcing, data collection, database creation, and data pre-structuring.

**Data sourcing:** Our primary source consists of social media posts. We program crawlers to collect information from online forums where workers publicly post about working and living conditions.

**Data collection:** We match workers' social media posts on these forums with Dell's and HP's public supplier lists of 38 original design and final assembly manufacturers in China.<sup>5</sup>

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<sup>5</sup> Even though we focus on workers' post, sometimes other stakeholders appear in the data sample. These include NGOs, employers, or community members. Discriminatory practices are, for example, found in recruitments advertisements on workers' forums.



**Database creation:** We load all posts from worker forums that relate to these manufacturers into Social@riskBase, a relational database within the Social@risk framework.

**Data pre-structuring:** Lastly, we generate keywords that workers frequently use on social media to describe their problems. These keywords are selected from a word count based on all social media posts. We rank words according to their frequency and select those words that are relevant for labour issues. We identified about 100 terms. These keywords in combination with additional words of interest that emerge through close reading are used to define and trace topics. We link keywords to the eight main areas of the Electronics Watch Labour Standards (4-12). In this context a keyword can be connected to multiple categories.

### 3.3.2 Data analysis

The analysis in this report rests on quantitative and qualitative methods. Quantitative measures provide a broad perspective on practices and mechanisms that are not compliant with Chinese national rules and regulations, and/or the Electronics Watch Labour Standards. We use two quantitative indicators:

- The number of posts belonging to a topic as a share of all posts. This number informs us about the relative weight of an issue in social media discussions.
- The change of this share over time is a useful trend indicator.

The two quantitative measures can reveal patterns that inform a deeper qualitative analysis. In this context close reading of social media posts helps us to understand how rights' violations and grievances come about. Our analysis rests on the principle that single voices matter because any injustice or violation calls for remedy. But even though individual posts can provide important information, they may also contain incorrect claims or biased information. We, therefore, regard single voices as pieces of a puzzle. In this context, an individual post constitutes a data point but only when it is presented together with other related posts, can a holistic and balanced picture emerge. This approach ensures that we do justice to single voices and at the same time enhance the robustness of the material used for a qualitative social risk analysis and documentation of rights' violations. Quantitative and qualitative insights are combined in a mixed methods approach to gain actionable insights. We illustrate our approach in Appendix 2.

We coded posts that illustrate the claims we make in this report. For each of these reference posts we provide basic information in the coding list. Coded posts are not exhaustive. More posts in our database could be cited but for practical reasons they are not referenced in the text.

It is also important to note that representativeness of social media posts is not a focus. Instead, the main task is to report qualitatively on malpractices. The robustness and reliability of these insights are based on a critical reading of posts and the use of different sources that, together, inform a claim.

### 3.4 Data Sample

We apply and compare quantitative and qualitative methods within the context of three distinct sub-samples (see Appendix 1):

- HP suppliers (exclusively related to HP), 16 suppliers.
- Dell suppliers (exclusively related to Dell), 15 suppliers.
- Shared suppliers (related to both HP and Dell), suppliers.<sup>6</sup>

The pie chart in figure 1 depicts the distribution among these three sub-samples. In section 6 we will look at the relative weight and changes over time for various topics and compare trends at HP, Dell, and shared suppliers. We use the statistical properties of posting patterns in order to calculate risk profiles.

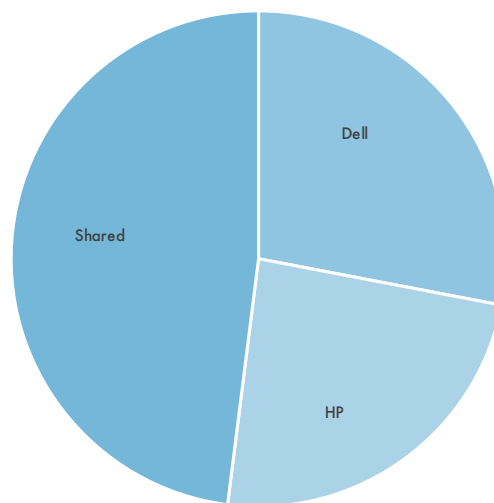


Figure 1. Distribution of social media by supplier group

#### 3.4.1 Sample period

We scraped all posts on worker forums that are related to the 38 original design and final assembly manufacturers named in publicly available supplier lists of Dell and HP.<sup>7</sup> Because we did not impose a time filter during data collection, we retrieved posts that date back more than 15 years. Our first entry is from 23 December 2003 and the last entry collected was on 20 April 2018. The following analysis, however, focuses on more recent posts because they are the most relevant for identifying current problems. We created two datasets:

<sup>6</sup> The HP supplier list was retrieved from <http://h20195.www2.hp.com/v2/getpdf.aspx/c03728062.pdf> in May 2018. The Dell supplier list was retrieved from <https://i.dell.com/sites/doccontent/corporate/corp-comm/en/Documents/dell-suppliers.pdf?newtab=true> in May 2018. We list all suppliers included in this study in Appendix 1.

- In the qualitative analysis we focus on posts after 1 January 2016.
- For the trend analysis we apply a broader time frame from January 2014 to April 2018.

### 3.4.2 Sample strata

Twenty-eight suppliers are defined site-specifically, i.e. each manufacturing site is accounted for as a separate supplier even though they belong to the same owner. In nine cases multiple locations of an owner are discussed at owner specific forums.

We attribute these posts to our three subsamples (HP, Dell, and Shared suppliers) according to the following rules:

- Only HP or Dell maintains a relation with this company: We attribute posts to the respective exclusive supplier group (HP or Dell).
- HP and Dell maintain a relation with this company: We attribute posts to the shared supplier group.
- HP and Dell maintain a relation with this company and there exist both a site-specific forum for the shared supplier and a general forum: We attribute the general forum to the shared supplier group if both brands list an equal number of sites for this corporation.
- If HP or Dell maintains a dominant relationship, i.e. maintains relations to multiple sites, then we attribute the general forum to the exclusive supplier group (HP or Dell) with the dominant relationship.

### 3.4.3 Sample size

The entire database contains 1,466,201 posts. The sample for the quantitative analysis covers the period from January 2014 to April 2018. This sample consists of 1,373,558 posts. The quantitative sample is further divided into three sub-samples:

- HP suppliers (16 suppliers, 278,351 posts)
- Dell suppliers (15 suppliers, 357,544 posts)
- Shared suppliers (7 suppliers, 737,663 posts)

The qualitative analysis sample since January 2016 includes 616,435 posts. The qualitative sample is not divided into the three sub-samples.

### 3.4.4 Sample properties

#### a. Quantitative sample

Figure 2 depicts a cyclical posting behaviour. We depict the number of posts written by men and women since 2014. Workers' discussions intensify during the busy production season in spring and summer, gradually dwindle during fall, and reach their annual low during Chinese New Year in February.

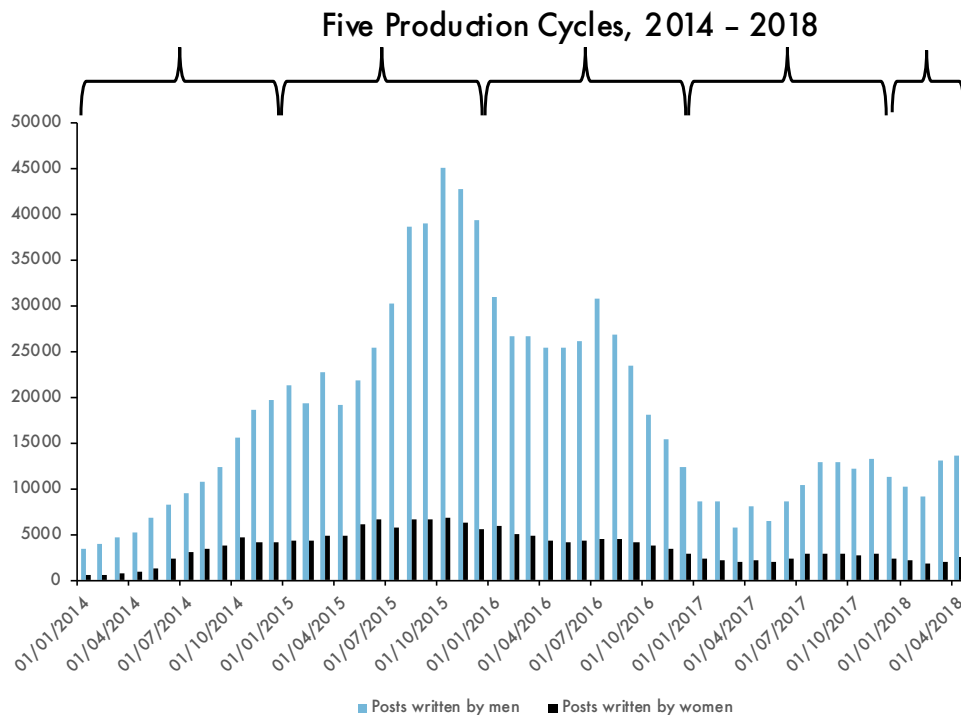


Figure 2. Cyclical pattern of social media posts

The number of posts per month increased and peaked in October 2015. Since then, social media activity has declined. This trend may owe partially to a large-scale political crackdown on labour dissent, labour NGOs, and labour rights lawyers since 2015.

The number of posts written by female users is relatively low. Only 18 percent of the internet users in our quantitative sample state in their profile that they are women. This partially reflects a general gender bias in public discussions. But the bias may also be the result of women preferring to state in their profiles that they are male. Out of the about 1.3 million collected posts in the total sample, 101 770 inform the quantitative trend analyses.

#### b. Qualitative sample

In our qualitative analysis we reference 151 posts in this report. These posts were extracted from the database through an expert validation method as described in appendix 2. These posts are written by 147 unique users. All included posts were found to be authentic. Out of the 151 posts:

- 138 of the unique users reveal sufficient information to categorize their identity as workers at the supplier they discuss.
- Four posts are written by labour agents.
- One post is written by a manager.
- Five posts are written by students/student workers.

Twelve percent of the referenced posts are written by users that state that they are women; 88 percent state that they are men. The referenced posts come from 19 suppliers, i.e. 50 percent of the suppliers in our sample. We show the distribution of posts by supplier in figure 3. It is important to note that supplier 1 has a dominant position both in the industry in terms of number of workers employed and, as a result, in the sample.

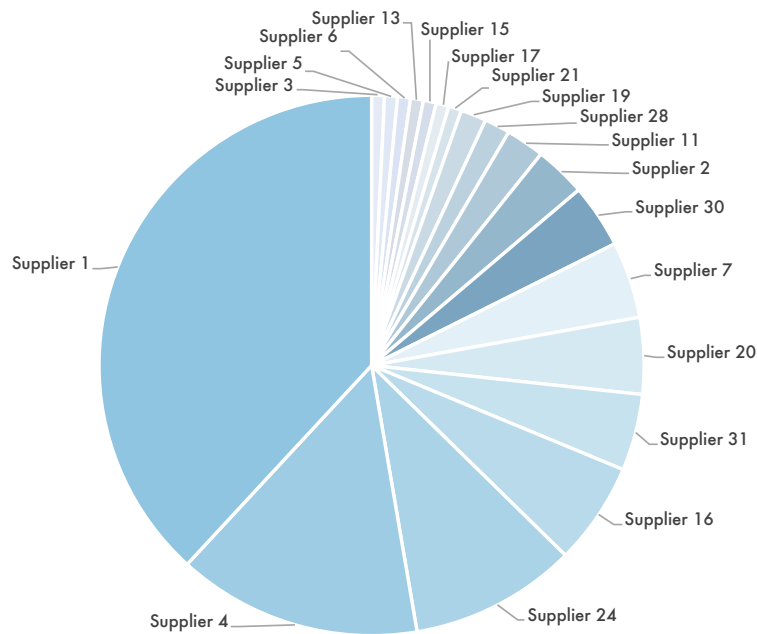


Figure 3. Distribution of social media posts by supplier

## 4. Findings

This section provides an overview of labour issues related to Chinese electronics manufacturing in Dell's and HP's supply chains. The purpose is to map grievances and rights violations. These general insights can also inform further investigations. The structure of this section rests on the main categories and definitions of the Electronics Watch Code of Labour Standards (Electronics Watch Standards).<sup>7</sup> Some of the more detailed standards are adjusted or merged (see below).<sup>8</sup> All findings are based on social media posts connected to one or more of the ODMs and final assembly manufacturers listed in Appendix 1. When we use information other than social media posts, we reference the source in a footnote.

### 4.1 Freely chosen employment

The production of the Goods must not involve:

- Use of bonded labour. Examples of non-compliance include, but are not limited to requiring payment of a debt to the employer or a third party in order to leave employment
- Abuse of prison labourers

Examples of violations include, but are not limited to:

- Using a prisoner for work without that prisoner's consent
- Treating prisoners less favourably than non-prisoners with respect to wages, hours of work, or health and safety protections
- Prevention of a worker from freely leaving employment or a workplace

Examples of non-compliance include, but are not limited to:

- Preventing a worker from voluntarily leaving a workplace, including dormitories or industrial areas
- Locking any exits of a workplace or dormitory
- Refusing to return any personal document to a worker upon request
- Using or threatening to use violence, deportation, visa cancellation, immigration action or arrest to force a worker to work
- Use of economic coercion in conjunction with forced overtime

Examples of noncompliance include, but are not limited to:

- Requiring overtime work in order for a worker to make a legally mandated minimum wage.
- Compelling a worker to work hours beyond legal limits by threatening to terminate employment or eliminate overtime hours.

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<sup>7</sup> See, Part III, Electronics Watch Contract Conditions for Supply Contracts, [http://electronicswatch.org/contract-conditions\\_2550365.pdf](http://electronicswatch.org/contract-conditions_2550365.pdf)

<sup>8</sup> Due to interdependencies of the empirical material, we merge standard no. 8 "No excessive working hours" with standard no. 10 "No abusive termination of employment." We merge standard no. 11 "Legal wage" with standard no. 12, "Living wage."

#### 4.1.1 Entering the factory

##### a. General situation

Social media posts discuss two specific modes of entry, labour agents and internal recommendations. Both recruitment channels display distinct problems demanding preventive action and remediation.

**Labour agents:** An agency (or dispatch) worker enters a contractual relationship with a labour supply company which then signs a contract with a client company that uses the worker's labour. This form of employment shifts legal responsibilities, including compulsory insurance contributions, to the agent.<sup>9</sup> Labour agents enable manufacturers to adjust their labour force and costs to cyclical demand. There are no recent statistics on dispatch workers in China. Yet based on a survey conducted in 2010, the All-China Federation of Trade Unions estimated that there were about 60 million dispatch workers.<sup>10</sup> The following section, "detailed insights", will show that their work situation is particularly precarious.

**Internal recommendations:** Internal recommendation, a second form of recruitment discussed in social media, relies on factory workers who help to enlist new employees. In exchange, the recommending worker receives a payback fee. This reward can be substantial compared to a worker's wage and, therefore, represents a strong financial incentive. Yet, as online posted grievances indicate, recruitment rewards instigate conflicts and undermine solidarity. Migrant workers connect with labour agents through a web service called 58 同城 and internal recommendations are regularly facilitated through forums such as Baidu tieba. In both cases job-seekers negotiate without meeting in person and often without receiving any legally binding documents until they arrive at their destination. Complaints indicate that online channels are risky because job seekers may receive incomplete or fraudulent information. Once they migrated, however, it is difficult for workers to reject inferior employment conditions.

##### b. Detailed insights

Agent intermediated recruitment is a largely unsupervised business, which opens the doors for unscrupulous agents to deceive workers and lure them into employment [1].<sup>11</sup> In social media, job-seekers state that they were not told the truth about pay and working conditions. For example, a group of 21 workers reports that the dispatch agency seized their signed contracts claiming that they needed to be stamped. The contracts, however, were never returned. Instead, they learned at the factory that

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<sup>9</sup> <https://www.china-briefing.com/news/labor-dispatch-in-china-definition-scope-and-limit/>

<sup>10</sup> [https://www.ilo.org/wcmsp5/groups/public/---ed\\_dialogue/--sector/documents/publication/wcms\\_246921.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/--sector/documents/publication/wcms_246921.pdf)

<sup>11</sup> Note that the numbers in brackets refer to social media posts that entail a stated insight/claim. Details about the respective post can be found in the coding list at the end of this report.

their hourly wage was not 16 but 13 RMB. The agent claimed that this was a deduction for accommodation and food, while the suppliers' conditions of employment state that food and accommodation are free [2]. Another worker writes that an agent deducted 200 RMB from her salary for social costs such as health insurance and pension contributions. However, earlier she was told that she was not supposed to pay social costs during the first three months. The agent claimed that the factory had an audit and therefore needed to deduct social costs. Yet, there was no evidence that social costs really were paid [3].

There are various forms of deception that violate the standard of free employment, either because workers would not have entered the factory if they were informed about the real conditions or because the costs and consequences of leaving once the real conditions are revealed are prohibitively high. Factory managers decline all responsibility and ask dispatch workers to solve issues with their respective agent [4][5][6].

When job-seekers write about problems with agents they sometimes refer to “black labour agents.” We searched for this term in our database and depict posts mentioning it as a share of all posts in figure 4. The graph suggests that trends for the three subsamples (shared, Dell and HP) follow a similar pattern. Cyclical swings are on a high amplitude before 2016 compared to the period thereafter.

