Abstract

We present a survey-based methodology for estimating employer market power and worker valuations of job amenities. We discuss a simple model of a monopsonistic employer choosing wages jointly with non-wage working conditions. We show that a distinctive prediction of monopsony is that just-binding minimum wages are not offset by lowered workplace characteristics that are complementary with wages. To implement our methodology, we draw on in-depth interviews conducted with 87 Walmart workers to design and implement a survey experiment with over 10,000 Walmart workers recruited online. Using responses to hypothetical outside offers and link click-through rates, we find a quit elasticity of roughly 2, consistent with other recent research showing monopsony power in the low-wage labor market. Motivated by the ethnographic evidence, we expand the set of amenities to include subjective experiences of supervisor respect and fairness, self-expression on the job, and reliable co-workers, which we jointly call "workplace dignity", following a large sociological literature. We find that workers value workplace dignity at approximately six percent of their current wage, comparable to amenities like commute time and more valuable than widely discussed amenities like control over one's schedule or physical exertion. Second, we use geographic variation in the bite of Walmart’s 2014 voluntary minimum wage policy to estimate the causal impact of higher wages on amenities. Consistent with both employer market power and wage-amenity complementarities, we find that the subjective experience of work does not become worse when wages are increased as a result of the voluntary minimum wage. We can rule out declines in valued experiences of work smaller than 10% of the increase in wages caused by the voluntary minimum wage. We conclude that the interaction of employer market power with worker’s valuations of respect and fairness at work imply that large low-wage employers may under-supply both wages and job amenities, including workplace dignity.
1 Introduction

How do monopsonistic employers design jobs? Besides wages, jobs also differ on many attributes that workers value—from easily measured amenities like pension benefits and injury risk to more subjective ones like relationships with supervisors and co-workers. From a monopsonistic employer’s perspective, workplace characteristics and wages together will alter the costs of retaining or recruiting workers. How can researchers measure the value workers put on non-wage amenities when deciding whether or not to leave an employer, or even ask for a raise?

We build on recent work and use a stated preference experiment on workers from a single major employer—Walmart—to assess what type of characteristics of an outside offer will make them leave their jobs. We extend previous worker surveys by eliciting click behavior, offering both quit and bargaining options, and asking about a wider variety of amenities. We developed the amenity questioned by drawing on in-depth interviews conducted with 87 Walmart workers to inductively define amenities based on what workers say about their jobs. Consistent with previous sociological literature (Hodson et al., 2001), we find that workers value not just standard amenities such as low commute time, but also a set of workplace characteristics-supervisor respect and fairness, reliance on co-workers, and self-expression on the job—that together we call "dignity at work." We then scale up the qualitative work by using a stated-preference experiment involving more than 10,000 Walmart workers to measure Walmart workers’ willingness to pay for workplace dignity compared to a range of other job amenities. The survey experiment is unique in that we can elicit the elasticities of workers quitting as well as asking for a raise ("bargaining") to the quality of the outside offer, allowing estimation of a survey-based measure of employer market power.1

We find that survey-elicited monopsony power is substantial, as measured by the willingness to quit in response to hypothetical alternative offers. Our estimates are

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1In this we follow some recent work in industrial organization using survey-based measures of diversion ratios, see Conlon and Mortimer (2021).
comparable to other quasi-experimental estimates of labor-supply elasticities from the recent literature. We also find that workers value subjective experiences of work such as workplace dignity even more than amenities such as general skill acquisition, predictable scheduling, or limited physical exertion. Overall, we find that 1 standard deviation change in workplace dignity is valued between 6 and 8 percent of wages.

Unlike past work estimating willingness-to-pay for amenities, we additionally model and estimate the degree of complementarity between each amenity and the hourly wage: for example, paid time off is naturally more valuable when the hourly wage is higher. These complementarities imply that the observed correlation between non-wage amenities and wages results in even higher inequality in experienced job values than previous estimates (Maestas et al., 2018). Our model further implies a distinctive signature of the effect of the minimum wage on amenities: competitive labor markets, or monopsonistic labor markets where amenities and wages are substitutes, both imply that a binding minimum wage should reduce workplace amenities. We test this prediction using within-firm cross-market variation in the bite of Walmart’s voluntary minimum wage to estimate the effect of higher wages on dignity and other job amenities, finding that there is no detectable effect of the wage-bite on workplace dignity, or other amenities. This is true even for amenities (such as supervisory behavior) which are more directly under the control of local managers. Both the hypothesis of perfect competition in the labor market, as well as the hypothesis of perfect substitutability between wages and amenities, are rejected by our data.

Our paper makes three primary contributions. First, we extend recent work that makes use of stated-preference and discrete choice experiments (Drake et al., n.d.; Maestas et al., 2018; Mas and Pallais, 2017) by targeting employees from a single firm through Facebook advertisements (Schneider and Harknett, 2019; Storer et al., 2020). While there are numerous estimates of compensating differentials for a wide range of job characteristics, the focus has been on observable or easy-to-measure dimensions
like health benefits, commuting time, scheduling, locational choice, and injury risk.

We build our survey questions based on qualitative work, closely mapping our survey design to responses from interviewees by incorporating the "workplace dignity" amenities.

Further, rather than measuring people’s choice between two hypothetical jobs, we ask these workers to compare their current job to several hypothetical outside offers in which we randomize wages (around the worker’s current wage) as well as job amenities. We then ask workers to indicate whether they would quit their current job for the outside offer or whether they would use the outside offer to bargain with Walmart for a raise. The advantage of the stated-preference approach is that it allows us to randomize job characteristics and observe the tradeoffs that workers make in their hypothetical quit and bargaining decisions. Unlike previous such experiments, however, we do so in a context that more closely resembles the kind of decisions that workers actually face in the labor market (i.e., leaving or staying at a job), and allows us to measure workers’ quit (and bargaining) elasticities with respect to different amenities and wages. Beyond recovering willingness to pay for different workplace amenities, we also obtain an easy-to-implement measure of monopsony power. The literature eliciting willingness-to-pay has uniformly focused on wage-amenity schedules implied by competitive labor markets, in the spirit of Rosen (1974), but has not paid much attention to how employer market power alters the interpretation of observed wages and amenities.

We provide external validity of our method by showing that the supply elasticities with respect to the wage that we observe experimentally approximate the supply elasticities to the firm for similar workers obtained from analyses of administrative records (Bassier et al., 2020; Lamadon et al., 2019). We also obtain a similar estimate of the supply elasticity based on respondents’ clicks on external links to jobs with wages com-

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2A recent exception to this is Folke and Rickne (2020) who use similar methods to elicit valuations of sexual harassment at work in Sweden.
parable to the hypothetical offer, providing a behavioral validation of our approach. Finally, we implement a similar conjoint survey in a sample of workers on Amazon Mechanical Turk, finding very similar preferences over dignity vis-a-vis wages.

Second, we build on recent literature within economics on the non-pecuniary dimensions of job valuation and labor market inequality (Marinescu et al., 2021; Maestas et al., 2018) by estimating the economic value of “soft” attributes like people’s relationships with their co-workers, their ability to express themselves at work, the respect with which they feel treated by their manager, and the extent to which they think their manager is fair—a combination of attributes that we treat, following a literature in sociology, as approximating the concept of ’dignity at work.’ While a large literature in sociology, as well as classical economists such as Adam Smith, Karl Marx, and even arch-utilitarian J.S. Mill, emphasize the importance of dignity and respect as non-pecuniary values, economists have largely overlooked these subjective experiences of workplaces in favor of more easily measurable amenities such as safety, scheduling, and commute times.

We compare workers’ valuations of these attributes with their valuations of workplace amenities that are more often discussed in the literature. Following previous scholarship, we use the valuations derived from our stated preference experiment to examine job valuations up and down the wage distribution in order to understand whether non-wage amenities complement or substitute for wages among our sample, and find significant complementarities between wages and valuations of amenities. We find that workers value one standard deviation of our measure of workplace dignity at approximately six percent of their current wages, making it comparable to amenities like commute time and more valuable than widely discussed amenities like control over one’s schedule. We organize these findings through a model of job design with employer market power (Viscusi, 1980), building on a labor market analogue of the

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3An exception to this is the literature on fairness at work, e.g. Card et al. (2012), but this has focused on inequality in pay across workers, not in the experience of supervisory treatment or co-worker relationships.
Spence (1975) model of a monopolist’s choice of product quality. Consistent with prior research, and inconsistent with a simple theory of compensating differentials (Rosen 1974), we find that non-wage amenities exacerbate wage inequality within our sample: higher wage workers also have higher non-pecuniary job values and they report higher levels of workplace dignity. Our findings are consistent with other research that shows that in an imperfectly competitive labor market, observed correlations between job characteristics and wages—even conditional on firms and worker productivity—do not necessarily reflect worker preferences (Hwang, Mortensen and Reed 1998, (Lavetti and Schmutte 2018). Our findings are also complementary with recent work by (Sockin, 2021) who use data from Glassdoor and finds lower-wage firms also tend to provide lower levels of amenities.

Following the structural search literature (Bagger et al., 2014) we also allow workers to respond to outside offers by bargaining (at some idiosyncratic cost) with their current employers for a raise (Lachowska et al., 2021). We find that bargaining is not very responsive to hypothetical outside offers, and there is residual heterogeneity in both quit and bargaining decisions even after all 11 amenities we vary are incorporated into the value of the outside offer. We also find that those who report higher levels of job dignity at their current job report a lower quit elasticity with respect to the wage, but a higher bargaining elasticity. In other words, providing more workplace dignity might increase the possibility of more workers asking for a raise. In light of these results, we discuss why an employer like Walmart may undersupply job dignity-related amenities to its employees under conditions of monopsony.

Third, we exploit Walmart’s voluntary minimum wage (VMW) of $11 per hour to assess whether the higher wage led to compensating differentials through reduced amenities in general, and the dignity that workers report in their jobs in particular, testing the predictions of the model. We first demonstrate that the VMW was highly binding, and that the proportion of Walmart workers paid at $11 is higher in low-median-wage states, suggesting that the “bite” of the VMW is greater in these states.
We then focus on those at the bottom deciles of the within-state Walmart wage distribution – i.e. those whose wages were likely raised above the prevailing market wage by the VMW in low-median-wage states. Instrumenting the bite of the VMW with state median wages, we quantify how the bite of the VMW impacted wages, and how higher wages, in turn, impacted workers’ reported dignity, their relative valuation of dignity, and their overall job valuations.

We find that there is a strong positive association between the bite of the VMW and wages at the bottom of the within-state Walmart wage distribution, confirming that the VMW led to substantial wage compression, especially in low-wage states. At the same time, we find no evidence that these higher wages at the bottom were offset by reduced amenities; as a result, job values rose at the bottom of the wage distribution in equal amounts, showing no compensating differentials. We found a small (though imprecise) positive association between the bite of the VMW and reported dignity values. However, under competitive labor markets or perfect substitutability of amenities and wages, we would see a decrease in job amenities, including the experience of dignity at work.

