When Hours Decline: Tides of Change in Low-wage Labor Markets

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Abstract

Using data from the Panel Study of Income Dynamics for 1997 through 2013, we explore adjustment strategies used in low-wage labor markets when hours decline, and we document the features that characterize flows of workers through these markets over time. We find that half of the population moves through these markets at some point in their lives. Yet only one percent of workers are permanently in low-wage jobs. The 17 percent who are permanently in "low-or-zero-wage" status show high rates of cycling in and out of unemployment, temporary layoff, education, disability status, temporary retirement and keeping house, thus demonstrating a labor force that is in constant motion.   Yet, for over 45 percent of men and over 30 percent of women, some of that mobility is upward into higher-wage positions, suggesting that much of the movement reflects low rewards and poor work conditions. We identify 35 possible paths during the Great Recession from employment to loss of employment and back to employment by 2013, and we explore several less successful sequences ending with no job by 2013. The investigation shows that certain sequences are much more common for recent holders of low-wage jobs than for others. Workers recently in higher-wage jobs show more success in returning to employment whether coming from temporary layoff, unemployment or a stint out of the labor force, regardless of the type of non-wage activity. Men starting from low-wage jobs are more likely than others to report being unemployed in two consecutive survey years and to end up still unemployed by 2013. However, we show that recession-induced declines in hours stem largely from decreased weeks worked or lower average weekly hours rather than from a drop in the probability of working in a given year. We also find evidence of some offsetting, recession-induced increases in overtime hours for low-wage single women who head households. These findings suggest that recessionary losses are distributed in multiple ways, very few of which culminate in a worker losing *all* annual hours of work, even for those in low-wage jobs. However, for those starting from higher-wage positions, average job tenure *rises* during recessions. In contrast, the lack of security in low-wage markets shows up not only as fewer years of tenure, but also as tenure that *declines* by about a quarter of a year for each percentage point rise in state unemployment rates. Many of the traits that we document can be masked by cross-section snapshots. With longitudinal analysis, the picture takes new shape, showing a constant churning of the labor force and multiple strategies for adjusting to shocks. In such a world, higher-wages might help transform secondary work into jobs that promote attachment, bring lower turnover, and yield gains in productivity. This potential for improving the performance of low-wage markets suggests new ways to think about the possible consequences of minimum-wage hikes.

Dramatic changes in the U.S. labor market constitute a growing "national crisis," according to many accounts. Those reports point to men of prime working age who have no steady connection to paid work and men who have dropped out of the labor force entirely. [1] (Eberstadt 2016) Parallel stories report both women and men unable to sustain families on minimum-wage earnings. Both developments suggest an urgent need for attention to these markets. While some contend that hiking the minimum wage would help, others worry that a higher minimum wage would only push jobs further out of reach for those least prepared for the modern world of work. [2] (Belman & Wolfson 2014; Neumark & Wascher 2008) We argue that these debates would benefit from a closer look at how low-wage labor markets operate when responding to shocks. Are jobs simply wiped out, or are hours and work conditions altered to reduce layoffs? Do shocks fall on otherwise stable low-wage markets or are such markets typified by volatility and a constantly changing workforce? To what extent are workers dropping out of the workforce completely as opposed to cycling in and out for a variety of reasons?

The growing literature on puzzles confronting minimum wage research gives these questions heightened importance. Why, for example, do minimum wage studies frequently find small and insignificant impacts on jobs? Could the volatility faced by low-wage sectors spur "multiple paths of adjustments" and explain the small to insignificant jobs effects found in some minimum wage studies? [3] (Hirsch, Kaufman and Zelenska 2015) Would the most vulnerable people still lose an already tenuous attachment to steady work, or would higher wages transform secondary jobs, with negative traits, into jobs more like those in the primary sector, with increased worker attachment and less costly turnover?

In addressing these issues, we argue that snapshots of the labor market based on short-term cross-section data can hide central features of markets. In particular, they risk missing the strategies for adjusting to shocks and understating the flows of workers through these markets over time. To capture such changes, we use data from the Panel Study of Income Dynamics (PSID) for the period 1997 to 2013 and document the alterations in labor-market status as work lives and family lives unfold.

In recent years, the PSID has collected information every other year rather than annually. Yet that limitation is outweighed by the ability to follow the same people from survey to survey and to include years before, during, and after the Great Recession. Exploiting the panel nature of the data, we explore what can be learned by following people as they navigate their way in and out of low-wage jobs over a substantial period of time. Our weighted sample includes observations on about 7,000 individuals per year, ages 19 to 64. (See Appendix Table A1 and Appendix Table A2) We take advantage of the PSID's particularly high level of detail on the labor-market activities of wives, husbands and single women who head households.

Section I explores the distinction between permanent and temporary low-wage status. Section II compares transition patterns among labor-market categories for workers starting from low- and higher-wage jobs. Section III links the observed patterns to increased labor market slack during the Great Recession and tracks long-run sequences of labor-force exits and re-entry. Section IV makes the statistical links explicit. Using regression analysis, we estimate the magnitude and statistical significance of adjustments that occur in both high- and low-wage markets when shocks cause hours to decline.

Permanent versus Temporary Low-Wage Status

It is common to talk about low-wage workers as if such workers come branded with a permanent status. However, our work suggests frequent movement is more typical, with workers often switching labor-market categories. Although the percent in each category may stay relatively stable over time, the actual people in those groups are frequently trading places, and that place-trading is a telling trait of this market.

