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Mobility for care workers: Job changes and wages for nurse aides

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ABSTRACT

The long-term care industry in the United States faces serious recruitment and retention problems among nurse aides. At the same time, these low-wage workers may feel trapped in poorly-paid jobs from which they would do well to leave. Despite this tension, not enough is known about how workers fare when they leave (or stay in) such care work. Using longitudinal data from the Survey of Income and Program Participation for the years 1996–2003, we examine the relationship between different job and occupational mobility patterns and wage outcomes for nurse aides, focusing on which job transitions offer better opportunities to earn higher wages and on whether job transition patterns differ by race. Our results confirm high turnover among nurse aides, with 73 percent of the sample working in occupations other than nurse aide at some point during the survey time frame. About half of respondents that transition out of nurse aide work move into higher-paying occupations, although the percentage of transitions to higher paying occupations drops to 35 percent when nurse aides that become RNs are excluded. Among black workers especially, wage penalties for moving into other jobs in the low-wage labor market appear to be rather small, likely a factor in high turnover among nurse aides. The findings illustrate the importance of occupation-specific mobility trajectories and their outcomes for different groups of workers, and for understanding the constrained decisions these workers make.

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Introduction and literature review

With the shift toward a post-industrial economy in the U.S. in the last three decades, considerable interest has been focused on the characteristics of the low-wage labor market. Many of these so-called “bad jobs” (Kalleberg, Reskin, & Hudson, 2000) are in the expanding healthcare sector, which is projected to be among the fastest growing industries for the next decade (Bureau of Labor Statistics, 2009). Despite attention devoted to the demographic composition of workers in low-wage jobs and the hardships they face, much less is known about how these workers fare over time, including which occupations and jobs they move between and how their wages are affected by such changes (Newman, 2006).

Nurse aides comprise a large segment of the frontline healthcare workforce and present a unique vantage point on the intersection of healthcare and low-wage work. These jobs, performed predominantly by women and disproportionately by racial/ethnic minorities, are expanding rapidly in the context of

growing aging populations in developed countries. The mounting healthcare needs of these populations, and the problem of attracting and retaining frontline healthcare workers, have generated substantial policy attention in recent years. Turnover in these occupations is notably high, driven in large part by difficult working conditions and low pay (Castle, Engberg, Anderson, & Men, 2007; Lopez, 2006). In addition to negative job characteristics pushing workers out, there also may be advantages to other jobs either within or outside of these occupations that draw away workers. But there is little knowledge about how these workers fare when they leave their jobs, or where they go. Policy approaches to the industry are plagued by the tension between the goals of retaining workers to improve care quality, containing health-care costs, and ameliorating the conditions of workers in notoriously poor jobs.

The main questions we seek to answer in this analysis are the following: What is the relationship between different job and occupational mobility patterns and wage outcomes for nurse aides? What kinds of transitions or job trajectories offer better opportunities to earn higher wages? Are some types of workers more likely to make better transitions than others? We address these questions using longitudinal data from the Survey of Income and Program Participation.

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Mobility of frontline healthcare workers

Some researchers see few prospects for low-wage workers in the healthcare industry (Ducey, 2008), while others insist on the potential for crafting channels for growth and mobility for these workers, particularly in the hospital sector where wages and career ladders tend to be more promising (Fitzgerald, 2006; Pindus, Flynn, & Nightingale, 1995; Wolf-Powers & Nelson, 2010). These contrasting outlooks pit the current status of these frontline healthcare workers as against one possible, and hopeful, future one.

The authors of *Moving Up, Moving On* provide a detailed analysis of the health services industry because it is “both an important employer of low-wage workers and one of the few industries that successfully transition workers out of low-wage work” (Andersson, Holzer, & Lane, 2005, p. 106). Andersson et al. find broad variation in the hiring of low-wage workers in the industry. Only a small fraction of firms account for a significant percent of the “escapes” from low-wage earnings observed in their data, as these authors refer to transitions out of low-wage work. For instance, in Florida only 6000 health services firms out of 22,326 hired any low-wage workers, and out of these just 20 firms accounted for 10 percent of low earnings escapes. They find that larger firm size, low turnover, and past hiring and escape rates of low-wage workers are positively associated with future escape rates for low earners, and argue that some firms choose a “high road” to production while others – apparently most – do not. Yet, we argue that without taking account of occupations, and industry variation within the broad health services field, little can be surmised about the context in which these firm characteristics contribute to transitions out of low earnings. The health services industry is simply too diverse, and its sub-industries too polarized with respect to wage growth opportunities, to draw conclusions from broad industry-level analysis.

Nurse aide job quality and workforce composition

Nurse aide wages reflect the overall downward pressure on real wages for low-wage workers. Using data from the Current Population Study, Mehaut, Berg, Grimshaw, and Jaehrling (2010) calculated that wages for nurse aides employed in hospitals remained unchanged between 2000 and 2006 at about \$11 per hour. Furthermore, wages for unionized hospital nurse aides declined substantially during the same time period, from \$14.04 to \$12.72. Similarly task-defined occupations which together comprise the “nurse aide” category, such as hospital aides, nursing assistants, and home care aides vary in terms of employment characteristics as well typical levels of remuneration, with hospital aides making higher wages than nurse aides in other settings (Smith & Baughman, 2007). A greater percentage of hospital aides are men (20%) as compared to nursing home assistants or home care aides (10%) (Montgomery, Holley, Deichert, & Kosloski, 2005).