2 Dignity as a Workplace Amenity

While hourly wages, benefits, and hours are obviously important dimensions of a job, the recent literature discussed above has shown that workers also value non-wage amenities such as scheduling, safety, and commuting time. Beyond these, however, economists have paid little attention to more subjective experiences of work, including attributes like a worker’s sense of autonomy and their relationships with supervisors and co-workers. An exception is Bénabou and Tirole (2009), who model dignity as a belief in own productivity, building on the framework in Bénabou and Tirole (2011), and have a model where individuals value the belief that they are productive directly. We present a variant of our theoretical framework in the Appendix that extends and
applies this model to our context.

Sociologists, on the other hand, have examined many facets of work in detailed ethnographies of a variety of workplaces. Hodson et al. (2001) is a meta-analysis of over 200 ethnographies that examines the correlates of workplace satisfaction. Within these ethnographies, qualities of work that tend to stand out include autonomy on the job, coworker relationships, and quality of supervision, or what we will collectively call "workplace dignity." As we will see, these qualities stand out at Walmart as well. However, within most workplace ethnographies, characteristics are inductively measured based on observations within particular work sites and are rarely quantified, let alone converted into equivalent wage variation.

We build our survey experiment of amenities building on interviews with 87 Walmart workers described more thoroughly in Reich and Bearman (2018). As in the Hodson et al. (2001) meta-analysis of workplace ethnographies, workers at Walmart recurrently discussed what made their supervisors good or bad, the qualities of their relationships with their coworkers, and the degree to which they were able to express themselves at work. We present quotes from workers about these dimensions of work in Appendix [F] but leave detailed presentation of the ethnographic evidence to our companion paper. Our survey details are provided in the Appendix, but the dignity-related questions are given by:

For the remaining questions, indicate to what extent the sentence describes the workplace of your job at Walmart

Q10 You [have/had] the opportunity to express yourself while at work.

Q11 You [can/could] rely on your coworkers to help you with work.

Q12 Your supervisor [treats/treated] you with respect.

Q13 Your supervisor [treats/treated] everyone fairly.

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4 As there are innumerable potentially welfare-relevant dimensions to a given job, we would argue that qualitative work such as ethnography is necessary to the design of surveys that measure job amenities.
3 Job Design Under Imperfect Competition

In this section we present a model of the provision of amenities in monopsonistic labor markets, with natural parallels to the literature on the choice of quality in monopolistic product markets [Spence (1975)]. Our specification of utility generalizes the Cobb-Douglas specification of worker utility in much of the monopsony literature, notably Lamadon et al. (2019). As we will see below this general specification of the utility function is both empirically relevant and has implications for the incidence of policies such as the minimum wage.

We assume indirect worker utility is a constant elasticity of substitution aggregate of wages and a vector of $J$ amenities $A$, denoted by

$$V(w, A) = (\beta_0 w^\rho + \beta_1 (C \cdot A)^\rho)^{\frac{1}{\rho}}$$

with $\rho \leq 1$ spanning the case of perfect substitutes between wages and amenities ($\rho = 1$), to the case of Cobb-Douglas ($\rho = 0$), to the case of perfect complements ($\rho = -\infty$). We also will use the elasticity of substitution $\sigma = \frac{1}{1-\rho}$. $C$ governs the relative preference workers have over a vector of amenities $A$, and we constrain $C_j > 0$ and $\sum_j C_j = 1$. For the purposes of exposition we will consider a single $A$ in this section, and return to the multiple amenities in the empirical work below. $\beta_0$ and $\beta_1$ are parameters governing the relative importance of wages and amenities in the utility function.

Workers further have some idiosyncratic taste/information so an individual worker’s (perceived) utility for working at a given firm is $V(w^i, A^i)\epsilon_i$. Letting $\epsilon$ be Frechet with shape parameter $\frac{1}{\eta}$, we get that the labor supply facing the firm is $F(V(w, A)) \propto \exp (\log (V(w, A)\eta)) = (w^\rho + (C \cdot A)^\rho)^{\frac{2}{\rho}}$. $\eta$ is thus the labor supply elasticity with respect to the value of the job. We can define $\epsilon(w, A) \equiv \frac{wdF}{F} = \eta \frac{w}{V} \frac{dV}{dw} = \eta \beta_0 \rho (\frac{w}{V(w, A)})^\rho$ as the residual labor supply elasticity with respect to the wage, noting that it can vary
with amenities provided.

Firms have marginal products of labor for a job and a cost of providing amenity vector \( A \) given by \( \phi \). This results in a profit function given by:

\[
\pi = (p - w - \phi A) F(V(w, A))
\]  

(2)

The profit maximizing choice of \( w \) and \( A \) is simple enough to characterize and we leave the derivations to the appendix. The important implication is that while \( V \) is below the first-best level (owing to monopsony), the mix of \( A \) and \( w \) is efficient. That is, the marginal rate of substitution for workers is equal to the marginal rate of transformation for the firm, or:

\[
\frac{V_w}{V_A} = \frac{1}{C(w/A)\rho^{-1}} = \frac{1}{\phi}
\]  

(3)

where recall that \( \rho \leq 1 \). Monopsony entails that workers are getting too low a value of the job, and employment is inefficiently low, but conditional on the value of the job \( V \) the mix of wages and amenities is chosen optimally for the marginal worker.

One question is why workers do not always bargain when given an outside offer, rather than having to choosing between doing nothing and quitting. In Appendix B we provide microfoundations for costly bargaining based on Bénabou and Tirole (2009). The extension of the model has the worker’s beliefs about their productivity (or equivalently their beliefs about their supervisor’s beliefs about their productivity) entering as amenities, and this captures the Bénabou and Tirole (2009) notion of dignity as preferences over beliefs about own value. We then augment the model by allowing for bargaining as well as quitting and show that workers can respond to outside offers by quitting, bargaining, or doing nothing. We also provide multinomial logit estimates showing all the wage and amenity valuations implied by the bargaining option, but empirically these are small and imprecise. Hence we focus on the quit margin in the
Manipulating the first-order conditions gives a familiar condition relating marginal productivity to wages and amenities:

\[
p = \frac{F}{F_V V_w} + \phi A + w = w \times (1 + \epsilon(w, A)^{-1} + \phi(C/\phi)^{1/(1-\rho)})
\]

Equation 4 modifies the traditional Lerner markdown formula to incorporate amenities. Wages are below marginal product, but both because of employer market power (the inverse elasticity term) as well as because of compensation in the form of amenities (the term incorporating the costs and benefits of amenities).

Figure 1 illustrates the model, and shows both the monopsony distortion in the level of employment (so \(V(w, A practical uses to workers this reduces to the standard monopsony markdown formula.

• If \(\rho = 1\) then the utility function of workers exhibits perfect substitutes between wages and amenities and the markdown is the standard Lerner rule \(w/p = (\epsilon^{-1}(w, A) + 1)^{-1}\) only if \(\phi > C\), so no amenities are supplied. Otherwise \(w = 0\) and workers work for free (they are compensated in amenities).

• If \(\rho = 0\) then the utility function of workers is Cobb-Douglas and the markdown is \(w/p = (\epsilon^{-1}(w, A) + C + 1)^{-1}\) more valued amenities \((C)\) lower the wage.

• If \(\rho = -\infty\) then the utility function of workers exhibits perfect complements and \(w/p = (\epsilon^{-1}(w, A) + \phi + 1)^{-1}\) more costly amenities \((\phi)\) lower the wage.

• If \(\epsilon = \infty\) then there is no markdown due to employer market power and the wage is below marginal product solely because of compensating differentials.
3.1 Heterogeneous Preferences

We have assumed identical preferences across Walmart workers so far. If we instead had a population of workers with heterogeneous tastes for amenities $C_i$, so equation 3 holds for the marginal worker $i^*$ and is given by:

$$(1/C^*)(w^{i^*}i^*/A^{i^*})^{\rho-1} = 1/\phi$$  (5)

Note that the implicit differentiation gives that the elasticity of the wage-amenity ratio to $C^*$ is $1/\rho - 1 < 0$. Since the marginal worker will have the lower utility than the average worker, $C^* < E[C]$ across workers, the wage-amenity ratio will be higher than the homogeneous case (and lower than the efficient ratio). Amenities will be relatively underprovided, and wages relatively overprovided.

The basic intuition, as shown by Spence (1975), is that the firm is efficiently supplying the mix of wages and amenities to retain and recruit the marginal worker, and if the marginal worker has a higher (lower) marginal rate of substitution between wages and amenities than the average worker, then the mix of wages and amenities will be lower (higher) as that which maximized the welfare of the employed workers. Note also this result would not obtain with Cobb-Douglas utility; the non-unitary elasticity of substitution is essential for the mix of amenities and wages being suboptimal when workers have heterogeneous preferences.

3.2 Effects of a Minimum Wage

Finally, we show how the comparative statics of $A$ in response to an exogenous increase in the minimum wage can be informative about both the extent of labor market power as well as the degree of complementarity between wages and amenities. That is, the sign of $dA/dw_{min}$ reveals both $\eta$ and $\rho$.

It is well-known that the Rosen (1974) model of hedonic equilibrium (with ho-
mogeneous workers) implies amenities must fall with a minimum wage. The utility of workers is fixed by the market, so increased wages are offset by lowered amenities (in addition to lower employment). This is the margin of adjustment emphasized in Clemens (2021), drawing on evidence in Clemens et al. (2018).

However, under monopsony, amenities could either fall or rise (Hwang et al., 1998; Lagos, 2019), and this depends on whether amenities are complements or substitutes with wages in employer profit function. This in turn depends on the relative magnitude of the elasticity of labor supply facing the firm and the elasticity of substitution between wages and amenities for workers.

Such a prediction distinguishes between monopsony and perfect competition. In perfect competition, amenities always go down with an increase in the minimum wage; in monopsony, they can go up or down. Formally, we can summarize these results in a proposition.

**Proposition 1:** Consider the effect of a just-binding minimum wage $w_{min}$ on amenities $A$, then we have the following:

- (Perfect Competition) $\eta = \infty$ implies $\frac{dA}{dw_{min}} < 0$ for any value of $\rho$.
- (Monopsony) $\eta$ is finite, and wage-setting is given by equation 4 (monopsony) then there is a $\rho^* < 0$ such that $\rho < \rho^*$ (i.e. sufficient complementarity between amenities and wages) implies that $\frac{dA}{dw_{min}} > 0$, while $\rho \geq \rho^*$ implies $\frac{dA}{dw_{min}} \leq 0$

Proof: See Appendix.

This proposition implies that a 0 or positive effect of the minimum wage on amenities rules out perfect competition. However, a negative effect of the minimum wage on amenities is consistent with either perfect competition (for any $\rho$) or monopsony with high $\rho$ (i.e. high substitutability between wages and amenities for workers).
4 Empirical Design

4.1 Using Facebook to Target Particular Employers

It is well known that Facebook provides extensive targeting of advertisements. Economists have not appreciated that one of the fields that can be targeted is employer, allowing advertisements to be directed to workers at particular firms. This strategy has been extensively used by Schneider and Harknett (2019) at the SHIFT project to measure working conditions at major American employers, but they do not embed any experimental variation.

