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Power and Dignity in the Low-Wage Labor Market: Theory and Evidence from Wal-Mart Workers

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ABSTRACT

We measure workers' preferences for wages and non-wage amenities at America's largest employer, Walmart, using targeted survey experiments. We find that workers have an economically significant willingness to pay for "dignity at work". Consistent with the presence of monopsony power, we estimate hypothetical quit elasticities similar to recent estimates from the literature. We document significant complementarities between wages and non-wage amenities, suggesting that measures of monopsony that do not account for amenities may be biased. We find that workers at low dignity jobs have higher quit elasticities, but lower bargaining elasticities, relative to workers at high dignity jobs. Finally, we use cross-state variation in the bite of Walmart's 2014 corporate minimum wage to estimate the effects of the minimum wage on both workplace dignity and other amenities. We find no evidence that non-wage amenities are reduced in response to a higher minimum wage, consistent with wage-amenity complementarity and labor market power.

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1 Introduction

How do monopsonistic employers design jobs? Besides wages, jobs also differ on many attributes that workers may 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 cost of retaining or recruiting workers. What non-wage amenities are valued by workers, and are they efficiently provided by firms with labor market power?

We fielded a stated preference experiment with workers from a single major employer—Walmart—to assess what wage and non-wage characteristics of an outside offer would make them leave their current jobs. This methodology yields willingness-to-pay measures for a large number of non-wage job characteristics, including subjective amenities like "dignity at work"; a measure of labor market power; and a measure of the degree of complementarity between wages and non-wage amenities in worker preferences. We demonstrate theoretically how all of these parameters are key to understanding job design under monopsonistic competition. We find that a 1 standard deviation change in workplace dignity is valued between 6 and 8 percent of wages, and an elasticity of substitution between wages and amenities close to 0.35, showing a significant degree of complementarity in worker preferences. We also estimate quit elasticities between -2.3 and 3, quite close to those obtained from quasi-experimental analyses of administrative records (Bassier et al., 2020; Lamadon et al., 2019), and consistent with a significant degree of monopsony power.

Our paper makes three primary contributions. First, we extend recent work that makes use of stated-preference and discrete choice experiments (Drake et al., 2021; 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 easy-to-measure job characteristics, like health benefits, commuting time, scheduling, locational choice, and injury risk, our paper measures worker valuations of more subjective experiences of work.[1] We build our survey questions based on extensive qualitative work, closely mapping survey questions to open-ended interviews with Walmart workers.

We organize our findings through a model of job design with employer market power (Viscusi, 1980), building on a labor market analogue of the Spence (1975) model of a monopolist's choice of product quality. The literature eliciting willingness-to-pay has historically focused on wage-amenity schedules implied by competitive labor markets, in the spirit of Rosen (1974), only recently has it attended to how employer market power alters the interpretation of observed wages and amenities (Lavetti and Schmutte, 2018; Sockin, 2021).

Unlike past work estimating willingness-to-pay for amenities under monopsony (Lamadon et al., 2019), 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, but workplace dignity might be either a substitute for or complement with wages. Across our 11 amenities, we find significant complementarity. The complementarity implies 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; Sorkin, 2018).

Motivated by the structural search literature (Bagger et al., 2014), we allow workers to respond to outside offers by asking their current employer for a raise (Lachowska et al., 2021). We find that bargaining is not very responsive to hypothetical outside offers. 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, suggesting an "exit" vs "voice" trade-off facing employers choosing how much

[1] In this we are similar to Folke and Rickne (2020) who use similar methods to elicit valuations of sexual harassment at work in Sweden.

dignity to offer on a job.

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 highly substitutable, both imply that a binding minimum wage should reduce workplace amenities. Our third contribution is to test this prediction by exploiting Walmart's voluntary corporate minimum wage (CMW) of $11 per hour and assess whether the higher wage led to compensating differentials through reduced amenities in general, and reduced job dignity in particular. We first demonstrate that the CMW is 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 CMW is greater in these states. As a result, the CMW leads to substantial wage compression in low-wage states.

Instrumenting the bite of the CMW with state median wages, we find that there is no detectable effect of the CMW bite on workplace dignity or other amenities. This is true even for amenities (such as supervisory behavior) that 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. As a result, job values rose at the bottom of the wage distribution to a similar extent as wages from the introduction of the CMW.

The rest of the paper is structured as follows. In the following section, we discuss the measurement of dignity as a workplace amenity. Next, we provide a theoretical framework for job design under imperfect competition. We then introduce our empirical design, followed by a discussion of our findings on measuring the value of amenities as well as labor market power. Subsequently, we apply our method of amenity valuation to test the impact of Walmart's corporate minimum wage on amenity provision and job value. The final section concludes.

2 Dignity as a Workplace Amenity

While hourly wages, benefits, and hours are obviously important dimensions of a job, recent literature has shown that workers also value non-wage amenities such as scheduling, safety, and commuting time. 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 one's own productivity, building on the framework in Bénabou and Tirole (2011). We present a variant of our theoretical framework in Appendix B 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.[2] Within these ethnographies, qualities of work that tend to stand out include autonomy on the job, coworker relationships, and the 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 constructed 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. Survey details are provided in the Appendix, but the dignity-related questions are:

[2]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.

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.

A natural question is whether firms can adjust the level of dignity at work. While immediate supervisors likely have the most discretion over workplace dignity, supervisors can be incentivized by higher-level managers to treat subordinates fairly and with respect, and workplace rules can be designed to allow opportunities for self-expression and co-worker support. While it may take time to alter workplace experiences, and agency costs might be considerable, the significant cross-store variation we document below suggests that managers have some control over the level of workplace dignity.

3 Job Design Under Imperfect Competition

In this section we present a model for 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

$$V(w, A) = (\beta_0 w^\rho + \beta_1 (\sum_j^J C_j A_j)^\rho)^{\frac{1}{\rho}} \tag{1}$$

with $\rho \leq 1$ spanning the case of perfect substitutes between wages and amenities ($\rho = 1$), from the case of Cobb-Douglas ($\rho = 0$), to the case of perfect complements ($\rho = -\infty$). We also will use the elasticity of substitution $\sigma = \frac{1}{1-\rho}$. The length J vector 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. β_0 and β_1 are parameters governing the relative importance of wages and amenities in the utility function.

Workers further have some idiosyncratic taste shock e_i to an individual worker's (perceived) utility for working at a given firm i paying w with amenities A, $V(w, A)$ when compared to an outside offer of $V^o \equiv V(w^o, A^o)$. So the value of working for the given firm will be $e_i(V(w, A) - V^o)$. For now, we focus on horizontal job differentiation, as in (Card et al., 2018), as the source of monopsony power, but we empirically examine search frictions separately as a source of monopsony below. Letting e_i be Frechet with shape parameter $\frac{1}{\eta}$, we get that the labor supply facing the firm is $F(V(w, A) - V^o) \propto (V(w, A) - V^o)^\eta$. η is thus the labor supply elasticity with respect to the value of the job. We can define

$$\epsilon(w, A) \equiv \frac{w}{F(V(w, A) - V^o)} \frac{dF(V(w, A) - V^o)}{dw} = \eta \frac{w}{V} \frac{dV}{dw} = \eta \beta_0 \rho (\frac{w}{V(w, A)})^\rho$$

as the residual labor supply elasticity with respect to the wage, noting that it can vary with amenities provided even though the elasticity with respect to utility is constant.

Firms have marginal products of labor for a job and a cost of providing amenity level A given by ϕ.[3] This results in a profit function given by:

$$\pi = (p - w - \phi A) F(V(w, A) - V^o) \tag{2}$$

[3]Other cost functions could be considered, with $c(A, w) = c(w, A, F(V(w, A) - V^o))$ incorporating both economies/diseconomies of scale (where costs decrease with employment $F(V(w, A))$ and interactions with wage (e.g. where the cost of an amenity is higher with higher wages). For simplicity and ease of illustration we focus on the linear separable case where $c(A) = \phi A$.

The profit maximizing choice of w and A is simple enough to characterize and we leave the derivations to Appendix D. 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:

$$\frac{V_w}{V_A} = \frac{1}{C}\left(\frac{\beta_0 w}{\beta_1 A}\right)^{\rho-1} = \frac{1}{\phi} \tag{3}$$

where recall that $\rho \leq 1$. Monopsony entails that workers are getting an inefficiently low 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.

One question is why workers do not always bargain when given an outside offer, rather than having to choose just 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, following the Bénabou and Tirole (2009) notion of dignity as preferences over beliefs about own productivity. 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 main text.

Manipulating the first-order conditions gives a familiar condition relating marginal productivity to wages and amenities:

$$p = \frac{F}{F_V V_w} + \phi A + w = w \times (1 + \underbrace{\epsilon(w,A)^{-1}}_{\text{Monopsony}} + \underbrace{\phi(C/\phi)^{1/(1-\rho)}}_{\text{Compensating Differentials}}) \tag{4}$$

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 the monopsony distortion in the level of employment (so $V(w, A(w)) < V(p - \phi A(p), A(p))$, where $A(p) = \frac{p}{1+\phi}(\frac{C}{\phi})^{\frac{1}{1-\rho}}$ is the level of amenities under perfect competition, with the efficient level of employment.

There are some intuitive special cases revealed in (4) as well, which we can enumerate:

- Clearly if $C = 0$ and amenities are valueless 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 $\frac{w}{p} = (\epsilon^{-1}(w, A) + 1)^{-1}$ 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 $\frac{w}{p} = (\epsilon^{-1}(w, A) + C + 1)^{-1}$ more valued amenities (C) lower the wage.
- If $\rho = -\infty$ then the utility function of workers exhibits perfect complements and $\frac{w}{p} = (\epsilon^{-1}(w, A) + \phi + 1)^{-1}$ more costly amenities (ϕ) 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. In this subsection we introduce a limited, but natural form of heterogeneity, by assuming population of workers with heterogeneous tastes for amenities C^i, so equation (3) holds for the

marginal worker i^* and is given by:

$$(\frac{1}{C^{i^*}})\left(\frac{\beta_0 w}{\beta_1 A}\right)^{\rho-1} = \frac{1}{\phi} \tag{5}$$

Implicit differentiation gives that the elasticity of the wage-amenity ratio to C^{i^*} is $\frac{1}{\rho-1} \leq 0$. Since the marginal worker will have lower utility than the average worker, conditional on working at the firm, we have $C^{i^*} < E[C]$ across workers. The marginal worker has the lowest value of the job, and thus must have the lowest relative valuation of amenities relative to wage (since intensity of preferences over amenities is the only dimension of heterogeneity), and therefore is the least sensitive to employer's choices of amenity. Therefore the wage-amenity ratio will be higher than the homogeneous case (and lower than the efficient ratio).

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 marginal rate of substitution between wages and amenities than the average worker, then the wage-amenity ratio will be lower as that which maximized the welfare of the employed workers. Amenities will be relatively underprovided, and wages relatively overprovided.[4]

Note also this result would not be obtained 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

[4]In contrast to Spence (1975)'s general model, our simple parameterization of heterogeneity does not admit the case where the marginal worker has a lower marginal rate of substitution, in which case amenities would be relatively overprovided. We would need heterogeneity in the relative amenity valuations C_i to be negatively correlated with the idiosyncratic taste shocks for working for the firm.

as well as the degree of complementarity between wages and amenities. That is, the sign of $\frac{dA}{dw_{min}}$ reveals both η and ρ.

It is well-known that the Rosen (1974) model of hedonic equilibrium (with homogeneous 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 the 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 ρ.
- (Monopsony) η is finite, and wage-setting is given by equation (4), 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 ρ) or monopsony with high ρ (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 four rounds of surveying, resulting in 10,211 Qualtrics surveys between November 10, 2019 and April 12, 2020, for a total of 22,137 job offer responses[5]. 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 two 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 A1, and the occupational distribution (based on Walmart job title) is given in Appendix Figure A2. 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[6] 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

[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).

[6]`https://corporate.Walmart.com/global-responsibility/culture-diversity-equity-and-inclusion`

restricted to those that were on Facebook, and then among those who finished the survey. This sample selection 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).

5 What Workplace Characteristics Do Workers Value?

5.1 Variable Construction

We standardize the amenity variable by dividing the hypothetical offered value by the standard deviation of the amenity value at current Walmart jobs, so that the units of the hypothetical amenity are relative to the variation in the *current* amenities experienced by our sample of workers, and examine alternative standardizations in robustness exercises.

5.2 Specifications

Our main specification exploits our survey randomization, in which we randomized the t-th offered wage, $\ln(wage^o_{it})$, around respondent i's current wage, $\ln(wage^c_i)$. 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 penultimate section.

We begin by estimating the following regression:

$$quit_{it} = \beta \ln(wage^o_{it}) + \sum_j A^j_{it}\gamma_j + \tau \ln(wage^c_i) + \epsilon_{it} \tag{6}$$

The signs of amenities, A^j_{it} are reversed in some cases (e.g. commutes) so that positive coefficients always represent stronger preferences, and we expect positive estimates of γ_j for all j.

We censor the bargaining outcome for our main specification, but show results from a multinomial logit specification in Appendix Figure A3 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 γ by β to get the value of each amenity in equivalent percentage wage increases as $\frac{\gamma_j}{\beta}$. These are the values of a one standard deviation change in the amenity as a percentage of the wage.

Figure 2 shows the resulting valuations of the amenities. 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 are 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.

Appendix Table A3 shows the coefficient estimates and standard errors for a number of specifications and samples. We standardize the variables by the offered means and

standard deviations, rather than the empirical reported means and standard deviations, and show these with and without worker fixed effects. We also restrict attention to the first offer, in order to use only the cross-worker variation and eliminate any priming or learning effects across offers.

Perhaps 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 were hours-constrained even when employment was very high suggests that employers find full-time employment much more costly to provide than part-time employment. These findings are consistent with recent findings on work hours mismatch by Lachowska et al. (2022).