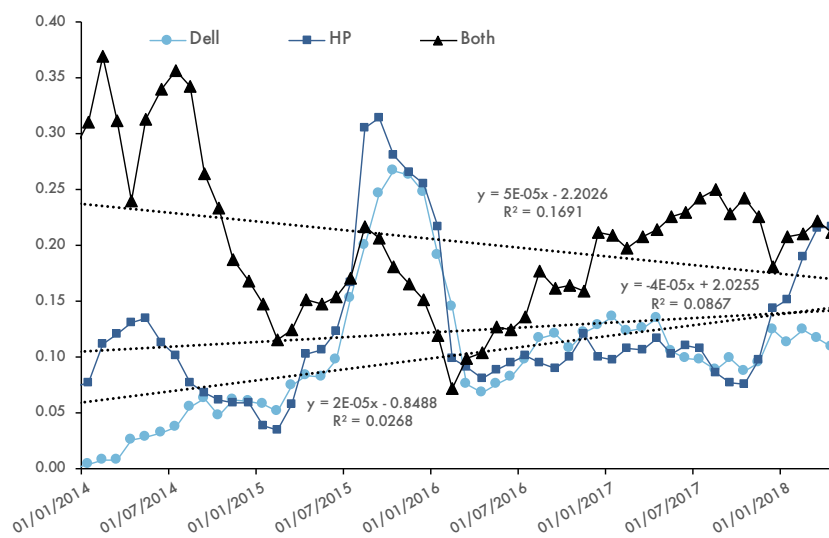


Figure 4. Black labour agents (6-month moving average ratio, % of total posts)

Before 2016, users frequently write about illegal “registration fees” or “copy fees”. There are complaints about overpriced recruitment costs such as the “physical examination fee” and some workers were asked to pay deposits, which never were returned to them [7][8][9]. Since then, it seems, workers became more knowledgeable how to identify and avoid agents levying excessive recruitment fees.



Figure 6 depicts the share of posts mentioning fees and black labour agents relative to all posts mentioning black labour agents per month. The trend chart suggests that fees are a declining issue over a five-year period. A single-factor analysis of variance corroborates that the period before and after January 2016 are statistically different from each other; which means that the posting pattern about fees in relation to black labour agents has changed.

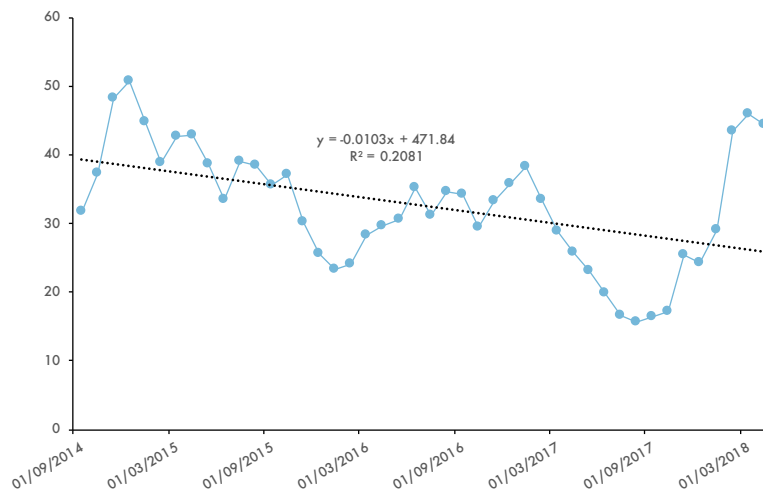


Figure 5. Labour agent fees (6-month moving average ratio, % of posts mentioning black labour agents)

More recently complaints mention conflicts over shared fees. For example, some labour agents offer to share the recruitment service fee with the worker [10]. The reward of up to 3,500 RMB represents a strong financial incentive, often surpassing the basic monthly salary of 1,800 and 2,200 RMB [11]. To be eligible for the reward, the job-seeker has to agree to work for at least 45 days. Yet the 45 days define the equivalent in working hours but not a working period. A dispatch worker can be called in for a few hours during the day and then sent back to the dorm. As a result, it may take several months before a dispatch worker has fulfilled a 45-day obligation. Furthermore, because the worker is not legally entitled to the recruitment reward, informal sharing agreements are not enforceable [12][13]. In the end, a seasonal worker might have earned not more than a basic wage for 1.5 months during a three to four months stay. According to workers' reports the police cannot help reign in the proliferation of this type of unfair practices [14].

Many suppliers have policies in place that encourage employed workers to recruit relatives or friends through an internal recommendation system in exchange for financial rewards. Figure 6 depicts a list of corporations, and the recruitment awards they are offering [15]. When job-seekers enter the factory through internal recommendation, the recommending worker is eligible for a payback fee. Recruitment

bonuses for internal staff are similar to those awarded to agents. Workers, therefore, search for new recruits online to enhance their income [16][17]. This type of posts often suggests that the payback fee can be shared.

Social media posts indicate that internal recommendations fuel social tensions within the factory because incumbent workers have strong financial incentives to deceive and monitor newly recruited workers [18][19][13][20][21] [22]. We seek to further explore this observation with a

trend chart. Figure 7 depicts posts that mention internal recommendation bonuses as a share of all posts in our database. Apparently, online discussions for all groups (Dell, HP, and shared) intensified substantially since the second half of 2016. Earlier, there have been few mentions suggesting that this practice became prominent in recent years.

6	【吴江纺织】	男18-35岁 女18-40岁	奖励1200	48	手机配件	吴江
7	【苏州华硕】	男16-40岁	奖励2300	30	手机配件	苏州
8	【伟创】	男女18-40岁	奖励400	45	手机配件	昆山
9	【自造器】	男女16-35岁	奖励1000	20	安全银行卡	苏州
10	【伟仕达】	男女16-45岁	奖励2000/3500	10/45	手机配件	苏州
11	【日腾】	男女18-45岁	奖励2700	55	电脑配件	松江
12	【德康、日恒】	男女18-44岁	奖励3500	55	电脑配件	金山
13	【德华】	男女18-35岁	奖励1700	45	手机配件	浦东
14	【德丰】	男女18-38岁	奖励400+400	30+30	苹果手机	松江
15	【德宇】	男女18-35岁	奖励2500	30	电子配件	昆山
16	【德通】	男女18-38岁	奖励300+300(平洋松)	30+30	电脑配件	常熟
17	【富士通】	男女18-38岁	1000或1500	15或30天	空调	嘉定
18	【德通】	男女18-35岁	奖励1200	45	手机配件	昆山
19	【德成精密】	男女16-45岁	奖励1300	18	电子配件	嘉定
20	【无锡健通】	男16-45岁 女16-40岁	奖励400	45	电子配件	无锡
21	【常熟利世】	男女18-35岁	奖励2500	35	手机配件	常熟
22	【可路】	男女18-35岁				

Figure 6. List of internal recommendation awards offered by various companies (worker's posts)

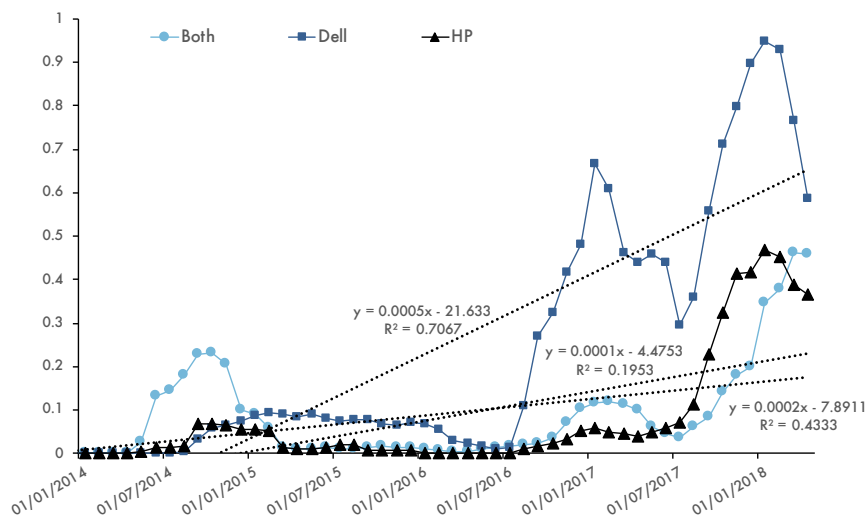


Figure 7. Internal recommendation bonus (6-month moving average ratio, % of total posts)

#### 4.1.2 Leaving the factory

##### a. General situation

Chinese labour legislation affords workers comprehensive rights to end an employment relationship. According to the Labour Law, employees have the right to unilaterally terminate a labour contract without reason as long as the employer is given a 30-day written notice or a three-day notice in case of

probational employment. In addition, the Labour Contract Law states that prior notice is not required if the employer acts in violation of the law or labour contract.<sup>12</sup>

Despite legal provisions, social media posts suggest that workers have to overcome a host of obstacles before they can leave the factory. As a result, many employees decide to leave without formal notice, thus potentially foregoing salary that is owed to them [23][24].

### Detailed insights

Some workers write that managers refuse to process resignation requests [25][26][27][28]. Some users state that they went to higher level managers when they were rejected but without success. Others suggested that it is sometimes possible to hand in a resignation form directly at the HR department or contact the local labour bureau [29]. Social media posts state that it is extremely difficult to resign. For example, a worker states that he worked a long time for a supplier but was forced to leave for personal reasons. However, the HR department did not process the lists of workers who wanted to resign. In a desperate attempt to be able to leave, he decided to smoke in front of a security guard in order to get fired. Yet, after the incident he was not told how the firing would be processed. Instead his foreman told him that he would have to continue to work even if he got fired [30].

Many posts assert that the right to resign is violated. Sometimes, factories use a queuing system or waiting lists as a means to control worker turnover [31][32]. In one case, a worker writes about an internal resignation limit of three workers per month and team [33]. Practically, this means that workers are employed against their will for an extended period [34][35].

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<sup>12</sup> A translated version of the PCR Labour Contract Law is available at [http://www.npc.gov.cn/englishnpc/Law/2009-02/20/content\\_1471106.htm](http://www.npc.gov.cn/englishnpc/Law/2009-02/20/content_1471106.htm)

Difficulties to formally quit has led to the phenomenon of “leaving on one’s own,” which means to exit the factory without going through a formal resignation process. “Leaving on one’s own” has become so common that this practice has been formalised in terms of punishments. Rules vary between factories and locations. A few posts claim that employers do not pay workers their unpaid wages but we have also seen evidence of a wage deductions of 30 percent and a lock-out period of two or three months [36][37][38][39]. Before 2015 some workers talked about not getting any wage at all and being permanently blacklisted [40][41] if they left on their own.

In addition to financial losses, migrant workers leaving on their own face problems finding new jobs. First, workers need a document from the HR department stating that they have resigned (see figure 8 and 9). Without this document it is not possible to get employment elsewhere [42][43]. The issuing of this document may take two to three weeks, which forces migrant workers to wait to leave or travel back to the factory. In addition, until the informal resignation has been formalised, a worker remains registered for social insurance contributions at the workplace. A new employer, therefore, will not be able to register a worker for social insurance and by extension cannot offer legal, regular employment [44].

The trend chart in figure 10 indicates that “leaving on one’s own” has been discussed in social media about three times as much as recruitment related issues. The pattern for shared suppliers is cyclical with peaks before Chinese New Year, when many workers leave the factories in order to return to their home towns and villages. The cyclical pattern is also present in the social media trends for Dell and HP exclusive suppliers but to a lesser extent. All three groups depict a gradual intensification of posts about “leaving on one’s own.” Since the second half of 2017 there is an accelerated upward trend. The reasons behind this development require a more detailed analysis in the future.



*“Hello, according to the company’s management rules you effectively left on your own on 29. March 2018. Please return a.s.a.p. in order to handle the resignation formalities.”*

Figure 8. Mobile phone screenshot of a short message (worker's post)

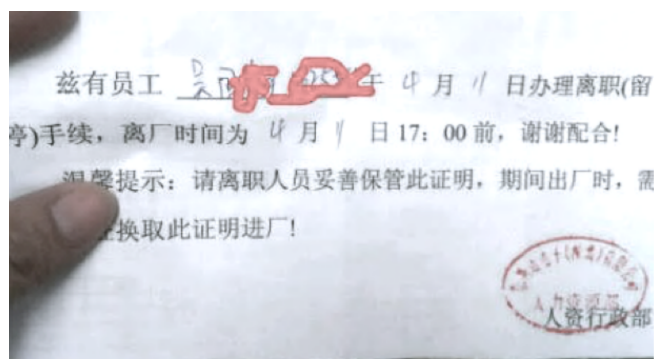


Figure 9. Picture of proof for orderly release (worker's post)

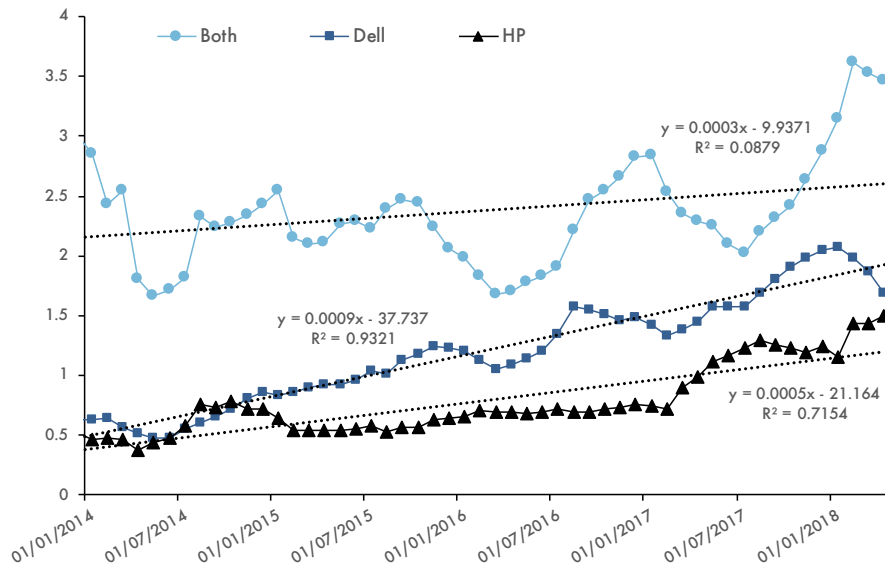


Figure 10. Leaving on one's own (6-month moving average ratio, % of total posts)

#### 4.1.3 Student workers

##### General situation

Chinese education policy requires secondary vocational education institutions to provide their students with internships. The law requires internship placements in the last year of school and prohibits internships in the first year of study. The law also requires the internship to be related to the student's field of study. As of 2016, the law also regulates the ratio of student interns to the workforce as a whole.<sup>13</sup>

It is common practice for electronics factories to collaborate with vocational schools to recruit student interns as short-term workers. Factories pay a "management fee" to schools as an incentive to schools to provide student interns. The fee varies by the number of students provided. To maximize the number of students available for internships, many schools send students in their second year of study. A previous study by the Economic Rights Institute and Electronics Watch highlights risks of flexible employment strategies including excessive reliance on student labour.<sup>14</sup> Students may not have a choice over when and where to intern, and the internship may not be related to their studies. Still, the students must undertake the internships, or they will not receive their educational diplomas. In this case, student

<sup>13</sup> The vocational School Student Internship Management Regulation (2016) regulates student internships as follows: 1) It defines three types of internships: Cognition Practice, Job Shadowing, Full-duty Internship. 2) All internship should be related to or close to the subject studied. 3) Students under 16 years old are not eligible for job shadowing and full-duty internship. 4) No first year students are eligible for full-duty internship. 5) Students can apply to arrange full-duty internship by themselves; cognition practice and job shadowing are arranged by the school and students cannot freely choose their placement. 6) Full-duty internship students should not exceed 10% of the total worker population, and full-duty internship students in specific positions should not exceed 20% of the worker population in the same position. There is no limit on other types of student internship. 7) Full-duty internship students should not be paid less than 80% of the probation wage for the same work position. There is no regulation in remuneration of cognition practice and job shadowing student interns.

<sup>14</sup> [http://electronicswatch.org/en/links-between-workingconditions-and-employee-suicide-study-of-the-electronicssector-in-china\\_255023](http://electronicswatch.org/en/links-between-workingconditions-and-employee-suicide-study-of-the-electronicssector-in-china_255023)

internships may be forced labour, that is “work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered himself (sic) voluntarily,” as stated in ILO Convention No. 29, Article 2.<sup>15</sup>

### Detailed insight

Students write with negative sentiments that their vocational school is sending them as interns [45][46]. Students are not included in the regular social insurance scheme [47][48]. Social media posts from student workers confirm that they are not allowed to work overtime. Other constraints on student labour, however, seem to be less strictly handled. In particular students complain that they are forced to go through internships that are not at all related to their subjects. For example, an intern stated that he is studying software technology. His school assigned him to an internship position at a supplier where he is supposed to work at a welding machine [49]. Several posts from workers refer to student workers as cheap labour because they receive little or no wage but do the same work as regular workers [50]. Another worker wrote that he met many interns at a manufacturing belt in the workshop. The students’ subjects were accounting while others attended a vocational program for cooking [51]. Students are also supposed to attend class. Arrangements for this purpose, however, seem to be inadequate. Classes, it is stated, consist of 300 students crammed in a room of less than 150 square meters (see figure 11) [52][53].