We conducted 10,211 Qualtrics surveys between November 10, 2019 and April 12, 2020, for a total of 22,137 job offer responses. We first present a summary of each variable in the dataset, then a sample survey showing the full text for each question.

88% of the resulting sample are current Walmart workers, and we restrict attention to them for now. We asked respondent characteristics in the last 2 rounds, and show descriptive statistics in Appendix Table A1 (worker demographics) and A2 (job characteristics). Geographical representation is given in a map shown in Appendix Figure A4, and the occupational distribution (based Walmart job title) is given in Appendix Figure A5. Our sample is 77% white, 73% female, 42% under 30, and 42% in the South, with an average wage of $13.54, as compared to Walmart’s reported demographics of 53% white, 54% female, 40% under 30, 46% (of stores) in the South, with average 2019 wage of $13.63.

Our sample is thus whiter and more female than Walmart’s own demographics, but otherwise extremely similar in age, geography, and, importantly, wages. We are restricted to those that were on Facebook, and then among those who finished the

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5 Each respondent was asked to respond to three job offers, but some respondents ended the survey before responding to some or all of the offers, meaning that the total job offer responses is less than 3 times the number of surveys. Respondents’ three choices for a given job offer were: (1) stay at current job without asking for a raise (stay), (2) stay at current job but ask for a raise (bargain), or (3) accept offer and leave current job (quit).

survey. This likely imparts additional unobservable differences between our sample and the population of Walmart workers. We will initially be focused on our experimental estimates, which have the virtue of being internally valid, but recognize that our observational estimates may be contaminated by sample selection.

Randomized offered wages were drawn around the current wage, following Maestas et al. (2018). We dropped all observations with current wages that were less than the federal minimum wage. Hypothetical amenities were uniformly drawn (i.e. for 4-point values the probability of each was .25, for 2 point values the probability of each was .5).

4.2 Variable Construction

We standardize the amenity variables by constructing measures in two different ways. First, we subtract the mean of the current variable from the hypothetical offer, and divide the result by the standard deviation of the current variable. This is to ensure that variation in the amenity levels is capturing the variation that exists across Walmart stores as a whole. Second, for comparison, we subtract the mean of the offered variable from the hypothetical offer, and divide the result by the standard deviation of the offered variable. We show results using both measures. We also produce standardized versions of the current levels of each amenity by subtracting the mean of the current variable and dividing by its standard deviation.

In our baseline specification we censor the bargaining outcome in order to look solely at quits in order to compare our quit elasticities to those in the literature. In the appendix we show results from multinomial logit regressions using all three outcomes and show that nothing is lost by restricting attention to the quits.
5 What Workplace Characteristics Do Workers Value?

5.1 Specifications

Our main specification exploits our survey randomization, in which we randomized the offered wage \( \log(\text{wage}_{oi}) \) around the respondent’s current wage \( \log(\text{wage}_{ei}) \). We therefore control for the log of the current wage in all specifications in this section. We further focus on a log-linearized version of our utility function, ignoring the interactions between amenities and wages, and return to estimates of the degree of complementarity of wages and amenities in the last part of this section.

We begin by estimating the following regression:

\[
\text{quit}_{it} = \beta \log(\text{wage}_{oi}) + \sum_j A^i_j \gamma_j + \tau \log(\text{wage}_{ei}) + \epsilon_{it}
\]

(6)

The signs of \( A \) are reversed in some cases (e.g. commutes) so that positive coefficients always represent stronger preferences. We standardize the measure of \( A \) two ways. In our baseline specification, we subtract the mean and divide by the standard deviation of the current distribution, so that the coefficient captures the effect of a one standard deviation increase in the given amenity in the observed population of Walmart workers. This ensures that the measures reflect the range of amenities available across Walmart jobs. Second, we standardize in the same way by the offered distribution. Unsurprisingly, as can be seen in Figure A1, the differences in normalization do not affect our results. We censor the bargaining outcome for our main specification, but show results from a multinomial logit specification in Appendix Figure A7 that are quantitatively very similar, as none of the offered amenities significantly changes the stated probability of asking for a raise.

We then rescale the vector \( \gamma \) by \( \beta \) to get the value of each amenity in equivalent
percentage wage increases.

Figure 4 and Table A3 shows the coefficient estimates and standard errors for a number of specifications and samples. Figure A2 shows the same specifications with the outcome variable being quit or asking for a raise.

The coefficients on the amenities that have been previously studied are generally consistent with the literature. We can compare these estimates to those in Maestas et al. (2018), although the wording of our questions and the range of responses is somewhat different given the Walmart specific context. Similar to Maestas et al. (2018) we find that paid time off is a strong predictor of job preference, and training/transferable skills are moderately valued. Also, consistent with the literature (Mas and Pallais, 2017), we find that control of hours (i.e. scheduling) is not valued very much on average by workers. Differently from Maestas et al. (2018), however, we find that physical activity is not a significant predictor of job value.

Surprisingly, the strongest preference is for hours worked, indicating that workers would like more hours of work. Our survey was conducted during a historically strong labor market, with unemployment rates near 3%. The finding that workers are hours-constrained even when employment is very high suggests that employers find full-time employment much more costly than part-time employment.

We next directly explore the correlation between amenities and wages in a binned scatterplot. In Figure 6 we show the correlation between current job values and current wages. Consistent with much of the existing literature, we find a strongly positive relationship between wages and non-wage job values.

5.2 The Value Of Dignity At Work

Many of these amenities have been examined in previous research. A contribution of our paper is to expand the set of amenities under consideration, and in particular to examine worker valuation of 'dignity,' operationalized based on our qualitative work.
and survey experiment. At the bottom of Table A3 we take the 4 amenities designated as “dignity” and impute an equivalent percentage change wage. So the value of dignity in money metric terms is

\[
V^{dignity}(a_{it}^1, a_{it}^2, a_{it}^3, a_{it}^4) = \sum_{i=1}^{4} \frac{\gamma_j}{\beta} \tag{7}
\]

Going from 0 on all of these 4 dimensions to 4 would be equivalent to a 20% wage gain. A reduction in the standard deviation of the observed variation in this dignity measure across our sample would result in an increase in quits of 3.5 percentage points.

Further, Figure 6 looks separately at dignity and non-dignity based sources of job value. Dignity is much more weakly correlated with wages than non-dignity based amenities.

Finally we look at other correlates of job values. We present dignity and non-dignity based job values as a function of respondent level demographics in Figure 8. Whites, older workers, Southerners, and those employed in Asset Protection (security guards) report significantly higher values of dignity, but only whites and men have significantly higher non-dignity job values.

We can also assess to what degree job values are "rents." We asked a question, borrowed from the GSS, that asked workers, "How hard would it be for you to find a job as good as the one you have?" As Figure 9 shows, responses on this question are correlated with measures of dignity, much more strongly than non-dignity based amenities. Workers who report that it would be harder for them to find a job as good as their Walmart job also report higher dignity. This is again inconsistent with a literal interpretative of competitive hedonic equilibrium, where all workers are indifferent between the job they have and the next best alternative. If workers’ dignity based amenities were being offset by some other unobserved disamenity, we would not expect this correlation.

We can corroborate this interpretation of amenity as establishment-specific rents by
decomposing the variation in job values by respondents across establishments: among stores with more than 5 respondents, we find that roughly 31% of the variation in job dignity amenities are explained by store fixed effects, compared to about 35% of non-dignity amenity values. For comparison, establishment fixed effects explain about 41% of the wage variation in our sample. Both wages (above the national corporate minimum wage) and the amenities we measure are subject to considerable store manager discretion, and thus vary a lot across stores, and these relative explanatory shares remain roughly similar even when county fixed effects are controlled for.

One concern with both the wage elasticities and the amenity valuations is that our respondents may not be paying attention to the survey. We address this concern with a variety of robustness checks presented in Table A7, which reports the elasticity and coefficients on the valuations for each of the amenities from a variety of specifications and subsamples designed to probe respondent inattention. Column 1 restricts attention to the first offer only, as respondents may pay more attention to it. Column 2 includes respondent fixed effects; even though every offer is randomized conditional on entered wage, coefficients could be different across individuals due to inattention. Column 3 includes both question order and respondent fixed effects, isolating variation that is within individual and within question number, in case early offers influence responses to later offers. Column 4 restricts attention to the sample within the 5th and 95th percentile of time taken to complete the survey, eliminating those that took less than 90 seconds and those that took more than 20 minutes. Column 5 fits a random-coefficients model with only offered and entered wages as covariates, with each respondent allowed to have a random coefficient on log offered wages as well as an independent random intercept. We then trim the individuals with more than the top 5th or less than the bottom 5th percentile of wage coefficients, and then re-estimate the full specification. This then eliminates outliers in terms of the wage elasticity, who might be over or under reacting to hypothetical conditions. Column 6 restricts attention to those individuals who finished the entire survey, clicking through to the very end. Finally, Column 7
restricts attention to those who left more than 50 characters of text in the "What would make you quit?" open ended question. Across almost all of these specifications, the wage elasticities are generally between 2.5 and 4.5, and the relative order of the amenities is generally similar.

In Appendix A11 we show external validity by presenting results from a similar conjoint survey (with a much larger number of hypothetical choices) we administered to Amazon Mechanical Turk respondents. Dignity seems to be valued similarly highly, if not more, by the MTurk respondents, comparable to full-time hours or, interestingly, the lack of a vaccine requirement.

6 Measuring Labor Market Power at Walmart

One advantage of our approach, which asks about a respondent’s willingness to leave their current job, is that our survey results can be compared to a growing literature estimating quit elasticities using experimental and quasi-experimental approaches. We can explore whether our respondents are reporting quit elasticities in response to hypothetical offers that are consistent with the literature. Further, because we provide links on which respondents can click that correspond to each outside offer, we have a behavioral measure with which to compare respondents’ survey responses. In this section we show how to compare the responses of subjects to our hypothetical choices to estimates of the quit elasticity from the literature.

The quit elasticity is defined as the percentage change in the probability of quitting with respect to the percentage change in the wage.

\[ \epsilon_{\text{observed}}(w, A) = \frac{w}{\text{quit}} \frac{d(\text{quit})}{dw} \]

When utility depends on both wages and amenities, the quit elasticity with respect to the wage can depend on the level of amenities, if the elasticity of substitution is not
identical to 1. Further, the observational elasticity will depend on the rate at which offers arrive, which we denote \( \lambda(V^e) \), that is not directly recovered in our experiment. In mapping our empirical estimates to the observed quit elasticity, let \( \epsilon_\lambda \) denote the elasticity of the offer arrival rate with respect to current wage \( w^e \), so we get that the overall elasticity:

\[
\epsilon^{\text{observed}}(w, A) = \epsilon_\lambda + \eta \beta_0 \rho \left( \frac{w}{V(w, A)} \right)^\rho
\]

Where \( \epsilon \) is the elasticity of quitting conditional on having an offer, which is the estimate our experiment recovers. We focus in this section on \( \epsilon^{\text{observed}} \) in order to validate our approach by comparing to existing estimates, and in the next subsection we then compute a "comprehensive" measure of market power using the amenity valuations estimated above.

