How Important are Minimum Wage Increases in Increasing the Wages of Minimum Wage Workers?[1]

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Abstract

Popular discussion presumes minimum wage increases primarily drive wage gains for minimum wage workers. We investigate this presumption using the Current Population Survey to assess the fraction of minimum wage workers receiving raises after 12 months. This fraction is moderately higher following state minimum wage increases, and positively correlated with several measures of labor market tightness. Finally, wage gains frequently follow industry and/or occupation switches, highlighting the importance of career progression for earnings growth among entry-level workers. Career progression and increases in labor demand rather than minimum wage increases appear to drive most wage gains for minimum wage workers.

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[1] Abbreviations: Current Population Survey, CPS; Outgoing Rotation Group, ORG; Federal Housing Finance Agency, FHFA; Bureau of Economic Analysis, BEA. The authors have not received any external funding or support for this research.

Section I: Introduction

The determinants of wage growth have become a subject of considerable interest and controversy. Economists are increasingly debating the relative importance of competitive market forces, employer power, and institutions in wage determination (Card, 2022; Strain, 2019; Stansbury and Summers, 2019). The traditional economic view holds that wage trajectories are a product of market forces (Goldin and Katz, 2010), the accumulation of education and experience (Mincer, 1974), and labor market mobility (Topel and Ward, 1992). Workers' wages rise either because their skills improve or because the dynamics of supply and demand increase the price employers pay for workers who possess those skills. An institutionalist view emphasizes, to the contrary, the role of employer market power and labor market frictions in determining wages (Caldwell and Danieli, 2022; Stansbury, Schubert, and Taska, 2022; Dube, Jacobs, Naudi, and Suri, 2020). In this view, wages at the bottom of the wage distribution are also heavily influenced by institutions, such as government-mandated increases in the minimum wage.

This paper adds to economists' understanding of the determinants of wages in the low-wage labor market by directly studying the role played by minimum wage increases. We use wage data from the Current Population Survey (CPS) to examine the relative importance of the minimum wage in increasing the wages of minimum wage workers. Our analysis yields several findings of interest. Our first finding is that wage growth is the norm among minimum wage workers who persist in their employment. Second, we find a strong correlation between wage growth and changes in workers' occupations or industries of employment. Third, we find strong correlations between wage growth and state-level macroeconomic performance, suggesting an important role for labor demand. Finally, we find that wage growth is positively correlated with two important institutional factors: minimum wage increases and union membership. Minimum

wage increases account for roughly 8.6 percent of the wage increases realized by minimum wage workers in our sample.

More specifically, our analysis uses the Outgoing Rotation Groups of the Current Population Survey (CPS ORG) from 2010 to 2019. The ORG is the subset of the CPS in which individuals are asked about their wages in addition to being asked about their employment. CPS respondents are asked these questions twice, and the relevant interviews occur 12 months apart. For those who are employed in both surveys, the CPS's wage data thus reveal whether they experienced wage growth over a full calendar year.

We define minimum wage workers in our baseline sample as individuals with wages within 50 cents of the effective minimum wage when they are first interviewed about their earnings. Among individuals in this sample, more than 70 percent of those employed 12 months later are employed at a higher wage. On average, the wages of minimum wage workers rose by $1.04, with the increase conditional on realizing an increase averaging just over $1.57. The median increase in hourly wages was $0.50 and the median increase conditional on receiving an increase was $1.00. Over our sample period, 28 states and Washington DC increased their minimum wages a total of 157 times. These 157 increases averaged $0.47, the median minimum wage increase was $0.40, the smallest increase was $0.04, and the largest increase was $1.95.

Moreover, we find qualitatively similar likelihoods of wage growth among workers who live in states that increased their minimum wages and among those who do not. Around 70 percent of minimum wage workers in states that did not increase their minimum wage at any point in the 2013–2018 period got a raise in any given year, compared to around 79 percent of minimum wage workers in states that did increase their minimum wage. Wage increases for minimum wage workers is the norm in both groups of states. The wage increases we observe,

which occur over 12-month horizons, suggest that only a small fraction of individuals can plausibly be described as "career minimum wage workers."

These findings are consistent with past work on the prevalence of "minimum wage careers." In a widely cited study of wage growth experienced by minimum wage workers, Smith and Vavrichek (1992) found that just over 60 percent of minimum wage workers experienced wage growth if employed one year later using data from the 1984 panel of the Survey of Income and Program Participation (SIPP). In an update of Smith and Vavrichek's work, Long (1999) found a similar prevalence of wage gains using data from the 1992 panel of the SIPP. Even and McPherson (2003, 2004) generated quite similar findings using data from the CPS ORG. Even and McPherson's analysis suggests that the prevalence of wage gains among minimum wage workers has been quite stable, rising moderately from 1979 through 2002. Finally, using the 1979 National Longitudinal Study of Youth, Carrington and Fallick (2001) report that "minimum wages have virtually no effect on the careers of most workers," but nonetheless find that "8 percent of workers spend at least 50 percent of their first 10 post-school years working in jobs paying less than the minimum wage plus $1.00."

We next explore the correlates of wage growth among individuals who were minimum wage workers at baseline. We find that wage growth is positively correlated with several broad classes of factors. We find particularly strong correlations between wage growth and variables that describe whether an individual has changed industries or occupations. This suggests that wage growth is strongly predicted by progression in minimum wage workers' careers. We also find correlations between wage growth and several proxies for overall macroeconomic conditions. These correlations suggest that increases in employers' demand for labor generate wage gains. Finally, we find that wage growth is positively correlated with institutional

variables including indicators both for the enactment of minimum wage increases and for whether the individual is a member of, or is covered by, a union.

We push farther in an effort to quantify the role of minimum wage increases relative to other factors by estimating a linear probability model of the likelihood of a minimum wage worker getting a raise between CPS ORG interviews. For workers who were employed in both outgoing rotations, we find that living in a state that increased its minimum wage in between interviews is associated with a 14.5 percentage point increase in the probability of getting a raise. For the 12-month periods during which a minimum wage increase went into effect, this estimate implies a 22 percent increase in the probability of receiving a wage increase relative to the baseline mean in states that never increased their minimum wages (65.2 percent). For minimum wage workers, we find that occupation and industry switches account predictively for wage increases that average roughly 6 times the magnitude of the wage gains predicted by minimum wage increases.

Taken together, this paper contributes to the literature on the determinants of wage growth by establishing that a broad set of factors predict wage growth for minimum wage workers. These factors include the progression of an individual's career, overall economic conditions, and institutional forces, with a larger role for career progression than increases in the wage floor.

In addition to contributing to the literature's understanding of the determinants of wage growth for low-wage workers, our analysis adds to our understanding of the economics of the minimum wage. While the employment effects of increases in the wage floor remain hotly

debated,[2] a growing literature documents how the minimum wage affects outcomes other than employment. As the literature increasingly recognizes, other dimensions of the minimum wage's effects can be crucial for understanding its potential utility as a tool of social policy. Clemens (2021) provides a review of the literature on the effects of increases in the wage floor on a number of welfare-relevant outcomes other than employment.[3] The minimum wage's relevance to wage growth over the life cycle is an understudied yet highly relevant dimension of its relevance to worker well-being. Our analysis of the determinants of wage growth for minimum wage workers contributes to our understanding of this important determinant of low-wage workers' welfare.

Our analysis relates closely to the literature on the minimum wage's effect on earnings and poverty (Addison and Blackburn, 1999; Neumark, Schweitzer, and Wascher, 2004; Burkhauser and Sabia, 2007; Dube, 2019). We develop facts relevant for connecting the minimum wage's short-run effects to a life-cycle perspective. Specifically, we show that minimum wage increases generate a moderate increase in the probability that minimum wage workers experience wage gains, but that these wage gains are modest in magnitude relative to the wage gains associated with career progression through industry or occupation changes, which minimum wage workers experience with substantial frequency.

The remainder of this paper proceeds as follows. In Section II we describe our data sources. In section III we present our analysis of the prevalence and correlates of wage gains realized by minimum wage workers. In section IV we briefly conclude.

[2] Neumark and Shirley (2022) provide a review of the literature.
[3] For example, recent papers have studied the effect of minimum wage increases on worker health (Horn, Maclean, and Strain, 2017), "wage theft" (Clemens and Strain, 2022a, Clemens and Strain, 2022b), job amenities (Clemens and Strain, 2020), and fringe benefits (Clemens, Kahn, and Meer, 2021; Dworsky, Eibner, Nie, and B. Wenger, 2022).

Section II: Data Sources

In this section, we discuss the data sources and variables we use in the analysis. These include wage data, macroeconomic data, data on occupational and industry mobility, and data on labor market institutions. We conclude this section with a brief discussion of summary statistics.

Wage Data and the CPS ORG

Our analysis of the wage growth experienced by minimum wage workers draws on a variety of sources. Our wage data come from the Current Population Survey (CPS). We use several wage-related variables asked of individuals in two out of the eight interviews in which they participate in the CPS. The relevant interviews, during which respondents are asked a more detailed set of questions than during their more basic interviews, take place during the last month of each of two four-month waves of a respondent's participation. Because new households enter the survey each month, and one-fourth of the households are in an outgoing rotation each month, these interviews are known as the Outgoing Rotation Group (ORG) interviews.

Several variables are relevant for estimating an individual's wage rate and for gauging the quality of the underlying data. The first key piece of information is an indicator for whether the respondent is paid on an hourly basis. When they are, the respondent is asked for their hourly wage rate. When they are not, hourly wage rates can be inferred by dividing the individual's usual weekly earnings by their usual weekly hours. While all of the relevant information is subject to respondent reporting error, the potential for error is greater when the hourly wage must be inferred from earnings and hours data because the hourly wage itself is not

reported directly. Further, a non-trivial fraction of respondents elect not to report their earnings information when asked. The wage rates for these individuals can thus only be imputed. To mitigate the impact of these errors, we focus on individuals who have baseline wage rates quite close to the minimum wage, who are paid by the hour, and who do not have imputed wage rates. We also censor hourly wages in the second rotation to prevent a few small outliers from skewing the measure of wage changes between rotations among workers employed in both rotations. We impose a floor of $2 and ceiling of $15 for wages in the second rotation for workers earning within $0.50 of the minimum wage in the first rotation, and a floor of $2 and ceiling of $20 for wages in the second rotation for workers earning $5-7 above the minimum wage in their first rotation.

Our estimates of wage growth require that an individual appear in both of the outgoing rotation group interviews to which they were assigned. Not all individuals appear for a second interview, however. The CPS does not follow individuals who move, for example (Neumark and Kawaguchi, 2004).[4] Past research has found that attrition is more common among individuals who are relatively young and who are divorced or separated at the time of their first interview (Peracchi and Welch, 1995). We observe a similar pattern, in particular with respect to age, in Appendix Table A21 which shows mean values of various demographic characteristics for individuals who remain in the sample relative to individuals who drop out between outgoing rotation group interviews. In our later analysis, in Appendix Table A22 we show that attrition is not correlated with the enactment of minimum wage increases, such that we do not view differential attrition as a likely source of bias for our estimates of the minimum wage's role as a

[4] Neumark and Kawaguchi (2004) acknowledge that attrition biases in the CPS due to respondents who move dropping out of the survey present statistical challenges, but argue that for many economic questions the matched CPS is still preferable to the SIPP.

driver of wage gains among minimum wage workers. Similarly, in Appendix Table A23, we observe that transitions out of employment in the second rotation are not correlated with minimum wage increases.[5] Attrition's impact on sample composition does, however, raise questions regarding the sample's representativeness and generalizability. Our analysis reveals that minimum wage increases tend to play a greater role in driving wage gains among older minimum wage workers relative to younger minimum wage workers. The sample's selection towards older minimum wage workers may thus lead us to overstate the role that minimum wage increases would play in generating wage increases for a nationally representative population of minimum wage workers.

A separate measurement error issue relates to the difference between self-respondents and proxy-respondents. Reynolds and Wenger (2012) have shown, for example, that self-respondents tend to report higher wages than proxy-respondents, such that wage gains or losses may emerge due to a change in who is reporting an individual's wage rather than a change in the wage itself. To assess this issue's potential relevance, we run robustness checks on our primary analyses in which we either restrict the sample to self-respondents or restrict the sample to individuals whose wages are either self-reported in both interviews or reported by a proxy in both interviews.

[5] Several complementary studies of the minimum wage's employment effects using this sample period have found evidence that the relatively large increases of this time period have resulted in employment reductions (Clemens and Strain,2021; Jardim et al., 2022; Gopalan et al., 2021). While Clemens and Strain (2021) find negative effects for low-skilled worker groups, evidence from Jardim et al. (2022) and Gopalan et al. (2021) finds that reductions in hours and employment occurred primarily due to decreases in hiring rather than increases in layoffs. This is consistent with the current paper's analysis finding no evidence that minimum wage increases predict increases in transitions out of employment.

Labor Market Institutions

Our analysis considers two variables that describe labor market institutions. The first is a simple indicator, taken directly from the ORG files, for whether an individual is a union member or is covered by a union or employee association contract. The second describes states' effective minimum wage rates.[6] We gather data on minimum wages from a variety of sources including the Department of Labor, Vaghul and Zipperer (2021), and the National Conference of State Legislators. When we encountered conflicts across sources, we cross-checked the data using specific pieces of state legislation as well as contemporaneous news articles describing states policy changes. We compiled the relevant data in Clemens, Hobbs, and Strain (2018), which presents a brief analysis of the lags with which this period's minimum wage changes have been implemented. These data also supported the analyses in Clemens and Strain (2017, 2018, 2021), which complement the current paper through short- and medium-run analyses of the effects of this period's minimum wage changes on employment.