Racial and ethnic minorities are overrepresented among nurse aides, comprising half of the direct-care workforce (Smith & Baughman, 2007; Stone & Weiner 2001). While the racial and ethnic composition varies geographically, there are proportionally more Latina/os and non-U.S. citizens in the home care industry (Montgomery et al., 2005), which in general requires fewer certifications, and Stone and Wiener (2001) estimate that 35% of nurse aides are black. While a majority of workers have completed high school, a significant minority has not – 20% of hospital nurse aides and one third of nursing home aides and home care aides have not finished high school (Montgomery et al., 2005). Finally, the demand for nurse aides is increasing; the Bureau of Labor Statistics predicts that some of the lowest-earning, relatively low-skill healthcare jobs

(e.g. home care aide) will be among the fastest growing occupations in the U.S. (U.S. Department of Labor, 2009).

The rapid growth of these occupations is accompanied by impressively high turnover rates. Although interpretation of turnover rates can be misleading, measurement of turnover still provides an important dimension of the problems facing the long-term care industry (The Center on Wisconsin Strategy, 2003). For instance, Donoghue (2010) estimates that turnover among nurse aides in nursing homes is around 75% yearly, and while home care turnover rates appear to be somewhat lower, evidence suggests variability across different settings. Less is known about turnover among nurse aides in hospitals; however, Appelbaum, Berg, Frost, and Preuss (2003) reported that in the late 1990's and early 2000's, when unemployment rates were extremely low, even hospitals experienced turnover of frontline workers that approached 100% as they began losing employees to other sectors, such as fast food restaurants and retail.

The shortage of workers in an expanding field and the high rates of turnover have led a number of commentators to declare a state of crisis in the long-term care workforce. One response has been to identify new or expandable pools of labor (Stone & Weiner, 2001), including training welfare recipients for nurse aide positions (Bartnik 1997; Mathematica, 2005). But to a large extent, the problem of high turnover is one of *retention* of workers, not primarily of supply (Stone & Wiener, 2001). For instance, in 1999 North Carolina reported annual turnover rates of 100% for nursing aides and 140% for workers in adult care homes, yet there were more inactive nurse aides than active nurse aides according to the state's nurse aide registry (cited in Stone & Wiener, 2001). In a similar finding, Florida's Department of Elder Affairs reported that only slightly more than half of all trained nursing aides were employed in health-related fields just one year after certification (cited in Stone & Weiner, 2001). If a large share of certified nurse aides are inactive, and many are employed outside the healthcare industry, then in order to understand the problems faced both by the care work industry and low-wage workers, we need to know their mobility trajectories.

In this paper, we take the high turnover of frontline healthcare workers as the motivation for examining the relationship between occupational mobility and wages, looking specifically at a sample of individuals who have ever worked as nurse aides over the period studied. The selection of this group is timely and appropriate given the anticipated growth in demand over the coming years and their proximity to other similarly-situated occupations. In addition, we illuminate the seemingly incompatible objectives of policy makers concerned with retaining workers in low-wage jobs on the one hand, and the recommendations of low-wage labor market researchers on the other. Rather than testing specific hypotheses, our data analysis is richly descriptive, using multivariate methods to determine the patterns of job and occupational mobility, and their implications for wage changes.

Methods

Data

The data used in this analysis come from the 1996 and 2001 panels of the Survey of Income and Program Participation, administered by the U.S. Census Bureau. The SIPP universe includes the non-institutionalized resident population living in the United States. People who were 15 years of age or older at the time of the interview were eligible to participate in the survey; data were collected every four months (labeled waves). The 1996 panel covers 12 waves of data collection from April 1996 to March 2000, while the 2001 panel covers nine waves of data collection from October

2000 to December 2003. All data used in this study were made available by the Center for Economic and Policy Research (CEPR, 2006). The strengths of SIPP include its longitudinal design, recording detailed information on individuals for three to four years depending on the panel, its better coverage of Latino and immigrant populations than other surveys (McKernan & Ratcliffe, 2002), and its unique identification of respondents' employers.

We selected a subsample of all individuals in the SIPP who were nurse aides at any time during the survey. We excluded those who had only one nurse aide observation if it was in their last observation period. This yields a sample of 3275 individuals, totaling 26,543 person-wave observations. The number of waves completed by respondents ranges between 1 and 12; on average respondents completed 8.1 survey waves. Respondents worked as nurse aides for an average of 4.0 waves, or about a year and four months.

Measurement

Dependent variables

To analyze job and occupational transitions, we construct a multinomial categorical variable with ten outcomes representing specific *occupational transition types*: remain a nurse aide with the same employer; remain a nurse aide but change employer; move to another healthcare occupation (excluding registered nurses); move to a production, repair, or construction occupation; move to a personal care and services occupation; move to a sales or food preparation and services occupation; move to an office or administrative support occupation; move to a professional occupation; move to other occupations; and move to not employed. Registered nurses are included in the professional group. The reference category is to remain a nurse aide with the same employer. Individuals who are not employed may be so voluntarily or involuntarily.