In our study, we define "low wage" as a wage rate at or below the 30th percentile of the U.S. wage distribution. Although setting that cutoff is straightforward, identifying low-wage workers is not as easy. There really are no "low-wage workers," only low-wage jobs into which people are slotted during one or more periods of their lives. In our sample of over 7,700 people observed every other year from 1997 to 2013, 50 percent of those with wages are **never** low wage in the years we observe them while 50 percent are low-wage **at least once** during the sample years. (Table 1) The fact that a full 50% of the population marches through these markets at some point in their lives is a fact to keep in mind.

If we zero in on those who were **ever** low-wage (i.e. low-wage at least once), we find that even the people in this group spent only 42 percent of their earning years in low-wage jobs while 45 percent of their earning years were spent in higher-wage positions.   As for those "stuck" in permanent low-wage status, we find that those cases are rare. Only 4.4 percent were low-wage in all years.   In fact, if we limit our focus to those with positive wages who are observed in at least five of the nine survey years, the percentage with permanent low-wage status drops to 1.2 percent. It is in this sense that most people defy categorization as low-wage workers. They simply work in low-wage jobs at some point in their work lives.

Although permanent low-wage status seems like a rarity according to this preliminary look, one might argue for broadening the focus to those who have **either low-or-zero-wage** (LZW) in any given year. We explore that group next, and the results show why the panel analysis is so valuable.   Of those between the ages of 19 and 64, only 30 percent are **never** LZW in the years we observe them, while 70 percent are LZW at least once during the sample years. This is not surprising. Among those with zero wages, we see people who are attending school (9%), people who are temporarily or permanently retired (13%), people reporting a permanent disability (15%), the unemployed (26%), workers on temporary layoff (3%), and a substantial number who report their activity as "keeping house" (32%). Omitting these people from the analysis would cloud our understanding, as their status can be a result of unattractive opportunities in the labor market. In fact, we observe movement back into employment even from retirement and "permanent" disability status. Keeping these people in the analysis for now, we find that those seemingly "stuck" in permanent LZW status make up 16% of the sample. Among those who were **ever** LZW, 23 percent are LZW in **all** years observed. Of course, this means that the vast majority are *not* permanently stuck in that category. If we focus on those observed in at least five of the nine survey years, the *"permanently"* LZW group shrinks to 17%, and the percent *not* "stuck" rises to 83%. Again, most people who pass through the low-wage labor market defy categorization by permanent low- or zero-wage status. This is not to trivialize the consequences of low wages, especially for those who *are* trapped in that world. Instead, the point is that the low-wage job market is in constant motion, churning through a frequently changing workforce.

Labor-force Transitions in Low-Wage Markets for Workers of Prime Working Age

Labor force transitions are distinctly different for workers in low-wage jobs. If we examine transitions among four different categories of labor-market status, we see this quite clearly. We limit this look to workers in their prime work years of age 25 to 54 in order to minimize interference from late schooling and early retirement, and we report their transitions for all survey years from 1997 to 2013. For those with wages above the 30th percentile prior to each survey year, a full 93% remain employed from one survey year to the next. (Table 2) That figure drops to 84% for workers starting from low-wage jobs prior to each survey and to 82% for people with a recent history of a zero-wage year.

The flip side of this story is the movement from employment to being unemployed or out of the labor force (OLF). For the higher-wage group, the percentage moving from employment to OLF or unemployment is relatively low. While 2.9 percent become unemployed, 3.4 percent exit the labor force. Such transitions are more than twice as high for workers starting from low-wage positions (15%) and nearly three times as high for those reporting a year of zero wages in the recent past (17%). Importantly, exits from employment into OLF status are highest, and substantially so (10.4%), for the latter group.

Higher-wage workers fare better if placed on temporary layoff. For those who recently held a position paying above the 30th percentile, 68 percent move back into employment after a temporary layoff. The corresponding figure for those recently in a low-wage job is 59 percent. Recent higher-wage status also provides an advantage to the unemployed, with 67 percent reporting employment in the subsequent survey year, compared with 57 percent for those with a recent history of a low-wage job and 42 percent for those with a recent year without wages. For the last group, instead of finding employment, the majority of unemployed workers either remain unemployed or drop out of the labor force (57%). Remaining unemployed or dropping out of the labor force also characterizes 41 percent of unemployed workers who recently held a low-wage job. For those recently in higher-wage jobs, the corresponding figure drops to 32%.

Even leaving OLF status appears easier for those who held a higher-wage job before dropping out the labor force. Among those with higher wages prior to their OLF status, 49 percent are back at work by the subsequent survey year. For those starting from low-wage jobs prior to OLF status, the figure dips to 42 percent, while for those with a zero-wage year prior to the OLF status, only 21 percent move back to work by the next survey year. The figures for these 25-to-54-year-olds remain basically unchanged if we remove from the analysis persons reporting permanent disability, retired persons, and students.

Women in all three wage categories are much more likely than men to move to OLF status from employment, unemployment, or temporary layoff and to remain OLF once there. (See Appendix Table A3) Yet the likelihood of moving from these labor-force categories into OLF status is largest for the women reporting low or no wages in the recent past. If recently in a low-wage job, 20 percent of unemployed women compared with 7 percent of unemployed men left the labor force after becoming unemployed. The figures jump to 33 percent and 20 percent respectively for women and men if their recent past includes a zero-wage year. The unemployed men, while less likely to exit the labor force, are more likely than the women to remain unemployed.

