The Response of Wages to Rejected Offers

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Abstract

Using the Survey of Consumer Expectations, which asks employed workers to report their salaries and job offers every four months, we find that rejecting an outside offer has no significant effect on a worker's salary with the current employer, the expected probability that the current employer will match an outside offer with a higher salary, and the worker's satisfaction with the current job, both overall and separately for wages and non-wage benefits. The results suggest that wage renegotiation in response to changes in an employed worker's outside option does not play a significant role for individual wages.

Keywords: Job search, outside options, returns to tenure, wage determination, wage growth

JEL codes: J31, J32, J64

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1 Introduction

Are wages set by firms or negotiated between firms and workers? Do firms renegotiate wages with workers in response to changes in their outside options? These questions are central to understanding wage growth, wage inequality, worker mobility, and the causes of unemployment, as pointed out by Hall and Krueger (2010), among others. In particular, because wage renegotiation allows a worker's wage with the same employer to increase over time, it could be an important reason why wages increase with job tenure,[1] and why comparable workers in the same firm are paid differently. In the absence of wage renegotiation, an employed worker could only benefit from job search by accepting an outside offer and moving to another job.

To shed some light on these questions, we estimate the response of individual wages to rejected offers. Theoretically, if wages are posted by firms without considering the outside option of each worker, e.g., Burdett and Mortensen (1998), rejecting an outside offer should have no impact on a worker's wage with the current employer. On the other hand, if firms do take the outside option of each worker into consideration, as in sequential-auction models of the labor market pioneered by Postel-Vinay and Robin (2002),[2] they would raise the wage of a worker if it is necessary for the worker to reject an outside offer. This leads to a positive effect of rejected offers on individual wages, where both the likelihood and the size of a positive effect depend on the gap between the value that a worker currently receives from his/her employer and the maximum value affordable by the employer. A small gap means there is little room for renegotiation, so that the average effect of a rejected offer is small. On the other hand, a significant effect of rejected offers would be evidence that wage renegotiation on the job plays a significant role for individual wages.

We use the Survey of Consumer Expectations (SCE) to estimate the effect of rejected offers on within-job wage growth for employed workers. The survey has two unique features.

[1] There is a large literature on whether and why wages increase with job tenure. See, for example, Abraham and Farber (1987), Altonji and Shakotko (1987), Topel (1991), Dustmann and Meghir (2005), Buchinsky et al. (2010) and Bagger et al. (2014).

[2] Related studies include Dey and Flinn (2005), Cahuc et al. (2006), Bagger et al. (2014), Bagger and Lentz (2019) and Taber and Vejlin (2020), among others.

First, it is a short panel that asks each worker to report his/her employment status every month, and the salary and job offers every four months. In particular, every month after the first survey, an employed worker is asked whether he/she is still working in the same job reported in the previous month/survey. Moreover, for every four months, an employed worker is asked to report both the annual salary of the current job and the number of job offers received in the last four months, including rejected offers, and whether each of the three best offers was accepted or rejected.

We focus on employed workers who did not change their jobs in the four months between two consecutive salary reports, and divide them into two groups. The first group includes workers who received zero offer in the four months between the two salary reports, and the second group includes workers who rejected all offers received in the four months. We find that within-job wage growth measured by the difference between the two reported salaries is not significantly different between the two groups of workers, both before and after controlling for observable characteristics including education, gender, work experience and job tenure. This suggests that rejecting an outside offer does not have a significant impact on a worker's wage with the current employer.

The concern for this interpretation is that, in the absence of rejected offers, within-job wage growth may be different between the two groups of workers even conditional on observable characteristics, so that the observed differences between the two groups of workers are not the causal impacts of rejected offers. For example, consider two workers with the same observable characteristics, but one worker (the first) expects a larger increase in his/her salary with the current employer in the next four months than the other (the second), which could happen if the two workers are under different wage-tenure contracts (Burdett and Coles, 2003) or face different training opportunities (Fu, 2011). Assume the expectations are informative, so that wage growth would be higher for the first worker than the second if neither receives an outside offer in the next four months. In this case, if we observe (1) wage growth is the same between the two workers and (2) the first worker receives zero offer

while the second receives and rejects an offer in the four months, it would still be evidence that the rejected offer has a positive impact on wage growth for the second worker.[3]

To address this concern, we take advantage of the second feature of the SCE, and proceed in four steps. First, as its name suggests, the survey contains rich information on worker beliefs and expectations. For example, each time the survey asks a worker to report the current salary, it also asks the worker to report the belief about the new salary in four months. This allows us to calculate the expected wage growth for each worker in the next four months. We find that, conditional on other observable characteristics mentioned above, the expected wage growth is highly predictive of the actual wage growth in the four months. Assuming that, in the absence of rejected offers, actual wage growth is on average the same between two workers with the same expected wage growth,[4] we could identify the causal impact of rejected offers on wage growth by controlling for the expected wage growth. Empirically, when the expected wage growth is included as an additional control variable, the actual wage growth is still not significantly different between workers who rejected all offers and workers who received zero offer.

Second, each time the SCE asks a worker to report the current salary, it also asks the worker to report (1) the expected offer probability, defined as the self-reported probability of receiving at least one job offer from another firm in the next four months, and (2) the reservation salary, defined as the lowest salary of an outside offer that the employed worker is willing to accept. Empirically, we find a worker's belief about the offer probability is highly predictive of whether the worker reports a job offer four months later. Assuming the actual probability of receiving a job offer in the next four months is the same between two workers

[3]Other things equal, the difference in expectations means the first worker is less likely to search for another job and end up with an offer than the second worker.

[4]This is weaker than the assumption of rational expectations. Let $y_{i,t,t+4}$ be the wage growth for worker i between t and $t+4$, $y^b_{i,t,t+4}$ be the (subjective) belief of worker i at time t about $y_{i,t,t+4}$, and $E(y_{i,t,t+4})$ be the (objective) expected value of $y_{i,t,t+4}$ at time t, where E is the expectation operator that accounts for potential randomness of $y_{i,t,t+4}$ due to shocks. Rational expectations require $E(y_{i,t,t+4}) = y^b_{i,t,t+4}$ for every worker i. In contrast, we assume $E(y_{i,t,t+4}) = E(y_{j,t,t+4})$ for any $i \neq j$ and $y^b_{i,t,t+4} = y^b_{j,t,t+4}$, which allows for biases in a worker's beliefs, i.e., $E(y_{i,t,t+4}) \neq y^b_{i,t,t+4}$, but requires the bias to be the same for workers with the same beliefs. The same assumption applies to a worker's belief about the offer probability mentioned below.

with the same expected offer probability, whether a worker ends up receiving an offer or not is completely random conditional on the expected offer probability. Consequently, controlling for the expected offer probability addresses the potential selection associated with receiving an offer.[5] Moreover, if (1) a job offer is rejected if its value is less than the value of a worker's current job proxied by the reservation salary, and (2) the value of each offer to a worker is random conditional on the worker's ability proxied by the salary and other observables mentioned above, then whether a job offer is rejected or not is random conditional on the worker's salary, reservation salary and other observables mentioned above. That is, conditional on receiving an offer, controlling for a worker's salary and reservation salary addresses the potential selection associated with rejecting the offer. Together, the assumptions imply that, conditional on the expected offer probability, the salary, the reservation salary and other observables from the first salary report, workers who reject all offers received in the four months between the two salary reports are not systematically different from workers who receive zero offer in the four months, and the difference in wage growth between the two groups of workers in the four months reflects the causal impact of rejected offers. Empirically, when the expected offer probability, the salary and the reservation salary from the first salary report are included as additional controls, the wage growth in the four months between the two salary reports is still not significantly different between workers who reject all offers and workers who receive zero offer in the four months.

Third, each time the SCE asks a worker to report the current salary, it also asks the worker to report the expected offer matching probability, defined as the self-reported probability that a worker's current employer will match a job offer with a higher salary from another firm. As discussed in more detail in the next section, because a higher wage reduces a firm's ability to raise it even further, a positive (zero) effect of rejected offers on a worker's wage with the current employer is associated with a negative (zero) effect of rejected offers on the

[5]The expected offer probability is presumably a reflection of a worker's search activity/effort, so that controlling for it implies we are comparing workers with similar search activities. As described later in the paper, we also control for a direct measure of job search activity. This further makes sure that whether a worker receives an offer or not is a random result of labor market frictions.

offer matching probability. Empirically, consistent with the insensitivity of wages to rejected offers, we find rejected offers do not have a significant impact on the expected offer matching probability either. The difference between two expected offer matching probabilities reported by the same worker in two consecutive surveys that are four months apart is not significantly different between workers who reject all offers received in the four months and workers who receive zero offer in the four months, both before and after controlling for other characteristics mentioned above, including education, gender, work experience, job tenure, expected wage growth, the expected offer probability, the salary and the reservation salary, all of which are obtained from the first of the two consecutive surveys of each worker and thus before the offers are received and rejected.

Finally, if rejected offers have a positive effect on a worker's wage and/or non-wage benefits on the current job, it should also raise the worker's satisfaction with the current job. Empirically, we find that rejecting an outside offer has no significant effect on a worker's satisfaction with the current job, either overall or for compensation and non-wage benefits separately. The difference between two satisfaction levels reported by the same worker in two consecutive surveys that are four months apart is not significantly different between workers who reject all offers received in the four months and workers who receive zero offer in the four months, both before and after controlling for other characteristics mentioned above.

We show that the insensitivity of a worker's salary, expected offer matching probability and job satisfaction to rejected offers are robust to different sub-samples by education, job tenure, salary and expected offer matching probability before receiving an offer. Moreover, we show that rejecting a high-salary offer, e.g., those with a higher salary than a worker's expected salary from an outside offer or actual salary before receiving the offer, has no significant effect on an employed worker either.

Using workers who participated in three consecutive salary surveys, we show that changes in a worker's salary, expected offer matching probability and job satisfaction in the eight months between the first survey and the third are not statistically different between workers

who reject all offers received in the four months between the first two surveys and workers who receive zero offer in the four months. This addresses the potential concern that the impact of rejected offers may not be observed within four months. Because subjective measures such as the expected offer matching probability and job satisfaction should adjust relatively quickly once an employer agrees to raise a worker's wage and/or non-wage benefits in response to a rejected offer, the fact that we find no significant effect of rejected offers on either of them suggests that our results are not driven by the infrequent adjustments of wages in the real world (Grigsby et al., 2021). In fact, relative to both workers who received zero offer and workers who rejected all offers received in the four months between two consecutive salary surveys, workers who accepted an offer and moved from one job to another in the four months experienced significant increases in both salaries and job satisfaction in the four months. This suggests that the data are informative, and the insignificant estimates for rejected offers reflect true effects rather than noises.

Together, the evidence suggests that rejecting an outside offer does not have a significant impact on an employed worker's wage and/or non-wage benefits with the current employer. This could happen either because most firms do not renegotiate wages and non-wage benefits with their current workers, or because most workers are already paid the maximum value affordable by their employers in the first place, so that there is little room for renegotiation.[6] Irrespective of the reason, the insignificant effect of rejected offers on within-job wage growth, which is substantial even for workers who have been with the same firm for years (Topel, 1991; Bagger et al., 2014), suggests that wage renegotiation in response to changes in an employed worker's outside option does not play a significant role for individual wages, and thus is not a significant reason why wages may increase with job tenure and why comparable workers in the same firm may be paid differently. This does not mean that there is no wage

[6]Theoretically, if firms in the sequential-auction framework are homogeneous, an employed worker will be paid the maximum value affordable by a firm after receiving the first outside offer, so that future offers have no effect. The same is true for unemployed workers who received multiple offers before starting a job (Albrecht et al., 2006). Empirically, Guo (2022) finds that around one third of new hires from non-employment had multiple offers before starting a job. This suggests that the starting wage is already high for many workers, so that there is little room for renegotiation on the job.

renegotiation at all, just that the effect is insignificant in the aggregate.