To analyze wages using fixed effects (see below), we use the *natural log of hourly wages*. With this measure, regression coefficients can be interpreted approximately as percentage differences in wages. All wages are inflation-adjusted to 2003 dollars. We drop observations where adjusted wages are less than \$2.00 per hour or greater than \$100 per hour.

Independent variables

Demographic variables included in the analyses are: race/ethnicity, age, sex, education, and region. *Race* is divided into four categories: white, black, Latino, or other, with white as the reference category. *Age* is a continuous variable ranging from 14 to 79 years of age. *Sex* is designated as female (1) or male (0). We cannot control for gender with a fixed effects model because sex is time-invariant. However, even though sex is not specified, fixed effects models control for unobserved heterogeneity (individual-level stable characteristics). We ran models with men excluded and confirmed that the major findings were the same as compared to models with both men and women. *Educational attainment* level was recoded into four categories: less than high school, high school graduate, some college, or a college degree or higher, also included as dummy variable with high school degree as the reference category. We also indicate whether an individual is receiving *food stamps* or *welfare payments*. We code regions into four common categories: Northeast (the reference category), Midwest, South, and West.

We also include work-specific variables. In the fixed effects models, eight *occupation categories* are included as dummy variables (nurse aide; other healthcare; production, repair, and construction, personal care and services; sales and food preparation and services; office and administrative support; professional; and other). An additional variable indicates that an individual stayed within the occupation of nurse aide but *changed employers*

(1), as well as a running tally of *number of employer changes* that an individual experiences during the survey time period. We construct *nurse aide tenure* with an employer (in months) and *nurse aide work experience* (number of waves within the survey time period). We control for hours worked with a dummy variable coded one if *full-time* (more than 30 h), with part-time being the reference category, and whether an individual belongs to a *union*. We include a dummy variable for whether the job is in the *long-term care industry* or in a *hospital*. Long-term care industries are those in SIC codes 832 (nursing and personal care facilities), 840 (health services, n.e.c.), or 870 (residential care facilities, without nursing); hospitals are those in SIC code 831. Finally, we include dummies for each year in the survey period and a dummy that indicates if the individual was in the 1996 or 2001 panel. A summary of the sample characteristics is included in Table 1.

Analyses

Analysis of job and occupational transitions

First we examine occupational transitions, indicating specific occupational transition types as the dependent variable. The sample includes all of the observations where an individual is working as a nurse aide for the first time during the survey period and the first quarter of their transition away from nurse aide work (if a transition did occur). We use a discrete time competing risks hazard model to examine the relationship between demographic and work-related variables and patterns of job and occupational

Table 1
Sample characteristics.

Name of variable	Mean or percentage	SD
Female	87.2%	
Age (years)	37.6	13.83
Race/ethnicity		
White	55.4%	
Black	29.0%	
Latino/a	10.5%	
Other	5.1%	
Education		
Less than high school	20.1%	
High school degree	34.9%	
Some college (but no degree)	36.1%	
College degree	8.9%	
Food stamp coverage	13.01%	
Welfare coverage	4.16%	
Occupational categories		
Nurse aide	61.4%	
Other health jobs	3.8%	
Prod/repair/construction	4.4%	
Personal care/services	6.3%	
Sales/food service	6.9%	
Office/administration	5.8%	
Professional	9.0%	
Other	2.4%	
Not employed	19.8%	
Nurse aide tenure (months)	27.19	59.92
Nurse aide work experience during survey period (waves)	2.47	2.61
Total employer changes during survey period	2.2	1.8
Full-time/part-time	61.0%	
Union	10.4%	
Long-term care	45.6%	
Hospital	16.9%	
Region		
Northeast	20.6%	
Midwest	24.8%	
South	35.6%	
West	18.9%	

26,599 observations.

Table 2
Wage information by occupational type.

Occupational group	Observations	Mean wage	Median wage	Percent below poverty line ^a	Mean quarterly wage change
Nurse aide	12,991	\$10.36	\$8.83	42.2%	\$0.05
Other health jobs	802	\$11.95	\$10.78	33.2%	\$0.37
Prod/repair/construction	904	\$9.93	\$8.31	41.4%	\$0.41
Personal care/services	1293	\$8.11	\$7.04	60.1%	−\$0.19
Sales/food service	1444	\$7.72	\$6.75	65.7%	−\$0.10
Office/administration	1208	\$10.44	\$9.17	36.0%	\$0.41
Professional	1839	\$15.63	\$13.55	22.4%	\$0.53
Other	472	\$10.37	\$8.69	48.9%	\$0.42

All wages adjusted to 2003 dollars.

^a 2003 federal poverty line (based on reported family size).

mobility among nurse aides. Because the data analyzed for the competing risks hazard model are restricted to observations when an individual is observed working as a nurse aide for the first time during the survey period and their *immediate* occupational transition observations, the actual number of cases (transitions) analyzed is 9145. The purpose of this analysis is to examine what characteristics are associated with different types of occupational transitions, that is, what characteristics are associated with a greater or lesser likelihood of leaving a job as a nurse aide for a nurse aide job with a different employer or for another occupation altogether.