We next directly explore the correlation between amenities and wages in a binned scatterplot. In Figure 3 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.

5.3 The Value of Dignity at Work

Many of the amenities we consider 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 Appendix Table A3 we take the four amenities designated as "dignity" and impute an equivalent percentage change in wage. The value of dignity to worker i with amenities A_i^j in money metric terms is:

$$V^{dignity}(A_i^1, A_i^2, A_i^3, A_i^4) = \sum_{j=1}^{4} \frac{\gamma_j}{\beta} A_i^j \tag{7}$$

Going from 0 (lowest dignity) on all of these four dimensions to 4 (highest dignity) 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 3 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 4. White workers, older workers, Southerners, and those employed in Asset Protection (security guards) report significantly higher values of dignity, but only white workers and men have significantly higher non-dignity job values.

We can also assess to what degree job values are "rents." We included 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 5 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 Wal-Mart job also report higher dignity. This is again inconsistent with a literal interpretation 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 amenities 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 A4, 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. These include limiting attention to only the first offer; controlling for individual and question order fixed effects; dropping observations with very short or very long completion times; limiting to those who finished the entire survey; or limiting to those who wrote a substantial amount in an open-ended question about quitting their jobs. We additionally fit a random coefficients model and trim observations with very small or very large wage elasticities, and re-estimate the model with the limited sample excluding outliers. All the specifications imply substantial dignity valuations, and fairly similar wage elasticities.

In Appendix C, 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. We also find comparable quit and bargaining elasticities, further confirming the generalizability of our survey experiment design.

6 Measuring Labor Market Power at Wal- Mart

6.1 Estimating the Wage Elasticity Facing 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. The experimental variation alone, however, is insufficient for two reasons. First, it does not

account for the rate at which dominating offers arrive, a standard source of monopsony power in search-based models. Second, the experimental variation is in hypothetical outside offers, not Walmart's own wage, and so care must be taken in comparing the experimental elasticity (even adjusted for search-frictions) to actual quit elasticities faced by firms.

The quit elasticity that constrains Walmart will depend on the rate at which dominating offers arrive to Walmart workers— denoted as λ—that is a function of job values (including wages), and is not directly recovered in our experiment. Better offers are less likely to arrive; therefore, the retention gains to Walmart from raising its wage will be less than suggested by the experimental elasticity, as some potential outside offers will never arrive.

Defining the wage elasticity facing Walmart: In mapping our empirical estimates to the quit elasticity facing Walmart, as well as for comparing it to those estimated in the literature, we need to account for search frictions. Let ϵ_λ denote the elasticity of the offer arrival rate with respect to current Walmart wage w^{WM}, so the overall elasticity with respect to the wage is given by:

$$\epsilon^{WM}(w^{WM}, A^{WM}) = \epsilon_\lambda + \underbrace{\eta\beta_0\rho\left(\frac{w^{WM}}{V(w^{WM}, A^{WM})}\right)^\rho}_{\epsilon_F^{WM}}$$

Here ϵ_F^{WM} is the elasticity of quitting with respect to Walmart's wage arising from job differentiation. The superscript F denotes the CDF of idiosyncratic taste shocks, distributed as $F(e_i)$.

From outside offers to current wages: We are randomizing hypothetical outside wages, not the wage paid by Walmart. However, we can use the structure we have imposed on the quit decision to recover the monopsony power of Walmart. In particular, if the hypothetically offered wages and amenities are close to the actual Walmart wages and amenities, then the quit elasticities we recover by randomizing outside offers

will be nearly identical to those recovered by randomizing Walmart wages. Mapping to the notation from the model, we have:

$$\epsilon_F^{WM} = \frac{w^{WM}}{quit^{WM}} \frac{dE[quit(w^{WM})}{dw} \approx \frac{-w^{WM}}{F(\Delta V)} \frac{dF(\Delta V)}{dV^o} \frac{dV^o(w^o, A^o)}{dw^o}$$

Where $\Delta V = V(w^{WM}, A^{WM}) - V^o$. This approximation will hold if w^o is close to w^{WM} and $\frac{dV(w^{WM}, A^{WM})}{dw^{WM}} \approx \frac{dV^o(w^o, A^o)}{dw^o}$, which in turn will be true if the value of the outside offer is not very different from the current job. Since we are randomizing w^o around w^{WM}, have standardized the A^o by the standard deviation of A^{WM}, and are controlling for w^{WM} (as well as worker fixed effects in some specifications), this approximation should be quite close. Insuring that both offered wages and amenities are close to current values is necessary when utility depends on both wages and amenities and if the elasticity of substitution is not identical to 1. Appendix Figure A4 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.

Experimental estimates of ϵ_F^{WM}: We present estimates of $\epsilon_F = -\epsilon_F^{WM}$ in Figure 6, which shows the binned scatter plot with the censored quit response as a function of the offered wages. The fitted line is a close log-linear fit, and the experimental elasticity presented in the figure is $\epsilon_F = \frac{\beta}{E[quit]}$ where β is the coefficient from the regression equation given by:[7]

$$quit_{it} = \beta \ln(wage_{it}^o) + \tau X_i + \epsilon_{it} \tag{8}$$

Given the dependence of the quit elasticity with respect to the wage on the amenities

[7]As above, 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.

at the current job, we control for respondent fixed effects in the figure, but show results without them in Table 1. In order to go from a quit elasticity with respect to outside offers to a quit elasticity with respect to inside offers, we multiply by negative one: randomizing the offered wage around the current wage, along with controlling for respondent fixed effects, ensure that this is a valid approximation.

Columns 2 and 3 show estimated quit elasticities with two specifications, one where X_i includes the log of the current wage, one where it instead includes respondent fixed effects. The magnitude is quite similar across specifications, around 2.9. A 10% increase in the hypothetical outside wage results in almost 30% increase in the probability of stated quits from the current job.

Further reassurance that our survey responses are measuring real-world behavior comes from our click-based measure of search effort. In order to elicit a behavior-based measure rather than a purely hypothetical choice, 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. Figure 7 shows the resulting relationship. While the baseline click through rates are quite low and the regression comparatively imprecise, the estimated elasticity is significantly different from 0, at roughly 2, with standard errors wide enough to include the hypothetical quit elasticity above as well as existing estimates.

Incorporating search frictions To get an estimate of ϵ_λ, we asked respondents "How long since you last had an offer this good?" for the last offer only, with response options ranging from less than a month to never (which we treat as missing). We then assume $Pr(\text{Offer of } w \text{ since } t | w \geq w_o, t) = 1 - e^{-w_o^{\epsilon_\lambda} t}$ so that wages better than the last offer arrive less frequently, with a constant hazard rate.

This distributional assumption on offer arrival times implies the expected time until an offer with wage w is given by $E[\ln(t)|w] = a_0 - \epsilon_\lambda \ln(w)$, with a_0 a constant and a hazard rate independent of time, so that $\frac{d\ln(Pr(Offer|w \geq w_o)}{d\ln(w_o)} = -\epsilon_\lambda$ for the workers who

are currently employed at Walmart. We can thus regress ln(time since offer this good) on $\ln(w)$, 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). Here ϵ_λ reflects the slope of the wage offer distribution locally around the current wage: a higher ϵ_λ implies a faster fall-off in the offer rates for a slightly better offer. Column 1 of Table 1 shows the resulting offer arrival elasticity, which is -0.579, so that a 10% higher wage takes 5.8% longer to arrive. Interpreted as the slope of the wage offer distribution, it implies that if Walmart were to pay a 10% higher wage, offers with higher wages would come 5.8% more slowly.

Combining Elasticities: We add the implied ϵ_λ from earlier to the ϵ estimate to get an observed quit elasticity of $\epsilon^{WM} = -2.3$. The bottom rows of Columns 2 and 3 of Table 1 show the resulting residual wage elasticity accounting for the time to offer and the probability of quitting.

If we take the approximation that the residual labor supply elasticity is twice the negative of the quit elasticity, our estimates imply a residual labor supply elasticity with respect to the wage of roughly $-2 \times \epsilon^{WM} = 4.6$, somewhat smaller than the estimates implied by rent-sharing estimates (Lamadon et al., 2019; Kline 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 an artifact of our methodology, and suggests that survey experiments give a tool for estimating monopsony power in a wide variety of contexts.

6.2 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 $\ln(w_i^o)$, and can detect a non-constant elasticity of substitution via the inclusion of $\ln(w_i^o)^2$. This specification can be seen as a truncated translog approximation to the CES equation (6), where the interactions between the amenities can be dropped. Since wages were randomized around current wages, we include respondent fixed effects δ_i in this specification so that we can identify the nonlinearities in $\ln(w_i^o)$.

$$quit_{it} = \beta \ln(wage_{it}^o) + \beta_2 \ln(wage_{it}^o)^2 + \sum_j A_{it}^j \gamma_j + \sum_j A_{it}^j \gamma_j^I \times \ln(wage_{it}^o) + \delta_i + \epsilon_{it} \quad (9)$$

We report results from this specification in Figure 8, which shows the valuation of each amenity together with its valuation at a 10% higher wage. A number of amenities exhibit significant complementarities with wages, including commute time, hours per week, paid time off, and supervisor respect. The confidence intervals reported are from the regression coefficients on the interaction terms in equation 9. Importantly, no amenity shows a negative interaction, suggesting little in the way of substitutability between wages and amenities. The bottom row of Figure 8 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 ρ at the population averages of log wages and amenities,

$E[w]$ and $E[A^j]$. The implied ρ is given by:

$$\rho = \frac{\beta \sum_j \gamma_j + \beta_2 E[w] \left(2 \sum j\gamma_j + \sum_j \gamma_j^I E[w]\right)}{\left(\beta + \sum_j \gamma_j^I E[A^j] + 2\beta_2 E[w]\right) \left(\sum_j \gamma_j + \sum_j \gamma_j^I E[w]\right)}$$

We report the estimate of $\widehat{\rho}$ in Figure 8—using sample analogs of $E(w)$ and $E(A^j)$ and estimated γ_j's—and it both negative and significantly different from zero, 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.

6.3 Comprehensive Quit and Bargaining Elasticities

The previous section recovered residual supply elasticity with respect to the wage, ϵ_F^{WM}, which are directly comparable to the estimates in the literature. As our model suggests, the relevant elasticity is not ϵ but rather η, the elasticity of labor supply with respect to the utility of the job. 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 $V^o - V^e$. We call the elasticity η here, following our model. Analogously to ϵ above, we have η_λ, so that the empirical analogue of η in our model is $\eta^{WM} = \eta_\lambda + \eta_F^{WM}$. η^{WM} estimates the "comprehensive" residual labor supply elasticity with respect to utility, rather than with respect to the wage.

Panel B of Table 1 presents estimates of η_λ, η_F, and η^{WM}, parallel to the estimates of ϵ in Panel A discussed above. The resulting estimates of η^{WM} are only slightly larger than the corresponding wage elasticity ϵ^{WM}, driven by both a slightly higher η_F^{WM} and a slightly higher η_λ.

Our estimates of V^{WM} and V^o are possibly error-ridden measures of the true values relevant for decision making. From the perspective of Walmart, our estimate of V^o may

not correspond to the perceived value of outside offers held by their workers in reality. For example, unlike our experiment, real world job postings rarely advertise their managerial fairness.[8] Classical measurement error would suggest our experimental estimates would vary with and without worker fixed-effects. Without fixed- effects, our quit elasticities could be biased by measurement error in both V^{WM} and V^{o}. Including using worker fixed-effects estimate holds constant any source of variation in V^{WM}, including measurement error. At the same time, any classical measurement error in V^{o} would be amplified by the inclusion of worker fixed effects, attenuating the resulting estimates of η. The fact that our estimates are quite similar with and without worker fixed effects suggests that neither of these sources of measurement error are creating large biases.[9]

Standard models of search-based 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. In contrast, models based on idiosyncratic preferences of workers over jobs will have quit and bargaining elasticities that are smooth, as a positive fraction of workers turn down jobs that dominate their current job on observables due to idiosyncratic tastes or mobility costs.

These predictions are examined in Figure 9, 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 our measure was precisely capturing job value and either the

[8]Although social networks likely communicate this information, and Sockin (2021) shows that this type of information about managerial respect in Glassdoor is important for worker search behavior.

[9]Moreover, identification in the fixed effects specification is analogous to the approach of asking workers to choose between two hypothetical jobs in the literature (e.g.Maestas et al. (2018)). One caveat to this interpretation is the unlikely case that eliminating one bias and introducing another exactly cancel each other.

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 statistically or economically significant break, suggesting that there remains considerable unobserved heterogeneity in job valuation, both with respect to asking for a raise as well as quitting.

In order to explore this unobserved heterogeneity more fully, we also estimated random-coefficient models, where we allow coefficients on wages and amenities to vary by individual respondent. Appendix Figure A5 shows the residual within-respondent variance, with different sets of random coefficients. Random coefficients in amenities add very little explanatory power on top of random coefficients in wages, and allowing random coefficients on total job values captures almost the same level of variation. 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. In sum, the variation in responses seems driven by heterogeneous tastes for jobs, not heterogeneity in valuations of wages or amenities, suggesting horizontal job differentiation as a source of monopsony power even when workers observe multiple offers.

Figure 9 also 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. This finding of limited bargaining in response to higher outside offers is consistent with other recent papers that have looked at bargaining empirically (Lachowska et al., 2021; Hall and Krueger, 2012).

However, the bargaining elasticity is much larger in high dignity jobs. Figure 10 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 supply high levels of dignity, but this incentive could in turn 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 little such heterogeneity in the non-dignity

amenity job values. Further, these patterns do not depend on whether we estimate the job values allowing for complementarities or not. The incentive to deter bargaining may be a reason that employers underprovide dignity at work, despite the additional turnover. This “exit" vs “voice" trade-off for monopsonistic job design when workers can bargain may be deserving of further research.

