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## Do followers mind the pay gap? An experimental test of the impact of the vertical pay gap on leader effectiveness

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## ABSTRACT

The pay gap between those in leadership positions and other organisational members has risen markedly over the last five decades. There is evidence that this gap may undermine subordinate identification with and evaluation of the organisation and its leaders. To date, however, there is limited evidence that this gap affects related subordinate behaviour, including their willingness to follow their leader's commands and work for the organisational public good. To address this, we ran two pre-registered experiments (Study 1:  $N = 318$ ; Study 2:  $N = 327$ ) that examined participants' real effort behaviour in temporary 'organisations' with a small or large leader-worker pay gap. We varied whether this pay gap was exogenously determined (Study 1), or endogenously chosen by the leader (Study 2). In both studies, workers in large (versus small) pay gap organisations were less likely to identify with their leader and organisation and reported poorer affective well-being. They were also less willing, at least initially, to follow their leader's commands. When the size of the pay gap was endogenously chosen by the leader, workers in large (versus small) gap organisations reduced their contributions to the public good. We discuss implications for organisational leadership and performance.

"I began by reducing my own salary to \$1.00 a year... I wanted our employees and our suppliers to be thinking: 'I can follow a guy who sets that kind of example.' ... I discovered that people accept a lot of pain if everybody's going through the chute together."

Lee Iacocca, CEO of Chrysler (Iacocca & Novak, 1984, pp. 124)

The last five decades have seen a large growth in the gap in earnings between those individuals who sit at the top of organisations and the multitudes who work below them. For instance, in 2018 in the UK, the median FTSE 100 CEO earned 146 times the amount the average worker did — a ratio that had more than doubled since the turn of the century (Hilyard, 2019). The gap is even more extreme in the US. In 2020, US CEOs earned around 350 times more than the typical worker (EPI, 2021). According to Lee Iacocca, the former head of Chrysler quoted above, these large pay gaps may be problematic. Specifically, Iacocca argued that his decision to reduce the gap between his own pay and that of his workers played an important role in his ability to be an effective leader and thereby turn Chrysler's fortunes around. If Iacocca's intuition is correct, it suggests that leaders who receive outsize pay packets may be less able to influence their subordinates to work hard to achieve

organisational goals (the core task of leadership; Haslam, Reicher & Platow, 2020). Importantly, the corrosive effect of a large pay gap may not be limited to instances of organisational crisis.

Indeed, existing theory supports the possibility that the leader-subordinate pay gap may undermine a leader's effectiveness in normal operating conditions. In particular, if Iacocca is correct and the pay gap does erode people's sense of connection — of "going through the chute together" — then, according to social identity theory (Haslam et al., 2020; Tajfel & Turner, 1979), it should also interfere with the social influence that sits at the heart of leadership. At present, however, the empirical evidence that speaks to this theoretical expectation is limited, either because it draws on cross-sectional data or people's evaluations of their leaders. In other words, there is little (if any) evidence that can speak to the causal role of the pay gap on a leader's ability to influence their subordinates' behaviour, including their willingness to follow their leader's commands and work for the organisational public good. The experiments that we describe in this paper were designed to address this evidentiary gap.

We report the results of two pre-registered experiments that were

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designed to test the causal role of a large (versus small) leader-subordinate pay gap on subordinates' psychology and real effort behaviour in temporary organisations. Across these experiments, the pay gap was either manipulated exogenously or the leader was allowed to choose it endogenously. In this way, we were able to capture real world variation in the ability of top leaders to influence their own pay. Our methodological approach allows us to make three main contributions to the literature. First, by focusing on leadership processes, we shed light on the mechanisms through which unequal pay may affect the organisational bottom line (see Shaw, 2014). Second, by measuring collective real effort behaviours, we move beyond the individual self-report measures that have hindered the development of leadership theory (see Antonakis, Bastardo, Jacquart & Shamir, 2016; Banks, Woznyj & Mansfield, 2023). And third, by using pre-registered randomised experiments, we provide a very strong test of our hypotheses — essential for testing and developing theory (see Eden, 2021).

### A social identity analysis of leadership across the vertical pay gap

Since the mid- to late-20th Century, the pay of those at the top of organisations has risen at a rate that has far outstripped pay rises for other organisational members (Gould, 2020). While there are variations in the size of the vertical pay gap across organisations (depending, for instance, on organisational size and sector), in many organisations the gap between the pay of those in formal leadership positions and their subordinates is at historic heights (see Piketty, 2014). There are theoretical reasons for expecting that these large pay gaps may erode the ability of formal leaders to do effective leadership. In particular, the social identity approach (Tajfel & Turner, 1979; Turner et al., 1987) suggests that a sizeable vertical pay gap can be expected to undermine subordinates' (a) perceptions that they share a social identity with their leader and consequently (b) their willingness to accept their leader's influence and (c) their willingness to engage in the collective-enhancing behaviours that are proof of leadership.

One of the core tenets of social identity theory (Tajfel & Turner, 1979; Turner et al., 1987; for an application to leadership see Haslam et al., 2020; Haslam, Gaffney, Hogg, Rast & Steffens, 2022) is that people can incorporate their group memberships, including their organisational group memberships, into their sense of self. These self-aspects are called social identities, and they have been shown to shape people's tendencies to *think* and *act* as a collective "we" and "us". That is, employees who identify with their organisation are more likely to prioritise their organisation's collective goals and more willing to accept the influence of other ingroup members (Turner, 1991). They are also more likely to accept the directives of formal leaders if they see them as 'one of us' (i.e., representing a shared social identity) rather than 'one of them' (e.g., representing some other group; van Knippenberg & Hogg, 2003; Haslam & Platow, 2001; Hogg, 2001; Peters & Haslam, 2018; Platow & van Knippenberg, 2001; Ullrich, Christ & van Dick, 2009; for reviews see Barreto & Hogg, 2017; Hogg, van Knippenberg, & Rast, 2012; Steffens et al., 2021; van Dick & Kerschreiter, 2016; van Knippenberg, 2011). For this reason, leaders who foster a shared sense of social identity with their subordinates should be better able to do the core work of leadership: motivating their subordinates to pursue the group's collective goals (Haslam, 2004; Rast, 2008; van Vugt et al., 2008).

However, as the vertical pay gap between leaders and their subordinates grows, leaders may struggle to foster the sense of shared identity that is necessary for effective leadership. This expectation follows from self-categorisation theory's principle of comparative fit (Turner et al., 1987), which states that the social identities that do a good job of capturing people's similarities and differences in a given context will be most salient and psychologically meaningful. Thus, when the vertical pay gap is small, we can expect that subordinates will orient towards inclusive social identities that capture what leaders and subordinates have in common (e.g., as members of the same team or

organisation). However, as the pay gap grows, and the material circumstances of a leader and their subordinates diverge, then we can expect that subordinates will orient towards other more divisive social identities that reflect these differences (e.g., as management versus staff; Peters et al., 2021). As subordinates' sense of identification with their organisation as a whole erodes, they should tend to prioritise (and work harder for) their own interests rather than those of the organisation (e.g., the organisational public good). And as subordinates' sense of sharing a social identity with their leader (i.e., of going through the chute together) erodes, they should be less responsive to (and more likely to resist) their leader's influence.