Analyses of nurse aide wages

We use fixed effects models to examine the types of occupations that result in better or worse wage outcomes for workers relative to their nurse aide wages, as well as the effects of different kinds of employment experience on workers' wages. Interactions between race/ethnicity and occupational groups will permit analysis of how the wages of different groups of workers are affected by working in different kinds of occupations relative to their wages as nurse aides, and within occupational groups relative to the wages of white. For our fixed effects models, we include all observations for nurse aides, including observations both before and after an individual worked as a nurse aide. The data show that these workers frequently move between jobs and occupations, and it is likely that for many respondents their first observation as a nurse aide in the survey period is not their first job as a nurse aide. Given the job churning among this population, we think that using all occupational observations best helps us to understand nurse aide wages.

The fixed effects model is well-applied to longitudinal SIPP data, in which multiple observations are nested within individuals. Since the fixed effects model looks at changes in the dependent variable as a function of changes in the independent variables, the model is suited for analysis in which individuals' occupational transitions are the key variables of interest. Fixed effects models control for

Table 3
Wage information by occupational transition.

	Observations	Percentage of transitions out of nurse aide	Mean wage	Median wage	Mean quarterly wage change
NA w/same employer	8138	–	\$10.69	\$9.00	\$0.08
NA w/different employer	1448	–	\$9.54	\$8.84	\$0.13
Other health	318	13.6%	\$11.49	\$10.11	\$0.28
Prod/repair/construction	229	9.8%	\$10.32	\$8.81	\$0.65
Personal care/services	347	14.8%	\$8.22	\$7.38	−\$0.52
Sales/food service	339	14.5%	\$8.67	\$7.04	−\$0.06
Office/administration	361	15.4%	\$11.07	\$9.39	\$0.11
Professional	626	26.7%	\$15.42	\$13.49	\$0.93
Other	124	5.3%	\$11.30	\$10.19	\$0.61

Note: These figures do not include observations subsequent to transitions out of being a nurse aide with the same employer. These figures pertain to the truncated sample – when individuals are observed as nurse aides and their first quarter of work in their next job only. All wages adjusted to 2003 dollars.

unobserved heterogeneity (individual-level stable characteristics) by subtracting out the person-level means (Halaby, 2004). Because the data used for this analysis includes repeated observations for individuals, our estimation of the models accounts for clustering of the error terms. These analyses attempt to show the importance of charting occupation-specific mobility patterns for understanding the wage trajectories of low-wage workers.

Results

Mean wages in 2003 dollars for individuals working as nurse aides in our sample were \$10.36 per hour. Wage growth for individuals working as nurse aides was just \$0.05 per quarter, and forty-two percent earned wages that fell below the poverty line for the size of their family (see Table 2). Table 3 summarizes nurse aide employment transitions and corresponding wages. Workers were able to earn significantly higher wages on average after transitioning to jobs in other healthcare occupations, office administration, or professional positions (as indicated by a *t*-test, *p* < .05). Of those that transitioned to other occupations, approximately fifty-six percent of the sample observations were to transitions into higher-paying occupations after working as a nurse aide. However, when registered nurses are excluded, only thirty-five percent of workers transition to higher paying occupations. As mentioned, many RNs are required to work as nurse aides temporarily while completing their training to become registered nurses. They are not “career” nurse aides and generally only work as nurse aides for a short period. Workers' wages significantly declined when they were in personal care or sales/food service occupations, which comprise about twenty-nine percent of transitions away from nurse aide work.

Table 4 presents the frequencies and wages of nurse aide leavers and stayers. On average, individuals who worked as nurse aides for all completed waves in the survey period had lower wages over the survey period than those that ever transitioned into nurse aide jobs from other occupations or out of nurse aide jobs into other occupations when registered nurses and individuals who experienced unemployment are excluded (\$10.48 compared to \$11.12 and \$10.60 respectively). Median wages follow a similar pattern of greater wage disadvantage for individuals who ever worked as nurse aides throughout the survey time frame. Now we turn to the regression analysis for a more detailed analysis of factors related to occupational transitions and wages.

Competing risks hazard model of transitions on selected independent variables

We first discuss results for the discrete time competing risks hazard model of nurse aide transitions on demographic and work-related variables individually by transition type. Recall that this

Table 4
Wages of nurse aide leavers and stayers.

	Number of individuals	Mean wage	Median wage
Nurse aide during all survey waves	886 (27%)	\$10.48	\$9.19
Ever transitioned to nurse aide from other occupation ^a	786 (24%)	\$10.09	\$8.38
Excluding RNs	721	\$9.83	\$8.40
Excluding RNs and “not employed”	325	\$11.12	\$9.31
Ever transitioned out of nurse aide to other occupation ^b	1603 (49%)	\$10.09	\$8.57
Excluding RNs	1436	\$9.57	\$8.37
Excluding RNs and “not employed”	478	\$10.60	\$9.47

Wages adjusted to 2003 dollars. Columns include the mean and median wages for all survey waves for individuals in each specified group.

^a Individuals remained nurse aides until the end of the survey period.

