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How good are manufacturing jobs in Myanmar?

Evidence from matched employer–employee data

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Abstract: The quality of people's jobs is a fundamental determinant of their well-being, and judging the state of a labour market on the basis of job quantity alone delivers a very partial picture. This study is an attempt to place the spotlight on the working conditions of workers in the Myanmar manufacturing sector. Using a model of job demands and job resources, we focus on the balance between different stress factors and the support workers get. We find that a large fraction of workers face severe pressures. In particular, nearly one half faces severe time pressure; nearly a quarter is exposed to health hazards, such as loud noises, carrying heavy loads, and operating in uncomfortable or painful positions. These factors are often not met with adequate support from the firm. Male workers and those with lower levels of education are most exposed to occupational risks. Contrary to the narrative that a trade-off might exist between firm competitiveness and job quality, we find that labour productivity is higher in firms where working conditions are better.

Key words: job quality, productivity, working conditions, Myanmar

JEL classification: D22, J81, L2, P2, O53

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1 Introduction

The quality of people's jobs is a fundamental determinant of their well-being. Workers not only derive their means of subsistence and their economic security from employment, they also are affected in fundamental ways by the conditions they work in (Halbesleben and Buckley 2004; OECD 2014). Most workers spend a large share of their lives in the workplace and being exposed to unpleasant, difficult, or stressful working conditions can have major impacts.

For these reasons, judging the state of a labour market solely on the basis of the quantity of jobs delivers a very partial picture. This is especially true in developing countries, where employment rates are often high and unemployment low, but the quality of employment is frequently very poor. In fact, many countries of the developing world that have experienced rapid growth rates in recent decades have achieved such results by leveraging low labour costs that give them a comparative advantage over advanced economies. Low costs means low wages and, typically, poorer labour standards.

This study is an attempt to place the spotlight on the working conditions of workers in Myanmar, a growing Asian economy that has become increasingly integrated in global value chains thanks to a dynamic manufacturing sector. Using data from a unique employer–employee dataset based on a survey of manufacturing firms across the country, we are able to paint a detailed picture of job quality. We build a multi-dimensional indicator based on a model that focuses on the balance between the stress factors workers face and the resources at their disposal. This strategy was recently applied by the OECD in a comprehensive study of job quality in advanced economies (OECD 2014) as well as in countries of the developing world (OECD 2015). More specifically, we focus on the third dimension of the OECD framework, which places attention on the quality of the working environment (QWE). The first two pillars of the OECD framework, earnings and job security, are fundamental aspects of job quality but fall outside the scope of this investigation.

Our results indicate that a large fraction of workers in the manufacturing sector of Myanmar suffer from severe stress. In particular, nearly one half of all workers faces severe time pressures, primarily driven by working very long hours (more than 50 per week). Nearly a quarter of all workers is exposed to health hazards, such as loud noises, carrying heavy loads, and operating in uncomfortable or painful positions. These stress factors are not balanced with adequate support from the firm. Only a small minority of workers can benefit from flexibility, decision latitude, and opportunities for learning on the job that may compensate for the demands placed upon them.

Using the micro-data at our disposal, the paper also goes a step further to analyse who are the workers most exposed to high levels of stress and least likely to receive support from the firm. We find that men and less-educated workers are more exposed to such risks. We also document that firms in the mineral and furniture-making sectors are the ones whose workers face the highest risks.

Finally, our data reveal that better working conditions improve a firm's performance. Firms that offer their workers better employment opportunities experience higher level of labour productivity. This is interesting and it goes against the widely accepted notion that offering workers improved working conditions is detrimental to firms' productivity since it erodes their comparative advantage. Clearly, selection issues might be at play, but our results support the notion that a trade-off between competitiveness and workers' well-being is not inescapable.

The paper contributes to a growing literature exploring the quality of employment across the world. Recent high-profile attempts to build internationally recognized frameworks in this area have been conducted by the International Labour Organization (ILO) with their decent work framework, and by the OECD with their framework for the measurement of job quality, among others. The work of these institutions builds on a vast academic literature spanning several fields and disciplines. Our work is based on the model of job demands and job resources proposed by Demerouti et al. (2001), who built on seminal work by Karasek (1979), and we offer a direct application of that model in a new context in which evidence is scant.

The paper is structured as follows. Section 2 provides a detailed discussion of our methodology to measure job quality. Section 3 describes the data we use and offers a detailed discussion of how we operationalize the model. Section 4 outlines our results. Section 5 concludes.

2 A framework to measure the QWE

Measuring job quality is a complex task. This section presents the core theoretical framework relevant to this research project. After delineating on the key conceptual framework relating to job quality, this section concludes by introducing the model of job demands and job resources implemented for our analysis.

2.1 Brief review of the literature

A number of competing approaches have been proposed in the literature, including the ILO Manual on concepts and definition of decent work indications (ILO 2012, 2013), the UNECE's framework for measuring quality of employment (UNECE 2010), the European Foundation's conceptual framework for the improvement of living and working conditions (Eurofound 2012), and the OECD's job quality framework (OECD 2014).