The business model behind student labour is of concern. Social media posts create the impression that vocational schools act in the same way as dispatch labour agents [54][55]. The schools collect students’ wages and retain parts of it. Students sometimes do not know how much they earn or how much the school deducts [56][57][58]. Posts also state that there is no way to refuse an internship (between three



The conversation in figure 12 indicates that vocational schools force students to do internships that are not related to their subjects. It also states that students can pay a fee for being free to look for an internship independently.

Figure 12. Mobile screenshot documenting chat about student labour (student's post)

<sup>15</sup> The ILO has further explained that “menace of penalty” includes various forms of coercion, such as physical violence, psychological coercion, and the loss of rights or privileges. The prospective loss of an educational diploma, necessary to obtain jobs and a decent livelihood, is an example of a “menace of penalty.” ILO, “Giving Globalization a Human Face,” 2012, International Labour Conference 101/III/1B., a t paragraph 270 (accessed October 19, 2015).

months and one year in duration) because it is a requirement for graduation [59]. At some schools it is possible to pay an amount of RMB 4000 in order to be allowed to independently look for an internship (see figure 12) [53].

The ratio of posts mentioning student labour declined over time (figure 13). Abuse of student workers has gained media attention since 2012.<sup>16</sup> The gradual drop of the posts-ratios could reflect efforts from both brands and regulators to render manufacturers more compliant. Social media posts related to exclusive Dell and HP suppliers depict a similar long downward trend.

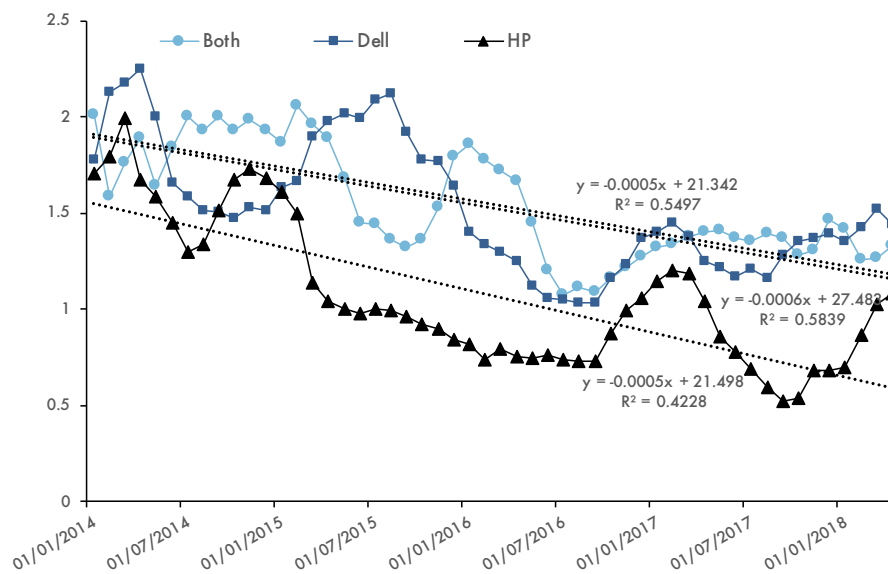


Figure 13. Student labour (6-month moving average ratio, % of total sample)

<sup>16</sup> <https://www.nytimes.com/2012/09/11/technology/foxconn-said-to-use-forced-student-labor-to-make-iphones.html>

## 4.2 Freedom of Association

Workers, without distinction, have the right to join or form trade unions of their own choosing and to bargain collectively.

The employer adopts an open attitude towards the activities of trade unions and their organisational activities. Workers' representatives are not discriminated against and have access to carry out their representative functions in the workplace.

Where the right to freedom of association and collective bargaining is restricted under law, the employer facilitates, and does not hinder, the development of parallel means for independent and free association and bargaining.

### General situation

In China, freedom of association is restricted. The All-China Federation of Trade Unions (ACFTU) is the only legal representative of Chinese workers. Yet, as a mass organisation under the Communist Party's leadership it often cares more about a pro-growth political imperative than protecting workers' interests.<sup>17</sup> During the last two decades labour non-governmental organisations and labour lawyers tried to fill the widening representation gap. Labour rights activists have been under surveillance because labour organising and unrest is regarded as a major threat to social stability.<sup>18</sup> In recent years, control, repression, and crack-downs targeting worker NGOs and labour lawyers have increased dramatically.<sup>19</sup> At the same time political rhetoric suggests that the ACFTU has a stronger mandate to defend workers' rights.<sup>20</sup> The current political environment is particularly hostile to all kinds of collective action, both on-site and online. Hence, analysing the state of freedom of association based on social media posts can in part be conducted indirectly; i.e., we seek to draw conclusions from missing information.

### Detailed insights

Social media posts mention "strike" only 151 times during a five-year period. Given that strikes are at the heart of labour organising and collective bargaining, this number indicates that workers do not dare to speak up publicly, that posts are censored, and/or that strikes are regularly repressed. When strikes occur, workers receive little institutional support to pursue their claims.

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<sup>17</sup> See for example Chang, K., & Brown, W. (2013). The transition from individual to collective labour relations in China. *Industrial Relations Journal*, 44(2), 1021-1021 or Huang, W., Weng, J., & Hsieh, Y. C. (2016). The hybrid channel of employees' voice in China in a changing context of employment relations. In *Employee Voice in Emerging Economies*, 19-43, Emerald Group Publishing Limited.

<sup>18</sup> See for example Fu, D., & Distelhorst, G. (2018). Grassroots participation and repression under Hu Jintao and Xi Jinping. *The China Journal*, 79(1), 100-122.

<sup>19</sup> See for example Franceschini, I., & Nesossi, E. (2018). State repression of Chinese labor NGOs: a chilling effect?. *The China Journal*, 80(1), 111-129

<sup>20</sup> See for example <https://clb.org.hk/content/why-communistparty-telling-all-china-federation-trade-unions-reform>



A case in point is a large-scale strike at Flex (former Flextronics) in Zhuhai, a final assembly supplier to HP. In March and April 2018 about 6,000 workers went on strike because the plant was sold to a Chinese investor. The workers wanted the management to terminate their contracts, receive compensation, and sign new contracts with the new owner. According to China Labour Bulletin, the local Communist Party Committee told the ACFTU to focus on social stability and not pursue the claims.<sup>21</sup> Social media posts corroborate this report. Workers complain that their employment status would only be determined after the equity swap [60][61]. A worker writes that higher level officials forced workers to end the strike after seven days. The posts also state that social media and footage documenting the strike have been strictly controlled [62]. Other posts suggest that workers are worried about their jobs. A user refers to a similar divestment from Flex in Suzhou, where working conditions deteriorated after the deal. Also, in order to circumvent job guarantees, and compensation payments, workers were assigned to factories in other cities [63]. The Flex case is not unique. Factory sell-offs with the potential to impinge negatively on pension rights and seniority have caused widespread anger.<sup>22</sup>



Figure 14. Pictures of a "group-jump protest" at a supplier (worker's post)

The ACFTU is mentioned sparsely, about 860 times during the past five years. The word bargaining (谈判) as in collective bargaining (集体谈判) is mentioned 69 times. But none of the posts mentioning bargaining relate to the practice or process of collective bargaining. Also, none of the posts mentioning bargaining refers simultaneously to ACFTU. Social media posts indicate that workers occasionally

<sup>21</sup> See for example <http://www.clb.org.hk/content/three-weekstrike-lex-ends-after-zhuhai-trade-union-puts-stability-first>.

<sup>22</sup> <https://clb.org.hk/content/sack-them-striking-arrest-themprotesting-imprison-them-organising-%E2%80%93-chinese-workers-are-not>

consider the ACFTU in relation to dispute resolution of individual issues [64][65][66]. Yet, workers perceive unions and HR departments as similar when it comes to complaints handling [67]. In fact, about 10 percent of posts mentioning the Trade Union refer at the same time to the HR Department. Many posts state that it is useless to ask the unions for help [68][69][70][71]. Other actors such as lawyers or local Labour Bureaus are mentioned even less frequently (about 90 times in the former case and 600 times in the latter) and also only in posts providing general information about labour rights or in relation to individual problems.

Workers' online speech reflects the repressive environment. There are no calls for collective action or any attempt to organise groups around pressing issues. Still, workers are prepared to defend the limited online space that remains. At a supplier forum, for instance, users have been outraged about alleged interventions. According to social media discussions, the forum management is using automated software to detect critical issues and delete critical posts [72][73][74]. This is the only occasion where we found workers openly encouraging other Internet users to protest by writing letters to the forum management [75][76]. Another post about online interventions speaks of a "common enemy," which requires everybody to "work together"[77].

Another practice that undermines worker solidarity are compulsory dorm rotation schemes. This measure is widely recognised as an essential part of so-called dormitory regimes that seek to obstruct personal ties and friendship among workers. On social media, workers complain about such compulsory dorm rotation [78][79][80].

An extreme form of protest is the threat to commit group suicide.<sup>23</sup> The Telegraph reported about such an incident in 2012 at a Foxconn plant in Wuhan.<sup>24</sup> We found pictures and posts about two similar events at two shared suppliers in 2016 [81][82]. In 2015, there was another group jump protest at a subsidiary of the same supplier. Information about the 2016 incident was posted in response to a worker's call to resist the company's harsh overtime regime. But it is not stated that the two issues are related. The group jump in 2015, it is claimed in a post, was due to economic conflicts<sup>25</sup> between workers and the company. In both cases there are pictures documenting the group jump protests (see figure 14 and 15).

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<sup>23</sup> The Economic Rights Institute and Electronics Watch study, *The Link Between Employment Conditions and Suicide: A Study of the Electronics Sector in China*, found that online discussions of "suicide protest" to pressure employers to resolve disputes focused on loss of employment or withheld income. Suicide protests were mostly collective and only rarely ended in completed suicides. See, [http://electronicswatch.org/the-link-between-employment-conditions-and-suicide-a-study-of-the-electronics-sector-in-china-november-2018\\_2549396.pdf](http://electronicswatch.org/the-link-between-employment-conditions-and-suicide-a-study-of-the-electronics-sector-in-china-november-2018_2549396.pdf).

<sup>24</sup> <https://www.telegraph.co.uk/news/worldnews/asia/china/9006988/Mass-suicide-protest-at-Apple-manufacturer-Foxconn-factory.html>

<sup>25</sup> This term is used alternatively for strike.



Figure 15. Pictures of a "group-jump protest" at a supplier (worker's post)

We supplement qualitative insights with a trend analysis. In a repressive environment, where calls for independent labour organising get censored online, we cannot expect to find more than weak signs of collective action. We look for posts that mention collective bargaining (体谈判), strike (罢工),

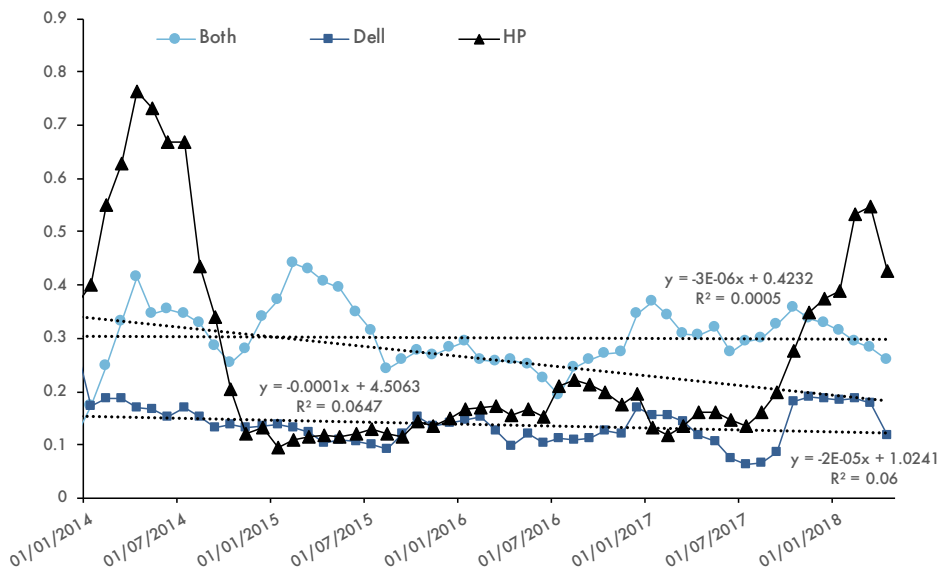


Figure 16. Freedom of association (6-month moving average ratio, % of total posts)

collective action (集体行动), protest (抗议), and representative (代表) as in worker representative.<sup>26</sup>

<sup>26</sup> In some factories workers are allowed to elect their own representatives and participate in collective bargaining.

Figure 16 suggests that online discussions related to labour organising remains on a low level throughout the past five years. Only HP suppliers display periods of intensified conversations. The most recent is in part related to workers' concerns about an ownership change at Flex.

### 4.3 Discrimination

There is no discrimination in hiring, compensation, access to training, promotion, termination or retirement based on race, caste, national origin, religion, age, disability, gender, marital status, sexual orientation, union membership or political affiliation.

#### General situation

The Chinese Labour Promotion Law forbids discrimination on the grounds of ethnicity, race, gender or religious belief. Electronics Watch Standards rule out age discrimination as well. Information from online posted recruitment advertisements, however, explicitly apply selection criteria based on ethnicity, gender, and age. Workers, however, rarely write about these discriminatory practices. Yet, social media posts indicate that dispatch workers and student workers are subject to unlawful discriminatory practices. Manufacturers use both employment types to accommodate for cyclical periods of labour shortage.

#### Detailed insights

##### 4.3.1 Gender

In 2015 and 2016 workers wrote frequently about gender discrimination because men had a hard time finding a job in the export manufacturing industry. The worker art depicted in figure 17, for instance, mentions the issue “只找女” (“only looking for women”). About 100 posts referred to this issue in 2015 and 2016. Since 2017 the issue was mentioned only 12 times. Most employers, irrespective of the sector, preferred women because they were perceived as obedient and hard working. We investigated this issue with descriptive statistics. First, we searched for recruitment posts explicitly specifying gender preferences. Only 90 notes during the past five years fall into this category and we cannot discern a systematic female or male bias. Yet, discrimination often takes place at an informal level, which is difficult to detect in job advertisements. A potential indicator for a declining female bias, however, is the downward trend in social media posts written by users that state in their profiles that they are women (figure 18). Note that declining share of female users in figure 18 is probably exaggerated because some

women might prefer to be recognised as men online to avoid requests for pictures, or phone number from male users.



Figure 17. Worker caricature about job search (worker's post)

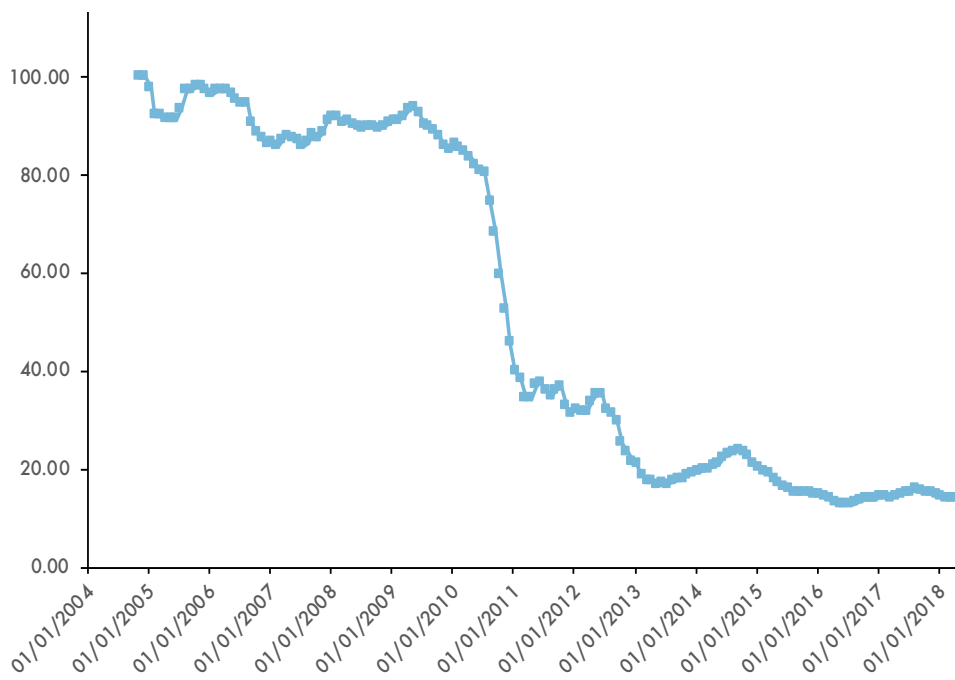


Figure 18. Percentage share of posts published by female social media users (% of total sample by month)

### 4.3.2 Ethnicity

Since 2017 there is an increasing number of recruitment posts deploying ethnic discrimination (figure 19). These advertisements state “only Han” or Han and ethnic minorities living in the region, where the factory is located.