We use our experimental estimates to recover \( \epsilon \). Figure 2 shows the binned scatter plot with the censored quit response as a function of the offered wage, controlling for the current wage. We censor the bargaining outcome in order to obtain quit elasticities that are comparable to the literature, and the coefficients on wages and amenities in the bargaining outcome are uniformly smaller and less precise. For completeness, we provide estimates from the full multinomial model in Appendix B. The experimental elasticity \( \epsilon = \frac{\beta}{E[\text{quit}]} \) where \( \beta \) is the coefficient from the regression equation given by:

\[
\text{quit}_{it} = \beta \log(wage_{it}^o) + \tau \log(wage_{it}^e) + \epsilon_{it}
\]

We also presented respondents who reported being willing to leave at the hypothetical offer with the option of clicking on a customized link to Indeed.com with jobs at the hypothetical wage in their zip code, labeled "click here for jobs like this in your area", and recorded the click-through rate.

Table A4 shows estimated quit and click elasticities across 3 specifications, one including respondent fixed effects, one including offer-number fixed effects, and the
final set including both. We estimate specifications controlling for the current wage, including worker fixed effects, as well as restricting attention to the first offer only. In all cases we see that subjects positively respond to hypothetical outside offers, raising their stated quit or bargaining choices in response to hypothetical offers with higher wages. But they also respond behaviorally, becoming more willing to click on the provided links when the hypothetical offers are higher.

Table A5 looks at the uncensored outcome, pooling quitting and asking for a raise (what we call bargaining above). Table A5 also shows results from the clicking response. In response to the 'asking for a raise' question, we provided a link to an organization of Walmart workers (United For Respect). Figure 3 shows the same binned scatter plot for clicking on the link showing an alternative offer or bargaining resource. The reported elasticity here is -1.16, smaller but statistically significant, and showing that our information about alternative jobs is eliciting at least some additional search effort.

Appendix Figure A3 shows the heterogeneity of the wage elasticity by observable characteristics of workers, reassuringly for the heterogeneity of valuations, it does not appear that quit elasticities vary in any significant way across the demographic characteristics in our sample.

Table A4 shows that the experimentally estimated elasticity $\epsilon$ is close to 3, which is higher than most estimates in the literature. But our experimentally-derived quit elasticities overestimate the observed quit elasticity, since the hypothetical quits are conditional on job offers.

To get an estimate of $\epsilon_\lambda$, we asked respondents “How long since you last had an offer this good?” for the last offer only. We then assume $Pr(Offer \text{ since } t|w^{o}, t) = 1 - e^{-w^{*}t}$ so that higher wages are rarer.

This distributional assumption on offer arrival times implies the expected time until an offer with wage $w$ is given by $\log(E[t|w]) = C - \epsilon_\lambda \log(w)$ and a hazard independent of time, so that $\frac{d\log(Pr(\text{Offer}|w))}{d\log(w)} = -\epsilon_\lambda$ for the workers who are currently employed at Walmart. We can thus regress $\ln(\text{time since offer this good})$ on $\log(w)$, restricting
attention to those Walmart workers who said they wouldn’t quit (as these are the workers who by revealed preference are behaving consistently with the survey). We obtain a coefficient of $\epsilon_\lambda = -0.8$ for stayers, and can add this to the $\epsilon$ estimate earlier to get an observed quit elasticity of $\epsilon_{\text{observed}} = -2.1$.

If we take the approximation that the residual labor supply elasticity is twice the quit elasticity, our estimates imply a residual labor supply elasticity with respect to the wage of roughly $-2 \times \epsilon_{\text{observed}} = 4$, somewhat smaller than the estimates implied by rent-sharing estimates [Lamadon et al. 2019; Berger et al. 2019], but close to firm wage policy based estimates [Bassier et al. 2020], some experimental estimates [Caldwell and Oehlsen 2018] and the median value reported in the meta-analysis by Sokolova and Sorensen (2021). The close correspondence between our survey-based estimates of monopsony and the literature raises confidence that our estimates are not artifacts of hypothetical choices, and suggests that survey experiments give a new tool for estimating monopsony power in a wide variety of contexts.

6.1 Estimating Wage-Amenity Complementarities

An important novel feature of our model is the possibility of interactions between wages and amenities. Besides being important for assessing the welfare of workers at different jobs, it also is important for the implications of wage mandates for job design under monopsony. As shown above, under perfect competition an increase in the wage would result in a decline in amenities regardless of the degree of complementarity; under monopsony, an increase in the wage would lead to a decline in amenities that were substitutes for the wage, but an increase in those that were complements.

We test for complementarity by interacting the randomized wage variation with the randomized offered amenities in the following specification, which allows interactions between $A$ and $\log(w^o_i)$, and can detect a non-constant elasticity of substitution via the inclusion of $\log(w^o_i)^2$. This specification can be seen as a truncated translog ap-
proximation to the CES equation \[6\] where the interactions between the amenities are dropped. Since wages were randomized around current wages, we include respondent fixed effects in this specification so that we can identify the nonlinearities in \(\log(w^o_{it})\).

\[
\text{quit}_{it} = \beta \log(w^o_{it}) + \beta_2 \log(w^o_{it})^2 + \sum_j A^j_{it} \gamma_j + \sum_j A^j_{it} \gamma^I_j \times \log(w^o_{it}) + \delta_j + \epsilon_{it} \quad (9)
\]

We report results from this specification in Figure 5 which shows the valuation of each amenities together with their valuation at a 10% higher wage. A number of amenities exhibit significant complementarities with wages, including commute time, hours per week, paid time off, as well as supervisor respect. The confidence intervals reported are from the regression coefficient on the interaction terms in \[9\]. Importantly, no amenity shows a negative interaction, suggesting little in the way of substitutability between wages and amenities. The bottom row of Figure 5 shows the value of the average amenity at a 10% higher wage.

In terms of our model, the interacted OLS regression lets us calculate an estimate of the substitution parameter \(\rho\) at the sample mean. The implied estimate is given by:

\[
\hat{\rho} = \frac{\beta \sum_k \gamma_k + \beta_2 E(w_{ij}) \left[ 2 \sum \gamma_k + \sum \gamma^I_k E(w_{ij}) \right]}{(\beta + \sum_k \gamma^I_k E[A_k] + 2\beta_2 E(w_{ij})) \left[ \sum \gamma_k + \sum \gamma^I_k E(w_{ij}) \right]}
\]

We report the estimate of \(\hat{\rho}\) on Figure 5 and it both negative and significantly different from 0, consistent with an elasticity of substitution well below unity. As suggested by the model, and confirmed empirically below, this stronger-than-Cobb-Douglas complementarity will be important for explaining the effects of the corporate minimum wage on amenities.
6.2 Inequalities in Experienced Job Values

With the complementarities, we can use these valuations to compute experienced job values. We do this by estimating specification 6 separately for two randomly split-samples of our data, and using the $\gamma_j$ from one split to value amenity $j$ in the other split. This yields, for each worker, a measure of "Job Amenity Value," which we can exponentiate and add to the current wage to get "Total Job Value." We further can evaluate the interaction terms at the current values to get "Total Job Values" that include the complementarity between wages and amenities.

Figure 7 shows the distribution of current wages together with the distribution of "Total Job Value," estimated using the linear model from 6 as well as the nonlinear specification. Similar to Marinescu et al. (2021) and Maestas et al. (2018), we find that labor market inequality among our sample of Walmart workers is increased a bit once non-wage characteristics are included. But we further find that when complementarities are accounted for, the dispersion in job values is even wider. Both distributions of job values are wider than that of wages, particularly at the bottom, where the $11 minimum wage is binding. We will turn to detailed examination of the minimum wage in the next section.

Motivated by the heterogeneous amenity valuation model above, we also estimated random-coefficient models. While statistical power is limited, as we only have 3 observations for each respondent, we found no evidence of significant heterogeneity in valuations for either dignity or non-dignity amenities, nor wages. Further, there was no correlation between person-specific coefficients and entered values, suggesting limited sorting on what heterogeneity we could detect.

6.3 Heterogeneity of Elasticities by Current Job Values

Having shown complementarity in the offered amenities and wages, we can then test for heterogeneity in the estimated elasticities by the value of the current job values and
amenities. We focus on the linear utility specification here, though the specification with interactions looks similar.

We begin by plotting the relationship between quitting and bargaining as a function of the difference $V^o - V^e$. The elasticity here we call $\eta_F$, by analogue to $\epsilon_F$ above. Similarly we have $\eta_\lambda$, so that the empirical analogue of $\eta$ in our model is $\eta = \eta_\lambda + \eta_F$. $\eta$ estimates the “comprehensive” residual labor supply elasticity with respect to utility, rather than with respect to the wage. Our focus here is on heterogeneity, rather than comparison to the literature, so we focus on $\eta_F$.

Standard models of monopsony (Burdett and Mortensen, 1998) and on-the-job bargaining (Cahuc et al., 2006) without idiosyncratic job values would predict stark step functions. If our measures of amenities were capturing all the dimensions of job value that workers have, then there should be little responsiveness of quitting or bargaining to job offers with value less than the current job, and a sharp increase at the point when the value of the job offer exceeds that of the current job, followed by little responsiveness above.

These predictions are examined in Figure 10 which plots the probability of quitting vs bargaining as a function of the difference between the current current job value and the offered job value. If the our measure was precisely capturing job value and either the job-ladder or sequential bargaining models was correct, then we would expect to see a discontinuity at 0, or at least a sharply S-shaped function. We see no such sharp break (although there is a small one in quits), suggesting that there remains considerable unobserved heterogeneity in job valuation, both with respect to asking for a raise as well as quitting. Our random coefficients models also do not show any break around 0, suggesting the heterogeneity is not due to individual variation in tastes for wages or our 11 amenities, but instead heterogeneity in valuations of other unobserved characteristics workers associate with jobs.

The low bargaining elasticity is also instructive. Figure 10 shows that respondents report being willing to ask for a raise at a much higher rate than quitting, but this rate
is not sensitive to the value of the outside offer. Indeed, Appendix Table A6 shows that the hypothetical bargaining elasticity is around 1.3, but is both imprecise and not validated by our click-based measure (a link to an organization of Walmart workers for improving working conditions at Walmart).

However, the bargaining elasticity is much larger in high dignity jobs. Figure 11 shows that while the quit elasticity is higher in low dignity jobs, the bargaining elasticity is lower in those jobs. This provides intriguing evidence in light of our model: a differentially high quit elasticity could incentivize employers to oversupply dignity, but this could be attenuated if workers experiencing high dignity at work also become more likely to respond to an outside offer by asking for a raise. Appendix Figure A6 shows there is no such heterogeneity in the non-dignity amenity job values.