Movement between low- and higher-wage jobs is another common form of transition, and one that challenges use of the label "low-wage worker." Workers with wage rates below the 30th percentile often move up, suggesting that the job, rather than the worker, determines the wage status. Mobility of that type can result from upgrading and downgrading of hiring standards during business cycles. The pattern is one emphasized by macroeconomic theories of cyclical labor-market mobility and is known for increasing the chances for women, workers of color and those with less education to gain a permanent foothold in markets that would otherwise be out of reach.[4] (Okun 1981) Between any two survey years, 35 percent of low-wage women and 47 percent of low-wage men move from a wage that is at or below the 30th percentile to a wage that is above that cutoff. (Table 3) That type of upward mobility is the least likely for low-wage women who are single heads of households. Yet, even for that group, 33 percent make such wage gains from one survey year to the next.

We also note downward mobility. While only 8 percent of high-wage men drop from the higher- to the lower-wage category from one survey year to the next, 13 percent of higher-wage women experience such wage erosion. Again, wives fare better than single women who head households. While 11 percent of high-wage wives drop from higher- to lower-wage positions, 16 percent of high-wage single women who head households exhibit this type of downward mobility in wage status.

The churning in low-wage markets is also visible in the data on job tenure or "years with present employer." Accumulating multiple years with the same employer is much less likely for those in low-wage jobs. For all persons, average tenure is 5.9 years. That figure drops to 3.3 years for workers who are in low-wage jobs and to 2.2 years for workers who are in low-wage jobs 80% of the time. The higher volatility can also be characterized by the number of times people change their labor-market status. Taking advantage of the long-period panel data, we focus here on those observed in all nine survey years between 1997 and 2013. While workers recently in higher-wage jobs change labor force status 11% of the time, those recently in low-wage jobs switch labor force status 18% of the time.   The figures are higher for women than for men and highest (20%) for single women who head households.

The Great Recession and Long-Run Sequences of Employment Exits and Re-entry

While the constant movement that we have documented is interesting in and of itself, we have yet to connect the observed movement to national or local shocks that frequently jolt low-wage markets. We do this now in two stages. First we explore the period of the Great Recession, tracking sequences of moves during the slump and ensuing recovery. Second, we use regression analysis to estimate the magnitude and statistical significance of links between market adjustments and increased labor-market slack.

We explore sequences of moves starting in 2005, from well before the Great Recession; progressing through 2007 to 2009 when the recession gains full force; continuing into 2009 to 2011 when the recovery starts; and ending with 2011 to 2013, when the recovery gathers momentum. We consider all workers between the ages of 19 to 64 in order to include school and retirement reactions to the changing market conditions. In addition, we group workers by the wage reported in a year just prior to the survey-years being

explored. From 2005 to 2007, despite being a time of relative stability, the risk of moving from employment to unemployment is already higher for workers recently in low-wage jobs (4% versus 2%). More important, this risk more than doubles from 2007 to 2009, reaching 9 percent in that period and remaining elevated between 2009 to 2011 (7%) and 2011 to 2013 (6%). The rise for workers recently in higher-wage jobs is much more modest.

Moves from employment to retirement display a gradual upward trend from 2005 to 2013 for those recently in low-wage jobs and show a substantial jump, from 1.8 percent to 4.2 percent, in the depths of the recession for those recently reporting a zero-wage year.   Some of these same workers re-enter the labor force at a later date.

Leaving employment for "keeping house" becomes less common during the recession, likely reflecting the greater reluctance to leave a job when economic uncertainty threatens livelihoods and savings. The fall-off in this move from employment to "keeping house" is most evident for those recently reporting a year of no wages. Transitions from employment to student status move in the opposite direction for this group. A rising percent of those reporting a recent experience of low or zero wages move from employment to education as the job market worsens in 2007-2009.   The same is true for those who begin the period unemployed. They show an increasing tendency to enter student status as the recession unfolds.   We see signs that this pays off when we view sequences that include student-to-employment moves in the final years of our sample.   By 2011-2013, we see a notable rise in the percentage entering employment from student status. Plus, those who had a recent year of zero wages appear to remain in school longer just after the recession. This is suggested by the increased figures, post-recession, in the "Student to Student" transition for this group.

To carefully document the sequences of moves driven by the Great Recession, we identified 35 possible paths from employment in 2007 to loss of employment in 2009 or 2011 and back to employment by 2013.   This method shows that certain sequences are much more common than others for workers starting from low-wage jobs. Moving from employment in both 2007 and 2009, to temporary layoff in 2011, and

back to employment in 2013 is less typical for men and women starting from low-wage jobs than for those starting the period in higher-wage positions. (Appendix Table A4)   A similar sequence, this time with employment in 2007-09 interrupted by unemployment in 2011, is much more common for all. Among men who start and end the period employed, over a fifth from both low- and high- wage jobs report this series of changes, a sequence that is less common for low-wage women. By far the most common sequence for those who start and end the period with a job is employment in 2007, followed by unemployment in 2009 with a return to employment in 2011 and 2013. Comparison of the two sequences shows that, for men starting from low-wage jobs, unemployment hits earlier. Reports of unemployment in two consecutive survey years describes yet another and more difficult path back to employment. A much larger percentage of men from low-wage jobs report this sequence of events (17%). The comparable figure for men recently in a better-paying job is much lower (6 %). In contrast, after employment ends, the women are more likely to report "keeping house" as their activity.