There is some empirical evidence that the vertical pay gap undermines shared identity and leadership in the ways described above. In particular, Tanjitpiyanond, Jetten and Peters (2023; see also Tanjitpiyanond, Jetten & Peters, 2022) found that employees who said that their organisation had a larger (versus smaller) vertical pay gap were more likely to say that social identities that separated the top and bottom earners did a good job of describing the workforce; these employees were also less likely to identify with the organisation as a whole and more likely to say that their organisation's leaders were toxic. Along the same lines, Steffens et al. (2020; see also Ou, Waldman and Peterson, 2018) found that employees who believed that their own CEO was highly (versus modestly) paid were less likely to identify with their CEO. They also rated their CEO as less charismatic and less effective as a (social) identity leader. However, while compelling, this empirical work is limited by its focus on cross-sectional data or subordinates' evaluations of leaders. We are not aware of any research that can provide *causal* evidence of the impact of the vertical pay gap on the collective-advancing behaviours that sit at the core of leadership.

Our aim in this paper is to provide this evidence. We seek this evidence across two experiments that vary the source of the pay gap. In this way, we recognise the fact that the pay gap in real world organizations can be determined exogenously (e.g., when pay is determined by an external board or a collective bargaining agreement) or endogenously (e.g., where a CEO negotiates their own salary or sits on a committee that determines executive pay). As social identity theory is silent about the implications of the source of the pay gap for collective-advancing behaviours we will test the following hypotheses in both settings:

**H1:** *When the vertical pay gap is relatively large (versus relatively small), subordinates will identify less with (a) their organisation and (b) their leader.*

**H2:** *When the vertical pay gap is relatively large (versus relatively small), subordinates will (a) generate lower output and (b) contribute less to the collective public good.*

**H3:** *When the vertical pay gap is relatively large (versus relatively small), subordinates will be less responsive to leader instructions.*

### Study overview

In two experiments, participants joined three-person online 'organisations' consisting of one leader and two subordinate workers whose pay was separated by a relatively small or large gap. In Study 1, this pay gap was exogenously imposed; in Study 2, it was endogenously chosen by the leader. Over the course of the experiment, participants completed 15 periods of organisational production involving real effort tasks. We used a real effort design as in the workplace people are likely to be cognisant not only of pay inequalities but also of pay inequities reflecting their experience of working hard for, and potentially harder than, organisational leaders. We expected that by creating a situation where workers could feel that pay was not only unequal but also, given their effort, viscerally unfair, we would be more likely to see a change in their behaviour.

In each period of organisational production, participants were required to split their time between two real effort tasks: producing widgets and making repairs. The payoffs for these tasks meant that

producing widgets was the more self-interested behaviour while making repairs was more collectively beneficial. This allowed us to measure workers' willingness to exert effort for their own benefit and for the benefit of other organisational members (testing H2). Between each period of work, leaders instructed their workers to focus their future efforts more on one task or the other. This allowed us to measure the leader's ability to influence how much effort workers put into each task (testing H3). At the end of the 15 periods of organisational production, participants completed a survey that measured their identification with their leader and the organisation as a whole (testing H1). Importantly, there is evidence that even relatively brief interactions, such as those that are afforded by this paradigm, can be a sufficient basis for social identification (Haslam, 2004).

The pre-registration materials for Study 1 (run in 2020) and Study 2 (run in 2023) are available on the OSF: [https://osf.io/v42cy/?view\\_only=287c30eed071413b827da13ea98c21f4](https://osf.io/v42cy/?view_only=287c30eed071413b827da13ea98c21f4) and [https://osf.io/nu5jp/?view\\_only=3d8736a133704c8d8f62728af7554ba6](https://osf.io/nu5jp/?view_only=3d8736a133704c8d8f62728af7554ba6). The [Supplementary Information](#) (SI; available on the latter OSF link) contains additional robustness and exploratory analyses; it also summarises an additional study that measured participants' perceptions of the injunctive norms for workers. We will describe the two experiments together as they are almost identical.

## Method

### Participants

We advertised both studies on Prolific (<https://www.prolific.co>). Study 1 (18 to 23 July 2020) recruited 675 individuals, 318 of whom ( $N = 106$  groups) were included in the final sample. This slightly exceeded our pre-registered target of 50 groups per condition (small gap  $N = 55$ , large gap  $N = 51$ ). Study 2 (16 to 21 of June 2023) recruited 778 individuals, 327 of whom ( $N = 109$  groups) were included in the final sample. This again slightly exceeded our pre-registered target of a minimum of 50 groups per condition (small gap  $N = 52$ , large gap  $N = 57$ ). Participants who were not included in the final samples either (a) did not consent, (b) failed comprehension checks, (c) were not matched into a group, (d) dropped out of the study (or had a group member who did), or (e) participated more than once (or had a group member who did). Importantly, all of these exclusions related to pre-treatment or random variables and were not associated with differential attrition across treatments; they are thus unlikely to be problematic (e.g., [Aronow, Baron & Pinson, 2019](#); [Montgomery, Nyhan & Roeses, 2018](#); [Varaine, 2023](#); for further details see [Table A1](#) in SI). Participants in Study 1 earned between £3.85 and £49.00 ( $M = 11.94$ ,  $SD = 8.67$ ; the minimum that was paid out was £5.50); those in Study 2 earned between £6.00 and £49.50 ( $M = 12.41$ ,  $SD = 8.05$ ).<sup>1</sup> Study 1 participants had an average age of 29.90 years ( $SD = 10.94$ ) and were mostly women (67 %) and in full- or part-time employment (65 %). Study 2 participants had an average age of 38.84 years ( $SD = 12.67$ ) and were mostly men (58 %) and in full- or part-time employment (62 %; additional demographics are in [Table A2](#) in SI).

### Materials

**Organisational Setting.** The study was programmed in OTree ([Chen, Schonger & Wickens, 2016](#); see SI for screenshots from the Study 1 small pay gap condition). Participants worked for "Widget Corp", an organisation that produced and sold widgets, in groups of three. Two participants in each group were assigned to the subordinate, or *worker*, role and the remaining participant was assigned to the *leader* role. Workers were responsible for producing widgets and making repairs to the widget producing machines, where these tasks determined

organisational performance and payoffs. To complete these tasks, workers spent each 50-second period of organisational production completing as many "sliders" as possible ([Gill & Prowse, 2012](#)). A slider consisted of a short horizontal line with a tab on the left-hand side. To complete a slider, workers needed to move the tab to the mid-point of the line. The array of sliders was split into two boxes placed side-by-side on the screen. Each slider that workers completed in the left-hand box produced a widget and each slider that they completed in the right-hand box made a repair. How workers divided their time between the two boxes determined the number of widgets and repairs they made, respectively.