While observational, and subject to numerous caveats about sample selection, we think this heterogeneity is intriguing and worthy of future work.

7 The Effect of Walmart’s Corporate Minimum Wage

Since 2018, Walmart has maintained a $11 corporate minimum wage (CMW). Perhaps surprisingly, but similar to most other major retailers with corporate standards, this is a nationally uniform minimum wage. This means that the same minimum is imposed both in low-wage states like Louisiana and higher-wage states like New Hampshire; since both of those states are only bound by the federal minimum wage of $7.25, this suggests the corporate minimum is much more likely to be binding in Louisiana than it is in New Hampshire.

We confirm that this is indeed the case. First, Figure 12 shows that this minimum wage is binding generally in our data, with a clear spike in the reported wages of respondents at $11. In particular, around 17% of respondents report earning exactly
the minimum. It is also reassuring that very few report earning lower than $11, which suggests measurement error in reported wages is unlikely to be very large (see Autor Manning and Smith 2016, Cengiz Dube Linder Zipperer 2020). It’s unlikely that prior to the introduction of the voluntary minimum wage, such a high share of workers would have bunched at the minimum. We get confirmation of this through plotting the share of Walmart workers bunching at $11 against the median hourly wage of that state (for all workers using the Occupational Employment Statistics data). Figure 13 shows there is a clear negative relationship between the median hourly wage and the share at $11. While around 27% of respondents from Louisiana report earning $11, the corresponding figure for New Hampshire is around 9%. This evidence is consistent with findings by Derenoncourt et al. (2021) who find that firms raise the wages in their vacancy postings after announcing an increase in their voluntary minimum wage.

This voluntary minimum wage policy is imposed by national firm but other wages and amenities free to be chosen by local establishment managers. And so this is effectively a binding minimum wage on individual Walmart stores. The variation in the bite of the minimum wages allows us to test the model of compensating differentials proposed above. In particular, while under perfect competition we expect to see a clear reductions in the amenities chosen by store managers, in the monopsonistic competition model, amenity reductions would occur only when the amenities are sufficiently substitutable with wages.

### 7.1 Minimum Wage Effects

To more precisely identify the impact of the CMW on outcomes, we leverage the facts that (1) the policy is likely to affect wages (and hence other outcomes) at the bottom of the distribution more than at the middle or top, and (2) the policy is likely to be much more binding in low wage states than in high wage states. These two facts suggest a

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7 Other papers exploiting uniform firm wage-setting interacted with local labor market variation include Cappelli and Chauvin (1991); Staiger et al. (2010); Emanuel and Harrington (n.d.).
cross-sectional difference-in-differences approach, where we compare the difference in outcomes between workers in lower wage percentiles versus middle (or higher) wage percentiles, differentially in high versus low wage states.

In particular, we regress outcomes $Y^d - Y^{50}$ on employment share at $\$11$, instrumented by median wage in state.

\[
\text{share}_{st} = \alpha_0 + \alpha_1 \text{MedianWage}_s + u 
\]  

\[
Y^d_{s(i)t} - Y^{50}_{s(i)t} = \beta_d \cdot \text{share}_{s(i)t} + e_{it} 
\]  

The outcomes $Y^d_{s(i)t}$ are averages (of log wages, log job values, and log values of amenities) of outcomes of individuals $i$ who are in wage decile $d$ of state $s$. Therefore, the estimated $\hat{\beta}_d$ are cross-sectional difference-in-differences estimate of how a higher share of workers bunched at the minimum affects the outcomes in decile $d$ relative to the 5th decile. Note that if there are state-specific differences in the outcomes (wages, amenities, reporting errors) that may be correlated with the median wage, this approach accounts for it by looking at differentials between decile $d$ and decile 5, with a particular attention to the bottom deciles. The upper deciles additionally provide useful information validating the research design as we we should probably not see much impact there from the instituting of a corporate minimum wage.

In Figure 14 we plot $\hat{\beta}_d$ coefficients, which provide clear evidence that the lower tail of Walmart workers’ wage distribution is much more compressed in low wage states. A 10 percent higher share of workers at the minimum is associated with a 5 percent and 2 percent higher wages in the first and second deciles, respectively. In contrast (and reassuringly) there is little difference in compression in the top half of the Walmart pay distribution across high versus low wage states; this is an added falsification test which gives us more confidence about our design. Overall, this provides strong evidence that the CMW is much more binding in lower-wage states, where it substantially raised wages especially in the bottom 20 percent of the distribution.
Given the wage findings, we next turn to assessing what happened to non-wage amenities. In particular, we can assess whether workers in the bottom two wage deciles—who saw strong wage increases—also saw reductions in non-wage amenities as would be predicted by compensating differentials under perfect competition. If, for example, entry-level workers are made to work harder, or given more unpredictable schedule, or less hours, we would expect amenity values to fall relatively for the lowest wage deciles in high-bite states. Figure 14 also shows the estimates for overall amenity values by wage decile. In contrast to wages, here we find little indication of relative changes in the amenity values across the wage deciles, with little evidence of compensating differentials. For the bottom decile, the point estimate is small, positive and not-distinguishable from zero. Figure 14 also specifically shows the part of the log amenity value that is from dignity-measures. Here, too, we see no statistically significant impact. We find no differential fall in dignity-based amenities in states where Walmart’s minimum wage binds more. As a result, when we consider the impact on overall log job values (sum of log wage and log values of amenities) by wage deciles in Figure 14, we find that the CMW raised overall job values in the bottom deciles by the same amounts as wages. If we take the 95% confidence intervals around the amenity value estimates along with the point estimates for wage effects at the first decile, we can rule out compensating differentials larger than 1/5 of the wage gains in the bottom decile. Overall, these results are consistent with what we would expect in a monopsonistic labor market where the wage and amenities are not extremely substitutable.

In Appendix Figure A8 we show evidence that the differential bite of the minimum wage across stores is not correlated with differential worker characteristics nor changes in the composition of jobs at Walmarts. We further show in Appendix Figure A9 that this differential bite is improving the quality of jobs at the bottom: low-wage workers in low-wage states report significantly more difficulty in finding a job as good as the one they have. These auxiliary results show that the minimum wage bite is indeed improving the job quality of low-wage workers, rather than altering the type of
workers hired or jobs offered.

8 Conclusion

In this paper we have focused on estimating the degree of market power as well as the value of subjective and objective workplace characteristics at the largest employer in the U.S., Walmart. We use targeted conjoint surveys to estimate quit elasticities and obtain valuations of workplace amenities.

We have paid special attention to subjective experiences of work informed by our qualitative work and operationalized via a survey. We use the hypothetical responses to the survey to measure the value of “workplace dignity” in a money metric. We find a considerable value of dignity measures: going from a no dignity job to the highest dignity job is equivalent to a 20% increase in wages.

We also find significant complementarities between wages and other amenities. The presence of complementarities further implies that quit elasticities with respect to wages may be heterogeneous depending on the amenities provided. Further, if employers are able to adjust amenities as well as wages in response to e.g. shocks to the marginal product of labor (as in Lamadon et al. (2019)), the resulting employment responses may not trace out a labor supply elasticity facing the firm with respect to wages alone. But this complementarity, together with the correlation of valued job amenities with wages, also implies that inequality in the wage distribution understates the inequality in the value of jobs. We further find that workplace dignity mediates heterogeneity in bargaining versus quitting in response to outside offers: workers in "high dignity" jobs respond to outside offers by asking for a raise, while workers in "low dignity" jobs respond to outside offers by quitting.

We also examine the patterns of amenity valuations across states, taking advantage of variation induced by Walmart’s binding national minimum wage. If labor markets were competitive, or if wages and amenities were substitutes, we would find that binding
minimum wages would reduce the supply of these amenities. We find instead that there is no differential reduction of any dimension of job quality at bottom deciles of the most “constrained” stores.

A very recent wave of economics research has shown that a significant share of the value of a job to workers is derived from factors beyond wages. Another recent trend in economics has documented pervasive employer power in the labor market. Sociologists of work, in contrast, have long been attuned to both the power asymmetries in the workplace, as well as the value workers attach to relationships with co-workers, opportunities for self-expression, and fair and respectful treatment of supervisors. We see our paper as a first step in integrating these two disciplinary approaches, quantifying the value of both objective and subjective workplace characteristics, as well as the costs of employer power. Beyond additional positive work examining the values of other non-pecuniary job values in firms (and implications for policy, e.g. value of a statistical life) in non-competitive labor markets, we would welcome normative work on whether the experience of dignity should be a variable feature in an employer’s job design, to be compensated with a higher wage, or if the exchange of dignity for wages is fundamentally a 'repugnant transaction.'

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9 Figures

Figure 1: The provision of amenities and wages under monopsony and the effect of a minimum wage. Indifference curve of worker drawn with both a high elasticity of substitution so that minimum wage reduces level of amenities, as well as a Leontief indifference curve showing the case where a minimum wage increases the level of amenities.
Figure 2: Binned Scatterplot of Prob. of Quitting X 100 against offered wage, controlling for current wage
Figure 3: Binned Scatterplot of Prob. of Clicking on Link X 100 against offered wage, controlling for current wage
Figure 4: Amenity Valuations. Outcome variable is Prob. of Quitting X 100, Coefficients reported are of offered amenities on probability of quitting, divided by the coefficient on log wage.
Figure 5: Amenity Valuations accounting for interactions between log wages and each amenity. Outcome variable is Prob. of Quitting X 100, Coefficients reported are of offered amenities on probability of quitting, divided by the coefficient on log wage.
Figure 6: Correlations between overall amenity values, dignity, and non-dignity job amenity values and log current wages.
Figure 7: Density of respondent wages and total job values, estimated using both the linear and fully interacted models. Amenities are standardized by current mean and standard deviation. Accounting for complementarity in the utility function increases the inequality in the value of work distribution.
Figure 8: Respondent Correlates of Dignity and non-Dignity Job Amenity Values. Coefficients $\beta$ from a respondent-level regression of $V = \beta X + \epsilon$. 
Ease of finding a job as good as the current one

Value of dignity amenities (in log wage units)

Elasticity is -1.23 (s.e. = 0.58)

Value of non-dignity amenities (in log wage units)

Elasticity is -0.34 (s.e. = 0.81)

Note: Controls for log wage and job title-by-state FE

Figure 9: Relationship of Dignity and Non-Dignity Amenities to measure of 'How Easy to Find a Job As Good'
Figure 10: Offered Minus current Value and Quit vs Bargaining Elasticities. The absence of a discontinuity at 0 indicates that there is still considerable unobserved heterogeneity in the perceived values of outside offers.
Figure 11: Offered Value and Quit vs Bargaining Elasticities By Workers at High and Low Dignity Jobs. Quit elasticities are higher at low dignity jobs, but bargaining elasticities are lower.
Figure 12: Current wage histogram of Walmart respondents. Walmart’s corporate minimum wage constrains its wage-setting.
Figure 13: Differential bite of the corporate minimum wage across states. A larger share of Walmart workers in our survey are paid exactly $11.00 in high median wage states.
Figure 14: Effects of “bite” of corporate $11 minimum wage on log wage, log total job value, log value of amenities, and log value of dignity, by within-state Walmart wage deciles.
## Appendix Tables and Figures