A small but interesting group consists of people who, after starting the period employed, move into retirement or disability status and then re-enter the labor force by 2013. If we combine all those who make temporary moves from employment into retirement or disability status and back to employment again, we find that more low-wage women (7.2%) than low- or higher-wage men (6%) make such recession-timed moves.[5]

A larger group of people drop out of the labor force during the recession to "keep house" or pursue education. We focus first on the moves from employment to education and back to employment again. A higher percent of those from low-wage positions follow that path in the recession years.   Summing over the high-unemployment years 2009-2011, we find 13% of women and 11% of men from low-wage jobs making such moves compared to 9% of higher-wage workers.

So far, we have focused on those who succeeded in returning to employment by 2013. Yet many paths end in less success, without a return to employment by 2011. Several patterns are worth noting. First, temporary layoff does not guarantee a return to employment, even for those in higher-wage positions.

"Temporary" layoff is not always temporary. Second, even as the economy recovers, labor markets lag behind. Third, the lag in labor markets means that, despite staying employed in 2007 and 2009, 10% of the men from low-wage jobs report unemployment in the final two survey years, 2011 and 2013. That extended unemployment is again less common for women and for those who recently held a higher-wage job. Fourth, while unemployment in 2011 often ends in retirement by 2013, those starting from low-wage jobs are likely to move from unemployment in 2011 into disability status in 2013. This difference is understandable given the lower savings, smaller pensions and greater physical demands typical of low-wage work. Women who recently held low-wage jobs are again more likely to follow a report of unemployment in 2011 with a report of "keeping house" in 2013. Fifth, moving from employment to student status in 2009 or 2011 is no guarantee of employment by 2013. Among those who are no longer in school in 2013, 7.1 percent of women and 6.3 percent of men from low-wage jobs have not returned to employment by 2013 even after ending their student status in 2009 or 2011. For those recently holding a better-paying job, ending student status, but failing to become employed, is much more unusual. (2%).

When Hours Decline: Estimating the Variety and Scale of Adjustments in Low-wage Markets

We now make the statistical links explicit by estimating the magnitude and significance of adjustments in low-wage markets when hours decline. Studies of labor markets often report estimates of the "elasticity of employment" with respect to specific economic shocks. In efforts to determine the meaning of those studies, some in the popular press interpret a negative elasticity with respect to changes in the minimum wage as jobs wiped out. Yet a decline in hours can be distributed in multiple ways, not all of which culminate in jobs eliminated. For example, a simple regression analysis of annual hours on state unemployment rates shows that a single percentage point increase in those rates causes annual hours to fall by 8 percent overall, 5 percent for workers who are low-wage at least 50 percent of the time that we observe them and 17 percent for workers LZW at least 50 percent of the years observed. (Table 4) Some of those hours show up as reduced hours per week, which fall 4.0 percent, 3.3 percent and 10 percent respectively for all persons and for the two wage categories. Other adjustments reflect fewer weeks worked per year, 4.4 percent, 2.6 percent and 9.1 percent respectively. By contrast, the probability of working (i.e. having positive hours or not) falls

by about .0096, .0067 and .02 respectively, starting from a proportion with positive hours of 0.84 for the sample as a whole.[6] Though significant, those declines appear economically small.   Likewise, the probability of losing all annual hours of work worsens by .004 for all persons and by .006 for those recently in a low-wage job.[7] Although not reported in Table 4, we also find evidence of offsetting *increases* in hours of overtime particularly for low-wage single women who head households.[8] The low-wage market thus has multiple ways to adjust to economic shocks, and lost hours of one type can be partially offset by increased hours elsewhere.

One might reasonably argue that, without controls for confounding factors, these estimates are less than precise and likely to be biased. Two points are relevant here: By controlling for personal characteristics, we implicitly assume that all of those personal traits are fixed. Yet one point of this study has been to suggest that markets and people often change and that markets can spur those changes in behavior. Second, while we do find that controls for personal characteristics alter the magnitude and significance of the estimates, this is perhaps the less notable finding. A fact that we find much more interesting is the role that tenure-on-the-job (or what PSID calls "years with present employer") plays in influencing estimated effects by gender, family status and wage category. (Table 5) Our controls are the following: age, age-squared, high school education, college, number of children, age of the youngest child, whether white, and whether low- or zero- wage in a prior, but recent, survey year.   In addition, we interact the dummy variable for the LZW category with the state unemployment rates in order to estimate the extra impact of unemployment on people with recent LZW status, and we show the results both with and without the tenure variable.

Here is what we find most telling.   For both women and men, for male household heads, and for wives and single women who head household, the impact of recently holding a low-wage job significantly and substantially increases the impact of rising unemployment rates on the measures of hours discussed above. However, with addition of the tenure variable, the statistical significance disappears for all but the men, and even for them the magnitude drops dramatically.   The meaning of this becomes clear when we substitute tenure as the dependent variable. (Table 6)   For most workers, tenure increases when unemployment rates rise.   Workers hold on to jobs longer when the economic future is uncertain, and employers hoard favored

workers, protecting their investment in skilled workers when recessions hit. For the low-wage group, in contrast, we see a significant decline in tenure equal to a quarter of a year for each percentage point rise in the unemployment rate. While low-wage workers who have been with an employer for several years might ride out an economic shock, adjusting through reduced weeks per year or reduced hours per week, and offsetting with extra overtime, those with less than a quarter year of tenure will be out of luck, even with a single percentage point increase in the state's unemployment rate. If the rise is more substantial, those who have accumulated more tenure on the job will start to fare poorly.

