THE HIGH COST OF HIGH PAY

AN ANALYSIS OF PAY INEQUALITY WITHIN FIRMS
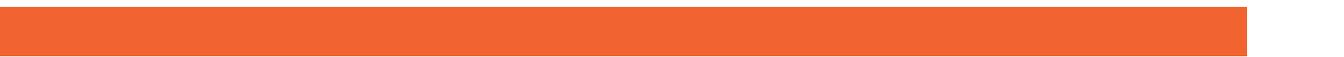
About the High Pay Centre

The High Pay Centre is an independent non-party think tank established to monitor pay at the top of the income distribution and set out a road map towards better business and economic success.

We aim to produce high quality research and develop a greater understanding of top rewards, company accountability and business performance. We will communicate evidence for change to policymakers, companies and other interested parties to build a consensus for business renewal.

The High Pay Centre is resolutely independent and strictly non-partisan. It is increasingly clear that there has been a policy and market failure in relation to pay at the top of companies and the structures of business over a period of years under all governments. It is now essential to persuade all parties that there is a better way.

The High Pay Centre was formed following the findings of the High Pay Commission. The High Pay Commission was an independent inquiry into high pay and boardroom pay across the public and private sectors in the UK, launched in 2009.

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The High Pay Centre is grateful to the Webb Memorial trust for supporting this work.

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Foreword

Deborah Hargreaves

Pay differentials at Britain's biggest companies have risen to previously-unscaled heights. A FTSE 100 chief executive now takes home 133 times the average at those top companies.[1] It would take an ordinary worker 600 years to earn the £17 million pocketed by the highest-paid executive in the UK in 2012.[2]

The Daily Mirror called it a greed factor: how many times the bosses' salary is bigger than the average worker's.[3] Felix Vulis, the chief operating officer at Eurasian Natural Resources, came top of their greed list last year, taking home more in a day than a worker at the mining company earns in a year. Many of the staff are in Kazakhstan and earn just over £7,000 a year, which means Mr Vulis on £2.5 million, pockets 349 times the average.

Outsourcing groups Compass and G4S were next on the Mirror's greed list with their bosses taking more than 300 times the average for picking up government contracts.

The calculation of pay differentials or the ratio between the boss and others in the company, has become of growing interest to shareholders and policymakers in recent years. In November last year (2013) Switzerland held a referendum on reducing the ratio between top executives' pay and the lowest in the company to 12 to 1. It was defeated after company executives threatened to leave the country, but still managed to garner 35% of popular support.

The distinction between those at the top and the rest of the workforce is an important one. Executive pay has been accelerating at a rate of 10% or more a year while wages for everyone else have stagnated and failed to keep up with inflation.

The pay ratio for top companies was 47 times in 1997, but since then has grown to 133 times as bosses have left everyone else behind. Some of the employees at our biggest and most successful companies are unable to make ends meet and are supported by government tax credits and other benefits.

There are strong business reasons for lower pay ratios, not least to do with issues of equity and fairness. In Japan, where chief executives earn a fraction of the packages in the UK, staff are more roundly rewarded, management structures are flatter and a more collaborative working environment has developed. There appears to be better communication between those on the shop floor and those running the business with less mutual suspicion and more of a sense of pulling together.

Some pay inequality within a company is important for motivating people, but big pay gaps can sap morale for workers who feel they will never achieve those dizzy heights. Most people are sensitive to the demands of a chief executive's job and expect him or her to be paid well for the role. However, it is the runaway nature of executive

[1] £4.25 million compared to £33,967 Manifest/MM&K executive pay report page 42
[2] Angela Ahrendts at Burberry
[3] http://www.mirror.co.uk/news/uk-news/britains-greediest-bosses-fatcat-felix-1942612

pay rises that have shocked the workforce and the public. While average wages have not risen in real-terms for 10 years, the boardroom appears to be on a different planet.

This report looks at some of the effects of pay gaps within organisations on the people that work there and the business as a whole. The pay differential is important to employees across the workforce. A growing number of shareholders are also taking an interest in the pay ratio at companies in which they invest. Companies do not like to disclose figures, but this is important information that needs to be aired.

This report is part of a wider examination of pay gaps to be conducted by the High Pay Centre this year.

Executive Summary

Concern about inequality is well-documented. The share of the UK's total income taken by the richest 1% has increased from 6% to 14% since 1979.[4]

A number of studies have shown the damaging social and economic effects of inequality across society as a whole. However less is understood about the effects of workplace-inequality, where inequality is also rising. For example, in 1997 a FTSE 100 Chief Executive was paid 47 times their average employee, by 2012, this had risen to 133 times.[5] This represents a profound change in the UK's economic culture. It is vital to examine how these growing pay differences within the workplace affect company performance and workers' quality of life.

In order to better understand this, we analysed data from the Workplace Employment Relations Study (WERS), comparing the measures and indicators outlined in table 1 with work place inequality.

We found that more unequal workplaces experienced higher levels of discontent and lower levels of employee well-being:

> In workplaces reporting one incidence of strike action, the average ratio between the highest and the lowest earners was 10. In workplaces with more than one strike the ratio was 12. In those workplaces where no strikes took place, the average ratio between the highest and lowest earner was just 5. **This suggests that a bigger pay gap between high and low earners is likely to lead to more workplace conflict.**

> In workplaces where at least five workers left the organisation in the last year, the pay ratio between the highest and lowest earner is 7, whereas in workplaces where less than five workers left the organisation within the last year, the pay ratio is 5.

> The pay ratio between the highest and the lowest earner in those workplaces reporting no work-related illnesses is just 5. In contrast, in work places where managers reported at least one case of work-related illness among the workforce in the last year, the ratio between the highest and lowest is 8. **Again, higher levels of turnover and work-related illness**

<table>
<tr><td colspan="2">*table 1* **Measures and indicators of employee performance**</td></tr>
<tr><td>**Indicators**</td><td>**Measures**</td></tr>
<tr><td>Discontent</td><td>Voluntary Turnover</td></tr>
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Note: Details of how each of these indicators is measured can be found in the Technical Appendix

suggests that stress levels and discontent are higher in more unequal workplaces.

For employee engagement, the results were more complex. While at first glance our results appear to suggest that inequality acts as a spur to success, rewarding hard work and fostering commitment to the organisation, the truth is more complex. Beyond a certain inequality threshold, increases in the gap between the highest and lowest paid earners no longer yield any gains in employee engagement.