In this paper, we follow the OECD's job quality framework, outlined in the *OECD Employment Outlook* (OECD 2014). The framework focuses on key aspects of employment that contribute to the well-being of workers. One of the key features of the approach is that it relies on objective measures (e.g., number of hours of work, length of exposition to loud noises, etc.), rather than on subjective well-being indicators (workers' satisfaction).[1] This is not to underestimate the importance of the latter, which are the subject of important literature (Netterstrom et al. 2008; de Jonge and Kompier 1997), but rather to construct a measure that is amenable to inter-personal (and international) comparisons that are robust to differences in individual judgement, cultural background, and so on. The analysis is conducted at the individual level using micro-data (rather than aggregate constructs), which makes the framework ideally suited for our purposes. This is crucial, among other things, for our heterogeneity analysis of job quality across firms and individuals.

In its framework, the OECD identifies three dimensions of job quality: earning quality, labour market security, and QWE. While the first two mainly account for the monetary aspects of job quality, the third dimension refers to the non-economic features and amenities of jobs. This paper focuses on the third dimension for a number of reasons. First, non-monetary job amenities have

[1] It should be noted that 'objective' indicators may still be based on self-reported information from surveys. By objective we mean that the information is, in principle, verifiable by a third party (e.g., the amount of noise in a factory could be objectively measured). This is not the case, for instance, for indicators of work satisfaction and subjective well-being.

been under-studied and we are able to make a unique contribution using a novel dataset. Second, there is well-documented link between QWE and well-being. The widely adopted job demand and control model proposed by Karasek (1979) has dominated the empirical research on job stress and health, proving that workload stressors are relevant predictors of psychosocial burden and sickness (Schnall et al. 1994). Slopen et al. (2012) and Kivimäki et al. (2012) investigate the physical health aspects and show how high job strain is related to increased cardiovascular disease in workers' health and the risk of coronary heart disease, respectively. Hakanen and Schaufeli (2012) reveal that burnout and engagement at work predict depressive symptoms and life satisfaction over time. Finally, a meta-analysis by Stansfeld and Candy (2006) finds strong evidence of a link between psychosocial environment in the workplace and mental health.

2.2 A model of job demands and job resources

Once a clear link between working conditions, health, and well-being is established, one needs to identify suitable indicators of QWE. Previous studies assessing the impact of the working environment have used long lists of indicators to evaluate worker's well-being or have implemented two dominant job-stress frameworks, namely the Demands and Controls Model proposed by Karasek (1979) and the Effort–Reward Imbalance introduced by Siegrist (1996). Bakker and Demerouti (2006) bring forward two criticisms regarding the set of indicators used in these models. In their view, the limited set of job-quality predictors proposed by these models are not representative of all job types and they mostly refer to negative outcome variables, such as illness, burnout measures, and repeated strain. They argue in favour of a so-called job demands and job resources (JD-R).

The model is based on the idea that workers encounter a variety of 'job demands', which involve physical, cognitive, and emotional effort. Such demands are a source of job strain. They may include working at high speeds or performing physically demanding tasks. To balance such demands, workers have access to 'job resources' of a physical, social, or organizational nature (e.g., flexibility, decision latitude, learning opportunities, sense of belonging to the organization, or on-the-job training). These resources help workers to achieve their goals, deal with complex demands, and engage in their personal development, but they are also important in their own right (i.e., not only as a way to mitigate stress factors). Within this simple but powerful framework, job strain emerges from an imbalance between job demands and resources. The strength of the JD-R model resides in its generalization across different occupations (Demerouti et al. 2001). Every work position has its own specific aspects, but these aspects can always be categorized into two general categories (i.e. job demands and job resources). In this framework job demands are not necessarily negative, but they can become a source of stress when the job resources available to the employee are not sufficient. In other words, focusing on job demands or job resources alone may deliver a partial picture: a solid measure of working conditions needs to account for both factors simultaneously.

3 Operationalizing the framework

In its original analysis of QWE, the OECD relied on two international surveys: the European Working Conditions Survey and the Work Orientations module of the International Social Survey Programme. The former contains a rich set of variables that are ideally suited for the analysis of QWE and constitutes the blueprint for the survey used in our study. In particular, the OECD focuses on variables capturing working time and schedule, health and physical risk factors, training and opportunities for learning provided by the employer, general well-being, and social relations at work. These variables show a strong link with workers' well-being (OECD 2014).

Turning to Myanmar, our analysis is based on data from the nationally representative Myanmar Enterprise Monitoring Survey (MEMS) (Berkel et al. 2017; Hansen et al. 2020). The survey has a panel structure, but we only use information from the 2019 wave, when a new module on working conditions was administered. In each round of MEMS, the sample includes about 2,500 enterprises, which are representative of about 70,000 privately owned micro, small, and medium enterprises in the manufacturing sector in Myanmar. In the first wave of the survey, the selection of firms followed a stratified, two-stage area sampling approach to ensure that firms from all regions and states of Myanmar were included. Within each state and region, urban townships were selected randomly using probability proportional to size. The number of sampled townships in each state/region was proportional to the number of townships in the state/region whereas the probability of selection was determined by the number of registered firms in each township relative to the total number of registered firms in the state/region. Subsequently, within each township, registered firms were selected randomly without replacement. In the second wave of the survey, all firms still in operation were re-interviewed and replacements for those that had stopped operating were selected within the same townships. All data were gathered using face-to-face interviews with owners or managers of the firms and the questions we use from the surveys refer to the previous fiscal year.