### Table A1: Descriptive Statistics (Worker Demographics)

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</table>
### Table A3: Valuations of Hypothetical Job Offer Characteristics

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<th>(5)</th>
<th>(6)</th>
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<tbody>
<tr>
<td>Log Offered Wage</td>
<td>50.101</td>
<td>48.951</td>
<td>67.778</td>
<td>50.101</td>
<td>48.951</td>
<td>67.778</td>
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<td>(4.220)</td>
<td>(6.008)</td>
<td>(3.008)</td>
<td>(4.220)</td>
<td>(6.008)</td>
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<tr>
<td>Commute time (std)</td>
<td>0.999</td>
<td>0.748</td>
<td>0.816</td>
<td>2.023</td>
<td>1.516</td>
<td>1.653</td>
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<td>(0.145)</td>
<td>(0.194)</td>
<td>(0.313)</td>
<td>(0.293)</td>
<td>(0.394)</td>
<td>(0.634)</td>
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</tr>
<tr>
<td>Hours per week (std)</td>
<td>1.846</td>
<td>1.693</td>
<td>1.794</td>
<td>2.625</td>
<td>2.407</td>
<td>2.550</td>
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<tr>
<td>(0.211)</td>
<td>(0.284)</td>
<td>(0.445)</td>
<td>(0.299)</td>
<td>(0.403)</td>
<td>(0.633)</td>
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<tr>
<td>Paid time off (std)</td>
<td>1.163</td>
<td>1.237</td>
<td>1.052</td>
<td>1.223</td>
<td>1.301</td>
<td>1.106</td>
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<td>(0.289)</td>
<td>(0.379)</td>
<td>(0.594)</td>
<td>(0.304)</td>
<td>(0.399)</td>
<td>(0.624)</td>
<td></td>
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<tr>
<td>Friends fraction (std)</td>
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<td>0.187</td>
<td>0.238</td>
<td>0.077</td>
<td>0.282</td>
<td>0.358</td>
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<td>(0.200)</td>
<td>(0.267)</td>
<td>(0.424)</td>
<td>(0.300)</td>
<td>(0.401)</td>
<td>(0.638)</td>
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<tr>
<td>Physical intensity (std)</td>
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<td>0.279</td>
<td>0.411</td>
<td>0.206</td>
<td>0.361</td>
<td>0.533</td>
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<td>(0.231)</td>
<td>(0.312)</td>
<td>(0.490)</td>
<td>(0.299)</td>
<td>(0.404)</td>
<td>(0.634)</td>
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</tr>
<tr>
<td>Control over hours (std)</td>
<td>0.398</td>
<td>0.401</td>
<td>0.938</td>
<td>0.531</td>
<td>0.535</td>
<td>1.251</td>
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<td>(0.227)</td>
<td>(0.306)</td>
<td>(0.475)</td>
<td>(0.303)</td>
<td>(0.408)</td>
<td>(0.633)</td>
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<tr>
<td>Reliance on coworkers (std)</td>
<td>0.437</td>
<td>0.316</td>
<td>0.387</td>
<td>0.501</td>
<td>0.363</td>
<td>0.444</td>
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<tr>
<td>(0.267)</td>
<td>(0.352)</td>
<td>(0.550)</td>
<td>(0.306)</td>
<td>(0.404)</td>
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<td>Supervisor respect (std)</td>
<td>1.017</td>
<td>0.574</td>
<td>1.380</td>
<td>1.045</td>
<td>0.590</td>
<td>1.418</td>
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<td>(0.610)</td>
<td>(0.296)</td>
<td>(0.400)</td>
<td>(0.627)</td>
<td></td>
</tr>
<tr>
<td>Supervisor fairness (std)</td>
<td>1.112</td>
<td>0.789</td>
<td>0.859</td>
<td>1.110</td>
<td>0.787</td>
<td>0.857</td>
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<tr>
<td>(0.304)</td>
<td>(0.395)</td>
<td>(0.637)</td>
<td>(0.303)</td>
<td>(0.394)</td>
<td>(0.635)</td>
<td></td>
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<tr>
<td>Self-expression (std)</td>
<td>0.897</td>
<td>0.829</td>
<td>1.042</td>
<td>0.962</td>
<td>0.890</td>
<td>1.118</td>
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<td>(0.586)</td>
<td>(0.302)</td>
<td>(0.400)</td>
<td>(0.629)</td>
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</tr>
<tr>
<td>Learning transferable skills (std)</td>
<td>0.244</td>
<td>0.350</td>
<td>0.335</td>
<td>0.817</td>
<td>1.171</td>
<td>1.123</td>
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<td>(0.089)</td>
<td>(0.119)</td>
<td>(0.189)</td>
<td>(0.298)</td>
<td>(0.398)</td>
<td>(0.633)</td>
<td></td>
</tr>
<tr>
<td>Dignity Value as Wage Percentage</td>
<td>0.069</td>
<td>0.051</td>
<td>0.054</td>
<td>0.072</td>
<td>0.054</td>
<td>0.057</td>
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<td>se</td>
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<td>0.016</td>
<td>0.018</td>
<td>0.013</td>
<td>0.017</td>
<td>0.019</td>
</tr>
<tr>
<td>N</td>
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<td>15298</td>
<td>4581</td>
<td>15298</td>
<td>15298</td>
<td>4581</td>
</tr>
<tr>
<td>Individual fixed effects</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Sample</td>
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<td>1st offer</td>
<td>all offers</td>
<td>all offers</td>
<td>1st offer</td>
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<td>Standardized by</td>
<td>Entered</td>
<td>Entered</td>
<td>Entered</td>
<td>Offered</td>
<td>Offered</td>
<td>Offered</td>
</tr>
</tbody>
</table>

Coefficients are effects of one log point in offered wages, or one standard deviation of the hypothetical amenity (standardized either by the ’Entered’ or ’Offered’ level), on probability of reporting ’leave’, controlling for log entered wages. Standard errors, clustered at the level of respondent, reported in parentheses.
Table A4: Quit and Job Click Elasticity Table

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Log Offered Wage</td>
<td>49.601</td>
<td>47.966</td>
<td>63.390</td>
<td>2.306</td>
<td>3.797</td>
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<td>(2.589)</td>
<td>(3.626)</td>
<td>(5.285)</td>
<td>(1.189)</td>
<td>(1.673)</td>
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<tr>
<td>Elasticity</td>
<td>2.975</td>
<td>2.877</td>
<td>2.488</td>
<td>1.648</td>
<td>2.713</td>
<td>1.953</td>
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<tr>
<td>se</td>
<td>0.152</td>
<td>0.217</td>
<td>0.205</td>
<td>0.843</td>
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<td>1.259</td>
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<td>None</td>
<td>Ind.</td>
<td>None</td>
<td>None</td>
<td>Ind.</td>
<td>None</td>
</tr>
<tr>
<td>Fixed Effects</td>
<td>All offers</td>
<td>All offers</td>
<td>Offer #1</td>
<td>All offers</td>
<td>All offers</td>
<td>Offer #1</td>
</tr>
<tr>
<td>Sample</td>
<td>Quit</td>
<td>Quit</td>
<td>Quit</td>
<td>Job Click</td>
<td>Job Click</td>
<td>Job Click</td>
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<tr>
<td>Standardized by</td>
<td>Quit</td>
<td>Quit</td>
<td>Quit</td>
<td>Job Click</td>
<td>Job Click</td>
<td>Job Click</td>
</tr>
</tbody>
</table>

Standard errors, clustered by respondent, in parentheses. Columns 1-3 have an indicator for choosing "quit" in response to the hypothetical outside offer. Columns 4-6 use "Job Click" as an outcome, which is an indicator to clicking on a link to Indeed.com after seeing the hypothetical offer.
### Table A5: Quit/Bargain and Any Click Elasticity Table

<table>
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<tr>
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<tbody>
<tr>
<td>Log Offered Wage</td>
<td>57.982</td>
<td>55.031</td>
<td>64.596</td>
<td>3.632</td>
<td>3.273</td>
<td>4.385</td>
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<td></td>
<td>(3.048)</td>
<td>(2.997)</td>
<td>(5.042)</td>
<td>(1.649)</td>
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<tr>
<td>Elasticity</td>
<td>0.958</td>
<td>0.910</td>
<td>1.070</td>
<td>1.162</td>
<td>1.047</td>
<td>0.992</td>
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<tr>
<td>se</td>
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<td>0.050</td>
<td>0.085</td>
<td>0.525</td>
<td>0.776</td>
<td>0.724</td>
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<tr>
<td>N</td>
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<td></td>
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<tr>
<td>Individual fixed effects</td>
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<td>Ind.</td>
<td>None</td>
<td>None</td>
<td>Ind.</td>
<td>None</td>
</tr>
<tr>
<td>Sample</td>
<td>All offers</td>
<td>All offers</td>
<td>Offer #1</td>
<td>All offers</td>
<td>All offers</td>
<td>Offer #1</td>
</tr>
<tr>
<td>Standardized by</td>
<td>Quit/Ask</td>
<td>Quit/Ask</td>
<td>Quit/Ask</td>
<td>Any Click</td>
<td>Any Click</td>
<td>Any Click</td>
</tr>
</tbody>
</table>

Standard errors in parentheses. Columns 1-3 have an indicator for choosing either quit or 'ask for a raise' in response to the hypothetical outside offer. Columns 4-6 use 'Any Click' as an outcome, which is an indicator to clicking on a link to Indeed.com or United for Respect (an organization of Walmart workers) after seeing the hypothetical offer.
### Table A6: Bargain and Org. Click Elasticity Table

<table>
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<th>(3)</th>
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<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Offered Wage</td>
<td>31.900</td>
<td>33.246</td>
<td>40.228</td>
<td>1.326</td>
<td>-0.524</td>
<td>1.045</td>
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<tr>
<td></td>
<td>(2.894)</td>
<td>(3.501)</td>
<td>(5.435)</td>
<td>(1.180)</td>
<td>(1.793)</td>
<td>(2.407)</td>
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<tr>
<td>Elasticity</td>
<td>1.239</td>
<td>1.292</td>
<td>1.077</td>
<td>0.769</td>
<td>-0.305</td>
<td>0.386</td>
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<tr>
<td>se</td>
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<td>0.146</td>
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<td>Ind.</td>
<td>None</td>
<td>None</td>
<td>Ind.</td>
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<tr>
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<td>All offers</td>
<td>Offer #1</td>
<td>All offers</td>
<td>All offers</td>
<td>Offer #1</td>
</tr>
<tr>
<td>Sample</td>
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<td>Ask</td>
<td>Ask</td>
<td>Union Click</td>
<td>Union Click</td>
<td>Union Click</td>
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<td>Ask</td>
<td>Ask</td>
<td>Union Click</td>
<td>Union Click</td>
<td>Union Click</td>
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Standard errors in parentheses. Columns 1-3 have an indicator for choosing "ask for a raise" in response to the hypothetical outside offer. Columns 4-6 use clicking on the website for United for Respect (an organization of Walmart workers) as an outcome.
### Table A7: Inattention Robustness Table