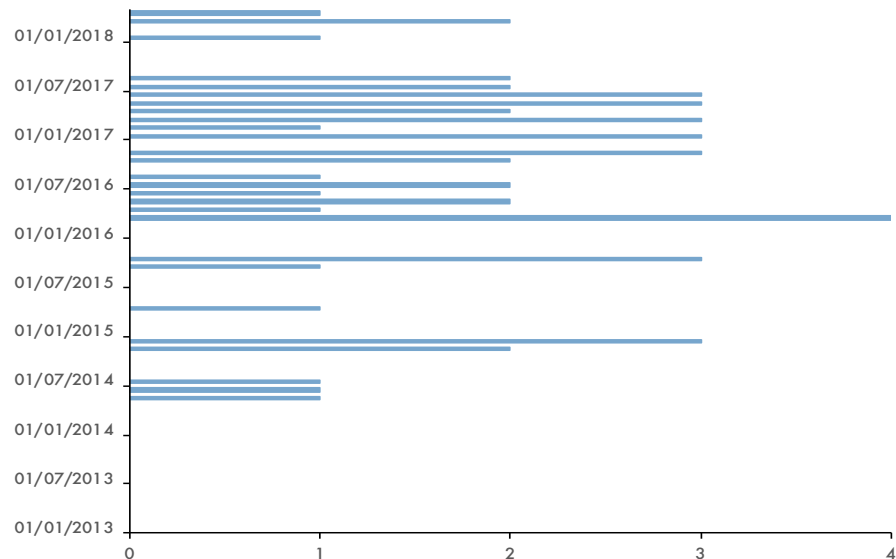


Figure 19. Number of recruitment posts stating ethnic preference (total sample)

### 4.3.3 Age

Age discrimination does not directly violate norms in Chinese legislation but does not comply with Electronics Watch Standards. We collected age limitations mentioned in recruitment posts throughout the last five years and depict them in figure 20. The emerging pattern indicates that most recruitment posts mention an age limit of 45 years at the end of the second quarter and beginning of the third quarter each year. The requirement to be below the age of 35 appears to be the more common during the first and fourth quarter each year. We can interpret this pattern against the backdrop of the electronics sector’s production cycles.

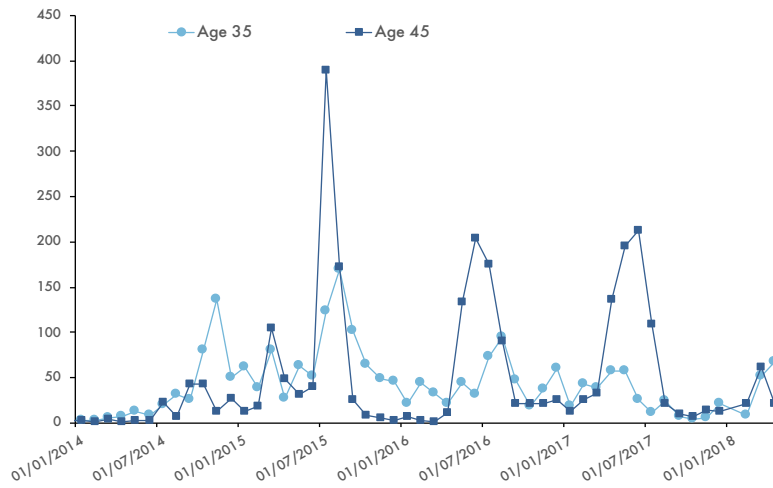


Figure 20. Number of recruitment notes stating an age limit (total sample)

Figure 21 illustrates for the case of Dell personal computers and HP servers that shipments culminate towards quarter 4 each year. The same cycles can be observed for China’s entire electronics exports.<sup>27</sup> This implies that ODM and final assembly manufacturers will receive the bulk of orders during quarter 2 and 3. As a result there is rising demand for workers during that time of the year. Thus, production cycles can explain why employers let go of age preferences and discriminate less during quarter 2 and 3.

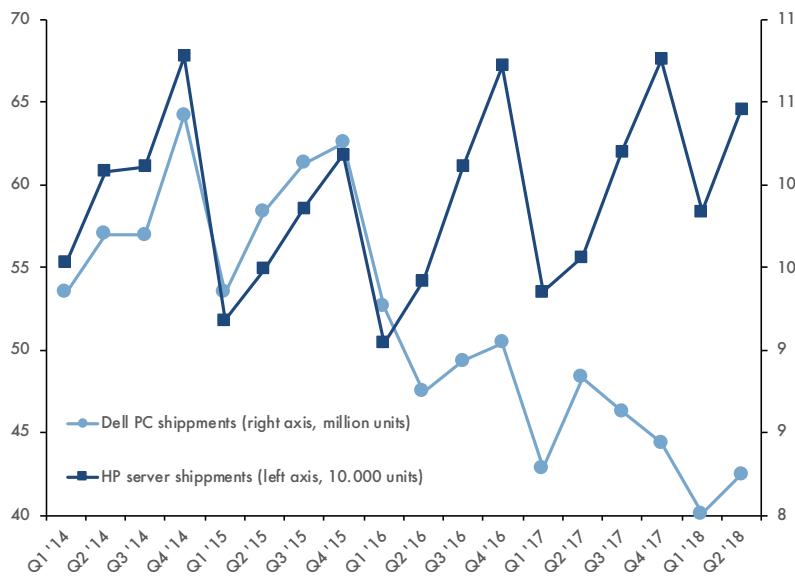


Figure 21. Production cycles for Dell computers and HP servers

<sup>27</sup> See <https://tradingeconomics.com/china/exports-of-electronic-technology> (choose the past five years tab)

### 4.3.4 Dispatch workers

**Social insurance:** Social media posts state that workers are asked at the recruitment centres to choose between direct employment and dispatch contracts. They will learn that dispatch contracts receive better pay because there are no deductions for social insurance. However, after three months the dispatch contract has to be transformed into a regular contract or ended. Dispatch work is widely discussed as particularly suitable for seasonal workers [83]. Yet this practice contradicts legal requirements of pre-defining dispatch assignments and it excludes many workers from basic social benefits.

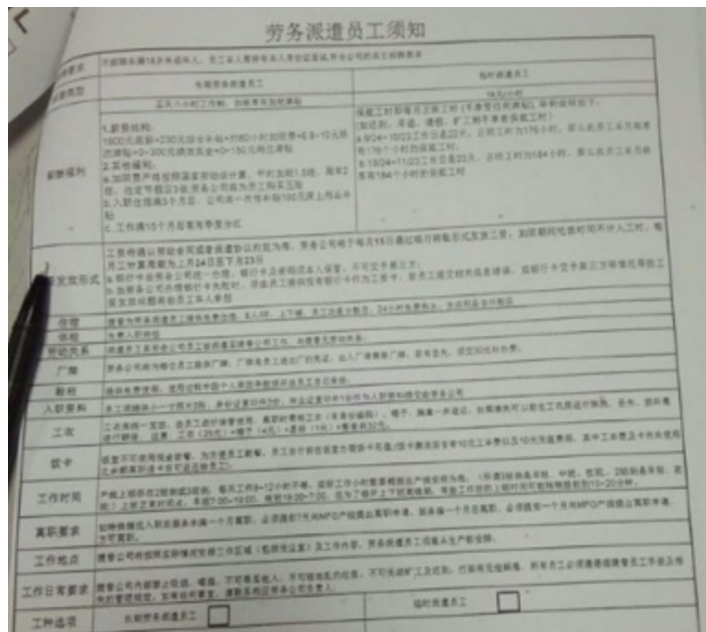


Figure 22. Picture showing a dispatch labour contract (worker's post)

**Working hours:** According to social media posts, regular workers enjoy priority when it comes to allocating overtime. When there is not enough work, dispatch labour assignments are reduced [84][85][86].

The qualitative insights in this paragraph and findings under 4.1.1 and 4.7 suggest that dispatch labour entails higher social and economic risks compared to regular employment. We further explore this issue in figure 23, which shows the 6-year moving average ratio of posts mentioning dispatch labour. For shared suppliers, there is a sharp increase since the end of 2016. This rising trend in connection with the qualitative analysis suggest that problems and a notion of uncertainty with respect to dispatch labour is on the rise. There is a similar development for exclusive Dell and HP suppliers; yet on a lower scale. Further investigations about the causes and consequences are needed.



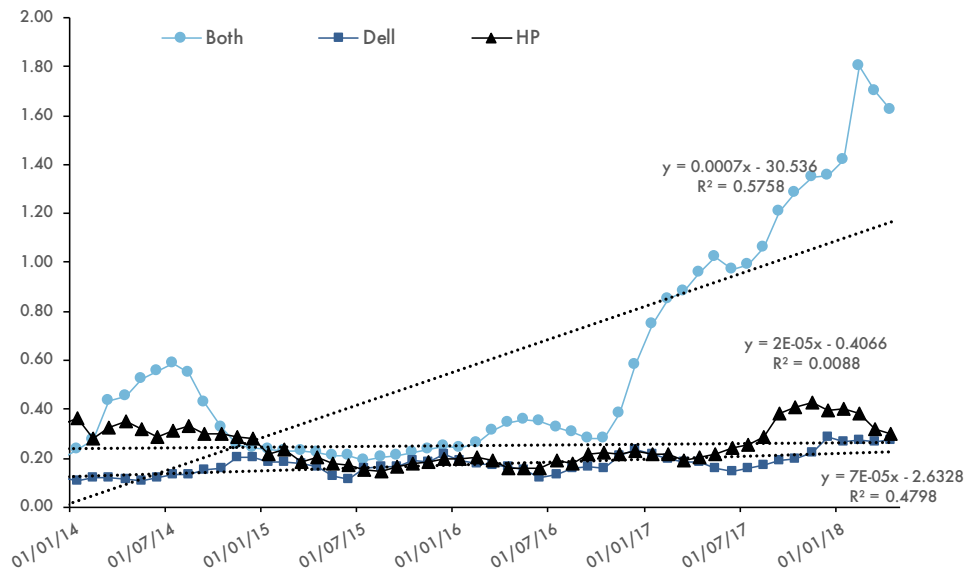


Figure 23. Dispatch labour (6-month moving average ratio, % of total posts)

#### 4.3.5 Other discriminatory recruitment criteria

People with tattoos, died hair, or scars from cigarette burns are sometimes excluded from recruitment [87]. This is a type of discrimination that is not named in Chinese labour regulations or codes of conduct. These selection criteria, however, appear to represent illegitimate and unfair norms that ought to be considered as discriminatory practices.

#### 4.4 Child Labour

There shall be no new recruitment of child labour. Companies shall develop or participate in and contribute to policies and programmes which provide for the transition of any child found to be performing child labour to enable her or him to attend and remain in quality education until no longer a child. Children and young persons under 18 shall not be employed at night or in hazardous conditions. These policies and procedures shall conform to the provisions of the relevant ILO Standards.

##### General situation

Child labour remains a problem in China. Violations of underage work occur mainly at small companies operating in the fields of recycling, agriculture, natural resources, and textiles. Still underage workers have been part of electronics manufacturing previously. In 2013 external auditors found underage

workers in Apples supply chain in China.<sup>28</sup> Samsung repeatedly has been accused of violating its zero-tolerance policy against child labour.<sup>29</sup>

### Detailed insights

We found one discussion thread posted in July 2017 stating that there are workers under the age of 16 at a supplier. The user asks whether he should report this. Others encourage him to do so. He asks where he should report and got the reply to go to the local labour bureau. The user states that there were both male and female minors. The source is not coming from a fake account. Yet we do not find additional mentions confirming this claim.

On a general note, work of underaged persons is not widely discussed on social media. We find no information about workers under the age of 18, working overtime or night shifts.

In this trend section we analysed the recruitment of the age cohort 16-18. Entering the factory under the age of 18 is possible but underage workers enjoy more protection in terms of overtime and night shift work. Employing workers under the age of 18 requires a high standard of managerial responsibility and integrity. Non-compliance in this realm is particularly harmful and therefore represents an important social risk type.

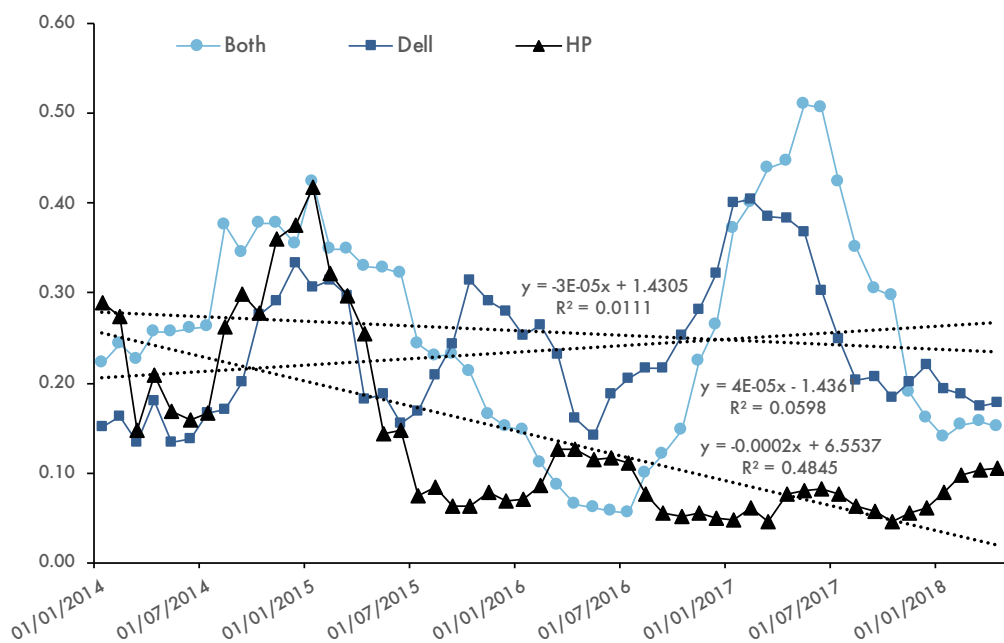


Figure 24. Underage employment. Recruitment posts including age cohort 16-18 (6-month moving average ratio, % of total sample)

<sup>28</sup> <https://www.theguardian.com/technology/2013/jan/25/apple-child-labour-supply>

<sup>29</sup> <https://www.thenation.com/article/did-child-labor-build-your-smart-phone/>

We collected information from recruitment posts accepting workers of age 16-18. The trend chart in figure 24 indicates that social risk exposure at shared and exclusive Dell suppliers remained stable in the long-run, yet with substantial cyclical fluctuations. For the case of exclusive Dell suppliers, underage recruitment seems to intensify during the low season with regular peaks around Chinese New Year. This pattern indicates that underage workers are mainly employed as holiday workers. Thus, it will be particularly important to oversee related management practices during college vacation periods. Fluctuations for shared suppliers is different and would require a deeper investigation into the factors shaping this pattern. Finally, exclusive HP suppliers have reduced their risk exposure consistently over the past five years.

#### 4.5 Excessive working hours and abusive termination of employment

Working hours comply with national laws and benchmark industry standards, whichever affords greater protection. In any event, workers shall not on a regular basis be required to work in excess of 48 hours per week and shall be provided with at least one day off for every 7 day period on average. Overtime shall be voluntary, shall not exceed 12 hours per week, shall not be demanded on a regular basis, and shall always be compensated at a premium rate.

##### General situation

The State Council Regulations on Working Hours of Employees limits the regular working day to eight hours and the workweek to 40 hours.<sup>30</sup> Article 41 of the China Labour Law declares that employers can only impose overtime after consultation with the trade union and workers, and it is only allowed for three hours per day and 36 hours a month. However, mandatory excessive overtime hours, far beyond the legal limits, imposed without the legally required consultation with workers, are common in electronics factories. Workers rely on overtime to make ends meet and may resist strict enforcement of overtime limits. Love-tucuo (love吐槽) a migrant worker who writes popular posts about labour conditions on WeChat asked workers following her account to respond to a survey about overtime. About 12,000 workers responded. Less than one percent agreed with the statement: "I am fine with the basic salary. I don't have to accept overtime."

<sup>30</sup> The labour law provides for a 44-hour work week, but since 1995 the implementing rules require a 40-hour work week with Saturday and Sunday being weekly holidays. Article 3 of "Provisions of the State Council on Working Hours of Workers and Staff" states: "Workers and staff shall work 8 hours a day and 40 hours a week." See, "Decision of the State Council on Revising the "Provisions of the State Council on Working Hours of Workers and Staff" (1995), available at <http://www.asianlii.org/cn/legis/cen/laws/dotscotpotscowhowas1103/>.