In each selected township, the enumerators were asked to identify and interview random firms not listed in the sampling frame but visually identifiable within the township. This on-site 'block' identification of informal firms operating alongside the formal entities generated a sample of informal firms. Thus, although the listed firms represent the formal manufacturing sector, our sample of informal businesses is not representative of the (unknown) population of 'non-listed' manufacturing firms in Myanmar. Rather, our sample represents the more established and productive informal entities. These informal enterprises comprise 15 per cent of the sample in 2017 and 12 per cent in 2019.

The MEMS questionnaire has both a firm module and an employee module. Responses were acquired by face-to-face interviews with the owner or manager of the firm and with one to five workers. The goal was to interview five employees in all enterprises whenever possible. In family firms with no external workers, family members working in the enterprise were interviewed. In 2019, an ad-hoc module was added to the survey to measure job quality. It was part of the questionnaire administered to employees and it was inspired by the European Working Conditions Survey. Hence, it provides a representative picture of QWE in the manufacturing sector of Myanmar.

Using the questions in the employee module of MEMS, we can construct the indicators of job demands and job resources summarized in Table 1. Under job demands, we measure two separate sources of stress: (i) time pressure and (ii) exposure to physical and health risk factors. Under job resources, we measure: (i) work autonomy and learning opportunities; and (ii) good workplace relationships.[2] In practice, each dimension of job demands and job resources is based on a set of survey questions outlined in Appendix Tables A1 and A2 and summarized in Table 2.

[2] Due to country-specificities, however, MEMS could not include all the EWCS questions on the quality of the working environment. For this reason, our application of the framework departs slightly from the structure used by the OECD, while retaining its fundamental principles. In particular, our indicators of job demands and job resources have only two dimensions, whereas the OECD had three.

Table 1: Sub-components of the measure of job demands and job resources adopted in this paper

Job demands	Job resources
Time pressure at work	Work autonomy and learning opportunities
Exposure to physical and health risk factors	Good workplace relationships

Source: authors' elaboration based on the OECD Employment Outlook framework 2014, quality of working environment.

Table 2: Individual sub-component of job demands and job resources

Job demands		Job resources	
Time pressure	• Working more than 50 hours per week. • Difficulty taking some time off for personal reasons • Working at very high speed with tight deadlines	Work autonomy and learning opportunities	• Being able to change the order of their tasks and methods of work • Job involves learning new things • Employers provide on-the-job training for their workers
Exposure to physical health risk factors	• The job includes carrying or moving heavy loads, tiring or painful position • The worker is exposed to extreme temperature, high noise, and vibrations from machinery	Good workplace relationships	• Feeling 'at home' at work • Having friends at work

Source: authors' elaboration based on OECD Employment Outlook framework 2014 and MEMS 2019, employee module.

On the side of job demands, the criteria used to define 'Time pressure' include working long hours (more than 50 per week), difficulty to take time off for personal reasons, working at high speed with tight deadlines. If any of these conditions is met, the worker is classified as facing time pressure. The criteria used to define 'Exposure to physical health risk factors' include carrying or moving heavy loads, as well as operating in tiring or painful positions. They also include being exposed to extreme temperatures, high noise, and vibrations from machinery. If any of these criteria is met, the worker is classified as being exposed to physical health risk factors.

On the side of job resources, the criteria used to define 'Work autonomy and learning opportunities' include being able to change the order of tasks and methods of work, having opportunities for learning new things, as well as receiving on-the-job training. If any of these criteria is met, the worker is classified as having work autonomy and learning opportunities. The criteria used to define 'Good workplace relationships' include feeling 'at home' at work and having good friends at work. If any of these criteria is met, the worker is classified as having good workplace relationships.

In sum, each worker can have a job demands score of zero to two, depending on whether they are classified as facing time pressure, exposure to physical health risk factors, neither, or both. Similarly, the worker can have a job resource score of zero to two, depending on whether they are classified as having work autonomy and learning opportunities, good workplace relationships, neither, or both. Job strain occurs when the job demands index is strictly higher than the job resource index.[3] The next section outlines the results we obtain when we implement this framework using MEMS data.

[3] Please see Appendix B for more detailed information on how the job demands, job resources, and job strain measures were created from the MEMS employee module.

4 Results

Building on this framework, this section shows the findings of our analysis. First, we present a detailed picture of QWE in the manufacturing sector of Myanmar, exploring the job stressors, resources, and job strain indicators described earlier. We then try to understand what groups of workers are most at risk of experiencing job strain. Lastly, the final sub-section inspects the relationship between job quality and firm performance.

4.1 QWE in the manufacturing sector of Myanmar

First, we separately document demands and resources. Second, we provide an overall picture of job strain in the country by calculating the share of workers who face demands that are not met by adequate resources.

Our first result is that over 55 per cent of workers in the Myanmar manufacturing sector face high demands in at least one of the dimensions we have identified. The results are reported in Figure 1, which indicates that 44.43 per cent of workers face low stress factors, 43.01 per cent face moderate stress factor, and 12.47 per cent face high stress factors.

Figure 1: Proportion of workers exposed to different levels of job demands (%)

Note: low, moderate, and high demands refer to the share of workers exposed to zero, one, or two dimensions of job demands (time pressure and physical health risk), respectively.

Source: authors' calculation based on MEMS 2019, employee module.

