LOW-WAGE WORK IN THE UNITED STATES: BASIC FACTS, WELFARE

CONSEQUENCES AND INTRA-GENERATIONAL UPWARD MOBILITY

Pablo Mitnik
Stanford University

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Abstract

Using an absolute rather than a relative conception of "low-wage," this paper offers a quantitative description of the nature of low-wage jobs and workers in the United States, and argues that low-wage jobs are a serious reason for concern. Although the latter may seem rather self-evident, both the public and the academic understandings of the deleterious welfare consequences of low-wage jobs have been obscured by two oft-repeated arguments. The first is that resource-pooling at the family or household level, in-kind public transfers and the Earned Income Tax Credit make the high prevalence of low-wage work an issue with a rather minor normative import. The second is that the country is characterized by very high levels of intra-generational upward mobility, and that only "the undeserving few" remain stuck in bad jobs. To address these arguments I show that low-wage work very often results in material deprivation, and that a large share of low-wage workers gets trapped in low-wage jobs for long periods of time, if not for their whole careers.

Introduction

This paper documents what is nothing short of a social pathology: the existence, in one of the richest countries in the world, of tens of millions of jobs that condemn their holders and their families to severe levels of material deprivation. Indeed, workers in the United States are highly productive. In 2007, they produced an average of $58 in goods and services for each hour of work.[1] Yet, a large share of them is paid poverty-level wages, often for long periods of time. Given the reduced scope and generosity of the country's "residual" welfare state (e.g., Esping-Andersen 1990), this has very harmful effects for the welfare of these workers and their families.

I start by explaining why I adopt an absolute instead of a relative conception of "low-wage" and how I operationalize this conception in my empirical analyses. Next, I put this conception to work by describing in some detail the main characteristics of low-wage jobs and workers today, and by discussing why low-wage jobs are a serious reason for concern. Although the latter may seem rather self-evident, both the public and the academic understandings of the deleterious welfare consequences of low-wage jobs have been obscured by two oft-repeated arguments. The first is that resource-pooling at the family or household level, in-kind public transfers and the Earned Income Tax Credit (EITC) make the high prevalence of low-wage work an issue with a rather minor normative import. The second is that the country is characterized by very high levels of intra-generational upward mobility, and that only "the undeserving few" remain stuck in bad jobs. To address these arguments I

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[1] I calculated the value of goods and services produced by hour of work by dividing gross domestic product by total hours of work. The underlying information is from the National Income and Product Accounts (NIPA) Tables generated by the Bureau of Economic Analysis. Gross domestic product is from Table 1.1, while hours of work are from Table 6.9D. If GDP is measured net of the value of rental services of owner-occupied housing, output per hour in 2007 is $54.5; value of these rental services is from NIPA Table 1.3.5.

show that low-wage work very often results in material deprivation, and that a large share of low-wage workers gets trapped in low-wage jobs for long periods of time, if not for their whole careers.

The microdata I use in my empirical analyses are the Current Population Survey – Outgoing Rotation Groups (CPS-ORG), 2005-2007; the Current Population Survey – Annual Social and Economic Supplement (CPS-ASEC), 2007 and 2008; and the Panel Study of Income Dynamics (PSID), 1968-2001. Tables, figures and footnotes indicate the data used in each case. I adjust earnings by inflation using the Consumer Price Index for All Urban Consumers – Research Series (CPI-U-RS). The Appendix provides additional information on the data and on the price index.

Material welfare, absolute poverty, and the notion of "low-wage"

A society's job or employment structure can be defined as the total set of employment relations in that society (including self-employment). Jobs can be distinguished according to their characteristics, and different employment structures can be distinguished and assessed in terms of the features of the jobs they comprise. Some of these features matter greatly for the welfare of workers and their families. The literature on "job quality" focuses precisely on these features. They include how much jobs pay and their benefits – for instance, whether they provide health insurance, which is particularly important for families' welfare in the United States – but also many other characteristics.[2] Although these other features of jobs

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[2] Hourly earnings, benefits, and job security are the most frequently used indicators of job quality (Schmitt 2001:387). Other important indicators of job quality employed in this literature are required skills, health and safety risks, work effort, personal discretion over tasks and participation in workplace decisions, hours of work and time-flexibility, prestige of jobs, and prospects for advancement (Champlin 1995; Clark 2005; Green 2006:15-18; Siebern-Thomas 2005).

certainly matter for people's welfare, my interest here lies squarely on those characteristics of jobs that have a very direct impact on the *material* welfare of workers and their families.

In any capitalist society, the production of material welfare is mainly the responsibility of labor markets, families, and the welfare state; the relative importance of each gives rise to different "welfare regimes" (Esping-Andersen 1999). Labor markets are most central in liberal welfare regimes, and perhaps nowhere as central as in the United States, where a stingy social wage – and thus a minimum level of decommodification – entails that the mechanisms that determine the compensation workers get from their jobs also determine in very large measure their material welfare and that of their families.

Two different approaches have been employed to examine the role of labor markets in the production of the material welfare of the disadvantaged. The "relative approach" takes as reference a relative understanding of poverty and focuses on those workers whose compensation is lower than some fraction of the median compensation in the economy (e.g., Boushey, Fremstad et al. 2007; OECD 1997:Ch. 2). The "absolute approach" takes as reference an absolute understanding of poverty and focuses on those workers whose compensation is lower than some absolute threshold (e.g., Bernhardt, Morris et al. 2001; Bernstein and Hartmann 2000; Duncan, Boisjoly et al. 1996; Rose 1999). Both approaches have advantages and disadvantages (e.g., Ruggles 1990:17-20).

An important advantage of the absolute approach is that it is consistent with the understanding of poverty dominant in the United States since Lyndon B. Johnson's War on Poverty, in which poverty is conceived as a state of absolute, not relative, material deprivation, and income below an absolute threshold is used as a proxy for that state (O'Connor 2001:154 and 184-5). This is the conception current today in the overlapping fields

of labor market, poverty and welfare policy, and it resonates strongly with the country's broader political culture.

Another advantage of the absolute approach is that it is fully immune to a well-known distributive-justice argument. This argument denies normative relevance to empirical analyses employing the relative approach, on the grounds that even if the worse-off have incomes far below the median, they may still be better-off than in an alternative, more egalitarian, social order in which the worse-off have incomes closer to the median but that median is lower than in the more unequal social order. Given the direct relationship between this argument and John Rawls' difference principle (Rawls 1971), we can call the former the "Rawlsian argument."[3,4]

There are two main disadvantages to the absolute approach. The first is conceptual. The income that a family requires to satisfy its "basic needs" depends on how the latter are understood – but this understanding depends on cultural standards that change over time and that may be the subject of strong disagreements at any point of time. Given the dynamic nature of the relative approach, it is certainly better equipped than the absolute approach to address the problem of time-varying cultural standards. The relative approach is not immune, however, to the issues raised by disagreements at one point in time. As this approach is guided by the notion of "social inclusion," according to which nobody should be left "too far behind" in terms of material welfare (Boushey, Fremstad et al. 2007), the obvious problem it

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[3] However, the idea that a more equally divided pie should not be preferred necessarily to a less equally divided pie in which the smallest piece is bigger, can also be found in other theories of distributive justice (e.g., Parfit 2000).

[4] A different objection follows directly from the work of "sufficientist" philosophers (Crisp 2003; Frankfurt 1987; Raz 1986), who argue that treating people equally means making sure that they have enough, and that comparisons are irrelevant as long as this is the case. The absolute approach is obviously unaffected by this line of criticism.

needs to address is that in order to determine how much behind is normatively acceptable also involves cultural standards.

The second disadvantage of the absolute approach is empirical. While the thresholds used in the relative approach can be directly derived from easy to calculate and widely available statistics (e.g., median earnings), selecting absolute cut-off points is – as my discussion below shows – a more difficult endeavor.

Here I adopt the absolute approach. Although I find the notion of social inclusion attractive from a social-philosophical point of view, and although I agree that as societies become richer the set of needs deemed to be basic expands (for empirical evidence, see Fisher 1995), I have chosen to use the absolute approach for three related pragmatic reasons. First, in the United States today, inequalities of *outcomes* – and this is, at the end, to what the relative approach directs attention to – are much less of a public concern than (absolute) poverty.[5]

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[5] In five nationally-representative surveys conducted in recent years, the vast majority of respondents said (i) they were worried a great deal (64.3 percent) or a fair amount (25.5 percent) about poverty; (ii) they believed that too many jobs being part-time or low-wage was either a major (56.3 percent) or a minor (33.3 percent) cause of poverty; (iii) they considered poverty was a big problem (68.7 percent) or somewhat of a problem (25.3 percent); (iv) they opined poverty was a big (67 percent) or a moderate (24 percent) problem; and (v) they would support (81.3 percent) an increased effort by the federal government to address poverty in America. In contrast, asked to identify which position was closer to their view in a 2008 survey, (vi) 70.2 percent of respondents chose "It is more important to ensure everyone in America has the opportunity to reach the highest echelon of income and wealth even if not everyone makes it," while only 29.8 percent chose "It is more important to reduce inequality in income and wealth levels in America." Although there is research showing that people in the United States do care about excessive inequalities in outcomes (Kenworthy and McCall 2009; McCall and Kenworthy 2009), it still seems clear that poverty is a much stronger concern than inequality.

The surveys referred to above are (i) a survey by Public Interest Project, conducted by Greenberg Quinlan Rosner Research in October 21-October 26, 2003, and based on telephone interviews with a national, registered likely voters sample; (ii) a survey by National Public Radio, Henry J. Kaiser Family Foundation, and Harvard University's Kennedy School of Government, conducted by ICR-International Communications Research in January 4-February 27, 2001, and based on telephone interviews with a national adult sample of 1,952; (iii) a survey by Henry J. Kaiser Family Foundation, conducted by Princeton Survey Research Associates International in October 4-October 9, 2005, and based on telephone interviews with a national adult sample of 1,200; (iv) a survey by Marguerite Casey Foundation, conducted by Lake Snell Perry & Mermin & Associates/Decision Research in September 30-October 3, 2005, and based on telephone interviews with a national adult sample of 1,000; (v) a survey by Foundation for Ethnic Understanding, conducted by Global Strategy Group in September 29-October 10, 2005, and based on telephone interviews with a national adult sample of 1,388; and (vi) a survey by Rockefeller Foundation and Time, conducted by Penn, Schoen and Berland Associates in June 19-June 29, 2008, and based on telephone interviews with a national adult sample of

Hence, although inequalities of outcomes may be *causally* connected with poverty, the fact that the latter is *necessarily* associated to material deprivation and human suffering while the former is not, makes analyses of the labor market that are directly relevant to poverty more consequential from a political point of view. Second, empirical analyses using the absolute approach are cast in the language dominant in the poverty, welfare and labor-market policy fields, and are clearly germane to the avowed goals of the main actors – legislatures, government agencies, community-based organizations, private foundations, "policy networks," and so on – in these fields; this should improve those analyses' chances of having some policy impact. Lastly, far from being an academic argument of interest only for political philosophers, the Rawlsian argument has been ubiquitously employed in many social arenas to disqualify egalitarian concerns and to justify large inequalities. Adopting the absolute approach to examine the role of the labor market in the production of material welfare makes this gambit unfeasible.

How can we make the absolute approach operational? The first thing to note is that although total compensation – including various benefits – is what is relevant for the material welfare of workers and their families, most often only information on earnings is available for empirical analysis. Fortunately, pay is – especially at the bottom of the labor market – by far the most crucial component of jobs' compensation. Therefore, and given that in most cases data limitations do not allow me to construct more comprehensive measures, employing hourly wages, and other measures of earnings when wages are not available, appears as a

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2,008. All data provided by The Roper Center for Public Opinion Research, University of Connecticut.

reasonable methodological strategy.[6,7] The problem then becomes how to select one or more

earnings thresholds.

In the literature on the low-wage labor market (e.g., Bernstein and Hartmann 2000;

Mishel, Bernstein et al. 2007:125 and ff.), it is common to characterize low-wage jobs or to

define job-quality categories using thresholds related to the federal poverty line for a

particular family composition.[8] The federal poverty lines are defined in terms of annual

family incomes for different family compositions, not in terms of hourly wages. As it is

widely accepted that these thresholds greatly underestimate the amounts of money required to

avoid poverty (see, e.g., Acs, Ross Phillips et al. 2001; Boushey, Brocht et al. 2001; Citro and

Michael 1995; Bernstein 2001), one common way of proceeding is to take multiples of the

poverty line for some family composition (e.g., a family of four with two children), and divide

the resulting amount by 2080, the number of hours that a full-time worker would work in a

year if he or she works year-round.

One shortcoming of this approach is that the federal poverty lines do not have much of

a social-scientific foundation to them today (see Fisher 1992 for their history). Another

shortcoming is that taking a somewhat arbitrary multiple of the poverty line for a somewhat

arbitrarily-chosen family composition, and dividing it by the number of hours one full-time,

year-round worker works in a year, does not operationalize any clear scientific notion even if

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[6] For a similar strategy see, among others, Bluestone and Harrison (1988), Costrell (1990), Farber (1997),
Houseman (1995), Ilg (1996), Loveman and Tilly (1988), Meisenheimer II (1998), President's Council of
Economic Advisors (1996), Rosenthal (1995), and Wright and Dwyer (2003), all of which use wages as an
indicator of job quality.

[7] For convenience, I use the term "wage" to designate the hourly earnings of both hourly and non-hourly
workers.

[8] Each "family composition" – an *ad-hoc* term I employ for brevity – is a combination of family size and number
of children younger than 18.

it provides some information. As Annette Bernhardt, Martina Morris and their coauthors –

who employ the absolute approach in their work, but do not take the federal poverty lines as

reference – have put it, the resulting wage threshold is just a way of "capturing a group of

workers who earn what we would intuitively consider low wages" (Bernhardt, Morris et al.

2001:153). The last but most important shortcoming for the kind of analyses I will be

conducting here is that, after their initial introduction between 1963 and 1965, the federal

poverty lines have been defined each year simply by adjusting the original thresholds by

inflation, using two consumer price indices.[9] However, as explained in the Appendix, these

price indices do not provide methodologically consistent estimates of inflation over time,

making wage thresholds derived from the official federal poverty lines of each year unfit for

historical comparisons.[10]

Instead of employing wage thresholds related to the federal poverty line for some

family composition, here I take as reference the basic family budgets that the Economic

Policy Institute has calculated for 566 urban areas and 48 rural areas covering all states in the

country (Lin and Bernstein 2008a). A basic family budget is defined as the pre-tax "annual

family income required to maintain a safe but modest standard of living" (Lin and Bernstein

2008b:2). For families with two parents and two children, the nationwide average basic family

budget in 2007 was $48,778. Assuming that the adults in the family work the equivalent of

two full-time, year-round jobs in a year, the average hourly wage they would have needed to

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[9] The Bureau of Labor Statistics used the Consumer Price Index for Urban Wage Earners and Clerical Workers until the early 1980s, when it started using the Consumer Price Index for All Urban Consumers (Fisher 1992).

[10] One way of addressing this issue is to adjust wages by inflation using the CPI-U-RS (see Appendix), and then use the poverty line of a particular year to classify jobs or workers. Here the problem becomes how to choose between the poverty lines of different years.

generate that income in 2007 is a little less than $12.[11] In this paper I use this amount as a

reference point – but in a way somewhat different from the manner in which previous

research has employed wage thresholds related to the federal poverty lines.

Indeed, rather than using the $12 threshold to *define* low-wage jobs and workers, I will

use it to delimit the jobs and workers on which I will focus my attention. Thus, I will focus on

segments of the empirical wage distribution up to $12, and I will conduct my analyses using

not only this threshold but several lower thresholds as well. This way of proceeding has three

main advantages. First, it makes conclusions more robust than if a somewhat arbitrarily-

chosen wage threshold is used to define low-wage jobs. Second, it naturally leads to

examining different parts of the bottom of the job structure. Lastly, it eschews the implication

that there is a simple and direct relationship between wages above/below a threshold and

poverty at the individual level.

Low-wage jobs and workers today: basic facts

Pay and benefits

There are plenty of low-wage jobs in today's U.S. economy. Table 1 shows the number and

share of jobs paying no more than seven different low-wage thresholds, between $6 and $12,

in 2007.[12] In that year 37.2 percent of all workers (about 48 million) were in jobs paying at

most $12 per hour, while 27.0 percent (almost 35 million) were in jobs paying at most $10,

and 13.6 percent (17.6 million) were in jobs paying at most $8. Working full-time, year-

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[11] Just for reference, $12 corresponds to the 35th to 37th wage percentile for the whole population in 2007, to the 33rd to 35th percentile for the population ages 18-64, and is equivalent to 80 percent of the median wage of that year for either population. These are my calculations, using data from the CPS–ORG, 2007.

[12] All the microdata used in this paper are worker-, not job-, based. However, as in the United States only 5.3 percent of people held more than one job in 2007 (Borbely 2008:11), and as job sharing is undoubtedly an extremely marginal phenomenon, I will most often refer to jobs and workers as if there were a one-to-one matching between them.

round, these workers could have made at most $25,000 that year, but Table 2 suggests that most of them earned far less than that; for instance, the median annual earnings of those making *on average* no more than $12, $10 and $8 per hour over the year were $13,000, $10,700 and $7,975, respectively.[13]

Low-wage jobs not only pay little but also are much less likely to provide benefits to workers than better-paid jobs. Figure 1 shows the results of running kernel-weighted local polynomial (KWLP) regressions of dummy variables indicating whether workers had (several types of) employer-based health insurance and were included in an employer-sponsored pension plan, at any time over 2007, on workers' average hourly wages in that year.[14] Each line shows the fitted proportion – estimated nonparametrically – of workers who received the corresponding benefit at each pay level.

The share of workers with health insurance provided by their own employers hovers around 70 percent for those earning $20 per hour or more, but falls precipitously for those making less, all the way down to 19.5 percent for those making $6 per hour.[15] As a result, only 28.9, 24.6, 18.9 and 15.6 percent of workers earning no more than $12, $10, $8 and $6 per hour, respectively, received health insurance from their employers in 2007. Very similarly, while about 70 percent of workers making $25 per hour or more in 2007 participated in a pension plan sponsored by their employers, the corresponding rate for workers making $12 was about half that much; at lower wages this rate falls even faster than

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[13] All analyses in this and the next section exclude the self-employed. When relevant, wages include tips (see Appendix for details).

[14] For a comprehensive discussion of kernel-weighted local polynomial regression, see Fan and Gijbels (1996). To avoid cluttering, I do not include confidence bands in this and subsequent figures in which I present the results of KWLP regressions. However, I only present results for regressions in which confidence bands indicated that estimation was precise enough, given the purpose at hand.

[15] For those earning $12, $10 and $8 per hour, their probabilities are 48.5, 38.5 and 28.0 percent, respectively.

in the case of health care insurance. As a consequence, only about one out of six, seven, nine,
and eleven workers making no more than $12, $10, $8 and $6, respectively, received this
benefit in 2007.