## Detailed insights

Overtime is a necessity for workers to make ends meet. But how excessive is overtime work? We first try to approach this question by estimating working hours based on posts that mention total wages paid. Recent posts state that workers' take-home wage is about 3,500 and 4,500 RMB. Considering that the basic salary of 2,000-2,500 RMB represents 40 working hours, approximately 1,500-2,500 RMB are

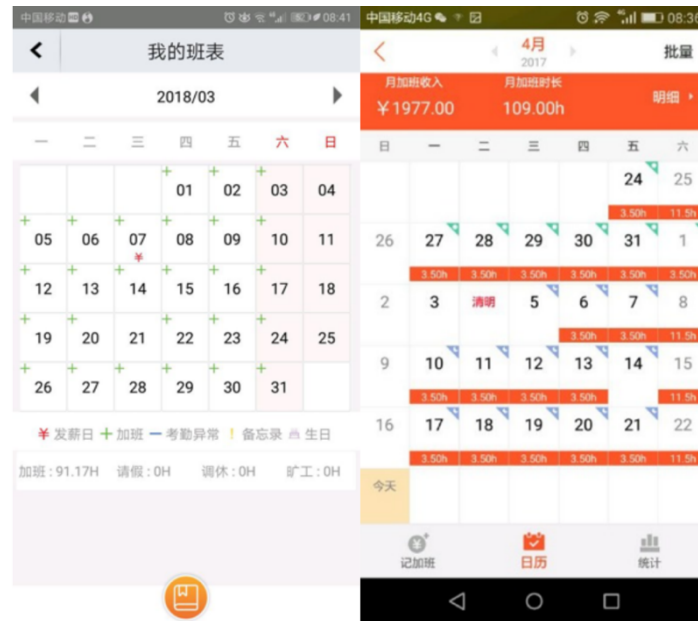


Figure 25. Screenshots of four suppliers showing overtime (workers' posts)

earned through overtime. Overtime payment is usually 1.5 times the regular rate, two times on weekends and three times during holidays. Hence a conservative estimate is that a worker has to work 18-24 hours a week in excess of the regular working time.



Figure 26. Screenshots of four suppliers showing overtime (workers' posts)

We seek to validate the above estimate with more direct insights from social media posts because the take-home wage may also vary due to various subsidies (for example housing, transport and food allowance), on the one hand, and deductions (for example rent for the dorm and social costs), on the other. In figure 25 we depict overtime accounts posted by workers at different suppliers. The two screenshots display 91.17 hours (left) and 109 hours (right) of overtime. The screenshot depicted in figure 26 (left) states that the company uses the following rules for overtime: “Not more than two hours on a regular working day. Not more than 10 hours on Saturdays and Sundays. And one day rest per week.” The overtime account below the stipulated rules, however, indicates that the worker had no rest during the entire month. Needless to say, these company regulations violate the China Labour Law. The second screenshot in figure 26 (right) documents 139 overtime hours, which exceeds the legal maximum by almost four times. Internal accounts confirm that working hours are excessive indeed. And even if we discard the 139 hours example as an outlier the other accounts still imply that a worker has to supply 80 – 100 hours overtime in order to achieve a take home wage of 3,500 to 4,500 RMB; an income that meets the living wage benchmarks (Section 5).

Approximately four to seven percent of posts per month mention overtime and the relative importance of this topic remained relatively stable during the past five years. In absolute terms this means that on average there were 500 posts each month mentioning overtime. The total amount is almost 29,000 posts. The trend chart in figure 27, therefore, indicates that overtime is one of the most pervasive issues (for a comparison see section 5.2.2.).

From employers' perspective overtime is linked to production demands. However, for workers overtime is closely related to their wages. We show in section 4.7 that there is a widening gap between the basic wage and living wage. As a result, excessive overtime hours are a necessity to make ends meet for many workers. Figure 27 suggests that workers at exclusive Dell and HP suppliers wrote little about overtime compared to workers at shared suppliers; yet during the past two years we observe a rising trend, which is in line with the pattern at shared suppliers.

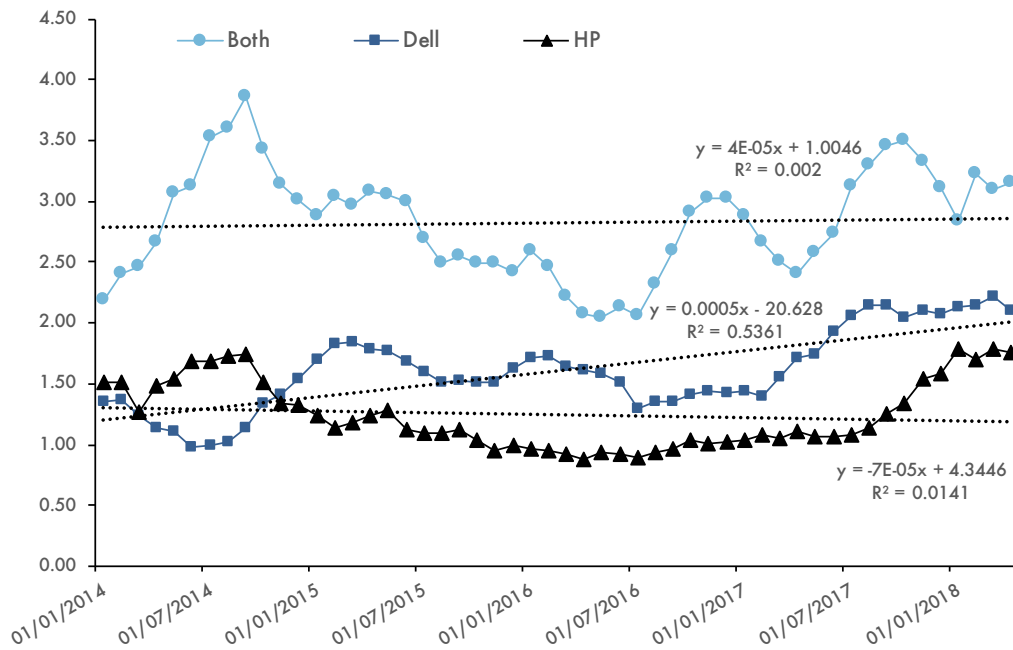


Figure 27. Overtime (6-month moving average ratio, % of total posts)

## 4.6 Safe and Healthy Working conditions

A safe and hygienic working environment shall be provided, bearing in mind the prevailing knowledge of the industry and of any specific hazards. Adequate steps shall be taken to prevent accidents and injury to health arising out of, associated with, or occurring in the course of work, by minimising, so far as is reasonably practicable, the causes of hazards inherent in the working environment.

Workers shall receive regular and recorded Health & Safety training. and such training shall be repeated for new or reassigned workers.

Access to clean toilet facilities and to potable water and, if appropriate, sanitary facilities for food storage shall be provided.

Accommodation, where provided, shall be clean, safe, and meet the basic needs of the workers.

The company observing the code shall assign responsibility for Health & Safety to a senior management representative.

### 4.6.1 Physical hardships and accidents

#### General situation

In the electronics manufacturing sector workers are exposed to a broad range of hazardous substances and wastes.<sup>31</sup> In addition medical studies have shown that high noise levels contribute to health problems such as ear allergies, head injuries, fatigue, trauma disease, tinnitus and high blood pressure.<sup>32</sup> What is more, many workers are forced to stand all day, which is associated with a number of health problems, such as lower back and leg pain, cardiovascular problems, fatigue, discomfort, and pregnancy-related health issues. Promoting a healthy work environment and preventing accidents, therefore, are vital issues for protecting workers' rights and interests.<sup>33</sup>

#### Detailed insights

Workers write in social media about various pains. Most frequently named is unbearable pain of the feet and legs due to prolonged standing without being able to walk, sit or rest [88][89][90]. Due to pain

<sup>31</sup> <https://goodelectronics.org/womens-health-decent-work-and-the-electronics-industry/>

<sup>32</sup> <file:///Users/carín/Downloads/OccupationalNoise.pdf>

<sup>33</sup> [https://onlinelibrary.wiley.com/doi/pdf/10.1002/rmj.166?casa\\_token=qJBBE7F11-MAAAAA:pdgS5creEWtZOvsfGUTSpU3bjg0TfvGSNrBtifWcKK4MO1gRi0-FKj4fHnmVY43Sgw8w14KPRG4GJ\\_U](https://onlinelibrary.wiley.com/doi/pdf/10.1002/rmj.166?casa_token=qJBBE7F11-MAAAAA:pdgS5creEWtZOvsfGUTSpU3bjg0TfvGSNrBtifWcKK4MO1gRi0-FKj4fHnmVY43Sgw8w14KPRG4GJ_U)

some employees cannot sleep and suffer from extreme tiredness. Workers write about dizziness and unpleasant chemical smells [91][47]. They talk about hurting, infected eyes and ear pain due to extreme noise [92].

Workers speak about the need to rest while managers urge them to take some medicine and get back to work [88][88][93][94]. When workers decide to take sick leave, they might be threatened that they will be registered as absent which leads to wage deductions and resignation after three days [95]. The group or line leader has to fill in a case file for sick leave which intimidates workers as they do not know what these files are good for [93][94]. Managers use discretionary power to get rid of workers that they feel are not fit for the job [95]. For example, an employee wrote about having migraine since early childhood. When asking for sick leave his manager told him to come back when he felt better only to learn that he was dismissed due to absenteeism [92].

Workers write infuriated or without any hope about the difficulties when getting ill. The main concern for factory managers but also for workers is to treat symptoms in order to reinstate labour power as fast as possible [96]. Workers seek to cure themselves and buy all kinds of medicines which constitutes a significant expense to them [96][88]. A user posts desperately again and again the same text describing how his injuries are not acknowledged as a work-related issue [97]. There was a fatal accident at the workshop, which makes workers afraid and concerned about work safety [98].

We also find questions that indicate that workers do not know what type of substances they are dealing with and how they should protect themselves. For example, we found several posts asking about ‘cutting fluids’ that cause rashes and painful swellings (see figure 28) [99]. Worker posts indicate many workers suffer from the same symptoms [100].

Workers write about extreme stress and pressure [90]. There is no time allotted for going to the toilet or drinking water [89][101][102]. Workers, therefore, have to find a stand-in when they take a break. Posts state that there is no way to go to the toilet unless the line leader has time to replace a worker. In some factories it is required to register for going to the toilet, either at the belt 30 minutes in advance [103] or in another case at the toilet door [104]. The need to help out under extreme time pressure causes tensions among the workers as they reject each other’s requests.

The pace at the production belts is very fast. A worker states that the urge to scratch yourself or stretch a sore neck causes delays due to the belts’ high speed [102]. Another employee describes how production managers had to lower the pace from 8 seconds per piece to 11 seconds because more than 70 percent of the old workers had to be replaced by new recruits. Yet in order to meet shipping deadlines the pace was eventually increased and was set to even less than 8 seconds, causing extreme stress for the workers [105].



Lunch and dinner breaks are as short as 30 minutes and, as a consequence, permeated with additional stress factors. Staff has to queue at the security check, queue for food, and queue at the toilet [106]. A worker writes that it takes him 10 minutes to get out from the production area, another ten minutes taking the stairs up and down and queueing for food. It takes an additional five minutes for going to the toilet. Only five minutes remain for eating [107].

Many workers complain about the food. They say portions are small, the taste disgusting, and prices for better quality food high [108][109]. There is little talk about hygienic problems. We found only one hearsay mention about a food poisoning case. Workers post pictures from bugs and worms that they found in their meals. Yet the insects photographed are not of the kind that would indicate lacking hygiene such as cockroaches or pinworms.



Figure 28. Picture showing skin reaction to 'cutting fluid' (Worker's post)

Living conditions at the dorm are frequently described as difficult and even unbearable [110]. During the high seasons the dorms are crowded with up to ten people in a six-bed room [111]. There is very little storage space for personal items (see figure 29). A post states that it is only possible to enter the room by walking sideways. Showers and toilets are shared and sometimes so dirty that people do not dare to use the facilities [112]. There is no privacy, which causes hardships for those who are ill or have a light sleep. Workers posts mention loud voices, spitting, cigarette smoke, noisy gambling, and music as disturbing factors [113]. Workers also speak about stench and filth in the rooms (see figure 29). Some people cannot sleep due to itchy bites from bedbugs. A worker describes the situation as so appalling that she tried to spend the nights in the corridor [110].



Figure 29. Pictures documenting living conditions in factory dorms

There are reports about physical violence inflicted by managers and workers and there is an alleged beating of a worker by security guards in the dorm [114][115]. Information about physical abuse is scarce. Workers sometimes do not know how to handle the situation and what to expect. For example, a worker beaten by a manager asks whether he should agree to settle the issue privately or report to the union [64].

The trendline in figure 30 suggests that the working and living environment has become more of a topic since the second half of 2016. While the long-run trend is similar for the three supplier groups, there are distinct short-term patterns for shared suppliers on the one hand and HP and Dell exclusive suppliers on the other. The drivers behind these developments would require deeper analysis, which is beyond the scope of this study.

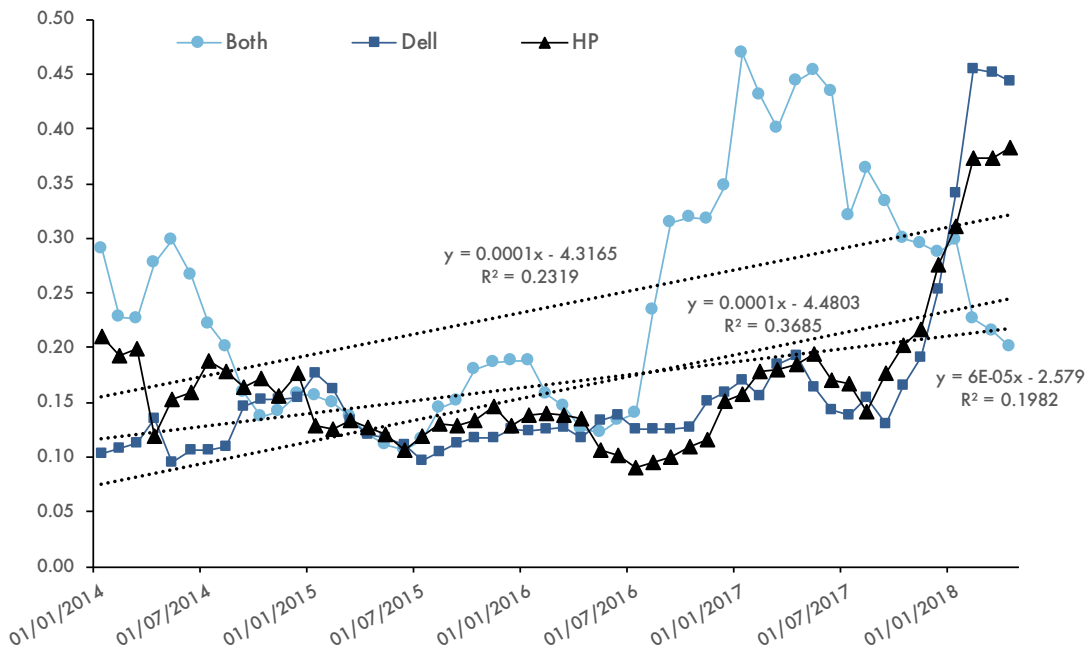


Figure 30. Safe and hygienic work environment (6-month moving average ratio, % of total posts)

## 4.6.2 Harassment and psychological hardships

### General situation

There are no regulations in Chinese labour legislation that define humane treatment. Still, outside observers have criticized the military style management characteristic of Chinese export manufacturing as inhumane.<sup>34</sup> In *The Link Between Employment Conditions and Suicide*<sup>35</sup>, the Economic Rights Institute and Electronics Watch argue that when employers ignore signs of employee stress, when they set the speed and intensity of work and use coercive forms of discipline to enforce production objectives, they directly contribute to stress and tensions on the shop floor. Tensions rise between employees, supervisors and security personnel contributing to conflicts which sometimes devolve into fistfights and worse forms of violence. The pressure of work environments like this contributes to the emergence of privileges for preferred employees. This contributes to employees' belief that income is not connected to merit or effort. This stressful environment and employees' belief that neither merit nor effort will improve their condition is tied to employee depression and the risk of suicide.

### Detailed insights

The working climate at the workshop is widely described as harsh. Verbal abuse is common and causes anxieties among those who cannot stand the pressure [116]. Workers speak of group leaders, line leaders, and team leaders taking turns in bullying the workers, constantly yelling at them [117][118][119][120]. A user reports about work meetings every morning half an hour before the shift begins. During these meetings managers humiliate workers, curse, and make suggestions about who should consider leaving [121]. To some the language at the workshop is a shock; they speak of unheard words of vulgarity and brutality [122]. Another post states that female superiors are less aggressive than their male colleagues [115].

Many workers get angry about injustice and unequal treatment. Posts describe group leaders leisurely chatting with each other, checking their phones, and trading on Taobao next to the line workers who have to work at a fast pace and endure insults. The problem of verbal insults and power abuse is so widespread that it seems impossible to resist [123]. Workers write that there is no control or mechanism to protect them because managers do not take this issue seriously.

Sexual abuse at factories can seem as a substantial threat to (mainly) female workers. A post claims that line leaders and group leaders are preoccupied with getting the most beautiful girls in their teams and disregard any qualification [124]. It is stated that the production belt is not a place for good looking

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<sup>34</sup> For a report on military-style management see, for example, a report on Foxconn's management at <https://www.somo.nl/wpcontent/uploads/2010/08/military-management-in-Foxconn.pdf>

<sup>35</sup> See, [http://electronicswatch.org/the-link-between-employment-conditions-and-suicide-a-study-of-the-electronics-sector-in-chinanovember-2018\\_2549396.pdf](http://electronicswatch.org/the-link-between-employment-conditions-and-suicide-a-study-of-the-electronics-sector-in-chinanovember-2018_2549396.pdf)

women because there are many male workers that stare and check on them [125][126]. Another post states that harassment is so common that there is no way for a beautiful woman to get around it [127]. A worker writes about his five-year experience at a supplier. He reports about sexual harassment and even rape. Some posts claim managers promote some girls fast in order to be able to get closer to them [128]. For those who are uncomfortable with managers approaching them prospects can be grim. Managers punish disobedient women by excluding them from overtime and constantly criticising them. A worker writes that there never has been any training in raising awareness about sexual



Figure 31. Worker's post documenting a suicide

harassment and that there are no channels helping women to resist. Sexual harassment is not dealt with at all or, if women cannot bear the situation any longer, they are transferred to other departments. The worker angrily states that it is always the victims that have to move away while the perpetrators are allowed to go on [129]. A social media discussion corroborates the claim that there are no effective grievance channels for sexual harassment. A female worker writes that a manager often approaches her and touches her. He wants to meet her after work. The woman states that she does not know how to handle the situation. Some suggest that she could try to go to the employees' concern centre to complain while others suggest she call the human resources office [130].