Our data also show that 47.13 per cent of workers report facing time pressure and 22.24 per cent of the sample is exposed to physical health risk factors. Recall that workers are classified as facing high demands in each of these dimensions if any of the relevant variables outlined in Table 3 is above a critical threshold.[4] When we analyse such variables individually, we see that the share of workers above the critical threshold is highest for long working hours (Figure 2a): 41.35 per cent of the participants work more than 50 hours per week. By contrast, lack of working flexibility,

[4] The thresholds were retrieved from the OECD job quality framework (OECD 2014). See Appendix B for the criteria implemented in this paper.

measured as the possibility to take time off for personal matters, and working at high pace, captured by the frequency of tight deadlines and working at high speed, seem to be smaller concerns (only about 5 per cent of workers experience at least one of these two).

Table 3: Job quality and worker and job characteristics

Variables	(1)	(2)	(3)
	Job demands	Job resources	Job strain
Female	–0.132	–0.289**	–0.0463
	(0.0991)	(0.131)	(0.0901)
Age	–0.00584	0.00913*	–0.00191
	(0.00423)	(0.00505)	(0.00381)
Education	–0.124***	–0.0219	–0.153***
	(0.0412)	(0.0444)	(0.0381)
Full-time employment	0.314	0.465*	0.210
	(0.206)	(0.281)	(0.181)
Formal contract	–0.579**	–0.907**	–0.888***
	(0.284)	(0.420)	(0.293)
Constant	–1.550***	–2.832***	–1.384***
	(0.296)	(0.386)	(0.267)
Observations	4,411	4,411	4,411

Note: robust standard errors in parentheses; ***p<0.01, **p<0.05, *p<0.1.

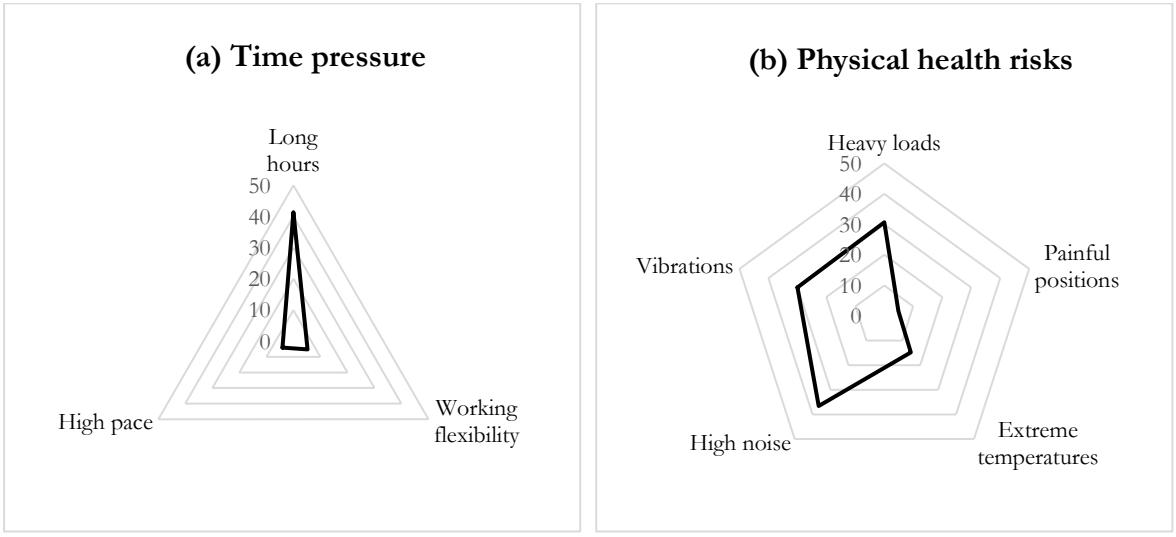
Source: authors' compilation based on MEMS 2019, employee module.

Turning to the variables that capture exposure to physical and health risk factors (Figure 2b), the biggest problem is exposure to high noise (experienced by 35 per cent of the sample), followed by carrying or moving heavy loads (30 per cent), exposure to vibrations from machinery (29 per cent), high temperature (14 per cent), and painful position (5 per cent).[5] It should be noted that over one-fourth of workers that experience some physical and health risks do so in two or more of the dimensions we analyse, indicating that such risks often cumulate.

Our second result is that only a very small fraction of workers (less than 10 per cent) face adequate resources in the two dimensions we analyse (Figure 3); 7.23 per cent lack adequate resources in both dimensions analysed and over 80 per cent of workers have adequate resources in only one of the dimensions. The two dimensions, however, show rather different patterns. Only 8.27 per cent are given work autonomy and learning opportunities and 90 per cent of workers declare that they have good workplace relationships. Since the latter indicator is based on a self-reported variable, however, potential issues of reporting bias should be taken into account.

[5] These percentages do not take into account the frequency of these risk factors, but only whether the workers were exposed to them or not. This is why the percentages are higher than the aggregate measure of exposure to physical risks (22.26 per cent), which accounts for hazards that were experienced frequently.