Putting It All in a Larger Context

We have shown that permanent and uninterrupted low-wage work is less common than low-wage work interrupted by spells outside of that market. These interruptions include periods of nonparticipation, unemployment, education, home-making, and forays into better-paid work. Even if we limit our view to people who are observed in their prime working years and observed in nine of the survey years from 1997-2013, we still see this stop-start pattern of engagement with low-wage jobs. Those who were ever-low-wage average about one third of their observed years in low-wage positions. These same individuals average about 16 percent of their observed years with zero wages. In fact, one could view the percent of time in zero-wage status as a function of the low wages and poor work conditions that these jobs provide. Of course, a reaction to poor opportunities is only one way to interpret the data. The stop-start nature of these jobs also reflects the vulnerability of this market to bombardment from economic shocks.

One view that we question is that prime-age men are disappearing completely from participation in the labor market. Fixed snapshots of cross-section data contribute to this view. Panel data reveals that the men who make up that group of supposed non-participants are revolving in and out of the low-wage market. In other words, a different set of individuals makes up that non-participant group in any given time period. Instead of complete withdrawal from the labor market, as suggested by the cross-section data, these men seem to take turns dipping into the market and then leaving it, a behavior that may be perfectly rational given the working conditions that characterize most low-wage jobs. We observe a continual flow of people from

low-wage to higher-wage jobs, from wage to no-wage activities, and back again, and that seems the more typical pattern in these labor markets. That observation belies the static "men-permanently-without-work" story that suggests something is wrong with the men themselves.

Our investigation also suggests the significance of an older story, one in which a rational response to poor job conditions is high job turnover and low attachment to jobs. According to that theory, primary sector jobs, with on-the-job training, skill accumulation, stable employment, job ladders, decent wages and fringe benefits, encourage attachment between employer and employee while secondary jobs, with little training or skill acquisition, no promise of stable employment, zero chance for advancement, low wages and few fringe benefits, discourage long-term attachment between employers and workers. In most versions of this theory, it is not the workers who bring poor traits to the jobs, but, instead, it is the typical design of the job that promotes high turnover, lack of investment in workers, and lack of attachment. Worker behavior is understood as a rational reaction to the poor conditions and lack of opportunity that these jobs create. An interesting policy possibility emerges from this perspective. As Zuberi creatively demonstrates in his book, "Differences that Matter," the same job task, even one performed for the same hotel chain, can offer dramatically different work conditions, benefit packages, wages, and opportunities if performed under vastly different policy regimes.[9] (Zuberi 2006) For example, the hotel workers in Seattle in 2001 faced typical, secondary-market conditions and poor job incentives while, just across the border in Vancouver, hotel workers for the same company had benefits and job conditions less characteristic of the secondary market. The picture of low-wage markets that emerges from our analysis aligns with this concept of using higher wages and pro-labor policies to transform secondary work into jobs that promote attachment, lead to lower turnover, and perhaps yield gains in productivity. That approach offers an intriguing possibility for addressing the traits of low-wage markets that we have documented here and for thinking in new ways about the possible consequences of minimum-wage hikes.

Table 1: Temporary versus Permanent Low-Wage Status

Category	All persons, ages 19-64
Never low-wage	49.8%
Ever low-wage (at least once during the sample years)	50.2%
Percent of earning-years in low wage jobs	41.5%
Percent of earning-years with higher-wages	44.7%
Low-wage all years observed	4.4%
Observed at least 5 of the 9 survey years	1.2%
Ever low-or-zero-wage (at least once during the sample years)	70.0%
Never low-or-zero-wage	30.0%
Low-or-zero wage all years	16.4%
Observed at least 5 of the 9 survey years	12.0%
Of those ever low-or-zero wage	23.4%
If observed at least 5 of the 9 survey years	16.6%

Employment Status	Zero wage	Positive or zero wage
Working	0.0%	76.9%
Temporarily laid off	3.0%	0.7%
Looking for work, unemployed	26.3%	4.8%
Retired	13.0%	4.5%
Permanently disabled	15.2%	3.4%
Keeping house	32.3%	8.0%
Student	8.5%	1.4%
Other	1.8%	0.4%

Source: Author's calculations based on extract drawn from the PSID for the survey years 1997 to 2013. All calculations use data weighted by the PSID family weights. Sample includes all persons, ages 19 to 64.