Workers share information about suicides on social media (see figure 31) [131][132][133][134]. Workers speculate about the reasons and many agree that working and living conditions shape an environment where people become lonely and gradually may lose touch with social forces that would hold them back from ending their lives [135][136][137].

Compared to other topics, harassment is not discussed widely with monthly mentions rarely going beyond 0.6 percent of total posts (figure 32). The low rate of mentions, however, is probably a reflection of stigmatisation and perceptions that harassment is caused by a flawed character rather than the result of organisational failure. The long-run trend for the three supplier groups is negative. Yet, since the end of 2017 there is an upward turn, which suggest that social risk exposure as a result of harassment is increasing.

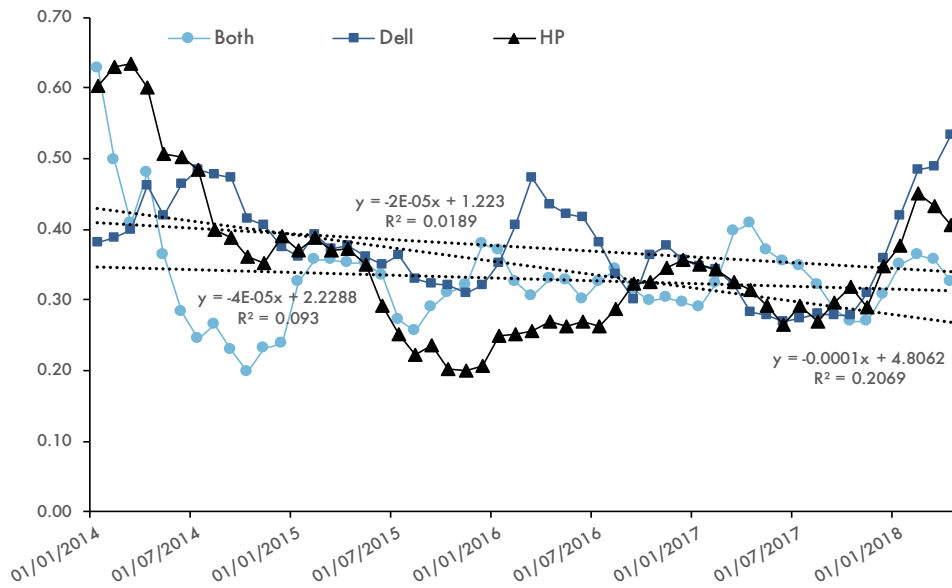


Figure 32. Harassment (6-month moving average ratio, % of total posts)

#### 4.7 Legal and living wages

Wages and benefits paid for a standard working week meet at a minimum national legal standards or industry benchmark standards, whichever is higher. In any event wages should always be enough to meet basic needs and to provide some discretionary income. All workers shall be provided with written and understandable information about their employment conditions in respect to wages before they enter employment and about the particulars of their wages for the pay period concerned each time that they are paid. Deductions from wages as a disciplinary measure shall not be permitted nor shall any deductions from wages not provided for by national law be permitted without the expressed permission of the worker concerned. All disciplinary measures should be recorded.

##### General situation

Living in a factory dorm and eating at the factory compound is relatively cheap; it costs about 300-400 RMB per month. There are additional costs for insurance, and the housing provident fund. All in all there will be regular deductions of 600—800 RMB. As the screenshots in figure 3 illustrates, a worker will have a take-home wage of about 1,400 RMB without overtime work. Yet workers living inside the factory gates need to save the lion's share of their income in order support their families back home.

Workers also have to pay for medicines, transportation, clothes, and should have some income at their discretion.

Migrant workers who are not prepared to leave their children behind in the countryside face financial hardships due to high living costs in the city. As non-locals they have to pay high school fees equal to almost 100% of a migrant worker's wage.<sup>36</sup> Housing is another cost factor that raises concerns. Currently cheap housing in the wealthy coastal cities is available at about 800 RMB per month. However, gentrification and renovation of low-cost housing areas is driving rents up. A case in point is a recent open letter from Foxconn workers to the company's management demanding to increase wages and housing allowances in line with rising rents.<sup>37</sup>

## Detailed insights

### 4.7.1 Illegal wage deductions

A large number of posts suggests that most electronics manufacturers impose wage deductions that they do not understand and that appear to be used as disciplinary instruments [138][139]. As outlined in section 4.1.2 many workers leave on their own because they are not allowed to resign according to the labour law after 30 days prior notice. In this context some posts, though not many, claim that dispatch workers do not receive their last month's wage, while more workers state that there are regular deductions when leaving on their own. Some

workers state the deduction is about 1,000 RMB, while others say it is equivalent to 10 days' wages, and yet others say they lose 30 percent of a month's wage. These posts indicate a shared practice of deducting about one-third of a worker's salary [140]. There is also a large number of posts asking how

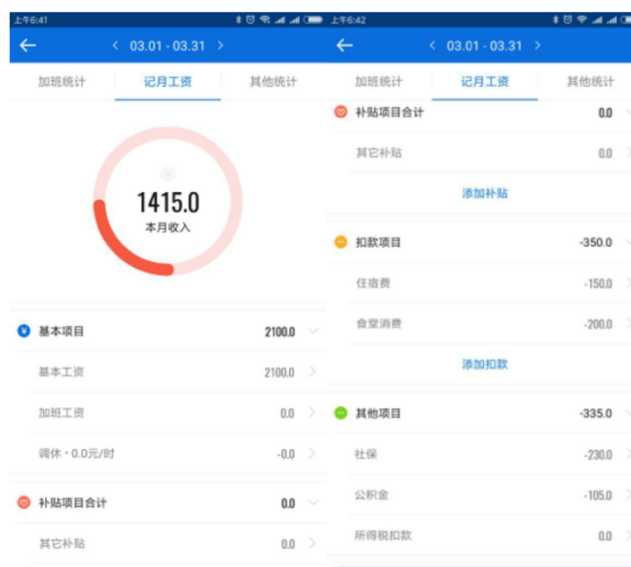


Figure 33. Screenshot of wage calculation (worker's post)

<sup>36</sup> [https://s3.amazonaws.com/academia.edu.documents/1773025/Learning\\_from\\_Migrant\\_Education\\_IJED\\_2009.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1533656965&Signature=oTJcyAD3SuSxSiHns389KEdxSmA%3D&response-contentdisposition=inline%3B%20filename%3DLearning\\_From\\_Migrant\\_Education\\_A\\_Case\\_S.pdf](https://s3.amazonaws.com/academia.edu.documents/1773025/Learning_from_Migrant_Education_IJED_2009.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1533656965&Signature=oTJcyAD3SuSxSiHns389KEdxSmA%3D&response-contentdisposition=inline%3B%20filename%3DLearning_From_Migrant_Education_A_Case_S.pdf)

<sup>37</sup> <http://www.eeo.com.cn/2018/0612/330093.shtml>

much deductions a worker has to expect when leaving on one's own [141]. This indicates that workers were not informed or did not give prior consent to such penalties.

#### 4.7.2 Non-transparent and unfair wage calculation

Wages at Chinese electronics manufacturers are an amalgamation of various pay elements: basic wage, overtime pay, deductions for housing and food, union membership, social insurance or the housing provided fund. Sometimes workers receive a food and/or transportation subsidy. The complex composition of total wages rests on a large set of rules that are hard to understand for many workers [142][143][144][145][146]. For example, most workers in the electronics industry receive a year-end bonus which equals one month's wage. If a worker has been employed less than one year, the bonus will be calculated pro rata. Year-end bonuses are particularly important for workers before the Chinese New Year (around February) when most of them reunite with their families for one week. During that time several hundred million people are traveling. In order to make it home in time workers have to leave the factories at least two or three days before. Some employers take advantage of these circumstances and pay year-end bonuses only to those who stay until Chinese New Year. If workers leave only one day in advance they will not be eligible for any bonus payment, some workers say [147].

#### 4.7.3 Rising living costs

A third field of concern are rising living costs. In particular migrant workers have a hard time tackling the difficult and expensive housing situation [148]. Migrant workers sometimes fall victim to exploitative practices of landlords. A post describes some of these practices. After payment of the deposit all kinds of extra fees are added despite previous assurance that such fees would not be levied. Workers have to pay non-negotiable agent fees, short-term rental fees (below six months), extra fees for each additional family member living in the house, a management fee, sewage fee, health fee, and furniture and appliances usage fee. Workers have to repair windows, locks and the like at their own cost or they will be charged double the market price. The post claims that deposits are not returned as there are always alleged damages that need to be repaired [149]. Living in a factory dorm is sometimes the only affordable alternative [150]. A worker calculates in detail how costs for rent, electricity, water, and other costs have increased and compares this to his wage increase (in line with minimum wage requirements). The calculation shows that living costs rise faster than wages [151].

The living wage analysis below focuses on the basic wage, which constitutes regular pay for a standard working week of 40 hours. We do not take into consideration discretionary or irregular payments. In order to determine whether basic wages represent living wages, we collected information about basic wages for regular workers (普工) for the past five years as advertised in recruitment posts. Our wage

analysis provides information about basic wages in the electronics manufacturing sector but are not representative for a specific supplier.

The black lines in figure 33 depict the upper and lower band of the basic wage in job advertisements. The dotted brown lines represent the minimum wages at two important electronics manufacturing locations: Shenzhen<sup>38</sup> (upper band) and Chongqing<sup>39</sup> (lower band).

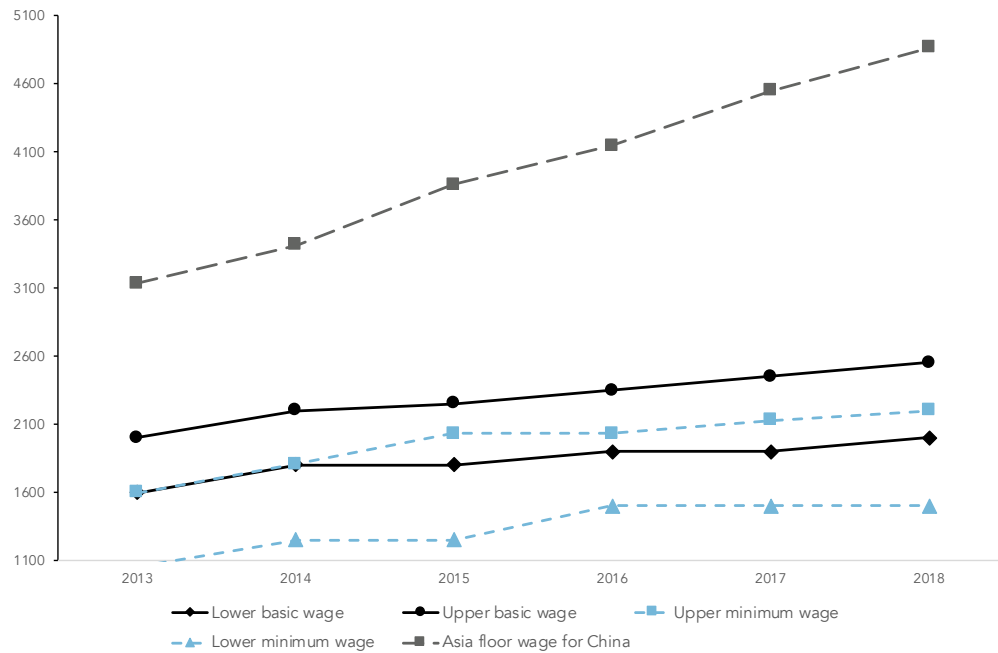


Figure 34. Minimum wage and living wage

Figure 34 indicates that basic wages in the electronics manufacturing sector follow the minimum wage level. The green line represents a living wage estimate for China provided by the EU financed Asia floor wage campaign.<sup>40</sup> Here, the gap between an essentially stagnating basic wage and rising living costs becomes evident. From this perspective basic wages are closer to subsistence pay than living wage pay. As a result, additional income from overtime, internal recommendation, and subsidies are essential to make ends meet. Consequently, social risk exposure in these fields is likely to decline when basic wages catch up with living wages.

<sup>38</sup> Data are retrieved from <https://www.ceicdata.com/en/china/standard-of-monthly-minimum-wage/standard-of-monthly-minimum-wage-guangdong-shenzhen>

<sup>39</sup> Data are retrieved from <https://www.ceicdata.com/en/china/standard-of-monthly-minimum-wage/standard-of-monthly-minimum-wage-chongqing>

<sup>40</sup> Data are retrieved from <https://asia.floorwage.org/what>. Note that the Asia floor wage estimates are available for 2013, 2015, and 2017. We intrapolated the years 2014, and 2016 with the moving average based on the previous and succeeding year. We extrapolated a living wage estimate for 2018 by using the average growth rate for the years 2013-2017.



## 5. Supply chain comparison

The previous section, “Findings,” used a qualitative approach to identify grievances and practices about labour and human rights violations. We then sought to find these issues in the entire data sample and visualized trends. This quantitative approach structured social media posts about grievances and rights violating practices into ten topics (for a detailed description about how we define topics, see appendix 2):

- Leaving on one’s own (See Figure 10, p. 23)
- Freedom of association (See Figure 16, p. 30)
- Overtime work (See Figure 27, p. 40)
- Student labour (See Figure 13, p. 26)
- Black labour agents (See Figure 4, p. 19)
- Underage employment (See Figure 24, p. 37)
- Internal recommendation bonus (See Figure 7, p. 21)
- Dispatch labour (See Figure 23, p. 35)
- Safe and hygienic work environment (See Figure 30, p. 44)
- Harassment (See Figure 32, p. 47)

In this section we engage in a deeper quantitative analysis of the topical trends and compare Dell, HP, and shared suppliers systematically. The general idea is that both the content social media posts and the posting patterns can reveal insights about rights violations.

We first compare posting patterns that are associated with three different supplier groups: Dell, HP, and shared suppliers (section 5.1.). This comparison helps us learn whether or not HP and Dell should address similar problems and have an opportunity to collaborate to gain leverage and increase efficiency. In a second step, we identify topics that need particular attention. To this end we develop a new measure for social risk exposure in section 5.2. We pose two questions:

1. How often do workers mention a specific topic compared to other topics? We seek to answer this question because a widely discussed topic indicates that it affects many workers.

2. To what extent do discussions about a specific topic change over time? A frequent or extreme shift of a topic's relative importance may indicate problems that are hard to predict and therefore particularly difficult to manage.

We derive quantitative measures for a topic's relative importance (pervasiveness) as well as for changes over time (volatility) and combine them in an indicator for social risk exposure. We describe our method for comparing workers' social media discussions and measuring social risk exposure in detail in appendix 4.

It is important to note that this quantitative social media analysis neglects two aspects:

- A prioritization based on the severity of rights violations, for example where there is risk to workers' lives.
- A prioritization based on all relevant topics, including rights violations that are not represented or underrepresented in social media discussions.

The following analysis is based on our quantitative data sample, i.e. social media posts published between January 2014 until April 2018. This sample of 1,373,558 posts is subdivided into three previously introduced groups:

- Suppliers that are only on HP's public supplier list, (16 suppliers, 278,351 posts);
- Suppliers that are only on Dell's public supplier list (15 suppliers, 357,544 posts); and,
- Suppliers that are on both lists (7 suppliers with one supplier comprising multiple locations, 737,663 posts).

## 5.1 Comparing posting patterns

In this section we compare workers' posting behaviour<sup>41</sup> at HP and Dell suppliers with the posting behaviour at shared suppliers. We conduct such a comparison for each of the ten topics listed above. If posting behaviours are statistically similar for the three groups of suppliers, we assume that the topic is endemic. This means that the topic and related rights violations are linked to practices in the entire supply chain at a given time. By contrast if posting behaviours do not follow similar statistical patterns, rights violation practices are considered to be group specific and may be attributed to distinct business models. An endemic topic can be addressed with one overarching strategy for the entire supply chain. Non-endemic topics have to be tackled separately for each group in order to account for specific circumstances.

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<sup>41</sup> Posting behaviour refers to the monthly number of posts related to a grievance.

We define a topic as endemic if the posting pattern for the shared supplier group can be used to predict posting patterns related to Dell and/or HP suppliers. In this case we assume that workers face similar problems at the same time across two or three supplier groups.

To compare the statistical properties of posting behaviour, we use an ARIMA prediction model (see appendix 4), which seeks to explain workers' posting patterns at Dell and/or HP suppliers with posting patterns at shared suppliers. Table 1 summarises the results.