> Analysing all workplaces, those where employees registered high commitment to their job had an average pay ratio of 8 while those with low commitment had a pay ratio of 6. Workplaces where employees reported high job satisfaction had an average pay ratio of 8 while those with low job satisfaction of 7.

> However, when looking at the 5% most unequal workplaces, with a pay ratio of 24 or above, the difference in average pay ratios for workplaces reporting high levels of satisfaction/commitment and those reporting low levels was negligible.

This suggests that there is some truth to the notion that while inequality incentivises hard work and greater productivity – so-called 'tournament theory' – there is also merit in the counter-argument of 'equity theory.' When employees perceive unfairness in the workplace as a result of high pay differences between themselves and their colleagues and managers, their commitment to the role weakens.

Our research suggests that there are some gains to employee commitment and job satisfaction arising from the incentive provided by a degree of inequality. However, these are lost beyond a threshold pay ratio at which the highest earner within an organisation is paid more than 24 times the lowest-paid.

This has obvious implications for businesses and policymakers. Workplace absences from stress-related illnesses lower productivity, while higher staff turnover leads to increased expenditure on finding a replacement, lost production, wasted training costs, interruptions in the flow of work and the damage to the organisation's reputation and morale of those who remain.

Strikes and poor industrial relations also lead to disrupted production, reputational damage and a negative employment relations climate.

As importantly, the increase in stress-related illnesses arising from higher workplace inequality also has an incalculable cost on human wellbeing and quality of life.

While the growing gap between top earners and ordinary workers is frequently debated in moral terms, **these findings also demonstrate that there is a clear economic and business case for more equal pay distribution within organisations.**

Introduction

Background

Income inequality has attracted considerable attention from the media, researchers and policy-makers. It has been shown to make people unhappy[6] and societies dysfunctional across a wide range of outcomes.[7]

We also know that inequality in the UK has been growing and this is mainly the result of those at the top of the earnings distribution doing better than all the rest. However, most debates discuss the phenomenon across society as a whole. This report is an attempt to explore inequality within one of the spheres where it originates, namely the workplace.

Organisations devote considerable amount of resources to designing effective remuneration systems. The structure of wage differentials has important implications with regards to who is attracted to

work for a particular organisation as well as their intention to stay. Further, a large body of research shows that the distribution of rewards within an organisation is an important determinant of employee attitudes and behaviours. This is because individuals compare their rewards to those of others within the organisation and their attitude towards colleagues, managers and the company as a whole are shaped accordingly.

Large within establishment pay inequalities have the potential to inhibit performance if they discourage workers' cooperation and teamwork. When such pay differences are perceived as 'unfair' they can further affect employee morale and subsequently productivity. Within firm pay inequality also has significant implications for firm performance and as such, it deserves more attention from managers and policy makers than it currently receives.

[6] Layard, R. (2005) Happiness: Lessons from a New Science, London: Allen Lane
[7] Wilkinson, R. and Pickett, K. (2009) The Spirit Level: Why More Equal Societies Almost Always Do Better? London: Allen Lane.

Methodology

Our report aims to fill this gap. Using a large representative survey in Britain that covers a total of 1,923 workplaces and 21,981 employees, we explore whether pay disparities within organisations are associated with any negative consequences for organisations.

Information relating to workplace characteristics and practices is collected from managers while the data from employees consists of information on attitudes and employee characteristics, including details about individual pay.[8]

Using this information, our research looks at the relationship between pay inequality and employee engagement and well-being. We also examine whether unequal workplaces are more likely to have higher levels of employee discontent. The measures recorded by the survey that we use as indicators of employee attitudes and working environment are summarised in the table below.

The report uses this empirical data to contribute to the debate about the widening pay gap between top managers and ordinary workers and its effect on economic performance.

table 1 Measures and indicators of employee performance

Indicators	Measures
Discontent	Voluntary Turnover
	Industrial Action
Employee well-being	Work-related stress
Employee Engagement	Commitment to the Organisation
	Satisfaction with work

Note: Details of how each of these indicators is measured can be found in the Technical Appendix

[8] A detailed description of the survey is provided in the Technical Appendix.

Analysis and Findings

Little consensus exists with regards to the impact of pay inequality within organisations on employee attitudes and indicators of organisational performance.

Tournament Theory

Classic economic theory, known as the 'tournament model', predicts that high pay differentials may stimulate a 'race' amongst employees who start competing for the higher wages.[9] Such competitions lead to increased effort amongst employees which in turn should translate to higher productivity. According to this theory, high gaps between different groups are beneficial for the organisation as they provide an incentive to work harder.

Although tournament theory is not always explicitly endorsed by business leaders, in practice it is applied by most major UK companies. FTSE 100 CEOs, for example, are paid 133 times their average employee. Boris Johnson's remarks in 2013 that:

'inequality is essential for the spirit of envy and keeping up with the Joneses that is, like greed, a valuable spur to economic activity'

also effectively endorsed tournament theory.[10] However, many researchers have doubts about the business case on which the theory is based.

For example, it is questionable whether an average-salaried employee looks at the remuneration of a top-executive (who might earn 70 or 80 times more than them) and is motivated to exert more effort in the hope that his or her salary would reach such high levels. So while tournament theory has some intuitive value, it is perhaps more suitable in explaining employee behaviour within comparable job profiles within which career movements are likely to take place.

Equity Theory

The basic premise of tournament theory is also problematic for some critics. Their starting point is that employees come to a decision as to what is a fair wage. Any deviation from this has negative consequences for their effort and morale. Therefore, wage inequality becomes a problem when employees compare their pay with that of others within the organisation and come to perceive an inequity.

This is known as equity theory and is based on the premise that individuals are sensitive to inequity.[11] The comparison can operate at two levels. First, one might compare their income with that of others who are similar to them, namely colleagues on the same or neighbouring grades. But comparisons also take place with those at much higher pay scales such as senior executives.

When employees develop a sense of pay inequity or 'distributive injustice' (meaning unfairness in the distribution of rewards) in comparison to colleagues or senior executives, they take steps to redress this perceived imbalance.