The leader was responsible for monitoring performance and providing feedback to workers after each period of production. At the end of each period, the leader received a summary of the number of widgets and repairs that the two workers had jointly produced and the bonuses that they and their workers each stood to receive. The leader then constructed a message to send to their workers ahead of the next period. This message consisted of an automatically populated summary of the period's production and bonuses and another three statements that the leader could choose. First, the leader could either provide praise ("This was excellent performance. Let's keep it up!") or criticism ("This was disappointing performance. Let's do better next time!"). Second, the leader could either instruct their workers to focus more on widgets ("In the next round, it is important for you to focus more on producing widgets") or repairs ("In the next round, it is important for you to focus more on repairing machines"). Finally, the leader could emphasise individual benefits ("Remember, the harder you work, the more you will benefit!") or collective benefits ("Remember, the harder we all work, the more we will all benefit!"). The message was sent when the leader pressed "send" or 50 s had elapsed. The message was displayed to workers for 20 s. They then received a summary of their earnings for the period and moved onto the next period of work.

**Payoff Structure.** The size of leaders' earnings relative to those of their workers comprised the experimental manipulation. Leaders were advantaged in terms of both non-contingent and contingent pay. Specifically, in each period, workers earned (a) a piece rate of 10 Experimental Currency Units (ECU, where 1 ECU = £0.01) for each widget they produced plus (b) a bonus of 5 ECU multiplied by the number of widgets that the organisation sold. Leaders, in contrast, earned (a) a flat wage of 100 ECU plus (b) a bonus that varied as a function of the experimental condition. In the small pay gap condition, this bonus was 5 ECU multiplied by the number of widgets sold. In the large pay gap condition, this bonus was 50 ECU multiplied by the number of widgets sold. In other words, while workers and leaders received the same bonus in the small pay gap condition, in the large pay gap condition leaders received a bonus that was 10 times greater than that received by workers. This sizeable discrepancy matches people's estimate of the actual CEO-to-worker pay ratio ([Kiatpongsan & Norton, 2014](#)).

Bonuses were determined by the number of widgets that the organisation was able to sell, where this was a function of the total number of widgets and repairs that the two workers made. Specifically, the organisation was able to sell all widgets the workers produced if they made 10 or more repairs. For every missed repair, 10 % of produced widgets would be faulty and unsaleable. So, if in a given period the two workers together made 9 repairs, the organisation would only be able to sell 90 % of the widgets they had produced; if the workers instead made 8 repairs, the organisation would only be able to sell 80 % of widgets, and so on to 0 repairs which would result in no sales. Importantly, in deciding how much time to spend on repairs, workers were presented with a trade-off. On one hand, producing widgets earned them a piece rate with certainty. On the other, making repairs earned them a bonus that, because it depended in part on the efforts of a colleague who could be unproductive or choose to free ride, was of uncertain size. For this reason, in making repairs, workers were contributing to a public good. Equilibrium analysis (see SI) indicates that as long as workers were unable to complete more than 20 sliders in a period, they should make some repairs,

<sup>1</sup> The difference in the lower bound for earnings in the two studies reflects the inflation-related adjustment to the completion fee (see SI for further information).

but fewer than the welfare maximising number of 10.

**Pay Gap Manipulation.** The only substantive difference between the two studies was the source of the pay gap. In Study 1, the pay gap was *exogenous* (outside of the leader's control) and all participants who joined a particular experimental session were allocated to the small or large pay gap. These participants were not aware that other pay gaps were possible. In contrast, in Study 2, the pay gap was *endogenous* as leaders had some discretion over pay. These participants were aware that leaders would choose their own bonus multiplier and that this could vary between 0 and 50.

To manipulate the pay gap *endogenously*, when Study 2 leaders were randomly assigned to their role they were asked to indicate their preferred personal bonus multiplier from the two options in each of two sets: 0 vs. 5 and 5 vs. 50. One of their preferences was randomly selected for implementation, and this choice and the set it was chosen from was communicated to participants. If leaders were self-interested and selected the higher value in each set, this process resulted in the random assignment of leaders to small (bonus of 5) or large (bonus of 50) pay gap conditions. This process also allowed us to avoid selection effects among leaders.<sup>2</sup>

**Survey.** After completing the 15 periods of work, participants were asked to complete a survey (see SI for all measures). As a test of H1, workers were asked about their identification with the organisation and their leader. *Organisational identification* was measured with 4 items (Postmes, Haslam & Jans, 2013, Study 1  $\alpha = .92$ ; Study 2  $\alpha = .94$ ): "I identified with my company", "I felt committed to my company", "I was glad to be a member of my company" and "Being a member of my company was an important part of how I see myself". *Leader identification* was measured with 4 items (adapted from Doosje, Ellemers & Spears, 1995, Study 1  $\alpha = .95$ ; Study 2  $\alpha = .96$ ):<sup>3</sup> "I identified with my leader", "I felt strong ties with my leader", "I was pleased with my leader", and "I felt committed to my leader".

We also included several exploratory measures of workers' affective reactions to individuals in the other role and to working in the organisation. Feelings of moral *elevation* were measured with 4 items (Van de Vyver & Abrams, 2015, Study 1  $\alpha = .95$ ; Study 2  $\alpha = .96$ ): "Please indicate how much you felt the following emotions towards your leader", "Inspiration", "awe", "admiration", "uplifted". Feelings of moral *outrage* were also measured with 4 items (Russell & Giner-Sorolla, 2011, Study 1  $\alpha = .90$ ; Study 2  $\alpha = .95$ ): "angry", "infuriated", "outraged", "contempt." Workers' affective well-being while working for Widget Corp was measured with 10 items that were accompanied by identical 7-point scales (1 = not at all, 7 = very much; Russell & Daniels, 2018). *Positive affect* was assessed with 6 items (Study 1  $\alpha = .84$ ; Study 2  $\alpha = .84$ ): "Please indicate how much working at Widget Corp. made you feel each of the following emotions:", "happy", "motivated", "active", "tired" (reversed), "bored" (reversed), and "gloomy" (reversed). *Negative affect* was assessed with 4 items (Study 1  $\alpha = .75$ ; Study 2  $\alpha = .76$ ): "anxious", "annoyed", "at ease" (reversed), and "calm" (reversed). Identification and affective well-being items were accompanied by identical 7-point response scales (1 = strongly disagree, 7 = strongly agree). Leaders completed the same measures, except that where workers were asked to evaluate their leader, the leader was asked to evaluate their workers; their responses are summarised in SI.

After this, participants responded to an item that measured their pay

perceptions: "How satisfied were you with the way in which you were paid?" This was accompanied by a 7-point response scale (1 = very dissatisfied, 7 = very satisfied). Participants were also asked to explain in their own words why they felt the way they did about their pay. Finally, participants completed the Social Value Orientation instrument (SVO; primary items; Murphy, Ackermann & Handgraaf, 2011) and provided basic demographic information.