Hall and Krueger (2012) provide some of the first evidence on the relative importance of bargaining vs posting in wage determination. Using self-reported incidence of bargaining at the time a worker was hired into his/her current or most recent job, they find both wage-setting protocols are used widely in practice. Caldwell and Harmon (2019) find individual wage growth is affected by a worker's outside options determined through coworker networks. They show that the evidence is consistent with the importance of bargaining in wage determination, even though most firms do not renegotiate wages with their workers. Jäger et al. (2020) find wages are insensitive to changes in the value of non-employment measured by unemployment insurance benefits. They show that this insensitivity presents a puzzle to the widely used Nash bargaining model. Using a sample of dual jobholders, Lachowska et al. (2022) estimate the sensitivity of wages and separation rates to wage shocks in a secondary job. They find that, consistent with wage posting, improvements in the outside option lead to higher separation rates but not higher wages in lower parts of the wage distribution. In contrast, and consistent with bargaining, improved outside options translate to higher wages but not higher separation rates in the highest wage quartile. In the aggregate, they find bargaining is a limited determinant of wage setting.[7]

This paper contributes to the literature by using rejected offers to measure changes in a worker's outside option, which is at the core of search-theoretic models of the labor market (Rogerson et al., 2005). Instead of the starting wage emphasized by Hall and Krueger (2012) and Di Addario et al. (2023), we focus on wage growth within a job, and how it responds to rejected offers, which is a key distinction between wage posting and sequential-auction models of the labor market.

[7]Other related studies include Flinn and Mullins (2021), Di Addario et al. (2023), Doniger (2023) and Guo (2023). Flinn and Mullins (2021) and Doniger (2023) use structural models to estimate the share of firms using different wage protocols (e.g., posting vs bargaining). Di Addario et al. (2023) show that, in contrast to the sequential-auction framework pioneered by Postel-Vinay and Robin (2002), where a worker is hired from tends to be relatively inconsequential for their wages in comparison to where they are currently employed. Guo (2023) proposes a test of wage posting using simultaneous offers received by the same worker, and finds evidence consistent with the assumption of wage posting.

In a seminal paper, Beaudry and DiNardo (1991) find that a worker's current wage is negatively correlated with the lowest unemployment rate realized since the worker started with his/her current employer, and account for the finding with a model of implicit contracts where firms commit to not lower the wages of their incumbent workers in downturns but have to raise wages in expansions to keep their workers from quitting to other firms. In contrast, Hagedorn and Manovskii (2013) show that past aggregate labor market conditions, such as the lowest unemployment rate used by Beaudry and DiNardo (1991), affect a worker's current wage not through wage revisions on the same job but through job-to-job transitions and the resulting impact on the worker's job quality.[8] Instead of aggregate labor market conditions, we focus on idiosyncratic changes in a worker's outside option measured by rejected offers. Our results suggest that, even if firms do adjust the wages of their incumbent workers in response to aggregate conditions, they are unlikely to renegotiate wages with individual workers in response to idiosyncratic changes in their outside options, probably because aggregate conditions affect all workers and are easy to observe, while idiosyncratic changes in a worker's outside option affect only one worker and are harder to verify.

Flinn and Mullins (2021) use the level of the self-reported offer matching probability to measure the prevalence of wage renegotiation. Instead, we focus on the change in the self-reported offer matching probability over time, and how the change responds to rejected offers. As discussed in more detail in the Conclusion, our results suggest that either workers tend to over-estimate the true likelihood of wage renegotiation, or the self-reported offer matching probability is not updated according to sequential-auction models of the labor market. Accounting for worker beliefs about wage renegotiation and how the beliefs are updated is an important direction for future work.

[8]Other relevant studies include Gertler et al. (2020), Bellou and Kaymak (2021) and Bils et al. (2023). In particular, consistent with the model of implicit contracts by Beaudry and DiNardo (1991), Bellou and Kaymak (2021) find that wage growth among job stayers is significantly correlated with changes in the lowest unemployment rate since a worker started with the current employer.

2 Rejected Offers and Wage-Setting Protocols

Consider an employed worker who rejects a job offer from another firm. This section shows how the effect of the rejected offer on the worker's wage with the current employer depends on the wage-setting protocol. We focus on two most commonly used wage-setting protocols: wage posting as in Burdett and Mortensen (1998), and the sequential-auction framework pioneered by Postel-Vinay and Robin (2002).

In Burdett and Mortensen (1998), wages are posted by firms without considering the outside option of each worker. As a result, whether to reject an outside offer or not is a decision made purely by the worker. Because firms do not respond to outside offers received by their employees, rejecting an outside offer has no impact on a worker's wage with the current employer. It also has no effect on the probability that the current employer will match a better offer from another firm in the future.

In contrast, sequential-auction models of the labor market posit that, when poached by another firm, the wage of an employed worker is determined through an auction process involving the worker, the worker's current employer, and the poaching firm. During the auction, the current employer and the poaching firm keep raising the values of their offers to the worker. The auction stops when one of the two firms can no longer raise the value of its offer, because doing so would result in a loss for the firm. The value at which the auction stops will be the value received by the worker, who will work for the firm that wins the auction.

Let p be the productivity of a worker's current employer, p' be the productivity of the poaching firm, and $\hat{p}$ be the maximum productivity of all other firms which have attempted but failed to poach the worker away from the current employer previously. Assuming (1) the maximal value that a firm could offer a worker without suffering a loss is strictly increasing in the firm's productivity, (2) the current employer cannot reduce the value it promised to the worker previously, and (3) the worker stays with the current employer in the case of a tie, there are three possible outcomes for the competition between the current employer and

the poaching firm:

1. The poaching firm wins the auction, which happens if and only if $p' > p$.

2. The current employer wins the auction by matching the maximal value offered by the poaching firm, which happens if and only if $p' \in (\hat{p}, p]$.

3. The current employer wins the auction without having to match the maximal value offered by the poaching firm, which happens if and only if $p' \leq \hat{p}$.

If the worker ends up rejecting the offer from the poaching firm, we must be in one of the last two cases. If it is the last case where $p' \leq \hat{p}$, rejecting the offer has no impact on either the worker or the current employer. On the other hand, if $p' \in (\hat{p}, p]$ so that the current employer has to raise the value it offers to the worker, rejecting the offer will be associated with an increase in the worker's wage, assuming the value that the worker receives from the current employer is strictly increasing in the wage.

Let $w(p, \hat{p})$ be the worker's wage with the current employer before rejecting the offer from the firm whose productivity is p'. The expected effect of the rejected offer is

$$\frac{\int_{\hat{p}}^{p} [w(p, p') - w(p, \hat{p})] dF(p')}{F(p)} \tag{1}$$

where F is the cumulative distribution function of productivity across firms. The integration in the numerator runs between $\hat{p}$ and p, which is the region where the rejected offer has a positive effect. For each $p' \in (\hat{p}, p]$, the effect is given by the difference $w(p, p') - w(p, \hat{p})$, where $w(p, p')$ is the wage that the worker's current employer has to offer the worker in order for him/her to reject the offer from p'. The denominator accounts for the fact that the offer from p' is rejected, so that $p' \leq p$, the probability of which is $F(p)$.

Other things equal, the effect is increasing in the gap between $\hat{p}$ and p. A small gap means there is little room for renegotiation, so that the average effect of a rejected offer is small. On the other hand, a significant effect of rejected offers would be evidence that wage

renegotiation plays a significant role for individual wages.

The probability that the poaching firm is able to offer the worker more than the value promised by the current employer is $1-F(\hat{p})$, which happens if and only if $p' > \hat{p}$. Conditional on meeting such a poaching firm, the probability that the current employer is able to match the (maximal) offer from the poaching firm is

$$M(p, \hat{p}) = \frac{F(p) - F(\hat{p})}{1 - F(\hat{p})} \tag{2}$$

which is increasing in p and decreasing in $\hat{p}$.

If $p' \leq \hat{p}$ so that we are in the last of the three cases mentioned above, then rejecting the offer has no impact on either $\hat{p}$ or the offer matching probability $M(p, \hat{p})$. On the other hand, if $p' \in (\hat{p}, p]$ so that we are in the second case, by definition, we have to update $\hat{p}$ so that it equals p' after the worker rejects the offer. This increase in $\hat{p}$ reduces the offer matching probability $M(p, \hat{p})$. Together, the expected effect of rejecting an offer on the offer matching probability is

$$\frac{\int_{\hat{p}}^{p} [M(p, p') - M(p, \hat{p})] dF(p')}{F(p)} \tag{3}$$

which is similar to the effect on wages but negative in sign.

In summary, different from wage-posting models, where rejecting an outside offer has no effect on either a worker's wage with the current employer or the probability that the worker's current employer will match a better offer from another firm, sequential-auction models of the labor market predict that rejecting an outside offer could have a positive effect on a worker's wage with the current employer and a negative effect on the offer matching probability, both of which are associated with the case where $p' \in (\hat{p}, p]$.

Consequently, a positive effect of rejected offers on individual wages and/or a negative effect of rejected offers on the offer matching probability $M(p, \hat{p})$ would be evidence consistent with wage renegotiation and the sequential-auction models. On the other hand, a zero effect of rejected offers on both individual wages and the offer matching probability would suggest

that wage renegotiation in response to changes in a worker's outside option does not play a significant role for individual wages. This could happen either because most firms do not renegotiate wages with their workers, or because most workers are already paid the maximum affordable by their employers, i.e., $\hat{p} = p$, so that there is little room for renegotiation.

Four comments are necessary before we move on to the empirical analysis. First, while the standard wage-posting model by Burdett and Mortensen (1998) implies there is no wage growth within a job, this could be relaxed by allowing firms to post either a wage-tenure contract (Burdett and Coles, 2003) or a combination of a piece rate (human capital rental rate) and training opportunities (Fu, 2011). Similarly, while the standard model by Postel-Vinay and Robin (2002), where firms compete in terms of the wage level, implies there is no wage growth within a job in the absence of an outside offer, this could be relaxed by allowing firms to compete in terms of the piece rate in the presence of human capital accumulation (Bagger et al., 2014; Taber and Vejlin, 2020). Consequently, whether there is wage growth within a job or not is not what separates the two types of wage-setting protocols. What matters is whether part of the wage growth within a job is a direct effect of rejected offers.

Second, instead of the wage, it is possible that a firm may respond to a worker's outside offer by adjusting some non-wage benefits of the job for the worker, e.g., a more flexible work schedule and/or a bigger office. This would make it difficult to detect a significant wage effect, but not impossible, as long as some firms respond to outside offers by raising wages. Moreover, whether the adjustment works through wages or non-wage benefits, it should make the worker more satisfied with the current job. Consequently, in addition to the wage w and the offer matching probability $M(p, \hat{p})$, we also estimate the effect of rejected offers on job satisfaction, both overall and separately for compensation and non-wage benefits.

Third, even if an employer is willing to renegotiate wages with a worker, the first step is for the worker to receive an outside offer. Consequently, the expected effect of wage renegotiation is smaller than our estimates presented below, which are conditional on observing a rejected offer. The difference between the two is related to the offer arrival rate. Because we find no

significant effect for workers who actually rejected an offer, the expected effect that accounts for the offer arrival rate is unlikely to be significant. We will return to this point when we discuss the quantitative implications of our estimates.