Table 2: Transitions Among Labor-Force Categories

Table 2a: High-Wage in Income Year t-3

	Employment Status, Survey Year t				
Employment Status, t-2	**Employed**	**Temporarily Laid Off**	**Unemployed**	**Out of the Labor Force**	**Total**
Employed	93.1	0.6	2.9	3.4	100%
Temporarily Laid Off	68.0	7.2	9.1	15.7	100%
Unemployed	66.9	1.2	20.3	11.6	100%
Out of the Labor Force	48.9	0.7	7.5	42.9	100%

Table 2b: Low-Wage in Income Year t-3

	Employment Status, Survey Year t				
Employment Status, t-2	**Employed**	**Temporarily Laid Off**	**Unemployed**	**Out of the Labor Force**	**Total**
Employed	84.4	0.9	6.3	8.4	100%
Temporarily Laid Off	58.6	4.1	12.6	24.6	100%
Unemployed	57.4	1.5	26.9	14.2	100%
Out of the Labor Force	42.3	1.3	7.9	48.5	100%

Table 2c: Zero-Wage in Income Year t-3

	Employment Status, Survey Year t				
Employment Status, t-2	**Employed**	**Temporarily Laid Off**	**Unemployed**	**Out of the Labor Force**	**Total**
Employed	82.0	0.8	6.8	10.4	100%
Temporarily Laid Off	33.4	0.0	40.2	26.4	100%
Unemployed	41.7	1.2	29.9	27.2	100%
Out of the Labor Force	20.7	0.3	4.8	74.2	100%

Notes: Author's calculations from the PSID for survey years 1997-2013. Sample includes all persons ages 25 to 54.

Table 3: Transitions between Low- and High-Wage Jobs by Gender and Family Status

Wage Status, relative to 30th Percentile, Year t-2	Wage Status relative to 30th Percentile, Year t		
	At or below	Above	
Women			
Low Wage	65.32	34.68	100%
Wage over 30th percentile	12.55	87.45	100
Men			
Low Wage	53.2	46.8	100
Wage over 30th	8.09	91.91	100
Single Women Household Heads			
Low Wage	67.44	32.56	100
Wage over 30th	15.72	84.28	100
Wives			
Low Wage	63.91	36.09	100
Wage over 30th	11.12	88.88	100
Not Wives or Household Heads			
Low Wage	61.54	38.46	100
Wage over 30th	16.67	83.33	100

Notes: Author's calculations from the PSID, survey years 1997-2013.
Sample includes all persons ages 25 to 54

Table 4: Impacts of a Percentage Point Change in State Unemployment Rates
(between year t and year t+2,   1997-2013)

Dependent Variable	All persons	Low wage at least 50% of the time	Low-or-zero wage at least 50% of the time.
Annual hours	-23.4 ***	-14.4**	-37.5 ***
ln(Annual hours)	-8.1%***	-5.3%***	-17%***
Average hours per week	-0.44 ***	-0.40 ***	-0.93 ***
ln(Average hours per week)	-4.4%***	-3.3%***	-9.6%***
Weeks per Year	-0.48***	-0.17	-0.81***
ln(Weeks per Year)	-4.4%***	-2.6%**	-9.1%***
Tenure in years [a]	0.69 ***	0.54 ***	0.46 ***
ln(tenure)	11%***	12% ***	12%***
Annual Overtime Hours [b]	4.8 ***	6.3*	6
ln(Overtime Hours)	0.7%	2.6%	0.7%
Annual Pay from extra jobs [c]	$68.70	$70.90	$70.00
Ln(Pay from extra jobs)	6.47%	-1.48%	-1.47%
Probability of working [d]			
Linear probability estimates	-0.00961***	-0.00668***	-0.02137***
Probit estimates	-0.00666 ***	-0.00516***	-0.01509***
Probability of losing all hours [e]			
Linear probability estimates	0.00374***	0.00609***	0.000937
Probit estimates	0.0025***	0.00461***	0.00583

NOTES: Based on data drawn from PSID, all persons ages 19-64, 1997 to 2013.
Calculations are panel estimates with individual and year fixed effects and data
weighted by PSID's longitudinal family weights. Significance tests use clustered robust
standard errors with clustering at the individual level.

a. Sample limited to wives and heads of households, with positive values for tenure;

b. Sample includes wives, heads of households, with positive values for overtime hours;

c. Sample limited to heads of households with positive values for pay from extra jobs;

d. Dependent variable equals 1 if hours are positive, zero if hours are zero;

e. Dependent variable equals 1 if change in hours from year t-2 to year t is negative
 and hours in year t are zero. Otherwise the dummy equals zero. (Zeros include
those who kept some hours, gained hours, or had no change in hours)

Key for significance levels: *p<0.10; **p<0.05; ***p<0.01

Table 5: The Interaction of Low-wage Status with State Unemployment Rates
(between year t and year t+2,   1997-2013)

Dependent Variable= Annual Hours	Male Household Heads				Female Household Heads				Wives			
	model a		model b		model a		model b		model a		model b	
State unemployment rate, (UR)	-11.27	***	-13.11	***	-12.17	*	-18.31	***	-6.92	*	-10.71	***
(If low-wage in t-2) x UR	-20.96	***	-12.12	**	-19.39	**	-7.80		-8.05		3.90	
If low-wage in t-2	25.11		20.83		35.63		10.70		-119.21	***	-129.44	***
Age	98.74	***	73.50	***	94.80	***	73.90	***	82.16	***	52.01	***
Age squared	-1.37	***	-1.12	***	-1.23	***	-1.05	***	-1.06	***	-0.78	***
High school	-78.26		-75.00		229.87	***	216.74	***	3.05		-9.39	
College	89.97	**	89.85	**	156.50	**	131.84	**	96.27	***	77.88	**
Children	-17.80	**	-6.59		-55.46	***	-44.50	**	-196.76	***	-176.52	***
Youngest	0.28		-0.91		1.12		1.97		12.62	***	12.86	***
White	35.28		20.86		-64.06		-62.06		12.00		23.11	
Tenure			25.85	***			37.77	***			37.00	***
Constant	520.01	***	944.50	***	-161.29		208.86		50.05		603.49	***
Number of Observations	35,729		35,521		15,356		15,288		29,968		29,819	