#### Procedure

We recruited batches of a maximum of 50 people for each session. Participants completed the study online on a personal device in a location of their choosing. Participants first read instructions that described the organisational setting and their payoffs for the study. These were truthful and implemented as described. After this, participants were presented with three worked payoff examples and asked to solve another three examples themselves. Participants who could not solve these in four attempts (Study 2 additionally included a 12-minute time limit) were not able to progress. Participants who solved the examples entered a waiting room and were matched with the first available participants to form groups of three. Once participants were matched into a 3-person group, they completed two practise periods of work to familiarise themselves with the slider task (unmatched participants were not able to progress). Participants were then randomly allocated to a role (worker or leader). In Study 1, participants then started the first period of organisational production. In Study 2, the leader was first asked to select their preferred bonus multiplier. Participants who completed the study were paid a completion fee of £3 (Study 1) or £3.50 (Study 2) plus their earnings from four randomly selected periods of work. Participants who were not able to complete the study were reimbursed in line with their time investment (for further details, see SI).

#### Results

We report estimates from mixed effects models with random effects at the group-period level or individual-period level for outcome variables that were repeated across periods or at the individual or group level for measures that were not repeated. Standard errors are robust and clustered at the group level to account for any intertemporal correlation of errors within groups. Full details of all estimations are in SI. We report exogenous (Study 1) and endogenous (Study 2) pay gap results side-by-side.

#### Pay gap and pay perceptions

To examine how the pay gap impacted earnings, we estimated a mixed effects model in which we regressed participants' average earnings (in £) for each period of organisational production onto two dummy variables representing role (1 = leader, 0 = worker) and condition (1 = large gap, 0 = small gap) and their two-way interaction (see Table 1 and Table A3 in SI). Our analysis revealed that on average leaders of small gap organisations only earned slightly more than their workers per period of work: exogenous  $b = 0.20$ , 95 %CI[.15,.25],  $\chi^2(1) = 61.95$ ,  $p < .001$ ; endogenous:  $b = 0.11$ , 95 %CI[.07,.15],  $\chi^2(1) = 27.73$ ,  $p < .001$ . In contrast, leaders of large gap organisations earned at least £4 more than their workers per period — an economically significant difference: exogenous  $b = 5.31$ , 95 %CI[4.75,5.86],  $\chi^2(1) = 348.20$ ,  $p < .001$ ; endogenous  $b = 4.23$ , 95 %CI[3.53,4.93],  $\chi^2(1) = 139.68$ ,  $p < .001$ .

It is interesting to note that although the average per period earnings of workers in Study 1 did not vary as a function of pay gap,  $b = 0.01$ , 95 %CI[-.14,.16],  $\chi^2(1) = 0.01$ ,  $p = .919$ , those of workers in Study 2 did,  $b = -0.24$ , 95 %CI[-.38,-.10],  $\chi^2(1) = 11.33$ ,  $p < .001$ . In the latter study, workers whose leader chose a large (versus small) pay gap earned 15 % less, which is consistent with the possibility (articulated in H2) that in the presence of a large pay gap workers will reduce their effort. The difference in the difference in earnings as a function of pay gap across studies is significant,  $b = -0.25$ ,  $\chi^2(1) = 5.61$ ,  $p = 0.018$ , which suggests

<sup>2</sup> All leaders preferred a bonus of 5 over 0. Five leaders preferred a bonus of 5 over 50; only one of these leaders had that preference selected for implementation. In line with our pre-registered exclusion criteria, this group was dropped from the analysis.

<sup>3</sup> The original Doosje et al. (1995) scale consisted of the following items: "I identify with other psychology students", "I feel strong ties with psychology students", "I am glad to be a psychology student", "I see myself as a psychology student". For a similar adaptation see Steffens, Schuh, Haslam, Pérez & van Dick (2015).

**Table 1**  
Study 1 and 2 leader and worker pay and pay satisfaction as a function of pay gap.

	Exogenous Pay Gap (Study 1)		Endogenous Pay Gap (Study 2)	
	Small Gap	Large Gap	Small Gap	Large Gap
Earnings per period				
Leader	£1.57 (0.30)	£6.68 (2.78)	£1.70 (0.28)	£5.59 (3.49)
Worker	£1.37 (0.49)	£1.38 (0.49)	£1.59 (0.47)	£1.36 (0.52)
N (Leaders, Workers)	825; 1,650	765; 1,530	780; 1,560	855; 1,710
Pay Satisfaction <sup>a</sup>				
Leader	6.04 (1.25)	6.04 (1.34)	5.98 (1.18)	6.32 (1.17)
Worker	5.04 (1.79)	3.94 (1.98)	5.13 (1.52)	3.98 (1.84)
N (Leaders; Workers)	55; 110	51; 102	52; 104	57; 114

Notes. <sup>a</sup> Pay satisfaction was measured on a 7-point scale, where 1 = very dissatisfied and 7 = very satisfied. The observation unit is the individual. Standard deviations in parentheses.

that this reduction of effort may only occur when the pay gap is endogenous.

To assess whether participants were sensitive to the size of the vertical pay gap, we repeated the above analysis for participants' satisfaction with their pay (see Table 1 and Table A3 in SI). This revealed that workers in the large gap condition were significantly less satisfied with their pay than those in the small gap condition: exogenous  $b = -1.10$ , 95 %CI[-1.64,-0.55],  $\chi^2(1) = 15.28$ ,  $p < .001$ ; endogenous  $b = -1.15$ , 95 %CI[-1.60,-0.70],  $\chi^2(1) = 25.40$ ,  $p < .001$ . There was no evidence that leaders' satisfaction with their pay varied with condition: exogenous  $b = 0.00$ , 95 %CI[-0.49,0.49],  $\chi^2(1) = 0.00$ ,  $p = .991$ ; endogenous  $b = 0.34$ , 95 %CI[-0.10,0.77],  $\chi^2(1) = 2.24$ ,  $p = .135$ . Unsurprisingly, leaders were more satisfied with their pay than their workers were: exogenous large gap  $b = 2.10$ , 95 %CI[1.60,2.60],  $\chi^2(1) = 66.90$ ,  $p < .001$ ; exogenous small gap  $b = 1.00$ , 95 %CI[0.57,1.43],  $\chi^2(1) = 21.03$ ,  $p < .001$ ; endogenous large gap  $b = 1.49$ , 95 %CI[0.90,2.07],  $\chi^2(1) = 24.84$ ,  $p < .001$ ; endogenous small gap  $b = 0.85$ , 95 %CI[0.43,1.27],  $\chi^2(1) = 15.62$ ,  $p < .001$ . For a summary of Study 1 workers' free text explanations for their pay (dis)satisfaction, see SI. Together, these results point to the successful manipulation of the vertical pay gap.

#### Hypothesis testing

**Identification with Organisation and Leader.** We now test our expectation, articulated in H1, that workers will be less likely to identify with their organisation and their leader when the pay gap is large rather than small. To do this, we regressed the two identification variables onto the condition dummy (see Table 2, below, and Table A4 in SI). This analysis revealed that, in line with H1(a), workers in the large gap condition identified significantly less with their organisation than those in the small gap condition: exogenous  $b = -0.52$ , 95 %CI[-1.03,-0.01],  $\chi^2(1) = 3.94$ ,  $p = .047$ ; endogenous  $b = -0.49$ , 95 %CI[-0.95,-0.03],  $\chi^2(1) = 4.38$ ,  $p = .036$ . Additionally, in line with H1(b), workers in the large gap condition also identified significantly less with their leader than those in the small gap condition: exogenous  $b = -0.61$ , 95 %CI[-1.07,-0.14],  $\chi^2(1) = 6.59$ ,  $p = .010$ ; endogenous  $b = -1.08$ , 95 %CI[-1.52,-0.64],  $\chi^2(1) = 23.13$ ,  $p < .001$ . There was no evidence that the large pay gap eroded workers' identification to different extents across studies.