6.4 Inequalities in Experienced Job Values

We can use the predicted job values to examine labor market inequality in job values, adding the valuation-weighted experienced job values to the log of current wages. Figure 11 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 on wages, but not on amenities. We will turn to detailed examination of the minimum wage in the next section.

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 (Cengiz et al., 2019; Autor et al., 2016). It is unlikely that prior to the introduction of the corporate 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 Amazon warehouses significantly raised their wages after announcing an increase in their corporate minimum wage.[10]

This corporate minimum wage policy is imposed nationally across establishments by the firm, but other wages and amenities are 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 reduction 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.

[10]Other papers exploiting uniform firm wage-setting interacted with local labor market variation include Cappelli and Chauvin (1991); Staiger et al. (2010) and Emanuel and Harrington (2020).

7.1 Corporate 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 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.

$$share_{st} = \alpha_0 + \alpha_1 MedianWage_s + u \tag{10}$$

$$Y^d_{s(i)t} - Y^5_{s(i)t} = \beta_d \cdot \widehat{share}_{s(i)t} + e_{it} \tag{11}$$

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 $\widehat{\beta_d}$ 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 $\widehat{\beta}_d$ 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.

Appendix Figure A7 presents 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 A8 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

Our paper suggests that workers value subjective experiences of work in addition to other non-wage amenities. We find a considerable value for dignity-based amenities at jobs: going from the lowest dignity job to the highest dignity job is equivalent to a 20% increase in wages.

We obtain quit elasticities similar to those in the literature, taking account of both job differentiation and search frictions. Importantly, we also find significant complementarities between wages and amenities: these complementarities imply that quit elasticities with respect to wages may be heterogeneous depending on the amenities provided, and the additive separability of wages and non-wage benefits often assumed in the literature may not be warranted.

Our minimum wage results further confirm the predictions of a model where wages and amenities are complements, as well as providing evidence against the widespread view that an increased minimum wage is offset by worse non-pecuniary job experiences (Clemens, 2021). These complementarities may also bias estimates of monopsony power coming from firm-specific shocks to worker productivity (Lamadon et al., 2019; Kline et al., 2019), as employers may alter both wages and amenities in response to productivity shocks, and accounting for amenities may alter the estimated firm-specific labor supply

elasticities.

Our paper joins other recent papers in documenting the importance of subjective experiences of work in how workers value jobs, beyond wages and other pecuniary benefits. Our results suggest that these subjective experiences can be usefully thought of as being supplied by firms, like other amenities. The presence of significant complementarities suggests that imperfect competition may explain why workers may experience *both* wages and amenities lower than the efficient level. Importantly, any effort to increase workplace amenities (including subjective experiences at low-wage jobs) may require policies that reduce monopsony power in the low-wage labor market. The high levels of labor market competition in the immediate post-COVID labor market may have given workers the opportunity to quit jobs that didn't provide dignity. Whether this results in firms upgrading the subjective experience of work remains to be seen.

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Tables

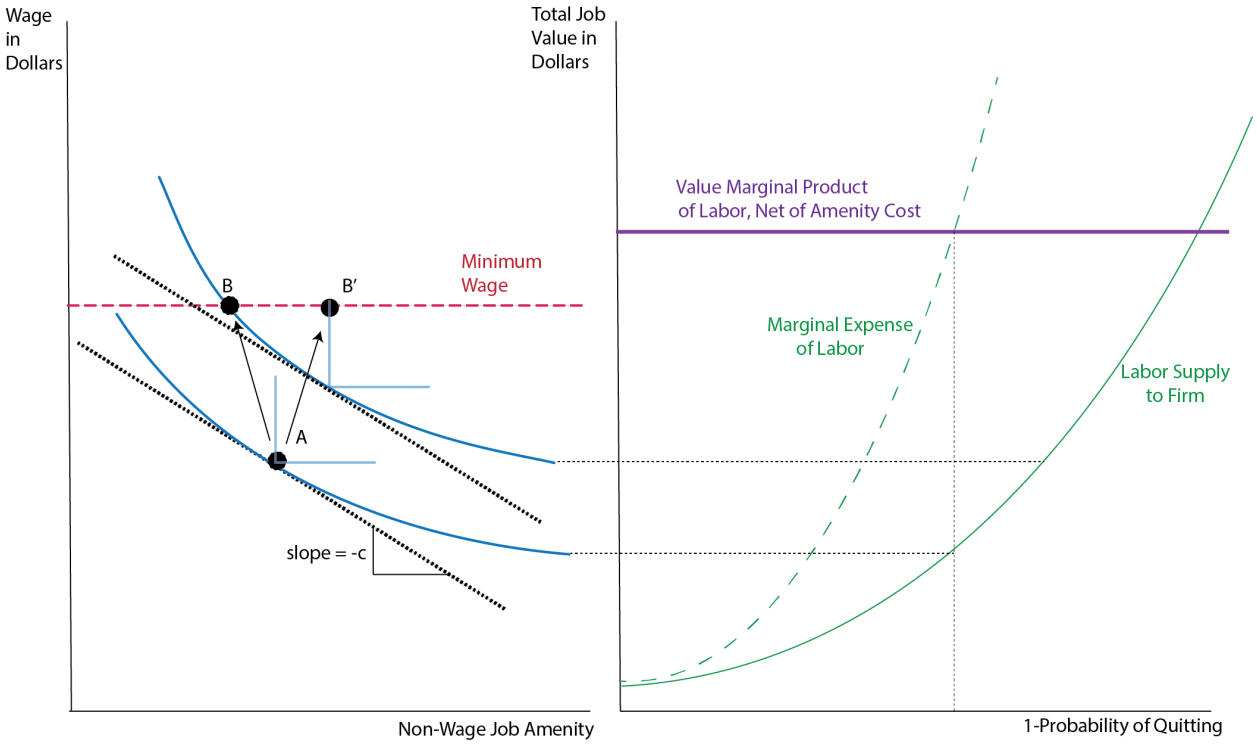
Table 1: Quit Elasticities Measuring Labor Market Power at Walmart

	(1) Log Months Since Better Offer	(2) Pr(Quit) X 100	(3)
Panel A: Wage			
Offered Log Wage	0.579	49.644	48.043
	(0.197)	(2.611)	(3.632)
Exp. Quit Elasticity ϵ_F^{WM}		-2.961	-2.865
		(0.153)	(0.217)
WM Elasticity ϵ^{WM}		-2.382	-2.286
		(0.250)	(0.728)
N	4068	20374	20374
Ind. Fixed Effects	No	No	Yes
Sample	Last offer	All offers	All offers
Panel B: Total Job Value			
Offered Total Job Value	0.437	52.719	48.769
	(0.169)	(2.280)	(3.167)
Exp. Quit Elasticity η_F^{WM}		-3.144	-2.909
		(0.133)	(0.189)
WM Elasticity η^{WM}		-2.708	-2.472
		(0.215)	(0.550)
N	4068	20374	20374
Ind. Fixed Effects	No	No	Yes
Sample	Last offer	All offers	All offers

Notes: Standard errors, clustered by respondent, in parentheses. Panel A has offered and current log wages as regressors, while Panel B uses the offered total job value and current log wage. Column 1 uses the log of months since a better offer as the outcome, and the reported coefficient is an estimate of ϵ_λ in Panel A and η_λ in Panel B. Columns 2 and 3 have the censored probability of quitting, without and with individual respondent fixed effects, and shows estimates of ϵ_F^{WM} in Panel A and η_F^{WM} in Panel B. The row reporting the WM elasticity sums ϵ_λ (η_λ in Panel B) and ϵ_F^{WM} (η_F^{WM} in Panel B) to provide estimates of Walmart's labor market power with respect to the wage ϵ^{WM} or job value η^{WM}.

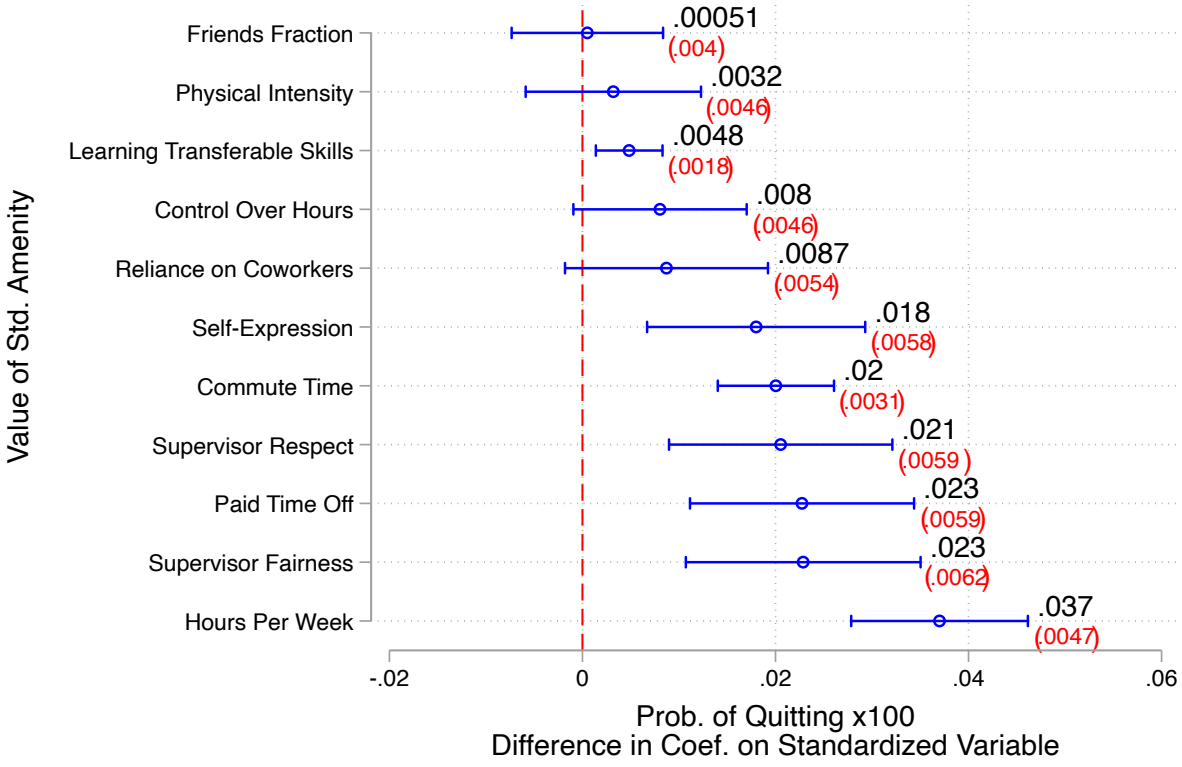
Figures

Figure 1: Wages and Amenities Under Monopsony



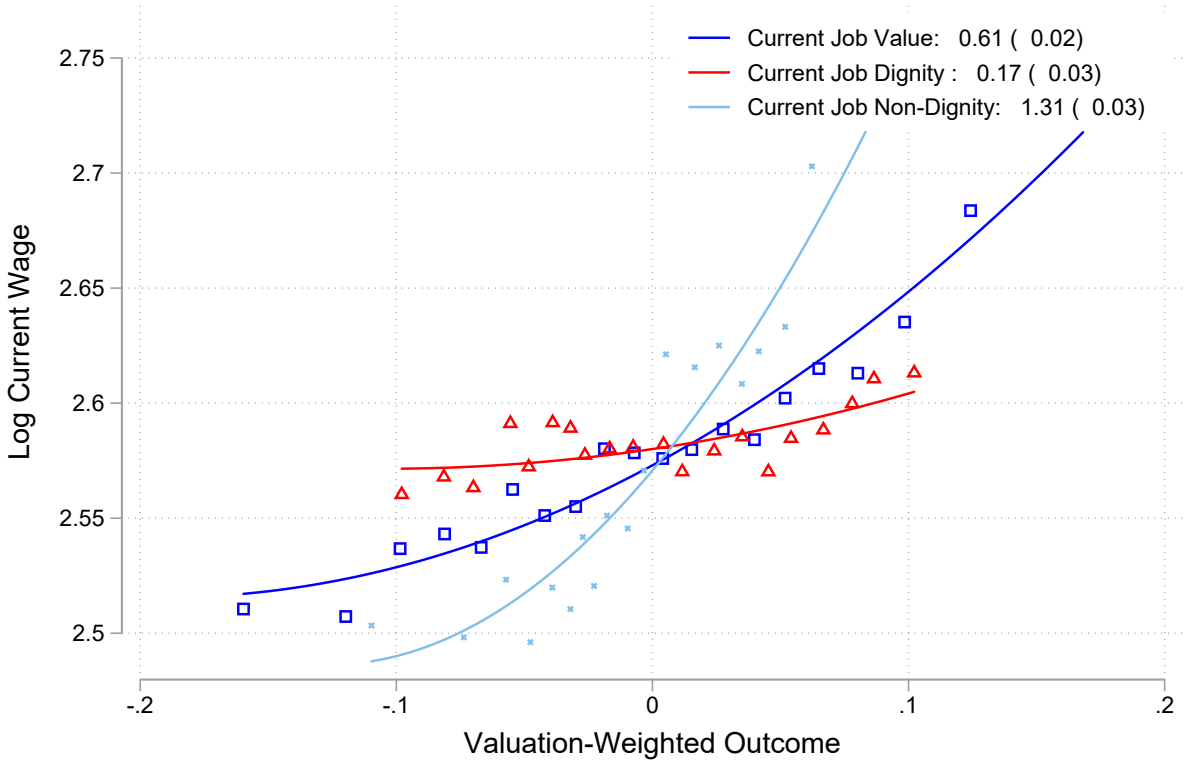
Notes:Model showing the provision of amenities and wages under monopsony and the effect of a minimum wage. The indifference curve of a worker is drawn with both a high elasticity of substitution so that minimum wage reduces level of amenities, as well as a Leontief indifference curve showing the case where a minimum wage increases the level of amenities.