Data on the distribution of other benefits by pay level are much more limited.
Nevertheless, it is clear from Table 3, which provides information on the benefits provided by
establishment-job titles in three wage strata in 1997, that low-wage jobs very often do not
offer even some of the most basic benefits.[16] For instance, almost three-quarters of titles in the
lowest wage strata in the table (wages of up to $9.83, in 2007 dollars) did not offer sick leave,
almost half did not offer vacations, one-third did not offer any type of leave, and more than
three-quarters did not offer life or sickness and accident insurance in that year. The shares of
establishment-job titles offering these benefits were substantially higher in the other two
strata; yet, even in the intermediate wage stratum (between $9.83 and $14.74 per hour) close
to half of titles did not offer sick leave.

Industries and occupations

Although low-wage jobs can be found throughout the economy, industries and occupations
vary greatly both in terms of the incidence of low-wage jobs within them and in terms of their
contribution to the overall stock of low-wage jobs. The first issue can be fruitfully examined
with the help of what I call "low-wage profiles." A low-wage profile is the low-wage segment
of the empirical cumulative distribution function of wages for some set of jobs or workers.
Such sets may include all jobs or workers in a country, state, occupation, or industry, or may
be defined in terms of workers' characteristics or in other manners. Each point in a low-wage

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[16] See explanation of the meaning of "establishment-job titles" at the bottom of Table 3, and further discussion in the Appendix.

profile represents the share of jobs or workers in the relevant set that pay or are paid no more than a particular low-wage threshold. In this section my focus is on wages in the (closed) interval from $6 to $12; due to national and subnational minimum-wage laws, the cumulative distribution function at lower wage levels contains little additional information.[17]

Figure 2 presents the low-wage profiles of industries and occupations in 2005-2007. The left panel of Figure 2 indicates that low-wage jobs are very prevalent in farming, fishing and forestry occupations, and in service occupations (jobs in health care support, protective services, food preparation and serving, the cleaning and maintenance of buildings and grounds, and the provision of personal care and services). About four out of five workers in farming, fishing and forestry occupations, and two out of three in service occupations, made no more than $12 per hour in 2005-2007. Moreover, in both groups of occupations more than half of all workers made no more than $10, between one-quarter and two-fifths made no more than $8, and close to one out of ten workers earned near-minimum, minimum, or subminimum wages. At the other end of the spectrum, low-wage jobs are quite uncommon in professional and related occupations, and in management, business and financial occupations; nevertheless, even in these upper-level occupations about one out of ten jobs paid less than $12 per hour in 2005-2007. The low-wage profile of installation, maintenance and repair occupations, although located, as expected, mostly above the profile of professional and related occupations, is, somewhat surprisingly, quite close to it. The low-wage profiles of sales and related occupations, transportation and moving occupations, production occupations, and office and administrative support occupations cluster together at $12, with between two-fifths and half of all their jobs paying no more than this threshold; however, for

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[17] In 2007 the federal minimum wage was $5.85; several states had much higher minimum wages in that year.

lower thresholds, the low-wage profiles of transportation and moving occupations and, more markedly, of sales and related occupations, show substantially higher shares of low-wage jobs than the profiles of the other two groups of occupations. For all low-wage thresholds the share of low-wage workers in construction and extraction jobs is lower than in any of the four groups of occupations just considered, but still higher– in particular for wage thresholds between $10 and $12 – than in installation, maintenance and repair occupations.

The low-wage profiles of industries, in the right panel of Figure 2, show less total variation but also clearer clustering patterns than the profiles of occupations. There are four groups of industries (including two groups with only one industry each). First, leisure and hospitality – which includes jobs in food services and drinking places, accommodation, and arts, entertainment, and recreation – has a low-wage profile that is well above the rest. This indicates that this industry has a higher share of low-wage jobs than any other industry, for any low-wage threshold. Almost seven out of ten jobs in this industry pay no more than $12 per hour, five out of ten pay no more than $9, and two out of ten pay no more than $7. Second, the low-wage profiles of natural resources and mining, retail trade, and other services (repair and maintenance, personal and laundry services, membership associations and organizations, and private households) are quite similar among them. In these industries the share of workers making no more than $12 per hour ranges from 50 to 57 percent, while the corresponding shares for the $10 and $8 thresholds are close to 40 and 20 percent, respectively. Third, the low-wage profiles of all other industries but public administration are rather tightly clustered together, with shares of about 30, 18 and 8 percent of workers making no more than $12, $10 and $8 per hour, respectively. Lastly, the low-wage profile of public

administration is further down; government jobs have a lower share of low-wage workers than any industry for any wage threshold above $7.50.

As firms in different industries have job structures with different mixes of occupations, cross-occupation differences in low-wage profiles are one possible reason for the observed cross-industry differences in profiles. Do cross-industry differences mostly reflect differences in occupational composition? Figure 3 presents industry low-wage profiles within occupations, that is, low-wage profiles for "industry-occupation cells." These profiles suggest that differences across industries do not result only from differences in occupational mixes.[18] Indeed, cross-industry differences in low-wage profiles get significantly attenuated only in some occupations, while the sets of industry low-wage profiles exhibit very similar patterns across all occupations; these patterns are also similar to the pattern found in the right panel of Figure 2.[19] In particular, the low-wage profiles for leisure and hospitality, retail trade, other services, and natural resources and mining tend to be located significantly above the profiles of the other industries, while the profile for public administration tends to be near or at the bottom. This evidence does not provide much information about the mechanisms that lead to cross-industry differences in low-wage profiles across occupations – the observed patterns are consistent with a large variety of possible explanations – but it does indicate that industry-level factors may have a role to play in accounting for the evolution of low-wage work in the United States.

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[18] I say "suggest" because it could be argued that cross-industry differences in low-wage profiles may still be the result of differences in occupational mixes that the broad occupational classification employed in my analysis is unable to capture; of course, a symmetric argument can be made regarding the industrial classification.

[19] To see that cross-industry differences in low-wage profiles get attenuated in some occupations, observe that the range of the vertical axis is much smaller in some occupations than in the right panel of Figure 2.

Tables 4 and 5 show the contribution of industries and occupations to the stock of low-wage jobs in 2007, for four different low-wage thresholds. The three top industries – education and health services, retail trade, and leisure and hospitality – account for between 53 and 63 percent of all low-wage jobs, depending on the low-wage threshold employed. Likewise, the top three groups of occupations – service occupations, office and administrative occupations, and sales and related occupations – account for between 62 and 69 percent of all low-wage jobs. The preponderance of service industries and service, sales and related, and low-level white-collar occupations among low-wage jobs is not very informative, given that almost 80 percent of all jobs were in the service-providing sector in 2007.[20] It is of importance, however, that retail trade and leisure and hospitality are widely overrepresented among low-wage jobs; in leisure and hospitality, in particular, the industry's share of jobs paying no more than $6 – essentially, minimum wages – is more than three times its share of all jobs. Likewise, service occupations and sales and related occupations are greatly overrepresented among low-paying jobs, in particular at the $8 and $6 thresholds.

Low-wage workers and individual characteristics

It is often asserted that mainly teenagers and other young workers without family responsibilities fill low-wage jobs. Figure 4 indicates that this oft-recited argument is incorrect. Each line in the left panel of the figure shows the share of low-wage workers who are not older than each age between 16 and the age of the oldest low-wage worker, for each of four different low-wage thresholds. The vertical distance between two points in any of these lines represents the proportion of low-workers, for a specific low-wage threshold, in the

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[20] This is my calculation using data from CPS-ORG. A similar calculation using establishment-based data from the Current Employment Statistics program (CES) of the U.S. Bureau of Labor Statistics, accessed at ftp.bls.gov/pub/suppl/empsit.ceseeb1.txt, puts this share at almost 84 percent.

corresponding age interval. The figure shows that a rather small proportion of low-wage workers – between 11.1 and 20.5 percent, depending on the low-wage threshold – are teenagers. That is, even in the case of near minimum and minimum wage jobs (jobs paying no more than $6 per hour), almost four-fifths of workers are *not* teenagers. Second, between almost three-fifths (for the $6 threshold) and two-thirds (for the $12 threshold) of low-wage workers are older than 25. Lastly, between one-quarter and one-third of all low-wage workers are "prime-age" workers (workers aged 36-55).

The right panel of Figure 4 shows the fitted proportions of low-wage workers at each possible age, estimated using KWLP regressions, for four different low-wage thresholds. Regardless of the threshold, the share of workers that are low-wage falls rapidly between the ages of 16 and 30, and increases again, less markedly, after 60. Nevertheless, large proportions of workers well in their late twenties and early thirties make less than $12, $10 and even $8. Even between the ages of 40 and 60, close to one-quarter of workers hold jobs paying no more than $12, close to 18 percent hold jobs paying no more than $10, and about 8 percent fill jobs paying no more than $8 per hour.

The age distributions of low-wage workers in the left panel of Figure 4 indicate that most of them are not at the start of their careers, "churning" or "milling about" among jobs while they find out what they like to do or what they can do well, before transitioning to stable and better-paying employment and taking on family responsibilities.[21] Table 6 and Figure 5 provide additional evidence. The table summarizes information on the marital status of low-wage workers. It shows that in 2007 between 47 and 56 percent of low-wage workers, depending on the wage threshold, were married or had been married (that is, were separated,

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[21] For the nature of job mobility at the start of careers see, for instance, Topel and Ward (1992).

widowed or divorced), and that the corresponding shares were about 10 percentage points higher among women than among men. Even among those making no more than $6 per hour in that year, close to half were or had been married. Figure 5 shows the results of performing KWLP regressions of dummy variables indicating whether low-wage workers had children of their own living with them, on these workers' wages. The proportion of low-wage workers with children younger than 18 goes up with their wages, from close to 25 percent at $6 per hour to about 34 percent at $12. There are, however, marked differences across genders. The share of female low-wage workers with children younger than 18 is substantially higher than that of males for wages below $9; above this threshold the shares of male and female low-wage workers start to converge, until becoming very similar for workers making $12 per hour. For obvious reasons, the share of low-wage workers who have children younger than 6 is smaller than the share who have children younger than 18 – between 12 and 15 percent of workers, depending on the threshold, have children up to five years old living with them. Nevertheless, the patterns of gender differences are essentially the same in both cases.

The left panel of Figure 6 shows the educational attainment of low-wage workers for all wage thresholds between $6 and $12. The distances between consecutive lines at any wage threshold represent the shares of workers making no more than that threshold, who have one of six different levels of educational attainment – from lack of high school degree to any postgraduate degree (professional, master's or Ph. D.). The figure shows very clearly that the ranks of the low-wage workers are far from including only people with low levels of educational attainment. Indeed, a substantial proportion of low-wage workers have college studies, and many – between 13 and 18 percent, depending on the wage threshold – have college degrees or even postgraduate education. Nevertheless, most low-wage workers –

between 59 and 66 percent, depending on the threshold – lack college education. Among

workers making no more than $12 per hour in 2007, more than one-third were high school

graduates and close to one-quarter had less education than that. At lower wage thresholds the

share of low-wage workers without a high school degree rises, reaching 33 percent at the $7

per hour threshold.

The right panel of Figure 6 shows the low-wage profiles of people with the same six

educational attainment levels distinguished in the left panel, and two aggregate low-wage

profiles (represented with dashed lines) for workers with and without a four-year college

degree. Almost three-quarters of workers without a high school degree are low-wage at the

$12 low-wage threshold, but this share falls rapidly and reaches less than 10 percent at $6.

Those with a high school degree have a little more than half the chance of being low-wage

than those lacking this degree, regardless of the low-wage threshold. This relationship also

holds at all higher levels of credentialized educational attainment – for all higher-level

degrees, the share of people with each degree who are low-wage is a little above half the

corresponding share for the educational-attainment group with a degree one level down, for

all low-wage thresholds.

The summary low-wage profiles convey important additional information. They

indicate that, in 2007, almost half of the 90 million workers without four-year college degrees

held jobs paying no more than $12, while better than one-third held jobs paying no more than

$10.[22] Even if we restrict our analysis to workers older than 25 or to prime-age workers

(workers 36-55 years old), the corresponding shares are still strikingly high: 39.3 and 27.0

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[22] The exact figures are 47.7 are 35.3 percent.

percent in the former case, 34.8 and 23.5 percent in the latter.[23] Critically, those most likely to be affected by the low quality of the employment structure are not a small minority but about two-thirds of the population. In spite of the fact that, among all countries, the United States has the third largest share of 25-64 year olds with at least a four-year college degree, 69.7 percent of the entire workforce, 66.1 percent of workers older than 25, and 66.5 percent of prime-age workers did not have a four-year college degree in 2007.[24]

The left panel of Figure 7 shows, for each wage threshold between $6 and $12, the distribution of low-wage workers by gender, race and citizenship status in 2005-2007.[25] This distribution changes little for thresholds between $8 and $12, with women comprising about 57 percent, noncitizens close to 15 percent, and nonwhite citizens close to 28 percent of low-wage workers. As the value of the low-wage threshold moves from $8 to $6, the share of noncitizen men fall while the share of citizen white women rises; as a result, among workers earning near-minimum and minimum wages, the overall share of women is better than three-fifths and that of noncitizens significantly smaller, in relative terms, than their average share between $8 and $12. At no less than one-third of all low-wage workers for any threshold, citizen white women are the largest ascriptive-status group among low-wage workers, while citizen white men, at less than one-quarter, are the (distant) second largest group.

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[23] My calculations using data from CPS-ORG, 2007.

[24] According to data from the Organization of Economic Co-operation and Development, at 30 percent the United States was the country in 2006 with the third largest share of graduates from type A and advanced research programs in tertiary education among people 25-64 years old, right after Israel (31 percent) and Norway (31 percent). Data accessed at http://dx.doi.org/10.1787/401474646362, Table A11a. In the International Standard Classification of Education (ISCED-97) employed by the OECD, Type A and advanced research programs in tertiary education are, combined, the closest categories to the U.S. "four-year college degree and above." Figures on share of workforce, share of workforce older than 25, and share of prime-age workforce without a four-year college degree are my calculations using data from CPS-ORG, 2007.

[25] The category "whites" includes non-Hispanic whites only; Hispanics are included among nonwhites.

The relative importance of different ascriptive-status groups among low-wage workers is not, of course, a good indicator of the relative chances that workers in those groups have of holding low-wage jobs. The low-wage profiles in the right panel of Figure 7 show clearly that, if employed, noncitizen women – the smallest group in the left panel – have by far the highest chance of being low-wage, for any low-wage threshold, while citizen white men – the second largest group in the left panel – have by far the lowest.[26] Thus, while almost two-thirds of noncitizen women held jobs paying less than $12 per hour in 2005-2007, only one-quarter of citizen white men held such type of jobs. Among citizens, white women and nonwhite men have almost identical chances of being low-wage, regardless of the low-wage threshold; almost two-fifths of them held low-wage jobs at the $12 threshold in 2005-2007, with this share falling about seven percentage points for each one-dollar reduction in the low-wage threshold. Noncitizen men and citizen nonwhite women also have quite similar chances of being low-wage, regardless of the threshold. Their chances of holding low-wage jobs are consistently higher than those of citizen white women and nonwhite men for values of the low-wage threshold in the $8 -$12 range; for lower values, noncitizen men's chances are similar to the latter groups' chances.

Observed differences in labor market outcomes across ascriptive-status groups could conceivably be mostly, if not exclusively, an epiphenomenon of differences in educational-attainment across groups. Sociologists, however, have consistently rejected this hypothesis, by pointing to a large variety of social mechanisms that causally connect ascriptive statuses to labor market outcomes and that do not operate "through" people's education or, more generally, through people's human capital (e.g., Reskin 2003; Reskin and Roos 1990;

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[26] For simplicity, in the rest of this paragraph I omit the qualification "if employed."

Tomaskovic-Devey 1993; Marini 1989). Are the substantial differences among low-wage

profiles found in Figure 7 simply a byproduct of differences in educational attainment? Figure

8 presents the low-wage profiles of the same ascriptive status groups distinguished in Figure

7, but now separates workers with different levels of educational attainment. The figure

shows, first, that the differences in low-wage profiles across workers with different ascriptive

statuses previously observed get substantially attenuated when educational attainment is taken

into account. Second, it shows that the degree of attenuation increases markedly with

educational attainment. While, apart from the moderately higher low-wage profile of

noncitizen women, ascriptive statuses make virtually no difference for workers with

postgraduate degrees and little difference for workers with four-year college degrees, they are

still associated with large differences in low-wage profiles for workers without any

postsecondary education. The situation for workers with some college and with associate's

degrees is in between these two poles. Third, with the partial exception of workers who lack a

high-school degree, the sets of low-wage profiles exhibit quite similar patterns across all

levels of educational attainment; these patterns are also similar to the pattern found in the

right panel of Figure 7. [27]

Similar to what I pointed out when discussing cross-industry differences in low-wage

profiles, this evidence does not provide any information about the mechanisms responsible for

the differences in low-wage profiles across people with similar educational attainment but

different ascriptive statuses. Nevertheless, it strongly suggests that the gender, race and

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[27] In particular, the low-wage profile of noncitizen women tends to be located strictly above all other profiles; the profile of citizen white men tends to be located strictly below all other profiles; the profile of citizen nonwhite men tends to be located between the profile of citizen white men and all other profiles; and the profiles of noncitizen men and citizen women (both white and nonwhite) tend to be located between the profile of noncitizen women and the profile of citizen nonwhite men.

citizenship – among other ascriptive characteristics – of workers cannot be ignored in accounts of the nature and evolution of low-wage work in the United States and, in particular, in accounts of the social mechanisms determining the way in which the costs of a job structure with millions of low-wage jobs are distributed among workers.

Low-wage jobs and workers' welfare

Should low-wage jobs be a normative concern? Given that workers are often covered by their spouses' or parents' health care insurance, or by federal or state public programs, is it of consequence that most low-wage jobs – between 71 and 86 percent, depending on the low-wage threshold – do not offer any type of employer-based health care insurance? Likewise, given that people live in families or enter into other collective living arrangements in which they pool resources, and that the Earned Income Tax Credit supplements the earnings of low-wage workers while other government programs assist them in getting food, housing, and other necessities, is there any reason to worry about the fact that 48 million workers are paid no more than $12 per hour, and most often much less than that? This section addresses these questions by examining whether resource-pooling and public programs, including the EITC, make people's satisfaction of their basic needs independent from their labor market outcomes.

Health care

Access to health care is certainly a good place to start. In all highly-developed countries but the United States access to adequate health care is a universal right, guaranteed in one way or another by the state. The United States stands alone both in the degree to which the production and delivery of health care services is left to the market, and in the degree to which people's access to health care insurance, and its quality, depends on their employment or that of family members. This is not to say, however, that people only obtain health care

insurance from employers. The full menu of ways in which people get health care insurance

includes several forms of private health care insurance – employer-based, union-based, or

obtained by direct purchase of individual health care plans – and several forms of government

health care insurance – provided by the federal programs Medicare and Medicaid, by the State

Children's Health Insurance Program (SCHIP) and other state health plans, and by any of a

handful of military health care insurance programs.[28] People who are not covered by any of

these types of health care insurance mostly resort to community or charity-funded clinics, use

emergency room services, or make it without health care. Not surprisingly, health outcomes

for those that lack health care insurance are substantially worse than for insured people; in

particular, the former's mortality rates, when sick, are appallingly higher than the latter's

(Committee on the Consequences of Uninsurance 2002).