**Output and Public Good Contributions.** We now test our expectation, articulated in H2, that workers in the large (versus small) pay gap organisation should (a) generate lower output (i.e., produce fewer widgets) and (b) contribute less to the public good (i.e., make fewer repairs). To test these expectations, we ran independent samples *t*-tests comparing workers' average output and public good provision as well as the resulting productivity of the organisation (in terms of sales) using the three-person organisation mean across the 15 periods as the unit of observation. Table 3 summarises the means and standard deviations across periods; Fig. 1 decomposes these by period. Disaggregating the data at the organisation-period level and running mixed-effects models with random effects at the level of the company-period and the individual-period produce identical results; see Table A5 in SI.

Contrary to H2(a), there was no evidence that the size of the pay gap

affected the number of widgets that workers produced: exogenous  $t(104) = 0.19$ ,  $p = 0.853$ ; endogenous  $t(107) = 0.12$ ,  $p = 0.906$ . Evidence for H2(b) varied across the two studies. Specifically, in Study 1, there was no evidence that the size of the exogenous pay gap had any effect on the number of repairs that workers made. Indeed, the difference between the large and small gap conditions is almost exactly zero,  $t(104) = 0.00$ ,  $p = 0.999$ . As a result, in Study 1, companies with large and small pay gaps were equally productive,  $t(104) = 0.01$ ,  $p = 0.992$ . However, when the leader determined the pay gap endogenously, we found evidence for H2(b). Specifically, in Study 2, workers made fewer repairs when the pay gap was large than when it was small,  $t(107) = 4.67$ ,  $p < 0.001$ . As a result, companies with large pay gaps were significantly less productive than those with small pay gaps,  $t(107) = 4.58$ ,  $p < 0.001$ .

The above analysis aggregates across periods of production, which could obscure interpersonal dynamics that may have played out across periods of production. For this reason, we tested the robustness of our findings by repeating our analysis with the first period of production. As leaders had not yet had an opportunity to communicate with their workers this provides a cleaner test of the causal impact of the vertical pay gap on worker behaviour. As above, and contra H2(a), there was no evidence that workers in the small gap condition produced more widgets in the first period than those in the large gap condition: exogenous  $t(104) = 0.84$ ,  $p = .401$ ; endogenous  $t(107) = 1.16$ ,  $p = .248$ . Turning to repairs, we again observe that when the pay gap was endogenously determined by the leader workers in the large gap condition made fewer repairs in the first period than those in the small gap condition: exogenous  $t(104) = 0.75$ ,  $p = .456$ ; endogenous  $t(107) = 2.17$ ,  $p = .032$ . As a result, it was only when pay was endogenously determined that large gap organisations were less productive than small gap organisations: exogenous  $t(104) = 0.84$ ,  $p = .405$ ; endogenous  $t(107) = 2.03$ ,  $p = .045$ .

Thus, the tendency for workers to contribute less to the public good when they can attribute the large pay gap to the leader rather than some external force is present from the very start of the organisation's operation. Interestingly, as can be seen in Fig. 1, this tendency strengthens over time as the number of repairs falls off significantly faster when the pay gap is large than when it is small,  $\chi^2(1) = 5.74$ ,  $p = 0.017$ . In contrast, there is no evidence that the size of the pay gap affects the tendency to make fewer repairs over time in Study 1,  $\chi^2(1) = 2.17$ ,  $p = 0.140$ , or to make produce widgets over time in both studies: endogenous widgets,  $\chi^2(1) = 2.30$ ,  $p = 0.129$ ; exogenous widgets,  $\chi^2(1) = 0.00$ ,  $p = 0.993$ .

**Responsiveness to Leader Instructions.** We now test our expectation, articulated in H3, that workers in large pay gap organisations will be less inclined to follow their leader's instructions than those in small gap organisations. We first examined the messages that leaders sent in the two conditions. Table 4 reveals that leaders were, in general, most likely to send messages that praised workers' efforts, instructed them to make more repairs in the next period and emphasized the collective benefits of working hard.

**Table 2**  
Study 1 and 2 worker identification and affect as a function of pay gap.

	Exogenous Pay Gap (Study 1)		Endogenous Pay Gap (Study 2)	
	Small Gap	Large Gap	Small Gap	Large Gap
Identification Org.	4.58 (1.60)	4.07 (1.70)	4.13 (1.55)	3.64 (1.64)
Identification Leader	3.84 (1.63)	3.24 (1.56)	3.46 (1.65)	2.38 (1.42)
Elevation	3.35 (1.48)	2.81 (1.50)	2.90 (1.44)	2.16 (1.25)
Outrage	2.83 (1.48)	3.41 (1.48)	2.33 (1.40)	3.55 (1.72)
Positive Affect	4.96 (1.17)	4.38 (1.24) <sup>‡</sup>	4.84 (1.15)	4.37 (1.16)
Negative Affect	3.59 (1.24) <sup>+</sup>	3.90 (1.18) <sup>‡</sup>	3.85 (1.17)	3.84 (1.14)
N	110	102	104	114

Notes. +, † and ‡ indicate Ns of 109, 101 and 100, respectively, due to missing responses; all measures use 7-point scales where 1 = strongly disagree and 7 = strongly agree. The observation unit is the individual.

**Table 3**  
Study 1 and 2 workers' joint production as a function of pay gap.

	Exogenous Pay Gap (Study 1)		Endogenous Pay Gap (Study 2)	
	Small Gap	Large Gap	Small Gap	Large Gap
All Periods				
Widgets	16.05 (3.74)	16.20 (4.28)	17.87 (2.94)	17.95 (4.20)
Repairs	7.59 (2.87)	7.59 (2.19)	8.33 (2.25)	5.80 (3.27)
Sales	11.36 (5.48)	11.37 (4.76)	14.02 (4.82)	9.17 (6.09)
First Period				
Widgets	11.36 (3.95)	11.98 (3.55)	13.25 (3.71)	12.40 (3.89)
Repairs	8.35 (2.44)	8.71 (2.52)	8.77 (2.75)	7.53 (3.19)
Sales	9.22 (4.40)	9.90 (4.00)	10.88 (4.57)	9.00 (5.09)
N	55	51	52	57

Notes: The observation unit is the organization.