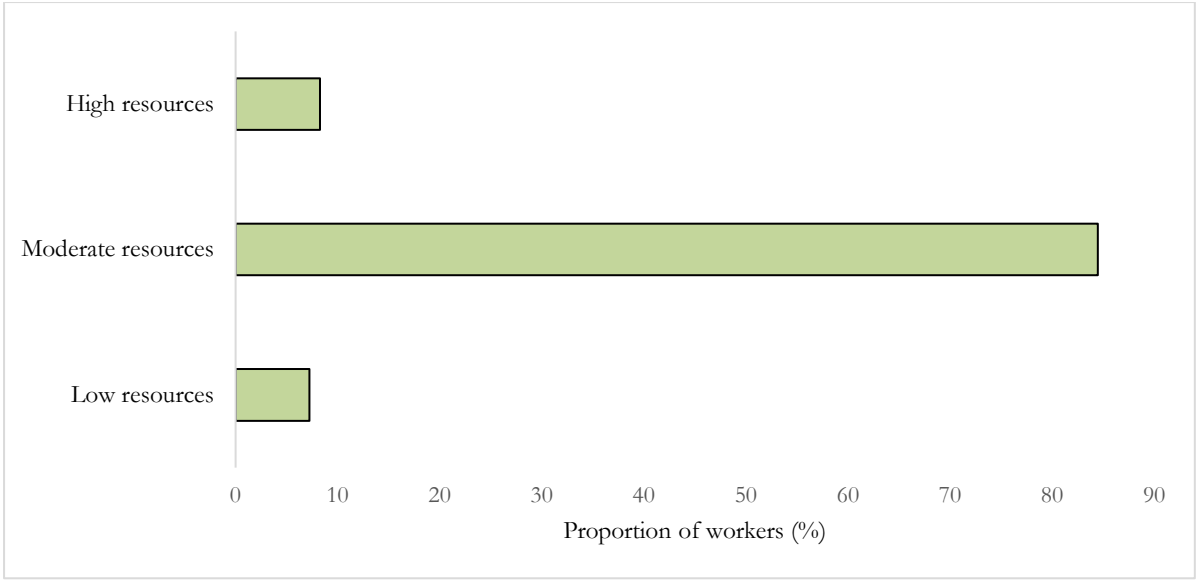
Figure 2: Sub-components of job demands: proportion of participants (%) exposed to (a) time pressure dimensions and (b) physical health risks



Note: in Figure 2a, long hours is defined as working more than 50 hours per week; working flexibility occurs when it is very or fairly easy for to take some time off for personal matters; and high pace is defined as working at least half of the time at high speed and to tight deadlines (Questions 1, 2, 3a, and 4 in Appendix Table A1). In Figure 2b, heavy loads, painful positions, extreme temperature, vibrations, and high noise capture the number of workers exposed to these events for at least half of their working time (Questions 5a, 6a, 7a, 8a, and 9a in Appendix Table A1).

Source: authors' calculation based on MEMS 2019, employee module.

Figure 3: Proportion of workers with access to different levels of job resources (%)



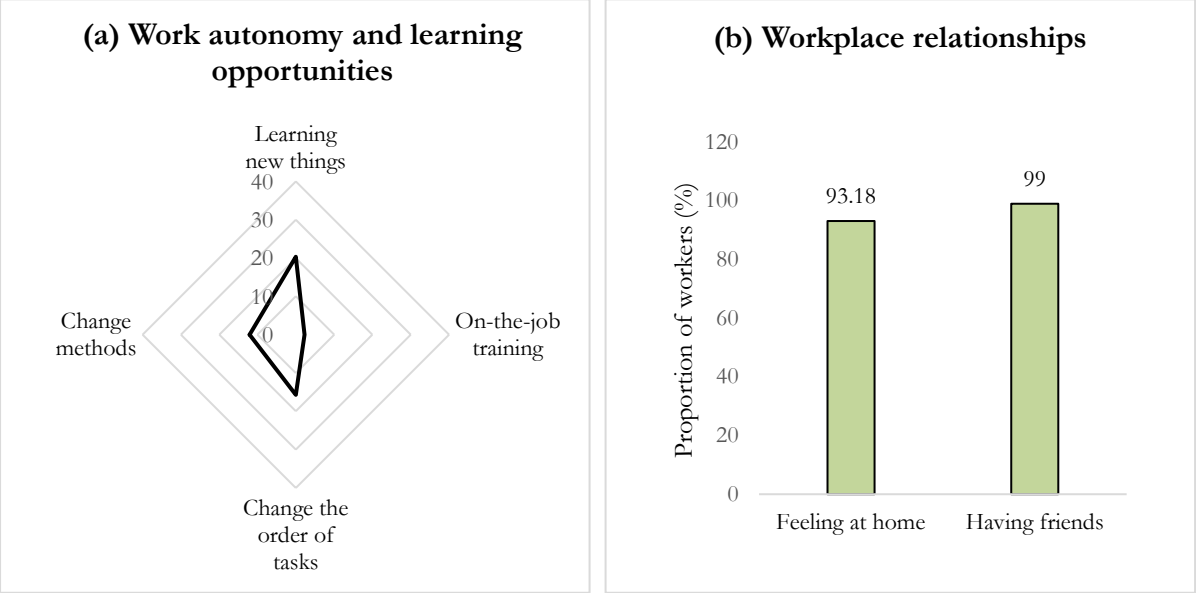
Note: low, moderate, and high resources refer to the share of workers having access to zero, one, or two dimensions of job resources (work autonomy and learning opportunities and workplace relationships), respectively.

Source: authors' calculation based on MEMS 2019, employee module.