[9] See for example: Lazear, E.P. and Rosen S. (1981) 'Rank Order Tournaments as Optimum Labor Contracts' Journal of Political Economy, 89: 841-864
[10] Daily Telegraph, Boris Johnson's speech at the Margaret Thatcher lecture in full, 28 November 2013 via http://www.telegraph.co.uk/news/politics/london-mayor-election/mayor-of-london/10480321/Boris-Johnsons-speech-at-the-Margaret-Thatcher-lecture-in-full.html
[11] Adams, J.S. (1965) Inequity in Social Exchange. In L.Berkowitz (ed) Advances in Experimental Psychology, Vol. 2, pp. 267-299).

They can do so either by reducing their input (eg effort, commitment, engagement) to a level they feel is commensurate with their wages, or by leaving the organisation or the team altogether.

Naturally such withdrawal behaviours are further likely to harm morale and cooperative behaviour across the team or organisation and in turn will have negative implications for organisational performance.[12] Therefore discontent related to inequity can manifest itself at the individual and the team/organisational levels.[13]

High pay disparities can also affect well-being. Evidence from studies on income inequality in society show that it causes 'status anxiety', meaning that people's insecurity regarding their wealth or success in comparison to others has an impact on their mental health.[14] This could also apply to workplace inequality.

Tournament theory suggests that high pay differentials create incentives to work harder in order to climb up the organisational ladder and attain high levels of pay. However, it is possible that this process places individuals under strain, intensifies work pressures and demeans individuals' sense of self-worth in comparison with those above them in the company hierarchy, ultimately resulting in higher stress levels. We could therefore expect more unequal workplaces to increase the amount of stress the individual feels at work.

2.1 Employee Discontent

We begin our analysis by estimating whether workplaces with higher income equality report higher levels of discontent. We assess 'discontent' using two measures.

Firstly, workers voice their discontent through engaging in industrial action. Such discontent takes place at the collective level and we know from existing research that its incidence can typically be explained by the presence of certain organisational characteristics and procedural arrangements – for example poor health and safety policies or a lack of consultation with workers - rather than it being a random workplace phenomenon.[15]

Secondly, we supplement this measure with one that captures discontent at the individual level in perhaps the most radical way in which discontent can be manifested: voluntarily leaving the organisation. This is particularly relevant since staff turnover has been linked to how satisfied employees are with their pay as well as to feelings of inequity in the distribution of rewards within organisations.[16]

Our findings are summarised in Figures 1 and 2. We find a positive relationship between workplace inequality and industrial action.

In particular, in workplaces reporting one, two or more incidences of strike action, the ratio between the highest and the lowest earners is between 10 and 12. In workplaces where there has not been any

[12] See for example: Akerlof, G. and Yellen, J. (1990) ' The Fair Wage-Effort Hypothesis and Unemployment' The Quarterly Journal of Econonomics, 95: 255-283; Lazear, E.P. (1989) 'Pay Equality and Industrial Politics' Journal of Political Economy, 97: 561-580
[13] See for example: Schappe, S. (1998). Understanding employee job satisfaction: the importance of procedural and distributive justice. Journal of Business and Psychology. 12 (4), McFarlin, D. & Sweeney, P. (1992). Distributive and procedural justice as predictors of satisfaction with personal and organizational outcomes. Academy of Management Journal. 35 (3): 626 - 637
[14] See for example: For a summary see Rowlingson, K. (2011) Does Income Inequality Cause Health and Social Problems? London, Joseph Rowntree Foundation
[15] Blanchflower, D. and Cubbin, J. (1986) "Strike propensities at the British workplace", Oxford Bulletin of Economics and Statistics, 48, 1: 19-40.
[16] Cotton, J. and Tuttle, J. (1986) Academy of Management Review. 11(1), p55-70.

conflict, the ratio halves: the highest earner takes home 5 times the pay of the lowest earner.

Given that the average gross weekly wage in our sample is around £450, these figures indicate that in workplaces with no conflict, the top earner receives a weekly salary of £2,340 (or £1,890 more than the average wage). In workplaces where conflict is reported, a top earner receives as much as £5,400 per week (or £4,950 more than average). These results are statistically significant.

With regards to staff turnover, we find a positive relationship between workplace inequality and the number of workers that left

the organisation voluntarily in the last year.

In particular, in workplaces where at least five workers left the organisation in the last year, the ratio between the highest and lowest earner is 7, whereas in workplaces where less than five workers left the organisation within the last year, the pay ratio is 5.

Given that the average gross weekly wage in our sample is around £450, these figures mean that whereas in work places with higher turnover the top earner receives a weekly salary of £3,015 (a £2,564 difference with respect to the average wage), in workplaces with lower turnover a top earner receives £2,385 per week (a £1,935 difference with respect to the average wage). These results are again statistically significant.

Obviously, when evaluating turnover levels, the size of the workplace is important. Some levels of employee attrition are inevitable and expected. A small workplace losing 5 employees in one year is clearly more a cause for concern than a workplace with over 200 employees losing the same number.

The effect of turnover should be weighed against the size of the workplace. In our dataset the mean workplace size in employee terms is 421, but 60% of the workplaces have less than 100 employees. It is within those workplaces that we expect the impact of inequality-related turnover of more than 5 employees per year to be felt more keenly in terms of work-

figure 1 **Industrial Action**

Source: WERS 2011. Sample of 1,923 workplaces

flow disruption and associated
replacement costs.

**Therefore, we conclude that
higher pay disparities within
organisations are associated
with higher levels of employee
discontent as measured by
levels of industrial action and
voluntary turnover.**

Of course industrial action and
labour turnover are the result of
various factors, not least in relation
to the business cycle.

For example, employees are
less likely to voluntarily leave
their employer in periods of high
unemployment and economic
uncertainty and it is also during
such times that we would expect to
find a surge in industrial action.

While the period of observation in
our dataset covers the recession
that hit the UK in 2009, we still
rule out such explanations. For
those to be plausible, we must

have a reason to believe that the
recession disproportionally affected
organisations with higher pay
disparities, something that is not
likely to be the case here.

figure 2 **Voluntary Turnover**

Source: WERS 2011. Sample of 1,923 workplaces

What does 'statistically significant' mean?

Statistical significance is a mathematical tool that is used to determine whether the
outcome of an analysis is the result of an actual relationship between two factors (e.g.
wage inequality and turnover) or merely the result of chance. Statistics are produced
using samples and the results are applied to an entire population. This is because it is
either impossible, very expensive or resource intensive to survey the entire population of
organisations and employees. When researchers try to generalise from the sample to the
population they need to know that results are not happening by chance, i.e. only apply
to the particular sample used in the analysis. When a result is statistically significant it
enables researchers to confidently claim that their findings can be generalised to the entire
population and they are not happening by chance.