Finally, it is worth noting that, strictly speaking, a zero effect of rejected offers is not conclusive evidence against wage renegotiation and sequential-auction models of the labor market. This could happen if all rejected offers in the data are from firms with productivity $p' \leq \hat{p}$. In fact, if all firms have the same productivity, we would have $\hat{p} = p$ for all workers who have received at least one outside offer, so that $p' \leq \hat{p}$ for all rejected offers. However, because offers with $p' \in (\hat{p}, p]$ are a key distinction between the two wage-setting protocols, if these offers almost never exist, it still suggests that wage renegotiation does not play a significant role for continued wage growth within a job. Given the significant wage growth within a job observed in practice (Topel, 1991; Bagger et al., 2014), the evidence presented below still suggests that wage renegotiation in response to changes in an employed worker's outside option does not play a significant role for individual wages.

3 Data

We use data from the Survey of Consumer Expectations (SCE). Fielded by the Federal Reserve Bank of New York, the SCE is an internet-based monthly survey of a rotating panel of approximately 1,300 household heads from across the U.S. Respondents participate in the panel for up to 12 months, with a roughly equal number rotating in and out of the panel each month.

In each monthly survey, a respondent is asked about his/her employment status. If a respondent who reports to be employed in one survey also reported to be employed in the previous survey, the respondent is asked directly whether he/she is still working in the same job reported in the previous survey.

Every four months (in March, July and November), active members who had participated

in a SCE monthly survey in the prior three months are asked some additional questions through a rotating module called the Labor Market Survey. Because respondents are in the SCE for up to 12 months, they may end up taking up to 3 Labor Market Surveys.

Information that we use from the Labor Market Survey includes

- job offers received in the last 4 months, including rejected offers. Specifically, the survey asks each worker "*How many job offers did you receive in the last 4 months? Remember a job offer is not necessarily a job that you accepted*". After noting that "*the best offer is the offer you would be most likely to accept*", the survey also asks the following questions about each of the (up to) 3 best offers: *What was the annual salary? Did you accept this job offer?*

- salary, defined as the worker's response to "*How much do you make before taxes and other deductions at your [main/current] job, on an annual basis? Please include any bonuses, overtime pay, tips or commissions*".

- expected salary, defined as the worker's response to "*What do you believe your annual earnings will be in 4 months*".

- reservation salary, defined as the worker's response to "*Suppose someone offered you a job today in a line of work that you would consider. What is the lowest wage or salary you would accept (BEFORE taxes and other deductions) for this job*". We convert the answer to an annual salary if it is reported at other frequencies, e.g., hourly, weekly, bi-weekly or monthly.

- expected offer probability, defined as the worker's response to "*What do you think is the percent chance that within the coming four months, you will receive at least one job offer from another employer? Remember that a job offer is not necessarily a job you will accept*".

- expected salary offer, defined as the worker's response to "*Think about the job offers*

that you may receive within the coming four months. Roughly speaking, what do you think the average annual salary for these offers will be for the first year".

- expected offer matching probability, defined as the worker's response to "*If you were to receive a job offer from another employer at a higher salary, what do you believe is the percent chance your current employer will match the salary offer*".

- three measures of job satisfaction: (1) "*How satisfied would you say you are with your level of compensation at your [current/main] job?* (2) "*And how satisfied would you say you are with other aspects of the job, such as benefits, maternity/paternity leaves, flexibility in work hours, etc?* (3) "*Taking everything into consideration, how satisfied would you say you are, overall, in your [current/main] job?* The answer to each question could be one of five values: 1 for very dissatisfied, 2 for somewhat dissatisfied, 3 for neither dissatisfied nor satisfied, 4 for somewhat satisfied, and 5 for very satisfied. We focus on overall satisfaction in the main analysis, and show that results are similar for the other two measures in the appendix.

We focus on employed workers who did not change their jobs in the four months between two consecutive Labor Market Surveys, and divide them into two groups. The first group includes those who received zero offer in the four months between the two surveys, and the second group includes those who rejected all offers received in the four months between the two surveys.

Table 1 reports the summary statistics of the two groups of workers. Each observation is a combination of two consecutive Labor Market Surveys of the same worker. Because an individual could take up to 3 Labor Market Surveys, by combining two consecutive Labor Market Surveys of a worker into one observation, we may end up with two observations for the same worker. In the empirical analysis, we cluster all standard errors to the worker level, and show that the results are robust when we use one observation for each worker.

All but four variables reported in table 1 are obtained from the first of the two consecutive

Labor Market Surveys of each worker. The four exceptions are

- a dummy indicating whether the worker received zero offer or rejected all offers received in the four months between the two Labor Market Surveys. This is based on the job offers reported in the second of the two Labor Market Surveys, which cover the four months between the two Labor Market Surveys. Among workers who rejected all offers, 58% rejected one offer, 25% rejected two offers, and the rest rejected three or more offers received in the four months.

- changes in log salary, expected offer matching probability and overall job satisfaction, defined as the differences in a worker's log salary, expected offer matching probability and overall job satisfaction between the two Labor Market Surveys, respectively.

Our goal is to estimate the impact of the dummy on the three changes, controlling for all other variables obtained from the first of the two Labor Market Surveys of each observation.

Table 1 shows that, compared to workers who received zero offer in the four months between the two Labor Market Surveys, workers who rejected all offers received in the four months are younger and less experienced (potential experience = age - years of schooling - 6), have shorter job tenures, higher expected offer probabilities and higher expected offer matching probabilities. On the other hand, the two groups are not significantly different in other characteristics listed in the table, including gender, education, salary, expected salary, reservation salary, expected salary offer and the three changes.[9]

Figure 1 plots the distribution of each of the two groups of workers across the five levels of overall job satisfaction reported in the first of the two consecutive Labor Market Surveys. Figures A1 and A2 in the appendix plot similar distributions for a worker's satisfaction with the compensation and non-wage benefits, respectively. The distributions for the two groups of workers are not statistically different from each other in any of the three figures.[10] This suggests that the two groups of workers are comparable in the first survey.

[9]All salaries are annual, converted to 2019 dollars using the Consumer Price Index, and restricted to be between \$10,000 and \$500,000.

[10]A chi-squared test for the independence of the two variables in figure 1 (overall job satisfaction in the

Because job offers are not very common, the number of observations where the worker rejected all offers is small relative to the number of observations where the worker received zero offer. This could be a concern for estimating the correlation between different variables *within* the relatively small number of workers who rejected all offers, e.g., the relationship between the salary of a rejected offer and the worker's new salary after rejecting the offer. It is less of a concern for comparing the average difference *between* the two groups of workers, which is what we do in this paper.

Moreover, the number of workers who rejected all offers is much larger than the number of workers who accepted an offer. As shown in table A1 in the appendix, the number of workers who accepted an offer and switched from one employer to another in the four months between two consecutive Labor Market Surveys is only 121, and this group of workers experienced significantly larger increases in both salaries and job satisfaction in the four months than the two groups of workers reported in table 1. This suggests that the measures used in this paper, e.g., changes in salaries and job satisfaction, are informative, and the insignificant differences between workers who rejected all offers and workers who received zero offer are not noisy results of the relatively small number of workers who rejected all offers.

For our purpose, a more relevant concern is the potential error in classifying a worker into one group versus the other. If a significant amount of workers who received zero offer are mis-classified as workers who rejected all offers, or a significant amount of workers who rejected all offers after their current employers raised their wages are mis-classified as workers who received zero offer, we could obtain an insignificant difference between the two groups of workers even if rejecting an outside offer does have a significant effect on a worker's wage with the current employer. This is unlikely to be the case, for two reasons. First, because workers who report that they rejected all offers were also asked about the salaries of those offers, it is unlikely that a significant amount of these workers actually received zero offer. Second, because the survey asks about job offers received in the last 4 months, as opposed

first survey and whether a worker rejected all offers between the two surveys) results in a p-value of 0.42. The corresponding p-values for the two variables in figures A1 and A2 are 0.52 and 0.43, respectively.

to, say, years ago, and workers are reminded throughout the survey that "*a job offer is not necessarily a job that you accepted*", it is unlikely that a significant amount of workers who rejected all offers would report that they received zero offer.

Even if some workers who rejected all offers forgot to report them, it is likely that those offers were not important to the workers in the first place, in the sense that the offers were not good enough to trigger wage renegotiation even if the current employer is willing to do so, and thus the offers had no effect on either the workers or their current employers.[11] In this case, workers classified as having rejected all offers are more likely to have rejected relatively good offers, which would make it easier for us to find a positive effect of rejected offers because, as shown in the previous section, rejected offers that are good are more likely to trigger wage renegotiation. Because we find no significant effect of rejected offers, this type of mis-classification is not important for our conclusion.

It is worth noting that rejected offers are much more common than accepted offers. Across the (up to) 3 best offers reported by all workers, including those not employed or not employed in the same job reported four months ago, only 25.6% were accepted, and the rest (74.4%) were rejected. Among workers who reported to be employed in two consecutive Labor Market Surveys (but not necessarily in the same job), 3.2% accepted an offer received in the four months between the two Labor Market Surveys, 7.7% rejected all offers received in the four months, and the rest received zero offer in the four months. These statistics are not available in standard surveys that only ask about accepted offers, and they suggest that it is important to study the impact of rejected offers on individual wages.

As mentioned above, the Labor Market Survey also asks a worker to report the salary of each of the (up to) 3 best offers. Let the rejected salary be the maximum salary of the (up to) 3 best offers for a worker who rejected all offers received in the four months between

[11] For example, Faberman et al. (2022) designed a different supplement to the SCE that asks a sample of respondents in each October whether a potential employer was willing to make an offer but the respondent indicated that he or she was not interested. They label these offers as unrealized rejected offers, because respondents rejected these offers even before a formal offer was made, and find these offers do exist among some employed (and unemployed) workers. Using notations for sequential-auction models from the previous section, these are part of the offers from firms with productivity below $\hat{p}$.

two consecutive Labor Market Surveys. Figure 2 plots the differences between the rejected salary and both the salary (solid line) and the reservation salary (dashed line) from the first of the two consecutive Labor Market Surveys.

Not surprisingly, the rejected salary is on average smaller than both the salary and the reservation salary before receiving the offers. However, for a significant fraction of observations, the rejected salary is larger than both the salary and the reservation salary before receiving the offers. The 75th percentile of the difference between the log rejected salary and the log salary (reservation salary) before receiving the offers is 0.095 (0). When jobs are different in both wages and non-wage benefits, an employed worker may reject an outside offer even if the rejected salary is higher than both the salary and the reservation salary, e.g., Hall and Mueller (2018) and Taber and Vejlin (2020).[12] Nevertheless, the evidence suggests that, for a significant fraction of workers, at least one of the rejected offers is more lucrative than the worker's job when the offer is received. Other things equal, these workers are more likely to benefit from the rejected offers if their employers are willing to renegotiate their wages. In addition to the average effect of all rejected offers, the next section also provides some estimates using high-salary offers.

Figure 3 shows that the expected/self-reported offer probability is informative of the actual/true probability of receiving an offer in the next four months. The horizontal axis divides workers into 10 groups based on the expected offer probability reported in the first of the two consecutive Labor Market Surveys of each worker. For each group, the vertical axis reports the fraction of workers who reported receiving at least one job offer in the second of the two consecutive Labor Market Surveys. As mentioned above, both the expected offer probability from the first Labor Market Survey and the actual number of job offers from the second Labor Market Survey cover the same four months between the two Labor Market

[12]Similarly, an employed worker may accept an outside offer with a lower wage if the non-wage benefits of the job is much higher. Consistent with this, figure A3 in the appendix shows that, among workers who accepted an offer and switched from one employer to another in the 4 months between two consecutive Labor Market Surveys, a significant fraction of them accepted an offer paying less than either the salary or the reservation salary from the first survey.