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<td>logwage_offered</td>
<td>67.84</td>
<td>49.13</td>
<td>49.89</td>
<td>51.98</td>
<td>62.38</td>
<td>73.25</td>
<td>79.19</td>
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<tr>
<td>commute time</td>
<td>0.849</td>
<td>0.749</td>
<td>0.741</td>
<td>0.975</td>
<td>0.881</td>
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<td>(0.146)</td>
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<td>(0.136)</td>
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<td>(0.281)</td>
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<tr>
<td>hours per week</td>
<td>1.801</td>
<td>1.684</td>
<td>1.639</td>
<td>1.808</td>
<td>1.695</td>
<td>2.166</td>
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<td>1.319</td>
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<td>(0.423)</td>
<td>(0.590)</td>
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<td>friends fraction</td>
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<td>0.154</td>
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<td>-0.0852</td>
<td>-0.188</td>
<td>-0.115</td>
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<td>0.151</td>
<td>0.0326</td>
<td>-0.0663</td>
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<td>(0.235)</td>
<td>(0.254)</td>
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<td>(0.330)</td>
<td>(0.451)</td>
</tr>
<tr>
<td>control over hours</td>
<td>0.953</td>
<td>0.407</td>
<td>0.358</td>
<td>0.445</td>
<td>0.387</td>
<td>0.613</td>
<td>1.159</td>
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<td></td>
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<td>(0.240)</td>
<td>(0.232)</td>
<td>(0.252)</td>
<td>(0.217)</td>
<td>(0.324)</td>
<td>(0.444)</td>
</tr>
<tr>
<td>reliance on coworkers</td>
<td>0.393</td>
<td>0.305</td>
<td>0.288</td>
<td>0.507</td>
<td>0.377</td>
<td>0.918</td>
<td>0.846</td>
</tr>
<tr>
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<td>(0.554)</td>
<td>(0.275)</td>
<td>(0.266)</td>
<td>(0.296)</td>
<td>(0.272)</td>
<td>(0.379)</td>
<td>(0.535)</td>
</tr>
<tr>
<td>supervisor respect</td>
<td>1.439</td>
<td>0.584</td>
<td>0.641</td>
<td>1.037</td>
<td>0.699</td>
<td>1.934</td>
<td>2.179</td>
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<td>(0.295)</td>
<td>(0.317)</td>
<td>(0.271)</td>
<td>(0.419)</td>
<td>(0.592)</td>
</tr>
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<td>0.937</td>
<td>0.801</td>
<td>0.737</td>
<td>1.114</td>
<td>0.968</td>
<td>1.305</td>
<td>1.586</td>
</tr>
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<td></td>
<td>(0.641)</td>
<td>(0.309)</td>
<td>(0.299)</td>
<td>(0.336)</td>
<td>(0.284)</td>
<td>(0.445)</td>
<td>(0.631)</td>
</tr>
<tr>
<td>self-expression</td>
<td>1.104</td>
<td>0.839</td>
<td>0.955</td>
<td>0.854</td>
<td>0.788</td>
<td>1.540</td>
<td>1.652</td>
</tr>
<tr>
<td></td>
<td>(0.589)</td>
<td>(0.291)</td>
<td>(0.282)</td>
<td>(0.311)</td>
<td>(0.261)</td>
<td>(0.400)</td>
<td>(0.569)</td>
</tr>
<tr>
<td>learning transferable skills</td>
<td>0.363</td>
<td>0.362</td>
<td>0.394</td>
<td>0.228</td>
<td>0.308</td>
<td>0.241</td>
<td>0.392</td>
</tr>
<tr>
<td></td>
<td>(0.195)</td>
<td>(0.0948)</td>
<td>(0.0920)</td>
<td>(0.101)</td>
<td>(0.0857)</td>
<td>(0.130)</td>
<td>(0.181)</td>
</tr>
</tbody>
</table>

| Elasticity           | 2.631   | 2.886   | 2.930   | 2.862   | 4.695   | 3.779   | 4.037   |
|                      | 0.233   | 0.194   | 0.190   | 0.182   | 0.203   | 0.229   | 0.309   |
| Dignity Value        | 0.00519 | 0.00466 | 0.00478 | 0.00614 | 0.00413 | 0.00707 | 0.00719 |
|                      | 0.00168 | 0.00113 | 0.00108 | 0.00115 | 0.000805 | 0.00108 | 0.00142 |
| N                    | 4383    | 14450   | 14450   | 12983   | 13504   | 7765    | 3844    |

Table reports specifications probing robustness to samples and specifications that vary in degree of inattention, as described in the text. Log wage entered controlled for in all specs but not reported. Standard errors, clustered at the level of respondent, reported in parentheses.
Figure A1: Robustness of Amenity Valuations: Prob. of Quitting X 100
**Figure A2:** Robustness of Amenity Valuations: Prob. of Staying and Not Asking For A Raise X 100
Figure A3: Heterogeneity of Quit, Bargaining, and Pooled Elasticities by Observables. Standard errors are clustered by respondent.
Figure A4: Map of respondent locations (by 2000 Commuting Zone).
Figure A5: Respondent job descriptions
Figure A6: Offered Value and Quit vs Bargaining Elasticities By High and Low Non-Dignity Amenity Value Jobs.
**Figure A7:** This figure shows the coefficient on each amenity, rescaled by the wage coefficient, from a multinomial logit controlling for the log of entered wage only. The wage elasticity for each outcome is reported at the bottom.
Figure A8: No effects of “bite” of voluntary $11 minimum wage on worker characteristics or job titles.
Figure A9: Effects of “bite” of voluntary $11 minimum wage on "How Hard to Find Another Job as Good as this One".
Figure A10: Heterogeneity in Elasticities by Sub-populations.
B Bargaining Appendix

As is standard in monopsony models, in the main text we have only allowed for incumbent workers to quit in response to an outside offer. But in reality, workers can initiate bargaining, which in our context is “asking for a raise”. Empirically, evidence on bargaining vs wage-posting is limited and inferred from wages rather than observed directly (Caldwell and Harmon 2019; Lachowska et al. 2021; Di Addario et al. 2020). An exception is Hall and Krueger (2012), who report 30% of workers report bargaining over the wage before accepting a job, with the propensity for bargaining is increasing in wages. The structural search literature building on Cahuc et al. (2006) assumes workers engage in sequential auction in response to outside offer, so workers will ask for a raise when given a better outside offer, quitting if employer does not match.

The ease of asking for a raise in the structural literature is in contrast to a large literature in psychology and management showing that asking for a raise is psychologically costly, and addition to documenting gender differences in willingness to ask for a raise (Babcock and Laschever 2009). This literature stresses that asking for a raise may damage long-run reputation, and being turned down can negatively affect self-image. Bénabou and Tirole (2009) give an important clue as to why asking for a raise is difficult: there is a chance a request will be turned down, which lowers the belief of a worker about their productivity, and this can be quite costly to a worker. This can be particularly true in monopsonistic contexts, where there are workers of varying outside options with the same marginal product, so beliefs about "true" productivity could be altered by changes in outside options.

In this Appendix we extend our model to include a taste for dignity modeled as a belief in own productivity, following Bénabou and Tirole (2009). We then present empirical results from the implied multinomial choice model with three options (quit, bargain, or do nothing).

Benabou and Tirole model dignity as utility over the belief about own productivity,
so that individuals value their belief (or the belief’s of others) that they are a productive person. We assume that workers treat their beliefs about their own productivity (or equivalently the beliefs their supervisors have about their productivity) directly, so that the amenity is now \( A = E[p] \).

For simplicity we ignore other amenities and restrict attention to bargaining over wages only. We now model interaction between the worker and their supervisor after the worker gets an outside offer \( V^o(w^o, E[p]) \), that does not alter their beliefs. The offer is private information of the worker. Nature chooses the a worker’s true productivity, that is known by the supervisor but not by the worker. Suppose workers have a prior \( \lambda \) that their productivity is high \( p^H \) and \( 1-\lambda \) that \( p = p^L \), so initial \( E[p] = \lambda p^H + (1-\lambda)p^L \). We assume that \( p^H > w^o > p^L \) for all outside offered wages \( w^o \).

If a worker bargains, they trigger a sequential auction, so that their Walmart supervisor knows about their outside offer \( w^o \). The supervisor grants a raise if the worker’s productivity is greater than \( w^o \). If the sequential auction results in a raise, then the posterior belief of the worker is updated to \( p^H \) as they conclude they are productive enough to warrant a raise. The utility from bargaining is therefore \( V(w^o, p^H) \) in the event of a successful raise.

If \( w^o > p \), the sequential auction does not result in a raise, then the worker’s posterior belief is revised downward to \( p^L \), and so their utility is now \( W = max(V(w^e, p^L), V(w^o, p^L)) \). Incorporating both the possible gain (both pecuniary and psychic) from bargaining as well as the possible (psychic) loss from fail, worker’s expected value from bargaining given prior \( \lambda \) and outside offer \( w^o \) is:

\[
E[V^B|w^o] = \lambda(V(w^o, p^H) + (1-\lambda)(max(V(w^e, p^L), V(w^o, p^L)))
\]  

(12)

Note that the preferences over beliefs gives a mechanism by which bargaining could be dominated by doing nothing: the prospect of an unsuccessful bargaining, where workers find out they are low productivity with certainty, results in lower utility than
the status quo \( V(w^c, E[p]) \) or outside option \( V(w^o, E[p]) \). But despite getting the same wage \( w^o \), bargaining also can provide a higher payoff than quitting for high \( \lambda \) because a worker learns they are high productivity, so \( V(w^o, p^H) > V(w^o, E[p]) \).

Important for this result is the concavity of \( V \) in \( E[p] \), as this makes the risk inherent in learning a supervisor’s belief about productivity costly. For example if \( \rho = 1 \), then the value of bargaining would be a linear combination of the value of quitting and the value of doing nothing, and thus dominated by whichever other option yielded higher payoff.

Allowing for Frechet utility shocks to the decision to bargain in addition to quitting, we can estimate the choice of whether to quit, bargain, or do nothing, with the following specification:

\[
Pr(Choice_{it} = k) = \beta \log(wage^o_{it}) + \sum_j A^j_{it} \gamma_j + \tau \log(wage^e_{it}) + \epsilon_{it} \quad (13)
\]

Where \( k = \) quitting, bargaining, or doing nothing. We estimate this model with multinomial logit, and present results in Figure A7. Figure A7 show that virtually none of the hypothetical amenities significantly alter the decision to bargain, the wage coefficient is small and only marginally significant, and the coefficients on the amenities in predicting the quit decision are unchanged.