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2.2 Employee Wellbeing

We move on to ask whether higher levels of inequality are associated with more employees reporting work-related stress. We consider our measure of stress to be fairly robust as it captures incidents *formally* reported to the organisation. Results are depicted in Figure 3.

We find that in more unequal workplaces employees are more likely to have suffered from work-related stress illnesses in the last year.

The ratio between the highest and the lowest earner in those workplaces reporting no work-related illnesses is just 5. In contrast, in work places where

managers reported at least one case of work-related illness among the workforce in the last year, the ratio between the highest and lowest is 8.

 Given that the average gross weekly wage in our sample is around £450, these figures mean that in workplaces with no reported work-related stress the top earner receives a weekly salary of £2,340 (£1,890 more than the average wage). However, in workplaces where cases of work-related stress are reported, a top earner receives as much as £3,510 per week (a £3,060 difference with respect to the average wage). As before, these results are statistically significant.

Our findings are in line with previous work that finds a positive relationship between income inequality and poor health.[17] But are these results driven purely by the impact of low wages rather than wage differentials?

For example, some research has shown that those on low pay are more likely to report high levels of stress. We test for this explanation and we find no evidence of higher levels of stress reported in workplaces where pay is lower compared to other workplaces where this is not the case. Instead, stress related to status anxiety appears to be a more plausible explanation. Such stress is likely to be higher in cases where indviduals do not perceive themselves to be capable of improving their position in the pay hierarchy.

[17] For a summary see Rowlingson, K. (2011) Does Income Inequality Cause Health and Social Problems? London, Joseph Rowntree Foundation.

figure 3 **Work-related stress**
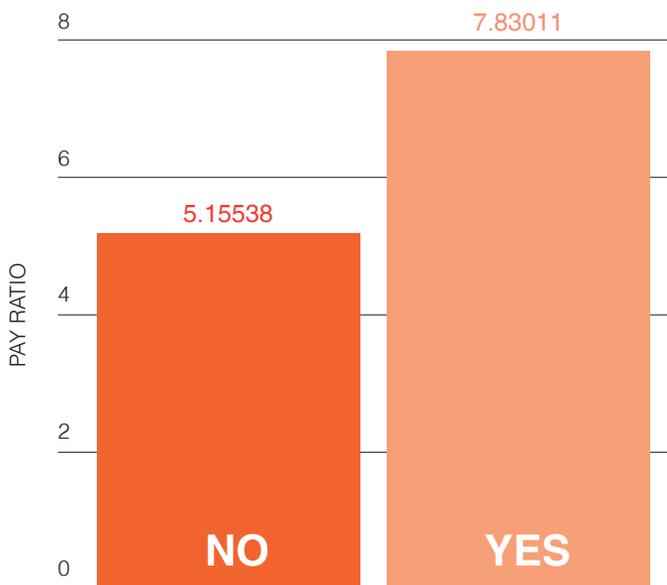
Source: WERS 2011. Sample of 1,923 workplaces

2.3 Employee Engagement

Our analysis then shifts to measures of employee engagement. While in our analysis so far the data came from the survey of managers, here we analyse employee responses. As previously discussed, we focus on two indicators: commitment and satisfaction.

The research underlines the limitations of tournament theory, suggesting that in the most unequal workplaces, the pay gap between high and low earners can weaken employee morale

Our findings do not initially support our thesis that higher pay inequality causes disaffection among employees, but a more detailed analysis does indeed weaken the case for a higher pay gap. Looking at all the companies in the WERS, employees seem to be more engaged in workplaces with a higher pay differential. This appears to suggest that some degree of inequality is indeed a 'spur to success'. However, when you look more closely, it is clear that these gains are quickly lost if inequality becomes too extreme. When we focus on the most unequal workplaces, employee engagement drops off. So there appears to be a threshold for workplace inequality, beyond which, employees' commitment to the organisation weakens. These results are discussed in detail below.

figure 4 **Employee Commitment and Satisfaction**

Source: WERS 2011. Sample of 1,923 workplaces
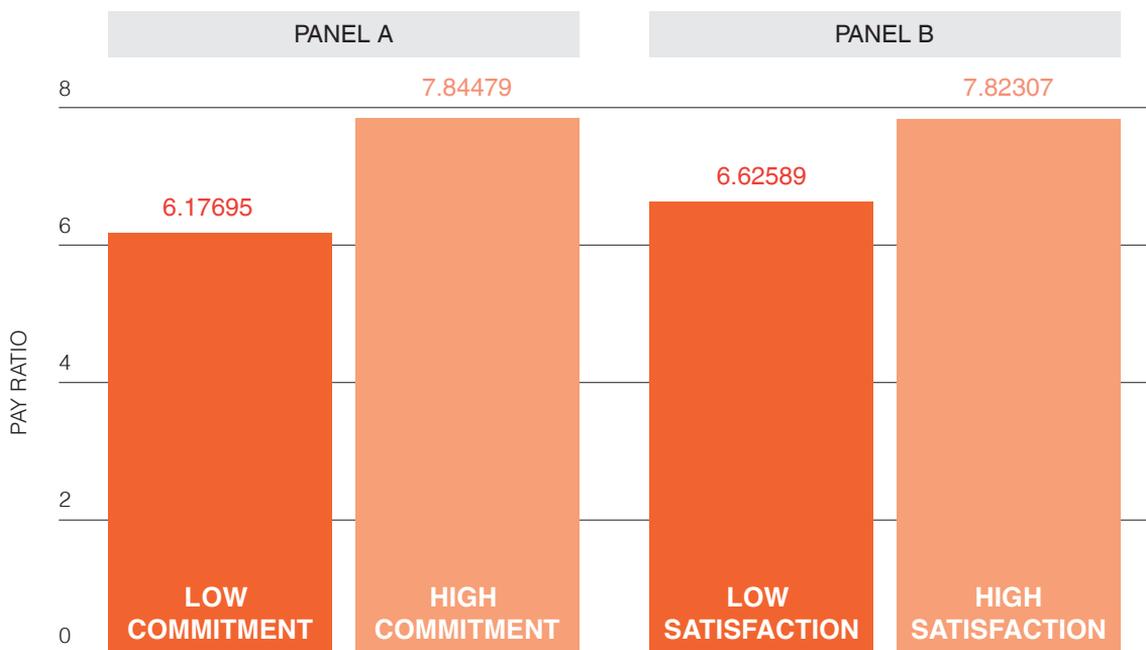
As can be seen in panels A and B in Figure 4, in workplaces where the difference between the top and lowest earner is higher (i.e. where there is more inequality), workers are more likely to report higher commitment and higher satisfaction with work.