Surveys, so that they are consistent with each other. Clearly, the expected offer probability is predictive of the actual probability of receiving an offer, although the prediction is not perfect, especially at the upper end of the distribution.[13]

Assuming the actual probability of receiving an offer is the same among workers with the same expected offer probability, whether a worker receives an offer or not is random conditional on the expected offer probability. As mentioned previously, we are not assuming rational expectations, where a worker's expectations must be correct on average. Consistent with figure 3, we allow for biases in expectations, and only require the biases to be the same for workers with the same expectations. We use this to address the potential selection associated with receiving an offer, as discussed in more detail in the next section.

4 Empirical Analysis

We estimate the following equation

$$y_{i,t,t+4} = \alpha R_{i,t,t+4} + X_{i,t}\gamma + \theta_t + \epsilon_{i,t,t+4} \tag{4}$$

where $y_{i,t,t+4}$ is the change/difference in the log salary of worker i between two consecutive Labor Market Surveys in months t and $t+4$, $R_{i,t,t+4}$ is a dummy that equals zero (one) if the worker received zero offer (rejected all offers received) in the four months between the two surveys, $X_{i,t}$ is a vector of controls observed in the first survey in month t, θ_t is a time fixed effect, and $\epsilon_{i,t,t+4}$ is the error term.

The parameter of interest is α, which measures the difference in salary change, $y_{i,t,t+4}$, between workers who rejected all offers, $R_{i,t,t+1} = 1$, and workers who received zero offer, $R_{i,t,t+4} = 0$, conditional the time fixed effect, θ_t, and other controls in the vector $X_{i,t}$.

As mentioned above, table 1 shows that α is not significantly different from zero when

[13]The mean of the expected probability on the horizontal axis is 0.23, while the mean of the actual probability on the vertical axis is lower at 0.17. This suggests that, if anything, workers tend to over-estimate the probability of receiving an offer in the next 4 months.

we ignore the time fixed effect θ_t and other controls $X_{i,t}$. We now show in table 2 that this result is robust when we include the time fixed effect θ_t and different sets of controls $X_{i,t}$.

In the first column, $X_{i,t}$ includes a worker's gender, education, potential experience and job tenure, all measured in month t. The estimates suggest that the growth of a worker's salary in the four months is decreasing in potential experience, but not significantly related to other characteristics. In particular, α is estimated to be zero, indicating that there is no difference between workers who rejected all offers and workers who received zero offer.

The second column adds the expected change in a worker's log salary in the four months as an additional control, where the expected change is measured as the difference between the log expected salary in four months and the log salary, both measured in month t. This addresses the potential selection between workers who rejected all offers and workers who received zero offer if, in the absence of systematic shocks such as the rejected offers, the observed salary changes in the four months are on average the same between two workers with the same expected change in the four months. Empirically, we find the expected change is significantly correlated with the observed change $y_{i,t,t+4}$. With this additional control, α is estimated to be negative but not statistically different from zero.

The third column adds three more controls: the expected offer probability, the log reservation salary and the log salary, all measured in month t. The first one addresses the potential selection from receiving an offer. If the actual/true probability of receiving an offer is the same among workers with the same expected/self-reported offer probability, which is likely to be the case given the evidence presented in figure 3, whether a worker receives an offer or not is random conditional on the expected offer probability. Conditional on receiving an offer, the last two variables address the potential selection from rejecting the offer. This would be the case if (1) the reservation salary is a good proxy for the value of a worker's job before receiving an outside offer, and (2) the value of each outside offer for a worker is random conditional on the worker's ability proxied by the salary and other observables in the vector $X_{i,t}$. Together, the three additional controls help make sure that receiving and

rejecting an offer is random, so that salary changes in the four months should be the same between workers who received zero offer and workers who rejected all offers in the absence of the rejected offers. When the three variables are included as additional controls, α is estimated to be smaller in magnitude and still not significantly different from zero.

The third column shows that the salary in the first survey is negatively correlated with the salary growth in the four months between the two surveys. Part of this correlation is likely a result of the measurement error in the salary reported in the first survey, which enters negatively in the dependent variable. To check this, the fourth column replaces the log salary with the log expected salary offer (the salary that a worker expects to receive from an outside offer), also measured in month t, and uses the latter as an alternative proxy for the worker's ability. Empirically, we find the expected salary offer in the first survey is not significantly correlated with the salary growth in the four months between the two surveys. This suggests that the negative correlation between the log salary and the salary growth in the third column is indeed due to measurement error. However, as long as the measurement error is not systematically different between workers who rejected all offers and workers who received zero offer, it should have no effect on estimates of α. Consistent with this, the estimate of α in the fourth column remains small and not statistically different from zero.

Due to missing values for the expected salary offer, the number of observations in the fourth column is much smaller than the other columns. For robustness, we apply the specification in the third column to the smaller number of observations in the fourth column, and report the results in the last column. Both the estimate and the standard error of α are the same as they are in the fourth column. This again suggests that our estimates of α are robust to the potential measurement error in the log salary.

Together, the estimates in table 2 suggest that rejecting an outside offer does not have a significant effect on a worker's wage with the current employer.

4.1 Other Outcomes

As discussed in section 2, a positive effect of rejected offers on wages should be associated with a negative effect of rejected offers on the offer matching probability, and rejecting an outside offer should have a positive impact on a worker's job satisfaction as long as the current employer responds to the rejected offer by raising either the worker's wage or non-wage benefits. Consist with the insignificant effect of rejected offers on wages documented above, table 1 shows that neither the change in the expected offer matching probability nor the change in overall job satisfaction is significantly different between workers who rejected all offers and workers who received zero offer. We now use equation (4) to show that these results are robust when we control for the time fixed effects θ_t and other variables $X_{i,t}$.

Table 3 reports the results. Instead of the change in the log salary in the four months between two consecutive Labor Market Surveys, the change in the expected offer matching probability is used as the dependent variable in the first two columns, and the change in overall job satisfaction is used as the dependent variable in the last two columns. Otherwise, the specifications for the first and third columns of table 3 are the same as the first column of table 2, and the specifications for the second and fourth columns table 3 are similar to the third column of table 2. The only difference is that the second (fourth) column of table 3 also controls for the expected offer matching probability (the fixed effect of each of the five levels of overall job satisfaction) reported in the first of the two consecutive Labor Market Surveys. Because the expected offer matching probability is between 0 and 1, and job satisfaction can take on only five values, workers who report high values of the two variables in the first survey have little room to improve in the four months between the two surveys. Controlling for their values in the first survey addresses their impacts on estimates of α.

Consistent with the insignificant differences in table 1, none of the four estimates of α in the first row of table 3 is statistically different from zero. This suggests that rejecting an outside offer does not have a significant effect on either the expected offer matching probability or overall job satisfaction.

Using the same specifications, table A2 in the appendix shows that rejecting an outside offer does not have a significant effect on a worker's satisfaction with either the compensation or non-wage benefits of the current job, or the reservation salary for another job, which is another measure of the value of the current job to the worker.

Together, the estimates in this subsection reinforce the insignificant effect of rejected offers on wages documented above, and they suggest that rejecting an outside offer does not have a significant effect on either the non-wage benefits or the overall value of a worker's current job either.

4.2 Robustness

Table 4 shows that the results reported above are robust to alternative samples and specifications. Each row reports the results from three versions of equation (4). The first three columns report the estimated impact of rejected offers on salaries, as in table 2, the next three columns report the estimated impact of rejected offers on the expected offer matching probability, as in the first two columns of table 3, and the last three columns report the estimated impact of rejected offers on overall job satisfaction, as in the last two columns of table 3. In all cases, est and std are the estimate and standard error of α, respectively, and rej is the number of observations where the worker rejected all offers received in the four months between two consecutive Labor Market Surveys. The number of observations where the worker received zero offer in the four months is much larger. In all cases, we use the full vector of $X_{i,t}$, as in the third column of table 2 and the second and fourth columns of table 3, respectively.

As mentioned above, a worker could have up to two observations in our sample, and we clustered all standard errors to the worker level. As an alternative, the first row uses only the first observation of each worker.

At the time of each Labor Market Survey, an employed worker is also asked to report the month and year when he/she first started working at the current job. The second row

restricts to observations where the reported month and year are the same between the two consecutive Labor Market Surveys. This further makes sure that the worker did not change his/her job in the four months between the two Labor Market Surveys.

The third row restricts to observations where the worker reported receiving zero offer in the four months before the first of the two consecutive Labor Market Surveys. This further makes sure that the offers reported in the second Labor Market Survey were received in the four months between the two Labor Market Surveys.

The fourth row uses observations before 2020 to avoid the impact of the COVID-19 pandemic. The fifth row uses only workers without a Bachelor's degree, and the sixth row uses only workers with a Bachelor's degree or more. The seventh, eighth, and ninth row uses only workers whose salary in the first of the two consecutive Labor Market Surveys is in the first, second, and third tercile of the corresponding salary distribution, respectively. The tenth row uses only workers whose job tenure in the first of the two consecutive Labor Market Surveys is less than 5 years, and the eleventh row uses workers whose tenure is more than 5 years. The twelfth row uses workers whose expected offer matching probability in the first of the two consecutive Labor Market Surveys is less than 0.3, and the thirteenth row uses workers whose expected offer matching probability is more than 0.3.[14]

The fourteenth row uses each worker's job search activity in the 4 weeks before the first of the two consecutive Labor Market Surveys as an additional control variable. At the time of each Labor Market Survey, an employed worker is asked the following question: "*Have you done anything in the LAST 4 WEEKS to look for new work?*" We control for the response to this question to further address the potential concern that, relative to workers who received zero offer, workers who rejected all offers were more likely to search for another job because

[14]Instead of sub-samples by the four worker characteristics used for rows 5-13 (education, salary, job tenure and expected offer matching probability), the results are similar when we use the full sample and add the interaction between the dummy indicating whether a worker rejected all offers received in the 4 months ($R_{i,t,t+4}$) and each of the four characteristics into our main specification. For example, each column of table A3 in the appendix adds one of the four interactions into the specification for the third column of table 2, which is our main specification for salaries. The estimates suggest that none of the four interactions is significantly correlated with the change in a worker's salary in the 4 months, which are consistent with the estimates by sub-samples reported in table 4.

they had lower expectations about their future salaries with the current employer. With this control, we are comparing workers with similar search activities in the 4 weeks before the survey in month t, so that whether a worker received an offer or not in the 4 months between t and $t+4$ is more likely a random result of labor market frictions.

Finally, the last row replaces $y_{i,t,t+4}$ with $y_{i,t,t+8}$. That is, instead of changes in 4 months, we use changes in 8 months as the dependent variables. We do so by combining the three Labor Market Surveys of each worker into one observation, and measure the changes in the 8 months between the first and last surveys. This addresses the potential concern that the impact of rejected offers may not be observed within four months. As mentioned in the introduction, as long as subjective measures such as the expected offer matching probability and job satisfaction adjust relatively quickly once an employer agrees to raise a worker's wage and/or non-wage benefits in response to a rejected offer, the fact that we find no significant effect of rejected offers on either of them suggests that our results are not driven by the infrequent adjustments of wages in the real world.

We find no significant effect of rejected offers on any of the three dependent variables in any of the 15 rows. In many cases, the estimate is either close to zero or has a sign that is different from the prediction of sequential-auction models of the labor market. This suggests that the insignificant estimates are not driven by large standard errors from the relatively small number of workers who rejected all offers received in the four months. As mentioned in the previous section, the relatively small number of workers who rejected all offers is less of a concern for estimating the average differences between the two groups of workers, especially for the main analysis using the full sample, and the potential classification error due to unrealized rejected offers should make it easier for us to find a significant effect of rejected offers if the effect is not zero.