Figure 2: Amenity Valuations



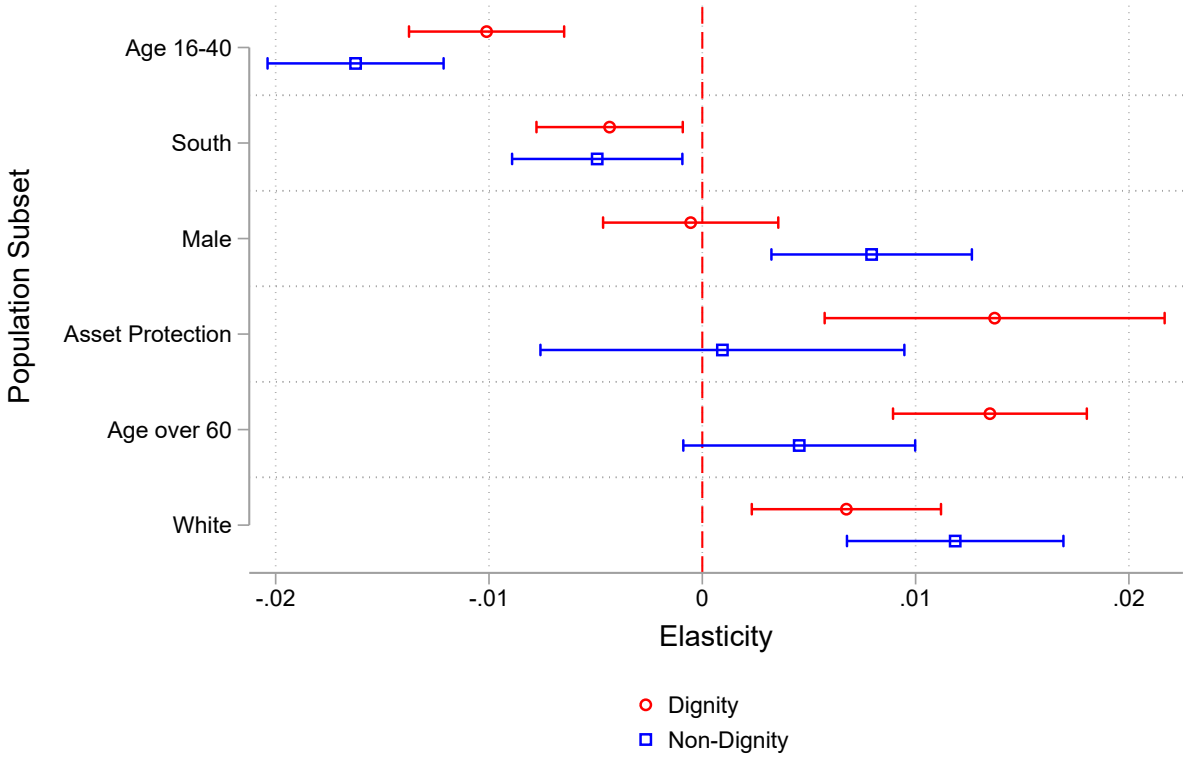
Notes: Outcome variable is the probability of quitting $\times$ 100. Coefficients reported are of offered amenities on probability of quitting, divided by the coefficient on log wage. Regressions control for log of current wage, and standard errors are clustered by respondent, and are reported in red.

Figure 3: Wages and Non-Wage Job Values



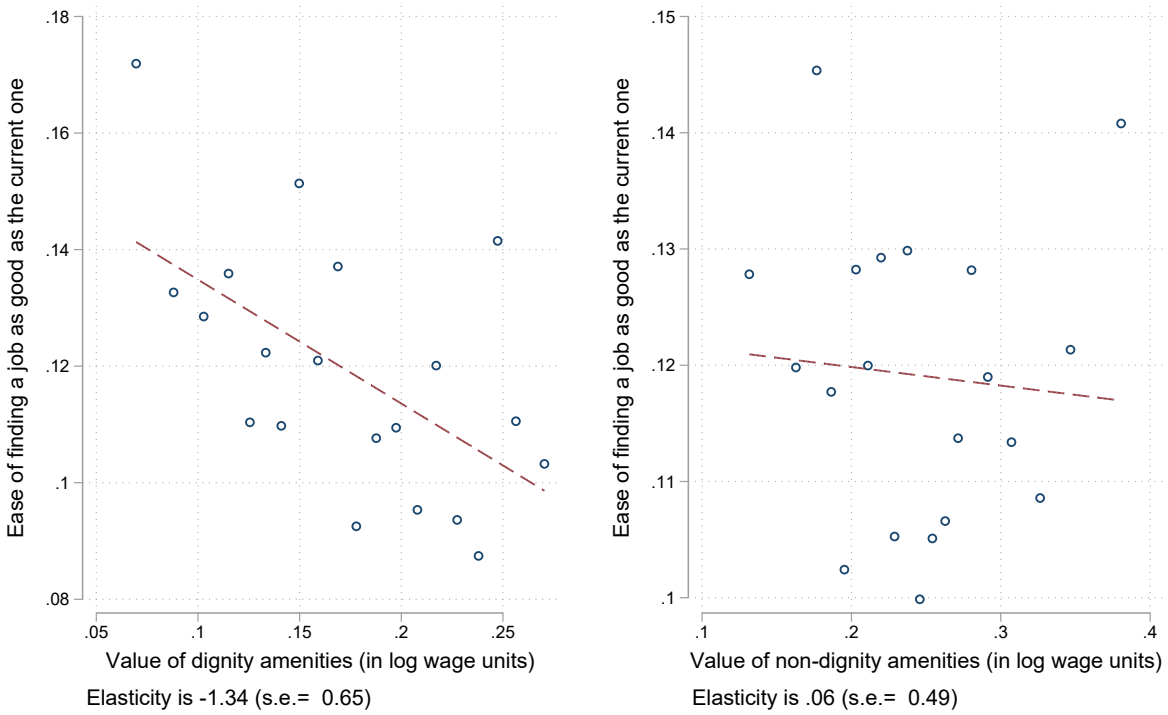
Notes: Binned scatterplots between amenity values, dignity, and non-dignity job amenity values and log current wages. Estimated slopes, with standard errors clustered at the respondent level, shown in legend.

Figure 4: Respondent Correlates of Dignity and non-Dignity Job Amenity Values.



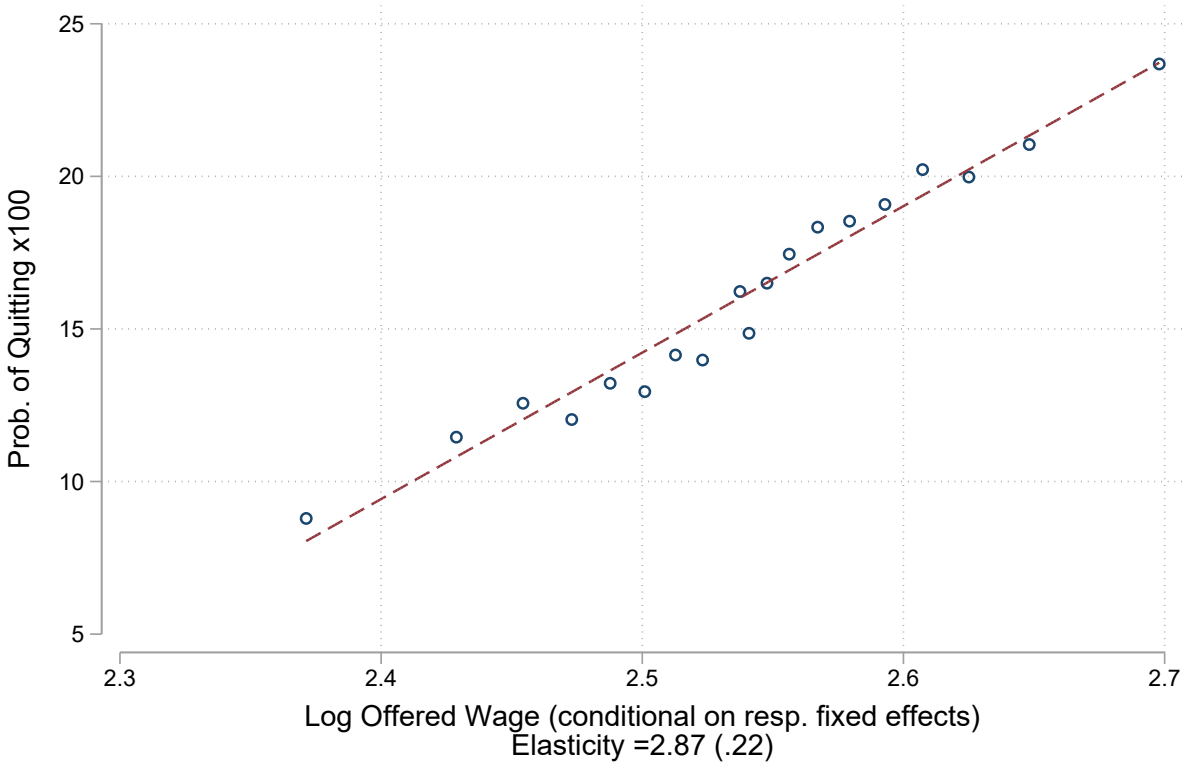
Notes: Coefficients β each from a separate respondent-level bivariate regression of $V = \beta X + \epsilon$, where X is the predictor, and V is the estimated value of respondent's current job. 95% confidence intervals plotted based on robust standard errors.

Figure 5: Ease of Finding Alternatives and Dignity and Non-Dignity Amenities



Notes: Respondent level binned scatterplots between current dignity and non-dignity job amenity values and "How Easy to Find a Job As Good" as the respondent's current job at Walmart. Elasticities, with robust standard errors, shown in legend.

Figure 6: The Relationship Between Outside Offered Wage and Quitting

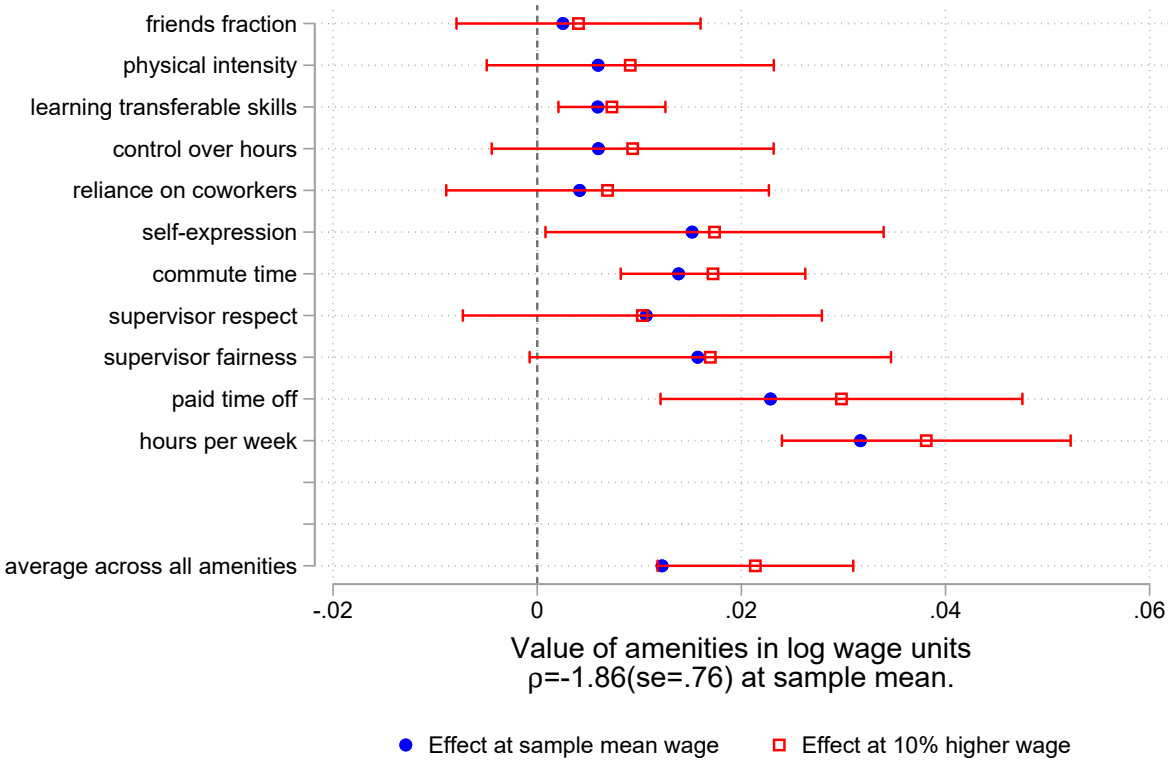


Notes. Binned scatterplot of reporting Quit ($\times$ 100) against the randomized offered wage, controlling for respondent fixed effects. Only considers quitting and staying, and censors bargaining outcomes. The elasticity (and standard error, clustered by respondent, in parentheses) are also reported.