Panel A in Figure 4 shows that highly committed workers are in workplaces with a pay ratio of 8, whereas employees who report low commitment tend to work in organisations with lower pay inequality (pay ratio of 6).

This difference in pay ratio means that the relative pay of the top earner with respect to the lowest earner is 2 times higher in workplaces where workers show high commitment than in workplaces where commitment is low.

Given that the average gross weekly wage in our sample is around £450, these figures mean that whereas in workplaces with high commitment the top earner receives a weekly salary of £3,528 (a £3,078 difference with respect to the average wage), in workplaces where commitment is low, a top earner receives £2,781 per week (a £2,331 difference with respect to the average wage).

A similar pattern in observed in Panel B with respect to employee satisfaction. Those with high satisfaction are found in workplaces with a pay ratio of 8 while those with low satisfaction are in workplaces with a ratio of 7.

Our initial estimates of the impact on organisations and individuals of income inequality apply to our entire sample of organisations, which naturally consists of workplaces with both high and low levels of pay inequality.

But we wanted to test whether a positive link between employee engagement indicators and inequality still exists if we focus on the most unequal workplaces in our sample. It is of course possible that both the 'tournament' and 'fair wage' explanations hold true depending on the organisation in question. In line with the 'tournament' approach, wage inequality can motivate employees to work harder which, in turn, results in higher labour productivity and better financial performance as well as positive employee attitudes. However, as inequality widens, such trends cannot be sustained. People accept that some degree of inequality is necessary to reward or incentivise higher level roles, but when they perceive pay differentials to have become disproportionate, their commitment to the organisation weakens.

Under this scenario, there is an optimal level of inequality that is conducive to organisational functioning. Once this is exceeded, negative outcomes begin to emerge in the form of employee discontent. As such discontent increases, it translates into lower employee effort and loyalty, which in turn are damaging for organisations. Research has confirmed such assumptions by showing that increases in inequality may be

associated with less effort and output, depending on whether levels of inequality are above the optimum.[18]

To test this explanation, we selected the top 5 per cent of unequal workplaces (i.e. those where we observe the highest discrepancies between the pay of those at the top and those at the bottom) and compare it to the bottom 95 per cent of unequal workplaces (i.e., those workplaces with the lowest discrepancies between the pay of those at the top and those at the bottom), and conduct the same analysis solely on this sample. We have 154 workplaces in the top 5% with a pay ratio above the threshold of 24, and we have 1,769

workplaces in the bottom 95% with a pay ratio below 24.

Our findings demonstrate that the positive relationship between inequality and employees' more favourable attitudes reported in the previous section, only occurs in the bottom 95% of workplaces.

In contrast, for the 5% of workplaces with inequality levels beyond 24, increasing inequality no longer corresponds with more positive employee attitudes (see Figure 5). Indeed, in unequal workplaces, there are no differences between those that report high job satisfaction and those that report low job satisfaction – thus demonstrating that as inequality

[18] See for example: Freeman, R. B. and Gelber, A. M. (2006) Optimal inequality/ Optimal incentives: Evidence from a Tournament, NBER, Working Paper 12588, Cambridge MA

figure 5 **Top 5% sample (Pay ratio>24)**
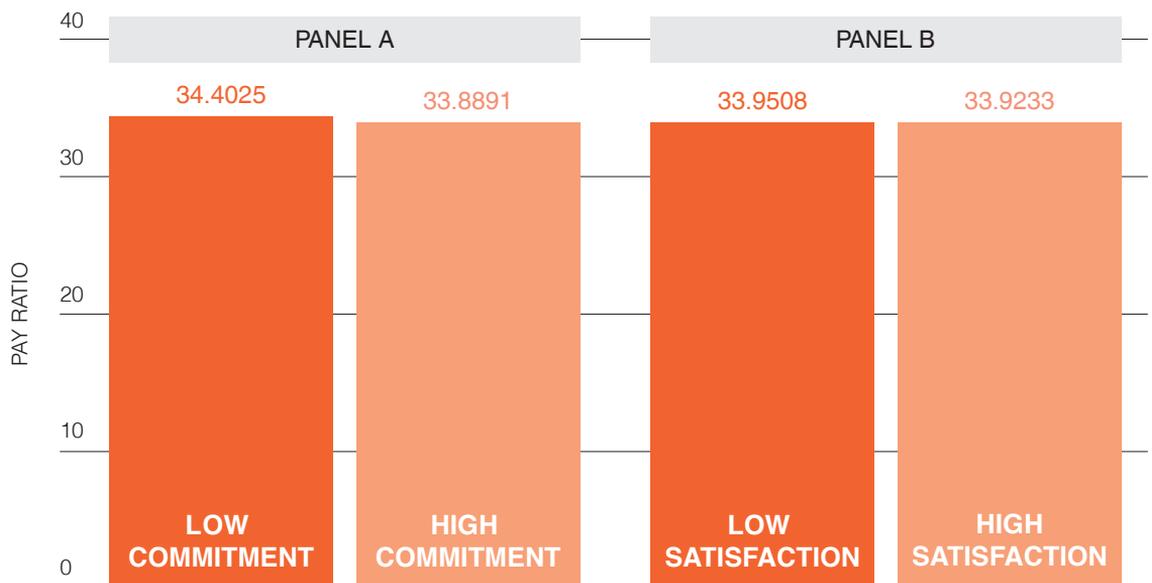
Source WERS 2011. Panel A: 20,586 employees; Panel B: 1,391 employees

widens, attitudes do not improve as tournament theory would predict.

As such, there is a limit to the effectiveness of a high pay gap as a device to make employees work harder.

This finding suggests that as inequality increases, positive returns to the organisation in terms of improved employee attitudes diminish, with a pay ratio of 24 being the cut-off point.