4.3 Accepted Offers

For more evidence, we estimate the following equation by adding workers who accepted an offer and switched from one employer to another in the 4 months between two consecutive Labor Market Surveys into the sample

$$y_{i,t,t+4} = \alpha R_{i,t,t+4} + \beta A_{i,t,t+4} + X_{i,t}\gamma + \theta_t + \epsilon_{i,t,t+4} \tag{5}$$

where $A_{i,t,t+4}$ is a dummy that equals one if worker i is in the new group and zero otherwise, and $R_{i,t,t+4}$ is now equal to zero for both workers in the new group and those who received zero offer in the 4 months. Accordingly, workers who received zero offer, rejected all offers and accepted an offer in the 4 months between two Labor Market Surveys are represented by $\{A_{i,t,t+4}, R_{i,t,t+4}\} = \{0,0\}$, $\{A_{i,t,t+4}, R_{i,t,t+4}\} = \{0,1\}$, and $\{A_{i,t,t+4}, R_{i,t,t+4}\} = \{1,0\}$, respectively.

Table 5 shows the results, where the dependent variables in the six columns are the changes in a worker's log salary, expected offer matching probability, overall job satisfaction, satisfaction with the compensation/salaries, satisfaction with non-wage benefits, and reservation salary for another job in the 4 months between the two surveys, respectively.

Consistent with previous estimates, estimates of α in the first row of table 5 are small and not significantly different from zero. On the other hand, consistent with the raw differences in table A1, estimates of β in the second row of table 5 suggest that workers who accepted an offer and moved from one employer to another in the 4 months experienced significantly larger increases in salaries, job satisfaction (both overall and separately for compensation and non-wage benefits) and the reservation salary than comparable workers who received zero offer in the 4 months, even though the number of workers who accepted an offer and moved from one employer to another in the 4 months is much smaller than the number of workers who rejected all offers received in the 4 months (105 vs 271 in most cases, as shown in the last two rows of the table). This suggests that the measures used in this paper,

e.g., changes in salaries, job satisfaction and the reservation salary, are informative, and the insignificant estimates for rejected offers are not due to the relatively small number of workers who rejected all offers.[15]

4.4 Quantitative Implications

The 95% confidence interval for α in the first column of table 5 is $[-0.034, 0.018]$. We now show that the contribution of rejected offers to wage growth is small even if $\alpha = 0.018$.

Let g_0 be the baseline wage growth for an employed worker in the absence of any outside offers in four months, which could come from human capital accumulation on the job, the wage-tenure contract between the worker and the employer, or other reasons not related to outside offers. Let p_o be the probability that an employed worker receives at least one outside offer in four months and, conditional on receiving at least one offer, p_a be the probability that the worker accepts an offer and moves to another employer in the four months. We can write the expected wage growth in the four months as

$$g = g_0 + p_o(1 - p_a)\alpha + p_o p_a \beta \tag{6}$$

where the last two terms are the expected growth from rejected and accepted offers, respectively, and the sum of the first two terms is the expected wage growth within a job, which will be denoted as g_1.

The previous section shows that $g_0 = 1.5\%$ (see table 1), $p_o(1 - p_a) = 7.7\%$ and $p_o p_a = 3.2\%$. This implies $p_o(1-p_a)\alpha = 0.14\%$, $g_1 = 1.64\%$ and $p_o(1-p_a)\alpha/g_1 = 8.5\%$ if $\alpha = 0.018$. With $\beta = 0.123$ from the first column of table 5, we have $g = 2.03\%$ and $p_o(1-p_a)\alpha/g = 6.8\%$. In other words, the estimates suggest that we could reject the following claims about wage renegotiation in response to outside offers: (1) it raises wage growth in four months by over 0.14 percentage point, (2) its contribution to within-job wage growth is over 8.5%, and (3)

[15]Table 5 suggests that accepting an offer does not have a significant effect on the expected offer matching probability. This could be consistent with both wage posting and sequential-auction models.

its contribution to overall wage growth is over 6.8%.[16]

These values are much smaller than corresponding estimates from sequential-auction models of the labor market. For example, Bagger et al. (2014) estimate a sequential-auction model of wage dynamics and use simulated data from the estimated model to decompose wage growth into three components: human capital accumulation, within-job wage renegotiation in response to outside offers, and between-job wage mobility. They find that wage renegotiation is the largest contributor to wage growth for almost all workers at all experience levels.[17] This implies that wage renegotiation accounts for over 50% of within-job wage growth and over a third of overall wage growth. By exploiting the response of wages to rejected offers not available in most data, including those used by Bagger et al. (2014) and others to estimate sequential-auction models, our estimates suggest that the contribution of wage renegotiation is much smaller, at least in the U.S.

4.5 High-Salary Offers

The estimates presented so far suggest that rejecting an outside offer does not have a significant effect on either the wage or non-wage benefits of an employed worker. Instead of all rejected offers, one could also restrict to rejected offers that are relatively good, e.g., those paying more than a worker's job before receiving the offers, because sequential-auction models predict that only relatively good offers, i.e., those with $p' \in (\hat{p}, p]$, have an impact.

We use all rejected offers for three reasons. First, our goal is to estimate the average effect of rejecting an outside offer, rather than identifying a few cases where rejected offers might have an effect. Even if some rejected offers do have an impact, the contribution of wage renegotiation is still small if those cases are rare and the relevant effects are small,

[16] If $p_o(1-p_a)\alpha = 0.3\%$, which is more than twice of the value calculated above, the contribution of wage renegotiation to within-job and overall wage growth would be 16.7% and 13.7%, respectively. These are still significantly lower than the values implied by sequential-auction models discussed below.

[17] Bagger et al. (2014) divide Danish workers in their sample into three groups based on years of schooling (7–11, 12–14 and 15–20), and decompose wage growth for each group at each experience level. Their figure 7, which has a wrong title that seems to be copied from figure 3, shows that the only workers for whom wage renegotiation is not the largest contributor to wage growth are those with 15–20 years of schooling and 5–14 years of experience, where the contribution of human capital accumulation is slightly larger.

which would be the case if $\hat{p}$ is close to p for most workers. Second, in the presence of non-wage benefits, offers with higher salaries are not necessarily more valuable to a worker, neither are they more likely to come from firms with higher productivity, e.g., those with $p' \in (\hat{p}, p]$ as opposed to $p' \leq \hat{p}$. Finally, with measurement error, observed wage growth for the subset of workers who rejected offers paying more than their salaries in the first of the two consecutive Labor Market Surveys could be larger than the wage growth of comparable workers who received zero offer, even if the true wage growth is not significantly different between the two groups of workers. This arises because a negative measurement error for a worker's salary in the first survey raises both the difference between the rejected salary and the worker's salary in the first survey, which makes the rejected offer looks better, and the difference in the worker's salary between the two surveys, which makes wage growth looks larger. Consequently, observations where the rejected salary is larger than the salary in the first survey is more likely to have a negative measurement error for the salary in the first survey, so that the observed wage growth is spuriously large.[18]

With these concerns/caveats in mind, we now estimate the following equation using the same sample of workers who either received zero offer or rejected all offers received in the 4 months between two consecutive Labor Market Surveys

$$y_{i,t,t+4} = \alpha_1 RH_{i,t,t+4} + \alpha_2 RL_{i,t,t+4} + X_{i,t}\gamma + \theta_t + \epsilon_{i,t,t+4} \tag{7}$$

where $RH_{i,t,t+4}$ is a dummy that equals one if (1) worker i rejected all offers received in the 4 months between t and $t+4$, and (2) the rejected salary, which was defined in the previous section as the maximum salary of a worker's rejected offers, is higher than a threshold. Similarly, $RL_{i,t,t+4}$ is a dummy that equals one if (1) worker i rejected all offers received in the 4 months and (2) the rejected salary is lower than the threshold used for $RH_{i,t,t+4}$. By

[18]This is not an issue for the previous analysis using all rejected offers, as long as the measurement error is not systematically different between workers who received zero offer and workers who rejected all offers. It becomes an issue when the salary in the first survey, and thus the measurement error, is used directly to classify workers into different groups, so that the measurement error is systematically different across the resulting groups.

definition, we have $RH_{i,t,t+4} + RL_{i,t,t+4} = R_{i,t,t+4}$.

Table 6 reports the results, where the dependent variables in the first, second and last two columns are the changes in a worker's log salary, expected offer matching probability and overall job satisfaction in the 4 months between two consecutive Labor Market Surveys, respectively. To break the single dummy $R_{i,t,t+4}$ into the two dummies $RH_{i,t,t+4}$ and $RL_{i,t,t+4}$, the threshold for a worker's rejected salary in odd numbered columns is the worker's salary in the first survey in month t, and the threshold for even numbered columns is the worker's expected salary offer in month t, which, as defined in the previous section, is the average annual salary that the worker in month t expects to receive from an outside offer in the 4 months between t and $t+4$. We use the expected salary offer as an alternative threshold to address the potential effect of the measurement error for salaries mentioned above.

The last two rows of table 6 show that the number of workers who rejected a high-salary offer is around 100, which is comparable with the number of workers who accepted an offer reported in table 5. However, different from the large and significant effects of accepting an offer reported in table 5, estimates of α_1 in the first row of table 6 are much smaller and not significantly different from zero (neither is any estimate of α_2 in the second row). This suggests that rejecting a high-salary offer does not have a significant effect on either the wage or non-wage benefits of an employed worker either.

5 Conclusion

Wage renegotiation allows a worker to benefit from outside offers and other improvements in the outside option without switching jobs. It provides an important incentive for employed workers to search on the job. While important for some labor markets, e.g., academia, the evidence presented in this paper suggests that, on average, wage renegotiation in response to changes in a worker's outside option does not play a significant role for individual wages.

Theoretically, this could happen for two reasons. First, most firms do not renegotiate

wages with their workers. Second, in firms that do renegotiate wages, most workers are paid the maximum wages/values affordable by the firm, so that there is little room for renegotiation. While the second reason means that our estimates are not conclusive evidence against wage renegotiation and sequential-auction models of the labor market, it also implies that wage renegotiation is not a significant contributor to the continued wage growth within a job observed in the real world (Topel, 1991; Bagger et al., 2014).

Data on the self-reported offer matching probability suggest that many firms do renegotiate wages with their workers. As shown in table 1, on average, the self-reported probability that a worker's current employer will match a job offer with a higher salary from another employer is 26.5% among workers who received zero offer and 35.9% among workers who rejected all offers. Using the same data, Flinn and Mullins (2021) find that over 50% of workers in most demographic groups reported a positive probability that their current employer will match a job offer with a higher salary from another employer.

However, workers may have biased beliefs about the likelihood that their current employer will match a better offer from another firm, so that the self-reported offer matching probability does not reflect the true probability of wage renegotiation. For example, in the absence of any shock such as an outside offer, there should be no change in the true offer matching probability. In contrast, among workers in our data who received zero offer between two consecutive Labor Market Surveys, the four-month change in the self-reported offer matching probability is on average negative (-0.011 with a standard error of 0.004). One explanation is that workers learned in the four months that they over-estimated their employer's willingness and/or ability to match an outside offer in the first Labor Market Survey. In this case, the decline in the self-reported offer matching probability should be larger among workers who are more likely to learn about their employer's willingness and/or ability to match an outside offer. This may explain some of the patterns documented in table 3, e.g., the decline in the self-reported offer matching probability is larger for more experienced workers. As mentioned previously, figure 3 suggests that workers tend to over-estimate the

probability of receiving an offer in the next four months. It is thus possible that workers may also over-estimate the offer matching probability.

An important direction for future work is to account for worker beliefs about wage renegotiation, e.g., whether the beliefs are biased, how the beliefs are updated, and the impact of the beliefs on job search and other labor market outcomes. Related to this, Jäger et al. (2024) find workers wrongly anchor their beliefs about outside options on their current wage, and, in response to information about wages of similar workers, they correct their beliefs about outside options and change their job search and wage negotiation intentions. Theoretically, they show that anchored beliefs keep overly pessimistic workers stuck in low-wage jobs, which gives rise to monopsony power and labor market segmentation.