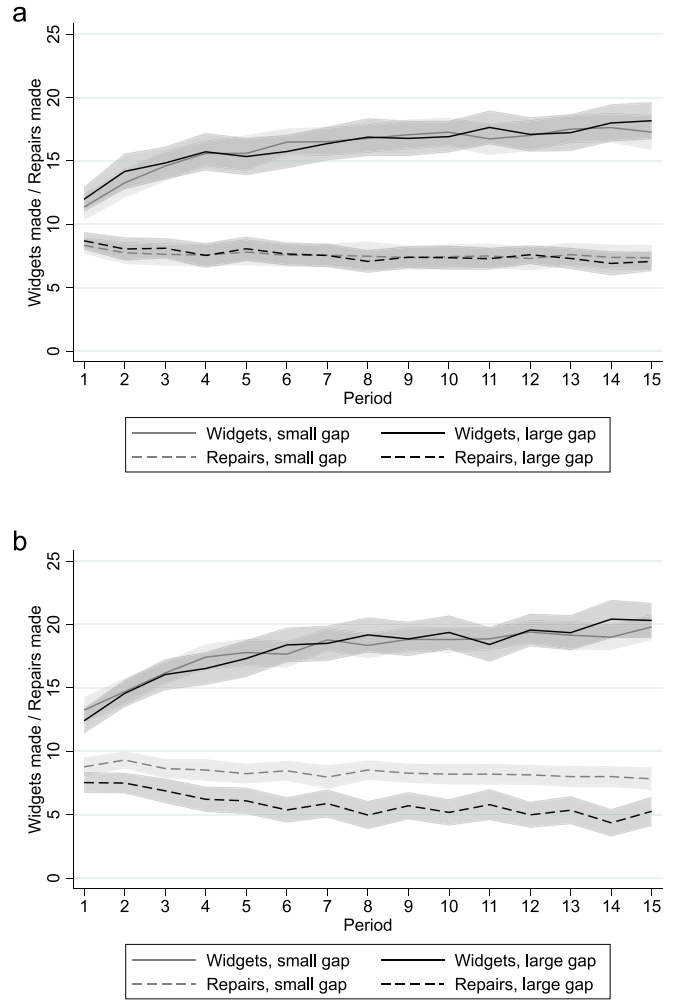
We used Pearson chi-square tests to see if the frequency with which leaders sent the different types of content varied with the size of the pay gap for each dimension and study in turn. This analysis revealed that in Study 2, but not Study 1, leaders were more likely to criticize their workers if the pay gap was large rather than small: exogenous  $\chi^2(2) = 4.12, p = .127$ ; endogenous  $\chi^2(2) = 11.28, p = .004$ . In both studies, leaders were more likely to request repairs if the pay gap was large rather than small: exogenous  $\chi^2(2) = 11.71, p = .003$ ; endogenous  $\chi^2(2) = 19.15, p < .001$ . They were also more likely to appeal to individualistic motives if the pay gap was large rather than small: exogenous  $\chi^2(2) = 9.30, p = .010$ ; endogenous  $\chi^2(2) = 11.10, p = .004$ .

We aimed to account for unfolding interpersonal dynamics (whereby leader messages are both affected by and affect worker performance) in our models of the number of widgets and repairs produced by worker  $i$  in group  $j$  in period  $t$ . The models include dummies for condition (as above) and each of the message statements (1 = criticism, 1 = more widgets/repairs,<sup>5</sup> and 1 = collective benefits, otherwise 0).  $GroupWidgets_{t-1}$  measures the number of widgets produced by the company's two workers in the previous period,  $GroupRepairs_{t-1}$  measures the number of repairs made by the two workers in the previous period. Finally,  $X$  is a vector of individual characteristics, including SVO, age, gender, years of work experience, and seniority.

$$\begin{aligned}
 Widgets_{ijt} = & b_0 + b_1 LargeGap + b_2 Criticism + b_3 MoreWidgets_t + b_4 Collective_t \\
 & + b_5 LargeGap \times Criticism + b_6 LargeGap \times MoreWidgets_t \\
 & + b_7 LargeGap \times Collective_t + b_8 GroupWidgets_{t-1} \\
 & + b_9 GroupRepairs_{t-1} + Xg + u_j + v_{ij+} e_{ijt}
 \end{aligned}
 \tag{1}$$

<sup>4</sup> In Study 1, one leader in the large pay gap condition failed to give instructions and specify benefits, resulting in missing data. If we exclude this outlier from the Study 1 analysis, there is no evidence of any systematic difference in the kinds of messages that leaders chose to send in the two conditions.

<sup>5</sup> To increase explanatory clarity, we varied the coding of this variable so that the instruction mapped onto the behavioural outcome.



**Fig. 1.** Study 1 and 2 mean joint worker production in terms of individually beneficial widgets and collectively beneficial repairs over periods as a function of pay gap. Notes: (a) Study 1: exogenous pay gap; (b) Study 2: endogenous pay gap. The observation unit is the organization-period; shaded areas are 95% Cis.

$$\begin{aligned}
 Repairs_{ijt} = & b_0 + b_1 LargeGap + b_2 Criticism + b_3 MoreRepairs_t \\
 & + b_4 Collective_t + b_5 LargeGap \times Criticism \\
 & + b_6 LargeGap \times MoreRepairs_t + b_7 LargeGap \times Collective_t \\
 & + b_8 GroupWidgets_{t-1} + b_9 GroupRepairs_{t-1} + Xg + u_j + v_{ij+} e_{ijt}
 \end{aligned}
 \tag{2}$$

When the pay gap was small, instructions to make more widgets were positively correlated with the number of widgets that workers produced (for all coefficients, see Table 5): exogenous  $\chi^2(1) = 33.07, p < .001$ ;

**Table 4**  
Study 1 and 2 messages as a function of pay gap.

Dimension	Content	Exogenous Pay Gap (Study 1)		Endogenous Pay Gap (Study 2)	
		Small Gap	Large Gap	Small Gap	Large Gap
Evaluation	Missing	2 (0.3 %)	3 (0.4 %)	4 (0.6 %)	3 (0.4 %)
	Praise	603 (78.3 %)	587 (82.2 %)	579 (79.5 %)	578 (72.4 %)
	Criticism	165 (21.4 %)	124 (17.4 %)	145 (19.9 %)	217 (27.2 %)
Instruction	Missing	4 (0.5 %)	19 (2.7 %)	4 (0.6 %)	3 (0.4 %)
	More Widgets	288 (37.4 %)	248 (34.7 %)	288 (39.6 %)	232 (29.1 %)
	More Repairs	478 (62.1 %)	447 (62.6 %)	436 (59.9 %)	563 (70.6 %)
Beneficiary	Missing	4 (0.5 %)	16 (2.2 %)	4 (0.6 %)	3 (0.4 %)
	Individual	309 (40.1 %)	300 (42.0 %)	314 (44.1 %)	412 (51.6 %)
	Collective	457 (59.4 %)	398 (55.8 %)	410 (55.3 %)	383 (48.0 %)
N		770	714	728	798

Notes: Missing content occurred when leaders did not select content within the time limit; counts cover the first 14 periods, as there was no message after the 15th period. The observation unit is the individual-period.

endogenous  $\chi^2(1) = 10.88, p = .001$ . Contra H3, there was no evidence that the association between leader instruction and worker output was smaller when the pay gap was large as the interaction between the instruction and the condition dummies was not significant: exogenous  $\chi^2(1) = 2.22, p = .136$ ; endogenous  $\chi^2(1) = 0.24, p = .626$ . Turning to repair behaviour, when the pay gap was small, instructions to make more repairs were positively correlated with the number of repairs that workers made: exogenous  $\chi^2(1) = 21.48, p < .001$ ; endogenous  $\chi^2(1) = 13.63, p < .001$ . Again, contra H3, there was no evidence that the correlation between leader instruction and worker repairs was smaller when the pay gap was large as the interaction between the instruction and the condition dummies was not significant: exogenous  $\chi^2(1) = 0.66, p = .416$ ; endogenous  $\chi^2(1) = 0.01, p = .924$ . There was no evidence that the other message dimensions were associated with subsequent worker behaviour.