Macroeconomic variables

Our analysis considers the relationship between wage increases and several proxies for macroeconomic conditions. Specifically, we consider indicators of the performance of state-level housing markets, state aggregate income, and labor markets. We proxy for variations in the recovery of the housing market using a quarterly statewide median house price index from the Federal Housing Finance Agency (FHFA). We proxy for aggregate economic performance using

[6] The effective minimum wage rate is the larger of the federal minimum wage rate and the applicable state minimum wage rate.

data on quarterly aggregate state income *per capita* from the Bureau of Economic Analysis (BEA). Finally, we proxy for variations in broader labor market developments using employment among two skill groups with a combination of education and experience beyond those obtained by most minimum wage workers and unlikely to be directly affected by the minimum wage: "mid-skill" individuals consisting of individuals ages 21 to 30 who have at least completed high school as well as individuals ages 31 to 64 with less than a completed high school education and "prime age" individuals between the ages of 26 and 54.

In our analysis of the relationship between macroeconomic variables and wage growth, we consider two time horizons. More specifically, we relate wage growth across ORG interviews to "short" and "medium-run" changes in macroeconomic conditions. Our "short-run" variables capture 1-year changes in each of our macroeconomic variables, while our "medium-run" variables capture 3-year changes in our macroeconomic variables.

Skill Accumulation

We also consider variables that describe individual-level skill accumulation. Our proxies for skill accumulation are limited to the standard observables used in Mincerian human capital regressions, namely proxies for education and experience. Our education variable is an indicator for whether the individual's self-reported years of education increased between their first and second ORG interview. Our experience variable captures the fraction of interview months between ORG interviews during which the individual reported being employed. A key limitation of these variables is that we observe very little variation in combined accumulation of education and experience. The reason for this is that we observe minimum wage workers over the course

of a single year, during which most are either working or in school. Accumulation of experience and education thus tend to be highly collinear with one another.

Occupation and Industry Switches

The final set of variables we consider describe whether an individual switched industries or occupations between ORG interviews. We construct separate variables to capture whether an individual shifted across 1-digit, 2-digit, or 3-digit 1990 Census occupation or industry codes. If an individual is missing occupation or industry codes for either ORG interview, we treat these variables as missing. If an individual leaves employment in their second rotation we code that individual as not changing industries or occupations (and as not experiencing a wage gain).

Summary Statistics

Table 1 presents summary statistics for our samples of individuals ages 16–64 whose baseline wage rates were within $0.50 of the minimum wage in effect at the time of their first ORG interview. We divide the sample into four groups based on two criteria. The first is the year of the first interview and the second describes whether the individual initially resided in a state in which the minimum wage was increased at some point during our sample. The sample is conditioned on individuals being employed once again at the time of their second ORG interview.

The first row of table 1 presents means for our primary variable of interest, which is an indicator for whether an individual had a higher wage at the time of their second interview than

at the time of their first interview. Across the four groups, the means range from 0.65 to 0.79. Between two-thirds and three-quarters of individuals who are employed at the minimum wage thus tend to be earning a higher wage if they are employed twelve months later. This probability was greater over the sample for which the baseline interview occurred between 2013 and 2018 than in the sample first interviewed between 2010 and 2012. This is consistent with a role for the relatively robust stage of the expansion that followed the Great Recession. Second, we see that wage gains were moderately more common for minimum wage workers in states that enacted minimum wage changes than those in states that did not.

The remaining rows in the table are of interest for gauging the magnitudes of other factors potentially influencing wage gains. The summary statistics reveal several facts of potential interest. First, changes across occupation and industry groupings are quite common for individuals who are initially minimum wage workers. Second, union membership is relatively uncommon for this group, ranging between 1.6 and 5.1 percent across the columns. Union membership is particularly uncommon for individuals in states that enacted no minimum wage increases during our analysis sample. Finally, our set of macroeconomic covariates exhibit the means and variations one would expect based on the economic expansion associated with the time period we analyze.

Section III: Analysis of the Frequency of Wage Gains and Their Correlates

Our analysis proceeds in four straightforward steps. We first document facts that describe the extent to which minimum wage jobs are transitory. Second, we present data on the correlates of wage growth among individuals who were minimum wage workers at baseline.

Third, we differentiate between states and time periods during which minimum wage increases did or did not go into effect, which yields additional insight into the relevance of states' minimum wage policies for wage growth at the bottom of the distribution. Finally, we round out our picture of wage growth's correlates by presenting similar data on wage growth among individuals whose baseline hourly wage rates were moderately higher than their states' effective minimum wages.

How Permanent or Transitory Is Minimum Wage Employment?

The first descriptive statistics we present connect our analysis to past work on the relevance of "minimum wage careers." Figure 1 reports annual time series on the fraction of individuals who are employed at the minimum wage at the time of their first ORG interview and are employed at a higher wage at the time of their second ORG interview. We present this series for the full sample of individuals who earned near the minimum wage at baseline as well as for our primary analysis sample, which restricts the broader sample to those who remained employed at the time of their second ORG interview.

The data reveal that these fractions are quite stable over time. Since the early 2000s, roughly 75 percent of individuals employed in minimum wage jobs during their first ORG interview are, conditional on remaining employed, earning higher wage rates at the time of their second ORG interview. As shown later, this is true of roughly two-thirds of minimum wage workers who reside in states that did not enact a minimum wage increase between their ORG interviews. Returning to Figure 1, we find that without conditioning on employment, the fraction later employed at a higher wage averages closer to fifty-five percent. These facts have two

implications. First, the data place a strong upper bound on the relevance of "minimum wage careers." The twelve-month time horizon we can analyze in the ORG is quite far from being a career. Even over this relatively short horizon, fewer than one-third of those employed at the time of both interviews remain employed in minimum wage jobs at the time of their second interview. Second, the fact that this fraction has been quite stable over time suggests the operation of the labor market, at least with respect to the wage gains it delivers to low-wage workers, has not changed substantially over the last several decades. It may be that some workers churn into and out of minimum wage jobs over a period of years. Long-run churn of this nature cannot be detected in the ORG data. Our analysis of the magnitude of wage increases among workers who experience wage gains might mitigate this potential concern, but does not eliminate it.

What Are the Correlates of Wage Gains at the Bottom of the Wage Distribution?

Table 2 presents correlations between four sets of covariates and the wage gains realized by minimum wage workers. That is, each row presents a simple bivariate correlation coefficient describing the relationship between the size of the wage gain an individual experienced and the variable named in the row. As in table 1, the sample consists of individuals employed at near the minimum wage in their first ORG interview and also employed at the time of their second ORG interview. The sets of covariates include labor market institutional variables, proxies for individual-level skill accumulation, proxies for short and medium run macroeconomic performance, and variables that capture shifts in an individual's industry or occupation.

Among the covariates we consider, the only group for which there is a weak correlation with wage growth are the variables that describe changes in observable correlates of skill, namely experience and education. This likely reflects the fact that our analysis can only capture the relationship between wages and relatively short-run changes in these variables. Importantly, those who have an increase in their reported years of schooling will mechanically have had less time in the labor market to accumulate experience. Similarly, those who report being employed in all three of the interview months *between* their ORG interviews are among those least likely to be investing in schooling.

Variables that proxy for career progression, namely changes in occupation or industry, are quite strongly correlated with wage gains.[7] A shift across 2-digit occupation codes, for example, quite strongly predicts an increase in wages, as does a shift across 2-digit industry codes. Although these correlations are purely descriptive, it is worth noting these findings are consistent with past work on the importance of improved job matches at the early stages of individuals' careers (Topel and Ward, 1992).[8] These facts suggest an important role for early career progression from entry-level jobs towards jobs that require more advanced education, training, and experience.

Several of our proxies for macroeconomic conditions are also quite strongly predictive of wage gains. Notably, the correlation between macroeconomic conditions and wage growth is

[7] Recent work by Liu (2022a; 2022b) has investigated the effects of minimum wage increases on the probability that workers change jobs. Liu (2022a) finds that minimum wage increases reduce the occupational mobility of young and less educated workers, which can have implications for their future wage growth. Liu (2022b) finds that relatively large minimum wage increase, in particular, have a substantial negative impact on upward occupational mobility.

[8] These facts can also be connected to empirical research on the long-run effects graduating during a recession, which limits the range of opportunities a worker can quickly explore (Kahn, 2010; Oreopoulos, von Wachter, and Heisz, 2012). They also connect to canonical theory that highlights the importance of job matches for understanding patterns of tenure and turnover (Jovanovic, 1979).

stronger over the "medium" run than over the "short" run. Specifically, we find that 3-year changes in the house price index and in aggregate income *per capita* are strongly predictive of wage gains. The strength of these correlations are more modest for 1-year changes. In general, these correlations are consistent with an important role for "demand" as a determinant of wage growth. The relevance of lags is consistent with findings from Stansbury and Summers (2019) as well as Strain (2019). Additionally, the fact that wage gains are more common for the workers we first observe in 2013-2018 than for those we first observe in 2010-2012 is likely driven by the improvement in overall labor market conditions during the latter portion of our sample.

Finally, we observe strong correlations between our institutional covariates and wage growth. Although union membership is quite rare among minimum wage workers, it is a strong predictor of increases in their wage. The enactment of a minimum wage increase during the months between an individual's ORG interviews is also a strong predictor of wage gains.

Wage Gains Comparing States that Did and Did Not Enact Minimum Wage Increases

In this section, we take a further look at the relationship between wage gains and minimum wage increases. Specifically, we present summary statistics for which we divide the sample to separate states and time periods during which minimum wage increases went into effect vs. states and time periods during which the minimum wage did not change.

Table 3 presents statistics regarding wage increases and changes in key labor market indicators between outgoing rotations for individuals living in states that did or did not have a minimum wage increase in the 12 months between their ORG interviews. Averaging across the early and late portions of the sample, the share of workers receiving a wage increase between

rotations is roughly 15 percentage points higher (roughly 23 percent on a baseline average of 66 percent) in states where the minimum wage increased between outgoing rotations.[9] This fact suggests minimum wage increases are responsible for a moderate increase in the probability an individual receives a wage increase. Specifically, when a state's minimum wage rises, it appears to be responsible for roughly 18.7 percent of the wage gains experienced by minimum wage workers. Across our sample period, minimum wage increases account for roughly 8.6 percent of the wage increases realized by minimum wage workers. Twenty-two states did not increase the minimum wage during our sample period and twenty-eight states and Washington DC increased the minimum wage. We provide a list of states that did and did not increase their minimum wage during this period in Appendix Table A1.[10]

[9] It is worth dwelling briefly on the fact that fewer than 100 percent of minimum wage workers in states that increased their minimum wage rates experience wage gains. This may be related to several phenomena. First, some of the workers in our samples may be in jobs that are exempt from the minimum wage. Second, our baseline definition of minimum wage workers includes workers who make as much as $0.50 above the minimum wage, such that there may be instances in which the baseline wage may be compliant with the endline minimum wage. Summary statistics in Appendix Table A10 suggest that this specific issue accounts for roughly 25% of the cases in which a minimum wage worker does not report receiving a wage gain in the wake of a minimum wage increase. Third, as analyzed by Clemens and Strain (2022a; 2022b), some workers may fail to enjoy wage gains due to evasion or avoidance of minimum wage regulation. Clemens and Strain (2022a) find that increases in subminimum wage payment in the wake of minimum wage increases are roughly one-sixth the size of realized wage gains. Put differently, for every dollar in wage gain following minimum wage increases, Clemens and Strain find evidence that workers experience, on average, a 16 cent increase in subminimum wage payment. Third, the absence of measured wage gains may, in some instances, result from measurement error. With respect to measurement error, we note that we see similar probabilities that minimum wage workers fail to report a wage gain following a minimum wage increase even when we exclude proxy respondents from the sample, when we exclude students from the sample, and when we exclude workers who receive tips, commission, or overtime pay from the sample. These exclusions account for several of the reasons one might either expect the individual to be exempt from minimum wage regulation or to have a wage reported with error. Finally, we note that Cengiz et al. (2019) find similar amounts of underpayment when they compare CPS wage data to wage data from the small set of state unemployment insurance systems in which wage rates can be inferred due to the collection of information on hours worked.

[10] The 28 states (and Washington DC) that increased their minimum wage during this period are: Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Hawaii, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Jersey, New York, Ohio, Oregon, Rhode Island, South Dakota, Vermont, Washington, and West Virginia.

To further probe the relationship between minimum wage increases and wage gains we next present summary statistics for workers who were employed in both of their outgoing rotation group interviews and reported earning 5 to 7 dollars more per hour than the effective minimum wage in their state of residence in their first outgoing rotation. The wages these workers receive should be influenced by changing macroeconomic conditions or changes in job mobility, but not directly affected by minimum wage changes. Therefore, examining how the probability of wage gains shifts for this group of workers is useful for ascertaining the extent to which the wage gains we observe among minimum wage workers were driven by changes in macroeconomic conditions or job mobility compared with changes in state minimum wages.