When we analyse the specific variables that capture work autonomy and learning opportunities (Figure 4a), the picture that emerges shows important criticalities. Only 3 per cent of workers have opportunities for on-the-job training and only 20 per cent state that the job entails learning new things. Only 12.07 per cent of workers are able to change their methods of work and 15.59 per cent are able to change the order of their tasks. On the other hand, almost all the workers in our

sample (99 per cent) have friends at work and 93.18 per cent feel at home in the workplace (Figure 4b).

Figure 4: Sub-components of job resources: proportion of participants (%) with access to (a) work autonomy and learning opportunities and (b) workplace relationships



Note: in Figure 4a, learning new things, change methods, on-the-job training, and change the order of the tasks are defined by Questions 10, 11, 12, and 13 in Appendix Table A2. In Figure 4b, feeling at home counts the share of workers who agree or strongly agree with feeling 'at home' at work (Question 14 in Appendix Table A2). Having friends counts the share of workers who agree or strongly agree with 'having very good friends at work' (Question 15 in Appendix Table A2).

Source: authors' calculation based on MEMS 2019, employee module.

Finally, when we combine the indicator of job demands and job resources to generate an overall measure of job strain, we find that 15 per cent of all workers face demands that are larger than resources. This is, however, a likely underestimation of actual job strain given that almost the entirety of our sample declares having good workplace relationships and, based on international comparisons, we believe this may be an upwardly biased result due to a peculiar interpretation of the relevant questions in the Myanmar context.

4.2 Who has the best (and worst) jobs?

Having documented average levels of QWE among Myanmar workers, we now explore what groups of workers are most at risk of experiencing job strain. We then compare our findings with the results from the *OECD Employment Outlook* (OECD 2014) to understand how employees in Myanmar differ from workers in other countries.

The analysis is based on the estimation of three logistic regressions to understand the characteristics of workers that most significantly correlate with experiencing strong demands, low resources, and job strain. More specifically, the three binomial outcome variables are (i) exposure to two job demands (high demands), (ii) having zero job resources (low resources), and (iii) the job strain measurement constructed in the previous section. The results are presented in Table 3. The regressions include sociodemographic characteristics of workers (e.g., age, gender, and education) and job-specific characteristics (e.g., contract type and formal employment).

In the first regression (1), the independent variable is an indicator capturing high demands. The results show that less-educated individuals are more likely to experience high demands.

Additionally, having a formal contract reduces the possibility of being exposed to a high-level of work-related stressors.

The second regression (2) is run with 'having low resources' as the outcome. In line with the first regression, it shows that female workers and those who are formally employed have a higher chance of having better resources at their disposal (in the form of work autonomy and good workplace relationships, which are key components of the job resource index). In this regression, the age coefficient is positive and statistically significant, suggesting that older workers are more likely to have fewer resources to support their job duties.

Our third regression (3) uses job strain, defined as having more job demands than job resources, as the dependent variable. In this case, age and gender no longer display a significant correlation with the outcome of interest. This is likely the result of the categories at risk in one dimension (e.g., men facing relatively high demands) benefiting from a certain degree of compensation in the other dimension (e.g., resources), with the result that the incidence of job strain is not different from the one of other groups. Such a result exemplifies the value of an encompassing framework like the one we are using. Education and a formal contract, on the other hand, continue to be associated with a job-quality premium in the form of a lower incidence of job strain.

These results are consistent with existing evidence on the QWE around the world (OECD 2014). More educated workers are typically the ones who can count on a higher-quality working environment, which exposes them to more limited sources of risk. In the case of manufacturing in Myanmar we showed above that such risks are often of a physical nature (e.g., noise, painful work, etc.). Since more educated workers are likelier to be in managerial positions, this is no surprise. It is important, however, to remark that such patterns contribute to increase inequalities in the country. Not only are educated workers the ones who earn the most, they are also the ones who experience the best working conditions. In other words, disadvantages for less-educated workers cumulate and span well beyond the pay dimension. Our findings on gender are also consistent with the existing evidence. It is important to bear in mind, though, that in the manufacturing sector, the physically heavier and most demanding jobs are more likely to be held by men. The most surprising result in an international perspective is that older people appear to face relatively worse working conditions. This contrasts the evidence from many other countries where seniority appears to correlate with better working conditions (e.g., OECD 2014).

4.3 Job quality and firm performance

Next, we investigate how job quality varies with the characteristics of the firm. In particular, we are interested in researching the correlation between the QWE and workers' productivity. The results are reported in Table 4.

Table 4: Job quality and firm characteristics

Variables	(1)	(2)	(3)
	Job demands	Job resources	Job strain
Firm characteristics			
Labour productivity	–4.51e–10**	–1.87e–10	–5.37e–10**
	(2.22e–10)	(2.47e–10)	(2.50e–10)
Firm size (ln)	–0.0593	0.183***	0.0501
	(0.0548)	(0.0614)	(0.0490)
Capital (ln)	0.0302	0.122***	0.0428
	(0.0322)	(0.0416)	(0.0298)
Firm sector			
Food	–1.017***	–0.641***	–1.013***