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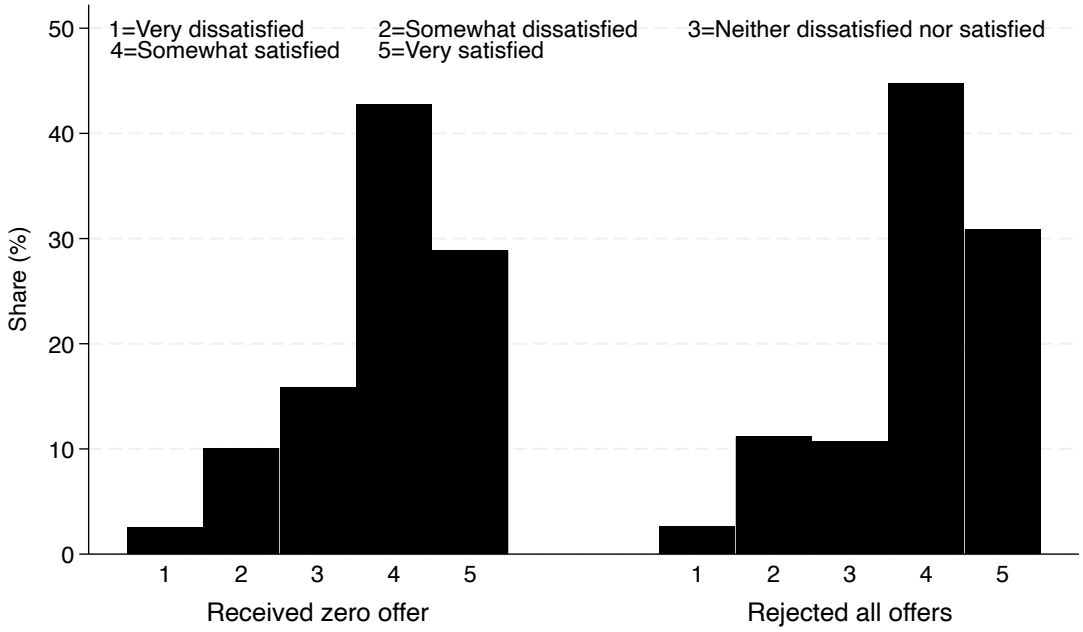

Figure 1: Overall Job Satisfaction in the First Survey

Notes: This graph plots the distribution of employed workers across the five levels of overall job satisfaction reported in the first of two consecutive surveys that are 4 months apart. The left panel includes workers who were employed by the same firm and received zero offer in the 4 months. The right panel includes workers who were employed by the same firm and rejected all offers received in the 4 months.

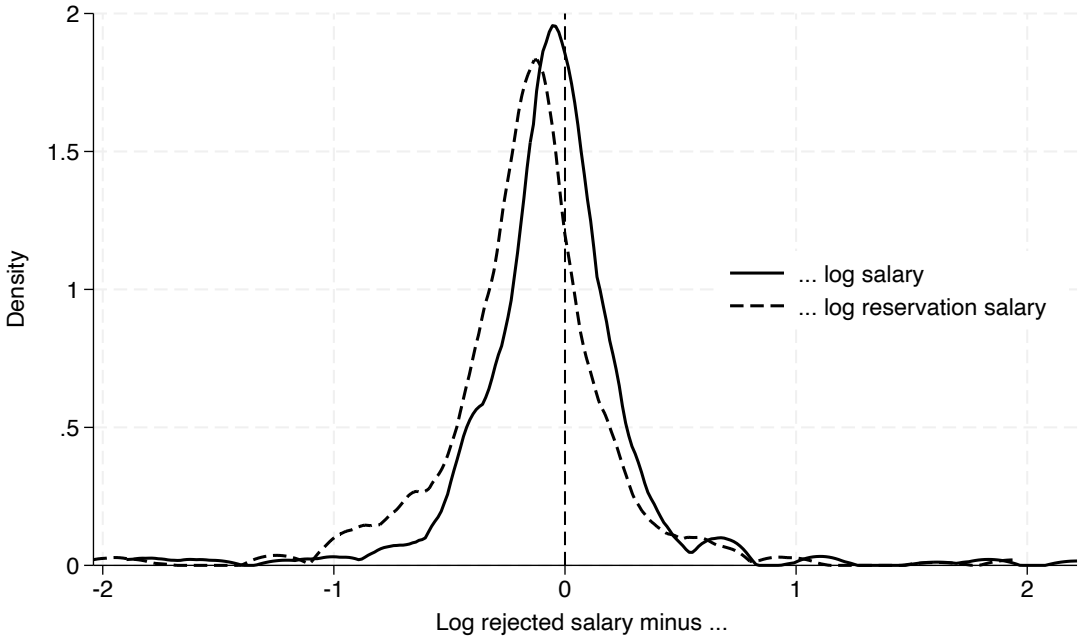

Figure 2: Salaries of Rejected Offers

Notes: This graph uses employed workers who did not change their jobs and rejected all outside offers received in the four months between two consecutive surveys. The rejected salary is the maximum salary of the (up to) 3 best offers received/rejected by a worker. Both the salary and the reservation salary are from the first of the two consecutive surveys, and thus before the offers are received/rejected.

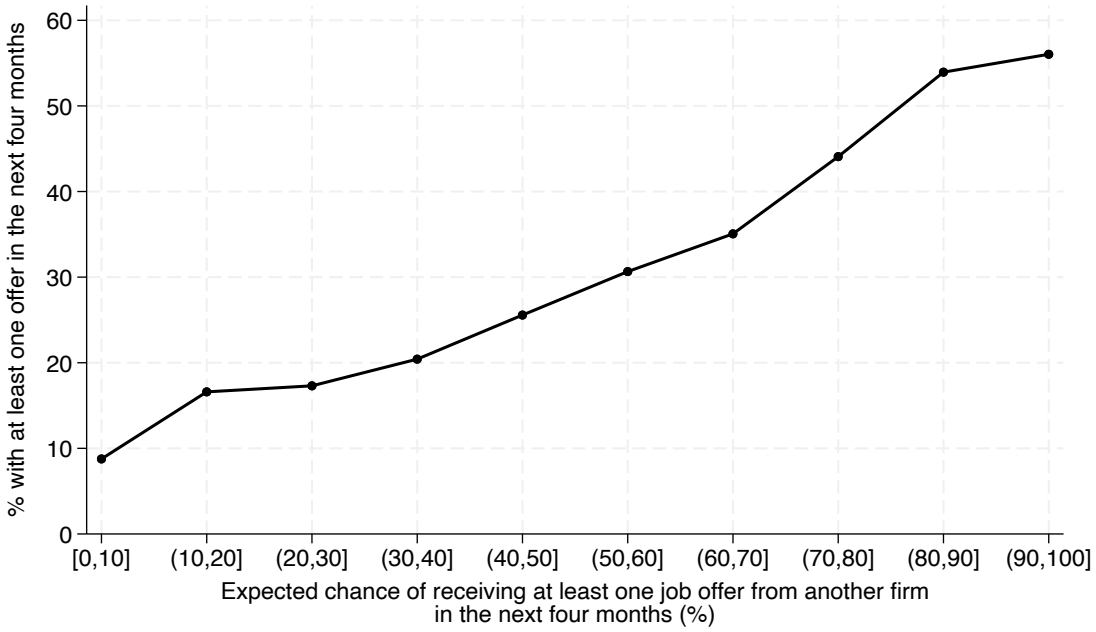

Figure 3: Expected vs Actual Chance of Receiving At Least One Job Offer in Four Months

Notes: Every four months, workers are asked to report both the actual number of job offers received in the last four months and the expected chance of receiving at least one job offer in the coming four months. Using consecutive surveys of the same worker that are four months apart, the figure plots the expected chance of job offers from the first survey (horizontal axis) against the actual chance of job offers from the second survey (vertical axis).

Table 1: Summary Statistics

	Received zero offer	Rejected all offers	Difference
Age	44.107	42.360	-1.746
	(11.429)	(11.505)	(0.811)
Female	0.425	0.445	0.021
	(0.494)	(0.498)	(0.037)
Bachelor's degree	0.476	0.490	0.014
	(0.499)	(0.501)	(0.037)
Potential experience	23.291	21.467	-1.824
	(12.103)	(12.095)	(0.856)
Job tenure	9.484	6.267	-3.217
	(8.898)	(7.171)	(0.533)
Salary ($1000)	72.287	69.424	-2.863
	(50.656)	(48.251)	(3.291)
Expected salary ($1000)	73.518	72.395	-1.122
	(51.511)	(50.808)	(3.577)
Reservation salary ($1000)	80.192	78.371	-1.821
	(57.845)	(56.772)	(3.751)
Expected salary offer ($1000)	69.756	71.419	1.664
	(47.753)	(51.091)	(3.584)
Expected offer probability	0.171	0.412	0.241
	(0.231)	(0.333)	(0.025)
Expected offer matching probability	0.265	0.359	0.094
	(0.281)	(0.316)	(0.028)
Change in log salary	0.015	0.009	-0.005
	(0.210)	(0.195)	(0.013)
Change in expected offer matching probability	-0.011	-0.017	-0.006
	(0.247)	(0.285)	(0.022)
Change in overall job satisfaction	-0.046	-0.108	-0.062
	(0.822)	(0.830)	(0.053)
Observations	4205	327	4532

Notes: The table uses employed workers who did not change their jobs in the 4 months between two consecutive surveys. The first (second) column includes workers who received zero offer (rejected all offers received) in the 4 months, where the standard deviations are in the parentheses. The third column reports the differences between the first two columns, where the standard errors are in the parentheses. The three changes in the bottom refer to changes between the two surveys. All other variables are from the first survey. See the main text for the definition of each variable.

Table 2: Rejected Offers and Salaries

	(1)	(2)	(3)	(4)	(5)
Rejected all offers	0.000	-0.013	-0.007	0.006	0.006
	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)
Female	0.005	0.001	-0.011	-0.008	-0.012
	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)
Bachelor's degree	-0.013	-0.014	0.011	-0.005	0.004
	(0.009)	(0.008)	(0.008)	(0.007)	(0.007)
Potential experience/10	-0.008	-0.005	-0.004	-0.006	-0.005
	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)
Tenure/10	0.009	0.011	0.019	0.009	0.014
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Expected change in log salary		0.309	0.228	0.231	0.187
		(0.082)	(0.067)	(0.088)	(0.075)
Expected offer probability			-0.005	-0.006	-0.007
			(0.014)	(0.016)	(0.015)
Log reservation salary			0.168	0.006	0.094
			(0.034)	(0.017)	(0.033)
Log salary			-0.207		-0.121
			(0.036)		(0.033)
Log expected salary offer				-0.022	
				(0.017)	
Time fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	4523	4052	4005	2898	2898

Notes: Standard errors are in the parentheses. All regressions use employed workers who did not change their jobs in the 4 months between two consecutive surveys. The dependent variable is the change in a worker's log salary in the 4 months between the two surveys. *Rejected all offers* is a dummy that equals zero (one) if a worker received zero job offer (rejected all job offers received) in the 4 months. All other variables are from the first of the two consecutive surveys of each worker, and thus before any offer was received/rejected.