^b Includes individuals that may have also started the survey in an occupation other than nurse aide.

analysis uses the truncated sample – each individual's first observation working as a nurse aide and the first observation after they leave their nurse aide jobs. Results are presented in Table 5. Consistent with other mobility studies, workers with longer tenure and more work experience are less likely to move into new occupations or switch employers; workers with longer tenures are likely more satisfied with their current employer or have not found a better alternative, making them less likely to transition to a different occupation. Full-time workers are less likely to become unemployed as compared to part-time workers. Workers with more nurse aide experience are more likely to transition to a new employer or personal care work. Workers in long-term care are more likely to remain nurse aides but change employers and are less likely to transition to personal care services, as are workers in hospital settings. We find that workers with some college are more likely to transition into other healthcare jobs and professional positions, both occupational groups with significantly higher wages

than nurse aides. Finally we do not find evidence that occupational changes vary by race, but workers receiving welfare or food stamps are more likely to transition to “not employed.”

Fixed effects regression of wages on selected independent variables

Results of the fixed effects regression of log hourly wages on occupational groups and selected independent variables are shown in Table 6(1). We ran three nested models: Model 1 includes only occupational groups and Model 2 adds work experience and education variables. We then add interactions for race/ethnicity and occupational groups, which are reported in Model 3 (with derived coefficients shown in Table 6(2)). In the models, “nurse aide” is the reference category for occupational group, “white” is the reference category for the race/ethnicity by occupational group interaction terms, and “high school” is the reference category for education.

The baseline model, Model 1, shows that individuals' hourly wages are about 7% greater when they work in other healthcare occupations or in production, repair, or construction occupations than when they work as nurse aides. In contrast, compared to their nurse aide wages, individuals' wages are 7% lower when they work in personal care and services and 13% lower when they work in sales or food preparation and services occupations. Workers also earn 11% more when they work in professional occupations as opposed to working as nurse aides. Finally, nurse aides earn 2.8% higher wages in the quarter that they transition to a new employer. Model 2 adds two work experience variables and a continuous variable for total number of employer changes. Nurse aide tenure with an employer, nurse aide work experience (in the survey period), and employer changes are not significant predictors of wages. Being older, working in a hospital and having a college degree are positively associated with higher wages, while receiving food stamps is negatively associated with higher wages. The fact

Table 5
Discrete time competing risks hazard model of job transitions.

	Job change/no occupational move		Other healthcare		Production/repair/construction		Personal care/services		Sales/food service		Office/administration		Professional		Other		Not employed	
	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)
<i>Work-related variables</i>																		
Union	0.98	(0.22)	0.65	(0.35)	0.82	(0.51)	0.54	(0.29)	0.85	0.46	0.79	0.36	0.64	0.23	2.91*	1.36	0.95	0.20
Full-time	0.92	(0.14)	1.31	(0.43)	0.92	(0.31)	0.71	(0.18)	0.47***	0.11	1.42	0.43	0.94	0.22	0.45*	0.18	0.53***	0.06
Nurse aide tenure	0.99***	(0.00)	0.99***	(0.00)	0.98***	(0.01)	0.98***	(0.01)	0.99**	0.00	1.00	0.00	0.99***	0.00	0.99*	0.00	0.99***	0.00
Nurse aide work experience	1.13***	(0.04)	1.13	(0.08)	1.11	(0.09)	1.22**	(0.09)	1.12	0.07	1.00	0.07	1.07	0.06	1.10	0.11	1.06	0.04
Employer changes	0.93	(0.07)	0.81	(0.13)	1.06	(0.16)	1.02	(0.14)	1.05	0.13	1.16	0.15	0.76*	0.10	0.92	0.20	0.93	0.06
Long-term care	2.01***	(0.46)	1.01	(0.35)	0.48*	(0.17)	0.54**	(0.15)	1.02	0.35	0.69	0.22	0.98	0.26	0.61	0.29	1.06	0.16
Hospital	1.12	(0.31)	0.64	(0.27)	0.83	(0.34)	0.23***	(0.11)	0.85	0.35	0.88	0.31	1.10	0.31	0.93	0.48	0.77	0.15
<i>Education</i>																		
Less than high school	1.14	(0.20)	1.07	(0.57)	1.15	(0.45)	1.61	(0.49)	0.90	0.30	0.95	0.40	0.69	0.32	1.02	0.60	1.23	0.18
Some college	0.99	(0.14)	3.16***	(1.03)	0.67	(0.22)	1.00	(0.28)	0.73	0.20	1.86*	0.50	3.01***	0.78	0.99	0.41	1.00	0.13
College degree	0.52	(0.19)	3.69***	(1.68)	0.17	(0.17)	1.02	(0.48)	1.28	0.56	1.40	0.67	9.89***	2.94	0.90	0.60	0.57	0.17
<i>Other personal characteristics</i>																		
Age	0.99*	(0.01)	0.98	(0.01)	0.98	(0.01)	0.99	(0.01)	0.97***	0.01	0.96***	0.01	1.00	0.01	0.98	0.01	1.00	0.00
Female	0.73	(0.14)	1.25	(0.49)	0.42**	(0.15)	0.87	(0.32)	1.33	0.54	1.74	0.71	1.51	0.45	0.63	0.29	0.97	0.18
Black	1.04	(0.15)	0.77	(0.25)	1.24	(0.41)	1.06	(0.30)	0.82	0.23	1.11	0.31	1.20	0.27	1.22	0.56	0.97	0.12
Latino/a	1.21	(0.25)	0.65	(0.35)	1.48	(0.64)	1.06	(0.40)	0.69	0.32	0.96	0.43	0.78	0.30	1.06	0.62	0.81	0.15
Other race	1.09	(0.34)	0.58	(0.36)	0.36	(0.37)	1.59	(0.73)	1.28	0.71	1.04	0.58	0.73	0.29	1.47	0.89	0.59	0.18
Welfare	1.11	(0.48)	0.00	(0.00)	4.26*	(3.12)	1.43	(0.95)	1.05	0.81	0.77	0.82	1.27	1.35	0.00	0.00	2.39***	0.67
Food stamps	1.73**	(0.34)	0.45	(0.33)	0.68	(0.36)	1.45	(0.51)	1.61	0.54	1.17	0.48	0.67	0.33	0.45	0.46	1.83***	0.30
Midwest	0.91	(0.17)	1.47	(0.57)	1.75	(0.92)	0.84	(0.30)	2.99**	1.17	1.65	0.60	1.03	0.30	0.77	0.45	0.80	0.14
South	0.86	(0.15)	1.17	(0.46)	2.36	(1.13)	0.84	(0.27)	2.29*	0.91	1.22	0.46	1.20	0.33	0.81	0.48	1.06	0.16
West	0.88	(0.19)	1.46	(0.63)	2.59	(1.36)	1.13	(0.42)	1.18	0.60	1.44	0.61	1.35	0.41	2.56	1.28	1.32	0.24
2001 cohort	1.07	(0.28)	1.43	(0.68)	1.67	(0.85)	1.16	(0.60)	1.49	0.67	1.63	0.78	2.01	0.84	0.53	0.46	0.83	0.20
Pseudo R ² : 0.0738																		