Figure 7: The Relationship Between Outside Offered Wage and Clicking on Job Ad Link

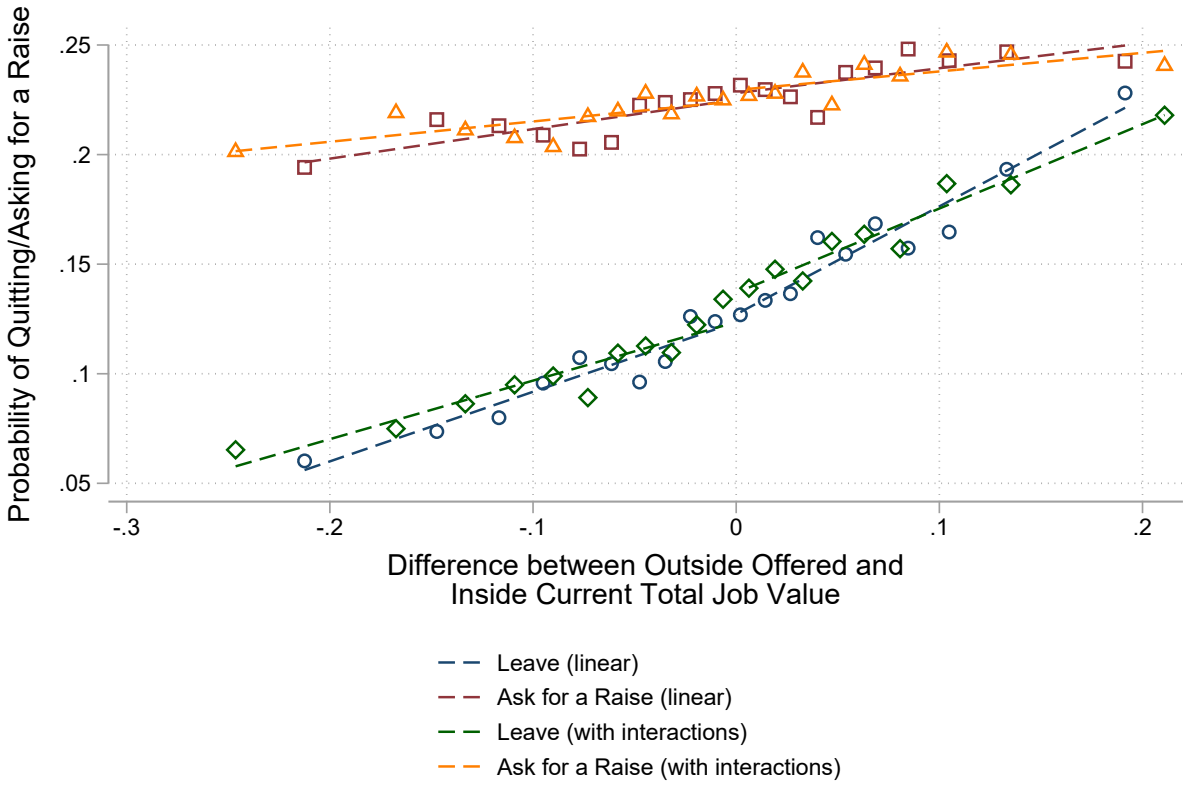
Notes: Binned scatterplot of probability of clicking on a job ad link × 100 against the randomized offered wage, controlling for respondent fixed effects. The elasticity (and standard error, clustered by respondent, in parentheses) are also reported.

Figure 8: Amenity Valuations with Complementarities



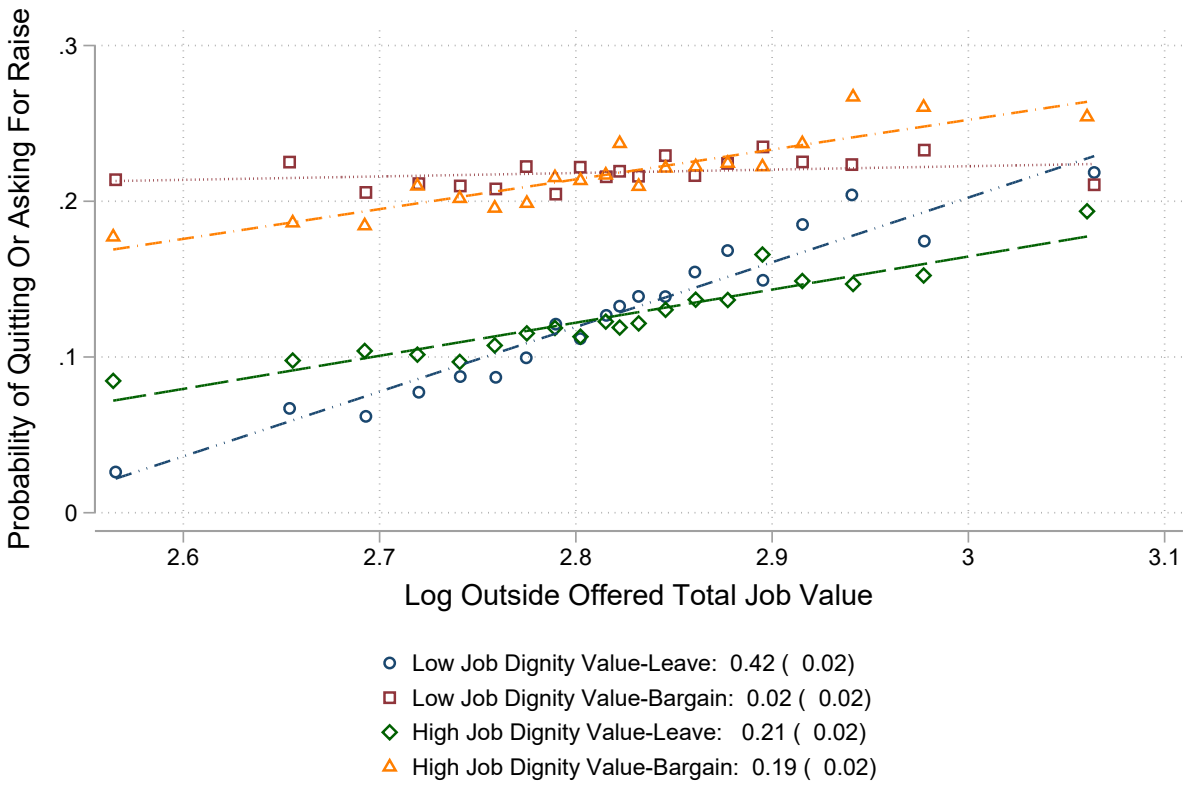
Notes: Amenity valuations accounting for interactions between log wages and each amenity. Outcome variable is Prob. of Quitting X 100, Coefficients reported are of offered amenities on probability of quitting, divided by the coefficient on log wage, both assessed at the sample mean amenities and log wage. Standard errors are calculated via delta-method, clustered by respondent.

Figure 9: Comprehensive Quit and Bargaining Elasticities



Notes: Quit and bargaining responses plotted against offered minus current total job value (computed with the linear and the interactions model). Elasticities are reported in the legend, with standard errors clustered by respondent. Bargaining elasticities are significantly lower than quit elasticities. Figures control for respondent fixed effects. The absence of a significant discontinuity or nonlinearity at 0 indicates that there is still considerable unobserved heterogeneity in the perceived values of outside offers, consistent with horizontal job differentiation.

Figure 10: Exit and Voice by Dignity at Work.



Notes: Offered value and hypothetical quit vs bargaining decisions by workers at high and low dignity jobs. Figures control for respondent fixed effects. Elasticities are reported in the legend, with standard errors clustered by respondent. Quit elasticities are significantly higher at low dignity jobs, but bargaining elasticities are significantly lower, relative to high dignity jobs.

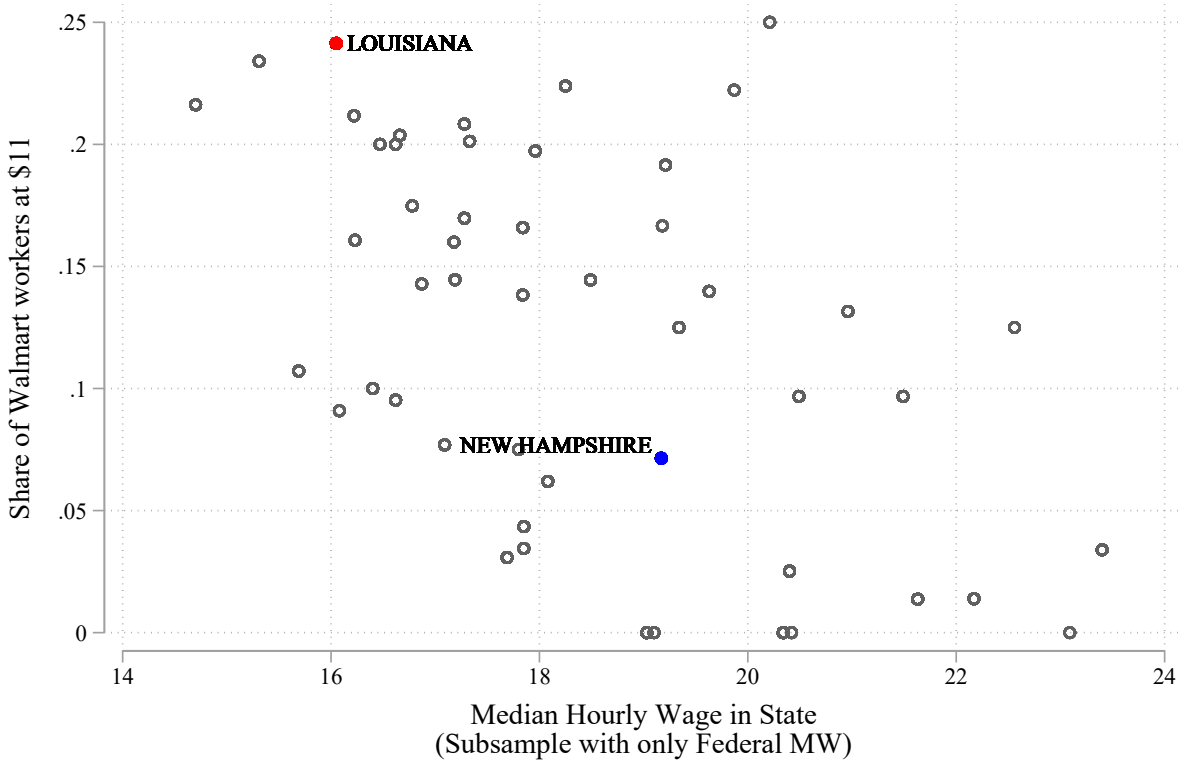
Figure 11: Accounting for Amenities Increases Inequality in Job Values

Notes: 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 12: Corporate Minimum Wage is Binding

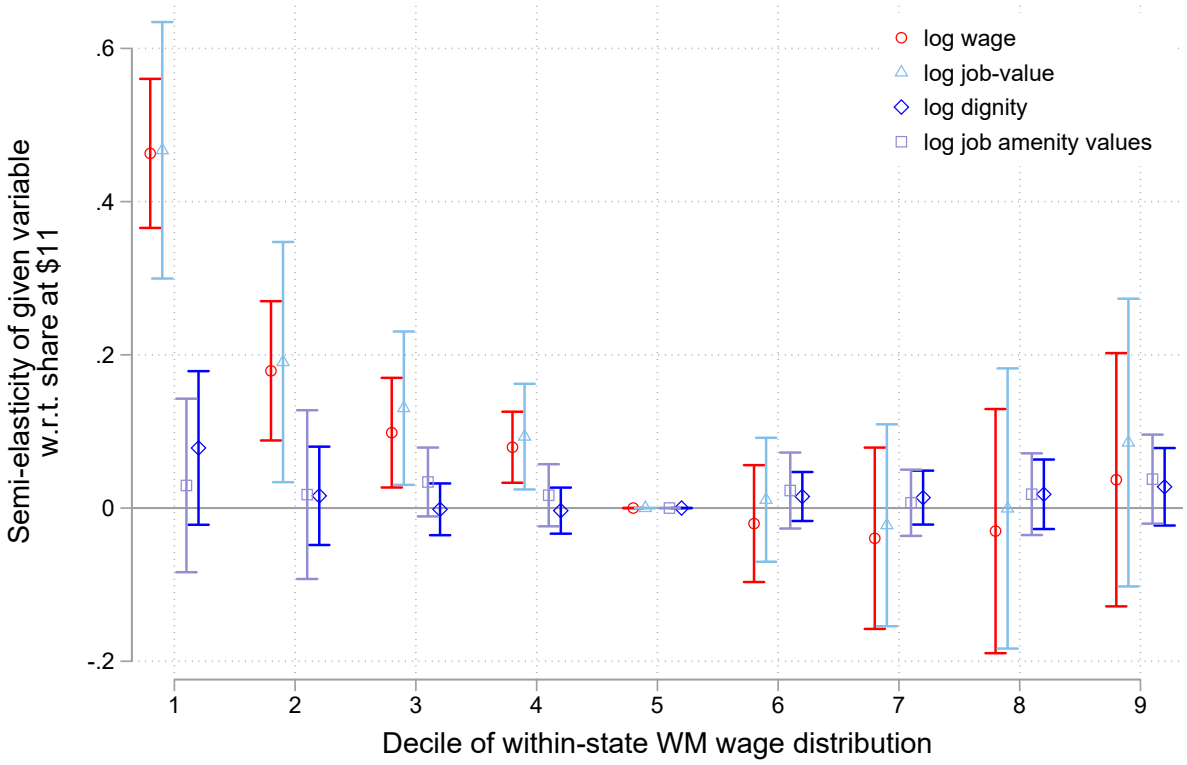
Notes: Current wage histogram of Walmart respondents showing bunching at $11/hr. Walmart's corporate minimum wage constrains its wage-setting.

Figure 13: Larger Bite of Corporate Minimum Wage in Low-Wage States



Notes: Differential bite of the corporate minimum wage across states. A larger share of Walmart workers in our survey are paid exactly $11.00/hr in high median wage states.

Figure 14: Effect of Corporate Minimum on Dimensions of Job Value



Notes: Effects of "bite" of corporate $11/hr minimum wage on log wage, log total job value, log value of amenities, and log value of dignity, by within-state Walmart wage deciles, together with 95% confidence intervals, clustered by state.