	(0.198)	(0.213)	(0.173)
Textiles	1.048***	–1.203***	0.679***
	(0.202)	(0.297)	(0.183)
Wood	–0.600***	–0.324	–0.534***
	(0.226)	(0.240)	(0.197)
Minerals	–0.942***	–0.611**	–0.994***
	(0.257)	(0.274)	(0.225)
Metal	–0.146	–0.984***	–0.399*
	(0.220)	(0.310)	(0.204)
Machinery	–0.326	–1.077***	–0.614**
	(0.251)	(0.364)	(0.239)
Furniture	–1.227***	–0.158	–1.049***
	(0.292)	(0.259)	(0.244)
Workers characteristics			
Female	–0.459***	–0.254*	–0.301***
	(0.119)	(0.152)	(0.108)
Age	–0.00636	0.00626	–0.00314
	(0.00462)	(0.00542)	(0.00411)
Education	–0.0878**	–0.0577	–0.136***
	(0.0416)	(0.0474)	(0.0389)
Full-time employment	0.327	0.414	0.191
	(0.219)	(0.283)	(0.189)
Formal contract	–0.465	–1.250***	–0.936***
	(0.318)	(0.448)	(0.316)
Constant	–1.285*	–4.641***	–1.401**
	(0.677)	(0.912)	(0.626)
Observations	4,411	4,411	4,411

Note: robust standard errors in parentheses; ***p<0.01, **p<0.05, *p<0.1. For a detailed description of the variables used, please refer to Appendix C.

Source: authors' elaboration based on MEMS 2019, employee and firm modules.

We find convincing evidence that better working conditions correlate with higher labour productivity. The analysis controls for a rich set of firm characteristics, including sector, size of the firm, and the value of its assets, as well as a host of individual characteristics as in the previous set of regressions.

Interestingly, we find that higher productivity correlates with lower job demands, which results in lower job strain, whereas job resources do not correlate significantly with the productivity of workers. However, job resources do correlate with the firms being larger and having higher capital levels, which results in better opportunities for professional development. This is consistent with existing evidence on the relationship between stress factors and workers' health. High stress levels impair workers' ability to perform well on the job. Lastly, minerals and furniture making are the sectors where working conditions appear to be worse. This result was foreseeable, given the physical strain caused by such jobs.

This evidence, while correlational and descriptive, generates fundamental insights. Offering better jobs to workers, rather than constituting a net cost for firms, may help workers to become more productive and ultimately improve firm performance.

5 Conclusions

Most workers spend a very large fraction of their lives in the workplace. It is no surprise, therefore, that a large body of literature documents a very strong link between the quality of work and workers' well-being. Yet, the most commonly used indicators of labour market performance focus on the sheer quantity of available jobs, with employment and unemployment rates being the chief metrics used by policy makers. In many countries of the developing world the contradiction between often low unemployment rates and working conditions that are frequently extremely poor requires a fundamental rethinking of this paradigm. This paper has placed the spotlight on the working conditions of workers in Myanmar, a country that has been rapidly integrating in global value chains using its low labour costs as a fundamental source of comparative advantage.

Our analysis highlights fundamental criticalities. First, we find that a large fraction of Myanmar workers face major stress factors and are exposed to important occupational risks. Second, we find that a deep gap exists between educated and less-educated workers. This exacerbates inequalities. Third, a strong correlation between labour productivity and working conditions delivers an important message for policy makers. Job quality does not have to be pursued at the detriment of firm performance. This is in line with international evidence, which indicates that countries where job quality is highest are also among the most productive in the world. This important realization will help Myanmar policy makers to make informed decisions for the future of the country.

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Appendix A: Variables on working conditions in the Myanmar Enterprise Monitoring Survey (MEMS), employee module

Table A1: MEMS used to define job demands

Question no.	Question	Definition	Mean	SD
	Time pressure			
1	Working more than 50 hours per week	Yes=1 No=0	0.401	0.490
2	Would you say that for you arranging to take an hour or two off during working hours to take care of personal or family matters is …	1=Very easy 2=Fairly easy 3=Fairly difficult 4=Very difficult	1.772	0.551
3	Does your job involve working at very high speed?	Yes=1 No=0	0.141	0.348
3a	If yes, how frequently does your job involve working at very high speed?	1=All of the time 2=Almost all of the time 3=Around three-fourths of the time 4=Around half of the time 5=Around one-fourth of the time 6=Almost never	2.403	1.101
4	Does your job involve working to tight deadlines?	Yes=1 No=0	0.182	0.386
4a	If yes, how frequently does your job involve working to tight deadlines?	1=All of the time 2=Almost all of the time 3=Around three-fourths of the time 4=Around half of the time 5=Around one-fourth of the time 6=Almost never	2.526	1.205
	Exposure to physical health risk factors			
5	Does your job involve tiring or painful positions?	Yes=1 No=0	0.052	0.221
5a	If yes, how frequently does your job involve tiring or painful positions?	1=All of the time 2=Almost all of the time 3=Around three-fourths of the time 4=Around half of the time 5=Around one-fourth of the time 6=Almost never	3.150	1.378
6	Does your job involve carrying or moving heavy loads?	Yes=1 No=0	0.299	0.458
6a	If yes, how frequently does your job involve carrying or moving heavy loads?	1=All of the time 2=Almost all of the time 3=Around three-fourths of the time 4=Around half of the time 5=Around one-fourth of the time 6=Almost never	3.445	1.711
7	Does your job involve exposure to unpleasantly high temperatures (that make you perspire even when not working), or low temperatures?	Yes=1 No=0	0.146	0.353