Reference categories are “stay nurse aide with the same employer” for transition type, “White” for race/ethnicity, “high school diploma” for education, “Northeast” for region, “Not Married” for marital status, “Not Long-Term Care Industry” for LTC Industry Status, and “Part-time” for Full-time Status (9145 observations/2149 individuals). All work-related and education variables were lagged by one quarter. Year dummies were included in model but not shown in table. **p* < .05 ***p* < .01 ****p* < .001.

Table 6
(1) Fixed effects models of wages (ln) regressed on job and worker characteristics. (2) Coefficients for effects of occupational group conditional on race/ethnicity.

(1)	Model 1		Model 2		Model 3	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
<i>Occupation</i>						
Other health	0.074***	0.013	0.072***	0.013	0.091***	0.016
Prod/repair/construction	0.072***	0.013	0.074***	0.014	0.055**	0.019
Personal care/services	-0.073***	0.011	-0.070***	0.012	-0.080***	0.015
Sales/food service	-0.132***	0.010	-0.122***	0.012	-0.134***	0.014
Office/administration	0.024*	0.011	0.022	0.012	0.001	0.015
Professional	0.113***	0.010	0.102***	0.010	0.110***	0.012
Other	0.060**	0.018	0.067***	0.019	0.078**	0.023
NA employer change	0.028*	0.012	0.024*	0.012	0.025*	0.012
<i>Work-related variables</i>						
Union			0.056***	0.010	0.055**	0.010
Fulltime			0.020**	0.006	0.021**	0.006
Nurse aide tenure			0.000	0.000	0.000	0.000
Nurse aide work experience			0.000	0.001	0.000	0.001
Total employer changes			0.006	0.003	0.006*	0.003
Long-term care			-0.005	0.009	-0.004	0.009
Hospital			0.058***	0.012	0.058***	0.012
<i>Education</i>						
Less than high school			-0.035	0.020	-0.033*	0.020
Some college			0.031	0.018	0.031*	0.018
College degree			0.234***	0.033	0.231*	0.033
<i>Other personal characteristics</i>						
Age			0.029***	0.005	0.029**	0.005
Welfare coverage			-0.018	0.016	-0.019*	0.016
Food stamps			-0.040***	0.010	-0.041*	0.010
Midwest			0.083	0.073	0.076	0.073
South			0.033	0.065	0.029	0.065
West			0.205	0.074	0.196**	0.074
<i>Occupation/race interaction terms</i>						
Black*other health	-0.044	0.030				
Black*prod/repair/construction	0.080**	0.028				
Black*personal care/services	0.014	0.024				
Black*sales/food service	0.043	0.024				
Black*office/administration	0.076**	0.024				
Black*professional	-0.024	0.021				
Black*other	0.016	0.039				
Latino/a*other health	-0.091	0.050				
Latino/a*prod/repair/construction	-0.068	0.039				
Latino/a*personal care/services	0.037	0.031				
Latino/a*sales/food service	0.018	0.035				
Latino/a*office/administration	-0.022	0.040				
Latino/a*professional	0.003	0.037				
Latino/a*other					-0.180**	0.065
<i>Year</i>						
1996	-0.020	0.017	-0.041*	0.017	-0.043*	0.017
1997	0.021	0.017	-0.038*	0.019	-0.040*	0.019
1998	0.068***	0.017	-0.030	0.021	-0.032	0.021
1999	0.116***	0.018	-0.020	0.025	-0.021	0.025
2000	-0.026*	0.012	0.063***	0.017	0.062***	0.017
2001	-0.027**	0.008	0.039**	0.013	0.038**	0.013
2002	-0.001	0.008	0.030**	0.009	0.028**	0.009
Constant	2.213***	0.010	1.011***	0.190	1.024***	0.190
R ²	0.0487		0.0862		0.0874	