The left panel of Figure 9 shows the result of performing a KWLP regression of a

dummy variable indicating whether workers lacked all types of health care insurance during

the whole year in 2006 on workers' average hourly wages in that year.[29] The line is thus the

fitted proportion of uninsured workers at each pay level. It shows that the probability of lack

of insurance is closely associated to wages, with this probability growing exponentially as

wages fall. On average, for each 1 percent reduction in wages there is 1.21 percent increase in

the probability that a worker is uninsured. This translates into between 30 and 34 percent of

low-wage workers, depending on the low-wage threshold, lacking all types of insurance. In

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[28] The latter include TRICARE, CHAMPUS, CHAMPVA, VA, and other programs.

[29] Observe that, in principle, the share of workers uninsured at any time during 2006 should be higher, and perhaps much higher, than the shares reported in Figure 9, which refer to those uninsured for the full year. However, it has been noted that, for a variety of reasons and compared with other national surveys, estimates of the number of people without health insurance based on data from the CPS-ASEC appear to more closely approximate "the number of people who were uninsured at a specific point in time during the year than the number of people uninsured for the entire year" (DeNavas-Walt, Proctor et al. 2008).

comparison, only 6.6 percent of workers making at least $20 per hour are uninsured. Given

how the provision of health care is organized in the United States, the proliferation of low-

wage jobs that do not provide health care insurance does have serious consequences for

workers and their families.

Poverty

A broader assessment of whether low-wage jobs should be a reason for concern hinges on the

question of whether low-wage workers suffer hardship and material deprivation more

generally.[30] The investigation of this issue is marred by serious difficulties. There is a great

amount of geographical variation in the money that similar families need to make ends meet

(Boushey, Brocht et al. 2001; Lin and Bernstein 2008b; Citro and Michael 1995). The

country's residual welfare state comprises a bewildering patchwork of programs at all levels

of government, which furnish assistance not only by providing cash benefits but also

subsidized or free services and other forms of in-kind help.[31] The assistance available and

eligibility rules – which include, in some cases, time limits – vary geographically and change

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[30] An alternative approach, more appealing in several respects, would be to assess whether low-wage workers are poor in the sense of the capability-deprivation approach advocated by Amartya Sen and others (see, for instance, the papers in Nussbaum and Sen 1993). Among other things, adopting this approach would take into account that material deprivation and hardship are partially endogenous to people's decisions, even for a given level of income. For instance, people are often able to avoid material deprivation by entering into living arrangements that they would strongly prefer to avoid; in a clear sense, these people are capability-deprived even if not materially-deprived. Unfortunately, the data needed to produce an assessment along these lines are not available.

[31] The country's welfare state includes, among other programs, federal, state, and joint federal/state programs that provide assistance in cash (e.g., Supplemental Security Income, Temporary Assistance for Needy Families, Unemployment Insurance, and state-level general relief and disability programs); national and subnational-level programs that provide assistance in the form of restricted-use purchasing power (e.g. the Supplemental Nutrition Assistance Program, and state-, county- and city-level programs that grant child care subsidies to eligible families); joint federal/state programs that provide health care insurance (e.g., Medicaid, SCHIP); federal and state tax provisions that help low-income workers and low-income families with children by offering them (in some cases, refundable) tax credits (e.g., the federal Earned Income Tax Credit and Child Tax Credit, and their state counterparts); and a variety of joint programs between the federal government and subnational jurisdictions that aim at providing affordable – that is, subsidized or below market-price – housing to low-income families and individuals.

over time. In addition, low-income families often do not take advantage of programs for which they are eligible (e.g., Albelda and Boushey 2007). All this greatly complicates determining what the minimum incomes that families of various compositions typically need to avoid hardship and material deprivation are.

The federal poverty lines should provide some guidance in this respect but, as I already indicated, most researchers agree that these thresholds greatly underestimate the amount of money families need to avoid poverty. A seemingly appealing alternative is to use available basic family budgets to determine the minimum income families require to satisfy their basic needs. These budgets have a stronger methodological foundation than the official poverty lines and, most importantly, they take into account geographical variations in the cost of living.[32] Although there may be conceptual reasons to avoid using them in historical research when an absolute-poverty approach is being employed, this would not be a problem for the limited purpose I have in this section. The main obstacle for employing basic family budgets in this section is pragmatic – up-to-date budgets only exist for a subset of all family compositions.[33]

Researchers, aware of the shortcomings of the official poverty lines, have used a variety of thresholds to identify those families that are poor, or sometimes near-poor or low-income (in an absolute sense). John Schwarz and Thomas Volgy (1992) used thresholds equal to 155 percent of the official poverty lines. Marlene Kim (1998) utilized thresholds equal to 125 and 150 percent of the official poverty lines. The U.S. Census Bureau regularly reports poverty rates calculated using four different "experimental" thresholds, which aim at

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[32] For a history of basic family budgets in the United States, see Johnson, Rogers and Tan (2001).

[33] For instance, the basic family budgets calculated by the Economic Policy Institute cover six family compositions, less than one-sixth of all family compositions covered by the federal poverty lines.

measuring how much after-tax income a family needs to cover its most basic needs in terms of "food, clothing, shelter (including utilities), and a small additional amount to allow for other common, everyday needs (e.g., household supplies, personal care, and nonwork-related transportation)" (U.S. Census Bureau 1999:3).[34] For two-adult-two-child families, these thresholds were in 2007 between 12 and 33 percent higher than the corresponding official poverty line. More recently, several studies have used twice the poverty lines as thresholds (Acs, Ross Phillips et al. 2001:Ch. 6; Acs and Turner 2008; Waldron, Roberts et al. 2004; Mishel, Bernstein et al. 2007; Haveman, Holden et al. 2006; Bernstein 2007; Boushey, Brocht et al. 2001).

There is evidence that amounts lower than twice the official poverty lines are very likely to greatly underestimate the minimum pre-tax incomes that families of different compositions typically need to avoid hardship and material deprivation, assuming they do not receive in-kind public support. First, 83 percent of the 3,684 basic family budgets – one budget for each of six family compositions, for each of 614 geographical areas – calculated by the Economic Policy Institute for 2007 are at least 200 percent of the corresponding poverty lines for that year; across geographical areas, the median family budgets for each family composition are between 211 and 243 percent of the respective poverty thresholds.[35] Second, an earlier study that employed a similar methodology to calculate basic family budgets found

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[34] These thresholds are illustrative implementations of the recommendations made by the Panel on Poverty and Family Assistance of the National Research Council of the National Academy of Sciences (Citro and Michael 1995).

[35] The precise "median factors," as percentages, are 215.7 (one parent, one child); 233.0 (one parent, two children); 243.3 (one parent, three children); 223.3 (two parents, one child); 211.4 (two parents, two children); and 227.6 (two parents, three children). Figures in this footnote and in the text are my own calculations, using data on basic family budgets downloaded from www.epi.org/pages/budget_calculator_intro and official poverty lines for 2007. The Economic Policy Institute's budgets are calculated upon the assumption that, for the most part (I discuss the one partial exception in the Appendix), families receive no in-kind public support.

that in 1999 the national median basic budget for a family with two parents and two children was roughly twice the corresponding poverty line, and that most of the over 400 budgets the study calculated ranged between 200 and 300 percent of the corresponding poverty lines (Boushey, Brocht et al. 2001:1, 10-11). Other basic family budget studies have produced similar results (e.g., Pearce and Brooks 1999; Pearce 2001; Dinan 2009; Cauthen 2007). Third, Sylvia Allegretto (2006) showed that for the six family compositions for which the Economic Policy Institute has calculated basic family budgets, national poverty rates estimated using those budgets were approximated reasonably well by using twice the poverty lines as thresholds. Lastly, Heather Boushey and her coauthors found that in 1996 nearly 30 percent of families below twice the poverty line "faced at least one critical hardship such as missing meals, being evicted from their housing, having their utilities disconnected, doubling up on housing, or not having access to needed medical care"; and that over 72 percent of these families "had at least one serious hardship, such as worries about food, missed rent or mortgage payments, reliance on the emergency room as the main source of medical care, or inadequate child care arrangements." (Boushey, Brocht et al. 2001:2). Given this evidence and that more adequate measures are not available, I will use here a total family income of less than twice the poverty line as indicator of poverty, and an income of less than the poverty line as indicator of *severe* poverty. Thus, for example, for a family of four with two children, the thresholds I will use for 2007 are $42,054 and $21,027, respectively. Importantly, the fact that in more than four-fifths of all cases basic family budgets are above twice poverty line suggests that using the latter as poverty threshold provides a *lower bound* for poverty estimates.

An additional complication is that more than one definition of total family income can be employed to determine whether a family is below a poverty threshold or not (Ruggles 1990:Ch. 7).[36] The official poverty rates are calculated using families' total pre-tax monetary income. The range of income sources the Census Bureau considers here is very broad. It includes not only income from work, income from ownership, and retirement income, but also all types of monetary income from public programs, regular monetary assistance from friends or family members living in different households, child support and alimony, and other occasional sources of monetary income.[37] Nevertheless, some commentators (e.g., Besharov 2007) have often argued that by using pre-tax monetary income to determine poverty rates, the official measure does not take into account (i) the contributions that several public programs make to the welfare of low-income people by providing them with services for free or at below-market rates (e.g., health care through Medicaid, Medicare, and SCHIP, affordable housing through any of several programs funded by the Department of Housing and Urban Development, and subsidized electricity through the Low Income Home Energy Assistance Program) and other in-kind forms of support (e.g., food through the Supplemental Nutrition Assistance Program, formerly known as Food Stamps, and through the National School Lunch Program); (ii) the similar contribution of employer-based health care insurance

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[36] In a 1993 report the Census Bureau reported poverty rates using fifteen different income definitions (U.S. Bureau of the Census 1993); more recent research by the Census Bureau (U.S. Census Bureau 2007) focuses on four definitions, three of which are (slightly or importantly) different from the fifteen definitions used in the 1993 report.

[37] More precisely, total pre-tax monetary income includes wages and salaries; income from nonfarm and farm self-employment; unemployment benefits and workers' compensation; income from supplemental security from the federal government; income from public assistance (welfare) programs; income from veteran and survivor benefits; disability payments; social security and other retirement payments; interest, dividends and rents; income from educational assistance (which includes Pell Grants and similar programs, non-governmental scholarships, and financial assistance from employers or friends); child support and alimony; regular financial assistance from friends or relatives not living in the same household; and other sources of monetary income (e.g., income from hobbies, severance pay, and foster child care).

to people's welfare; (iii) the effects of the tax system on people's disposable income, in particular those of the federal Earned Income Tax Credit and other refundable credits that in recent times have become very central pieces of the country's anti-poverty policies (see, e.g., Hotz and Scholtz 2003); and (iv) the fact that people who own their houses receive an implicit "rental income" from them.

Given that the Economic Policy Institute's basic family budgets that I am taking as reference do take into account that families have to pay taxes and may receive tax credits, and that I use twice the poverty lines as lower-bound proxies for those budgets, a pre-tax definition of income is appropriate. However, it is still the case that the pre-tax monetary income used in calculating official poverty rates does not take into account any nonmonetary resources that families may receive. To deal with this issue I will use two additional income definitions. The first definition adds to monetary income estimates of the market value of food stamps and school lunches, an estimate of the monetary value of the subsidy that results when a family lives in public or otherwise subsidized housing, and the monetary value of energy assistance. I call this income "pre-tax income I". The second income definition, which I call "pre-tax income II," adds two items to the previous definition. First, it adds an estimate of the net value of the housing services that homeowners receive by virtue of the fact that they own, partially or fully, their homes; this adjustment aims to reflect that homeowners may need less money to avoid material deprivation than renters. Second, this income definition adds an estimate of the "basic family budget value" of employer-provided health care insurance, Medicare, Medicaid, SCHIP, and military health care insurance programs. That is, for those who are covered by any health care public program or by employer-based health care insurance, this adjustment raises their income by an amount that is a proxy for the cost of

health-care insurance in their basic-family-budgets, in the same way as twice the poverty lines are proxies for their full basic family budgets. Both of these adjustments involve upward biases (see Appendix), thus accentuating the already-noted lower-bound nature of poverty estimates that use twice the poverty lines as poverty thresholds.[38]

The right panel of Figure 9 shows the results of performing six KWLP regressions of dummy variables indicating whether in 2006 workers' families were poor or severely poor, according to each of the three definitions of income just discussed, on workers' average hourly wages in that year.[39] Each line represents the fitted proportions of either poor or severely poor workers, according to one of the three definitions of total family income just introduced, at each pay level. Several points are worth stressing. First, even more markedly than in the case of health care coverage, there is a strong negative association between all family poverty measures and average hourly earnings. For hourly earnings lower than $20, each $1 dollar reduction in hourly earnings is associated, on average, to an increase of 3.4 percentage points in the incidence of poverty among workers, regardless of the definition of total family income utilized. A similar relationship obtains between the prevalence of severe poverty among workers and hourly earnings, for earnings lower than $15.

Second, when hourly earnings reach $18 severe poverty among workers disappears – at least for most practical purposes – while poverty rates fall to between 5 and 6 percent, depending on the income definition employed. At hourly earnings of about $25, and

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[38] For the methodology used to calculate the items added in these two income definitions but the last item, see U.S. Census Bureau (1993). As a proxy for the health care costs included in a basic family budget I use twice the corresponding poverty line multiplied by the median of the proportion of health care costs in basic family budgets. This median proportion is 0.092, that is, at the median, health care expenses comprise close to 10 percent of all expenses included in a basic family budget.

[39] I use 2006 instead of 2007 data, unlike in most other cases, because the 2007 data necessary to compute pre-tax income I and II were not available at the time I conducted my analysis.

regardless of income definition, the incidence of poverty gets to its lowest point, close to 2 percent.

Third, taking into account school lunches, food stamps, subsidized housing, and energy assistance makes little difference (so little that it is hardly visible in the figure) for the proportion of workers deemed poor at each pay level, but it does make a difference for the proportion of them that are severely poor. For instance, the share of workers making $8 per hour who are severely poor falls from 11.7 to 10.5 percent when these forms of in-kind assistance are taken into account. Including as family income the value of homeowners' housing services and the basic family budget value of health care coverage by public programs and by employer-based insurance reduces significantly the share of low-wage workers whose families are deemed poor and severely poor.

Nevertheless, all these adjustments do not alter the main conclusion one would draw by simply using pre-tax monetary income. Even if the broadest possible definition of income is employed, the high incidence of poverty and severe poverty rates among low-wage workers is still a reason for deep concern. Table 7 shows poverty and severe poverty rates among low-wage workers for the $12, $10, $8 and $6 thresholds, using the three notions of income I have considered here. The lowest lower-bound estimates of poverty rates for low-wage workers – those using pre-tax income II – are between 37 and 48.8 percent, depending on the low-wage threshold, while the corresponding severe poverty estimates are between 10.5 and 23 percent.[40] These rates are substantially higher for prime-age workers – among workers ages

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[40] And observe that between 14 and 28.6 percent of low-wage workers, again depending on the threshold, are poor according to the official definition of poverty (the first row of severe poverty rates in the table).

26-55, 41.5 percent of those making no more than $12, and 55.7 percent of those making no more than $8, were poor in 2006 (not shown in table).

It is clear that resource pooling, in-kind employment benefits, and the hodgepodge of public programs that comprise the country's residual welfare state fail to protect a very large share of low-wage workers and their families from hardship and material deprivation.

Intra-generational upward mobility/immobility of low-wage workers

The fact that there are plenty of low-wage jobs in today's U.S. economy is compatible with the possibility that the vast majority of workers who hold low-wage jobs at one point in time enjoy a decent standard of living over most of their working lives. This possibility is very often assumed to be an actual state of affairs – at least for those "willing to work hard." In nine nationally representative surveys conducted between 1992 and 2008, between 63 and 76 percent of respondents said they agreed more with the strong proposition that "most people who want to get ahead can make it if they're willing to work hard" than with the rather weak proposition that "hard work and determination are no *guarantee* of success for most people" (italics are mine).[41] Moreover, this belief seems to be shared by those in low-wage jobs; in a

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[41] The surveys and the shares of respondents selecting the first proposition over the second are (i) a survey by American Association of Retired Persons (AARP), conducted by Princeton Survey Research Associates in August 12, 1992-September 8, 1992, and based on telephone interviews with a national adult sample of 1,510 (63.3 percent); (ii) a survey by Times Mirror, conducted by Princeton Survey Research Associates in July 12, 1994-July 25, 1994, and based on telephone interviews with a national adult sample of 3,800 (69.4 percent); (iii) a survey by Pew Research Center for the People & the Press, conducted by Princeton Survey Research Associates in July 14, 1999-September 9, 1999, and based on telephone interviews with a national adult sample of 3,973 (76.3 percent); (iv) a survey by Pew Research Center for the People & the Press, conducted by Princeton Survey Research Associates in August 24, 2000-September 10, 2000, and based on telephone interviews with a national adult sample of 2,799 (75.3 percent); (v) a survey by Children's Research & Education Institute, conducted by Greenberg Quinlan Rosner Research & Public Opinion Strategies in January 8, 2003-January 13, 2003, and based on telephone interviews with a national, registered likely voters sample of 1,000 (75.0 percent); (vi) a survey by Pew Research Center for the People & the Press, conducted by Princeton Survey Research Associates International in December 1, 2004-December 16, 2004, and based on telephone interviews with a national adult sample of 2,000 (70.8 percent); (vii) a survey by Pew Research Center for the People & the Press, conducted by Princeton Survey Research Associates International, in December 7, 2005-December 11, 2005, and based on telephone interviews with a national adult sample of 1,502 (66.0 percent);

recent poll of low-wage workers, 65 percent of them also said they agreed more with the first

proposition than with the second.[42] Most people appear to believe "that opportunity for

economic advancement is widely available," and "that economic outcomes are determined by

individual efforts and talents," two central tenets of what James Kluegel and Eliot Smith

characterized, more than twenty years ago, as the United States' "dominant ideology"

(1986:37).

There is a short distance from these beliefs to the belief that all deserving low-wage

workers move up before long in their jobs, and that for this reason low-wage work is not

something to worry much about. Thus, it is not surprising that the notion that "bad jobs are

not a problem because they are stepping stones to better jobs" has played a central role in

public policy in the last two decades or so. Indeed, this notion underpins the "work first"

philosophy characteristic of both the 1996 welfare reform (e.g., Corcoran, Danziger et al.

2000) and the reconfiguration of the public workforce development system attempted by the

Workforce Investment Act of 1998 (e.g., Eberts and Erickcek 2002; Hartwing 2002; Shaw,

Goldrick-Rab et al. 2006; Grubb and Lazerson 2004:Ch. 4).

(viii) a survey by Pew Hispanic Center, Pew Research Center for the People & the Press, conducted by Schulman, Ronca, & Bucuvalas in February 8, 2006-March 7, 2006, and based on telephone interviews with a national adult sample of 2,000 (66.0 percent); and (ix) a survey by Pew Forum on Religion & Public Life, conducted by Princeton Survey Research Associates International/Schulman, Ronca, & Bucuvalas in May 8, 2007-August 13, 2007, and based on telephone interviews with a national adult sample of 35,556 (69.8 percent). I calculated percentages over those selecting one of the two propositions; I excluded from the denominator those answering "don't know", "neither," and so forth, or who refused to answer (all together, these comprise no more than 3 percent of all respondents in any survey). In a few surveys, the reported percentages result from adding those who said they agreed "strongly" and those who said they agreed "not strongly." Data provided by The Roper Center for Public Opinion Research, University of Connecticut.