A Appendix Tables and Figures

Table A1: Descriptive Statistics (Worker Demographics)

	(1)		
	count	mean	sd
Age	4014	42.619	16.350
Female	4229	0.735	0.442
Nonbinary	4229	0.011	0.106
Male	4229	0.254	0.435
White	4221	0.809	0.393
South	4554	0.401	0.490

Table A2: Descriptive Statistics (Job Characteristics)

	(1)		
	count	mean	sd
Commute Time	9240	73.196	15.316
Hours Per Week	9257	35.900	11.469
Paid Time Off	8347	12.100	10.711
Friends Fraction	9249	0.295	0.247
Physical Intensity	9333	0.182	0.386
Control Over Hours	9333	0.170	0.375
Reliance on Coworkers	9333	2.515	0.976
Supervisor Respect	9333	2.737	1.087
Supervisor Fairness	9333	2.464	1.122
Self-Expression	9333	2.406	1.039
Learning Transferable Skills	9333	0.022	0.146

Table A3: Valuations of Hypothetical Job Offer Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
Offered Log Wage	50.202***	49.135***	67.838***	50.202***	49.135***	67.838***
	(3.035)	(4.228)	(6.079)	(3.035)	(4.228)	(6.079)
Commute Time	1.006***	0.753***	0.853**	2.041***	1.528***	1.731**
	(0.145)	(0.194)	(0.315)	(0.295)	(0.394)	(0.639)
Hours Per Week	1.857***	1.685***	1.802***	2.641***	2.396***	2.563***
	(0.212)	(0.284)	(0.449)	(0.301)	(0.404)	(0.638)
Paid Time Off	1.142***	1.241**	1.047	1.207***	1.312**	1.107
	(0.289)	(0.378)	(0.594)	(0.306)	(0.400)	(0.628)
Friends Fraction	0.025	0.166	0.172	0.038	0.250	0.258
	(0.201)	(0.267)	(0.427)	(0.302)	(0.402)	(0.641)
Physical Intensity	0.161	0.285	0.410	0.208	0.369	0.532
	(0.232)	(0.313)	(0.493)	(0.301)	(0.405)	(0.639)
Control Over Hours	0.403	0.406	0.952*	0.538	0.541	1.268*
	(0.229)	(0.307)	(0.479)	(0.305)	(0.409)	(0.638)
Reliance on Coworkers	0.437	0.305	0.394	0.502	0.351	0.452
	(0.269)	(0.353)	(0.555)	(0.309)	(0.405)	(0.637)
Supervisor Respect	1.031***	0.582	1.434*	1.059***	0.598	1.474*
	(0.290)	(0.390)	(0.615)	(0.298)	(0.401)	(0.631)
Supervisor Fairness	1.148***	0.801*	0.937	1.146***	0.799*	0.934
	(0.306)	(0.396)	(0.641)	(0.305)	(0.395)	(0.639)
Self-Expression	0.903**	0.831*	1.105	0.970**	0.892*	1.187
	(0.283)	(0.373)	(0.590)	(0.304)	(0.401)	(0.633)
Learning Transferable Skills	0.243**	0.347**	0.347	0.831**	1.186**	1.188
	(0.088)	(0.116)	(0.187)	(0.300)	(0.398)	(0.638)
Dignity Value as Wage Percentage	0.070	0.051	0.057	0.073	0.054	0.060
	(0.012)	(0.016)	(0.018)	(0.013)	(0.017)	(0.020)
N	15173	15173	4538	15173	15173	4538
Ind. Fixed Effects	No	Yes	No	No	Yes	No
Sample	All offers	All offers	1st offer	All offers	All offers	1st offer
Standardized by	Current	Current	Current	Offered	Offered	Offered

Notes: Coefficients are effects of one log point in current wages, or one standard deviation of the hypothetical amenity (standardized either by the "Current" or "Offered" level), on probability of reporting "leave," controlling for log current wages. Standard errors, clustered at the level of respondent, reported in parentheses.

Table A4: Inattention Robustness Table

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Offered Log Wage	67.84	49.13	49.89	51.98	60.05	73.25	79.19
	(6.079)	(3.297)	(3.235)	(3.340)	(2.945)	(4.508)	(6.282)
Commute Time	0.853	0.753	0.745	0.980	1.060	1.422	2.186
	(0.315)	(0.152)	(0.147)	(0.161)	(0.143)	(0.209)	(0.282)
Hours Per Week	1.802	1.685	1.641	1.809	1.823	2.167	3.377
	(0.449)	(0.222)	(0.215)	(0.234)	(0.207)	(0.303)	(0.428)
Paid Time Off	1.047	1.241	1.183	1.319	1.099	1.861	1.364
	(0.594)	(0.295)	(0.287)	(0.318)	(0.282)	(0.423)	(0.590)
Friends Fraction	0.172	0.166	0.155	-0.0763	-0.0542	-0.189	-0.115
	(0.427)	(0.209)	(0.201)	(0.220)	(0.197)	(0.287)	(0.397)
Physical Intensity	0.410	0.285	0.279	0.151	0.130	-0.0662	-0.352
	(0.493)	(0.244)	(0.235)	(0.253)	(0.230)	(0.330)	(0.450)
Control Over Hours	0.952	0.406	0.358	0.445	0.321	0.613	1.158
	(0.479)	(0.239)	(0.231)	(0.252)	(0.224)	(0.323)	(0.443)
Reliance on Coworkers	0.394	0.305	0.288	0.508	0.649	0.918	0.846
	(0.555)	(0.275)	(0.266)	(0.296)	(0.264)	(0.379)	(0.535)
Supervisor Respect	1.434	0.582	0.639	1.034	0.951	1.928	2.173
	(0.615)	(0.304)	(0.294)	(0.316)	(0.283)	(0.418)	(0.590)
Supervisor Fairness	0.937	0.801	0.737	1.114	1.109	1.305	1.586
	(0.641)	(0.309)	(0.299)	(0.336)	(0.299)	(0.445)	(0.631)
Self-Expression	1.105	0.831	0.956	0.855	0.868	1.541	1.653
	(0.590)	(0.291)	(0.282)	(0.311)	(0.277)	(0.400)	(0.569)
Learning Transferable Skills	0.347	0.347	0.377	0.218	0.265	0.231	0.375
	(0.187)	(0.0908)	(0.0881)	(0.0964)	(0.0857)	(0.125)	(0.173)
Elasticity	2.631	2.886	2.930	2.862	3.641	3.779	4.037
	(0.233)	(0.194)	(0.190)	(0.182)	(0.167)	(0.229)	(0.309)
Dignity Value	2.631	2.886	2.930	2.862	3.641	3.779	4.037
	(0.00168)	(0.00113)	(0.00108)	(0.00115)	(0.000888)	(0.00108)	(0.00142)
N	4538	14450	14450	12983	14831	7765	3844
Specification	First Offer	Rep. FE	Num.+Rep. FE	Trim Time	Trim Rand. Coefs	Finishers	$>$ 50 chars text

Notes: 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 or less than the bottom 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. Log wage entered controlled for in all specifications but not reported. Standard errors, clustered at the level of respondent, reported in parentheses.

Figure A1: Map of Respondent Locations (by Year 2000 Commuting Zone)