that only having a college degree affects wages significantly is concerning, given that certification requirements for nurse's aides have increased, moving this occupation further away from its supposed low skill prerequisites, perhaps without parallel increases in wages. However, because the education term pertains to all wage and occupation observations for individuals, whether increased certification and education requirements for nurse aide work in particular has a positive effect on wages deserves further attention from scholars.

We then add interactions for race/ethnicity by occupational group. For ease of interpretation, the derived coefficients for the effects of occupational groups conditional on race/ethnicity are presented in Table 6(2). (We conducted an F-test for the inclusion of

the group of interactions, and the result was significant at the $p < .001$ level.) The interaction terms in Model 3 show that in most occupations blacks and Latinos earn wages that are comparable to the wages of white workers. In fact, when blacks transition into production and office administration jobs, they earn significantly more than whites. However, in other healthcare occupations and professional occupations, both sectors where wages are higher on average than nurse aide wages, blacks earn less than whites. Latinos also have lower wages than whites in other health, production, office administration and other occupations.

From Table 6(2), we see that whites earn 9% lower wages when they work in personal care and services rather than as nurse aides, and 13% lower wages when they work in sales and food service

(2) Occupation	Race/ethnicity		
	White	Black	Hispanic
	Other health	0.091	0.047
Prod/repair/construction	0.055	0.135	-0.013
Personal care/services	-0.080	-0.067	-0.043
Sales/food service	-0.134	-0.091	-0.116
Office/administration	0.001	0.077	-0.021
Professional	0.110	0.085	0.112
Other	0.078	0.094	-0.103

Reference categories are "Nurse aide" for occupation type, "White" for race/ethnicity, "high school diploma" for education, "Northeast" for region, "Not Married" for marital status, "Not Long-Term Care Industry" for LTC Industry Status, and "Part-time" for Full-time Status (19,562 observations, 3058 individuals). All education variables were lagged by one quarter.

* $p < .05$ ** $p < .01$ *** $p < .001$.

occupations. Relative to their wages when working as nurse aides, whites' wages are improved by close to 11% when they work in professional occupations. Blacks earn 7% lower wages in personal care services, about 9% lower wages in sales or food preparation and service occupations compared to their nurse aide wages. However, blacks earn 5% higher wages in other healthcare jobs, 13% higher wages when working in production, construction, and repair occupations and about 8% higher in professional and administrative occupations compared to their wages as nurse aides. Interestingly, it appears that black nurse aides in particular have little to lose in terms of wages by moving into personal care and service or sales and food service occupations, but gain by moving into professional occupations, where they nevertheless earn lower wages than whites. Latina/os earn lower wages in all occupational groups except in professional occupations compared to their nurse aide wages. Especially because the education term becomes significant when we include race/occupation interactions, in the future scholars should examine the effect of increases in credentialing requirements for nurse aide work more closely.

Discussion

The findings described above illustrate the importance of occupation-specific work trajectories for the wage outcomes of workers. In this study, we look at a major frontline healthcare occupation that is known for its low wages, low status, and high turnover. While many healthcare policy reports and long-term care scholars view nurse aide turnover as a workforce and quality of care problem, studies of low-wage workers that focus on a broad industry perspective suggest that workers may be better off when they move on to different jobs and employers (Fuller, 2008; Gottschalk, 2001). This study attempts to explore this tension by adopting a perspective centered on occupational and job mobility, taking an important subset of the low-wage workforce as a case study.

This study corroborates earlier studies' findings of high turnover out of the nurse aide occupation. Indeed, only about a quarter of individuals in our sample worked as nurse aides during every wave of the survey that they completed, and approximately 75 percent of individuals worked in other occupations either before or after working as a nurse aide during the survey time period, reflecting the high level of turnover among these workers. The overall lack of career paths is evident from the fact that only 122 workers out of 3043 in the sample ever moved from working as a nurse aide directly into other healthcare occupations, excluding registered nurses whose nurse aide tenure may have been more a reflection of their academic program requirements than their real labor market opportunities. Indeed, for many of these workers, their options

appear to be limited to other low-wage and low-status jobs. While about half of the transitions out of the nurse aide occupation were to higher paying jobs, such as other healthcare jobs or professional or administrative positions, a substantial percentage of transitions are to occupations that have wages that are comparable to or lower than the wages of nurse aides, particularly so when registered nurses are excluded. Consequently, although we see that wages of individuals who left the occupation of nurse aides are higher than wages of individuals who worked as nurse aides during the entire survey time frame, this wage differential is rather small, suggesting that moving across the low wage labor market is perhaps more typical of these workers than is moving up.