[42] Survey by Henry J. Kaiser Family Foundation, The Washington Post, and Harvard University, conducted by Abt SRBI in June 18, 2008-July 7, 2008, and based on telephone interviews with a national adult low-wage workers sample of 1,350. Low-wage workers were defined as adults ages 18-64 working at least 30 hours per week, not self-employed, and earning $27,000 or less in 2007 (65 percent). Data provided by The Roper Center for Public Opinion Research, University of Connecticut.

What does empirical research tells us about the upward mobility and immobility of low-wage workers? I first review the existing evidence on the topic, and then offer some new evidence.

Existing longitudinal evidence

Researchers have most often used data from the PSID to study the earnings mobility of low-wage workers. Using these data, Greg Duncan, Johanne Boisjoly, and Timothy Smeeding (1996) estimated that only 17 percent of workers who turned 21 between 1980 and 1991 were able to attain annual earnings better than twice the poverty line for a family of three by age 25, and that only 42 percent were able to do so even by age 30. Anthony Carnevale and Stephen Rose (2001) showed that almost one-third of male low-earners in 1987, and more than half of that year's female low-earners, were still in the same earnings category five years later; and that among those with low *average* annual earnings in 1983-1987, almost half of males and close to three-quarters of females still had low earnings in 1992.[43] Paul Osterman (1999:76-78) found that close to half of all men between 25 and 40 years old in 1979 who were in the bottom hourly earnings quartile that year, were still in the same quartile in 1995. Finally, the Organization for Economic Co-operation and Development reported that the average cumulative years in low-paid employment between 1986 and 1991, for workers that were low-paid in 1986 and were continuously employed during the five-year period, ranged from 3.5 to 4.1, depending on the definition of low-paid used and on whether all workers or only full-time workers were included in the analysis (OECD 1997:Ch. 2).[44] In spite of the

[43] In this study "low earners" are those making less than $15,000 per year, in 1998 dollars.

[44] The OECD study defined the low-paid threshold in two alternative ways: as the upper limit of the first quintile of the weekly earnings distribution, or as 0.65 times median weekly earnings.

diverse approaches employed in these studies, they all offer evidence that, for a large share of workers, low-wage work is not a short-term experience.

Two other important sources of information on this topic are the National Longitudinal Surveys (NLS) and the Longitudinal Employer-Household Dynamics (LEHD) Program. Annette Bernhardt, Martina Morris, Mark Handcock, and Mark Scott (2001) analyzed data from two NLS cohorts covering the labor market experiences of young non-Hispanic white men in 1966-1981 and 1979-1994. They found, first, that median wage growth was 21 percent lower in the second cohort than in the first. Second, they employed the notion of "permanent wage" – which is a function of a worker's wage trajectory that eliminates short-term fluctuations in order to capture the long-term trend – and used it to characterize workers' long-term careers. In the 1979-1994 cohort, the share of workers who had "low-wage careers" – that is, workers whose permanent hourly wage at age 34 was less than $11 in 1999 dollars ($13.69 in 2007 dollars) – was 28 percent, up from 12 percent in the previous cohort. Moreover, in the second cohort 35.3 percent of those with a high school diploma or less, 25.4 percent of those with some college, and 14.1 percent of those with at least a four-year college degree had low-wage careers. These figures show, on the one hand, that all workers, even those with higher education, are at substantial risk of having a low-wage career. On the other, they show that this risk is particularly acute for those lacking a four-year college degree. Making matters worse, Bernhardt and her coauthors also found that the mean low-wage trajectory in the second cohort was significantly lower than in the first. Importantly, as non-Hispanic white men can be expected to have better-than-average labor market outcomes, average immobility in the whole population is likely to be significantly higher than reported in this study.

Fredrik Andersson, Harry Holzer and Julia Lane recently carried out a large-scale study of mobility in the low-wage labor market employing LEHD data. They found that of those prime-age workers in 1993 who earned less than $12,000 in 1998 dollars each year in 1993-1995, 43 percent had earnings below that threshold each year in 1996-1998, and 29 percent had similarly low earnings each year in 1999-2001 (Andersson, Holzer et al. 2005:50). Strikingly, this study shows important levels of immobility in spite of the fact that the threshold – $15,244 per year in 2007 dollars, which is equivalent to $7.33 per hour for a full-time, year-round worker – is very low, and that the 1993-2001 period dovetails the longest economic expansion in U.S. history.

Ethnographic and small-sample studies convey a message similar to that of large-scale quantitative studies. Katherine Newman (1999:Ch. 6) showed that inner-city hard-working New Yorkers confronted all sorts of difficulties in 1993-1995 when trying to get employment other than in low-end, low-wage jobs. In a quantitative follow-up to this study using a small convenience sample, Newman found that four years later and, again, in the context of a booming economy, 16 percent of the 101 persons in the sample were worse off and 28 percent remained close to their previous real wages; only 38 percent were employed, doing better, and making at least $6.51 per hour ($9.20 in 2007 dollars) (Newman 2000:31).[45] In a later study that attempted to replicate one of Newman's findings with a statistically representative but still small sample, the reported degree of immobility – 58 percent of the 317 persons in the sample made less or at most one dollar more in 1997 than in 1993 – was higher than in the

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[45] Newman drew her sample from the workers and the unsuccessful applicants to four fast-food stores in the original study; the final sample had slightly more workers than rejected applicants.

smaller-sample study (Connolly, Gottschalk et al. 2003:Table 6).[46] Finally, Roberta Iversen

and Annie Armstrong (2006) reported that a majority of the twenty-five low-income families

from Philadelphia, Milwaukee, New Orleans, St. Louis and Seattle, whose lives they followed

closely between 1998 and 2003, could not make substantial economic progress during that

period in spite of the fact that the working adults in those families received more training and

other types of support from ancillary workforce development programs than the typical low-

wage worker receives.[47]

Low-wage immobility: further evidence

In this subsection I present new evidence on the lack of upward earning mobility, or more

simply immobility, of low-wage workers. To this end I use PSID data for 1967-2000 (survey

years 1968-2001). Before presenting my results, however, a few comments regarding the data

are in order. Unlike other longitudinal surveys (e.g., NLS), the PSID has, by virtue of its

design, the invaluable property of being a longitudinal survey that is also approximately

representative of each year's national population. However, this survey also has some

shortcomings. First, the PSID data allow computation of annual average hourly earnings for

household heads and their spouses or partners, but not for other adults.[48] Fortunately, this

does not seem to be a liability given my purposes here. Indeed, given that household heads

and their spouses are in the vast majority of cases responsible for their own sustenance and

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[46] This study used data from the Survey of Income and Program Participation. The finding that this study tried to
replicate is the "larger than expected" (28 percent) number of "high-flyers" – people with real wage gains greater
than $5 over a four-year period – that Newman had found in her follow-up study; high-flyers in the
representative sample were about half as common as in the original convenience sample (Connolly, Gottschalk
et al. 2003:12).

[47] In addition to the literature on earnings mobility I have just reviewed, there is a parallel literature on family
income mobility whose findings are consistent with those reported here. See, for instance, Gottschalk (1997) and
Gottschalk and Danziger (1998).

[48] In what follows, including tables and figures, I use the term "spouses" to refer to both spouses and partners.

that of their families, evidence that they are in low-wage jobs for extended periods of time is, if anything, even more consequential from a normative point of view than if the results pertained to all workers. The second shortcoming is that post-1968 immigrants and their descendants are not represented in most years of PSID data; the few years in which they are represented do not allow computation of most of the immobility measures I use in my analyses, and so I have opted for fully excluding them.[49]

In addition, the introduction of Computer Assisted Telephone Interviewing in 1993 created a temporary break in at least some of the PSID data (Kim and Stafford 2000). In the case of annual average hourly earnings, I found strong evidence of discontinuity for 1992-1994 (survey years 1993-1995). At all deciles of this variable, there is an abrupt upward jump in those years with no counterpart in the CPS-ASEC data. Thus, it seems clear that the PSID data overestimate annual average hourly earnings in 1992-1994. As many of the measures of immobility I utilize below are computed using many years of data simultaneously, simply excluding the 1992-1994 data would have greatly affected the whole analysis. Hence, instead of excluding these years from the analysis I developed and estimated a nonparametric measurement-error model, and used it to correct the data.

This measurement-error model takes as its point of departure that each observed value can be conceived as the result of multiplying the true value of the variable by a positive "error factor" (which may be one, in which case there is no error). It then assumes that this factor is a smooth function of the percentile cutoff point that each observed value represents in the

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[49] Given the original design of the PSID, post-1968 immigrants and their descendants could be in the panel only if they married a person who was already in the panel, or if they were the sons or daughters of such persons. As both are very unlikely events, post-1968 immigrants and their descendants are virtually unrepresented in the "core sample" data I use. In 1997, 1999 and 2001 an additional "immigrant sample" was surveyed. The lack of information for previous years, however, means that these data are of little use for my purposes and thus I do not use them here.

empirical distribution of the variable. Finally, the model assumes that there is a time-changing but still systematic relationship between the true percentile cutoff points of the measures of average annual hourly earnings in the PSID and the CPS-ASEC (see Appendix for more details on this model). After estimating the error factors nonparametrically with the help of CPS-ASEC data and using these estimates to apply value-specific measurement-error corrections to the PSID individual-level data, the 1992-1994 jumps in the deciles of the PSID measure of average annual hourly earnings disappeared almost completely. I have used these corrected 1992-1994 data to generate my results.

My analyses of PSID data for 1967-2000 provide strong additional evidence that, for a large share of low-wage workers, low-wage work is not a short-term condition; I present here some selected results from these analyses. These results involve the notion of "low-wage (quasi) cohort," by which I simply mean all workers that are low-wage in a particular year.[50] For instance, all household heads and their spouses that held low-wage jobs in 1967 constitute the 1967 low-wage cohort. Table 8 shows the proportion of workers in each of the 1967 to 1995 low-wage cohorts that were also low-wage 1, 5, 10, 15 and 20 years later, using three different low-wage thresholds ($6, $8 and $10).[51] It provides a great amount of evidence consistent with the notion that a large share of low-wage workers is low-wage over the long haul. The following few points are worth stressing:

(i)   The summary statistics at the bottom of the table show that, at the median across

        cohorts and depending on the threshold, between 28.9 and 51.3 percent of low-wage

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[50] There are not cohorts but quasi cohorts because the same worker can be, and usually is, a member of more than one cohort. I drop the qualification "quasi" in what follows.

[51] The following information provides some context for the use of $10 as a low-wage threshold in years earlier than 2007: $10 is between 55 percent (in 2000) and 73.1 percent (in 1967) of the median of average annual hourly earnings of household heads and their spouses in the PSID data between 1967 and 2000.

workers in any given year are low-wage again five years later; between 23.6 and 44 percent are low-wage ten years later; and between 19.7 and 40 percent are again holding a low-wage job even 15 years later.

(ii)   A sizable share of workers in all low-wage cohorts are again low-wage even two decades later. This share goes from 12.6 percent (1975 cohort) to 27.6 percent (1971 cohort), for the $6 threshold; from 27.5 percent (1980 cohort) to 43.1 percent (1971 cohort), for the $10 threshold; and it assumes values between these poles for the $8 threshold.

(iii)   The share of low-wage workers at the $6, $8 and $10 thresholds that are again low-wage ten years later is as high as 29.5, 41.3 and 51 percent, respectively, for some of the early 1970s low-wage cohorts, reflecting the very inimical labor market conditions workers confronted in the early 1980s.

(iv)   However, even in better times for workers low-wage work does not seem to be, for many of them, a short stop on their way to decent-paying jobs. In spite of the tight labor markets of most of the 1990s, large shares of workers in the early 1990s cohorts were low-wage again several years later. For instance, among workers making no more than $10 per hour in 1990, 48.5 and 35.2 percent were again making no more than that in 1995 and 2000, respectively. Even more worrying, among those household heads and their spouses making no more than $6 in 1990, 22.9 percent held jobs paying at most that wage five years later; even a full decade later, 15.7 percent of these workers were again making no more than $6 per hour.

One limitation of these results is that they do not distinguish between workers that are low-wage all or most of the time, and those that go back and forth between low-wage and

non-low-wage jobs. To overcome this limitation, one possibility would be to compute, for each low-wage cohort, the proportion of workers that were low-wage in the previous n consecutive years, for several values of n. However, by only "looking at the past," this family of measures would fail to capture that many of the workers who are low-wage in any year are in the beginning or in the middle of much longer low-wage spells.[52] For this reason, the next family of indicators of low-wage immobility I employ is the share of the year-t low-wage cohort – or proportion of low-wage workers in year t – who are in a *continuous* low-wage spell lasting at least n years. This is a "balanced-panel" family of measures, because I calculate all shares over those workers that were low-wage in year t and were employed in the n-1 years before t and in the n-1 years after t.

Figure 10 shows the evolution of these measures of immobility in 1969-1994 for spells of at least three, five, and seven years, using the same low-wage thresholds as in Table 8. Depending on the threshold and cohort, between one-third and four-fifths of workers are in spells of low-wage work of at least three consecutive years, while between one-sixth and two-fifths are in spells of at least five years. With the $8 and $10 thresholds, no less than one-fifth and no less than one-third of low-wage workers, respectively, are in low-wage spells of at least seven years. It is clear that since 1969, and in particular – and more troubling given large gains in labor productivity over time – in 1985-1995, large shares of low-wage workers have spent several consecutive years without finding jobs paying more than $10 or even $8 per hour. Moreover, in most low-wage cohorts since 1969, at least one out of five workers spent no less than five consecutive years working without being able to land a job paying

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[52] For a similar argument in the related context of measuring the incidence of long-term poverty, see Bane and Ellwood (1986) and Stevens (1999).

more than $6 per hour; strikingly, the share of such workers in the 1994 low-wage cohort was as large as their share in the 1977 cohort.

Although these low-wage-spell measures of immobility provide important evidence, they have an obvious limitation – they are too restrictive. Indeed, we would surely want to classify a worker as immobile – as "stuck in low-wage jobs" – if she holds such jobs most of the time, even if she is occasionally out of work or lands a better-paying job for a short period of time. The family of measures of immobility I use next addresses this issue. Each measure is the share of workers in the year-*t* low-wage cohort who are low-wage for at least three-quarters of the time in an *n*-year period centered in *t*, or "cohort year", for a particular value of *n* (where *n* is an odd integer). This is an "unbalanced-panel" measure of immobility because a worker does not need to be employed in the full *n*-year period to be included in the analysis; nevertheless, to avoid having the results driven by workers who worked too few years in the *n*-year period under consideration, in each case I have excluded people who were employed in fewer than $1 + \frac{n-1}{2}$ years in that period from the calculation.

Table 9 shows, using the $6, $8 and $10 thresholds, the proportion of workers who were low-wage at least three-quarters of the time in periods of 7, 9, 11, 13, 15, 17 and 19 years centered in the cohort year ("persistently low-wage," in what follows), in each of the 1970 to 1993 low-wage cohorts.[53] The table provides a wealth of evidence showing that, for large shares of low-wage workers, low-wage work is not a transient condition. A few illustrations follow:

(i)   At the median across cohorts and depending on the threshold, between 23.9 and 52.1 percent of low-wage workers were persistently low-wage in seven-year periods, while

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[53] In what follows, when referring to time periods I will omit the specification "centered in the cohort year."

between 8.5 and 34 percent were persistently low-wage in 19-year periods; the corresponding figures for periods longer than seven and shorter than 19 years are in between these two poles.

(ii)   In almost all cohorts, better than one-quarter of workers made no more than $8 per hour while over two-fifths made no more than $10 per hour persistently over 13-year periods.

(iii)   Even with the $6 threshold, no less than 8.1 percent of workers (in the 1990 cohort) and as much as 16 percent of workers (in the 1978 cohort) were persistently low-wage over a 13-year period; moreover, using this threshold the share of workers persistently low-wage in a seven-year period is close to or above one-fifth in all cohorts.

(iv)   Using the $8 threshold, the share of workers persistently low-wage in nine-year periods is between 26.2 percent (in the 1976 cohort) and 40 percent (in the 1988 cohort); at 29.6 percent, the 1992 cohort (the most recent cohort for which nine-year statistics can be calculated given the available data) recorded a share of workers persistently low-wage higher than the 1975, 1976, and 1977 cohorts. Still using the same threshold, at 23.6 percent the 1988 cohort had a larger share of workers persistently low-wage in a 17-year period than any previous cohort (the 1988 cohort is the most recent cohort for which this measure can be calculated).

(v)   Using the $10 threshold, close to or better than half of workers in all cohorts were persistently low-wage in both seven- and nine-year periods; very close to or above two-fifths of workers in all cohorts were in such a situation in both 11- and 13-year periods; and above one-third of workers in all cohorts were low-wage for at least 75 percent of the time in 17- and 19-year periods.

Figure 11 focuses on those working in 1987, which is the most recent year for which all measures of low-wage persistence can be calculated given the available data. The lines in the left panel of the figure show the shares of workers in the 1987 low-wage cohort who were persistently low-wage in periods between seven and 19 years centered in 1987, for values of the low-wage threshold between $6 and $12. They indicate, among other things, that if today we were to select at random the work history of a member of this cohort with a good amount of work experience, there is a chance of between 30 and about 50 percent that this worker would have made no more than $9 dollars – and remember, these are 2007 dollars – most of the time, for an extended period of his or her career centered in 1987, with the exact probability depending on how long the period is; there is a 45 percent chance that he or she would have made no more than $11 dollars most of the time in a 19-year period centered in 1987, and nearly a 60 percent chance that this would have been the case in a nine-year period; lastly, it is more likely than not that this randomly selected low-wage worker would have been in jobs paying no more than $12 per hour over very large chunks of her or his career – 15, 17, or even 19 years. Finally, although the probability that a randomly picked worker would have spent most of her or his career in low-wage jobs declines both when the period lengthens and when the threshold shrinks, it is rather high – about 25 percent – even for a period as long as 15 years and a threshold as low as $8 per hour.[54]

The lines in the right-side panel of the figure have a similar interpretation – we just need to substitute "picking the work history of a worker at random" for "picking the work history of a low-wage worker at random." They represent the chances that a worker selected

[54] In all cases, the probabilities mentioned in this and the next paragraph are conditional on the worker selected having worked at least $1 + \frac{n-1}{2}$ years of the n-year period involved.

in this manner would be a worker who was persistently low-wage for extended periods of time. Although these chances are, for obvious reasons, much smaller than for workers in the 1987 low-wage cohort, they are nevertheless significant. The probability that an experienced 1987 worker is persistently low-wage in a 7-year period centered as before goes from a modest five percent with the $7 per hour threshold, to a quite robust 12 percent with the $9 threshold, to rather substantial "risks" – 19 and 24 percent – with the $11 and $12 thresholds. Even with longer periods, the average worker has a very serious chance of holding low-wage jobs most of the time; in a 15-year period, one out of eight 1987 workers would have made no more than $10 per hour most of the time, and one out of five would have made no more than $12 (again, keep in mind that these are 2007 dollars).