To assess the robustness of these results, we repeated these models for period 2 only, when we could examine workers' response to their leader's first instruction. The unstandardised coefficients are again provided in Table 5 and illustrated in Fig. 2. Consistent with the analysis above, when the pay gap was small, instructions to make more widgets were positively correlated with the number of widgets that workers made: exogenous  $\chi^2(1) = 24.78, p < .001$ ; endogenous  $\chi^2(1) = 4.75, p = .029$ . This time, however, there was evidence that the association between leader instruction and worker output was weaker when the pay gap was large, as in Study 1 (but not Study 2) the two-way interaction between the instruction and the condition dummy was negative and significant: exogenous  $\chi^2(1) = 4.69, p = .030$ ; endogenous  $\chi^2(1) = 1.62, p = .203$ .

Turning to repair behaviour, in the small pay gap condition, period 2 instructions to make more repairs again were positively correlated with the number of repairs that workers made: exogenous  $\chi^2(1) = 32.14, p < .001$ ; endogenous  $\chi^2(1) = 13.08, p < .001$ . Importantly, the association between leader instructions and worker repairs was weaker when the pay gap was large, as the two-way interaction between the instruction and the condition dummy was negative and significant in both studies: exogenous  $\chi^2(1) = 4.90, p = .027$ ; endogenous  $\chi^2(1) = 7.17, p = .007$ . Thus, this truncated analysis supports H3 by showing that when the pay gap was large a leader's instruction to contribute to the public good had a weaker association with the number of repairs their workers subsequently made; in Study 1, a leader's instruction to increase output also had a weaker association with the number of widgets their workers made in the next period.

### Exploratory analyses

Building on the growing body of work that points to the important role that social identification plays in health and well-being in the workplace (e.g., Steffens et al., 2017), we explored the relationship between the pay gap and participants' affective responses and well-

being. We first regressed workers' feelings of elevation and then outrage towards their leader onto a dummy variable representing condition (1 = large gap, 0 = small gap). Means and standard deviations are available in Table 2 (Tables A6 and A7 in SI). Workers in the large gap condition reported finding their leaders significantly less *elevating* (i.e., inspiring, admirable) than did workers in the small gap condition: exogenous  $b = -0.53, 95\% \text{CI}[-0.97, -0.10], \chi^2(1) = 5.85, p = .016$ ; endogenous  $b = -0.74, 95\% \text{CI}[-1.11, -0.36], \chi^2(1) = 14.82, p < .001$ . Repeating this analysis for *outrage* produced a similar pattern of findings. That is, workers in the large gap condition reported feeling more outrage towards their leader than did those in the small gap condition: exogenous  $b = 0.58, 95\% \text{CI}[0.14, 1.01], \chi^2(1) = 6.64, p = .010$ ; endogenous  $b = 1.21, 95\% \text{CI}[0.81, 1.62], \chi^2(1) = 34.56, p < .001$ .

Next, we repeated the above analysis for workers' wellbeing while working. Workers in the large gap condition reported experiencing significantly less *positive affect* than those in the small gap condition: exogenous  $b = -0.58, 95\% \text{CI}[-0.94, -0.23], \chi^2(1) = 10.24, p = .001$ ; endogenous  $b = -0.47, 95\% \text{CI}[-0.79, -0.16], \chi^2(1) = 8.53, p = .004$ . In contrast, there was no evidence that workers in the large gap condition experienced more *negative affect* than those in the small gap condition: exogenous  $b = 0.31, 95\% \text{CI}[-0.03, 0.65], \chi^2(1) = 3.23, p = .072$ ; endogenous  $b = -0.02, 95\% \text{CI}[-0.30, 0.27], \chi^2(1) = 0.01, p = .914$ . The equivalent analysis for leader affect (see SI) found that leaders felt more elevated and less outraged by their workers than the reverse; they also experienced more positive and less negative affect while working. Leader affective experiences did not systematically vary with pay gap.<sup>6</sup>

### Discussion

"You can't justify a salary of that size... I am incredibly fortunate. I don't set my own pay; that's set by our remuneration committee."  
Chris O'Shea, CEO of Centrica (Neate, 2024)

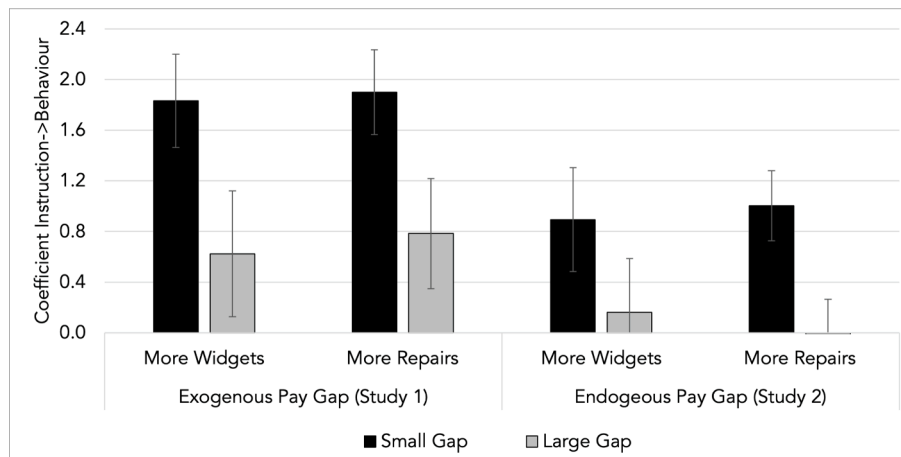
Lee Iacocca, the CEO of Chrysler, claimed that leaders who minimise the gap between their own pay and that of their subordinates would be better able to encourage their subordinates to work hard for the collective organisational interest. This claim, if correct, suggests that the unstinting growth in the vertical pay gap over the last six decades should have been accompanied by a steady decrease in effective organisational leadership, and ultimately poorer organisational performance. While there is archival evidence that larger vertical pay gaps are indeed correlated with a range of negative organisational outcomes, including higher turnover and poorer performance (Ou et al., 2018), the causal role of leadership processes in these outcomes has been unclear. We help to fill this gap by showing that the vertical pay gap can indeed impede

<sup>6</sup> Reports of positive and negative affect are somewhat coherent,  $r = -.58$ . However, correcting for multiple hypothesis testing does not alter the pattern of significance and thus the interpretation of these findings.