Table 4 presents summary statistics similar to those in table 3, but for individuals whose baseline wage rate was $5 to $7 higher than their states' minimum wage rates. The table shows that the probability that these supra-minimum-wage workers receive wage increases is similar when comparing individuals in states that did and did not enact minimum wage increases. These findings for supra-minimum-wage workers suggest that the differentials we observe for minimum wage workers may indeed reflect the causal effects of the minimum wage increases *per se.* That is, this additional evidence supports the view that minimum wage increases were responsible for roughly 18.7 percent of the wage increases experienced by minimum wage workers during years in which states increased their minimum wage rates. The vast majority of wage increases can thus be attributed to other factors, including career progression and the improved state of the economy.

Regression Analysis

To further examine the relationship between wage increases and various factors, we estimate the straightforward regression model below:

$$y_{i,s,t} = \beta_1 mw_{s,t} + \beta_2 \Delta\ln(hpi_{s,t}) + \beta_2 occ_{i,s,t} + \beta_3 ind_{i,s,t} + \beta_4 union_{i,s,t} + \alpha_s + \tau_t + \varepsilon_{i,s,t.} \quad (1)$$

Here $y_{i,s,t}$ is an indicator for whether individual *i* received a wage gain or, alternatively, the size of the wage gain in dollars between their first and second appearance in an outgoing rotation group. Individual *i's* state of residence during the baseline interview is indexed by *s*, while the time period of their initial interview is indexed by *t*. The variable $mw_{s,t}$ is an indicator for whether the minimum wage in state s increased during the period between interviews. The variable $\Delta\ln(hpi_{s,t})$ is the 3-year change in the natural logarithm of house price index, the variable $occ_{i,s,t}$ indicates whether an individual changed 2-digit occupations between rotations, $ind_{i,s,t}$ indicates whether an individual changed 2-digit industries between rotations, and $union_{i,s,t}$ indicates whether an individual was a union member or covered by a union in their first interview. Finally, α_s are state fixed effects and τ_t are time fixed effects as of the first outgoing rotation. Standard errors are clustered at the state level.

We present estimates of equation (1) in table 5. The samples in columns 1 and 2 consist of individuals whose baseline wage rates were within $0.50 of the minimum wage, while the samples in columns 3 and 4 consist of individuals whose baseline wage rates were between $5 and $7 greater than the minimum wage. Columns 1 and 3 include all individuals in these baseline wage bands, while columns 2 and 4 restrict the sample to those also employed at the time of their second appearance in an outgoing rotation group. Panel A presents results on the probability of receiving a wage increase and Panel B presents results on the magnitude of wage gains.

Consistent with our earlier analysis, we find that minimum wage workers are relatively likely to receive wage increases when the minimum wage rises, when economic conditions improve, when they transition into new occupations or new industries, and when they are members of a union. Put differently, the bivariate correlations presented in table 2 translate into positive partial correlations within equation (1)'s multivariate regression framework. With respect to the minimum wage, the magnitude of the relationship with wage increases is similar to the relationship observed in table 3's summary statistics. Specifically, we find that minimum wage workers were 14.5 percentage points (or just over 22 percent on a base of 65.2 percent) more likely to receive a wage increase if the minimum wage rose between their appearances in outgoing rotation groups. This is modestly larger than estimates based on unadjusted differences between minimum wage workers in states that enacted minimum wage increases relative to those in states that did not. A causal interpretation of this finding is supported in part by the fact we find no significant relationship between minimum wage increases and wage gains in the samples that consist of workers with baseline wage rates that exceeded the minimum wage by $5 to $7. Further, we note that we obtain a similar coefficient on our indicator for the enactment of a minimum wage increase if we exclude the indicators for industry and occupation switches from the analysis. This mitigates the potential concern that industry or occupation changes might mediate the effects of minimum wage changes in either a positive or negative direction.

The remaining coefficients in table 5 reveal that union membership, occupation changes, industry changes, and housing recoveries predict wage gains for minimum wage workers. Both occupation and industry switches predict wage gains conditional upon one another. For low-wage workers, these changes thus appear to be indicative of upward career progression. Interestingly, these positive correlations are reversed for higher-wage workers that are employed

in their second rotation, suggesting that for those in higher-wage jobs, job loss and not career progression may drive industry and occupation transitions. Union membership and housing recoveries, by contrast, strongly predict wage gains for both minimum wage workers and workers with higher baseline wages.

Next, as a complement to investigating what factors predict the occurrence of a wage gain, we investigate the size of the wage gains workers realize. Specifically, we estimate equation (1) after replacing the indicator for realizing a wage gain with the continuous value of realized wage gains. The results of this analysis appear in panel B of table 5. The results reported in that panel suggest that the wage gains associated with the typical minimum wage increase are modest in comparison with the wage gains associated with the typical change in industry or occupation. The additional wage gain associated with the enactment of a minimum wage increase averages roughly 12 cents where our sample includes individuals who exit employment, for whom we code the change in wage as 0, and averages roughly 16 cents when we restrict the sample to those who were employed in both interviews. The average wage gain associated with a change in 2-digit occupation code is 61.1 cents when those who exit employment are included in the sample and 37.8 cents when the sample is restricted to those who maintain employment, while the equivalent numbers for changes in 2-digit industry are 77.5 cents and 62.3 cents.

How then do the wage gains associated minimum wage increases compare with the wage gains associated with industry and occupation changes? The information required to round out this picture is contained in table 3. First, note that table 3's observation counts provide insight into the frequency with which minimum wage workers were in states that enacted minimum wage increases. Columns 3 and 4 of table 3 report summary statistics for minimum wage workers who experienced a minimum wage increase between interviews, while columns 1 and 2

report summary statistics for individuals who did not. Roughly 41 percent of the minimum wage workers in our samples thus resided in a state that enacted a minimum wage increase between interviews, while 59 percent did not.[11] Taking a sample size weighted average across the four columns, we observe that 46.8 percent of minimum wage workers who remained employed changed 2-digit occupations while 36.1 percent changed 2-digit industries. Applying the coefficients from column 2 of table 5, panel B, we can then estimate that on average across our samples, we would predict a 0.468 x $0.378 = $0.177 wage increase associated with occupation changes, a 0.361 x $0.623 = $0.225 wage increase associated with changes in 2-digit industries, and a 0.41 x $0.162 = $0.066 wage increase associated with an increase in state minimum wages. Taken by themselves, occupation switches are thus associated with wage gains roughly 2.7 times the magnitude of the gains associated with minimum wage increases, while the equivalent figure for industry switches is 3.4 times. Occupation and industry switches together account predictively for roughly 6.1 times the wage gains accounted for predictively by minimum wage increases.

Robustness Analysis

Finally, we examine the sensitivity of our findings along several potentially important dimensions. First, we explore whether the results from tables 1 through 3 are sensitive to including individuals who lose employment. Second, we consider changes to the definition of minimum wage workers. Third, we consider whether the results we present in table 5 are

[11] The relevant calculation has a numerator equal to the sum of the observation counts in columns 3 and 4 and a denominator equal to the sum of the observation counts across columns 1 through 4: (675 + 3010)/(2961 + 2339 + 675 + 3010).

sensitive to sample inclusion criteria that may be relevant for the potential role of measurement error or for assessing differences in the experience of individuals at different career stages or of individuals with different demographic characteristics.

Tables A2, A3, and A4 probe the robustness of results presented in tables 1-3 to expanding the sample to include people not employed at the time of their second ORG interview. The results are qualitatively similar. Minimum wage increases are strongly correlated with wage gains. Wage increases in this sample are also correlated with improvements in the broader economy and job mobility. Workers living in states with minimum wage increases are more likely to see wage gains, but macroeconomic improvements and increased worker mobility across occupations and industries again play a significant role.

In appendix tables A5-A7, we explore whether our results are robust to changes in the definition of a minimum wage worker. Tables A5-A7 display information similar to that presented in tables 1-3, but for a sample restricted to individuals earning within $0.25 of the effective minimum wage. For tables A8-A10, we further tighten the restriction to include only those earning within $0.05 of the effective minimum wage. The key patterns we observe are broadly consistent across each of these samples.

The remaining appendix tables present robustness checks on the regression analysis presented in table 5. In table A11, we restrict the sample to individuals who are either self-respondents during both interviews or who have a proxy respondent during both interviews. In table A12, we restrict the sample to self-respondents only. The estimates in table A11 are qualitatively indistinguishable from those in table 5, revealing that individuals who shift into or out of self-respondent status are not driving our estimates. The estimates in table A12 panel A provide some evidence that the occurrence of wage gains for self-respondents are more likely to

result from minimum wage increases than wage gains for the full sample, while occupation-switches may also play a more important role and industry switches may play a modestly less important role.[12] This difference is likely driven in part by the demographic composition of the self-respondent sample, as we similarly find a greater role of minimum wage increases when we focus on prime age adults, as in the analyses discussed below. Notably, when we turn to magnitudes in table A12 panel B we find that the magnitude of the wage gains associated with industry or occupation changes relative to the magnitude of the wage increases associated with minimum wage increases are similar when comparing the self-respondent population to the full population. Among self-respondents, industry or occupation changes predict wage gains roughly three times the magnitude of the wage gains predicted by minimum wage increases.

In table A13 we drop students from the sample while in table A14 we restrict the sample to minimum wage workers who are prime age adults. Our primary findings on these samples are qualitatively similar to our findings when using our baseline sample. Table A14 panel A reveals that wage gains among minimum wage earning prime age adults are moderately more responsive to minimum wage changes than are wage gains for our full sample of minimum wage workers. When we turn to magnitudes in table A14 panel B we find that the magnitude of the wage gains associated with industry or occupation changes are roughly 2.5 times the magnitude of the wage increases associated with minimum wage increases. In table A15 we exclude individuals who receive tips, overtime, or commissions from the sample. The magnitudes of the relationship

[12] Notably, we observe that the occurrence of occupation-switches and industry switches are only modestly less likely for the self-respondent sample than for the full sample, suggesting that measured industry and occupation switches among individuals who are not self-respondents are not associated to a substantial degree with measurement error.

between wage gains and minimum wage increases, industry changes, and occupation changes are little changed by this restriction.

Demographic Heterogeneity and Heterogeneity in the Minimum Wage's Baseline Level

Appendix tables A16 through A20 investigate whether we observe different relationships between minimum wage increases and wage growth among minimum wage workers at baseline when comparing male and female workers or when comparing workers of different races or ethnicities. When comparing male and female or white, Hispanic, and African American minimum wage workers, we find modest differences in the relationship between minimum wage increases, the probability that individuals experience wage gains and the size of wage increases. While some population subgroups are more likely than others to be minimum wage workers (e.g., a larger fraction of females are minimum wage workers than are males), the relationship between minimum wage increases and wage gains among those minimum wage workers are no different. The relative roles of minimum wage increases and our proxies for career progression are similar across groups, although the estimates are less precise when we analyze the relatively small sample of African American minimum wage workers.

Finally, in appendix tables A24 and A25 we divide the sample into observations for which the minimum wage's baseline level was less than $8.50 and observations for which the minimum wage's baseline level was $8.50 or greater. The motivation for this analysis is to consider whether the relationship between wage increases and either an increase in the minimum wage increases or changes in industry and occupation differ in labor markets that start from different minimum wage baselines. As shown in tables A24 and A25, larger wage gains tend to

be predicted by minimum wage increases enacted from higher bases than from lower bases. Additionally, the wage gains associated with industry changes (but not with occupation changes) are moderately smaller when the minimum wage starts from a high base. The data are thus consistent with the view that as the minimum wage becomes more binding it also becomes more pivotal in shaping the wage gains of minimum wage workers. This fact pattern is consistent with a variety of different economic forces including differences in the value of a worker's current job relative to alternative options, differences in the training and other skill accumulation opportunities available at minimum wage jobs, and differences in the quality of initial matches. Because these forces can have quite different implications regarding the minimum wage's effects on the welfare of minimum wage workers, understanding their relative roles may be an important avenue for future research.

Section IV: Discussion and Conclusion

In policy discussions, minimum wages can appear to play an outsize role as a determinant of low-wage workers' wages. Take, for example, a July 2021 policy brief from the National Employment Law Project (NELP) titled, "Quantifying the Impact of the Fight for $15" (Lathrop, Lester, and Wilson, 2021). The report presents estimates "that 26 million workers have been boosted by higher minimum wage policies passed by all levels of government since 2012." It also presents "economic context" that the U.S. has experienced significant productivity growth over the past century, and that "CEO pay has soared" while "worker pay has barely budged" (Lathrop, Lester, and Wilson, 2021). Similarly, a January 2021 fact sheet from the Economic Policy Institute claims that implementing a $15 federal minimum wage would raise wages for 32 million workers (EPI, 2021).

The conclusions of NELP and EPI are based on analyses that require two strong assumptions. First, these analyses depart from the Congressional Budget Office (2019) and broad-based readings of the minimum wage literature (Neumark and Shirley, 2022) by assuming that minimum wage increases have no effect on employment. Second, the analyses assume scant improvement in wages in the absence of minimum wage increases.[13]

We present these as two illustrative examples among many policy-oriented analyses that argue for an outsize role for the importance of minimum wage increases as a determinant of wages among lower-wage workers. These particular reports are relatively recent from EPI and NELP, whose analyses have been featured prominently in the public debate.[14]

Our findings reveal that it is easy to overstate the minimum wage's relevance as a source of low-wage workers' wage gains, and that the qualitative thrust of this corner of the policy debate may be overemphasizing the importance of the wage floor.[15] We find that state minimum wage changes account for a modest fraction of the wage gains realized by minimum wage workers. Improvements in macroeconomic conditions and progression across occupations and industries appear to play a more significant role.