Taken together, the new evidence I have just presented here and the evidence found in the literature briefly reviewed above show conclusively that a large share of low-wage workers are low-wage in the long-term, and that a substantial proportion of all workers are persistently low-wage for long periods of time or have, in Bernhardt and her coauthors' approach, low-wage careers. For these workers low-wage jobs are not short stopovers on their way to good jobs, but a staple of their working lives.

Conclusion

Although workers in the United States are highly productive, more than one third (about 48 million) had low-wage jobs in 2007. Low-wage jobs are greatly concentrated in a few occupations and industries, and are not predominantly held by teenagers and other people without family responsibilities, as it is often asserted. In spite of arguments to the contrary – which focus on resource-pooling within families, in-kind public transfers, and the supplementation of low wages by the EITC – the high prevalence of low-wage jobs in the

country has serious consequences for the material welfare of low-wage workers and their families. It is not the case, either, that high rates of upward mobility make the material deprivation resulting from low-wage jobs into a short-term condition. A large share of low-wage workers remain in low-wage jobs for long period of time, while a substantial group among them have low-wage jobs their whole working lives.

Appendix

In this appendix I provide some details regarding the data, the hourly-earnings variables, and the price index I employ in this paper; further discuss the meaning of the statistics I presented in Table 3, which are based on data from the Employment Cost Index survey; explain why there are upward biases in pre-tax income I and II; and describe in some detail the measurement-error model I utilized to correct the PSID earnings data for 1992-1994.

Data and hourly-earnings variables

As indicated in the introduction, the main datasets I used in this paper are the Current Population Survey - Outgoing Rotation Groups, 2005-2007; the Current Population Survey - Annual Social and Economic Supplement, 2007 and 2008; and the Panel Study of Income Dynamics, 1968-2001. I employed the Economic Policy Institute's version of CPS-ORG; for details, see Mishel, Bernstein *et al*. (2007: App. B). However, instead of utilizing the wage variable calculated by EPI, I used a modified version of it. EPI's wage variable does not include tips; as tips may be important given my focus on low-wage workers, I added to EPI's wage variable a measure of tips for workers in industries in which tips are common: traveler accommodation; restaurants and other food services; drinking places, alcoholic beverages; barber shops; beauty salons; nail salons and other personal care services; and other personal services. In nonparametric analyses by industry, by occupation, and by industry and occupation, I pooled 2005-2007 data in order to obtain large enough samples.

I utilized the version of CPS-ASEC distributed by the firm Unicon. I calculated average annual hourly earnings as reported total annual earnings in the previous calendar year divided by a measure of total hours of work in the previous calendar year; I constructed the

latter by multiplying reported usual hours of work per week in previous calendar year by reported total weeks worked in previous calendar year.

I decided to use PSID data instead of data from the National Longitudinal Surveys because the former is closer to representative of the whole population while the latter only cover specific age cohorts; the Survey of Income and Program Participation, the third longitudinal survey with good-quality earnings data, was not an option because its panels are too short for my purpose of estimating mobility out of low-wage jobs over long periods of time. For the survey years 1968-1992, I employed the average annual hourly earnings variable provided by the PSID; the PSID did not calculate that variable in survey year 1993, and calculated it in the survey years between 1994 and 2001 in a way that is not consistent with the method used in all previous years. Instead of using this variable, for 1993-2001 I generated a new measure of average annual hourly earnings that approaches as much as possible the method used by the PSID up to 1992.

Price indices

The Consumer Price Index for All Urban Consumers (CPI-U), usually referred to simply as the consumer price index, is believed by many to overstate inflation in the late 1970s and early 1980s. More generally, because of the methodological improvements introduced to the measurement of changes in price levels over the years, the CPI-U does not measure inflation consistently over time. Many social scientists using price indices in their research recommend substituting the Consumer Price Index for All Urban Consumers - Research Series Using Current Methods (CPI-U-RS) (see Stewart and Reed 1999); this is also the price index employed by the Census Bureau to report the evolution of real family income over time.

Although the CPI-U-RS is far from giving fully-consistent estimates of inflation over time, and although there is not universal agreement that the CPI-U overestimates inflation in the late 1970s and early 1980s (see Baker 1998), it still seems better to use an index that at least gets closer to consistency. In addition, employing the CPI-U-RS produces results that are less favorable to my own arguments; for instance, utilizing the CPI-U to estimate upward immobility leads to estimates that are substantially higher that the estimates reported in this paper. Due to these reasons, I employed the CPI-U-RS to calculate real hourly earnings.

One shortcoming of the CPI-U-RS, however, is that it is only available since December 1977. For the period January 1967- November 1977, researchers recommend linking this index with the experimental CPI-U-X1, a predecessor to the CPI-U-RS; this is done by using the ratio between these two indices in December 1977 to generate proxies to the CPI-U-RS in all months between January 1967 (the first month in which the CPI-U-X1 was calculated) and November 1977. For simplicity, I refer to the index that results from chaining these two indices as CPI-U-RS.

Indicators from the Employment Cost Index Survey

In Table 3 I use data from the Employment Cost Index survey, where establishments are the primary sampling units. As I explained in the note to that table, in this survey one to eight job titles (as defined by each establishment) in any sampled establishment are randomly selected, and data are gathered on all workers with the selected job title/s. The weighted percentage of job titles in which at least one incumbent has a benefit (e.g., life insurance) is calculated as the percentage of such establishment-job titles with positive costs for the employer regarding that benefit, weighted by the number of workers with that title. This is different from – but not necessarily a worse indicator of the overall quality of low-wage jobs than – the rate that

would be obtained with individual-based microdata. For instance, if there are five workers with the same job title, and only three of them are offered and accept life insurance, the job title as a whole will have a positive cost for the employer, and thus it is coded as having the benefit; this situation is indistinguishable, with these data, from a situation in which the five workers receive and take the offer. Nevertheless, the ECI-based indicators are not necessarily worse indicators than individual-based microdata rates; while the former may overestimate job quality, the latter, depending on how exactly the underlying questions are worded, may underestimate it. Indeed, people may lack a benefit either because it was not offered to them, because they could or did not want to pay their part of the premium, or because they already had the benefit through a family member; counting all the jobs of those without that benefit as jobs that do not offer it would lead to underestimates of job quality.

Upward biases in pre-tax income I and II

The upward biases noted in the text are a result of the following. First, current mortgage payments are not a cost of already accrued homeownership but they nevertheless affect the income that families have available for other purposes; this is not taken into account in the approach used by the Census Bureau to estimate the value of homeowners' housing services. Indeed, in this approach the net of property tax value of housing services (calculated over the share of the house a family has already paid for) is counted as family income. This imparts an upward bias to the calculation of family income, at least if this adjustment aims at reflecting the additional disposable income that homeowners can actually use in the present to address their basic needs compared to renters.

Second, in calculating basic family budgets, the Economic Policy Institute estimates health care costs as out-of-pocket medical costs plus a weighted average of the employee

costs of employer-sponsored premiums, Medicaid (whose cost for families is zero), and a middle-of-the-road non-group health care plan. The weights in the first two cases are the probabilities that families with different family compositions have of receiving employer-based insurance and of getting Medicaid coverage if not. The weight for the cost of a no-group plan is one minus the other two weights. The average cost that results from this procedure enters the basic family budget additively. In pre-tax income II I add a proxy for this average cost to the income of any family covered by public health care programs or by employer-based health care insurance. In the former case this generates a small upward bias; although families' coverage costs are zero they still need to take care of out-of-pocket costs. However, doing the same (as I do for lack of data to do anything more precise) for those covered by employer-based health care insurance, in which employers rarely pay the full premium (see Figure 1), must generate a much larger upward bias. Similarly, to fully follow the logic behind these adjustments, it would be necessary to adjust downward the income of those that are not covered either by a public program or by employer-based health care insurance. Indeed, the actual amounts of money these people need to pay for health care insurance are much larger than the *average* costs included in basic family budgets. By not doing this adjustment (which would also require data I do not have), I overestimate these families' income.

As a result of these upward biases I most likely underestimate poverty rates, which is conservative given my arguments.

Measurement-error model

The measurement-error model I developed to correct the PSID's average annual hourly earnings data for 1992-1994 takes as point of departure that the effects of measurement error can be written as

$$w_{ij} = w_{ij}^* \, e_{ij},$$

where w_{ij} is the observed value of average annual hourly earnings, w_{ij}^* is the true value, e_{ij} is an error factor, $i = 1, 2 \dots n$ indexes the people in the sample, and $j = 1992, 1993, 1994$ indexes the data years. The model then posits that the error factors are a smooth function of the percentile cutoff point that each value represents in the empirical distribution of average annual hourly earnings, which can be written as

$$e_{ij} = E_j \left(100 \, F_j(w_{ij}) \right)$$

where F_j is the empirical cumulative distribution function of average annual hourly earnings in year j and the E_j are smooth continuous functions; no particular functional form is specified for these functions.

In order to estimate the E_j nonparametrically, I used information on the annual average hourly earnings of people in samples from CPS-ASEC, for earnings years 1991-1995, as similar as possible to their PSID counterparts. I then proceeded as follows:

(i)   I calculated the cutoff points of the centiles of average annual hourly earnings from both the CPS-ASEC and the PSID data, for the years 1991 to 1995.

(ii)   I calculated the ratio between each centile cutoff in the PSID and the corresponding centile cutoff in the CPS-ASEC, for years 1991-1995. I call these ratios total- difference factors and denote them as TD_{kj}, where $k = 1, 2 \dots 99$

indicates the percentile to which the cutoff points involved in calculating the ratio corresponds.

(iii) I used the $TD_{k,1991}$ and $TD_{k,1995}$, $k = 1, 2 \ldots 99$, to estimate the cross-survey difference factors *expected* in 1992, 1993, and 1994 due to differences in procedures and samples (although I adjust as much as possible the sample from the March CPS so that it replicates the sample from the PSID, there are unavoidable residual differences). I estimated each expected difference factor as a weighted average of the corresponding total difference factors for 1991 and 1995, where the weights are inversely proportional to the distance between j and these two years. Thus, calling the expected difference factors ED_{kj}, we have:

$$ED_{kj} = \frac{j-1991}{4} TD_{k,1991} + \frac{1995-j}{4} TD_{k,1995} \, ,$$

for $j = 1992, 1993$ and 1994 and $k = 1, 2 \ldots 99$.

(iv) I divided each total difference factor by the corresponding expected difference factor. The results can be considered as "noisy" measurements of the values of $E_j(k)$ for $k = 1, 2 \ldots 99$.

(v) I performed kernel-weighted polynomial regressions (using polynomials of degree five and an Epanechnikov kernel) of these measurements of $E_j(k)$ on k for $j=1992$, 1993 and 1994; the results of these regressions provided estimates of the values of the smooth function E_j for the cutoff points corresponding to the 1 to 99 percentiles. I used these estimates to generate estimates of the values of all e_{ij} by interpolation.

(vi) Lastly, I corrected the PSID data using the formula

$$w_{ij}^{adj} = \frac{w_{ij}}{\widehat{e_{\iota J}}}.$$

where w_{ij}^{adj} denotes the corrected values of average annual average hourly earnings in the

PSID data, and $\widehat{e_{\iota J}}$ the estimated error factors.

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Table 1: Number and share of low-wage jobs, 2007
(2007 dollars)

Threshold	Low-wage jobs	
	Number	**Share of jobs (%)**
$12	48,041,712	37.2
$11	40,739,076	31.5
$10	34,860,740	27.0
$9	25,112,182	19.4
$8	17,580,404	13.6
$7	8,806,152	6.8
$6	3,830,758	3.0

Source: Author's analysis of data from CPS-ORG, 2007

Table 2: Annual earnings of low-wage workers, selected percentiles, 2007
(2007 dollars)

Threshold	Percentiles				
	10	25	50	75	90
$12	$2,000	$6,000	$13,000	$20,000	$23,500
$11	$1,994	$5,000	$12,000	$18,000	$21,000
$10	$1,644	$4,900	$10,700	$17,000	$20,000
$9	$1,320	$4,000	$9,360	$15,000	$18,000
$8	$1,150	$3,100	$7,975	$13,000	$15,500
$7	$1,000	$2,500	$6,000	$10,800	$13,520
$6	$800	$2,000	$5,000	$9,900	$12,000

Source: Author's analysis of data from CPS-ASEC, 2008

Table 3: Weighted percentage of establishment-job titles in which at least one incumbent has benefit, December 1997
(2007 dollars)

	Establishment-job titles paying		
Benefit	**Less than $9.83**	**Between $9.83 and $14.74**	**$14.74 or more**
Insurance			
Life insurance	24.5	62.3	81.3
Sickness and accident insurance	17.3	30.3	43.9
Leave			
Vacation	53.8	81.8	81.7
Holiday	51.0	84.0	83.9
Sick	26.3	54.9	70.0
Other	22.1	47.6	66.6
Any leave	66.4	91.9	93.9
Other			
Nonproduction bonuses	27.4	36.1	39.0
Severance pay	0.9	6.2	17.5

Source: Unpublished data generated at the author's request by the Office of Compensation and Working Conditions of the Bureau of Labor Statistics (BLS). The underlying source is establishment survey microdata collected by the BLS to produce the Employment Cost Index (ECI), December 1997.

Note: In the ECI survey, establishments are the primary sampling units. One to eight jobs titles (as defined by each establishment) in any sampled establishment are randomly selected, and data are gathered on all workers with the selected job title/s. The weighted percentage of job titles in which at least one incumbent has the benefit in question is the percentage of such establishment-job titles with positive costs for the employer regarding that benefit, weighted by the number of workers with that title. The data used to distinguish wage strata are the average wages of the workers holding the corresponding establishment-job title, not the actual wages received by each worker. See Pierce (1999) for more details on the ECI and on the methodology used to produce these figures.

Table 4: Low-wage jobs by industry, 2007
(2007 dollars)

Industry	Industry share of low-wage jobs as a percentage and as a ratio to the industry share of all jobs, by threshold			
	$12	**$10**	**$8**	**$6**
Education and health services	18.9 (0.8)	17.7 (0.8)	16.5 (0.7)	19.8 (0.9)
Retail trade	18.2 (1.6)	20.0 (2.7)	21.5 (1.9)	15.7 (1.4)
Leisure and hospitality	16.2 (1.8)	18.9 (2.1)	24.7 (2.8)	27.7 (3.1)
Professional and business services	8.1 (0.8)	7.9 (0.8)	7.0 (0.7)	5.5 (0.6)
Construction	5.8 (0.8)	5.3 (0.8)	3.6 (0.5)	3.0 (0.4)
Other services	5.8 (1.3)	6.1 (1.4)	6.7 (1.6)	9.2 (2.2)
Durable manufacturing	5.4 (0.7)	4.7 (0.6)	3.3 (0.4)	2.5 (0.3)
Financial activities	4.9 (0.7)	4.2 (0.6)	3.2 (0.5)	3.6 (0.5)
Transportation and utilities	4.2 (0.8)	3.6 (0.7)	2.7 (0.5)	2.8 (0.5)
Nondurable manufacturing	4.1 (0.9)	3.7 (0.9)	3.2 (0.7)	2.2 (0.5)
Public administration	2.6 (0.5)	2.2 (0.4)	1.8 (0.4)	2.2 (0.4)
Wholesale trade	2.5 (0.8)	2.2 (0.7)	1.8 (0.6)	1.3 (0.4)
Natural resources and mining	1.9 (1.4)	2.1 (1.5)	2.5 (1.8)	2.9 (2.1)
Information	1.8 (0.7)	1.6 (0.6)	1.6 (0.6)	1.9).7)
	100.0 (1.0)	100.0 (1.0)	100.0 (1.0)	100.0 (1.0)

Source: Author's analysis of data from CPS-ORG, 2007

Table 5: Low-wage jobs by occupation, 2007
(2007 dollars)

Occupation	Occupation share of low-wage jobs as a percentage and as a ratio to the occupation share of all jobs, by threshold			
	$12	**$10**	**$8**	**$6**
Service occupations	30.1 (1.8)	33.4 (2.0)	38.7 (2.3)	43.3 (2.6)
Office and administrative support occupations	16.7 (1.1)	14.7 (1.0)	8.0 (0.6)	11.1 (0.8)
Sales and related occupations	15.0 (1.4)	16.7 (1.5)	19.4 (1.8)	15.0 (1.4)
Professional and related occupations	9.0 (0.4)	7.9 (0.4)	6.9 (0.3)	9.5 (0.4)
Transportation and material moving occupations	8.7 (1.4)	8.5 (1.3)	11.8 (1.9)	7.5 (1.2)
Production occupations	7.8 (1.1)	7.3 (1.1)	6.0 (0.9)	4.4 (0.6)
Construction and extraction occupations	5.2 (0.9)	4.8 (0.8)	3.2 (0.5)	2.4 (0.4)
Management, business and financial occupations	3.8 (0.3)	3.1 (0.2)	2.4 (0.2)	3.3 (0.3)
Installation, maintenance, and repair occupations	2.2 (0.6)	1.9 (0.5)	1.4 (0.4)	1.3 (0.3)
Farming, fishing, and forestry occupations	1.5 (2.3)	1.8 (2.7)	2.4 (3.5)	2.3 (3.4)
	100.0 (1.0)	100.0 (1.0)	100.0 (1.0)	100.0 (1.0)

Source: Author's analysis of data from CPS-ORG, 2007

Table 6: Low-wage workers by marital status, 2007
(2007 dollars)

	Share (%) of all low-wage workers, by threshold			
Marital Status	**$12**	**$10**	**$8**	**$6**
Married	41.8	38.8	34.3	34.7
Separated	2.2	2.2	2.2	2.4
Widowed	9.3	8.6	7.6	8.0
Divorced	3.0	3.0	2.7	2.8
Never married	43.8	47.5	53.1	52.2
	100.0	100.0	100.0	100.0

	Share (%) of male low-wage workers by threshold			
Marital Status	**$12**	**$10**	**$8**	**$6**
Married	40.1	36.6	32.1	34.0
Separated	0.9	0.9	0.9	1.1
Widowed	6.8	6.1	5.4	6.4
Divorced	2.1	2.1	1.8	1.2
Never married	50.2	54.3	59.8	57.3
	100.0	100.0	100.0	100.0

	Share (%) of female low-wage workers by threshold			
Marital Status	**$12**	**$10**	**$8**	**$6**
Married	43.1	40.5	35.9	35.2
Separated	3.2	3.2	3.2	3.3
Widowed	11.3	10.5	9.2	9.0
Divorced	3.6	3.7	3.4	3.8
Never married	38.7	42.2	48.3	48.8
	100.0	100.0	100.0	100.0

Source: Author's analysis of data from CPS-ORG, 2007

Table 7: Low-wage workers by family poverty status, 2007
(2007 dollars)

| | Low-wage threshold | | | |
	$12	$10	$8	$6
Poverty rates (%)				
Pre-tax monetary income	41.9	46.8	50.4	52.5
Pre-tax income I	41.7	46.6	50.2	52.3
Pre-tax income II	37.0	41.8	46.3	48.8
Severe poverty rates (%)				
Pre-tax monetary income	14.0	16.9	21.9	28.6
Pre-tax income I	13.0	15.7	20.7	27.5
Pre-tax income II	10.5	12.7	16.9	23.0

Source: Author's analysis of data from CPS-ASEC, 2008

Table 1.8: Percentage of household heads and their spouses in a low-wage cohort in 1967-1995 who were low-wage again *n* years later (2007 dollars)