**Table 5**  
Study 1 and 2 unstandardized regression coefficients of leader messages on worker production as a function of pay gap and time frame.

Predictors	All Periods				Second Period Only			
	Exogenous Pay Gap		Endogenous Pay Gap		Exogenous Pay Gap		Endogenous Pay Gap	
	Widgets	Repairs	Widgets	Repairs	Widgets	Repairs	Widgets	Repairs
Large Pay Gap	0.336 (.268)	-0.199 (.274)	0.187 (0.272)	0.712* (0.315)	2.034** (0.717)	-0.414 (0.504)	0.956 (0.576)	0.361 (0.399)
Criticism Msg. (t-1)	-0.093 (.159)	0.050 (.139)	0.277 (0.144)	-0.089 (0.134)	0.156 (0.536)	-0.203 (0.496)	1.159 (1.125)	-0.124 (0.598)
Large Pay Gap x Criticism Msg. (t-1)	0.300 (.238)	-0.056 (.208)	-0.200 (0.218)	-0.104 (0.215)	-2.104** (0.693)	0.759 (0.582)	-2.023 (1.313)	0.094 (0.677)
More Widgets Msg. (t-1)	0.823*** (.143)		0.550** (0.167)		1.831*** (0.368)		0.894* (0.410)	
Large Pay Gap x More Widgets Msg. (t-1)	-0.320 (.215)		0.151 (0.310)		-1.207* (0.557)		-0.732 (0.575)	
More Repairs Msg. (t-1)		0.646*** (.139)		0.600*** (0.162)		1.901*** (0.335)		1.003*** (0.277)
Large Pay Gap x More Repairs Msg. (t-1)		-0.168 (.207)		-0.028 (0.292)		-1.117* (0.505)		-1.015** (0.379)
Collective Msg. (t-1)	-0.033 (.130)	0.017 (.091)	-0.119 (0.155)	0.117 (0.127)	0.271 (0.424)	-0.518 (0.346)	0.178 (0.474)	0.557 (0.286)
Large Pay Gap x Collective Msg. (t-1)	-0.279 (.204)	0.296 (.178)	-0.007 (0.205)	-0.110 (0.165)	-1.509* (0.641)	1.331* (0.580)	-0.419 (0.620)	-0.081 (0.376)
Group Widgets (t-1)	0.237*** (.016)	0.025 (.015)	0.242*** (0.016)	-0.011 (0.014)	0.390*** (0.040)	0.051 (0.036)	0.354*** (0.048)	0.007 (0.026)
Group Repairs (t-1)	0.160*** (.027)	0.085** (.029)	0.052 (0.034)	0.151*** (0.031)	0.101 (0.087)	0.371*** (0.070)	-0.022 (0.064)	0.366*** (0.045)
Constant	4.775*** (.982)	1.746* (.842)	8.382*** (1.051)	2.742*** (0.668)	2.514* (1.266)	-0.278 (0.972)	5.565*** (1.200)	1.547* (0.771)
Var(Group)	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)
Var(individual)	3.773 (.432)	2.591 (.325)	5.328 (0.679)	2.227 (0.239)				
Var(residual)	3.307 (.253)	2.541 (.234)	3.390 (0.282)	2.331 (0.239)	5.032 (0.660)	3.090 (0.286)	5.957 (0.761)	2.782 (0.319)
Log pseudo-likelihood	-6256.91	-5856.35	-6475.53	-5858.23	-469.87	-418.43	-499.23	-416.97
N (Obs; groups; individuals)	2,954; 106; 211		3,024; 109; 216		211; 106; 211		216; 109; 216	

Notes: Results from mixed effects estimator; \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ ; Msg. = Message. The observation unit is the individual-period; robust standard errors in parentheses clustered at the group level; one worker dropped from Study 1 analysis as they did not respond to SVO questions; results are unchanged if we drop SVO.



**Fig. 2.** Study 1 and 2 unstandardized regression coefficients of period 2 worker responsiveness to leader instructions as a function of pay gap. Notes: Error bars are robust standard errors clustered at the group level; the observation unit is the individual; bar height represents workers' period 2 compliance with the leader's period 1 instruction, based on the mixed effects model estimates from Table 5.

leadership and thereby harm the bottom line. Across two experiments, we found that subordinates who were faced with a large (versus small) pay gap were less likely to identify with their leader and the organisation as a whole. Importantly, these subordinates were less willing to act on their leader's commands, at least initially. Further, when leaders were personally responsible for the large pay gap, these subordinates were also less willing to contribute to the organisational public good.

We observe an unexpected gap between subordinate psychology and behaviour. In particular, in line with previous work (e.g. Steffens et al., 2020), we observe that the vertical pay gap has a reliably negative effect

on subordinates' psychology. In contrast, the impact of the vertical pay gap on organisationally relevant behaviour appears to be more variable. Specifically, subordinates only acted on the sense that they lack a shared identity with a highly paid leader by withdrawing effort from the organisational public good when their leaders endogenously selected the high pay gap (and not when this gap was imposed by a party outside of the organisation). This suggests that negative reciprocity concerns may play an important role in determining the behavioural response to vertical pay inequality within an organisation. That is, it may be that subordinates are only willing to act in ways that will harm their leader



and the organisation more broadly when they can attribute a large pay gap to their leader's selfishness and unkindness (Falk & Fischbacher, 2006). Indeed, the lack of correlation between SVO data (see SI) and behaviour across studies suggests that in this context reciprocity concerns may trump 'pure' distributional concerns (Charness & Rabin, 2002).

One lesson that leaders who wish to increase the size of the vertical pay gap in their organisation could draw from these findings is that they could reduce the risk of adverse employee behaviour by using compensation committees or external consultants. However, the quote from Chris O'Shea, above, when asked to justify his pay of £4.5 million, suggests that this is a lesson that many organisations have already learned. We would instead draw leaders' attention to our finding that a large vertical pay gap has negative implications for employees' affective well-being. Given time, and assuming these findings generalise, they suggest that increases in the vertical pay gap may contribute to the substantial costs that organisations have to bear due to poor staff mental health (estimated at £56 billion annually in the UK; Deloitte, 2022). Furthermore, post-experimental survey data suggest that working for an organisation with a high pay gap may not only diminish worker well-being, but also amplify differences in affective experience between those at the top and everyone else. That is, workers and their leaders may end up occupying very different psychological worlds that makes it increasingly difficult for the two groups to connect for the collective good. In sum, the vertical pay gap matters. Larger gaps cause psychological divisions within the workforce and create fertile soil for "us" versus "them" dynamics between the organisational haves and the have nots.

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**Kim Peters:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Miguel Fonseca:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Niklas K. Steffens:** Writing – review & editing, Methodology, Investigation, Conceptualization. **Oliver P. Hauser:** Writing – review & editing, Methodology, Investigation, Conceptualization.

#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### Data availability

The data and code are available through the osf links provided in the paper.

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#### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.leaqua.2024.101811>.

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