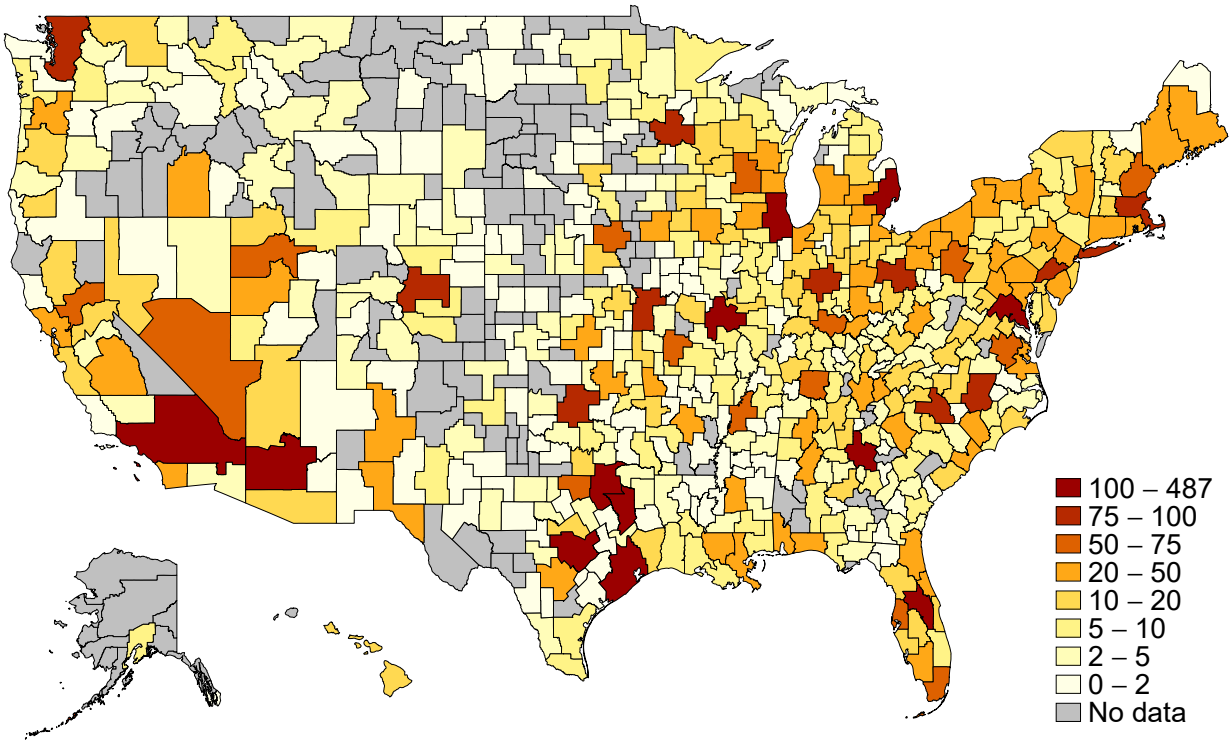


Figure A2: Counts of Survey Respondents by Job Descriptions

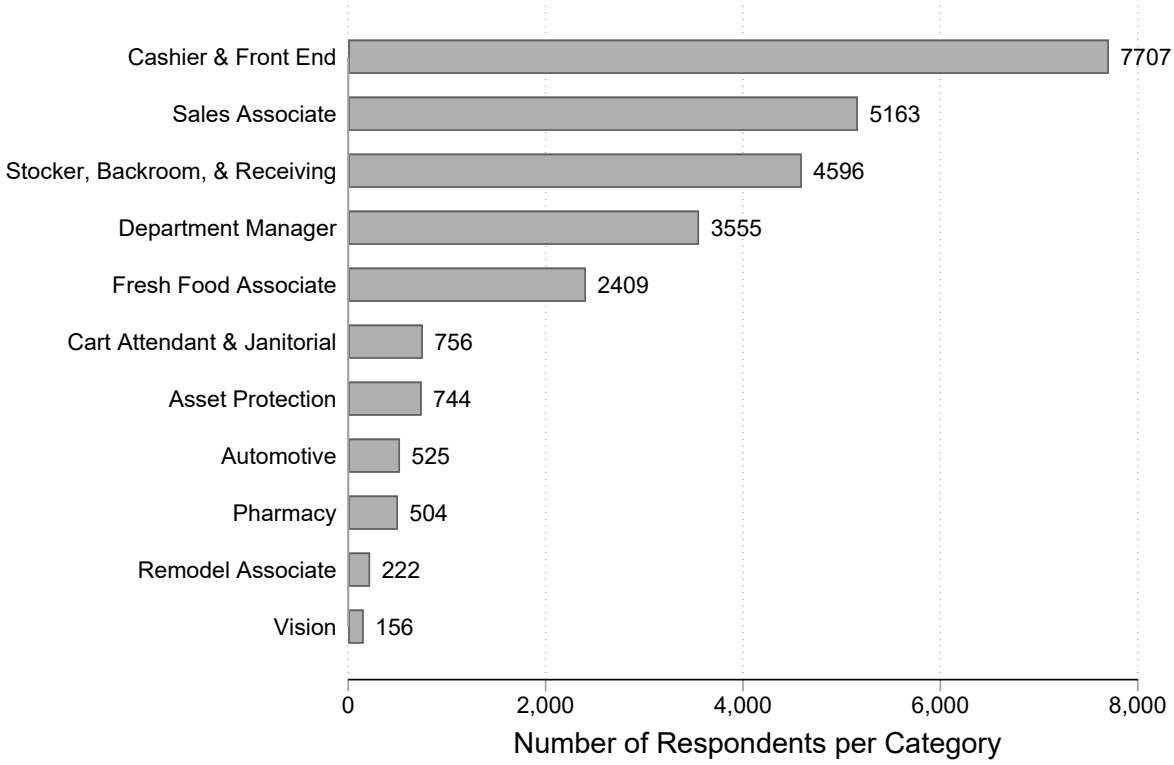
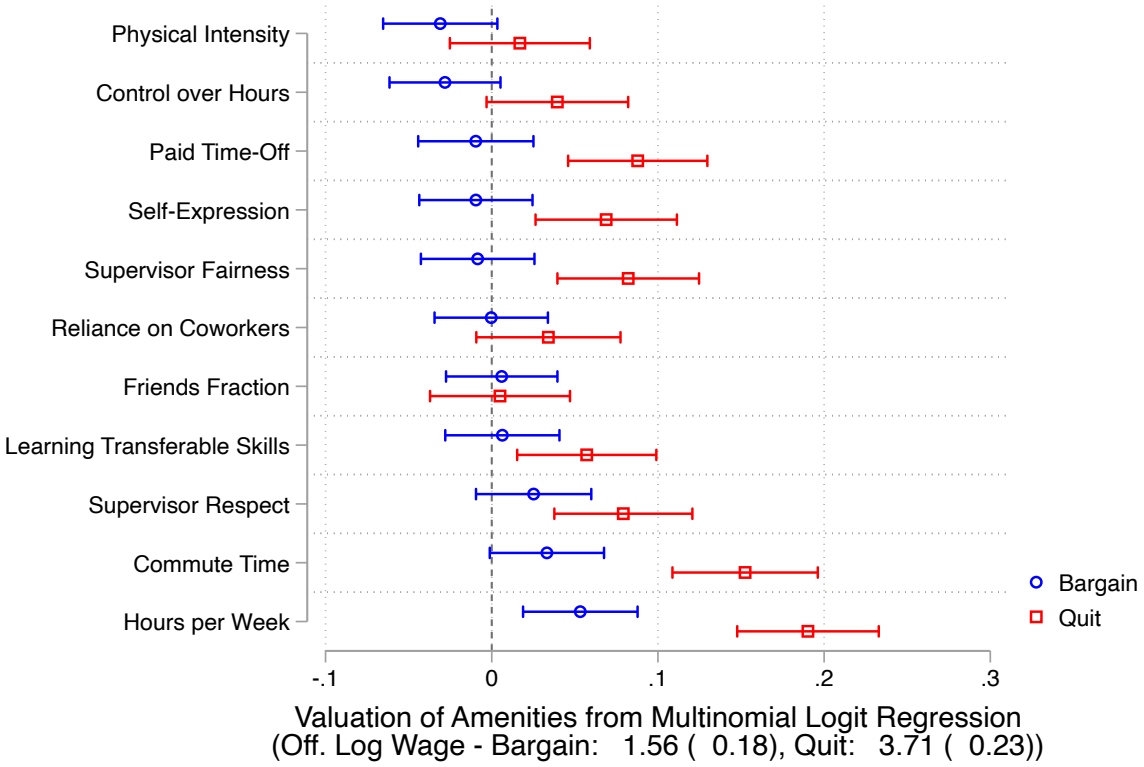
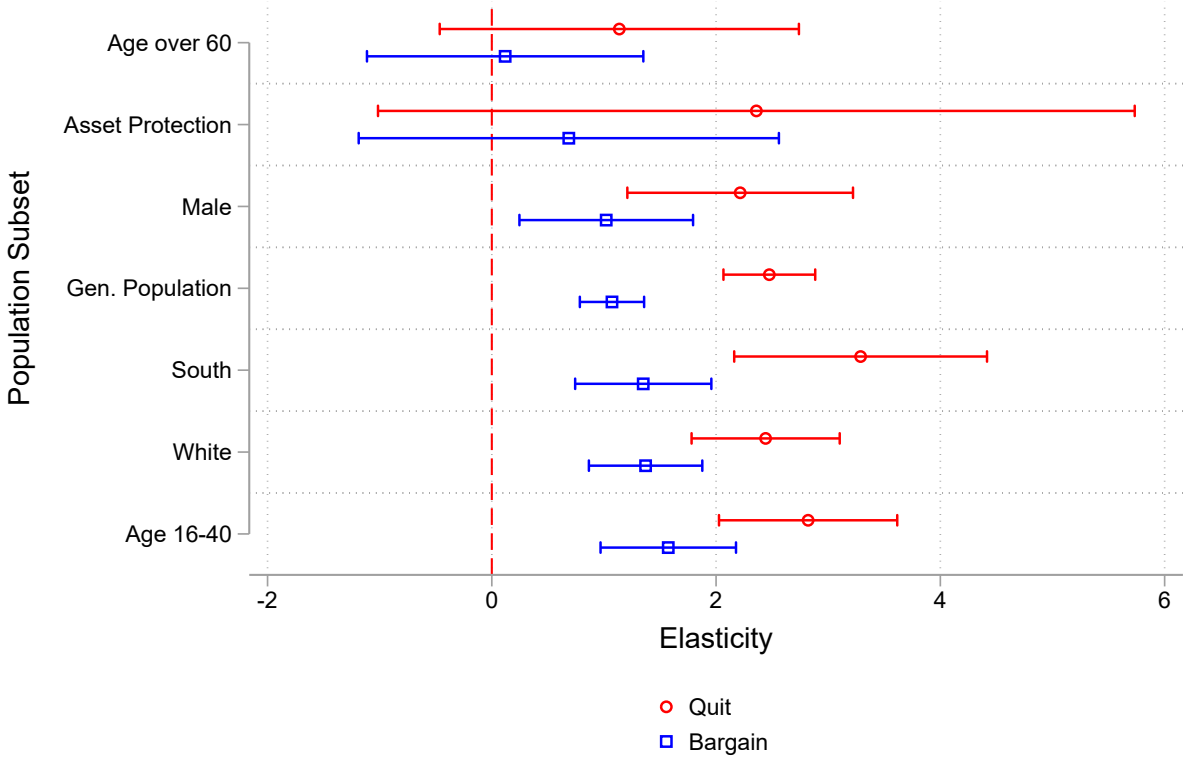


Figure A3: Amenity Valuation Based on Multinomial Logit Model with Quitting and Bargaining



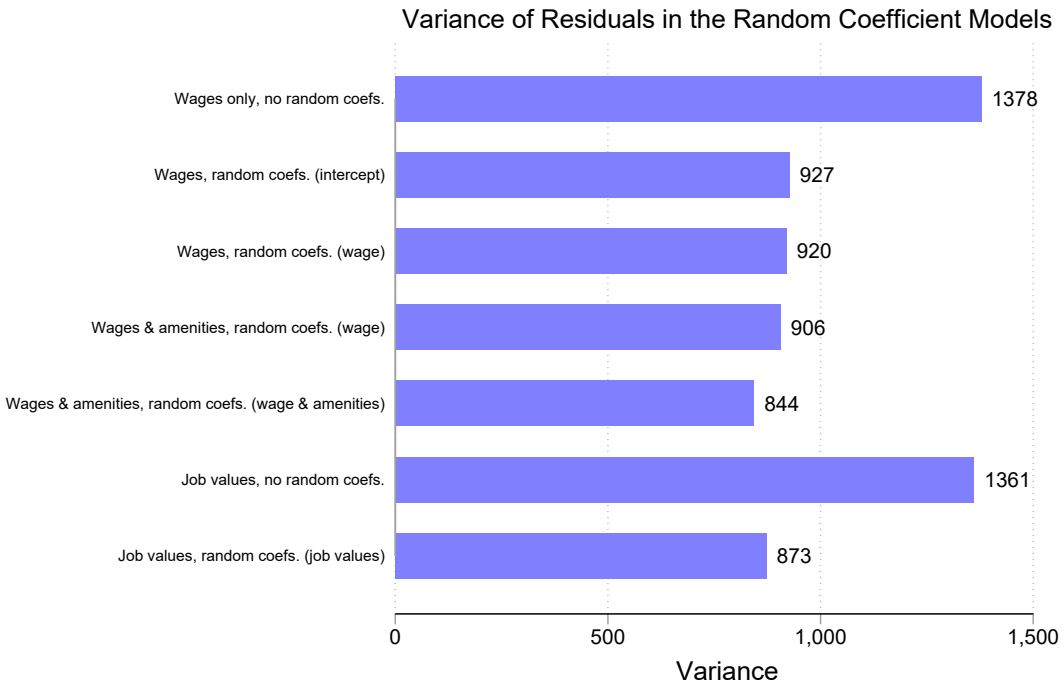
Notes: This figure shows the coefficient on each amenity, rescaled by the wage coefficient, from a multinomial logit controlling for the log of entered wage only. The wage elasticity for each outcome is reported at the bottom.

Figure A4: Heterogeneity in Quit and Bargain Wage Elasticities by Subgroups.



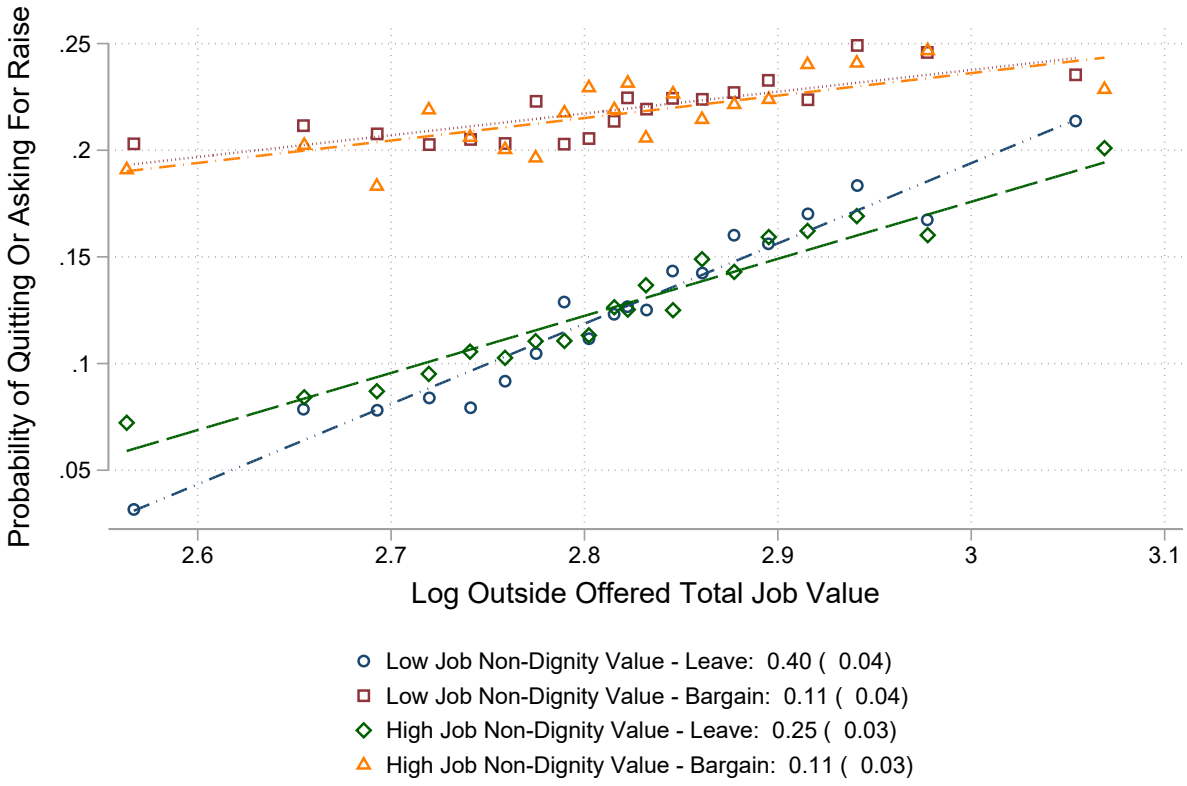
Each observation is from a separate regression of either the “Quit" or the “Bargain" outcome on log wage, restricted to the labeled subpopulation, with respondent fixed effects. Standard errors are clustered by respondent.

Figure A5: Residual Variance Explained by Random Effects and Random Coefficients



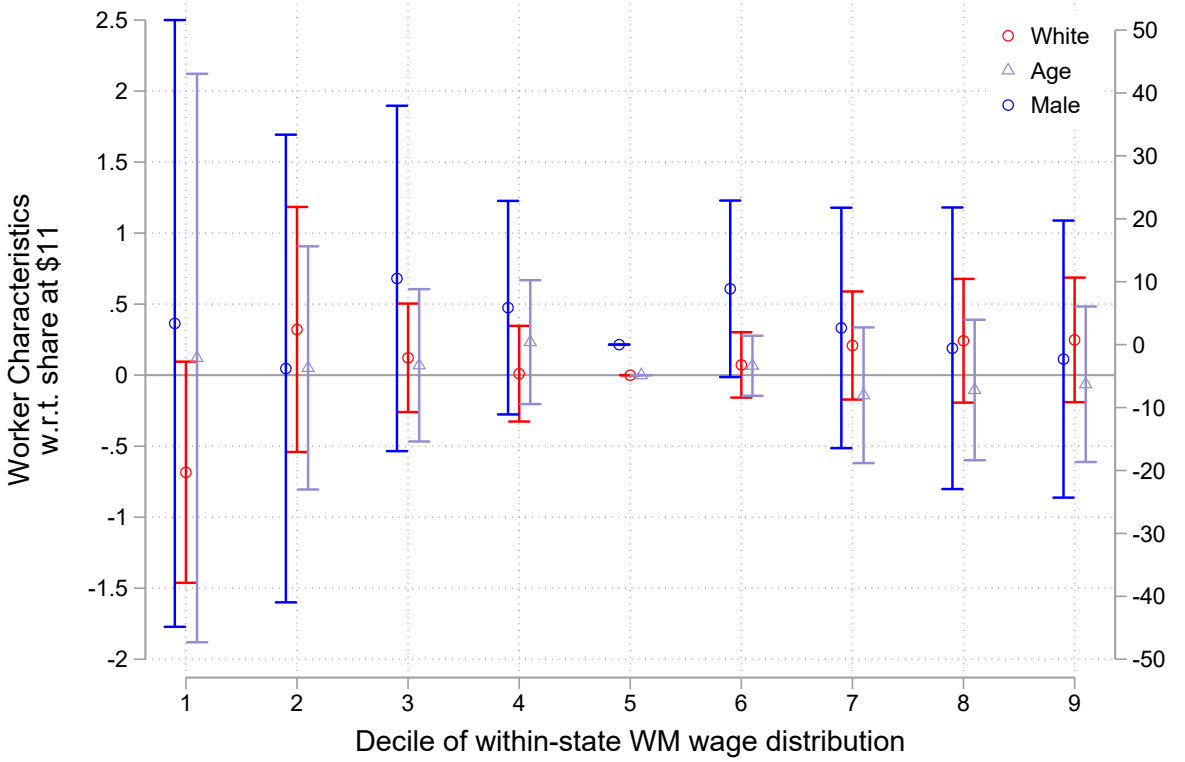
Notes: This figure shows the within-respondent residual variance from random coefficients models with the censored quit outcome (X100) as the dependent variable. The first bar has no random coefficients, while the next 4 vary random individual-specific coefficients on either constants, offered wages, and amenities. The last model explores whether random coefficients in split-sample imputed job values reduce the residual variation as much as random coefficients in offered wages and amenities. All models control for the entered wage.