Low-wage cohort	Low-wage threshold														
	$6					**$8**					**$10**				
	n=1	n=5	n=10	n=15	n=20	n=1	n=5	n=10	n=15	n=20	n=1	n=5	n=10	n=15	n=20
1967	45.6	30.6	25.9	24.1	17.0	58.1	42.9	37.0	34.6	33.3	68.2	51.4	42.4	43.5	37.7
1968	44.4	30.7	20.8	19.1	18.3	58.4	38.5	33.7	32.7	33.7	68.7	48.3	39.9	40.0	38.0
1969	52.4	27.0	20.1	24.8	21.3	59.6	40.3	31.1	34.5	28.2	69.8	50.0	44.5	46.3	37.3
1970	47.5	31.6	26.8	22.9	16.7	58.7	43.6	34.8	31.1	25.8	71.4	51.1	46.3	43.4	36.4
1971	45.6	29.9	25.1	17.2	27.6	58.6	39.1	35.2	29.0	34.3	67.6	51.3	47.8	39.7	43.1
1972	43.1	29.7	29.5	20.2	24.1	52.2	40.1	38.6	30.6	29.3	63.4	50.5	51.0	41.4	39.0
1973	44.0	26.2	26.8	21.1	19.6	54.9	39.5	39.8	32.8	26.5	64.3	52.6	45.8	41.1	29.2
1974	44.1	25.9	26.5	23.0	13.0	56.5	37.9	41.3	30.7	21.3	65.3	50.0	47.1	43.4	28.9
1975	39.1	24.8	23.5	17.1	12.6	51.2	40.6	37.4	31.6	23.7	65.3	52.8	49.4	41.6	32.1
1976	41.7	26.5	23.8	18.7	13.8	53.8	39.3	34.7	32.1	21.0	62.7	53.0	42.0	42.1	30.3
1977	37.0	30.9	28.2	21.6		50.4	45.0	36.6	31.7		61.3	55.0	43.5	39.5	
1978	35.8	32.3	29.2	19.7	13.3	48.0	43.9	35.8	28.6	19.5	65.4	54.6	46.6	34.7	32.1
1979	43.0	38.4	24.4	19.4		52.6	50.6	36.1	28.9		67.0	56.8	44.5	35.1	
1980	41.2	38.4	22.6	22.8	14.0	57.2	49.0	38.8	28.6	22.5	68.2	56.1	47.6	35.3	27.5
1981	48.1	35.2	25.6	16.1		59.1	46.1	38.7	24.8		71.3	54.2	49.2	36.0	
1982	39.7	32.8	19.3			55.4	45.3	31.9			69.6	51.4	39.8		
1983	48.3	31.3	20.9	14.6		60.8	42.6	29.5	18.9		70.2	50.4	39.2	30.7	
1984	46.1	32.6	18.9			59.5	42.8	33.8			70.0	54.2	40.9		
1985	44.4	28.9	16.9	12.1		57.8	44.4	29.1	22.0		68.9	55.6	37.9	30.4	
1986	45.1	28.3	22.0			58.4	42.6	30.1			69.0	54.0	41.0		
1987	42.9	21.8				59.8	36.7				68.6	48.0			
1988	44.2	24.8	16.0			61.2	39.0	24.9			70.9	48.0	37.1		
1989	45.5	20.8				61.9	40.0				70.3	49.9			
1990	46.3	22.9	15.7			61.7	37.1	24.4			71.6	48.5	35.2		
1991	41.3	24.4				52.1	33.4				60.4	47.0			
1992	33.7					48.0					56.8				
1993	33.6	20.9				51.7	31.8				63.7	42.3			
1994	43.0					52.6					61.5				
1995	35.9	17.0				47.8	28.9				61.0	40.1			
Median	44.0	28.9	23.6	19.7	16.8	57.2	40.3	35.0	30.7	26.1	68.2	51.3	44.0	40.0	34.2
Minimum	33.6	17.0	15.7	12.1	12.6	47.8	28.9	24.4	18.9	19.5	56.8	40.1	35.2	30.4	27.5
Maximum	52.4	38.4	29.5	24.8	27.6	61.9	50.6	41.3	34.6	34.3	71.6	56.8	51.0	46.3	43.1

Source: Author's analysis of data from PSID, 1968-2001

Note: The PSID collected data annually until 1997 (earnings year 1996), but only every other year after that; this is the reason for the table's "holes" whenever years 1997 or 1999 are needed to perform calculations. Percentages are calculated as 100 multiplied by the number of people in the cohort who were employed and were low-wage *n* years later, over the number of people in the cohort who were employed *n* years later.
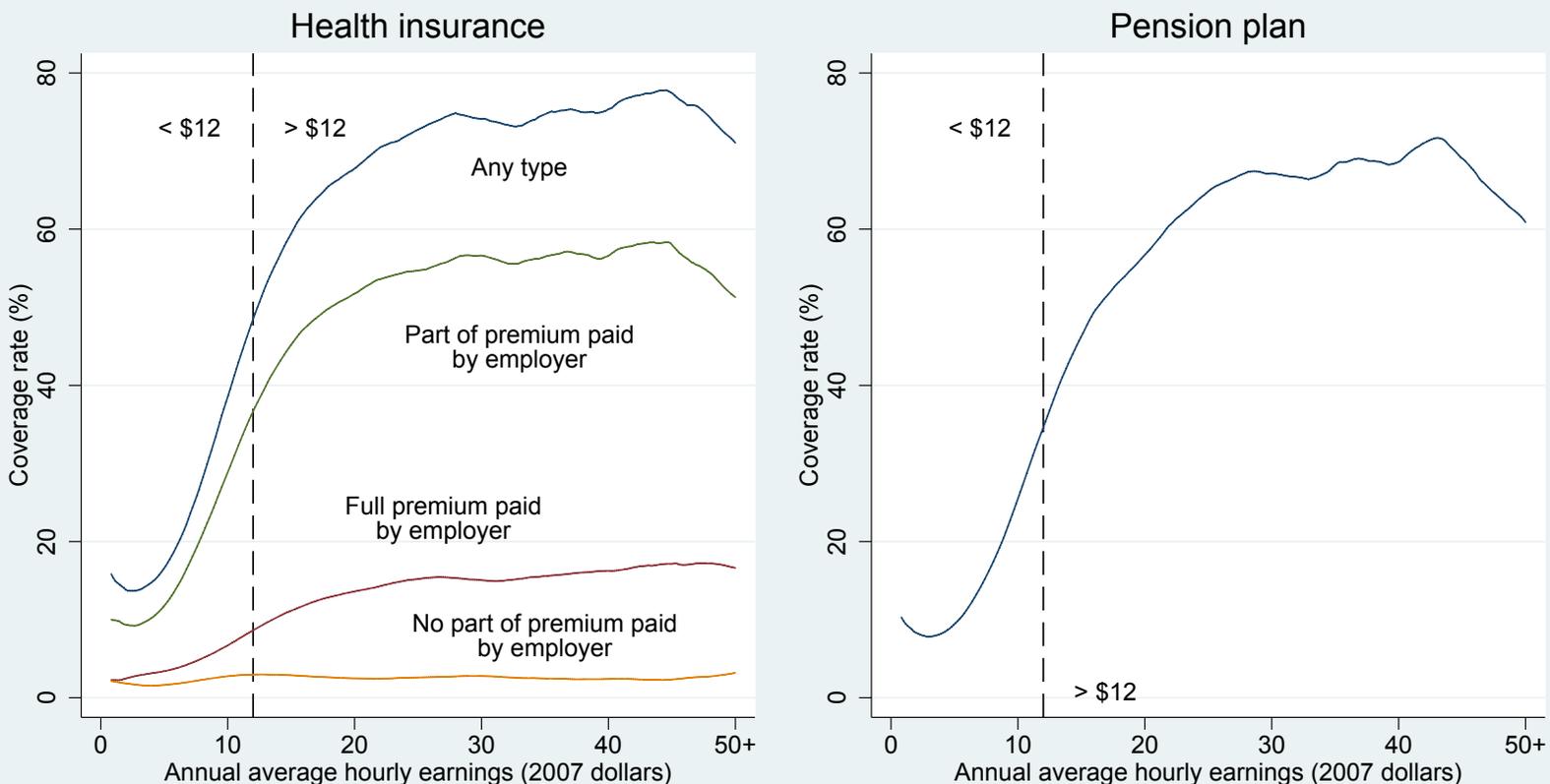
Table 1.9: Percentage of household heads and their spouses in a low-wage cohort in 1970-1993, who were persistently low-wage in an *n*-year period centered in the cohort year (2007 dollars)

Low-wage cohort	Low-wage threshold																				
	$6							$8							$10						
	n=7	n=9	n=11	n=13	n=15	n=17	n=19	n=7	n=9	n=11	n=13	n=15	n=17	n=19	n=7	n=9	n=11	n=13	n=15	n=17	n=19
1970	26.8							41.2							55.8						
1971	27.4	22.8						39.5	37.4						53.4	53.6					
1972	24.5	21.5	17.1					39.9	38.3	33.0					53.1	51.5	46.7				
1973	26.3	22.3	16.6	14.0				40.9	37.9	30.6	30.1				55.2	52.3	46.1	46.2			
1974	23.7	23.6	16.3	15.3	13.7			34.7	33.1	28.5	27.9	26.1			51.6	49.0	42.8	44.0	41.7		
1975	25.0	17.3	14.0	14.2	11.6	12.2		33.2	28.3	24.6	24.0	22.1	21.9		47.9	46.9	42.8	42.3	41.4	39.8	
1976	18.9	16.2	14.1	13.4	11.8	10.1	9.9	29.3	26.2	22.9	23.3	21.0	19.9	18.2	43.6	45.5	39.9	40.6	38.1	35.8	35.3
1977	20.6	18.1	15.1	14.7	12.9	12.5	11.4	29.2	27.8	23.4	23.0	22.0	22.4	20.9	45.7	45.8	40.6	40.7	39.2	37.5	35.8
1978	24.2	20.8	16.1	16.0	15.4	13.7	12.7	33.5	30.0	24.3	25.5	23.3	24.3	22.5	51.3	47.8	42.2	41.6	40.9	39.7	37.3
1979	24.5	21.3	16.9	15.6	13.4	11.6	10.3	33.3	30.1	26.3	25.1	24.6	22.6	19.2	49.5	48.1	42.2	42.4	39.0	37.2	35.4
1980	23.8	20.5	14.9	14.0	11.4	10.3	8.8	32.2	31.1	25.3	24.9	22.0	19.6	16.9	48.7	47.0	43.1	40.2	37.7	34.4	33.0
1981	24.0	18.1	14.4	14.2	12.3	10.7	8.1	37.5	34.4	28.6	27.5	23.2	21.5	18.5	52.6	50.1	43.7	42.7	39.1	36.6	34.3
1982	23.2	19.9	14.3	12.9	11.0	9.1	7.4	34.3	32.2	26.8	24.3	21.0	19.5	16.3	52.5	50.3	43.3	42.5	39.5	36.8	32.9
1983	25.1	21.6	16.3	14.9	13.7	11.3	9.1	38.6	33.9	28.9	26.5	24.4	21.1	17.8	51.8	50.1	43.1	41.9	39.0	37.1	33.0
1984	22.1	18.6	14.5	12.4	10.9	9.8	6.9	39.2	36.3	28.4	27.8	23.7	20.7	16.3	54.7	52.5	45.6	43.9	40.0	37.6	34.1
1985	21.9	17.5	14.4	11.6	10.7	8.2	6.2	38.7	35.5	29.8	27.0	23.7	19.3	16.8	52.5	51.3	46.1	44.3	40.7	37.3	34.2
1986	26.0	22.5	16.5	14.6	10.5	8.4	4.8	40.2	38.2	32.3	29.9	24.1	21.4	17.3	55.0	53.4	46.8	45.6	42.0	40.2	37.0
1987	23.2	20.8	13.9	12.0	10.0	8.6	5.3	41.6	39.1	33.0	28.9	26.1	23.2	18.2	54.3	53.1	47.9	45.7	43.5	41.4	38.2
1988	25.9	20.3	14.0	11.7	10.2	10.0		43.6	40.0	31.9	30.1	27.7	23.6		56.3	55.3	48.5	47.9	45.2	42.7	
1989	24.9	19.0	12.8	11.5	10.6			41.5	38.7	31.3	29.6	26.7			54.8	52.1	46.1	45.2	42.7		
1990	19.1	13.4	9.4	8.1				37.8	34.4	27.4	27.1				51.8	50.5	43.2	42.1			
1991	19.4	15.8	11.1					34.7	31.4	26.1					49.2	46.4	40.7				
1992	18.1	11.6						33.3	29.6						48.5	46.8					
1993	17.7							33.9							48.5						
Median	23.9	20.1	14.5	14.0	11.5	10.2	8.5	37.6	34.1	28.5	27.1	23.7	21.5	18.0	52.1	50.2	43.3	42.6	40.3	37.4	34.8
Minimum	17.7	11.6	9.4	8.1	10.0	8.2	4.8	29.2	26.2	22.9	23.0	21.0	19.3	16.3	43.6	45.5	39.9	40.2	37.7	34.4	32.9
Maximum	27.4	23.6	17.1	16.0	15.4	13.7	12.7	43.6	40.0	33.0	30.1	27.7	24.3	22.5	56.3	55.3	48.5	47.9	45.2	42.7	38.2

Source: Author's analysis of data from PSID, 1968-2001

Note: The PSID collected data annually until 1997 (earnings year 1996), but only every other year after that. Percentages are calculated as 100 multiplied by number of people in the the cohort who were employed at least $1 + (n-1)/2$ years in the period under consideration and were low-wage at least three-quarters of this period, divided by the number of people in the cohort who were employed at least $1 + (n-1)/2$ years in the period under consideration.

Figure 1: Employer-provided benefits by wage level, 2007

Health insurance

Pension plan

< $12   > $12

Any type

Part of premium paid
by employer

Full premium paid
by employer

No part of premium paid
by employer

Coverage rate (%)

Annual average hourly earnings (2007 dollars)

< $12

> $12

Coverage rate (%)

Annual average hourly earnings (2007 dollars)

Source: Author's analysis of data from CPS-ASEC, 2008

Coverage rates are fitted proportions from kernel-weighted local polynomial regressions of benefits
on hourly earnings. Regressions performed using a polynomial of degree one and an Epanechnikov
kernel with bandwidth selected using the ROT method described in Fan and Gijbels (1996:110−113).
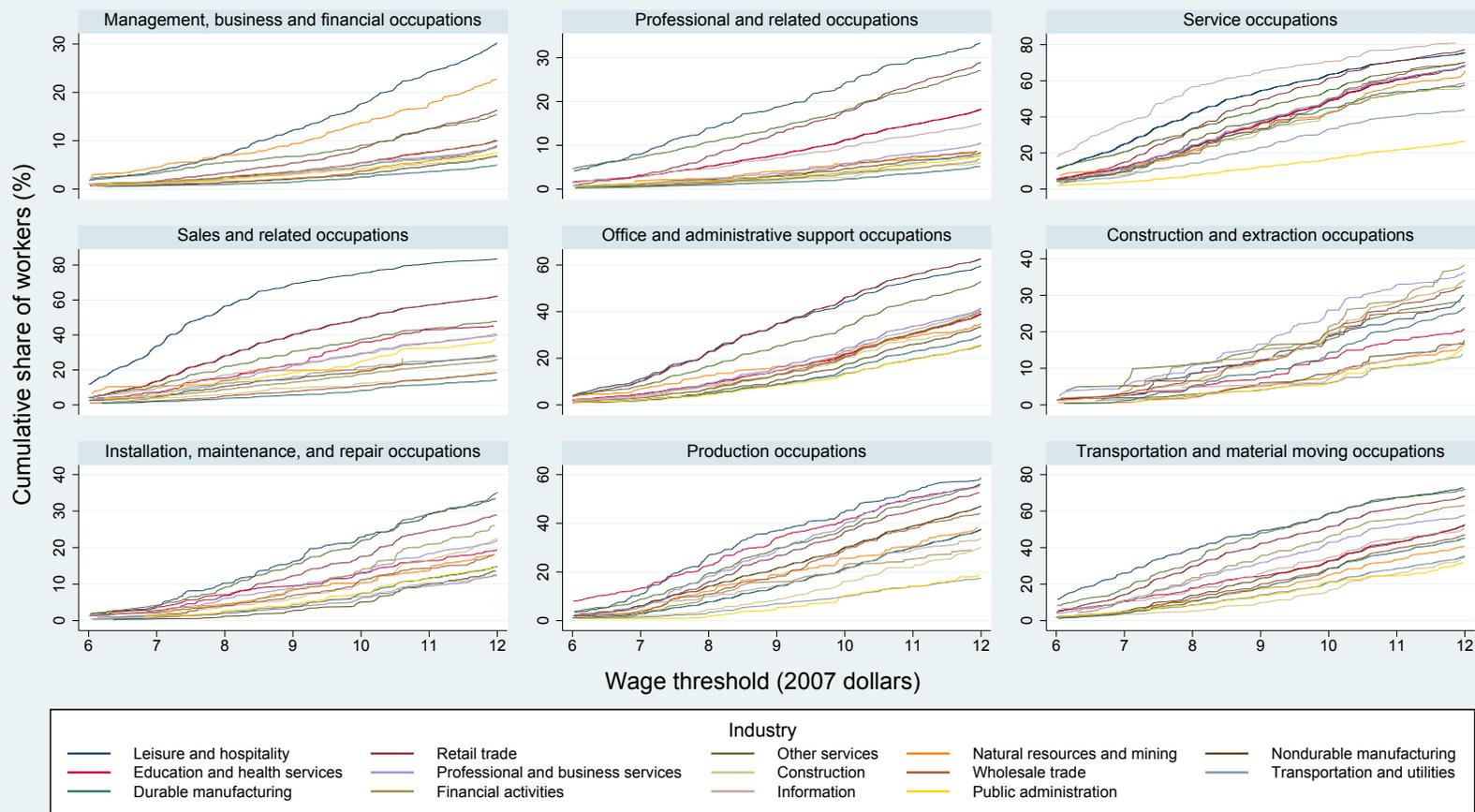
Figure 2: Low−wage profiles of industries and occupations, 2005−2007
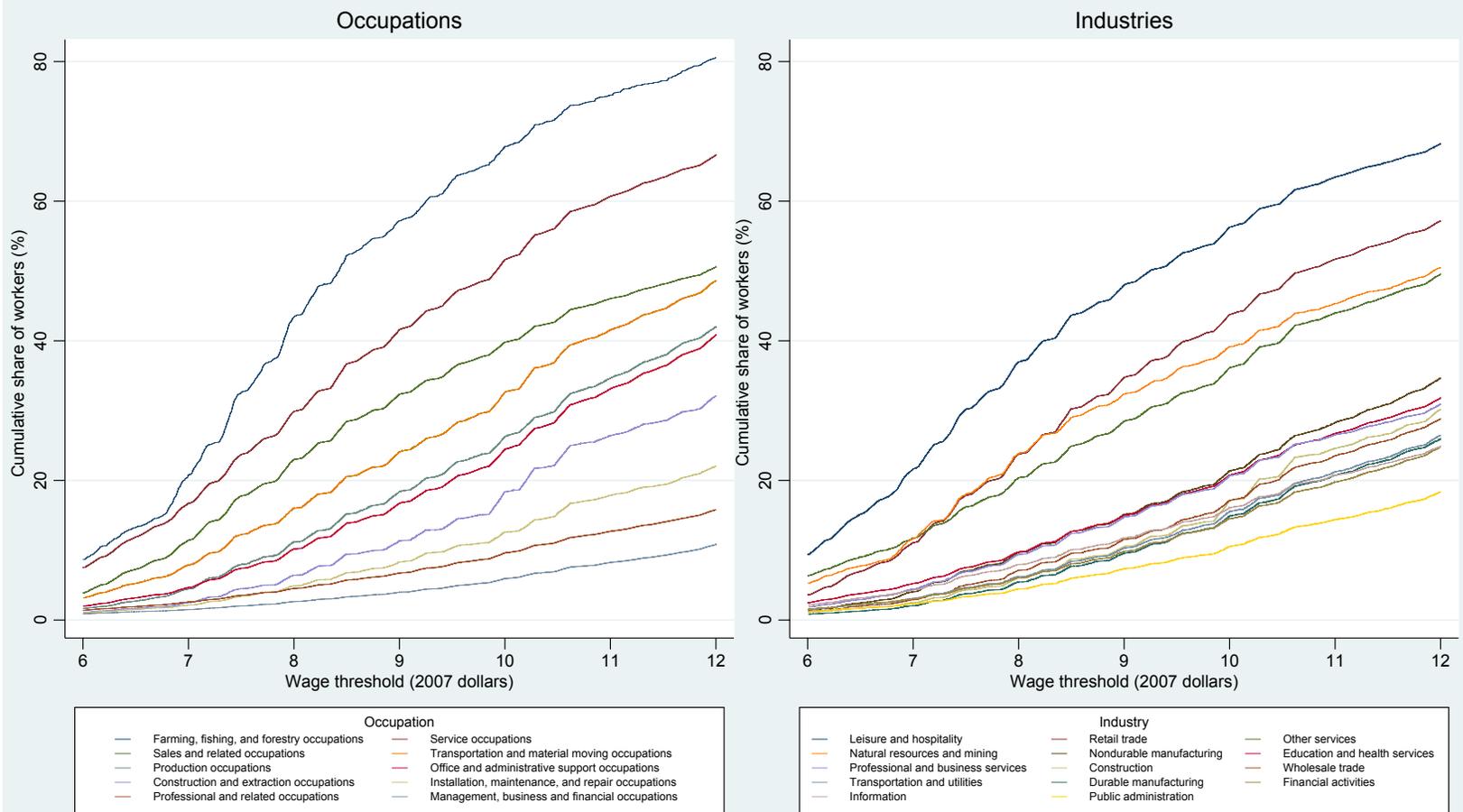
Occupations