NOTES: PSID, all household heads and wives, ages 19-64, 1997 to 2013.   Calculations are panel
 estimates with individual and year fixed effects and data weighted by PSID's longitudinal family
weights. Significance tests use clustered robust standard errors with clustering at the individual level.
model a: excludes the tenure variable; **model b:** includes the tenure variable. * $p<0.10$;   **$p<0.05$;   ***$p<0.01$:

Table 6: The Impact of Unemployment and Low-wage Status on Tenure
(between year t and year t+2,   1997-2013)

Dependent Variable= Tenure	Male Heads of Households		Single-Female Heads of Households		Wives	
State unemployment rate, (UR)	0.08	**	0.17	***	0.10	***
(If low wage in t-2) x UR	-0.33	***	-0.30	***	-0.32	***
If low wage in t-2	0.09		0.57		0.23	
Age	0.95	***	0.56	***	0.83	***
Age squared	-0.01		0.00	***	-0.01	***
High school	0.13		0.07		0.29	
College	0.06		0.65		0.58	**
Children	-0.43	***	-0.30	***	-0.55	***
Youngest	0.05	***	-0.03		-0.01	
White	0.73	*	-0.42		-0.24	
Constant	-16.25	***	-9.31	***	-15.29	***
N	35,521		15,288		29,819	

Notes: Based on sample from PSID of all household heads and wives, ages 19-64, for the period 1997 to 2013. Calculations are panel estimates with individual and year fixed effects and data weighted by PSID's longitudinal family weights. Significance tests use clustered robust standard errors with clustering at the individual level. * $p<0.10$; **$p<0.05$; ***$p<0.01$

Appendix I: Tables

Table A1: Variables: Descriptive Statistics

Variable	Definition	Mean	Std. Dev.	Min.	Max.
Age	Age in years	41.85	12.50	19	64
anHRS	Annual hours of work	1576.82	964.91	0	5824
anWKS	Annual Weeks of work	37.86	19.15	0	52
AWH	Average weekly hours of work	34.35	19.10	0	112
Black	Proportion black	0.13	0.34	0	1
Children	Number of children in family	0.84	1.15	0	11
College	Dummy=1 if years of education is greater or =16	0.32	0.47	0	1
Ed	Education in years	13.35	2.80	0	17
ErnXTRA	Earnings from Extra Jobs (if positive)	$138.39	$269.26	0.01	$2,763
High school	Dummy=1 if years of education is greater or = 12	0.89	0.31	0	1
If low-wage	Dummy=1 if person is low-wage in prior survey year	0.24	0.42	0	1
LostALL	Dummy=1 if person lost all annual work hours	0.0553	0.2285	0	1
LRZ	Dummy=1 if person is low-or-zero-wage prior year	0.3620	0.4806	0	1
Observed	Number times observed in the sample	7.13	2.64	1	9
OT	Overtime work hours (if positive)	160.16	199.56	1	2704
PosHRS	Dummy=1 if person has positive annual work hours	0.8367	0.3697	0	1
Tenure	Years with Present Employer	5.93	8.18	0	49
UR	State unemployment rate in year t prior to survey year	6.1	2.1	2.2	14.4
Wage	Wage rate in real dollars, base year=2015	$27.57	$36.35	$0.01	$1,316.41
Low-wage	Wage rate below the 30th percentile	$8.39	$2.87	$0.01	$13.07
White	Proportion white	0.77	0.42	0	1
Youngest	Age of the youngest child	3.25	5.09	0	17

Source: Author's calculations from the Panel Study of Income Dynamics for survey years 1997 to 2013. All figures are weighted by PSID family weights.

Appendix I: Tables

Table A2: Weighted Observations by Gender, Age, and Family Status

Category	Number	Percent
Total	93,877	100%
by Gender		
Male	44,272	47.16%
Female	49,605	52.84%
by Family Status		
Single Female Heads of Households	14,091	15.01%
Not Heads of Households or Wives	9,961	10.61%
Wives	31,282	33.32%
Husbands or Single Male Heads of Households	38,543	41.06%
by Age Category		
Young Workers (ages 19 to 24)	9828	10.47%
Prime Working Age (25 to 54)	65835	70.13%
Older Workers (ages 55 to 64)	18214	19.4%

Source: Author's extract from the Panel Study of Income Dynamics for survey years 1997 to 2013. All figures are weighted by PSID family weights. Sample includes all persons ages 19-64.