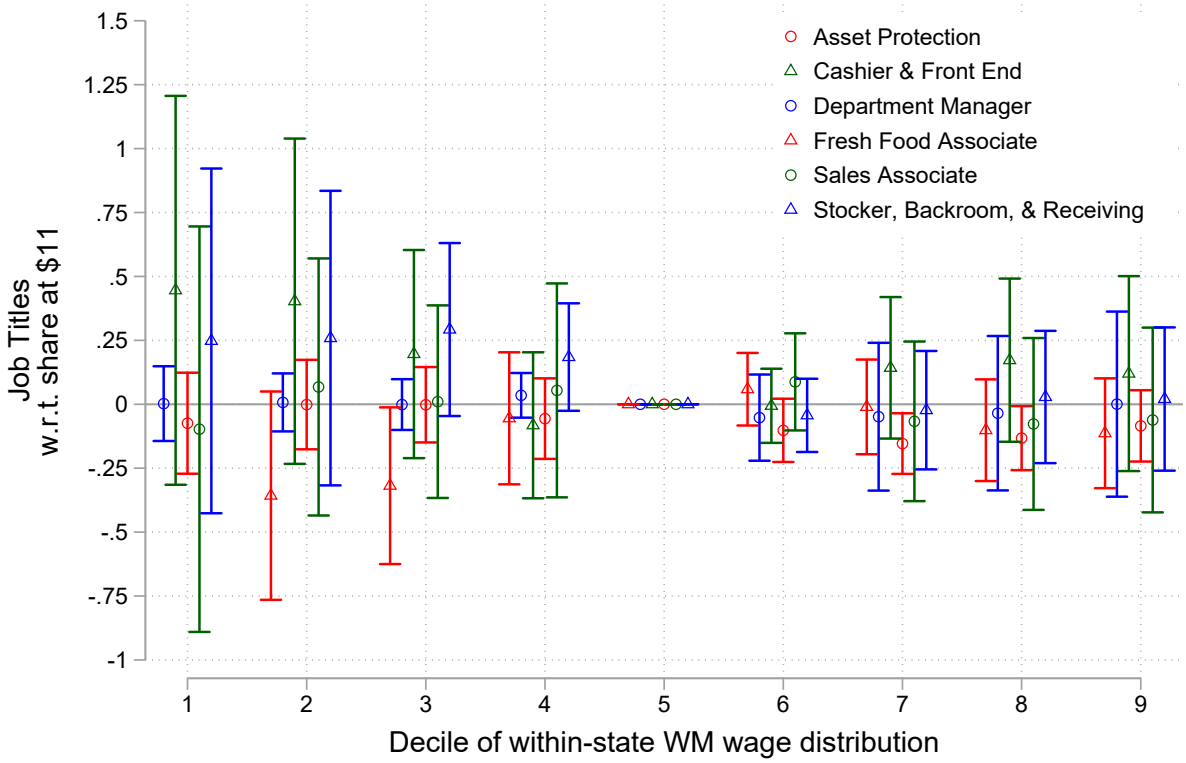
Figure A6: No Large Difference in Quit vs Bargaining Elasticities by Non-Dignity Amenity Jobs Value.



Notes: Binned scatterplots showing quit and bargaining responses against offered values separately by above and below-median non-dignity amenity values jobs.

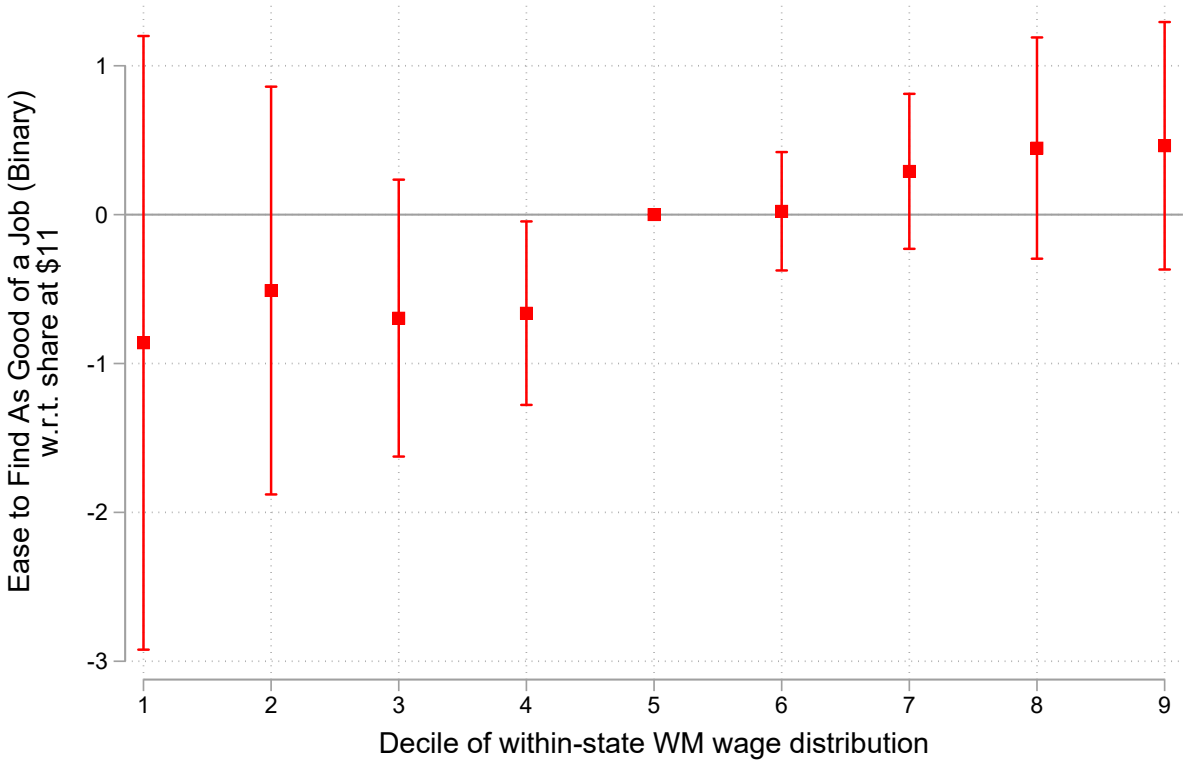
Figure A7: Lack of Effects of Corporate Minimum wage on Worker Characteristics (Top) and Occupational Composition (Bottom)





Notes: Regression estimates of the impact of the "bite" of corporate $11/hr minimum wage on worker characteristics and job titles, by within-state Walmart wage deciles.

Figure A8: Effects of Corporate Minimum Wage on Self-Reported Job Rents



Notes: Regression estimates of the impact of the "bite" of corporate $11/hr minimum wage on self-reported assessment of "How Hard to Find Another Job as Good as this One," by within-state Walmart wage deciles.

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 λ 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 λ and outside offer w^o is:

$$E[V^B|w^o] = \lambda(V(w^o, p^H) + (1-\lambda)(max(V(w^e, p^L), V(w^o, p^L)) \tag{12}$$

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 $V(w^e, E[p])$ 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 λ because a worker learns they are high productivity, so $V(w^o, p^H) > V(w^o, E[p])$.

Further, note that there is a direct complementarity between w^o and λ in the expected value of bargaining. If workers who are experiencing high dignity already are more likely to believe they have $p = p^H$, so λ is higher for them, then an outside offer is more likely to lead to asking for a raise than quitting, consistent with Figure 10 in the main text.

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:

$$Pr(Choice_{it} = k) = \beta \ln(wage^o_{it}) + \sum_j A^j_{it}\gamma_j + \tau \ln(wage^e_i) + \epsilon_{it} \tag{13}$$

Where k = quitting, bargaining, or doing nothing. We estimate this model with multinomial logit, and present results in Figure A3. Figure A3 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.

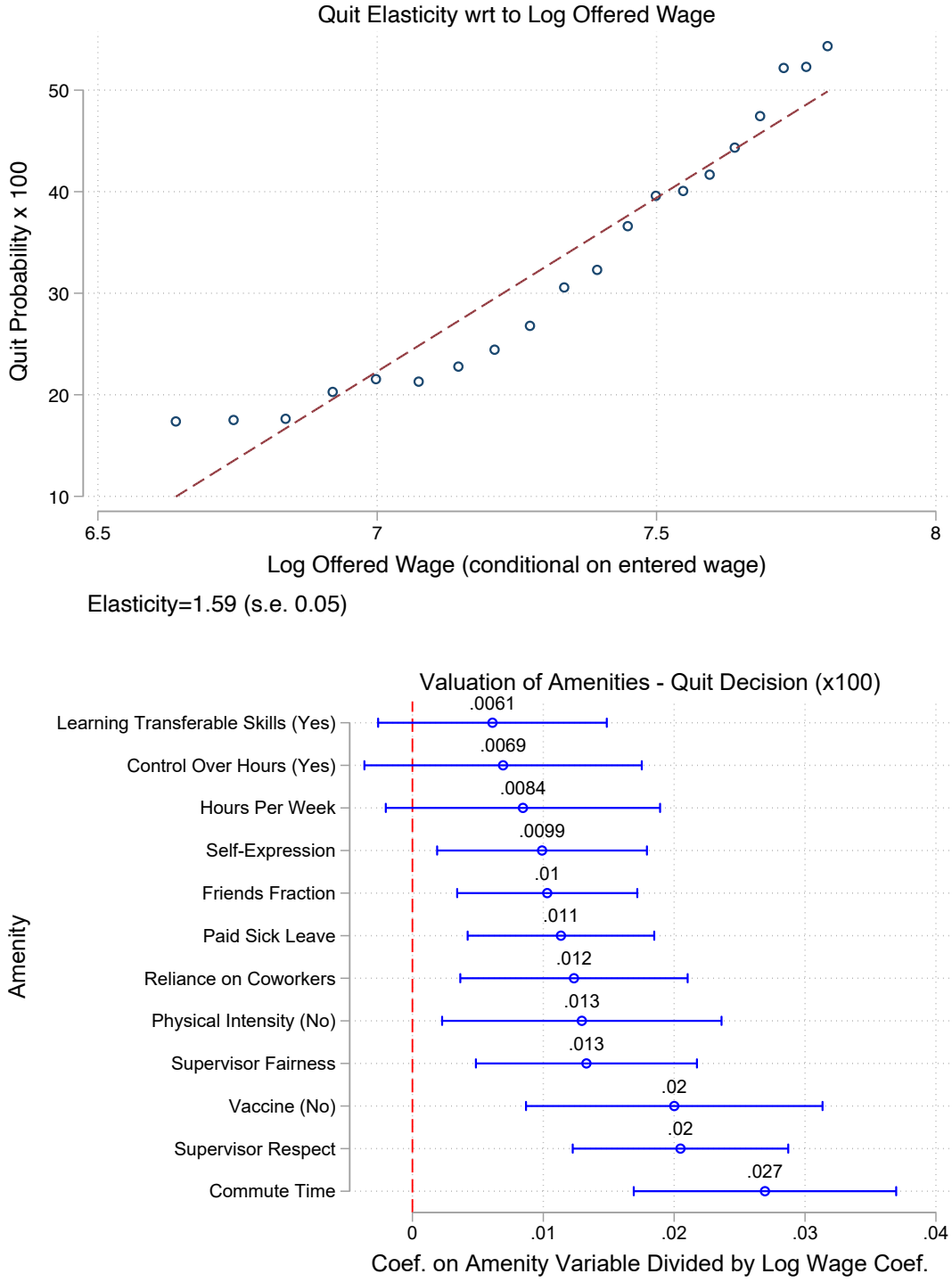
These results are consistent with our modelling approach, where the current degree of managerial respect is what matters for predicting the response to an outside offer, because it is the response of the current supervisor (not the outside offer) to the request for a raise that results in the updated 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 two hypothetical amenities: whether or not a job had a vaccine requirement and paid sick leave.

As can be seen from Figure A9 the MTurk respondents value the components of dignity comparably to the Walmart workers, and have a lower quit elasticity (-1.5 vs -3). For concision, we present just the overall quit elasticity and the amenity values 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 A9: Quit Elasticities and Amenity Valuations using MTurk Survey Experiment



Notes: 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 regression controlling for the log of entered wage only. The right panel shows the coefficients on each amenity rescaled by the coefficient on the wage.

D Proofs Appendix

Proof of Proposition 1

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

$$(p - w - \phi A)\eta V_A - \phi V = 0 \tag{15}$$

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

$$\frac{d^2\pi}{dAdw} = (p - w - \phi A)\eta - \eta \frac{V_A}{V_{wA}} - \phi \frac{V_w}{V_{wA}} \tag{17}$$

Using $\sigma = \frac{V_w V_A}{V_{Aw} V}$

$$\frac{d^2\pi}{dAdw} = (p - w - \phi A)\eta - \eta\sigma \frac{V}{V_w} - \phi\sigma \frac{V}{V_A} \tag{18}$$

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:

$$\frac{d^2\pi}{dAdw} \approx \frac{V}{V_w} - \sigma\eta \frac{V}{V_A} < 0 \tag{19}$$

for large η.

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

$$\frac{d^2\pi}{dAdw} = \frac{V}{V_w}(1 - \eta) - \phi \frac{V}{V_A} \tag{20}$$

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 ρ.

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[11].

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?

[11] 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 husand 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

follow.

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.