- We find that workers at HP and Dell suppliers follow similar posting behaviours at shared suppliers for four out of ten topics. This means that these grievances are endemic.
- Two additional topics are endemic for HP but not for Dell suppliers.
- Two additional topics are endemic for Dell but not HP suppliers.
- Two topics are not endemic for HP and Dell suppliers.

Table 1. Results of the ARIMA prediction model

Topic	HP	Dell	Implication
Leaving on one's own	not endemic	not endemic	Specific strategy for HP, Dell, and shared suppliers
Freedom of association	not endemic	not endemic	Specific strategy for HP, Dell, and shared suppliers
Overtime work	endemic	endemic	Common strategy for HP, Dell, and shared suppliers
Student labour	endemic	endemic	Common strategy for HP, Dell, and shared suppliers
Black labour agents	endemic	endemic	Common strategy for HP, Dell, and shared suppliers
Underage employment	not endemic	endemic	Specific strategy for HP, and common strategy for Dell and shared suppliers
Internal recommendation bonus	endemic	not endemic	Specific strategy for Dell, and common strategy for HP and shared suppliers
Dispatch labour	not endemic	endemic	Specific strategy for HP, and common strategy for Dell and shared suppliers
Safe and hygienic work environment	endemic	endemic	Common strategy for HP, Dell, and shared suppliers
Harassment	endemic	not endemic	Specific strategy for Dell, and common strategy for HP and shared suppliers

We present the results in a four-field matrix, where each quadrant represents a specific mitigation approach in figure 35.

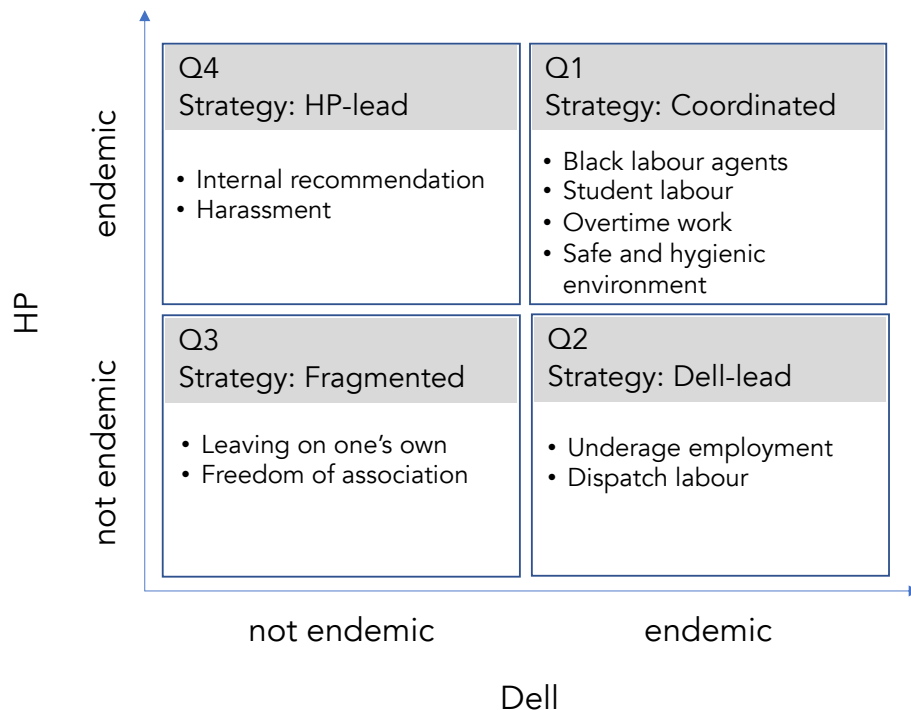


Figure 35. Strategic coordination of social risks in Dell's and HP's supply chain

Each of the quadrants in figure 35 is related to a specific type of coordination with respect to social risk management. In particular:

- Risks related to topics in (Q1) unfold across supply chains and, therefore, should be addressed jointly by both brands.
- The brand that can tackle social risks in its entire supply chain with one strategy should take the lead as effective measures will have the largest effect. Based on our results Dell should take the lead related to issues listed in Q2 and HP should lead issues listed in Q4.
- The topic in (Q3) appears to be shaped by specific circumstances and therefore needs to be handled separately at HP, Dell, and shared suppliers.

## 5.2 Comparing risk exposure

In the following section we present a new measure for social risk exposure that reflects workers' posting behaviour (for details see appendix 4). The purpose is to identify topics that require particular attention. The measure consists of two distinct elements:

**Volatility:** in appendix 4 we describe the calculation of the coefficient of variation (CV), which is a measure that seeks to grasp the fluctuation of posting behaviour over time. The idea is that a very uneven posting pattern indicates a high level of uncertainty. For example, if there is an issue mentioned in 1,000 posts and these posts are evenly distributed over a period of 50 months (20 per month) we would consider this posting pattern to indicate a low level of uncertainty. By contrast, if all posts appeared within one or two months and no mentions earlier, we would assume that workers are confronted with a new situation that requires intensified information exchange and thus indicate a high level of uncertainty. We amend our volatility measure with a memory term, where the impact of a post decreases over time.

**Pervasiveness:** a second dimension to account for is the importance of a topic. To arrive at a comparable measure, we need to introduce similar to the above-described CV a standardized measure. We, therefore, measure pervasiveness as the share of posts belonging to a topic relative to all posts.

**Integration and normalisation:** because we compare HP, Dell, and shared suppliers, we measure volatility and pervasiveness for each topic and sub-sample. We integrate volatility and pervasiveness into one combined value by multiplying the two terms. Finally, in order to render the interpretation of our risk exposure measure more intuitive, we normalise all measures on a scale from 0 – 100.

### 5.2.1 Comparing volatility

We compare volatility, which represents the first element of our measure for risk exposure in figure 36: volatility is quite evenly spread among eight out of ten topics. Each of these topics account for 6-12 percent of HP's, Dell's and shared suppliers' volatility. Black labour agents and internal recommendations, by contrast, feature a comparatively high level of posting

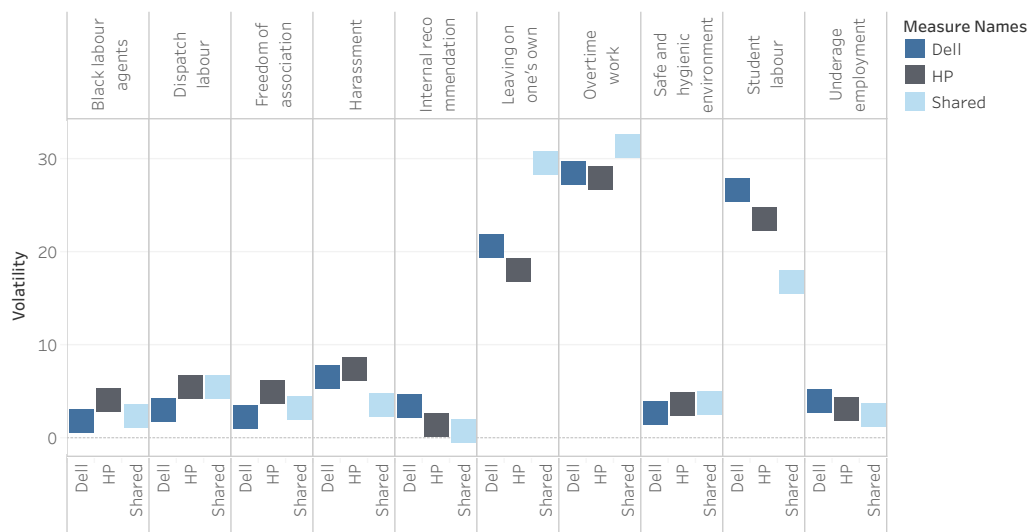


Figure 36. Comparison of volatility (scale value 1-100)

volatility; 13 – 17 percent and 18 – 22 percent respectively. This volatility is to be expected as these topics reflect strategies for flexible employment that allow employers to adjust the workforce according to varying production demands. Questions related to black labour agents show a relatively wide gap between HP and shared suppliers on the one hand (about 17 percent) and Dell on the other (about 13 percent).

### 5.2.2 Comparing pervasiveness

In figure 37 we compare pervasiveness, which is the second component for calculating a total risk exposure value.

Differences between topics and differences between HP, Dell, and shared suppliers are more pronounced compared to the volatility measure. We find the highest pervasiveness values related to problems with quitting a factory job (17 – 29 percent), overtime (27 – 32 percent), and student work (16 – 26 percent). Together they account for about three quarters of HP’s, Dell’s, and shared suppliers’ grievance related posts. For the topic, quitting a job, pervasiveness for shared suppliers is about 10 percent higher as compared to HP and Dell suppliers. For the topic, student labour, pervasiveness for shared suppliers is about 10 percent lower as compared to HP and Dell suppliers.

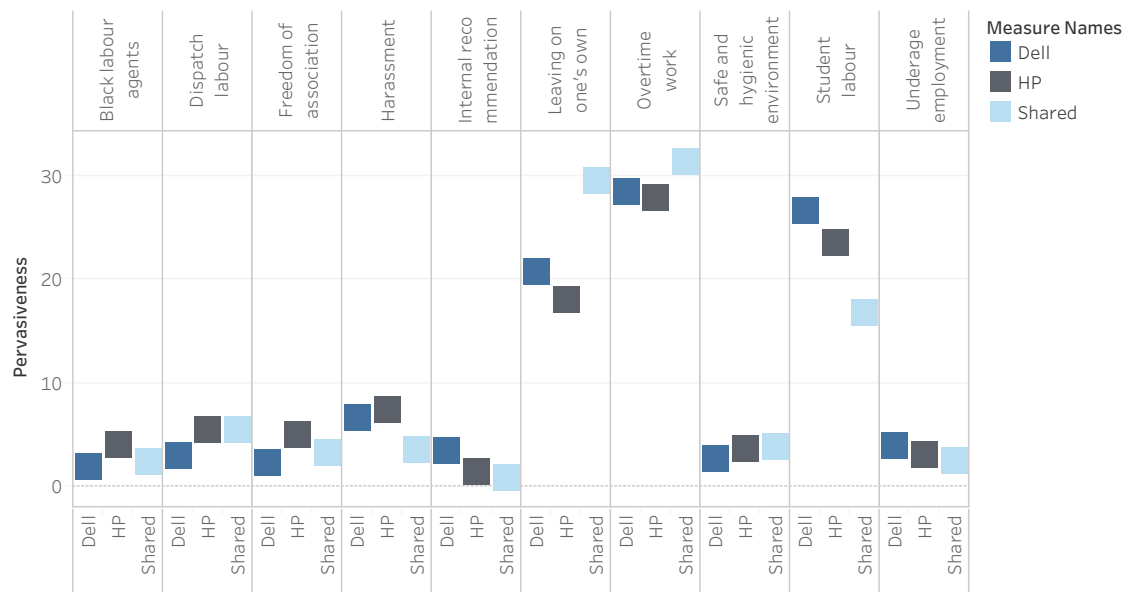


Figure 37. Comparison of pervasiveness (scale value 1-100)

### 5.2.3 Comparing total risk exposure

In a final step we compare the total risk exposure, i.e. volatility multiplied by pervasiveness in figure 38.

**Overtime:** overtime features a relatively high-risk exposure for HP, Dell, and shared suppliers. We previously identified this topic as endemic for both brands. Thus, the analysis suggests that measures promoting living wages and best practices for overtime assignments should be a jointly organised priority of both brands.

**Leaving:** measures mitigating the risk for workers being denied a lawful process of resignation should be a priority in both supply chains. Yet, because this issue is not endemic for either HP or Dell, both brands need to develop supplier-specific checks and mitigation approaches.

**Student labour:** student work is a third high-risk topic. Figure 13 indicated that the long-term trend is declining. Yet the quantitative analysis also suggests that many problems remain. Dell exclusive suppliers feature the highest risk exposure, followed by HP and shared suppliers. Given that student labour is endemic for both brands, best practices can be developed and enforced jointly.

**Other topics:** other topics than the three mentioned above feature a relatively low risk exposure and, therefore, represent a second priority from a statistical point of view. Yet it is important to note that in particular the topics harassment, freedom of association and occupational health and safety are likely to be underrepresented in social media posts. In addition, the presented statistical values need to be further evaluated in relation to the severity of violations.

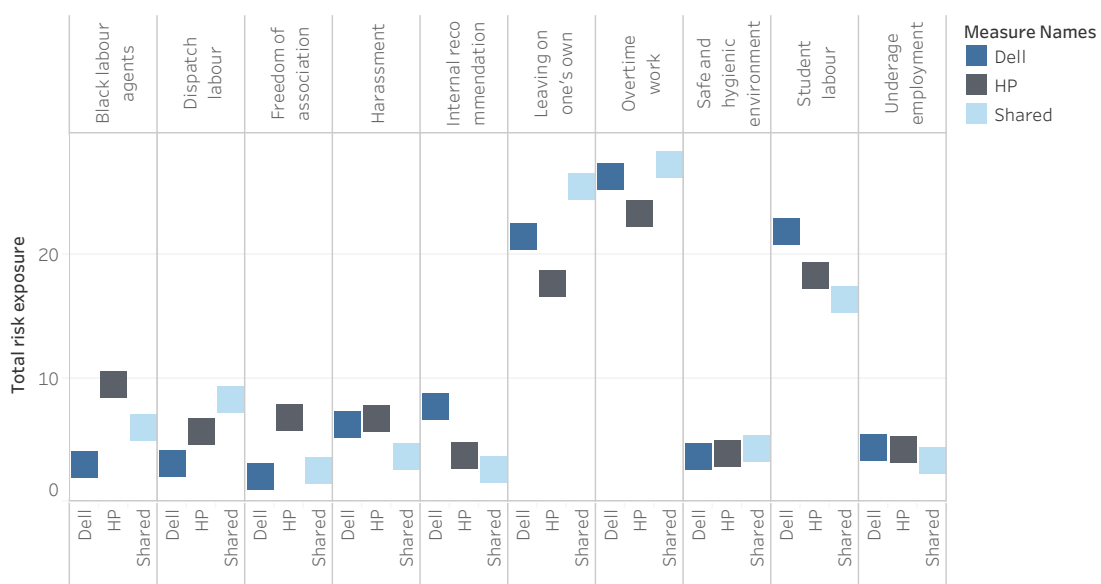


Figure 38. Comparison of total risk exposure (scale value 1-100)

## 6. Recommendations

### 6.1 Core issues from a statistical point of view

This study calls attention to three especially significant risks to workers among HP and Dell suppliers based on an analysis of the combination of the volatility and pervasiveness of 10 key topics that workers discuss online. Those risks are associated with:

**Overtime work:** For many workers excessive overtime hours is a necessity to make ends meet. The pressure they feel to work overtime is in part caused by the widening gap between the basic wage and living wage. During the past two years there is a rising trend of workers' posts about overtime. Workers write about overtime pay, number of overtime hours, as well as about problems with refusing overtime or being assigned sufficient overtime (an endemic topic that HP and Dell should address collaboratively).

**Leaving on one's own:** Since 2017 there is an accelerated rising trend of posts from workers stating that they are denied the lawful resignation process (a non-endemic topic that requires supplier-specific checks and mitigation approaches).

**Student labour:** Students complain that they are forced to go through internships that are not related to their subjects, and that they do not know how much they earn or how much the school deducts from their salary (an endemic topic that HP and Dell should address collaboratively).

The findings confirm the importance to respect the ILO's core conventions regarding freedom of employment and freedom of association; fundamental enabling rights that workers need to defend their rights and promote their interests. Workers who can exercise their legal rights to refuse excessive overtime or resign will promote improvements elsewhere in the work environment. While many workers with low salaries desire overtime, they may still want to refuse overtime when employers prefer, they do not take time off because of production demands. Similarly, workers may want to resign at times when productivity demands are high, which could challenge employers to complete high volume orders on a short timeline. Enforcing the freedom to resign and the right to refuse overtime may thus stimulate employers to negotiate with workers to reach an agreement on how to structure productivity norms, overtime and incentives, thus expanding the space for workers to exercise their collective voice and influence key enterprise decisions.



## 6.2 Core issues based on detailed insights

The qualitative study of workers' posts reveals a range of issues related to workers' health, including rights violations. These issues include:

- **Physical hardships and accidents:** Workers write about physical hardships such as unbearable pain of the feet and legs, dizziness, infected eyes, rashes, and ear pain. Workers' posts from some workplaces indicate they do not know what type of substances they are dealing with and how they should protect themselves. Several posts asked about "cutting fluids" that cause rashes and painful swellings. Other posts mention fatal accidents.
- **Psychological hardships and harassment:** Workers' posts mention psychological grievances such as managers cursing, shouting, and bullying. There are mentions of sexual harassment. Workers also observe the lack of effective grievance channels for sexual harassment. Workers share pictures and posts documenting suicides.

Finally, flexible employment strategies are related to industry business models, and companies may therefore have a special opportunity and responsibility to address these topics. They include:

- **Black labour agents and other recruitment issues:** Job-seekers write about problems with agents, to which they occasionally refer as "black labour agents." They sometimes claim they have been cheated of promised bonuses or been charged excessive fees. Social media posts also indicate that the practice of "internal recommendations," a form of recruitment in which factory workers help to enlist new employees for a payback bonus, fuel social tensions within the factory because incumbent workers have strong financial incentives to deceive and monitor newly recruited workers.
- **Dispatch labour:** Posts indicate that dispatch labour entails higher social and economic risks compared to regular employment, and that workers' concerns are increasing. Of particular concern is the use of dispatch workers as a labour reserve that is called in and sent back to the dorm depending on availability of regular workers.