Appendix I: Tables

Table A3:   Transitions Among Labor-Force Categories by Gender

a: High-Wage in Income-Year t-3

Employment Status, t-2	Employment Status, Survey Year t				
	Employed	Temporarily Laid Off	Unemployed	Out of Labor Force	Total
Employed					
Men	94.56	0.5	3.13	1.81	100%
Women	91.39	0.73	2.57	5.32	100
Temporarily Laid Off					
Men	67.9	9.09	11.99	11.03	100
Women	68.06	5.54	6.6	19.8	100
Unemployed					
Men	65.65	1.23	25.71	7.4	100
Women	68.75	1.24	12.45	17.56	100
Out of Labor Force					
Men	55.17	1.11	9.7	34.02	100
Women	46.49	0.51	6.67	46.33	100

b: Low-Wage in Income Year t-3

Employment Status, t-2	Employment Status, Survey Year t				
	Employed	Temporarily Laid Off	Unemployed	Out of Labor Force	Total
Employed					
Men	87.01	1.01	8.11	3.87		100%
Women	82.87	0.88	5.23	11.02	100
Temporarily Laid Off					
Men	62.16	10.13	19.4	8.31	100
Women	56.36	0.27	8.31	35.06	100
Unemployed					
Men	59.41	1.77	31.43	7.39	100
Women	55.68	1.33	22.96	20.03	100
Out of Labor Force					
Men	45.4	1.07	11.06	42.48	100
Women	41.75	1.39	7.25	49.62	100

(Continued on next page)

Appendix I: Tables

Table A3: (continued)

c: Zero-Wage in Income-Year t-3

Employment Status, t-2	Employment Status, Survey Year t				
	Employed	Temporarily Laid Off	Unemployed	Out of Labor Force	Total
Employed					
Men	87.73	1.07	7.01	4.2	100%
Women	76.68	0.54	6.55	16.23	100
Temporarily Laid Off					
Men	51.56	0	31.12	17.33	100
Women	0.35	0	56.84	42.81	100
Unemployed					
Men	42.41	1.37	35.99	20.24	100
Women	41	1.11	24.62	33.27	100
Out of Labor Force					
Men	21.61	0.02	6.94	71.42	100
Women	20.46	0.35	4.34	74.85	100

Notes: Author's calculations from the PSID, survey years 1997-2013. Sample includes all persons ages 25 to 54.

Appendix I: Tables

Table A4: The Great Recession and Long-Run Sequences of Employment Exits and Re-entry

Sequences of moves during the Great Recession and Recovery [a]				All Wage Groups	Low or Zero Wage in Previous Survey			Wage above 30th Percentile in Previous Survey
2007	2009	2011	2013		All	Women	Men	
E	E	T	E	3%	1.7%	2.4%	0.8%	4.5%
E	E	U	E	21.2	19.2	17.1	22.3	24.5
E	E	R	E	1.3	1.9	2.6	0.8	1.1
E	E	D	E	1.0	0.9	0.6	1.2	1.3
E	E	H	E	5.5	5.7	9.4	2.0	5.8
E	E	S	E	2.9	2.6	3.0	1.5	2.6
E	U	E	E	30.1	29.6	23.9	38.3	31.3
E	U	U	E	8.8	10.8	6.7	17.0	5.6
E	H	E	E	4.2	4.1	6.8	0	4.9
E	H	U	E	0.9	1.3	1.8	0.5	0.7
E	H	H	E	2.3	4.4	7.2	0	0.5
E	S	E	E	6.1	4.4	2.5	7.3	5.8
E	S	U	E	0.6	1.4	2.3	0	0
E	S	S	E	0.7	1.1	1.5	0.4	0.3
E	D	E	E	1.0	0.5	0.6	0.3	1.1
E	D	H	E	0.2	0.4	0.7	0	0
E	R	E	E	1.4	1.6	1.9	1.3	1.4
E	R	R	E	1.0	1.3	1.5	1.0	0.8
E	T	E	E	4.0	2.2	2.6	1.6	6.3

a. Sequences are defined in the key provided below.

Key: D=disabled; E=employed; H=keeping house; R=retired; S=student; T=temporarily laid off.   Source: Author's calculations from PSID, survey years 2007-2013 using PSID family weights. All persons, ages 19 to 64.

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[1] Eberstadt, Nicholas. 2016. *Men Without Work: America's Invisible Crisis.* West Conshohocken: Templeton Press.

[2] For two comprehensive and competing perspectives on the existing literature see Belman, Dale and Paul J. Wolfson. 2014. *What Does the Minimum Wage Do?* Kalamazoo: W.E. Upjohn Institute for Employment Research and Neumark, David and William L. Wascher. 2008. *Minimum Wages.* Cambridge: The MIT Press.

[3] This hypothesis is suggested by Hirsch, Barry T., Bruce E. Kaufman and Tetyana Zelenska. 2015. "Minimum Wage Channels of Adjustment." *Industrial Relations,* Volume 54, Issue 2, pp. 199-239.

[4] Okun, Arthur. 1981. *Prices and Quantities: A Macroeconomic Analysis.* Washington, D.C: Brookings Institution Press.

[5] Note, not all such moves are included in the table. The calculations are available from the author upon request.

[6] The Probit estimates are slightly lower than these linear probability estimates.

[7] The dependent variable is 1 if the *change in hours* from year t-2 to year t is negative *and* if all annual hours of work are lost. The variable is zero for those who kept some hours, gained hours, or had no change in hours. In comparison, the proportion of the sample as a whole losing all annual hours averages 0.0553 over the full period from 1997 to 2013. The estimates from the linear probability model and the Probit model differ substantially for the LZW group, ranging from 0.00094 from the linear probability model to 0.0058 from the Probit model.

[8] Those results are available from the author upon request.

[9] Zuberi, Dan. 2006. *Differences That Matter: Social Policy and the Working Poor in the United States and Canada.* NY: Cornell University.