7a	If yes, how does your job involve exposure to unpleasantly high temperatures (that make you perspire even when not working), or low temperatures?	1=All of the time 2=Almost all of the time 3=Around three-fourths of the time 4=Around half of the time 5=Around one-fourth of the time 6=Almost never	2.677	1.287
8	Does your job involve being exposed to vibrations from hand tools, machinery, etc.?	Yes = 1 No = 0	0.291	0.454
8a	If yes, how frequently does your job involve being exposed to vibrations from hand tools, machinery, etc.?	1=All of the time 2=Almost all of the time 3=Around three-fourths of the time 4=Around half of the time 5=Around one-fourth of the time 6=Almost never	2.677	1.286
9	Does your job involve exposure to high noise?	Yes=1 No=0	0.356	0.479
9a	If yes, how frequently does your job involve exposure to high noise?	1=All of the time 2=Almost all of the time 3=Around three-fourths of the time 4=Around half of the time 5=Around one-fourth of the time 6=Almost never	2.310	1.155

Note: SD, standard deviation; number of observation is 4,411.

Source: authors' compilation based on MEMS 2019, employee and working conditions module.

Table A2: MEMS used to define job resources

Question no.	Question	Definition	Mean	SD
	Work autonomy and learning opportunities			
10	In your job, are you able to change the order of your tasks?	Yes=1 No=0	0.162	0.369
11	In your job, are you able to change your methods of work?	Yes=1 No=0	0.132	.0339
12	Does your job involve learning new things?	Yes=1 No=0	0.209	0.407
13	Have you ever received on-the-job training?	Yes=1 No=0	0.030	0.170
	Good workplace relationship			
14	I feel at home in this company/organization	5=Strongly agree 2=Agree 3=Neither agree nor disagree 2= Disagree 1=Strongly disagree	3.819	0.825
15	I have very good friends at work	5=Strongly agree 2=Agree 3=Neither agree nor disagree 2= Disagree 1=Strongly disagree	3.868	0.566

Note: SD, standard deviation; number of observations is 4,411.

Source: authors' compilation based on MEMS 2019, working conditions in the employee module.

Appendix B: Job strain measure

Job strain (JS)

JS is defined as the combination of 'excessive demands' and 'insufficient resources'. In our framework, JS is quantified as a binary variable.

$$JS = 1 \text{ if } JR > JD \text{ and } JS = 0 \text{ otherwise}$$

The JS measure conditions defined here were derived from the employee module in the MEMS survey 2019. These questions are listed in Appendix Tables A1 and A2 and can be found below in parentheses (e.g. Question 1)

Job demands (JD)

JD scores zero to two depending on how many dimensions of demands the workers is facing.

$$JD = TP + PHR$$

Time pressure (TP) dimension

TP=1 if at least two of these three conditions are met:

1. A worker is working more than 50 hours per week (Question 1)
2. A worker found very/fairly difficult to take time off for personal matters (Question 2)
3. A worker is exposed to 'high pace': working at high speed and to a tight deadline at least half of their working time (Questions 3a and 4a)

Physical and health risk (PHR) dimension

PHR=1 if at least one of these five conditions is met:

1. Holding a painful position for at least half of the working time (Question 5a)
2. Carrying or moving having loads for at least half of the working time (Question 6a)
3. Being exposed to high temperature for at least half of the working time (Question 7a)
4. Being exposed to vibrations from machineries for at least half of the working time (Question 8a)
5. Being exposed to high noise for at least half of the working time (Question 9a)

Job resources (JR)

JR scores zero to two depending on how many dimensions of resources the workers is offered.

$$JR = WALO + WR$$

Work autonomy and learning opportunities (WALO)

WALO=1 if all these conditions are met:

1. The worker can change the order of their tasks (Question 10)
2. The worker can change their methods (Question 11)
3. The worker is learning new things at work (Question 12)

4. The worker has received on-the-job training (Question 13)

Workplace relationships (WR)

WR=1 if all these conditions are met:

1. The worker agrees or strongly agrees to feeling at home at work (Question 14)
2. The worker agrees or strongly agrees to having very good friends at work (Question 15)

Appendix C: Summary statistics

Table C1: Firm characteristics

Variable name	Definition	Mean	SD	Min	Max
Labour productivity	Revenue/labour cost per employee	2.88e+07	1.69e+08	237394.7	6.58e+09
Firm size (ln)	Ln number of employees	2.007	1.073	0	6.230
Capital	Ln total asset 2018 (kyat)	18.207	1.749	10.819	23.051

Note: SD, standard deviation; number of observation is 4,411.

Source: authors' compilation based on MEMS 2019.

Table C2: Worker characteristics

Variable name	Definition	Mean	SD
Female	Female=1, Male=0	1.338	0.473
Age	Number of years old	32.718	11.010
Education	What is the highest level of education you have completed? No education=1, Primary School=2, Middle School=3, High School=4, Vocational=5, Diploma=6, College=7, Bachelor's=8, Master's=9	2.582	1.371
Full-time employment	Are you full-time employed? 0=No, 1=Yes	0.936	0.243
Formal contract	Do you have a formal contract? 0=No, 1=Yes	0.0453	0.208

Note: SD, standard deviation; number of observation is 4,411.

Source: authors' compilation based on MEMS 2019.

Table C3: Firm sectors

Firm sector	No. of interviewed employees working in the sector
Rice mill	260
Food	1,762
Textiles	573
Wood	455
Minerals	418
Metal	392
Machinery	242
Furniture	309
Total number of workers	4,411

Source authors' compilation based on MEMS 2019.