Industries

Source: Author's analysis of data from CPS−ORG, 2005−2007

Each low−wage profile is the segment between $6 and $12 of the empirical cumulative distribution function of wages in an industry or occupation. Pooling data from three years is convenient for the purpose of comparing with Figure 1.3. Lines have been smoothed.
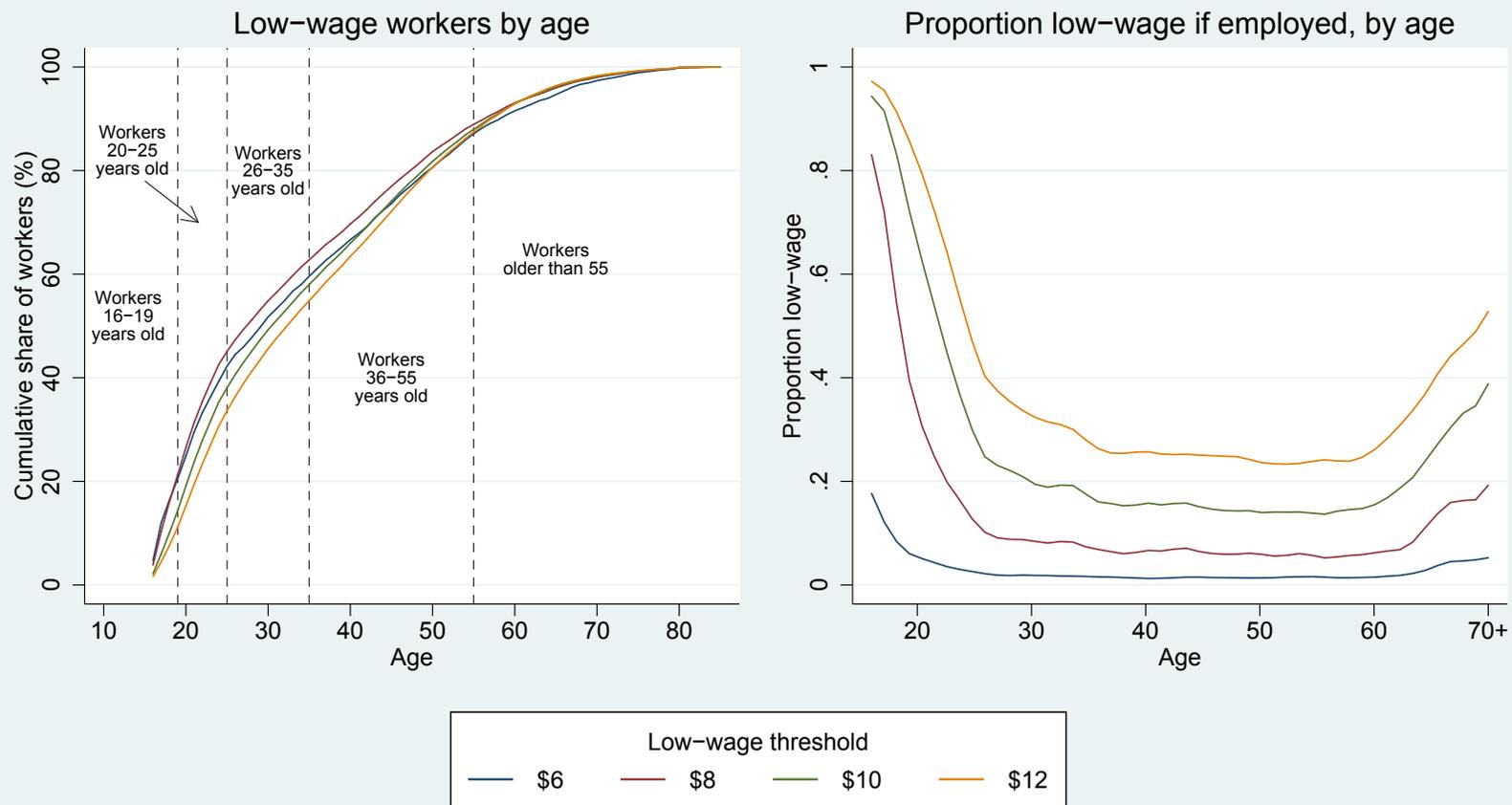
Figure 3: Low−wage profiles of industries by occupation, 2005−2007

Source: Author's analysis of data from CPS−ORG, 2005−2007

Each low−wage profile is the segment between $6 and $12 of the empirical cumulative distribution function of wages in an industry−occupation cell. Use of three years of pooled data is necessary to obtain adequate sample sizes. As samples for cells involving farming, fishing and forestry occupations are still too small, the corresponding graph has been excluded. Lines have been smoothed.
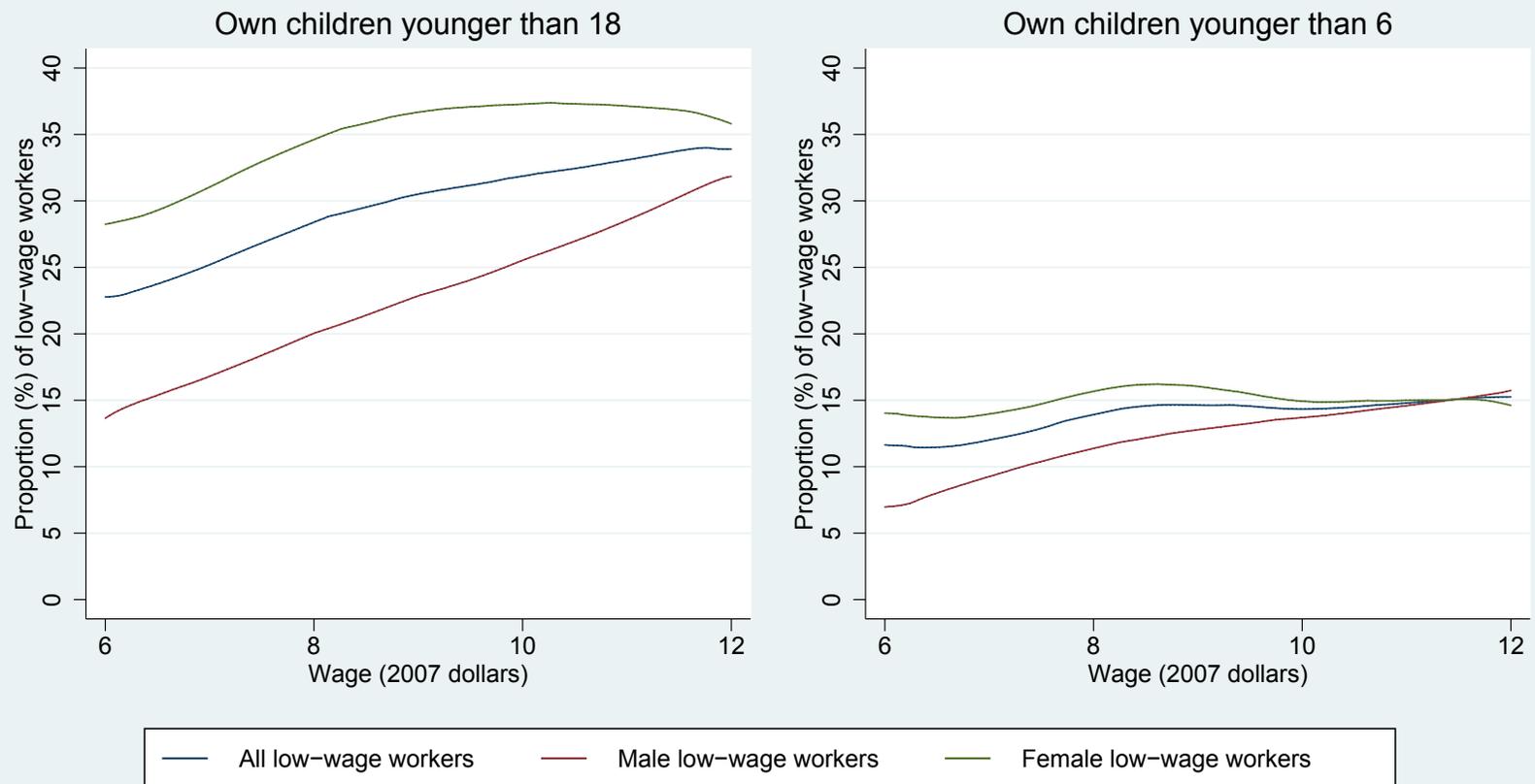
Figure 4: Low−wage workers and age, 2007

Low−wage workers by age

Proportion low−wage if employed, by age

Workers 20−25 years old

Workers 26−35 years old

Workers older than 55

Workers 16−19 years old

Workers 36−55 years old

Cumulative share of workers (%)

Age

Proportion low−wage

Age

Low−wage threshold

$6 $8 $10 $12

Source: Author's analysis of data from CPS−ORG, 2007

Proportions in right panel are fitted proportions from kernel−weighted local polynomial regressions of low−wage dummy variables on age. Regression specifications are as in Figure 1.1.
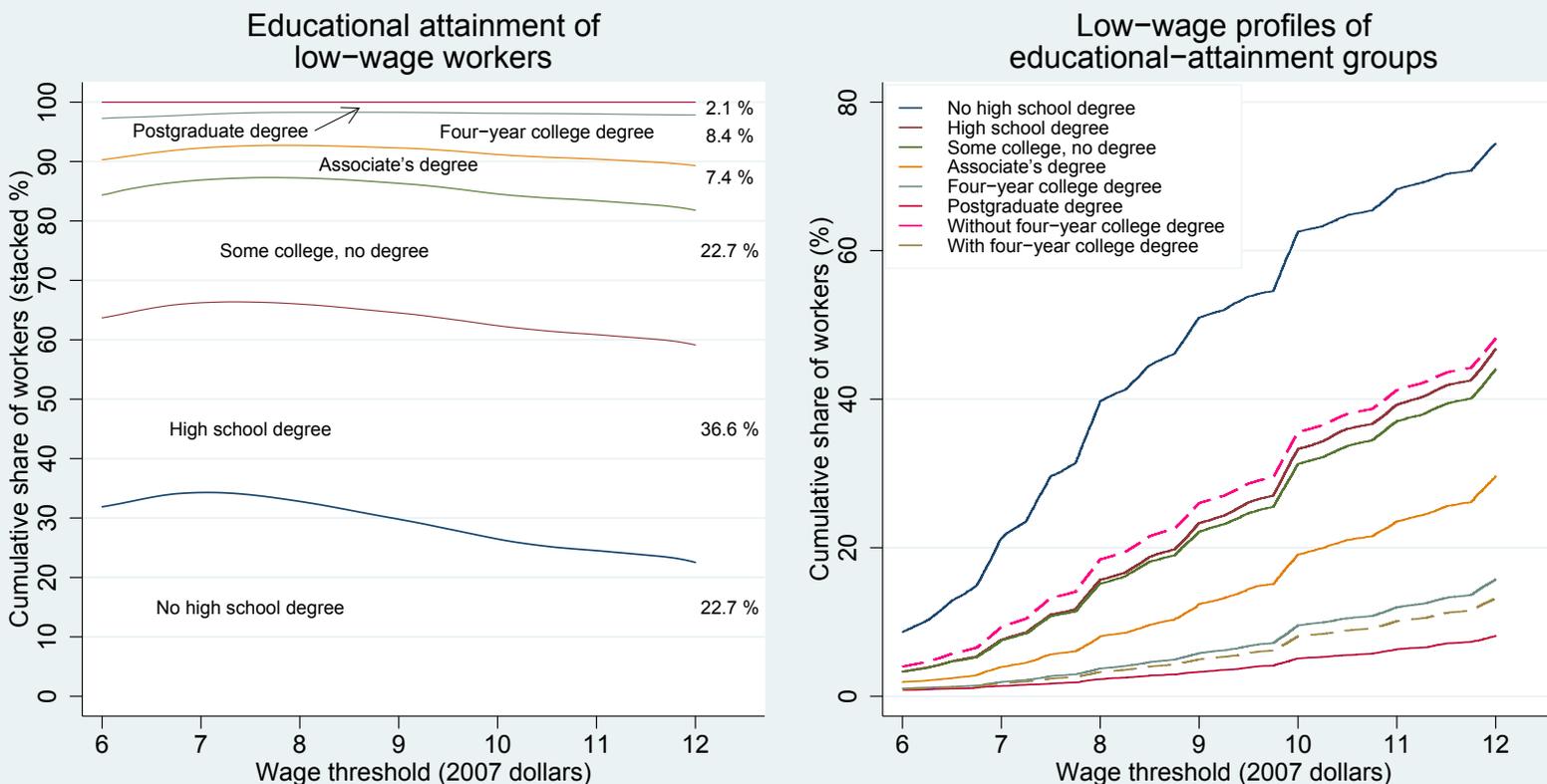
Figure 5: Low−wage workers with own children living with them, 2007

Own children younger than 18 | Own children younger than 6

Proportion (%) of low−wage workers

Wage (2007 dollars)

- All low−wage workers
- Male low−wage workers
- Female low−wage workers

Source: Author's analysis of data from CPS−ORG, 2007

Proportions are fitted proportions from kernel−weighted local polynomial regressions of dummy varia−
bles indicating presence of own children in family, on wages. Proportions do not include children living
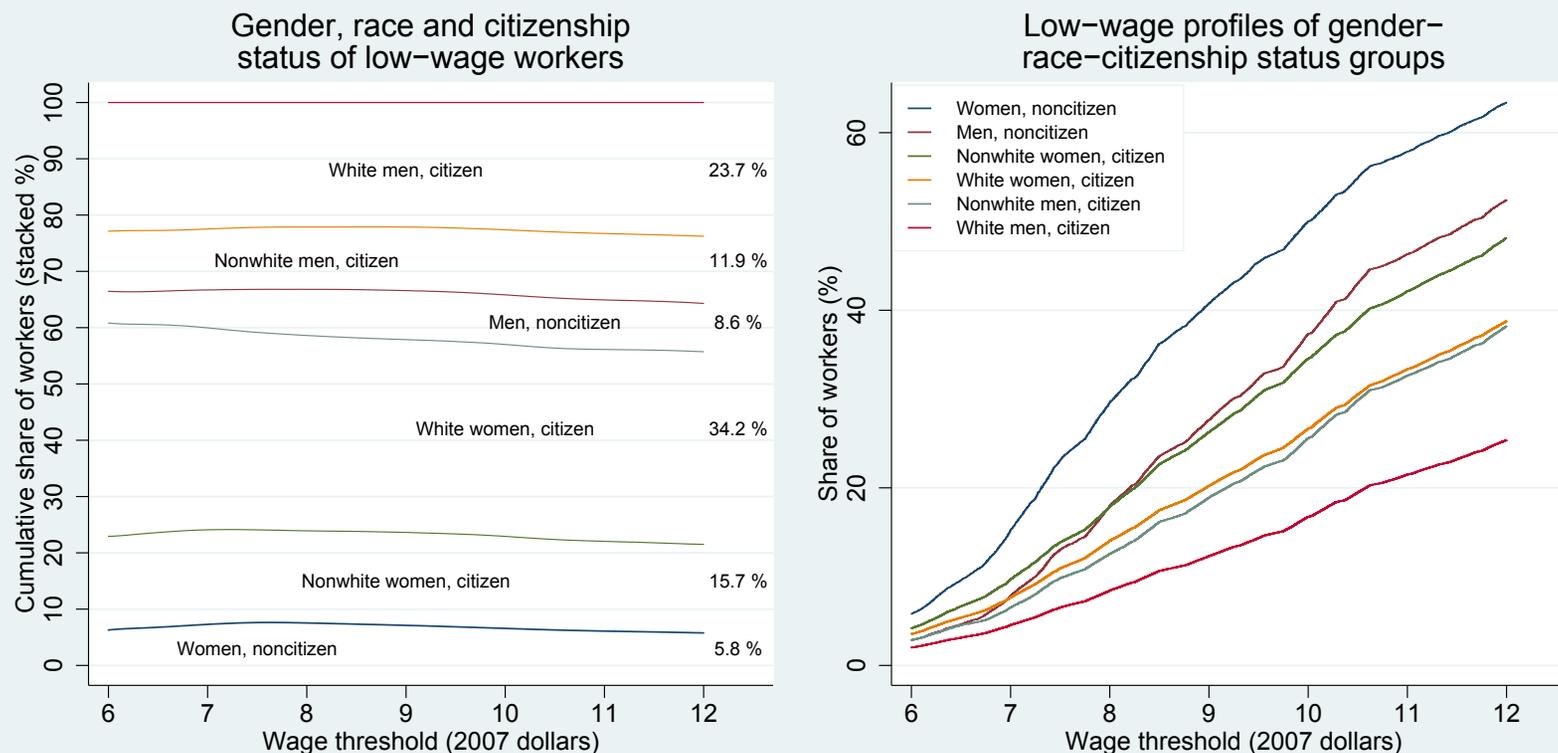in related subfamilies. Regression specifications are as in Figure 1.1.