Table 3: Rejected Offers, Expected Offer Matching Probabilities and Job Satisfaction

	Matching		Satisfaction	
	(1)	(2)	(3)	(4)
Rejected all offers	-0.010	0.015	-0.055	-0.031
	(0.022)	(0.019)	(0.054)	(0.056)
Female	-0.000	0.002	-0.032	-0.007
	(0.009)	(0.009)	(0.030)	(0.032)
Bachelor's degree	0.008	-0.017	-0.033	-0.100
	(0.009)	(0.010)	(0.030)	(0.032)
Potential experience/10	-0.009	-0.017	-0.023	-0.020
	(0.004)	(0.004)	(0.015)	(0.015)
Tenure/10	0.001	-0.015	0.058	0.013
	(0.006)	(0.006)	(0.020)	(0.022)
Expected change in log salary		0.006		-0.092
		(0.026)		(0.092)
Expected offer probability		0.063		-0.085
		(0.022)		(0.069)
Log reservation salary		-0.008		0.164
		(0.019)		(0.062)
Log salary		0.049		-0.008
		(0.018)		(0.065)
Expected offer matching probability		-0.441		
		(0.022)		
Fixed effects for overall job satisfaction				Yes
Time fixed effects	Yes	Yes	Yes	Yes
Observations	3866	3778	4522	4004

Notes: Standard errors are in the parentheses. All regressions use employed workers who did not change their jobs in the 4 months between two consecutive surveys. The dependent variable in the first two columns is the change in a worker's expected probability that the current employer will match an outside offer with a higher salary in the 4 months between the two surveys. The dependent variable in the last two columns is the change in a worker's overall job satisfaction in the 4 months. *Rejected all offers* is a dummy that equals zero (one) if a worker received zero job offer (rejected all job offers received) in the 4 months. All other variables are from the first of the two consecutive surveys of each worker, and thus before any offer was received/rejected. The five levels/values of overall job satisfaction are shown in figure 1.

Table 4: The Effects of Rejected Offers: Robustness

	Salaries			Matching probabilities			Job satisfaction		
	est	std	rej	est	std	rej	est	std	rej
First observation of each worker	-0.010	0.017	202	0.024	0.024	183	-0.097	0.068	202
Same job starting month and year	0.013	0.013	192	0.020	0.022	169	-0.027	0.065	192
No offer in the last 4 months	0.015	0.015	122	0.021	0.027	110	-0.024	0.078	122
Before COVID	-0.009	0.014	244	0.013	0.020	217	-0.035	0.061	244
Bachelor's degree: No	-0.023	0.021	87	0.024	0.032	80	-0.118	0.095	87
Bachelor's degree: Yes	0.012	0.016	184	0.010	0.021	164	0.052	0.059	184
Salary: 1st tercile	-0.001	0.023	79	0.053	0.036	72	-0.119	0.105	79
Salary: 2nd tercile	-0.009	0.023	83	-0.026	0.034	76	-0.039	0.102	83
Salary: 3rd tercile	0.000	0.019	109	0.015	0.026	96	0.011	0.075	109
Tenure: less than 5 years	-0.010	0.017	148	0.001	0.027	133	-0.036	0.071	148
Tenure: more than 5 years	0.001	0.019	123	0.036	0.028	111	-0.022	0.085	123
Matching prob: less than 0.3	-0.022	0.022	124	0.027	0.021	124	-0.099	0.079	124
Matching prob: more than 0.3	0.008	0.018	120	0.017	0.031	120	0.018	0.085	120
Job search activity	-0.008	0.013	271	0.013	0.020	244	-0.035	0.056	271
8 months	-0.000	0.030	88	0.023	0.038	80	-0.088	0.134	91

Notes: Each row reports the results from three different regressions, and the rows are different because they use slightly different samples and/or specifications. All regressions use employed workers who did not change their jobs in the 4 months between two consecutive surveys. The dependent variables for the first, second, and last three columns are the changes in a worker's log salary, expected offer matching probability and overall job satisfaction in the 4 months, respectively. The key independent variable is a dummy that equals zero (one) if a worker received zero job offer (rejected all job offers received) in the 4 months between the two surveys. The estimate and standard error of the coefficient for this variable are reported in columns est and std, respectively. Column rej reports the number of workers who rejected all offers received in the 4 months. See the main text for the list of control variables and other details.

Table 5: The Effects of Rejected and Accepted Offers

			Job satisfaction			
	Salaries	Matching	Overall	Salaries	Benefits	Reservation
Rejected all offers	-0.008	0.017	-0.034	0.083	-0.005	0.006
	(0.013)	(0.019)	(0.056)	(0.057)	(0.056)	(0.019)
Accepted an offer	0.123	0.026	0.922	0.719	0.433	0.115
	(0.026)	(0.055)	(0.135)	(0.147)	(0.180)	(0.033)
Female	-0.014	-0.000	-0.017	-0.078	-0.033	-0.032
	(0.007)	(0.009)	(0.032)	(0.038)	(0.032)	(0.008)
Bachelor's degree	0.011	-0.019	-0.107	-0.052	-0.035	0.023
	(0.008)	(0.011)	(0.032)	(0.041)	(0.035)	(0.011)
Potential experience/10	-0.004	-0.017	-0.018	-0.020	0.004	-0.006
	(0.004)	(0.004)	(0.015)	(0.015)	(0.015)	(0.004)
Tenure/10	0.019	-0.015	0.011	0.026	-0.029	-0.003
	(0.005)	(0.006)	(0.022)	(0.021)	(0.021)	(0.006)
Expected change in	0.235	0.005	-0.088	0.001	-0.003	0.106
log salary	(0.066)	(0.026)	(0.092)	(0.065)	(0.075)	(0.041)
Expected offer	-0.002	0.055	-0.058	-0.153	-0.092	0.020
probability	(0.014)	(0.021)	(0.069)	(0.069)	(0.074)	(0.019)
Log reservation salary	0.168	-0.009	0.160	0.001	0.082	-0.382
	(0.033)	(0.019)	(0.061)	(0.069)	(0.060)	(0.043)
Log salary	-0.209	0.052	0.002	0.189	0.083	0.305
	(0.035)	(0.018)	(0.064)	(0.060)	(0.062)	(0.041)
Expected offer matching		-0.445				
probability		(0.022)				
Fixed effects for						
satisfaction: overall			Yes			
satisfaction: salaries				Yes		
satisfaction: benefits					Yes	
Time	Yes	Yes	Yes	Yes	Yes	Yes
Observations						
All	4110	3871	4109	4110	4109	4076
Rejected all offers	271	244	271	271	271	268
Accepted an offer	105	93	105	105	105	105

Notes: Standard errors are in the parentheses. All regressions use workers employed in two consecutive surveys that are 4 months apart. The dependent variables in the six columns are the changes in a worker's log salary, expected offer matching probability, overall job satisfaction, satisfaction with compensation/salaries, satisfaction with non-wage benefits, and reservation salary for another job in the 4 months between the two surveys, respectively. *Rejected all offers* is a dummy that equals one if a worker rejected all offers received in the 4 months. *Accepted an offer* is a dummy that equals one if a worker accepted an offer and switched from one employer to another in the 4 months. All other variables are from the first of the two consecutive surveys of each worker. See the main text for details.

Table 6: The Effects of Rejecting a High-Salary Offer

	Salaries		Matching		Satisfaction	
	(1)	(2)	(3)	(4)	(5)	(6)
Reject high	0.037	0.018	-0.001	0.038	-0.049	-0.035
	(0.020)	(0.019)	(0.034)	(0.028)	(0.090)	(0.079)
Reject low	-0.022	-0.002	0.023	0.005	-0.072	-0.045
	(0.018)	(0.020)	(0.023)	(0.028)	(0.072)	(0.090)
Female	-0.011	-0.011	0.002	0.002	-0.011	-0.010
	(0.007)	(0.007)	(0.009)	(0.009)	(0.034)	(0.034)
Bachelor's degree	0.011	0.011	-0.017	-0.017	-0.086	-0.086
	(0.008)	(0.008)	(0.010)	(0.010)	(0.035)	(0.035)
Potential experience/10	-0.004	-0.004	-0.017	-0.017	-0.030	-0.030
	(0.004)	(0.004)	(0.004)	(0.004)	(0.016)	(0.016)
Tenure/10	0.019	0.019	-0.015	-0.015	0.050	0.050
	(0.005)	(0.005)	(0.006)	(0.006)	(0.023)	(0.023)
Expected change in log salary	0.227	0.228	0.006	0.006	-0.048	-0.048
	(0.068)	(0.067)	(0.026)	(0.026)	(0.091)	(0.091)
Expected offer probability	-0.006	-0.008	0.063	0.060	0.140	0.135
	(0.014)	(0.015)	(0.022)	(0.022)	(0.073)	(0.073)
Log reservation salary	0.166	0.168	-0.008	-0.009	-0.007	-0.006
	(0.034)	(0.034)	(0.019)	(0.019)	(0.071)	(0.071)
Log salary	-0.205	-0.207	0.048	0.049	0.088	0.087
	(0.036)	(0.036)	(0.018)	(0.018)	(0.074)	(0.074)
Expected offer matching probability			-0.441	-0.441		
			(0.022)	(0.022)		
Fixed effects						
Job satisfaction					Yes	Yes
Time	Yes	Yes	Yes	Yes	Yes	Yes
Observations						
All	4005	4005	3778	3778	4004	4004
Reject high	95	123	84	113	95	123
Reject low	155	102	141	91	155	102

Notes: Standard errors are in the parentheses. All regressions use employed workers who did not change their jobs in the 4 months between two consecutive surveys. The dependent variables in the first, second and last two columns are the changes in a worker's log salary, expected offer matching probability and overall job satisfaction in the 4 months, respectively. *Reject high* (*Reject low*) is a dummy that equals one if a worker rejected all offers received in the 4 months and the maximum salary of the rejected offers is higher (lower) than a threshold, which is the worker's salary in odd numbered columns and expected salary from an outside offer in even numbered columns. Both the thresholds and other control variables are from the first of the two surveys. See the main text for details.

Online Appendix for "The Response of Wages to Rejected Offers" by Junjie Guo

A Additional Figures and Tables

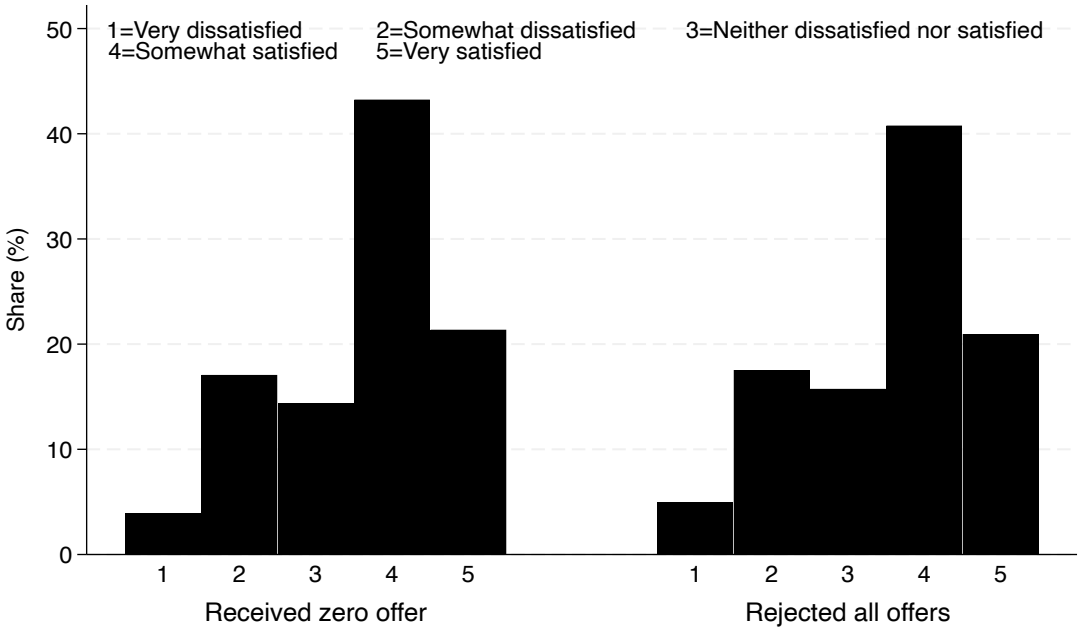

Figure A1: Satisfaction with Compensation in the First Survey

Notes: This graph plots the distribution of employed workers across the five levels of satisfaction with the compensation of the job in the first of two consecutive surveys that are 4 months apart. The left panel includes workers who were employed by the same firm and received zero offer in the 4 months. The right panel includes workers who were employed by the same firm and rejected all offers received in the 4 months.