It is also worth noting that the WERS11 dataset does not record wages above a certain level. As such, any analysis inevitably does not capture the extreme pay ratios, where the highest paid employees earn hundreds of times as much as the lowest. Also excluded from such calculations are bonus payments, stock options and pension arrangements which commonly add considerable amounts to the overall compensation package of those at the top.

Taken together, these findings suggest that a ratio of 24:1 is the optimal limit of pay between those at the bottom and those at the top, over and above which inequality becomes counterproductive.

Given that the gains in terms of employee commitment and job satisfaction are lost once pay ratios rise above 24:1, it is likely that the effect of ratios greater than 100:1 have an actively negative effect on commitment and satisfaction. Such an explanation is in line with the 'optimal level of inequality' approach whereby the relationship between inequality and performance is inverse U-shaped.

Conclusion: the high cost of high pay

To summarise, we demonstrate that as pay disparity increases within organisations employee well-being suffers.

Organisations with high pay disparities are also more likely to experience disruption in the form of industrial action and high employee turnover.

For the top 5% of unequal workplaces we also observe lower employee engagement as measured by employee commitment to the organisation and satisfaction with work. Results show that some inequality is conducive to organisational performance but increases above a certain level are harmful as any positive impact on employee attitudes disappears, with the data pointing to a ratio of 24:1 as the optimal limit.

The results presented here are an important first step in exploring the impact workplace pay inequality has on the performance of organisations and the attitudes of employees working within them.[19] What are the implications of these findings and why should companies pay attention to them? According to a recent report by the Health and Safety Executive (HSE), work-related stress accounted for 10.4 million days lost in 2012 with 24 being the average number of days lost per case to employers. The costs of this include sick pay payments, insurance premiums, production disturbance costs as well as administrative and legal costs. In monetary terms, such workplace illness costs society an estimated £8.4 billion.[20] The cost to organisations of course varies,

but according to the Institute for Personnel and Development's (CIPD) absence management survey in 2012, the median cost of sickness absence per employee per year in 2012 stood at £600,[21] with such costs being higher in the public and non-profit sectors. But it is not only organisations that lose out. Just over half of the total cost estimated in the HSE report fell on individuals whilst the remainder was shared between employers and government.

It is also important to consider the many additional costs arising from workplace inequality that cannot be monetised. If workers across the country are experiencing higher stress levels as a result of perceived unfairness at work, this has a profound effect on their happiness and quality of life.

High levels of employee turnover and industrial action are also costly for organisations, although such costs are somewhat more difficult to estimate with accuracy.

In the case of the employee turnover they can include increased expenditure on finding a replacement, lost production, wasted training costs, interruptions in the flow of work and the damage to the organisation's reputation and morale of those who remain.

According to the CIPD, the costs of labour turnover average at £5,800 per employee with senior employees totalling an average of £20,000 and manual/craft workers averaging at £2,750.[22] Using this data, we can

[19] The next step is to subject our data to more stringent statistical analysis which will enable us to move beyond identifying a relationship between inequality and negative organisational outcomes to confidently assert that pay inequality is the actual cause of these outcomes.
[20] Health and Safety Executive (2012) : Costs to Britain of workplace fatalities and self-reported injuries and ill health, 2010/11, London: HSE
[21] CIPD (2012) Absence Management: Annual Survey Report, London: CIPD
[22] CIPD (2008) Recruitment, Retention and Turnover Survey, London: CIPD

produce some basic estimates of the total cost for organisations.

For example, we have shown that a 7:1 ratio of inequality is associated with a minimum of 5 workers likely to leave. If we take this minimum and multiply it by the average cost we get a total cost of: 5 x £5,800= £29,000.

Although more difficult to estimate robustly,[23] the negative impact of industrial action is well documented in academic literature. Costs include disrupted production, reputational damage and a negative employment relations climate. The scale of these costs depends on other factors such as the industry in question and the duration of the industrial action.[24]

Overall, these preliminary results demonstrate that high pay ratios come at a price for organisations and their employees. Further, as inequality increases, the magnitude of these negative outcomes also increases.

Nevertheless, many unexplored themes still exist and not least the role of information in the process. In particular, a fundamental assumption in research that aims at capturing employee reactions to unfairness is that individuals have perfect information about the organisation's wage structure and respond accordingly.

This involves knowledge not only about what those at the top earn, but also an appreciation of any large wage differentials in the remuneration of employees at their

workplace. For example, think of two employees A and B, who are equal in all respect but differ in the fact that employee A works in a workplace where managers are reluctant to share information about the organisation and employee B works in an identical workplace where information is disclosed through various channels.

We would expect to observe a relationship between inequality and work attitudes only for employee B. On the other hand, employee A's attitudes should not be related in any way to the levels of inequality observed at his workplace. Our dataset does not allow us to perfectly control for the presence of such information channels within our sample of organisations.

Generally speaking, one would expect low levels of awareness about pay disparities amongst employees as with a few exceptions,[25] companies tend to be very secretive about internal pay scales and pay ratios. Therefore, in the absence of knowledge about the size of such pay ratios it is reasonable not to anticipate any negative employee reactions. It is when such information is made available that we would expect to observe more powerful results and of higher magnitude.

A further constraint in coming to an awareness of pay inequality within one's organisation is low proximity with those at the very top of the organisational hierarchy. For example, within large organisations, a big proportion of employees work in sub-units, branches and offices

[23] For a review of difficulties in estimating the cost of strikes please see: Metcalf, D. and Milner, S. (1993) New Perspectives on Industrial Disputes, London: Routledge
[24] For example the manufacturing sector might be able to mitigate the effect of industrial action using stocks, while such option might not exist for companies in the service sector.
[25] Such exceptions include top executives whose remuneration package has to be published in company reports and more recently public servants that earn more than £150,000.

in locations separate from where
those earning large multiples of
their income are based. As a result,
comparisons might be confined
to the strict workplace boundaries
(where perhaps wages are more
synchronised) rather than at the firm
level (where larger discrepancies
might exist), and reactions to
inequity would be expected to vary
according. Our analysis also suffers
from this limitation which future
research should aim to address.

Nevertheless, such findings are
the first step in challenging some
of the current thinking and practice
in reward strategy. Businesses
and policymakers should be
made aware of the capacity of
unequal reward structures to distort
organisational goals and reminded
that revising existing practices in
relation to pay ratios offers a more
promising path to success.