[13] The methodology of the NELP (2021) report is built on this assumption. NELP starts with the actual wage distribution in 2011 and then creates a counterfactual wage projection by allowing 2011 wages to grow with consumer prices through 2021. NELP classifies workers with projected wages below their state or locality's mandated minimum wage as workers whose wages were affected by increases in minimum wages.

[14] For example, Google search results from September 6, 2022 show that NELP had been cited 86 times by The New York Times and 138 times by The Washington Post in the past two years. EPI has been cited 221 times by The New York Times and 173 times by The Washington Post over the same period.

[15] Our analysis focuses on a sample of workers employed at baseline in order to study the relative role of the minimum wage in driving wage increases. This is conceptually distinct from the minimum wage's role in shaping the wage received by new labor market entrants. The NELP and EPI analysis attempts to quantify the impact of a $15 per hour minimum wage on both new entrants and continuing workers.

We find that wage increases are the norm among minimum-wage workers, even in the absence of minimum wage increases. In a linear probability model, we find that minimum wage increases are associated with a 14.5 percentage point increase in the likelihood that a minimum-wage workers gets a raise. Compared with the overall rates at which minimum wage workers receive wage gains, our estimates suggest that minimum wage increases accounted for around 18.7 percent of the wage gains that occurred during years in which minimum wage increases went into effect, and for around 8.6 percent of all wage gains realized by the minimum wage workers in our samples.

For those who are persistently employed, our results suggest that both market forces and institutional factors drive short-run wage trajectories for workers at the lower end of the wage distribution. The influence of these factors on longer-term earnings trajectories is an important area for future research.

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Data Availability Statement

The data that support the findings from this study are openly available.

Supporting Information

Additional supporting information may be found online at the end of this article.

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Tables and Figures

Table 1. Summary Statistics for Individuals Earning Within $0.50 of the Effective Minimum Wage in Their First Rotation, Employed in Both Rotations

Sample	(1) Workers Living in States that Never Increased Minimum Wage, 2010–2019		(3) Workers Living in States that Increased the Minimum Wage at Least Once, 2010–2019	
Year of first outgoing rotation	2010–2012	2013–2018	2010–2012	2013–2018
Variable				
Increased wage from first outgoing rotation	0.652	0.703	0.666	0.786
Decreased wage from first outgoing rotation	0.124	0.109	0.130	0.078
Same wage as first outgoing rotation	0.224	0.188	0.204	0.137
Share of months in sample employed	0.916	0.918	0.928	0.929
1-year change in hourly wage ($)	0.756	1.098	0.838	1.228
Size of hourly wage increase ($)	1.365	1.752	1.392	1.664
1-year change in effective minimum wage ($)	0.000	0.000	0.057	0.410
1-year change in FHFA house price index	-0.777	14.42	0.206	27.34
1-year change in state per capita income ($)	1614.1	1488.1	1463.1	2220.1
1-year change in state mid-skill employment	0.00192	0.00725	0.00241	0.0104
1-year change in state prime-age employment	0.00296	0.00486	0.00346	0.00786
Greater education attained by second rotation	0.311	0.371	0.269	0.268
Covered by union in first outgoing rotation	0.0161	0.0157	0.0357	0.0511
3-year change in FHFA house price index	-13.53	34.19	-33.9	74.72
3-year change in state per capita income ($)	3988.6	3888.8	3954.4	5839.5
3-year change in state mid-skill employment	-0.00789	0.0243	-0.0198	0.0282
3-year change in state prime-age employment	-0.00871	0.0158	-0.0109	0.0214
Changed 1-digit occupation	0.349	0.375	0.319	0.362
Changed 1-digit industry	0.231	0.254	0.226	0.254
Changed 2-digit occupation	0.486	0.491	0.442	0.470
Changed 2-digit industry	0.355	0.374	0.333	0.375
Changed 3-digit occupation	0.542	0.570	0.507	0.524
Changed 3-digit industry	0.362	0.383	0.348	0.388
Changed to higher wage 1-digit occupation	0.560	0.612	0.575	0.577
Changed to higher wage 2-digit occupation	0.539	0.577	0.572	0.580
Changed to higher wage 3-digit occupation	0.569	0.622	0.602	0.585
Observations	1,366	1,341	2,270	4,008

Notes: This table reports summary statistics for two sample groups ages 16–64 regarding the changes in key labor market indicators between rounds 4 and 8 of the CPS. Columns 1 and 2 display variable means for individuals living in states with no minimum wage increases between 2010 and 2019 and columns 3 and 4 display means for individuals living in states with at least one increase in the minimum wage between 2010 and 2019. Columns 1 and 3 include all individuals who were in their first outgoing rotation group in 2010–2012 and columns 2 and 4 include all individuals who were in their first outgoing rotation from 2013–2018. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed, reported positive wages, were paid by the hour, did not have imputed wage rates in both of their outgoing rotations, and who earned within $0.50 of the effective minimum wage in their first rotation.

Table 2. Correlations Between Changes in Reported Hourly Wage and Macroeconomic Indicators for Individuals Employed in Both Rotations and Earning Within $0.50 of the Effective Minimum Wage in Their First Rotation

Variable	
State ever had minimum wage change from 2010–2019	0.0438***
State had minimum wage increase between rotations	0.0866***
First Rotation in 2013–2018	0.113***
Share of months in sample employed	0.00116
1-year change in effective minimum wage ($)	0.114***
1-year change in FHFA house price index	0.125***
1-year change in state per capita income	0.0474***
1-year change in state mid-skill employment	0.00512
1-year change in state prime-age employment	0.00251
Greater education attained by second rotation	-0.0214*
Covered by union in first outgoing rotation	0.0275**
3-year change in FHFA house price index	0.130***
3-year change in state per capita income ($)	0.0825***
3-year change in state mid-skill employment	0.0536***
3-year change in state prime-age employment	0.0639***
Changed 1-digit occupation	0.186***
Changed 1-digit industry	0.229***
Changed 2-digit occupation	0.170***
Changed 2-digit industry	0.225***
Changed 3-digit occupation	0.155***
Changed 3-digit industry	0.228***
Changed to higher wage 1-digit occupation	0.150***
Changed to higher wage 2-digit occupation	0.199***
Changed to higher wage 3-digit occupation	0.187***
Observations	8,985

This table displays bivariate correlations between the change in reported hourly wages between outgoing rotations for individuals ages 16–64 in the Current Population Survey and changes in other key macroeconomic and individual indicators. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed, reported positive wages, were paid by the hour, did not have imputed wage rates in both of their outgoing rotation groups, and earned within $0.50 of the effective minimum wage in their first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table 3. Summary Statistics for Individuals Earning Within $0.50 of the Minimum Wage in Their First Rotation, Employed in Both Rotations

Sample	(1) No Minimum Wage Increase Between CPS ORG Rotations	(2) No Minimum Wage Increase Between CPS ORG Rotations	(3) Minimum Wage Increase Between CPS ORG Rotations	(4) Minimum Wage Increase Between CPS ORG Rotations
Year of first outgoing rotation	2010–2012	2013–2018	2010–2012	2013–2018
Variable				
Increased wage from first outgoing rotation	0.639	0.687	0.756	0.825
Decreased wage from first outgoing rotation	0.127	0.112	0.132	0.0651
Same wage as first outgoing rotation	0.234	0.201	0.113	0.110
Share of months in sample employed	0.922	0.921	0.929	0.931
1-year change in hourly wage ($)	0.811	1.049	0.789	1.310
Size of hourly wage increase ($)	1.434	1.698	1.190	1.676
1-year change in effective minimum wage ($)	0	0	0.192	0.546
1-year change in FHFA house price index	-0.0265	18.27	-0.764	28.63
1-year change in state per capita income ($)	1563.1	1679.5	1330.1	2314.1
1-year change in state mid-skill employment	0.00184	0.00884	0.00391	0.0102
1-year change in state prime-age employment	0.00351	0.00595	0.00225	0.00801
Greater education attained by second rotation	0.296	0.339	0.238	0.259
Covered by union in first outgoing rotation	0.0274	0.0286	0.0326	0.0528
3-year change in FHFA house price index	-24.09	43.34	-35.71	81.05
3-year change in state per capita income ($)	4097.3	4303	3396.6	6164.4
3-year change in state mid-skill employment	-0.0141	0.0279	-0.0206	0.0267
3-year change in state prime-age employment	-0.00923	0.0189	-0.0138	0.0209
Changed 1-digit occupation	0.339	0.364	0.293	0.366
Changed 1-digit industry	0.228	0.245	0.228	0.261
Changed 2-digit occupation	0.463	0.477	0.439	0.473
Changed 2-digit industry	0.344	0.369	0.329	0.379
Changed 3-digit occupation	0.523	0.543	0.507	0.530
Changed 3-digit industry	0.356	0.378	0.345	0.393
Changed to higher wage 1-digit occupation	0.578	0.599	0.562	0.581
Changed to higher wage 2-digit occupation	0.570	0.599	0.588	0.580
Changed to higher wage 3-digit occupation	0.605	0.617	0.609	0.586
Observations	2,961	2,339	675	3,010

Notes: This table reports summary statistics for two sample groups ages 16–64 regarding the changes in key labor market indicators between rounds 4 and 8 of the CPS. Columns 1 and 2 display variable means for individuals living in states with no minimum wage increases between outgoing rotations and columns 3 and 4 display means for individuals living in states with at least one increase in the minimum wage between outgoing rotations. Columns 1 and 3 include all individuals who were in their first outgoing rotation group in 2010–2012 and columns 2 and 4 include all individuals who were in their first outgoing rotation group in 2013–2018. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed, reported positive wages, were paid by the hour, did not have imputed wage rates in both of their outgoing rotation groups, and earned within $0.50 of the effective minimum wage in their first rotation.

Table 4. Summary Statistics for Individuals Earning $5-7 More than the Minimum Wage in Their First Rotation, Employed in Both Rotations

Sample	(1)	(2)	(3)	(4)
	No Minimum Wage Increase Between CPS ORG Rotations		Minimum Wage Increase Between CPS ORG Rotations	
Year of first outgoing rotation	2010–2012	2013–2018	2010–2012	2013–2018
Variable				
Increased wage from first outgoing rotation	0.571	0.619	0.576	0.601
Decreased wage from first outgoing rotation	0.247	0.222	0.234	0.218
Same wage as first outgoing rotation	0.181	0.159	0.190	0.181
Share of months in sample employed	0.980	0.980	0.981	0.979
1-year change in hourly wage ($)	0.358	0.664	0.495	0.566
Size of hourly wage increase conditional on increase ($)	1.454	1.718	1.499	1.695
1-year change in effective minimum wage ($)	0	0	0.211	0.548
1-year change in FHFA house price index	0.16	17.55	-1.331	24.91
1-year change in state per capita income ($)	1504.3	1635.3	1476	2116.8
1-year change in state mid-skill employment	0.00151	0.00715	0.00382	0.00947
1-year change in state prime-age employment	0.00269	0.00544	0.00207	0.00716
Greater education attained by second rotation	0.103	0.11	0.0911	0.108
Covered by union in first outgoing rotation	0.124	0.0737	0.139	0.12
3-year change in FHFA house price index	-20.81	43.53	-32.26	69.61
3-year change in state per capita income ($)	4285.9	4221.5	3661.4	5648.5
3-year change in state mid-skill employment	-0.0125	0.027	-0.0264	0.0291
3-year change in state prime-age employment	-0.00745	0.0172	-0.0138	0.0186
Changed 1-digit occupation	0.292	0.316	0.261	0.31
Changed 1-digit industry	0.202	0.225	0.197	0.218
Changed 2-digit occupation	0.429	0.439	0.417	0.439
Changed 2-digit industry	0.303	0.336	0.3	0.333
Changed 3-digit occupation	0.469	0.483	0.467	0.479
Changed 3-digit industry	0.321	0.357	0.318	0.347
Changed to higher wage 1-digit occupation	0.509	0.493	0.524	0.500
Changed to higher wage 2-digit occupation	0.491	0.507	0.499	0.510
Changed to higher wage 3-digit occupation	0.487	0.515	0.525	0.497
Observations	4,045	4,779	812	3,410

Notes: This table reports summary statistics for two sample groups ages 16–64 regarding the changes in key labor market indicators between rounds 4 and 8 of the CPS. Columns 1 and 2 display variable means for individuals living in states with no minimum wage increases between outgoing rotations and columns 3 and 4 display means for individuals living in states with at least one increase in the minimum wage between outgoing rotations. Columns 1 and 3 include all individuals who were in their first outgoing rotation group in 2010–2012 and columns 2 and 4 include all individuals who were in their first outgoing rotation group in 2013–2018. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both of their outgoing rotations, and earned between 5 and 7 dollars more per hour than the effective minimum wage in their first rotation.