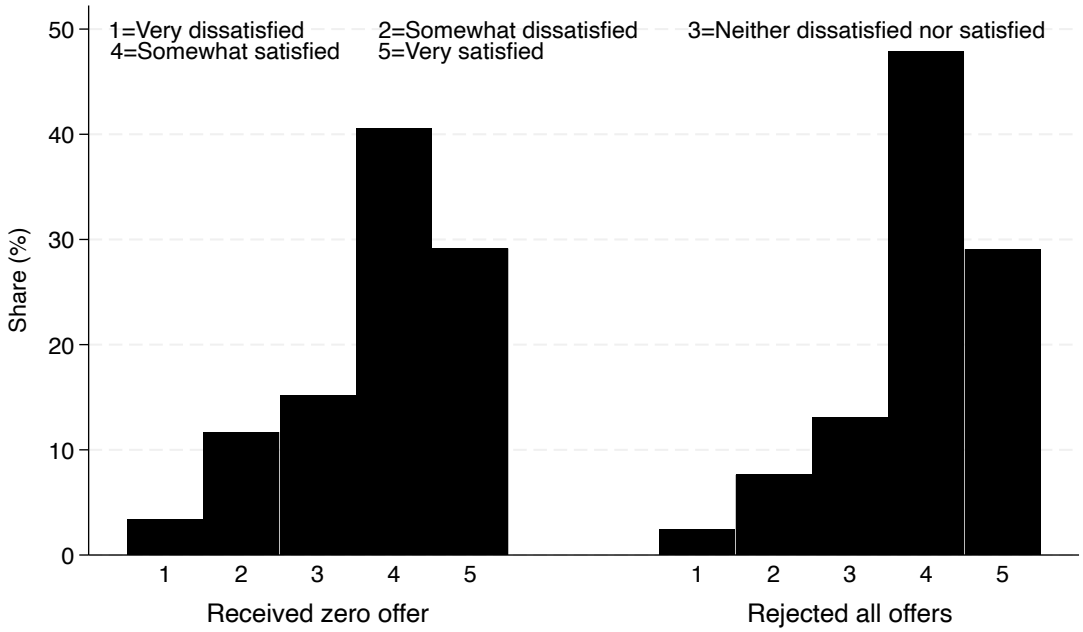

Figure A2: Satisfaction with Non-wage Benefits in the First Survey

Notes: This graph plots the distribution of employed workers across the five levels of satisfaction with the non-wage benefits of the job in the first of two consecutive surveys that are 4 months apart. The left panel includes workers who were employed by the same firm and received zero offer in the 4 months. The right panel includes workers who were employed by the same firm and rejected all offers received in the 4 months.

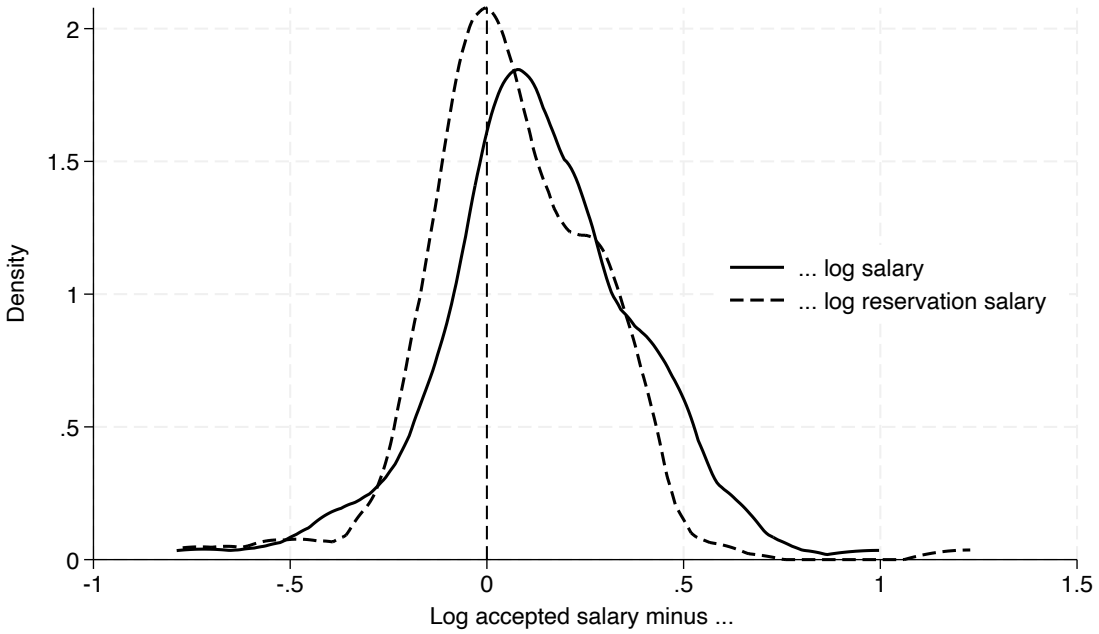

Figure A3: Salaries of Accepted Offers

Notes: This graph uses employed workers who accepted an outside offer and switched from one employer to another in the 4 months between two consecutive surveys. The accepted salary is the salary of the accepted offer. Both the salary and the reservation salary are from the first of the two consecutive surveys, and thus before the offers are received/accepted.

Table A1: Summary Statistics: Workers Who Accepted An Offer

	Accept	Accept − Zero	Accept − Reject
Age	38.841	-5.266	-3.520
	(10.077)	(1.083)	(1.310)
Female	0.495	0.071	0.050
	(0.502)	(0.059)	(0.065)
Bachelor's degree	0.547	0.071	0.057
	(0.500)	(0.061)	(0.067)
Potential experience	17.714	-5.577	-3.753
	(11.012)	(1.292)	(1.500)
Job tenure	4.232	-5.253	-2.035
	(6.112)	(0.596)	(0.741)
Salary ($1000)	59.899	-12.388	-9.525
	(38.511)	(4.120)	(5.081)
Expected salary ($1000)	64.914	-8.604	-7.482
	(40.339)	(4.605)	(5.620)
Reservation salary ($1000)	61.410	-18.782	-16.961
	(35.324)	(3.976)	(5.162)
Expected salary offer ($1000)	60.566	-9.190	-10.853
	(34.067)	(3.818)	(5.037)
Expected offer probability	0.441	0.270	0.029
	(0.344)	(0.038)	(0.044)
Expected offer matching probability	0.228	-0.036	-0.131
	(0.287)	(0.035)	(0.048)
Change in log salary	0.145	0.130	0.135
	(0.246)	(0.027)	(0.030)
Change in expected offer matching probability	0.054	0.064	0.071
	(0.346)	(0.058)	(0.070)
Change in overall job satisfaction	1.026	1.072	1.134
	(1.342)	(0.160)	(0.166)
Observations	121	4326	448

Notes: The first column uses employed workers who accepted an offer and switched from one employer to another in the 4 months between two consecutive surveys, where the standard deviations are in the parentheses. The second (third) column reports the differences between the first column and the first (second) column of table 1, where the standard errors are in the parentheses. See the main text and table 1 for more information.

Table A2: Rejected Offers, Job Satisfaction, and Reservation Salaries

	Salary satisfaction		Benefits satisfaction		Reservation Salaries	
	(1)	(2)	(3)	(4)	(5)	(6)
Rejected all offers	0.057	0.090	-0.062	-0.004	0.021	0.006
	(0.056)	(0.057)	(0.053)	(0.057)	(0.018)	(0.019)
Female	-0.060	-0.071	-0.029	-0.021	-0.008	-0.029
	(0.031)	(0.038)	(0.030)	(0.032)	(0.008)	(0.008)
Bachelor's degree	0.039	-0.037	-0.008	-0.027	-0.010	0.022
	(0.030)	(0.041)	(0.030)	(0.035)	(0.009)	(0.011)
Potential Experience/10	0.001	-0.022	0.014	0.003	-0.007	-0.005
	(0.014)	(0.015)	(0.015)	(0.015)	(0.004)	(0.004)
Tenure/10	0.052	0.029	-0.005	-0.030	-0.005	-0.003
	(0.020)	(0.021)	(0.021)	(0.021)	(0.005)	(0.006)
Expected change in		-0.033		-0.003		0.103
log salary		(0.064)		(0.073)		(0.041)
Expected offer		-0.189		-0.138		0.019
probability		(0.068)		(0.072)		(0.019)
Log reservation		-0.003		0.101		-0.377
salary		(0.070)		(0.060)		(0.044)
Log salary		0.190		0.057		0.302
		(0.061)		(0.061)		(0.042)
Fixed effects for						
satisfaction: salaries		Yes				
satisfaction: benefits				Yes		
Time	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4523	4005	4522	4004	4430	3971

Notes: Standard errors are in the parentheses. All regressions use employed workers who did not change their jobs in the 4 months between two consecutive surveys. The dependent variables in the first and second (third and fourth) columns are the change in a worker's satisfaction with the compensation/salary (non-wage benefits) of the current job in the 4 months between the two surveys. The dependent variables in the last two columns are the change in a worker's reservation salary for another job in the 4 months. *Rejected all offers* is a dummy that equals zero (one) if a worker received zero job offer (rejected all job offers received) in the 4 months. All other variables are from the first of the two consecutive surveys of each worker, and thus before any offer was received/rejected. Satisfaction for both the compensation/salary and non-wage benefits can take on five values, as shown in figures A1 and A2, respectively.

Table A3: Rejected Offers and Salaries with Interactions

	(1)	(2)	(3)	(4)
Rejected all offers	-0.028	-0.148	-0.005	-0.017
	(0.021)	(0.291)	(0.018)	(0.023)
Female	-0.011	-0.011	-0.011	-0.010
	(0.007)	(0.007)	(0.007)	(0.007)
Bachelor's degree	0.009	0.011	0.011	0.011
	(0.008)	(0.008)	(0.008)	(0.009)
Potential experience/10	-0.004	-0.004	-0.004	-0.003
	(0.004)	(0.004)	(0.004)	(0.004)
Tenure/10	0.019	0.019	0.019	0.020
	(0.005)	(0.005)	(0.006)	(0.006)
Expected change in log salary	0.227	0.228	0.228	0.236
	(0.067)	(0.067)	(0.067)	(0.073)
Expected offer probability	-0.006	-0.005	-0.005	-0.014
	(0.014)	(0.014)	(0.014)	(0.014)
Log reservation salary	0.168	0.168	0.168	0.160
	(0.034)	(0.034)	(0.034)	(0.035)
Log salary	-0.207	-0.208	-0.207	-0.199
	(0.036)	(0.036)	(0.036)	(0.037)
Expected offer matching probability				0.021
				(0.013)
Rejected all offers ×				
Bachelor's degree	0.041			
	(0.025)			
Log salary		0.013		
		(0.026)		
Tenure/10			-0.003	
			(0.015)	
Expected offer matching probability				0.031
				(0.043)
Time fixed effects	Yes	Yes	Yes	Yes
Observations	4005	4005	4005	3782

Notes: Standard errors are in the parentheses. All regressions use employed workers who did not change their jobs in the 4 months between two consecutive surveys. The dependent variable is the change in a worker's log salary in the 4 months between the two surveys. *Rejected all offers* is a dummy that equals zero (one) if a worker received zero job offer (rejected all job offers received) in the 4 months. All other variables are from the first of the two consecutive surveys of each worker, and thus before any offer was received/rejected. See the main text for details.