

Wages of Virtue: The Relative Pay of Care Work

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We examine the relative pay of occupations involving care, such as teaching, counseling, providing health services, or supervising children. We use panel data from the National Longitudinal Survey of Youth covering workers between 17 and 35 years of age. Care work pays less than other occupations after controlling for the education and employment experience of the workers, many occupation and industry characteristics, and (via individual fixed effects) unmeasured, stable characteristics of those who hold the jobs. Both men and women in care work pay this relative wage penalty. However, more women than men pay the penalty, since more women than men do this kind of work.

As you read this, teachers around the world instruct children in reading. Childcare workers exhort children to get along with each other. Aides in a nursing home give elders their food. Counselors work with men who batter women to reduce their violent outbursts. Professors give lectures. Librarians show students how to find journal articles on the web. Midwives deliver babies. Doctors and nurses scramble to give emergency care to accident victims. A mother prepares lunch for her two children at home, as well as three she takes in for pay. All these activities involve care work.

We use the term “care work” (or caring labor) to refer to occupations in which workers are supposed to provide a face-to-face service that develops the human capabilities of the recipient. By “human capabilities” we refer to health, skills, or proclivities that are useful to oneself or others. These include physical and mental health, physical skills, cognitive skills, and emotional skills, such as self-discipline, empathy, and care. Examples of caring labor include the work of teachers, nurses, childcare workers, and therapists.¹

This paper provides empirical evidence supporting the hypothesis that those who work in occupations involving care face a relative wage penalty. When we say that doing care work entails a “wage penalty,” we mean that those in these occupations receive, on average, lower hourly pay than we would predict them to have based on the other characteristics of the jobs, their skill demands, and the qualifications of those holding the jobs. We will operationalize this in a statistical model in which we test the hypothesis by ascertaining whether there is a negative effect of working in an occupation in which workers are supposed to provide care *net of* (i.e., after regression-based statistical adjustments for) the characteristics of the workers and the jobs that other research has shown to affect earnings.

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1. Of course, the unpaid work of parenting is caring labor as well. However, our topic in this paper is care work done for pay.

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We begin by offering a theoretical rationale for why we hypothesize a penalty for care work. We then review relevant past research. As far as we know, there is no past research on the relative pay of care work, conceptualized as work providing a service to someone whose capabilities are enhanced by the service. But there is research on the relative pay of *interactive service work*, a broader category that subsumes care work, but also includes retail sales clerks, taxi drivers, waiters, receptionists, and so forth. We review this research below, along with research on returns to social skills. The latter is relevant because such skills are often required in care work.

We present an empirical analysis showing a pay penalty for working in care work. Strength of the analysis lies in its features designed to minimize selection or other types of omitted-variable bias. We do this with statistical controls for many individual and occupation and industry characteristics. We also reduce such bias by using longitudinal data and a fixed effects model that implicitly controls for all unmeasured, unchanging characteristics of individuals. Through these techniques we hope to be able to isolate the effects on wages of the “care” features of the work itself, netting out effects of the characteristics of the people who enter this work and the job characteristics (other than care itself) that are common to care work.

Why Hypothesize a Wage Penalty for Care Work?

In this section, we present the theoretical reasoning that leads us to hypothesize that there is a pay penalty for doing care work. That is, we explain why we hypothesize that care work pays less than we would expect it to given the other characteristics of the work and the workers who do it. We present this theorizing in the form of four distinct mechanisms: the economic dependence of those who need care, the association of care with women and mothering, the difficulty of achieving productivity gains per worker in the care sector, and the tendency of market wages to be less in jobs involving intrinsic motivation.

The Economic Dependence of Those Who Need Care

Often people who need care have very little money to pay for it. Children are the extreme example. If adult behavior were well explained by the most caricatured version of theories of self-interested rational actors, then infants would only get cared for if they could offer something for their care. Clearly, most of them would die since they have few resources (save cuteness) at birth, and their cognitive skills are hardly up to negotiating a long-term contract that lets them borrow against their future earnings. Even if they were great negotiators, they would face the problem that the only thing they “own” that could provide collateral for the loan is their person. But no modern legal system allows contracts specifying that if one party doesn’t pay s/he will become an indentured servant or a slave (Arrow 1974). Persons with disabilities need substantial care, but are often in a relatively weak position to earn money to pay for the care (Danziger and Seefeldt 2002). Elders typically need care most when they are no longer working and, in many cases, have few assets left from any savings they had at retirement (Crystal 1995). The general point is that people need care most when they are the least able to work to pay for care. This is part of the inherent “dependency” of childhood, old age, and illness.