Table 5. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.106***	0.145***	0.003	-0.008
	(0.014)	(0.020)	(0.015)	(0.017)
3-year change in log FHFA House Price Index	0.157*	0.242**	0.208***	0.166***
	(0.082)	(0.104)	(0.056)	(0.056)
Changed 2-digit occupation between rotations	0.279***	0.066***	0.083***	-0.011
	(0.013)	(0.010)	(0.008)	(0.008)
Changed 2-digit industry between rotations	0.209***	0.073***	0.030***	-0.038***
	(0.009)	(0.010)	(0.011)	(0.011)
Covered by union in first rotation	0.100***	0.075***	0.081***	0.064***
	(0.020)	(0.021)	(0.015)	(0.015)
Adjusted R-squared	0.170	0.054	0.021	0.011
Observations	12,248	8,985	14,736	13,046
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.117***	0.162***	-0.020	-0.040
	(0.033)	(0.046)	(0.037)	(0.043)
3-year change in log FHFA House Price Index	0.486***	0.676***	0.462***	0.427**
	(0.177)	(0.224)	(0.141)	(0.168)
Changed 2-digit occupation between rotations	0.611***	0.378***	0.325***	0.189***
	(0.024)	(0.025)	(0.024)	(0.026)
Changed 2-digit industry between rotations	0.775***	0.623***	0.199***	0.099***
	(0.035)	(0.040)	(0.023)	(0.022)
Covered by union in first rotation	0.178**	0.161*	0.084**	0.054
	(0.068)	(0.083)	(0.035)	(0.038)
Adjusted R-squared	0.165	0.096	0.032	0.020
Observations	12,248	8,985	14,736	13,046

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is CPS ORG respondents ages 16-64 who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Figure 1. Share of Individuals in CPS ORG Receiving a Wage Increase in Second Rotation. First Rotation in 2002–2018. This figure shows the share of respondents in the CPS Outgoing Rotation Groups from 2002–2019 who reported earning a higher hourly wage in their second outgoing rotation compared with their first outgoing rotation. All samples include people who were paid by the hour and did not have imputed wage rates. Sample 1 includes people employed and earning within $0.50 of the effective minimum wage in their first outgoing rotation. Sample 2 includes people employed in both outgoing rotations and earning within $0.50 of the effective minimum wage in their first outgoing rotation. Sample 3 includes people employed in both outgoing rotations and earning within $0.05 of the effective minimum wage in their first outgoing rotation.

Online Appendix for How Important are Minimum Wage Increases in Increasing the Wages of Minimum Wage Workers?

by

Jeffrey Clemens and Michael R. Strain

Table A1. List of States With and Without Minimum Wage Changes from 2010–2019

No Minimum Wage Changes	Minimum Wage Changes
Alabama	Alaska
Georgia	Arizona
Idaho	Arkansas
Indiana	California
Iowa	Colorado
Kansas	Connecticut
Kentucky	Delaware
Louisiana	District of Columbia
Mississippi	Florida
New Hampshire	Hawaii
New Mexico	Illinois
North Carolina	Maine
North Dakota	Maryland
Oklahoma	Massachusetts
Pennsylvania	Michigan
South Carolina	Minnesota
Tennessee	Missouri
Texas	Montana
Utah	Nebraska
Virginia	Nevada
Wisconsin	New Jersey
Wyoming	New York
	Ohio
	Oregon
	Rhode Island
	South Dakota
	Vermont
	Washington
	West Virginia

Notes: Data on minimum wage changes comes from the U.S. Department of Labor. States are counted as no change states if the minimum wage rate in force in that state did not change between January 1, 2010 and December 31, 2019. States are counted as having minimum wage changes if the state effective minimum wage rate on December 31, 2019 was higher than on January 1, 2010.

Table A2. Summary Statistics for Individuals Earning Within $0.50 of the Minimum Wage in Their First Rotation, Employed in First Rotation

Sample	(1) Workers Living in States that Never Increased Minimum Wage, 2010–2019		(3) Workers Living in States that Increased the Minimum Wage at Least Once, 2010–2019	
Year of first outgoing rotation	2010–2012	2013–2018	2010–2012	2013–2018
Variable				
Became unemployed in second rotation	0.288	0.293	0.254	0.256
Increased wage from first outgoing rotation	0.464	0.497	0.497	0.584
Decreased wage from first outgoing rotation	0.0886	0.0769	0.0966	0.0577
Same wage as first outgoing rotation	0.159	0.133	0.152	0.102
Share of months in sample employed	0.797	0.796	0.819	0.823
1-year change in hourly wage if remaining employed ($)	0.756	1.098	0.838	1.228
Size of hourly wage increase conditional on increase ($)	1.365	1.752	1.392	1.664
1-year change in effective minimum wage ($)	0	0	0.0563	0.406
1-year change in FHFA house price index	-0.964	14.43	0.0962	27.07
1-year change in state per capita income ($)	1592.2	1465.7	1469.6	2220.7
1-year change in state mid-skill employment	0.000927	0.00671	0.00300	0.00973
1-year change in state prime-age employment	0.00282	0.00496	0.00335	0.00758
Greater education attained by second rotation	0.352	0.395	0.298	0.291
Covered by union in first outgoing rotation	0.0151	0.0137	0.0378	0.0457
3-year change in FHFA house price index	-14.00	34.30	-33.49	73.89
3-year change in state per capita income ($)	3941.2	3815.9	3956.5	5809.0
3-year change in state mid-skill employment	-0.00957	0.0223	-0.0200	0.0278
3-year change in state prime-age employment	-0.00857	0.0157	-0.0109	0.0210
Changed 1-digit occupation	0.249	0.265	0.238	0.269
Changed 1-digit industry	0.164	0.180	0.169	0.189
Changed 2-digit occupation	0.346	0.347	0.330	0.349
Changed 2-digit industry	0.253	0.264	0.249	0.279
Changed 3-digit occupation	0.386	0.403	0.379	0.390
Changed 3-digit industry	0.258	0.270	0.260	0.288
Changed 1-digit occupation to higher median wage	0.560	0.612	0.575	0.577
Changed 2-digit occupation to higher median wage	0.539	0.577	0.572	0.580
Changed 3-digit occupation to higher median wage	0.569	0.622	0.602	0.585
Observations	1,919	1,898	3,043	5,388

Notes: This table reports summary statistics for two sample groups ages 16–64 regarding the changes in key labor market indicators between rounds 4 and 8 of the CPS. Columns 1 and 2 display variable means for individuals living in states with no minimum wage increases between 2010 and 2019 and columns 3 and 4 display means for individuals living in states with an increase in the minimum wage between 2010 and 2019. Columns 1 and 3 include all individuals who were in their first outgoing rotation group from 2010–2012 and columns 2 and 4 include all individuals who were in their first outgoing rotation group from 2013–2018. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed, reported positive wages, were paid by the hour, did not have imputed wage rates, and earned within $0.50 of the state effective minimum wage in their first outgoing rotation, and were paid by the hour and had non-imputed wages if they were employed in their second rotation.

Table A3. Correlations between Changes in Reported Hourly Wages and Macroeconomic Indicators for Individuals Employed in their First Rotation and Earning Within $0.50 of the Minimum Wage

Variable	
Became unemployed in second rotation	-0.934***
State ever had minimum wage change from 2010–2019	0.0120
State had minimum wage increase between rotations	0.00857
First Rotation in 2013–2018	0.00676
Share of months in sample employed	0.699***
1-year change in effective minimum wage ($)	0.0182*
1-year change in FHFA house price index	0.0214*
1-year change in state per capita income	0.00264
1-year change in state mid-skill employment	0.0126
1-year change in state prime-age employment	0.0140
Education increase	-0.0937***
Covered by union in first outgoing rotation	0.0284**
3-year change in FHFA house price index	0.0122
3-year change in state per capita income ($)	0.0184*
3-year change in state mid-skill employment	0.0238**
3-year change in state prime-age employment	0.0120
Changed 1-digit occupation	0.390***
Changed 1-digit industry	0.336***
Changed 2-digit occupation	0.458***
Changed 2-digit industry	0.408***
Changed 3-digit occupation	0.494***
Changed 3-digit industry	0.416***
Changed 1-digit occupation to higher median wage	0.150***
Changed 2-digit occupation to higher median wage	0.199***
Changed 3-digit occupation to higher median wage	0.187***
Observations	12,248

This table displays bivariate correlations between the change in reported hourly wages between outgoing rotations for individuals in the Current Population Survey and changes in other key macroeconomic and individual indicators. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed, reported positive wages, were paid by the hour, did not have imputed wage rates, and earned within $0.50 of the state effective minimum wage in their first outgoing rotation, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A4. Summary Statistics for Individuals Earning Within $0.50 of the Minimum Wage in Their First Rotation, Employed in First Rotation

Sample	(1) No Minimum Wage Increase Between CPS ORG Rotations	(2) No Minimum Wage Increase Between CPS ORG Rotations	(3) Minimum Wage Increase Between CPS ORG Rotations	(4) Minimum Wage Increase Between CPS ORG Rotations
Year of first outgoing rotation	2010–2012	2013–2018	2010–2012	2013–2018
Variable				
Became unemployed in second rotation	0.271	0.278	0.248	0.256
Increased wage from first outgoing rotation	0.466	0.496	0.568	0.614
Decreased wage from first outgoing rotation	0.0923	0.0805	0.0991	0.0485
Same wage as first outgoing rotation	0.171	0.145	0.0846	0.0816
Share of months in sample employed	0.808	0.807	0.824	0.824
1-year change in hourly wage if remaining employed ($)	0.811	1.049	0.789	1.310
Size of hourly wage increase conditional on increase ($)	1.434	1.698	1.190	1.676
1-year change in effective minimum wage ($)	0	0	0.191	0.541
1-year change in FHFA house price index	-0.118	18.03	-1.198	28.38
1-year change in state per capita income ($)	1550.8	1664.9	1363.9	2311.7
1-year change in state mid-skill employment	0.00164	0.00805	0.00473	0.00966
1-year change in state prime-age employment	0.00336	0.00593	0.00216	0.00768
Greater education attained by second rotation	0.329	0.359	0.272	0.285
Covered by union in first outgoing rotation	0.0283	0.0259	0.0323	0.0465
3-year change in FHFA house price index	-23.69	43.06	-36.18	80.02
3-year change in state per capita income ($)	4083.5	4244.8	3349.1	6127.0
3-year change in state mid-skill employment	-0.0148	0.0263	-0.0213	0.0264
3-year change in state prime-age employment	-0.00910	0.0185	-0.0141	0.0206
Changed 1-digit occupation	0.247	0.263	0.220	0.272
Changed 1-digit industry	0.166	0.176	0.171	0.194
Changed 2-digit occupation	0.337	0.344	0.330	0.352
Changed 2-digit industry	0.251	0.266	0.247	0.282
Changed 3-digit occupation	0.381	0.392	0.381	0.394
Changed 3-digit industry	0.259	0.272	0.259	0.293
Changed 1-digit occupation to higher median wage	0.571	0.593	0.561	0.580
Changed 2-digit occupation to higher median wage	0.549	0.581	0.605	0.578
Changed 3-digit occupation to higher median wage	0.583	0.610	0.617	0.584
Observations	4,064	3,241	898	4,045

Notes: This table reports summary statistics for two sample groups ages 16–64 regarding the changes in key labor market indicators between rounds 4 and 8 of the CPS. Columns 1 and 2 display variable means for individuals living in states with at least one minimum wage increase between 2010 and 2019 and columns 3 and 4 display means for individuals living in states with increases in the minimum wage between 2010 and 2019. Columns 1 and 3 include all individuals who were in their first outgoing rotation group from 2010–2012 and columns 2 and 4 include all individuals who were in their first outgoing rotation group from 2013–2018. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed, reported positive wages, were paid by the hour, and did not have imputed wage rates in both of their outgoing rotations, and who earned within $0.50 of the effective minimum wage in their first rotation, and were paid by the hour and had non-imputed wages if they were employed in their second rotation.