Research for this report has been
conducted by Dr Maria Koumenta
and Dr Almudena Sevilla from the
Centre for Equality and Diversity,
Queen Mary, London University.

Appendix: Technical Summary

1. The Survey

WERS is an authoritative survey jointly sponsored by the ESRC, the Department for Business, Innovation and Skills (BIS), the Advisory, Conciliation and Arbitration Service (ACAS), the National Institute for Economic and Social Research (NIESR) and the UK Commission on Employment and Skills (UKCES). It comprises of a set of national surveys of workplaces with more than 5 employees in Britain and provides a good platform for us to explore the issues of interest. The population covered by the survey accounts for 35% of all workplaces and 90% of all employees in Britain[26] and it excludes workplaces in agriculture, forestry, fishing, and mining and quarrying. We draw our data from the 2011 survey of managers which includes information on the characteristics and management practices of 2,680 workplaces. Such management interviews were conducted with the most senior person responsible for employment relations or staff at the workplace. We supplement this with information from the employee survey element of WERS, whereby employees are asked to provide information about themselves and their attitudes towards the organisation. A total of 21,981 employees completed the survey. WERS enables the two data sources to be matched, thus providing researchers with a wealth of data representative of organisations and individuals not directly surveyed.

2. Measuring Workplace Pay Inequality

The WERS does not directly ask individuals or managers questions regarding pay dispersion within organisations. However, the survey collects information on employee gross weekly earnings as reported by the employee. In line with traditional economic approaches we use this information to calculate –for each workplace- a pay inequality indicator. This indicator takes the ratio of the highest to that of the lowest earner in the workplace. Table 2 provides the summary statistics of the pay inequality ratio and wage in our sample. Figure 6 depicts the distribution of the pay ratio values. According to our calculations the bottom 50% of organisations has a pay ratio of 3.9. This increases to 7.3 for the bottom 75% and 15.8 for the bottom 90%. Pay ratios over 30 are found in the top 5% unequal workplaces.

table 2 **Summary statistics: Pay dispersion**

	Numbers of Observations	Mean	Std.Dev.	Min	Max
Pay ratio	1,919	6.905	7.935	1	36.778
Wage	20,988	445.69	274.59	30.005	1103.5

[26] This represents: almost 750,000 workplaces 23.3 million employees

figure 6 Top 5% sample (Pay ratio>24)

Note: N= 1923 workplaces
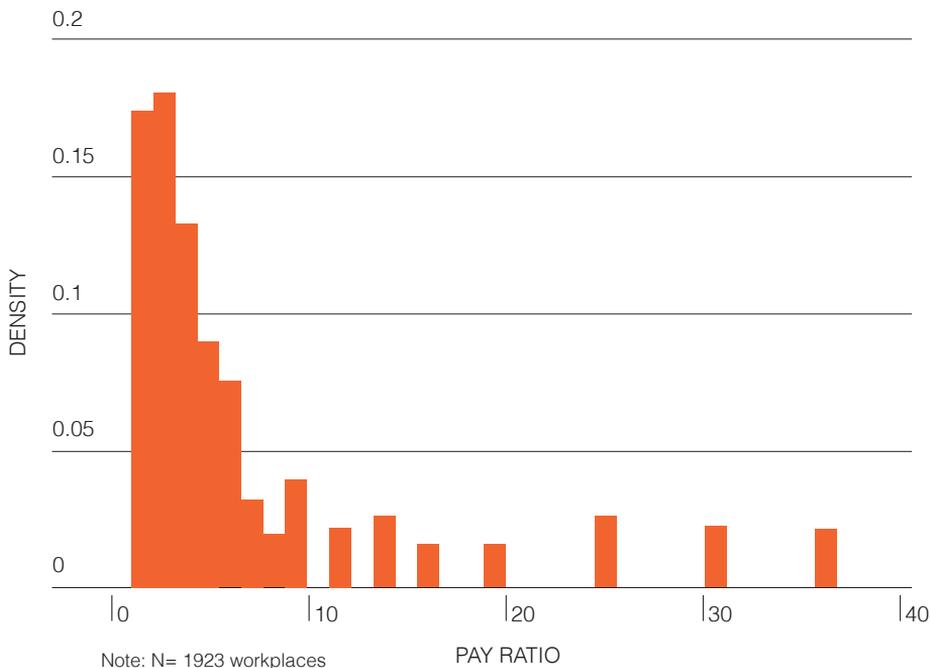
Our measure of pay inequality is not without caveats. First, there is a cap on maximum salaries that are reported in the survey and as a result we expect to be underestimating the extent of pay inequality within organisations. As such, the magnitude of the inequality indicator reported here are likely to be lower than those reported elsewhere in the literature (e.g. when looking at pay inequality within FTSE organisations). Similarly, WERS does not ask individuals whether they are in receipt of any form of performance related pay such as bonuses or share options. As a result, our estimates do not take into consideration such forms of remuneration despite evidence that they can account for a substantial proportion of total remuneration especially for those at the top of the income distribution. As before, this omission means that inevitably are underestimating pay

inequality within our sample. Third, we chose to measure inequality using the minimum and maximum ratio. While this is one of the most common measures employed in the literature, as with other measures of inequality (e.g. the Gini coefficient, the p90/p10 ratio etc.) it is not without its limitations and most notably the fact that it is prone to be affected by outliers at the top and the bottom of the distribution. To test for such biases we produced additional estimates using the Gini coefficient.[27] Our results did not differ so we chose this measure on the basis that it is the most accessible to a non-technical audience. Finally, the employee questionnaire is administered to up to 25 randomly selected staff at each workplace. If the workplace had 25 or fewer employees, all were selected to participate. As a result of this procedure used to select the employee sample, we cannot say

[27] Results are available from the authors.