When those with few resources need care and the care is provided by paid workers, then some third party pays for the care, typically family members² or the state (Meyer 2000). In this case, how much is available to pay the care workers depends upon how affluent the family members are, or how rich the economy is from which the state draws taxes. But how much is available to support care also depends on the level of altruism of those paying for the care toward those who need the care. In the case of state action in a democracy, citizens have

2. In the case of health care, payment is often through insurance that a family member has as part of the compensation from their employer.

to vote to tax themselves to pay those who give care to people who need it. So the taxation for care involves redistribution from tax-payers to those receiving care. For example, if citizens have little altruism or sense of responsibility for children other than their own, they are less willing to tax themselves to pay for universal child care or for family allowances. State resources available to pay for care also hinge on social norms and the outcomes of institutional debates regarding who is entitled to care and whether family members are obligated to provide it without pay or state support (O'Connor, Orloff, and Shaver 1999). All these things make it unclear whether state resources will be forthcoming to pay care workers as much as others who do work requiring a similar amount of skill.

The Association of Care with Women and Mothering

Paid care work often involves the provision of services that women are expected to offer to their family members out of love and obligation, such as taking care of children and nursing sick family members. Indeed, paid care work consists of those functions of care for dependents historically done by women in the family. With social differentiation, these functions are done less in the family and more in state- and market-governed institutions. The way one thinks about this work is strongly affected by schemas about gender and motherhood that come from the culture, or from early relationships with mothers or other caregivers.

Such schemas may make individuals likely to see modest relative pay as appropriate for care work. First, women usually do such work. The "devaluation thesis" asserts that our culture devalues women relative to men, and then, by association, any activity done largely by women is valued less than that it otherwise would be. Consistent with this claim, most research examining whether wage systems violate the principle of "comparable worth" shows that the sex composition of jobs (or occupations) affects their wages, net of a host of controls (Acker 1989; Baron and Newman 1989; England 1992; England et al. 1988; England, Hermesen, and Cotter 2000; England, Reid, and Kilbourne 1996; England, Thompson, and Aman 2001; Kilbourne et al. 1994; MacPherson and Hirsch 1995; Parcel 1989; Sorensen 1994; Steinberg et al. 1986; but see Filer 1989; Tam 1997, 2000 for dissenting views).

However, our hypothesis here is not simply that caring labor pays less because predominantly women do the jobs (although we will examine that as well). We hypothesize that there will be a pay penalty for care work even after controlling for sex composition. This would imply that jobs involving care pay less than other women's jobs of similar skill levels that do not involve care. Why might this be? This may be because care is symbolically associated with women and mothering more than other "female" jobs and this association affects people's sense of how much the job should be paid. So, for example, counseling may be associated with the nurturing functions of mothers. As a result, people may see the qualities of empathy and patience required in counseling as more "natural" than arduously acquired. By comparison, they may see the skill required in non-care jobs as more arduous. Care work may thus be devalued even relative to other equally female-intensive jobs (e.g., administrative work). The general problem is that skills associated with mothering are more likely to be seen as "natural" and, thus, either be unnoticed or be seen as not deserving of remuneration (Steinberg 1990).

There is another cultural reason that people may find it appropriate to pay jobs that remind them of mothering less than an amount commensurate with their skills and demands. While mothers are revered, there is a sense that they *should* provide care out of love, not for money. This is part of why they are revered! This notion may be extended to paid care work so that care workers are implicitly expected to prove their proper motivation by accepting a wage penalty. The dichotomy-producing tendencies in Western thought also encourage the notion that one works for love *or* money, not both (Folbre and Nelson 2000). Such dichotomous thinking encourages the idea that commodifying care dries up real love, or worse, makes the sacred profane (Nelson 1999; Zelizer 2002). In addition, people may resist the idea of paying care well because this threatens their sense of entitlement to have care freely given to them

when they need it. Such cultural constructions have a paradoxical aspect; they entail respect for the sanctity of care work, and even put care workers on a pedestal of respect, but ironically, result in denying a decent income to those who provide care (England and Folbre 1999; Folbre and Nelson 2000). These cultural constructions also make it difficult to organize care workers into collective action seeking better earnings for their work (Macdonald and Merrill 2002).