Table A5. Summary Statistics for Individuals Earning Within $0.25 of the Minimum Wage Their First Rotation, Employed in Both Rotations

Sample	(1) Workers Living in States that Never Increased Minimum Wage, 2010–2019	(2)	(3) Workers Living in States that Increased the Minimum Wage at Least Once, 2010–2019	(4)
Year of first outgoing rotation	2010–2012	2013–2018	2010–2012	2013–2018
Variable				
Increased wage from first outgoing rotation	0.640	0.704	0.679	0.793
Decreased wage from first outgoing rotation	0.120	0.104	0.0993	0.0661
Same wage as first outgoing rotation	0.240	0.191	0.222	0.141
Share of months in sample employed	0.914	0.913	0.926	0.927
1-year change in hourly wage ($)	0.743	1.101	0.848	1.191
Size of hourly wage increase ($)	1.381	1.759	1.360	1.589
1-year change in effective minimum wage ($)	0	0	0.0468	0.404
1-year change in FHFA house price index	-0.776	14.70	0.0183	27.09
1-year change in state per capita income ($)	1626.8	1504.4	1488.4	2192.3
1-year change in state mid-skill employment	0.00210	0.00824	0.00219	0.00979
1-year change in state prime-age employment	0.00305	0.00532	0.00364	0.00789
Greater education attained by second rotation	0.326	0.393	0.274	0.272
Covered by union in first outgoing rotation	0.0148	0.0134	0.0313	0.0506
3-year change in FHFA house price index	-13.43	35.09	-33.57	74.05
3-year change in state per capita income ($)	3961.1	3924.3	3969.2	5784.8
3-year change in state mid-skill employment	-0.00828	0.0248	-0.0209	0.0285
3-year change in state prime-age employment	-0.00846	0.0160	-0.0115	0.0219
Changed 1-digit occupation	0.350	0.365	0.316	0.366
Changed 1-digit industry	0.234	0.263	0.230	0.249
Changed 2-digit occupation	0.493	0.488	0.440	0.470
Changed 2-digit industry	0.355	0.378	0.333	0.369
Changed 3-digit occupation	0.548	0.563	0.508	0.525
Changed 3-digit industry	0.363	0.386	0.348	0.378
Changed 1-digit occupation to higher median wage	0.569	0.605	0.573	0.573
Changed 2-digit occupation to higher median wage	0.541	0.564	0.570	0.581
Changed 3-digit occupation to higher median wage	0.568	0.609	0.603	0.587
Observations	1,145	1,123	1,692	2,846

Notes: This table reports summary statistics for two sample groups ages 16–64 regarding the changes in key labor market indicators between rounds 4 and 8 of the CPS. Columns 1 and 2 display variable means for individuals living in states with no minimum wage increases between outgoing rotations and columns 3 and 4 display means for individuals living in states with an increase in the minimum wage between outgoing rotations. Columns 1 and 3 include all individuals who were in their first outgoing rotation group from 2010–2012 and columns 2 and 4 include all individuals who were in their first outgoing rotation group from 2013–2018. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed, reported positive wages, were paid by the hour, and did not have imputed wage rates, in both of their outgoing rotations and earned within $0.25 of the effective minimum wage in their first outgoing rotation,

Table A6. Correlations between Changes in Reported Hourly Wage and Macroeconomic Indicators for Individuals Employed in Both Rotations and Earning Within $0.25 of the Minimum Wage in Their First Rotation

Variable	
State ever had minimum wage change from 2010-2019	0.0401***
State had minimum wage increase between rotations	0.0739***
First Rotation in 2013–2018	0.106***
Share of months in sample employed	0.0146
1-year change in effective minimum wage ($)	0.105***
1-year change in FHFA house price index	0.119***
1-year change in state per capita income ($)	0.0430***
1-year change in state mid-skill employment	0.00220
1-year change in state prime-age employment	-0.00251
Greater education attained by second rotation	-0.0301*
Covered by union in first outgoing rotation	0.0217
3-year change in FHFA house price index	0.122***
3-year change in state per capita income ($)	0.0705***
3-year change in state mid-skill employment	0.0506***
3-year change in state prime-age employment	0.0627***
Changed 1-digit occupation	0.194***
Changed 1-digit industry	0.237***
Changed 2-digit occupation	0.166***
Changed 2-digit industry	0.238***
Changed 3-digit occupation	0.153***
Changed 3-digit industry	0.242***
Changed 1-digit occupation to higher median wage	0.150***
Changed 2-digit occupation to higher median wage	0.203***
Changed 3-digit occupation to higher median wage	0.187***
Observations	6,806

This table displays bivariate correlations between the change in reported hourly wages between outgoing rotations for individuals ages 16–64 in the Current Population Survey and changes in other key macroeconomic and individual indicators. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both of their outgoing rotation groups, and who earned within $0.25 of the state effective minimum wage in their first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A7. Summary Statistics for Individuals Earning Within $0.25 of the Minimum Wage Their First Rotation, Employed in Both Rotations

Sample	(1) No Minimum Wage Increase Between CPS ORG Rotations	(2) No Minimum Wage Increase Between CPS ORG Rotations	(3) Minimum Wage Increase Between CPS ORG Rotations	(4) Minimum Wage Increase Between CPS ORG Rotations
Year of first outgoing rotation	2010–2012	2013–2018	2010–2012	2013–2018
Variable				
Increased wage from first outgoing rotation	0.641	0.689	0.789	0.838
Decreased wage from first outgoing rotation	0.105	0.102	0.120	0.0548
Same wage as first outgoing rotation	0.253	0.209	0.0915	0.107
Share of months in sample employed	0.920	0.917	0.925	0.929
1-year change in hourly wage ($)	0.825	1.044	0.697	1.274
Size of hourly wage increase ($)	1.443	1.683	1.023	1.596
1-year change in effective minimum wage ($)	0	0	0.186	0.548
1-year change in FHFA house price index	0.00889	18.06	-2.064	28.51
1-year change in state per capita income ($)	1569.1	1687.6	1404.0	2274.2
1-year change in state mid-skill employment	0.00202	0.00832	0.00292	0.0103
1-year change in state prime-age employment	0.00362	0.00619	0.00213	0.00804
Greater education attained by second rotation	0.302	0.360	0.257	0.259
Covered by union in first outgoing rotation	0.0261	0.0262	0.0164	0.0524
3-year change in FHFA house price index	-23.26	43.33	-37.76	80.59
3-year change in state per capita income ($)	4070.6	4322.6	3373.6	6092.9
3-year change in state mid-skill employment	-0.0144	0.0272	-0.0241	0.0277
3-year change in state prime-age employment	-0.00929	0.0190	-0.0158	0.0213
Changed 1-digit occupation	0.336	0.355	0.296	0.376
Changed 1-digit industry	0.229	0.247	0.244	0.258
Changed 2-digit occupation	0.464	0.474	0.446	0.477
Changed 2-digit industry	0.343	0.367	0.338	0.375
Changed 3-digit occupation	0.526	0.539	0.514	0.533
Changed 3-digit industry	0.354	0.375	0.352	0.386
Changed 1-digit occupation to higher median wage	0.570	0.585	0.579	0.580
Changed 2-digit occupation to higher median wage	0.544	0.561	0.637	0.589
Changed 3-digit occupation to higher median wage	0.580	0.597	0.639	0.591
Observations	2,411	1,871	426	2,098

Notes: This table reports summary statistics for two sample groups ages 16–64 regarding the changes in key labor market indicators between rounds 4 and 8 of the CPS. Columns 1 and 2 display variable means for individuals living in states with no minimum wage increases between rotations and columns 3 and 4 display means for individuals living in states with at least one increase in the minimum wage between outgoing rotations. Columns 1 and 3 include all individuals who were in their first outgoing rotation group from 2010–2012 and columns 2 and 4 include all individuals who were in their first outgoing rotation group from 2013–2018. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed, reported positive wages, were paid by the hour, and did not have imputed wage rates in both of their outgoing rotations, and who earned within $0.25 of the effective minimum wage in their first rotation.

Table A8. Summary Statistics for Individuals Earning Within $0.05 of the Minimum Wage in Their First Rotation, Employed in Both Rotations

Sample	(1) Workers Living in States that Never Increased Minimum Wage, 2010-2019		(3) Workers Living in States that Increased the Minimum Wage at Least Once, 2010-2019	
Year of first outgoing rotation	2010–2012	2013–2018	2010–2012	2013–2018
Variable				
Increased wage from first outgoing rotation	0.606	0.709	0.653	0.802
Decreased wage from first outgoing rotation	0.0756	0.0426	0.0643	0.0480
Same wage as first outgoing rotation	0.318	0.249	0.283	0.150
Share of months in sample employed	0.901	0.911	0.922	0.928
1-year change in hourly wage ($)	0.669	1.197	0.827	1.226
Size of wage increase ($)	1.322	1.841	1.357	1.600
1-year change in effective minimum wage ($)	0	0	0.0389	0.476
1-year change in FHFA house price index	-0.589	14.84	1.192	30.10
1-year change in state per capita income	1615.9	1511.2	1500.1	2331.8
1-year change in state mid-skill employment	0.00307	0.00710	0.00357	0.0104
1-year change in state prime-age employment	0.00291	0.00521	0.00454	0.00736
Greater education attained by second rotation	0.330	0.406	0.250	0.251
Covered by union in first outgoing rotation	0.0158	0.0102	0.0232	0.0463
3-year change in FHFA house price index	-12.81	35.63	-33.87	84.01
3-year change in state per capita income ($)	3909.6	3956.8	4132.1	6236.0
3-year change in state mid-skill employment	-0.00879	0.0252	-0.0187	0.0284
3-year change in state prime-age employment	-0.00972	0.0166	-0.0104	0.0220
Changed 1-digit occupation	0.346	0.383	0.313	0.348
Changed 1-digit industry	0.221	0.296	0.237	0.247
Changed 2-digit occupation	0.490	0.503	0.432	0.458
Changed 2-digit industry	0.353	0.395	0.333	0.360
Changed 3-digit occupation	0.541	0.566	0.489	0.514
Changed 3-digit industry	0.366	0.402	0.351	0.370
Changed 1-digit occupation to higher median wage	0.594	0.609	0.609	0.575
Changed 2-digit occupation to higher median wage	0.556	0.563	0.610	0.579
Changed 3-digit occupation to higher median wage	0.575	0.611	0.612	0.585
Observations	569	587	948	1,771

Notes: This table reports summary statistics for two sample groups ages 16–64 regarding the changes in key labor market indicators between rounds 4 and 8 of the CPS. Columns 1 and 2 display variable means for individuals living in states with no minimum wage increases between 2010 and 2019 and columns 3 and 4 display means for individuals living in states with an increase in the minimum wage between 2010 and 2019. Columns 1 and 3 include all individuals who were in their first outgoing rotation group from 2010–2012 and columns 2 and 4 include all individuals who were in their first outgoing rotation group from 2013–2018. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed, reported positive wages, were paid by the hour, did not have imputed wage rates in both of their outgoing rotations, and earned within $0.05 of the effective minimum wage in their first rotation.

Table A9. Correlations between Changes in Reported Hourly Wage and Macroeconomic Indicators for Individuals Employed in Both Rotations and Earning Within $0.05 of the Minimum Wage

Variable	
State ever had minimum wage change from 2010-2019	0.0415**
State had minimum wage increase between rotations	0.0905***
Year 2013–2018	0.133***
Share of months in sample employed	0.0197
1-year change in effective minimum wage ($)	0.125***
1-year change in FHFA house price index	0.139***
1-year change in state per capita income	0.0549***
1-year change in state mid-skill employment	0.00310
1-year change in state prime-age employment	-0.0289
Greater education attained by second rotation	-0.0354*
Covered by union in first outgoing rotation	0.0361*
3-year change in FHFA house price index	0.146***
3-year change in state per capita income ($)	0.0932***
3-year change in state mid-skill employment	0.0610***
3-year change in state prime-age employment	0.0685***
Changed 1-digit occupation	0.188***
Changed 1-digit industry	0.248***
Changed 2-digit occupation	0.171***
Changed 2-digit industry	0.249***
Changed 3-digit occupation	0.161***
Changed 3-digit industry	0.248***
Changed 1-digit occupation to higher median wage	0.197***
Changed 2-digit occupation to higher median wage	0.246***
Changed 3-digit occupation to higher median wage	0.220***
Observations	3,875

This table displays bivariate correlations between the change in reported hourly wages between outgoing rotations for individuals in the Current Population Survey and changes in other key macroeconomic and individual indicators. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both of their outgoing rotation groups and who earned within $0.05 of the effective minimum wage in their first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A10. Summary Statistics for Individuals Earning Within $0.05 of the Minimum Wage in Their First Rotation, Employed in Both Rotations

	(1)	(2)	(3)	(4)
Year of first outgoing rotation	2010–2012	2013–2018	2010–2012	2013–2018
Sample	No Minimum Wage Increase Between CPS ORG Rotations		Minimum Wage Increase Between CPS ORG Rotations	
Variable				
Increased wage from first outgoing rotation	0.608	0.674	0.812	0.860
Decreased wage from first outgoing rotation	0.0634	0.0525	0.101	0.0421
Same wage as first outgoing rotation	0.329	0.273	0.0870	0.0978
Share of months in sample employed	0.913	0.916	0.922	0.930
1-year change in hourly wage ($)	0.784	1.096	0.667	1.315
Size of hourly wage increase ($)	1.432	1.745	0.928	1.600
1-year change in effective minimum wage ($)	0	0	0.178	0.634
1-year change in FHFA house price index	0.791	19.39	-1.167	31.66
1-year change in state per capita income	1577.9	1774.8	1326.1	2400.6
1-year change in state mid-skill employment	0.00335	0.00743	0.00362	0.0113
1-year change in state prime-age employment	0.00396	0.00590	0.00377	0.00754
Greater education attained by second rotation	0.289	0.360	0.224	0.236
Covered by union in first outgoing rotation	0.0221	0.0224	0.00966	0.0489
3-year change in FHFA house price index	-24.23	46.29	-36.95	91.85
3-year change in state per capita income ($)	4155.6	4407.4	3372.1	6645.1
3-year change in state mid-skill employment	-0.0139	0.0275	-0.0216	0.0278
3-year change in state prime-age employment	-0.00943	0.0192	-0.0147	0.0219
Changed 1-digit occupation	0.324	0.353	0.333	0.360
Changed 1-digit industry	0.231	0.266	0.237	0.254
Changed 2-digit occupation	0.452	0.475	0.469	0.465
Changed 2-digit industry	0.344	0.367	0.324	0.370
Changed 3-digit occupation	0.508	0.538	0.512	0.518
Changed 3-digit industry	0.359	0.373	0.343	0.381
Changed 1-digit occupation to higher median wage	0.600	0.576	0.623	0.590
Changed 2-digit occupation to higher median wage	0.569	0.556	0.701	0.589
Changed 3-digit occupation to higher median wage	0.581	0.590	0.698	0.593
Observations	1,310	1,029	207	1,329

Notes: This table reports summary statistics for two sample groups ages 16–64 regarding the changes in key labor market indicators between rounds 4 and 8 of the CPS. Columns 1 and 2 display variable means for individuals living in states with no minimum wage increases between rotations and columns 3 and 4 display means for individuals living in states with at least one increase in the minimum wage between outgoing rotations. Columns 1 and 3 include all individuals who were in their first outgoing rotation group from 2010–2012 and columns 2 and 4 include all individuals who were in their first outgoing rotation group from 2013–2018. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed, reported positive wages, were paid by the hour, did not have imputed wage rates in both of their outgoing rotations, and earned within $0.05 of the effective minimum wage in their first rotation.