## Coding list for social media posts

In order to ensure anonymity, we provide the following information in this coding list:

The first number (in brackets) represents the text reference. The following two numbers (separated by space) indicate the post-id and user-id respectively. These IDs are generated in our database and are not related to the social media platforms. The text in the final column, demarcated by quotation marks, defines the stakeholder group to which a user (potentially) belongs; that is, the gender and the supplier to which the user refers. Note that stakeholder groups are assigned by experts who read the posts and evaluate the authenticity of users and their posts. Information about gender is taken from user profiles if available. The supplier numbers in the coding list are different from the supplier list provided in appendix 1.

[1]	109325410014c1	2681868989	worker/male/sup1
[2]	119147624866c1	2766812577	worker/male/sup30
[3]	118060935789c1	3446713621	worker/male/sup1
[4]	75636735635c1	1932029954	worker/male/sup2
[5]	119231266243c200	2627751866	worker/male/sup2
[6]	117484044034c58	2513508691	worker/male/sup24
[7]	72141119182c1	204234847	worker/male/sup1
[8]	55312123078c33	813541044	worker/male/sup1
[9]	67720556838c1	1665365330	worker/male/sup7
[10]	117825679808c1	2669270262	labour agent/female/sup1
[11]	118573153899c7	123559839	worker/male/sup32
[12]	119224415342c402	2562811397	manager/male/sup1
[13]	118615577995c2	3464333519	worker/male/sup20
[14]	119231266243c200	2627751866	worker/male/sup1
[15]	118568598859c8	3472034821	worker/male/sup1
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[29]	114621395440c1	3322121187	worker/male/sup4
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[32]	116553780906c10	3086864787	worker/male/sup30
[33]	106968975013c7	137875465	worker/male/sup24
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[35]	118938018728c1	2164750271	worker/male/sup30
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[39]	119163881520c33	2426617098	worker/male/sup19
[40]	66189173441c4	1464058405	worker/female/sup24
[41]	53829604392c5	93578998	worker/male/sup24
[42]	109985140667c1	133440717	recruiter/male/sup1
[43]	93036675508c1	1638504575	worker/male/sup31
[44]	107350140570c1	1566889108	worker/male/sup1
[45]	119218950582c1	1993424196	student/male/sup21
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[55]	110658634915c3	2877299785	worker/male/sup1
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[57]	96001710034c1	1659368671	student/male/sup2
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[60]	118962807304c23	1283733007	worker/male/Flex
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[150]	95792115338c12	732204059	worker/male/sup28
[151]	107520697067c1	3065322668	worker/male/sup1

## APPENDIX 1

### List of suppliers included in this study

Supplier name, site / general	Supplier name (Chinese)	Brand relation
Compal, General	仁宝	DELL
Compal, Chengdu	成都仁宝	DELL
Compal, Chongqing	重庆仁宝	DELL
Compal, Kunshan	昆山仁宝	HP&DELL
Compal, Tangshan	唐山同仁宝宝	DELL
Dell, Chengdu	成都戴尔	DELL
Dell Xiamen	厦门戴尔	DELL
Flex, General	伟创力	HP
Flex, Dongguan	东莞伟创力	HP
Flex, Suzhou	苏州伟创力	HP
Flex, Zhuhai	珠海伟创力	HP
Foxconn, General	富士康	HP&DELL
Inventec, Chongqing	重庆英业达	HP
Inventec, Shanghai	上海英业达	HP
Inventech, General	英业达	HP&DELL
Jabil, General	捷普	HP
Jabil Greenpoint	捷普绿	HP
Jabil, Chongzhou	崇州捷普	HP
Jabil, Guangzhou	广州捷普	HP
Kinpo	金宝	HP
Tai Kinpo	泰金宝	HP
Micro Star	恩斯迈	DELL
Mitac	神达	DELL
Pegatron	名硕	HP&DELL
Qisda, General	佳世达	HP
Qisda, Suzhou	苏州佳世达	HP
Quanta, General	重庆广达	DELL
Quanta Chongqing	重庆广达	HP&DELL
Quanta Shanghai	上海广达	DELL
Quanta Shanghai Manufacturing City	广达上海制造城	DELL
Raken, General	乐轩	HP
Raken, Suzhou	苏州乐轩	HP
Wistron, General	纬创	DELL
Wistron, Chengdu	成都纬创	DELL
Wistron Chongqing	重庆纬创	HP&DELL
Wistron Kunshan	昆山纬创	DELL
Wistron Taizhou	泰州纬创	DELL
Wistron Zhongshan	中山纬创	HP&DELL



## APPENDIX 2

### Example: Applying Social@risk™ to Overtime

In this example we illustrate how to combine quantitative and qualitative insights to inform us about workers' experiences of a specific topic. We first define a known labour issue heuristically, in this example, "overtime." In our data we find more than 28,000 posts containing this term during the last five years. This means that about two percent of all posts in our sample mention overtime. Does a value of two percent indicate that overtime is a serious problem in the Dell/HP supply chain or is it negligible? This question can only be answered when we look at this value in a comparative perspective. One possible approach is a trend analysis, which compares the share of overtime posts between different points in time. Such a time comparison can be depicted as a line graph.

Figure A2.1 shows the relative trend for overtime posts during the past five years. In order to reduce the impact of outliers, we smoothen the trend by calculating a six-month moving average. The resulting graph shows that the relative prominence of posts mentioning overtime declined from January 2015 until August 2016 before the trend reversed and reached a new top level in autumn 2017.

But what does the trend represent? Do the 28,000 posts contain detailed information and/or grievances that we capture in our qualitative analysis? The term "overtime" is related to multiple issues such as base wage, number of overtime hours, overtime fees, and work contracts. Overtime might also be mentioned in recruitment advertisements. One or several of these issues could be relevant to explain the downward and/or upward trend. Thus, the pattern in figure A2.1 allows experts to ask questions, but it is not suitable for drawing conclusions. Deeper insights can only be achieved with a qualitative analysis.

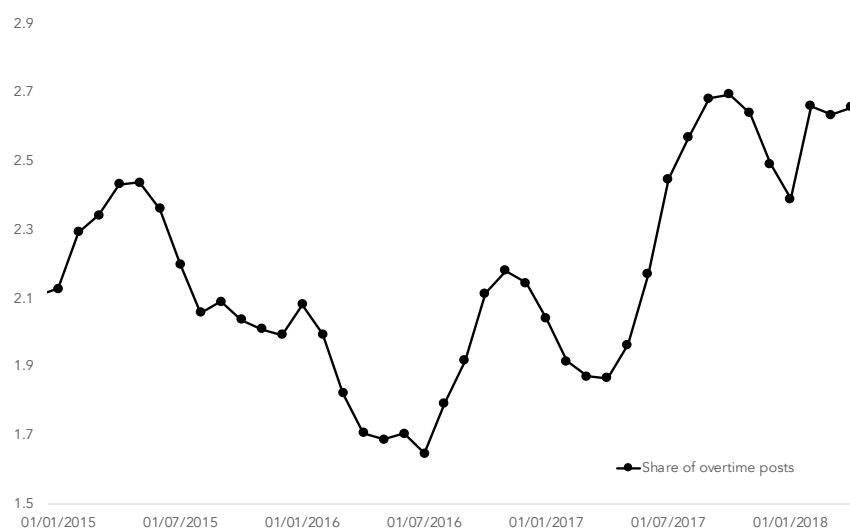


Figure A2.1. Share of posts mentioning overtime (6-months moving average)

The next step is to extract overtime posts from the general sample and look at the most recent rise in mentions since summer 2018. After a chronological reading of about 100 posts we find a user stating that dispatch workers are assigned less overtime hours compared to regular workers. As a consequence, wages are too low to earn a living. We follow up on this claim and read posts that mention both overtime and dispatch labour. We find about 10 additional posts corroborating this statement. Experts consider this practice a social risk that requires attention. This qualitative insight can now be used to define a specific overtime topic; namely discriminatory practices in assigning overtime to dispatch workers. We see in figure A2.2 that the issue can explain part of the recent upward trend of posts mentioning overtime. Yet, the two trends have little in common before summer 2017.

In conclusion, we found a practice that enhances dispatch workers' social risk exposure. There is an upward trend in posts mentioning this issue. This development may require follow up.

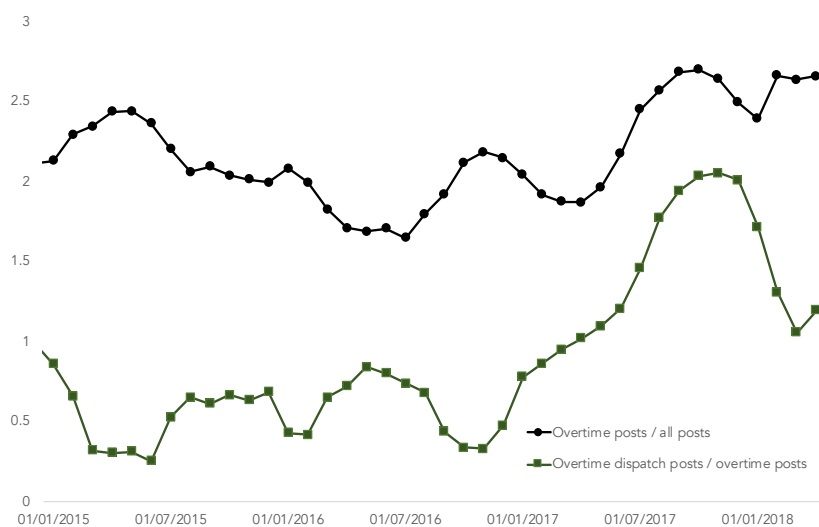


Figure A2.2. Overtime posts and dispatch labour related overtime posts (6-months moving average)

## APPENDIX 3

### Example: Applying Social@risk™ to Overtime

Table A3 lists descriptive statistics for the quantitative data sample (January 2014 – April 2018) and the qualitative sample (January 2016 – April 2018).

We disaggregate descriptive statistics into posts written by men and women as well as posts related to HP, Dell, and shared suppliers. For all cases the qualitative sample mean is lower than the quantitative sample mean. This reflects a declining trend in the number of posts, which may be partially linked to a large-scale political crackdown on labour dissent, labour NGOs, and labour rights lawyers since 2015.

We look at the distribution of posts in figure A3. The boxplots divide the samples into quartiles (A-D):

- The share of posts published during the busiest months (top-25 percent) is represented with the distance between the middle-box and the upper whisker (A).
- The bottom 25-percent are equal to the distance between the lower end of the middle-box and the lower whisker (B).
- The line in the middle-box divides the share of posts published during the upper middle quartile months (C) and the lower middle quartile months (D).

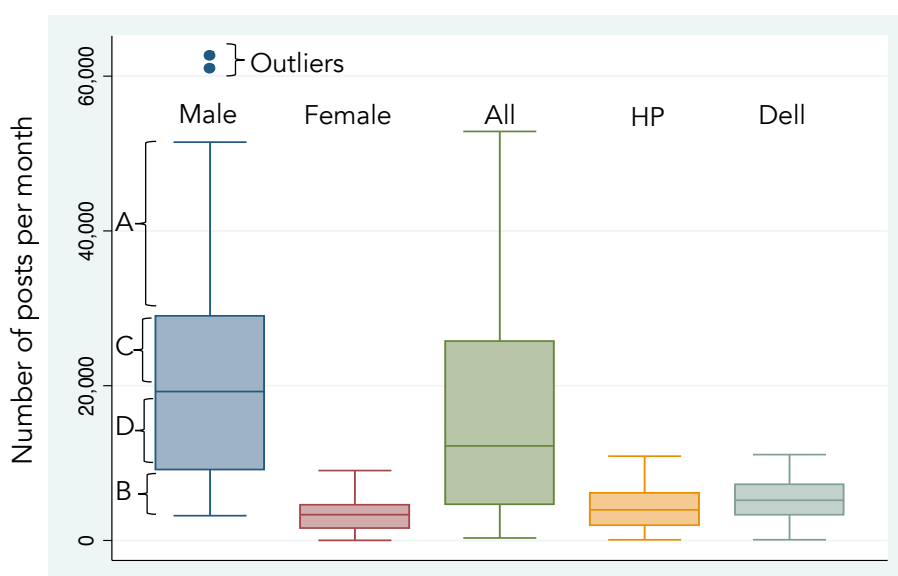


Figure A3. Distribution of posts

The boxplots show that the number of posts and their distribution is quite similar for HP and Dell. Thus, a comparison appears meaningful. By contrast the over-representation of posts from male users renders a gender specific comparison difficult.

Table A3. Descriptive statistics of the data sample

Variable	Observations*	Mean	Std. Dev.	Min	Max
Quantitative sample**	52	25959	14015	7577	62634
Qualitative sample**	28	21919	9076	8845	45359
Female (quantitative)	52	3767	2146	162	9034
Female (qualitative)	28	3001	1304	319	5877
Male (quantitative)	52	18672	13952	1462	52857
Male (qualitative)	28	14784	10950	1462	39507
HP (quantitative)	52	5207	2484	1483	10893
HP (qualitative)	28	4791	2130	1791	9490
Dell (quantitative)	52	6614	2342	2566	11097
Dell (qualitative)	28	5358	1641	2566	9522
Shared (quantitative)	52	14137	9909	1285	41457
Shared (qualitative)	28	11770	5957	3102	27706

\* The column observations refer to the number of months (the unit for our trend analyses) for each sample

\*\* Total refers to 2013-2018; quantitative refers to the sample period January 2014 – April 2018; qualitative refers to the sample period January 2016 – April 2018.

## APPENDIX 4

### Comparing Posting Patterns

We compare posting patterns within three sub-samples:

- a) Original design and final assembly manufacturers that are suppliers to Dell but not HP.
- b) Original design and final assembly manufacturers that are suppliers to HP but not Dell.
- c) Original design and final assembly manufacturers that are suppliers to both Dell and HP.

We fit a an ARIMA (autoregressive integrated moving average) model that seeks to explain the number of posts (log-value) in group (a)/(b) with the number of posts in group (c) and the number of posts of group (a)/(b) of the previous month. Formally we test:

$$y(i)_{t, hp/dell} = y(i)_{t-1, hp/dell} + \beta x(i)_{t, shared} + \alpha + \varepsilon_t$$

Where  $y$  is the number of posts related to Dell or HP,  $x$  is the number of posts related to shared suppliers,  $t$  is a monthly index running from  $t=1-T$ ,  $i$  represents a topic index running from  $i=1-I$ ,  $\beta$  is a coefficient to be estimated, and  $\alpha$  is an intercept. Finally,  $\varepsilon$  represents an error term.

If the model performs well so that the trend indicator of group (c) significantly predicts the corresponding trend indicator of:

1. Group (a) then there is no difference between exclusive HP suppliers and shared suppliers. Thus, from HP's perspective one social risk management strategy to address the issue at stake will be effective.
2. Group (b) then there is no difference between exclusive Dell suppliers and shared suppliers. Thus, from Dell's perspective one social risk management strategy to address the issue at stake will be effective.
3. Group (a), and (b) then there is no difference between exclusive suppliers and shared suppliers. Thus, one common social risk management strategy for Dell and HP will be effective.

If the model does not perform well for Group (a) or (b) then there are significant differences and the issue in question requires group specific social risk management strategies.

### Comparing Social Risk Exposure

In this study we developed risk exposure measure that reflects workers' posting behaviour. The measure consists of two distinct elements: Volatility and pervasiveness.

**Volatility:** In order to calculate a measure of volatility that is comparable between different topics we make use of a posting pattern's statistical properties; in particular their mean value and standard deviation:

- a) The mean value represents the average number of posts per month. A high mean value points towards a widely discussed issue.
- b) The standard deviation is a measure for the average deviation from the monthly mean. A high fluctuation suggests a great level of uncertainty.

These two measures can be jointly expressed as the Coefficient of Variation (CV), which divides the standard deviation by the mean value. The CV is a standardized measure, which allows us to compare the volatility of the number of posts related to a specific topic. We amend the CV with a memory term, where the impact of a post decreases with time. Under the assumption that online posting behaviour reflects real developments at the factory floor, our amended CV approximates the social risk level of an individual topic.

**Pervasiveness:** A second dimension to account for is the importance of a topic. In order to arrive at a comparable measure, we need to introduce a standardized measure similar to the CV. We, therefore, measure pervasiveness as the share of posts belonging to a topic relative to all posts.

**Total Risk Exposure:** We integrate volatility and pervasiveness into one combined value by multiplying the two terms. Formally we calculate the total social risk exposure:

$$\rho_{i,s} = \frac{\sigma_{i,s}}{\mu_{i,s}} \tau \times \frac{\sum_{t=1}^T y_{t,i,s}}{\sum_{t=1}^T y_{t,s}}$$

Where  $\rho$  stands for the risk exposure measure,  $i$  represents topic categories,  $s$  is an index for our three subsamples Dell, HP, and shared suppliers,  $t$  is a time index where 1 is the first period and  $T$  the last,  $\tau$  is a memory term running from 1- $T$ , and  $y$  stands for the number of posts. We then normalise  $\rho_{i,s}$  to a scale ranging from 1-100.