Our findings also suggest that nurse aides benefit somewhat from switching employers within the nurse aide occupation; therefore, at least some component of turnover is the result of nurse aides seeking out employers who pay even slightly better wages. The results presented confirm that workers in this low-wage occupation experience minimal returns on tenure or work experience (Baughman & Smith, 2011). The relationships between wages and the accumulation of work experience and tenure with an employer are not significant in our models of wage growth. The significant positive results for total number of employer changes and nurse aide employer change as predictors of higher mean quarterly wages (Table 6(1)) may also indicate that these workers benefit from experience in low-wage jobs or at least do not incur penalties for turnover between such jobs. In sum, nurse aides appear to benefit from switching jobs and employers within the field – which presents a challenge to industry and policy stakeholders concerned with minimizing employee turnover.

By interacting race with occupational groups, we show that the effects of different kinds of work on wages vary across racial and ethnic groups. For example, while wages for workers in other health occupations are on average higher than nurse aide wages (\$11.95 versus \$10.36, respectively), wages for Latina/os in other health occupations are actually lower than those of nurse aides and both blacks and Latina/os have lower wages in other healthcare jobs as compared to whites, even when controlling for regional wage variation. The findings suggest that while other healthcare jobs may be thought of by policy researchers as a career ladder for nurse aides, the impact of other healthcare jobs on wages for minorities may be limited, particularly if the latter are clustered in other bottom-rung jobs. Likewise, while both whites and blacks experience an increase in wages when moving into professional occupations as compared to nurse aide jobs, blacks make less than whites, controlling for other factors. Whites and blacks earn higher wages after transitioning out of nurse aide jobs into a variety of occupations, but Latina/os earn more as nurse aides compared to all other occupations except professional occupations, reflecting a more limited set of opportunities.

To summarize, the findings suggest that wages for blacks and Latina/os are similar to the wages of whites in low-wage occupations, including nurse aide positions. However, although whites are not significantly more likely to transition into better paying occupations than blacks and Latino/as, those who do transition to other healthcare and professional jobs earn higher wages. At the same time, we find that for black workers in particular, relative to their nurse aide wages, the wage penalty associated with working in occupations at the bottom of the low wage labor market – namely, personal care and service and sales and food service occupations – is rather small at between 5 and 10 percent. Workers are likely to evaluate jobs in these occupations as offering similar low pay but perhaps less burdensome working conditions, contributing to high turnover across the low-wage labor market. The workers in our sample also frequently transition to being unemployed (Table 1

shows that workers are “not employed” in about 20 percent of our observations). Respondents are students in about 25 percent of observations when they are not employed, but frequently respondents are dropping out of the labor force before transitioning to a new employer or occupation. Our findings lend support to more fine-grained approaches to studying labor market inequalities (Mouw & Kalleberg, 2010), and in particular highlight the role of occupational and job mobility in the wage outcomes of frontline healthcare workers.

Limitations and directions for future research

The ambitions of this study are limited – it is not a study of low-wage workers’ full career trajectories. There are some limitations with the sample: the data is somewhat dated and may not fully reflect the labor market for nursing assistants today. On the other hand, budget cuts to SIPP have resulted in progressively shorter panels since 2001, making it more difficult to study longitudinal dynamics for all labor market researchers. Further, a limitation common to longitudinal data is that respondent attrition over the survey period may bias our results (Citro & Michael, 1995). Another concern is the potential uncontrolled endogeneity between tenure/work experience and wages. Studies on the effect of tenure on wage rates have pointed out that wage rate and tenure may be simultaneously determined by unmeasured factors, which can result in biased or inconsistent estimation (Burdett & Coles, 2010). Finally, like other studies of turnover and job mobility, the outcomes we examine might be affected by unmeasured factors, such as dual employment, relocation, and leaves of absence. These unmeasured reasons for making occupational transitions may be why our models explain a low level of variance for both wages and occupational transitions.

Future work should attempt to examine more systematically whether low-wage workers of different racial/ethnic groups have access to different labor market opportunities and follow distinct occupational trajectories, and if so what accounts for these inequalities. In this sense, we may better understand how various groups of current frontline healthcare workers view their real labor market options. Researchers might examine the factors that account for racial/ethnic differences in wage outcomes across occupational groups that suggest even low-wage workers face both unequal opportunities for advancement into better jobs and differential costs associated with transitions into other areas of the low-wage labor market. In addition, future research could better assess how the growth of some industries and the decline or re-composition of others interact – for example, are the nurse aides of today increasingly former manufacturing workers?

Although the healthcare industry is broad and diverse, stratified into a number of roughly grouped occupations, there does not appear to be significant mobility into the middling stratum on the part of nurse aides, at least over the relatively short spans we analyze here. The number of people who move directly from working as nurse aides into other healthcare occupations (excluding registered nurses) is less than almost every other occupational transition studied here. There have been some efforts by “high road” firms to create career ladders for frontline healthcare workers, particularly where unions are present and labor markets are tight (Fitzgerald, 2006). However, these efforts are by no means widespread and cannot be counted on to provide upward mobility for the vast majority of workers (Mehaut et al., 2010). In this sense, researchers should be cautious about using broad industries to study and make recommendations about low-wage workers’ successful mobility strategies. It matters which occupation and industry these workers are in to begin with and which ones they transition to.

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