Figure 6: Low−wage workers and educational attainment, 2007

Educational attainment of low−wage workers

2.1 %

Postgraduate degree   Four−year college degree   8.4 %

Associate's degree   7.4 %

Some college, no degree   22.7 %

High school degree   36.6 %

No high school degree   22.7 %

Low−wage profiles of educational−attainment groups

- No high school degree
- High school degree
- Some college, no degree
- Associate's degree
- Four−year college degree
- Postgraduate degree
- Without four−year college degree
- With four−year college degree

Source: Author's analysis of data from CPS−ORG, 2007

In the left panel, the distance at each wage threshold between two consecutive lines represents the share of workers making no more than the wage threshold, who have the indicated educational attain− ment. The percentages on the right of the figure (included to facilitate interpretation) are the shares for the $12 threshold. In the right panel, each line is the section between $6 and $12 of the empirical cumu− lative distribution function of wages for an educational−attainment group. Lines have been smoothed.
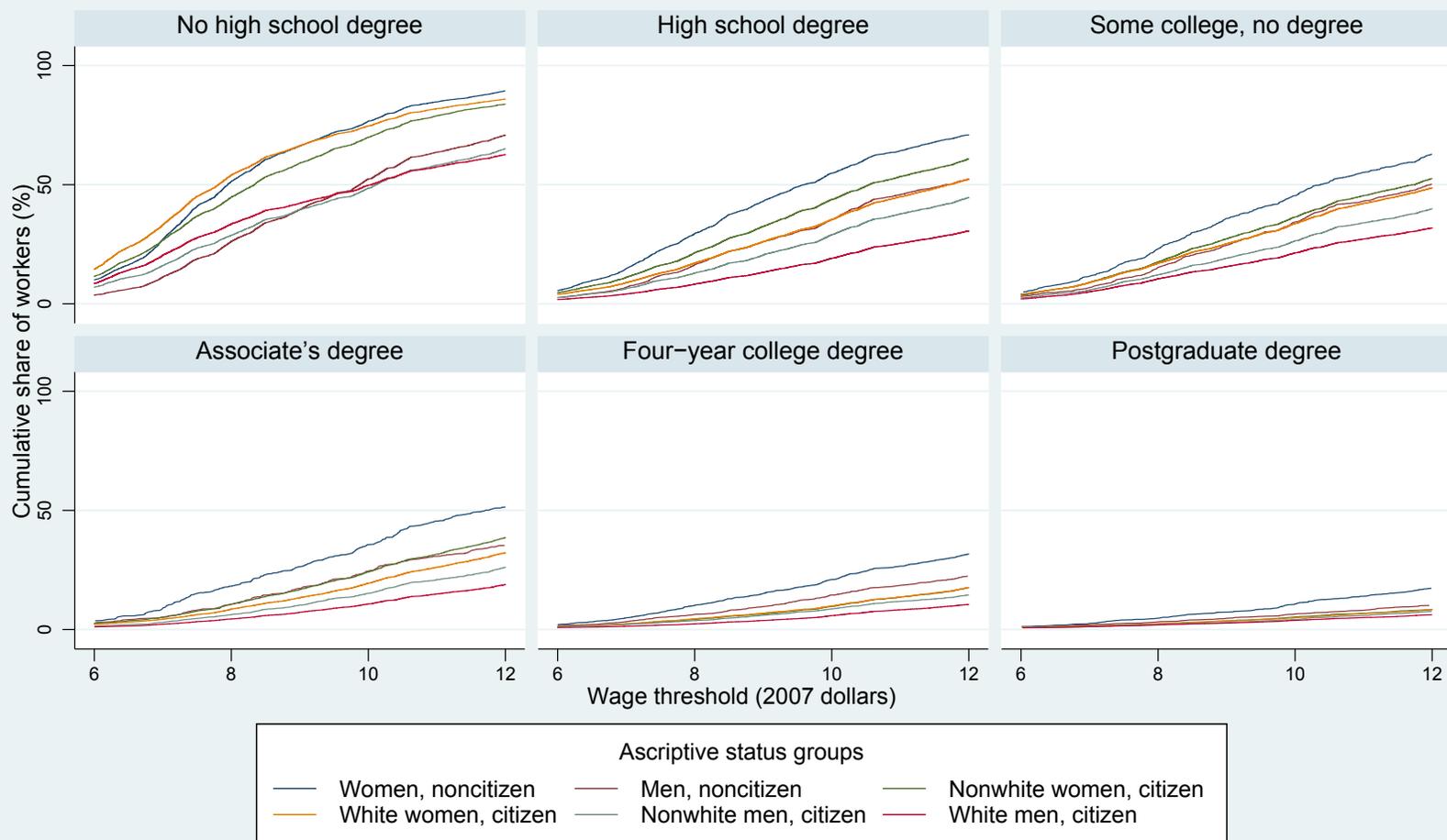
Figure 7: Low-wage workers and ascriptive statuses, 2005−2007

Gender, race and citizenship status of low-wage workers

White men, citizen — 23.7 %

Nonwhite men, citizen — 11.9 %

Men, noncitizen — 8.6 %

White women, citizen — 34.2 %

Nonwhite women, citizen — 15.7 %

Women, noncitizen — 5.8 %

Cumulative share of workers (stacked %)

Wage threshold (2007 dollars)

Low-wage profiles of gender−race−citizenship status groups

Women, noncitizen
Men, noncitizen
Nonwhite women, citizen
White women, citizen
Nonwhite men, citizen
White men, citizen

Share of workers (%)

Wage threshold (2007 dollars)

Source: Author's analysis of data from CPS−ORG, 2005−2007

In the left panel, the distance at each wage threshold between two consecutive lines represents the share of workers making no more than the wage threshold, who have the indicated gender, race, and citizenship status. The percentages on the right of the figure (included to facilitate interpretation) are the shares for the $12 threshold. In the right panel, each line is the section between $6 and $12 of the empirical cumulative distribution function of wages for a gender−race−citizenship status group. Lines have been smoothed. Pooling data from three years is convenient for the purpose of comparing with Fig. 1.8.

Figure 8: Low-wage profiles of ascriptive status groups by education, 2007

Cumulative share of workers (%)

Wage threshold (2007 dollars)

Ascriptive status groups

Women, noncitizen — Men, noncitizen — Nonwhite women, citizen
White women, citizen — Nonwhite men, citizen — White men, citizen

Source: Author's analysis of data from CPS−ORG, 2005−2007

Each line is the section between $6 and $12 of the empirical cumulative distribution function for an ascriptive−status−education cell.
Use of three years of pooled data is necessary to obtain adequate sample sizes. Lines have been smoothed.

Figure 9: Low-wage jobs and workers' welfare, 2006
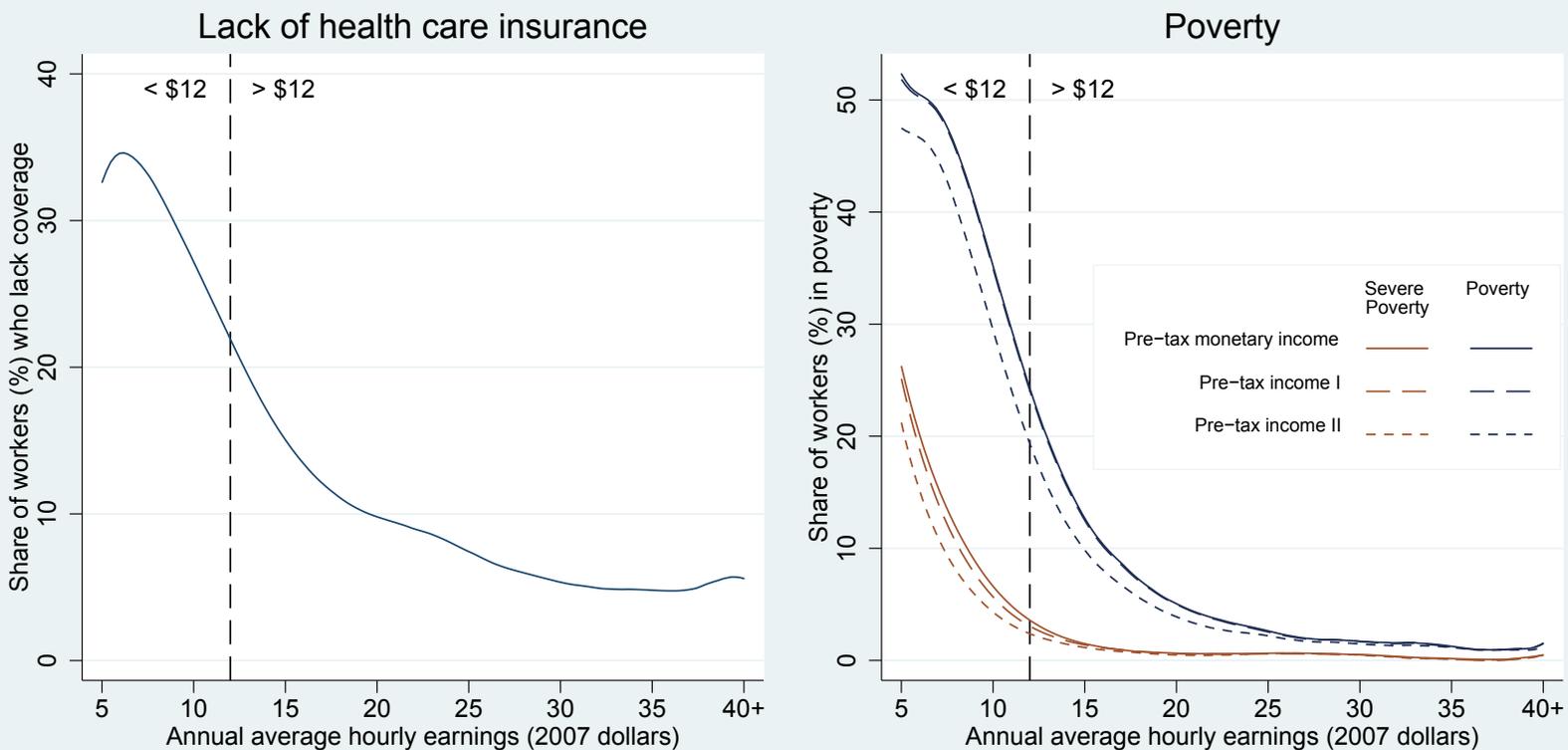
Source: Author's analysis of data from CPS–ASEC, 2007

Shares are fitted proportions from kernel–weighted local polynomial regressions of dummy variables indicating lack of health care insurance, poverty and severe poverty on annual average hourly earnings. Regression specifications are as in Figure 1.1, with the exception that here the polynomials are of degree three. See text for the types of health care insurance considered in the analysis, for the definitions of poverty and severe poverty employed, and for the definitions of total family income utilized.

Figure 10: Share of household heads and their spouses in a low-wage cohort in 1969−1994 who were in a multiple-year, low-wage spell (2007 dollars)
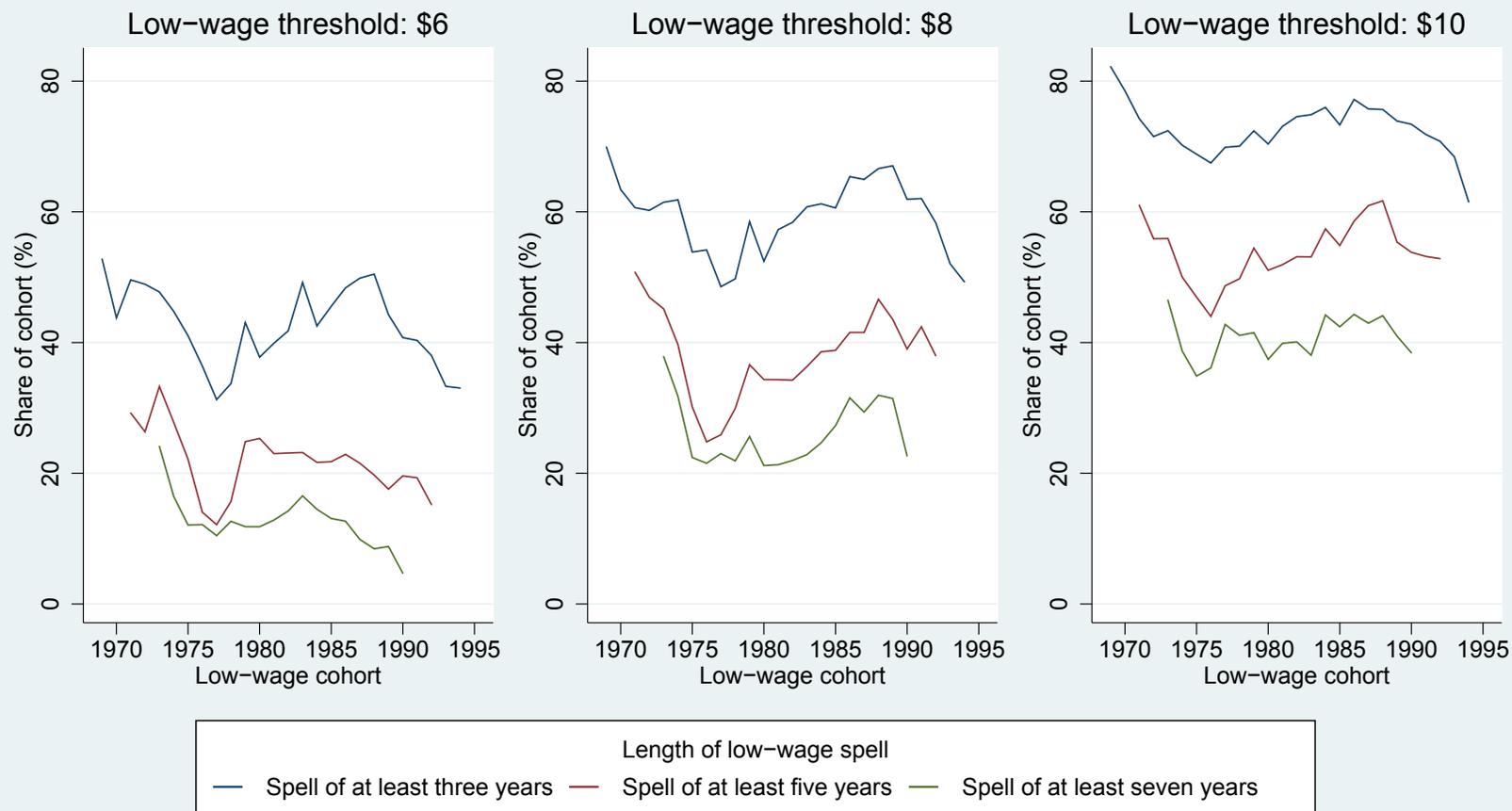
Source: Author's analysis of data from PSID, 1968−1997

Note: The PSID collected data annually until 1997 (earnings year 1996), but only every other year after that. For this reason the shares of workers in low−wage spells cannot be calculated for post−1994 low−wage cohorts. Shares calculated over those that were low−wage in reference year and were employed in the n−1 years before and after that year, with n being the length of the spell.

Figure 11: Household heads and their spouses persistently low-wage in an n-year period centered in 1987
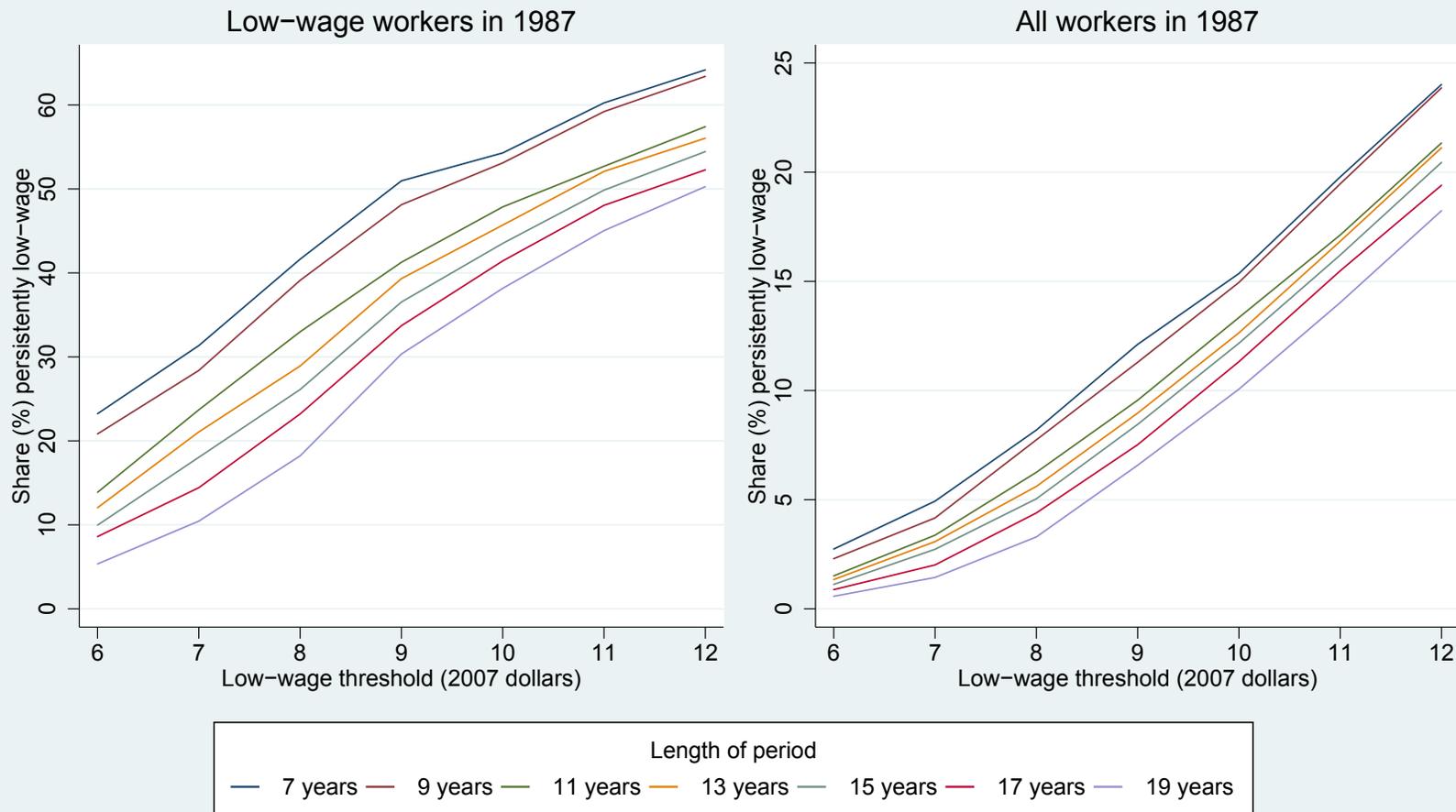
Source: Author's analysis of data from PSID, 1979–1997

Note: Left-panel shares calculated as in Table 1.8. Right-panel shares calculated similarly but using all people employed instead of only those low-wage in the denominator.