table 3 Measures of Organisational Climate

Year	Variable Name	Survey Questions	Variable Values[28]
Discontent	**Voluntary Turnover** (As reported by managers)	*'How many employees have left or resigned voluntarily in the last year?'*	This variable is constructed as the number of employees that have left or resigned voluntarily over the total number of employees in the workplace during the last year.
	Industrial Action (As reported by managers)	*'Has any industrial action taken place at this workplace during the last 12 months?'* Industrial action includes: strikes of less than a day, strikes of a day or more, overtime ban or restriction by employee, work to rule, other industrial action.	This variable takes value 0, if there has been no industrial action in the last year, 1 if there has been one industrial action in the last year, and 2 if there has been more than one industrial action last year.
Employee Engagement	**Satisfaction with work** (As reported by employees)	*'How satisfied are you with the work itself?'* Answer to this question takes values 1 (very satisfied), 2 (satisfied), 3(neither satisfied nor dissatisfied), 4 (dissatisfied) and 5 (very dissatisfied)	This variable takes value 1, if the answer to the satisfaction question is 1,2 or 3 and zero otherwise.[29]
	Commitment to the Organisation (As reported by employees)	*'I do share many of the values of my organisation'* Answer to this question takes values 1 (strongly agree), 2(agree), 3(neither agree nor disagree), 4(strongly agree), 5(disagree).	This variable takes a value of 1 if the answer to commitment question is 1,2 or 3 and zero otherwise.
Employee Well-Being	**Work-related stress** (As reported by managers)	*'Work-related illnesses, disabilities or other physical problems in the last year'* Work-related illnesses are: bone, joint or muscle problems, breathing or lung problems, skin problems, hearing problems, stress, depression or anxiety, eye strain ,heart disease/attack, or other circulation problems, infectious disease (virus, bacteria) or none of these	This variable takes value 1 when one or more workers are reported by the manager to have had work-related stress and 0 otherwise.

[28] Missing values are due to question not being answered; respondents not knowing the answer or the question not being asked by the interviewer.

[29] To facilitate the interpretation of the results by a non-technical audience, where applicable the dependent variables have been recoded to dichotomous ones. There is no difference in the results when this transformation is applied.

with certainty whether the income of these randomly selected employees is representative of the income distribution within the workplace in question. For example it might be the case that employees within similar pay bands where chosen and as a result pay inequality is underestimated. This is more likely to be a problem in those workplaces with more than 25 employees.

The readers are reminded to take these points into account when interpreting the results.

3. Measures of Organisational Climate

Table 3 above presents the variables used in this research and details how they were measured.

Table 4 presents the summary
statistics for the measures
of organisational climate
discussed above.

table 4 **Descriptive Statistics for the pay ratio**

	Mean	Sd	Min	Max	Number of Observations
Industrial Action					
No Industrial Action	6.23	7.02	1.00	36.78	1,551
One Industrial Action	9.18	10.01	1.00	36.78	297
More than One Industrial Action	9.74	11.00	1.00	36.78	71
Voluntary Leave					
Yes	6.74	8.26	1.00	36.78	1,043
No	6.80	7.21	1.00	36.78	787
Related workplace stress					
Yes	6.39	7.17	1.00	36.78	975
No	7.34	8.61	1.00	36.78	661
Measures of employee engagement					
Low satisfaction	6.63	7.26	1.00	36.78	1,747
High satisfaction	7.82	8.32	1.00	36.78	19,960
Low commitment	6.18	6.72	1.00	36.78	1,594
High commitment	7.84	8.36	1.00	36.78	19,776

Note: The table display the relative pay of the top earner with respect to the lowest earner at the workplace. Source WERS 2011

4. Analysis

We explore our research questions through a simple regression model of the form:

$$payratio = \beta_0 + \beta_1 x + \varepsilon$$

Pay ratio is our dependent variable, measuring the ratio between the highest and lowest earner in the workplace in 2011. The right hand side in the equation consist of a constant and an explanatory variable x, which for every time we estimate the model it is one of our five different measures namley: industrial action, voluntary turnover, work-related stress, commitment to the organisation and satisfaction with work. The parameter of interest is β_1 which shows the expected change in the pay ratio for those workplaces with higher

levels of satisfaction, commitment or discontent.

Table 5 reports our estimates. All our independent variables are significant and associated with higher inequality at the workplace. Firms with higher satisfaction and commitment tend to have a higher pay ratio (columns 1 and 2). Higher pay ratio is also positively related to industrial action, voluntary turnover and work-related stress (columns 3-5).

Our results indicate that industrial action is one of the strongest correlates of wage inequality. In particular, it is in those workplaces where industrial action has taken place that inequality is on average 5.5 points higher compared to those companies which did not experience any labour disputes. This is more than double our estimates for work-related stress.

table 5 **Regression results for pay ratio and measures of organisational climate**

	Satisfaction	Commitment	Industrial Action	Voluntary turnover	Work-related stress
b_1	1.1972***	1.6678***	5.5047***	0.0181***	2.6747***
	(0.2439)	(0.2285)	(1.2091)	(0.0052)	(0.6828)
Cons	6.6259***	6.1770***	5.1485***	5.4038***	5.1554***
	(0.2328)	(0.2162)	(0.2450)	(0.2547)	(0.2918)
N	21707	21370	1917	1830	1636
R²	0.0016	0.0029	0.0316	0.0050	0.0166

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

table 6 **Regression results for Commitment and Satisfaction (Top 5% of Unequal Workplaces)**

	Commitment		Satisfaction	
	Top 5%	Bottom 95%	Top 5%	Bottom 95%
β_1	-0.5135	0.9301***	-0.0275	0.7791***
	(0.4829)	(0.1495)	(0.4337)	(0.1463)
Cons	34.4025***	5.2238***	33.9508***	5.3857***
	(0.4736)	(0.1420)	(0.4233)	(0.1386)
N	1355	20015	1368	20339
r2	0.0014	0.0023	0.0000	0.0017

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

However, it would transpire that wage disparities within firms are not only related to negative outcomes. The coefficients on satisfaction and commitment indicate that those workplaces with higher inequality have more satisfied and committed workers on average (1.19 and 1.67 points higher respectively).

We move on to test whether these results hold true for the top 5% of unequal workplaces in the sample. Table 6 presents the results. While satisfaction and commitment remain positively correlated with pay inequality for the bottom 95% of the sample, the same relationship is not significant when looking at the top 5% of unequal workplaces.

The analysis we present here is based on cross-sectional data and is correlational in nature. Therefore, by implication causality has not been shown. As we have not controlled for other factors that can account for the observed relationships, we cannot rule out that the results are driven by unobserved employee or organisational characteristics. Nevertheless, what we find here is an important first step in establishing cause and effect relationships, so these findings are important in their own right. However, the results should therefore be interpreted with these caveats in mind. We are hoping to address such important limitations in future analyses of this data that we plan to undertake.