Table A11. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among Respondents with Self or Proxy-Reported Wages in Both Rotations

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.110***	0.151***	-0.001	-0.013
	(0.014)	(0.019)	(0.016)	(0.017)
3-year change in log FHFA House Price Index	0.167**	0.258**	0.217***	0.199***
	(0.078)	(0.106)	(0.067)	(0.066)
Changed 2-digit occupation between rotations	0.275***	0.067***	0.073***	-0.016*
	(0.013)	(0.010)	(0.009)	(0.009)
Changed 2-digit industry between rotations	0.209***	0.075***	0.023*	-0.042***
	(0.008)	(0.009)	(0.012)	(0.011)
Covered by union in first rotation	0.110***	0.077***	0.077***	0.061***
	(0.022)	(0.024)	(0.015)	(0.016)
Adjusted R-squared	0.169	0.055	0.018	0.011
Observations	10,591	7,824	12,405	11,066
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.128***	0.174***	-0.031	-0.054
	(0.034)	(0.045)	(0.037)	(0.042)
3-year change in log FHFA House Price Index	0.377*	0.523*	0.460***	0.448**
	(0.189)	(0.265)	(0.171)	(0.203)
Changed 2-digit occupation between rotations	0.585***	0.358***	0.309***	0.185***
	(0.029)	(0.031)	(0.027)	(0.028)
Changed 2-digit industry between rotations	0.771***	0.623***	0.173***	0.080***
	(0.035)	(0.038)	(0.025)	(0.025)
Covered by union in first rotation	0.153**	0.117	0.080**	0.051
	(0.061)	(0.076)	(0.037)	(0.039)
Adjusted R-squared	0.161	0.094	0.030	0.019
Observations	10,591	7,824	12,405	11,066

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is CPS ORG respondents ages 16-64 with self or proxy-reported wages in both rotations who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A12. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among Respondents With Self-Reported Wages In Both Rotations

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.189***	0.238***	-0.022	-0.032
	(0.020)	(0.028)	(0.024)	(0.025)
3-year change in log FHFA House Price Index	0.231**	0.264**	0.176*	0.127
	(0.093)	(0.122)	(0.090)	(0.088)
Changed 2-digit occupation between rotations	0.284***	0.121***	0.060***	-0.023**
	(0.019)	(0.017)	(0.012)	(0.011)
Changed 2-digit industry between rotations	0.156***	0.031*	0.014	-0.045***
	(0.015)	(0.016)	(0.015)	(0.015)
Covered by union in first rotation	0.128***	0.096***	0.075***	0.062***
	(0.032)	(0.030)	(0.022)	(0.022)
Adjusted R-squared	0.158	0.082	0.014	0.010
Observations	3,416	2,651	7,233	6,543
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.131	0.176	-0.084	-0.106
	(0.100)	(0.121)	(0.063)	(0.068)
3-year change in log FHFA House Price Index	0.498*	0.643	0.264	0.200
	(0.279)	(0.393)	(0.160)	(0.171)
Changed 2-digit occupation between rotations	0.709***	0.531***	0.305***	0.207***
	(0.056)	(0.060)	(0.036)	(0.035)
Changed 2-digit industry between rotations	0.675***	0.532***	0.177***	0.105***
	(0.082)	(0.087)	(0.035)	(0.034)
Covered by union in first rotation	0.222	0.183	0.017	-0.009
	(0.159)	(0.191)	(0.049)	(0.053)
Adjusted R-squared	0.132	0.073	0.030	0.018
Observations	3,416	2,651	7,233	6,543

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is CPS ORG respondents ages 16-64 with self-reported wages in both rotations who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A13. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among Respondents Not Attending School in Both Rotations

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.135***	0.169***	0.002	-0.008
	(0.014)	(0.019)	(0.016)	(0.017)
3-year change in log FHFA House Price Index	0.174**	0.289***	0.204***	0.173***
	(0.072)	(0.084)	(0.054)	(0.054)
Changed 2-digit occupation between rotations	0.246***	0.072***	0.081***	-0.007
	(0.015)	(0.013)	(0.008)	(0.008)
Changed 2-digit industry between rotations	0.183***	0.057***	0.026**	-0.037***
	(0.008)	(0.009)	(0.010)	(0.009)
Covered by union in first rotation	0.103***	0.080***	0.074***	0.059***
	(0.025)	(0.021)	(0.016)	(0.015)
Adjusted R-squared	0.170	0.054	0.021	0.011
Observations	7,555	5,888	13,664	12,229
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.149***	0.191***	-0.013	-0.032
	(0.044)	(0.057)	(0.038)	(0.043)
3-year change in log FHFA House Price Index	0.602***	0.913***	0.440***	0.415**
	(0.192)	(0.255)	(0.152)	(0.172)
Changed 2-digit occupation between rotations	0.641***	0.441***	0.310***	0.187***
	(0.040)	(0.044)	(0.023)	(0.024)
Changed 2-digit industry between rotations	0.698***	0.547***	0.194***	0.104***
	(0.046)	(0.052)	(0.023)	(0.022)
Covered by union in first rotation	0.160*	0.130	0.073*	0.048
	(0.091)	(0.104)	(0.037)	(0.041)
Adjusted R-squared	0.136	0.083	0.031	0.020
Observations	7,555	5,888	13,664	12,229

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is CPS ORG respondents not attending school in either rotation who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A14. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among Respondents Ages 25-54 in Both Rotations

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.143***	0.194***	0.015	0.009
	(0.018)	(0.022)	(0.019)	(0.020)
3-year change in log FHFA House Price Index	0.112	0.232**	0.138**	0.116*
	(0.091)	(0.101)	(0.064)	(0.060)
Changed 2-digit occupation between rotations	0.239***	0.073***	0.096***	0.009
	(0.019)	(0.017)	(0.010)	(0.009)
Changed 2-digit industry between rotations	0.165***	0.039**	0.024*	-0.037***
	(0.014)	(0.015)	(0.013)	(0.013)
Covered by union in first rotation	0.078***	0.090***	0.067***	0.047***
	(0.027)	(0.023)	(0.018)	(0.017)
Adjusted R-squared	0.121	0.062	0.020	0.007
Observations	4,753	3,735	10080	9,057
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.167***	0.235***	-0.006	-0.017
	(0.053)	(0.067)	(0.042)	(0.048)
3-year change in log FHFA House Price Index	0.354	0.615*	0.373**	0.345*
	(0.267)	(0.310)	(0.174)	(0.183)
Changed 2-digit occupation between rotations	0.691***	0.496***	0.343***	0.218***
	(0.046)	(0.049)	(0.032)	(0.033)
Changed 2-digit industry between rotations	0.653***	0.492***	0.179***	0.087***
	(0.059)	(0.062)	(0.026)	(0.024)
Covered by union in first rotation	0.172	0.198	0.063	0.026
	(0.148)	(0.170)	(0.046)	(0.047)
Adjusted R-squared	0.132	0.089	0.032	0.020
Observations	4,753	3,735	10080	9,057

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is CPS ORG respondents ages 25-54 who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A15. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among Respondents Not Receiving Overtime, Tips, or Commissions in Both Rotations

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.105***	0.141***	0.008	-0.007
	(0.014)	(0.021)	(0.014)	(0.016)
3-year change in log FHFA House Price Index	0.124	0.208*	0.206***	0.162**
	(0.085)	(0.110)	(0.066)	(0.070)
Changed 2-digit occupation between rotations	0.281***	0.057***	0.085***	-0.012
	(0.014)	(0.011)	(0.010)	(0.009)
Changed 2-digit industry between rotations	0.211***	0.067***	0.022*	-0.047***
	(0.010)	(0.011)	(0.011)	(0.011)
Covered by union in first rotation	0.103***	0.087***	0.089***	0.068***
	(0.022)	(0.026)	(0.016)	(0.016)
Adjusted R-squared	0.171	0.047	0.019	0.010
Observations	10,946	7,945	12,401	10,924
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.130***	0.174***	-0.029	-0.057
	(0.036)	(0.052)	(0.043)	(0.051)
3-year change in log FHFA House Price Index	0.441**	0.632***	0.441***	0.398**
	(0.189)	(0.233)	(0.163)	(0.195)
Changed 2-digit occupation between rotations	0.612***	0.373***	0.352***	0.215***
	(0.027)	(0.028)	(0.028)	(0.030)
Changed 2-digit industry between rotations	0.744***	0.586***	0.173***	0.072***
	(0.040)	(0.046)	(0.026)	(0.026)
Covered by union in first rotation	0.208***	0.217**	0.078*	0.040
	(0.067)	(0.083)	(0.043)	(0.044)
Adjusted R-squared	0.163	0.091	0.032	0.019
Observations	10,946	7,945	12,401	10,924

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is CPS ORG respondents ages 16-64 not receiving overtime, tips or commissions in both rotations who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A16. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among Male Respondents

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.095***	0.122***	-0.005	-0.011
	(0.016)	(0.021)	(0.024)	(0.025)
3-year change in log FHFA House Price Index	0.064	0.101	0.410***	0.387***
	(0.123)	(0.132)	(0.081)	(0.076)
Changed 2-digit occupation between rotations	0.274***	0.045***	0.083***	-0.012
	(0.021)	(0.015)	(0.015)	(0.015)
Changed 2-digit industry between rotations	0.214***	0.096***	0.035*	-0.032*
	(0.013)	(0.015)	(0.017)	(0.017)
Covered by union in first rotation	0.030	0.035	0.115***	0.105***
	(0.033)	(0.034)	(0.021)	(0.021)
Adjusted R-squared	0.176	0.058	0.031	0.019
Observations	4,808	3,575	6,417	5,679
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.138**	0.183***	-0.008	-0.019
	(0.053)	(0.068)	(0.061)	(0.068)
3-year change in log FHFA House Price Index	0.571*	0.813**	0.695***	0.667**
	(0.331)	(0.383)	(0.233)	(0.285)
Changed 2-digit occupation between rotations	0.662***	0.398***	0.315***	0.163***
	(0.044)	(0.047)	(0.037)	(0.036)
Changed 2-digit industry between rotations	0.799***	0.662***	0.221***	0.113***
	(0.050)	(0.056)	(0.032)	(0.033)
Covered by union in first rotation	-0.069	-0.110	0.214***	0.204***
	(0.067)	(0.088)	(0.055)	(0.058)
Adjusted R-squared	0.169	0.094	0.032	0.017
Observations	4,808	3,575	6,417	5,679

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is male CPS ORG respondents ages 16-64 who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A17. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among Female Respondents

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.114***	0.164***	0.006	-0.011
	(0.019)	(0.026)	(0.019)	(0.021)
3-year change in log FHFA House Price Index	0.209***	0.330***	0.059	-0.006
	(0.078)	(0.105)	(0.066)	(0.066)
Changed 2-digit occupation between rotations	0.284***	0.079***	0.079***	-0.016
	(0.010)	(0.010)	(0.011)	(0.011)
Changed 2-digit industry between rotations	0.207***	0.059***	0.028**	-0.042***
	(0.013)	(0.013)	(0.013)	(0.013)
Covered by union in first rotation	0.149***	0.105***	0.056**	0.033
	(0.024)	(0.029)	(0.024)	(0.021)
Adjusted R-squared	0.165	0.053	0.014	0.004
Observations	7,440	5,410	8,319	7,367
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.105**	0.153**	-0.039	-0.073
	(0.044)	(0.063)	(0.050)	(0.058)
3-year change in log FHFA House Price Index	0.455***	0.626**	0.288**	0.242
	(0.153)	(0.236)	(0.142)	(0.159)
Changed 2-digit occupation between rotations	0.570***	0.355***	0.315***	0.191***
	(0.036)	(0.036)	(0.038)	(0.041)
Changed 2-digit industry between rotations	0.761***	0.603***	0.174***	0.081**
	(0.050)	(0.054)	(0.037)	(0.037)
Covered by union in first rotation	0.348***	0.341***	-0.009	-0.053
	(0.086)	(0.105)	(0.051)	(0.049)
Adjusted R-squared	0.165	0.096	0.032	0.020
Observations	7,440	5,410	8,319	7,367

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is female CPS ORG respondents ages 16-64 who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A18. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among White Respondents