These results are consistent with our modelling approach, where the current degree of managerial respect is what matters for predicting the response to an outside offer, because it is the response of the current supervisor (not the outside offer) to the request for a raise that results in the updated priors about own (or perceived) productivity.
C Results From Amazon MTurk Sample

In this section we present results from a very similar survey administered to Amazon Mechanical Turk respondents. We fielded these surveys between December 10, 2021 and February 2, 2022, with each respondent given 30 hypothetical choices, rather than just 3. We obtained 2815 unique respondents, with a total of 84450 hypothetical choices. The other major difference is that, given the larger sample, COVID-19 and the general employment context, we added 2 hypothetical amenities: whether or not a job had a vaccine requirement and paid sick leave.

As can be seen from Figure A11 the MTurk respondents value the components of dignity comparably to the Wal-Mart workers, and have a lower quit elasticity (-1.5 vs -3). For concision, we present just the overall quit elasticity and the multinomial logit results, with the other results reported at the bottom of the figure. Of note is also the high demand for full-time hours during a period of high labor market tightness, as well as the distaste workers have for vaccine requirements: both are valued at roughly 5% of the wage.
Figure A11: The left panel shows the binned scatterplot of the quit elasticity with respect to the wage from our Amazon Mechanical Turk sample controlling for the log of entered wage only. The right panel shows the results from a multinomial logit controlling for the log of entered wage only. The right panel shows the coefficients on each amenity rescaled by the predicted quit or bargaining response at the average wage.
D Proofs Appendix

Proof of Proposition 1

$$\frac{d\pi}{dA} = (p - w - \phi A)\eta V(w, A)^{\eta - 1} V_A - \phi V^{\eta} = 0 \quad (14)$$

$$\eta - 1 \quad (15)$$

$$\frac{d^2\pi}{dAdw} = (p - w - \phi A)\eta V_A w - \eta V_A - \phi V$$

$$\frac{d^2\pi}{dAdw} = (p - w - \phi A) - \eta \frac{V_A}{V_{wA}} - \phi \frac{V_{w}}{V_{wA}} \quad (16)$$

$$\frac{d^2\pi}{dAdw} = (p - w - \phi A) - \eta \sigma \frac{V}{V_{w}} - \phi \sigma \frac{V}{V_{A}} \quad (17)$$

Using \( \sigma = \frac{V_A V}{V_{wA} V} \)

$$\frac{d^2\pi}{dAdw} = (p - w - \phi A) + \eta \sigma \frac{V}{V_{w}} - \phi \sigma \frac{V}{V_{A}} \quad (18)$$

As \( \sigma \to \infty \) (perfect substitutes) then \( \frac{d^2\pi}{dAdw} < 0 \).

As \( \sigma \to 0 \) (perfect complements) then \( \frac{d^2\pi}{dAdw} > 0 \).

As \( \eta \to \infty \) (perfect competition) then \( \frac{d^2\pi}{dAdw} \approx (p - w - \phi A)\eta - \eta \sigma \frac{V}{V_{w}} \), but using the wage first order condition \((p - w - \phi A)\eta = V/V_{w}) we get:

$$\frac{d^2\pi}{dAdw} \approx \frac{V_{w}}{V_{w}} - \sigma \eta \frac{V}{V_{A}} < 0 \quad (19)$$

for large \( \eta \).

If \( \sigma = 1 \) (Cobb-Douglas) then at the monopsony wage

$$\frac{d^2\pi}{dAdw} = \frac{V_{w}}{V_{w}} (1 - \eta) - \phi \frac{V}{V_{A}} \quad (20)$$
which is less than 0 so long as \( \eta > 1 \). This condition implies a distinguishing prediction between monopsony and perfect competition is that amenities always go down with minimum wage in perfect competition, but can go either up or down in monopsony, depending on the value of \( \rho \).
E  Survey Details

We conducted 10,211 Qualtrics surveys between November 10, 2019 and April 12, 2020, for a total of 22,137 job offer responses.

In the first section, after accepting the IRB notice, respondents were asked the following demographic questions:

Q1 Please enter your age, in years.

Q2 How would you identify your race/ethnicity? (Check all that apply)
   - White
   - Black
   - Latino/a (any race)
   - Asian or Pacific Islander
   - Native American
   - Other (Please specify)

Q3 Do you identify as (check all that apply)...
   - Male
   - Female
   - Transgender
   - Other Gender Identity (Please specify)

In the second section, after asking whether the respondent is a current or previous Walmart employee, we ask the following questions about the respondent’s Walmart job:

Q1 Which of these categories best describes your [current/previous] job at Walmart?

---

8 Each respondent was asked to respond to three job offers, but some respondents ended the survey before responding to some or all of the offers, hence the total job offer responses is less than 3 times the number of surveys. Their 3 choices for a given job offer were: (1) stay at current job without asking for a raise, (2) stay at current job but ask for a raise, or (3) accept offer and leave current job.
• Cashier & Front End
• Sales Associate
• Cart Attendant & Janitorial
• Stocker, Backroom, & Receiving
• Fresh Food Associate
• Asset Protection
• Automotive
• Pharmacy
• Vision
• Department Manager
• Remodel Associate

Q2 How much [do/did] you make per hour at Walmart?

Q3 How many hours per week [do/did] you work in your job at Walmart?
  • 20 hours or less
  • 20-40 hours
  • 40 hours or more

Q4 [Do/did] you set your own hours at Walmart?
  • Yes
  • No

Q5 How much paid sick leave (per year) [are/were] you given in your job at Walmart?
  • 0 days
  • 1-10 days
  • 11-20 days
  • 21 or more days
Q6 Thinking of close friends – not your husband or wife or partner or family members, but people you feel fairly close to – what share of these close friends are people you [work/worked] with at Walmart?

- None
- Some
- Many
- All

Q7 How long [is/was] your commute to Walmart?

- 0-15 minutes
- 15-30 minutes
- 30-60 minutes
- More than 60 minutes

Q8 [Does/did] your job at Walmart require intense physical activity, such as heavy lifting, stooping, or prolonged walking?

- Yes
- No

Q9 [Does/did] your job at Walmart provide you with opportunities to learn new skills that would transfer to other jobs?

- Yes
- No

For the remaining questions, indicate to what extent the sentence describes the workplace of your job at Walmart

Q10 You [have/had] the opportunity to express yourself while at work.

- Almost Always
- Often
• Sometimes
• Never

Q11 You [can/could] rely on your coworkers to help you with work.

• Almost Always
• Often
• Sometimes
• Never

Q12 Your supervisor [treats/treated] you with respect.

• Almost Always
• Often
• Sometimes
• Never

Q13 Your supervisor [treats/treated] everyone fairly.

• Almost Always
• Often
• Sometimes
• Never

We then used the responses to these 13 questions to generate three fictitious job offers. To generate the hourly wages for each offer, we drew a random value from a normal distribution with mean equal to the respondent’s current wage and a standard deviation equal to 0.1 times the respondent’s current wage. We then took the maximum of the generated value and $7.25/hr, to ensure that none of the offers presented a wage lower than the federal minimum wage. For the remaining 12 characteristics, the offered values were generated by drawing uniformly at random from among all choices (for example, for number of hours per week, the offered value was randomly drawn from {20 hours or less, 20-40 hours, 40 hours or more}).
For each offer, we generated a table wherein the generated characteristics were presented side-by-side with the respondent’s current values, in randomized row order. Then, below each table, respondents were asked the following question:

Imagine you are offered the job shown in the right column above (under "Offered Job"), which is compared to your job at Walmart in the left column. Except for the highlighted characteristics, please assume the offered job is the same as your job at Walmart, including on characteristics not listed in the table. You may scroll over the characteristics to see their definitions.

Please review the jobs and indicate below whether you would leave your job at Walmart for the offered job, ask for a raise from your job at Walmart, or stay at your job at Walmart without asking for a raise.

What action would you take?

- Accept the offer and leave Walmart job
- Ask for a raise at Walmart job
- Stay at Walmart job without asking for a raise

After only the third of the three offers, we also asked the following additional question:

How many months has it been since you last saw a job opportunity as good as the job offer on the right?

- Less than 1 month
- 1-3 months
- 4-6 months
- More than 6 months
- I have not seen a job opportunity as good as the job offer on the right

A sample survey, including alternative survey branches (based on whether the respondent was a current or former Walmart employee), is presented in the pages that
F  Detailed Qualitative Evidence

In this Appendix we document the qualitative evidence motivating each of our survey questions. As described in the text, 20 students research assistants conducted interviews with 87 Walmart workers in Southern California, Eastern Texas, Central Illinois, Southwestern Ohio, and Central Florida. Interviews lasted approximately one hour, and we present extracts relevant for the design of our survey measures of dignity here.

As an example of a good supervisor, one worker stated

“I could go to Dave right now and say, ‘Dave, there’s some things going on in my home. I need to be off for a couple of days, and he’ll say, ‘That’s fine.’ No, ‘Bring me a letter.’ No, ‘I need proof.’ No nothing.”

Which can be contrasted with:

“[supervisors] feel like they can step on anybody they want. They feel like they can talk to anybody any way they want. They can make you do anything they want.”

“She would acknowledge this group of people, but not this group of people. And the area of the store that I was working in, she just kept nitpicking, nitpicking, nitpicking, and tightening, making up rules.”

A further dimension of dignity is ability to express themselves at work. Unsurprisingly, Walmart workers take considerable pride in work-e.g. workers post “shelfies” on Facebook, which are pictures of workers next to layouts stacked goods they have just finished.

“I just kind of took it as sport. LeBron James would score 44 points in a game... So I’m, like, I can get my [scans per hour] up to 1,000, up to 1,500.
And I had it so high it was at 2,400 scans per hour.... my store manager was telling me that that’s the highest in the whole district.”

One worker discussed the pleasures of self-expression at work:

“[We] would holler, like an aisle or two over, and cut up, and laugh. And we would all be singing while we worked, or whatever.”

After a new rule, the worker lamented:

“We’re not allowed to holler.... We’re to go where we’re supposed to go, keep our mouths shut, do our work, and get it done now.”

A final dimension of workplace dignity that was salient in the qualitative data was co-worker reliability, for example mutual aid and co-insurance against shock provided by workers. Some salient

“[Co-workers]’ll say, ‘Well, I hate to ask you, I don’t really know you, but do you have a few dollars I can borrow until I get paid?’ I say, ‘OK, if you need a few dollars, I got you covered.’”

“[Coworkers] nursed me back up.... They’re looking at my face and they’d be like, ‘You’re not feeling good again, right?’ and I’d be like, ‘Yes.’ They’d have me sit down and give me some water, make sure I was cool, gave me pain meds if I needed, whatever, and they would just take care of the load.”

“There’s no trust at all. It’s just basically, you look out for yourself, and you watch yourself. You watch your back.... Don’t make no friends, don’t talk to nobody.”

“I hated the people that I was around at work, because it felt like I couldn’t talk to anyone.”

Informed by these ethnographic accounts, we added the four questions measuring "dignity' to our survey.