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.103***	0.145***	0.003	-0.008
	(0.014)	(0.020)	(0.015)	(0.017)
3-year change in log FHFA House Price Index	0.188**	0.242**	0.208***	0.166***
	(0.085)	(0.104)	(0.056)	(0.056)
Changed 2-digit occupation between rotations	0.273***	0.066***	0.083***	-0.011
	(0.015)	(0.010)	(0.008)	(0.008)
Changed 2-digit industry between rotations	0.208***	0.073***	0.030***	-0.038***
	(0.011)	(0.010)	(0.011)	(0.011)
Covered by union in first rotation	0.088***	0.075***	0.081***	0.064***
	(0.022)	(0.021)	(0.015)	(0.015)
Adjusted R-squared	0.168	0.056	0.021	0.011
Observations	9,897	7,336	12,210	10,881
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.111***	0.161***	-0.023	-0.044
	(0.039)	(0.052)	(0.042)	(0.048)
3-year change in log FHFA House Price Index	0.436**	0.568**	0.490***	0.467**
	(0.212)	(0.242)	(0.156)	(0.175)
Changed 2-digit occupation between rotations	0.605***	0.381***	0.329***	0.202***
	(0.029)	(0.032)	(0.025)	(0.026)
Changed 2-digit industry between rotations	0.775***	0.634***	0.217***	0.125***
	(0.037)	(0.039)	(0.025)	(0.024)
Covered by union in first rotation	0.116*	0.086	0.099**	0.075
	(0.061)	(0.073)	(0.042)	(0.045)
Adjusted R-squared	0.168	0.101	0.034	0.021
Observations	9,897	7,336	12,210	10,881

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is white CPS ORG respondents ages 16-64 who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A19. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among African American Respondents

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.094**	0.113**	-0.018	-0.003
	(0.036)	(0.053)	(0.037)	(0.042)
3-year change in log FHFA House Price Index	0.132	0.266	0.090	0.240
	(0.205)	(0.333)	(0.161)	(0.157)
Changed 2-digit occupation between rotations	0.274***	0.043	0.083**	-0.028
	(0.028)	(0.031)	(0.031)	(0.032)
Changed 2-digit industry between rotations	0.194***	0.016	0.039	-0.048
	(0.031)	(0.034)	(0.036)	(0.035)
Covered by union in first rotation	0.237**	0.219***	0.085*	0.049
	(0.098)	(0.044)	(0.044)	(0.043)
Adjusted R-squared	0.152	0.052	-0.011	-0.022
Observations	1,196	818	1,346	1,140
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.065	0.067	0.018	0.010
	(0.147)	(0.208)	(0.111)	(0.131)
3-year change in log FHFA House Price Index	0.414	0.754	0.945	1.109
	(0.742)	(1.177)	(0.693)	(0.709)
Changed 2-digit occupation between rotations	0.690***	0.408***	0.386***	0.216**
	(0.096)	(0.110)	(0.102)	(0.105)
Changed 2-digit industry between rotations	0.709***	0.500***	0.120	-0.016
	(0.109)	(0.122)	(0.108)	(0.111)
Covered by union in first rotation	0.385	0.364	0.073	-0.003
	(0.267)	(0.280)	(0.113)	(0.129)
Adjusted R-squared	0.165	0.092	0.029	0.024
Observations	1,196	818	1,346	1,140

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is African American CPS ORG respondents ages 16-64 who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A20. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among Hispanic Respondents

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.087***	0.138***	0.061**	0.068***
	(0.027)	(0.029)	(0.023)	(0.023)
3-year change in log FHFA House Price Index	0.315*	0.301**	0.164*	0.162**
	(0.160)	(0.133)	(0.091)	(0.079)
Changed 2-digit occupation between rotations	0.259***	0.060***	0.110***	0.021
	(0.031)	(0.022)	(0.020)	(0.020)
Changed 2-digit industry between rotations	0.179***	0.047**	0.059***	-0.003
	(0.018)	(0.018)	(0.015)	(0.017)
Covered by union in first rotation	0.010	-0.010	0.110***	0.116***
	(0.039)	(0.049)	(0.025)	(0.027)
Adjusted R-squared	0.146	0.060	0.034	0.011
Observations	3,249	2,484	2,512	2,218
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.146*	0.236**	0.079	0.088
	(0.079)	(0.095)	(0.059)	(0.066)
3-year change in log FHFA House Price Index	0.793	0.984*	0.551*	0.625
	(0.525)	(0.552)	(0.300)	(0.378)
Changed 2-digit occupation between rotations	0.482***	0.226***	0.335***	0.201***
	(0.035)	(0.032)	(0.050)	(0.056)
Changed 2-digit industry between rotations	0.589***	0.416***	0.232***	0.136***
	(0.065)	(0.067)	(0.039)	(0.039)
Covered by union in first rotation	0.081	0.085	0.140	0.145
	(0.061)	(0.070)	(0.100)	(0.108)
Adjusted R-squared	0.129	0.092	0.030	0.013
Observations	3,249	2,484	2,512	2,218

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is Hispanic CPS ORG respondents ages 16-64 who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A21. Summary Statistics for Individuals Earning Within $0.50 of the Effective Minimum Wage in Their First Rotation Who Appeared in Both Outgoing Rotation Groups and Only in Their First Outgoing Rotation Group

Sample	(1) Appeared in Both Outgoing Rotation Groups	(2) Appeared Only in First Outgoing Rotation Group
Variable		
State ever had minimum wage change from 2010–2019	0.696	0.680
State had minimum wage change in 12 months following first rotation	0.407	0.409
State minimum wage change 12 months following first rotation ($)	0.197	0.186
Effective minimum wage in first rotation ($)	8.123	8.082
Hourly wage in first rotation ($)	8.218	8.179
FHFA House Price Index in first rotation	374.5	361.6
State per capita income in first rotation ($)	46,901.8	46,090.1
Union membership or covered by union in first rotation	0.034	0.026
Age in first rotation	30.47	27.71
Female	0.598	0.595
Share Married in first rotation	0.254	0.176
Share with less than high school education in first rotation	0.349	0.292
Share with BA or higher education in first rotation	0.053	0.055
Observations	15,816	7,939

Notes: This table displays summary statistics for individuals who appeared in their first outgoing rotation and then were or were not present in their second outgoing rotation for individuals ages 16–64 in the Current Population Survey and changes in other key macroeconomic and individual indicators. Column 1 includes individuals who appeared in both outgoing rotations and column 2 includes individuals only present in their first outgoing rotation group. The sample is from the CPS Outgoing Rotation Groups and consists of individuals who were employed, reported positive wages, were paid by the hour, did not have imputed wage rates in their first outgoing rotation, and earned within $0.50 of the effective minimum wage in their first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A22. Relationship Between Minimum Wage Increases and Probability of Appearing in the First Outgoing Rotation but not the Second Outgoing Rotation

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
State increased minimum wage between rotations	-0.015		-0.019	
	(0.011)		(0.013)	
Size of minimum wage increase between rotations ($)		-0.024		-0.020
		(0.016)		(0.016)
Adjusted R-squared	0.061	0.061	0.085	0.085
Observations	23,755	23,755	28,829	28,829

Notes: This table displays regression results examining the relationship between sample attrition and minimum wage increases between rotations. The sample is CPS ORG respondents who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable is a dichotomous indicator equal to 1 if a respondent was in their first outgoing rotation group, but not their second and 0 if they appeared in both outgoing rotation groups. Columns 1 and 2 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Columns 3 and 4 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than the effective minimum wage. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A23. Relationship Between Minimum Wage Increases Between Rotations and Unemployment in Second Rotation

	(1)	(2)
	Dependent Variable: Became unemployed in second rotation	
	Workers earning within $0.50 of the min wage	Workers earning $5—$7 more than min wage
State increased minimum wage between rotations	0.002	-0.016*
	(0.013)	(0.009)
3-year change in log FHFA House Price Index	0.061	-0.110**
	(0.075)	(0.042)
Covered by union in first rotation	-0.053***	-0.025***
	(0.019)	(0.008)
Adjusted R-squared	0.005	0.007
Observations	12,248	14,736

Notes: This table displays regression results examining transitions to unemployment between rotations in states passing minimum wage increases. The sample is CPS ORG respondents who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable is a dichotomous indicator equal to 1 if a respondent became unemployed in their second outgoing rotation group and 0 otherwise. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A24. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among Respondents Among Respondents in States With Minimum Wages $8.50 or Higher as of Their First Rotation

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.155***	0.225***	-0.024	-0.029
	(0.047)	(0.049)	(0.040)	(0.040)
3-year change in log FHFA House Price Index	0.127	0.446	0.162	0.087
	(0.220)	(0.292)	(0.320)	(0.342)
Changed 2-digit occupation between rotations	0.273***	0.051***	0.076***	-0.017
	(0.012)	(0.012)	(0.013)	(0.014)
Changed 2-digit industry between rotations	0.186***	0.026*	0.037	-0.034
	(0.014)	(0.014)	(0.023)	(0.024)
Covered by union in first rotation	0.059**	0.022	0.093**	0.070*
	(0.026)	(0.026)	(0.036)	(0.036)
Adjusted R-squared	0.155	0.049	0.013	0.002
Observations	3,168	2,389	2,618	2,322
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.274***	0.388***	-0.031	-0.048
	(0.081)	(0.092)	(0.096)	(0.107)
3-year change in log FHFA House Price Index	-0.006	0.444	2.244**	2.327**
	(0.655)	(1.019)	(0.884)	(0.862)
Changed 2-digit occupation between rotations	0.633***	0.357***	0.244***	0.100*
	(0.052)	(0.053)	(0.047)	(0.053)
Changed 2-digit industry between rotations	0.694***	0.495***	0.265***	0.153**
	(0.051)	(0.057)	(0.056)	(0.061)
Covered by union in first rotation	0.029	-0.050	0.054	0.007
	(0.077)	(0.087)	(0.073)	(0.074)
Adjusted R-squared	0.153	0.080	0.028	0.015
Observations	3,168	2,389	2,618	2,322

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is CPS ORG respondents ages 16-64 living in states with a minimum wage of $8.50 or higher in their first rotation who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than the effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1

Table A25. Relationship Between Minimum Wage Increases and Earnings Increases Between Rotations Among Respondents Among Respondents in States With Minimum Wages Below $8.50 as of Their First Rotation

	(1)	(2)	(3)	(4)
	Workers earning within $0.50 of the min wage		Workers earning $5—$7 more than min wage	
	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations	Workers employed in the first outgoing rotation	Workers employed in both outgoing rotations
	Panel A DV: Earned higher wages in second rotation			
State increased minimum wage between rotations	0.098***	0.122***	0.003	-0.004
	(0.017)	(0.020)	(0.019)	(0.021)
3-year change in log FHFA House Price Index	0.132	0.226*	0.182***	0.141**
	(0.081)	(0.115)	(0.066)	(0.064)
Changed 2-digit occupation between rotations	0.278***	0.067***	0.085***	-0.011
	(0.017)	(0.013)	(0.010)	(0.009)
Changed 2-digit industry between rotations	0.220***	0.092***	0.031**	-0.037***
	(0.012)	(0.013)	(0.013)	(0.012)
Covered by union in first rotation	0.123***	0.108***	0.077***	0.061***
	(0.031)	(0.034)	(0.015)	(0.016)
Adjusted R-squared	0.167	0.047	0.020	0.010
Observations	9,080	6,596	12,118	10,724
	Panel B DV: Size of wage increase in second rotation ($)			
State increased minimum wage between rotations	0.105*	0.135*	0.043	0.040
	(0.054)	(0.070)	(0.041)	(0.048)
3-year change in log FHFA House Price Index	0.455**	0.694**	0.397***	0.360**
	(0.222)	(0.281)	(0.142)	(0.169)
Changed 2-digit occupation between rotations	0.599***	0.379***	0.340***	0.205***
	(0.031)	(0.031)	(0.028)	(0.028)
Changed 2-digit industry between rotations	0.808***	0.674***	0.190***	0.093***
	(0.046)	(0.049)	(0.026)	(0.024)
Covered by union in first rotation	0.254**	0.280**	0.097**	0.070
	(0.105)	(0.128)	(0.039)	(0.043)
Adjusted R-squared	0.167	0.047	0.020	0.010
Observations	9,080	6,596	12,118	10,724

Notes: This table displays regression results examining whether workers are likely to report earning higher wages in states passing minimum wage increases. The sample is CPS ORG respondents ages 16-64 living in states with a minimum wage below $8.50 in their first rotation who had their first outgoing rotation between 2010 and 2018, were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates. Each observation receives equal weight in each regression. The dependent variable in Panel A is a dichotomous indicator equal to 1 if a respondent reported earning a higher hourly wage in their second outgoing rotation group compared with their first outgoing rotation group. The dependent variable in Panel B is the size of the wage increase in the second rotation with individuals not receiving increases coded as 0. Column 1 includes respondents who were employed in their first outgoing rotation group and reported earning within $0.50 of the effective minimum wage. Column 2 restricts the sample from column 1 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. Column 3 includes respondents who were employed in their first outgoing rotation group and reported earning $5 to $7 more than the effective minimum wage, and were paid by the hour and had non-imputed wages if they were employed in their second rotation. Column 4 restricts the sample from column 3 to respondents who were employed and reported positive wages, were paid by the hour, and did not have imputed wage rates in both rotations. All specifications include state, year, month, and year-month fixed effects based on the first rotation. Standard errors clustered by state in first rotation. *** p<0.01, ** p<0.05, * p<0.1