The Difficulty in Achieving Productivity Gains in the Care Sector

Economist William Baumol (1967) hinted at another factor constraining pay for care work when he referred to the “cost disease of the service sector.” He argued that the service sector of the economy is less amenable to productivity-enhancing technical change than manufacturing. It is, after all, harder to substitute capital for labor in the classroom than on the assembly line. Therefore, he predicted that the prices of services would rise faster than those of physical goods. In retrospect, we believe that Baumol was wrong to lump all services together. Retail, banking, and insurance services have benefited enormously from innovations in information technology, leading to significant capital/labor increases and increases in productivity per worker. (For example, Bernhardt et al. [2001:146–147] show a large recent increase in the relative earnings position of workers in the finance, insurance, and real estate industries.) Care services, however, are inherently labor intensive: they require face-to-face, and sometimes hands-on, contact. Thus, in order to compete for equally skilled workers, paying them the same relative to their skill level as other sectors pay, the relative cost to consumers of care services would have to rise as productivity gains in other sectors lead to wage increases there. But, no matter how great the need for care services, those in need may not be able to pay the rising costs required for skill-commensurate pay in the care sector. If someone else is not able and willing to foot the bill, then recipients will go without care that could have been afforded when relative prices for care were lower, and/or care workers will be pressured to work for a wage that is low relative to their human capital and the skill level of their jobs. This may help explain the low relative wages of care work.

The Neoclassical Economic Notion of Compensating Differentials

When neoclassical economists confront evidence of the pay penalty in predominantly female jobs, they generally suggest that the correct explanation lies in the theory of compensating differentials (Filer 1989). (See England 1992:69–73 and Jacobs and Steinberg 1990 for critical expositions of this view and review of empirical evidence.) This theory calls attention to differences between jobs in their intrinsic rewards or penalties. Non-pecuniary “amenities” or “disamenities” will affect how many people are willing to work in a job at any given wage. Thus, according to the theory, employers will have to pay more to compensate for non-pecuniary disamenities of jobs, and they can hire for less in jobs with non-pecuniary amenities, all else equal. Of course, there is variation in tastes among workers. The theory says that if the marginal worker sees the intrinsic properties of the work as an amenity, this permits a lower wage. If the marginal worker sees the work as onerous compared to other jobs, the employer will have to pay a higher wage than paid in these other jobs to fill the job. In this view, if the marginal worker to caring occupations finds satisfaction in helping people, this will allow employers to fill the jobs with lower pay than in comparable jobs without the helping component. More simply put, the low pay may be made up for by the intrinsic fulfillment of the jobs; altruism is its own reward. This argument could be extended to apply to caring labor.³ The intrinsic fulfillment of helping others could be seen to be a non-pecuniary amenity

3. Although we have not seen this explanation of low pay in care work in print, our experience in making presentations to economists on the pay penalty for care work is that “compensating differentials” is the explanation they almost invariably suggest.

motivating people to work in caring labor and making them willing to take such jobs for a lower wage relative to the human capital investment required.

We have a mixed reaction to this argument. We agree that caring labor is sometimes motivated by altruism. This may be a factor in the low pay of caring labor, but we doubt it is the whole story. *Every* job disproportionately self-selects workers who find the kind of work offered to be interesting, fulfilling, enjoyable, or less onerous. Most jobs are intrinsically rewarding to *some* people. Caring labor appeals to those who want to relieve human suffering and enjoy seeing people develop, science is full of nerds who like studying and discovery, managers enjoy control, and race car drivers are turned on by the danger most people avoid. Thus, the simple fact that one can point to one set of preferences (altruism) that favor choosing caring labor does not mean that any or all of the pay penalty observed for working in this kind of work is explained by such preferences. Our suspicion is that the disproportionate tendency to invoke such explanations for work that historically emanates from women's work at home may reflect the gendered biases discussed above. But in the final analysis we cannot say how much any pay penalty we find is explained by the fact that care work has more non-pecuniary appeal than other work.

Past Research Relevant to The Relative Pay of Care Work

Ours is the first study examining the relative pay of care work. The most relevant past research examined the relative pay of the broader category of all service work and the returns to social skills. While the control variables in the studies we review vary, most controlled for such individual factors as education and experience and for job characteristics such as cognitive and physical skill demands of the job, whether unions set wages, whether the job is in the public sector, and the sex composition of the occupation.

Caring labor, as we conceptualize and operationalize it here, is a subset of a broader category that we call interactive service work. Our conceptual definition of care work is work that provides a face-to-face service and develops the capabilities of the recipients. That is, the service promotes the development, learning, skill acquisition, or physical or psychological health of the recipient. England (1992, Ch. 3) examined the relative pay of a much broader category. She created a dummy variable for what she called "nurturant work," by making a judgment from each detailed Census occupational title regarding whether a primary task in the job is giving face-to-face service to clients or customers of the organization for which one works. This is broader than the operationalization of care work used here, including many face-to-face service occupations that we don't see as increasing recipients' capabilities, such as sales workers, ushers, waiters, and receptionists. We think that a more accurate term for what England measured is Leidner's term, "interactive service work"; we use this term below to describe findings about the relative pay of this broad category of service work. England's study used 1980 Census data and found that both men and women earned less if they worked in interactive service work (England 1992, Ch. 3); a replication using 1990 Census data found a penalty as well (England, Thompson, and Aman 2001).

Other research examined the returns to social skills. In an analysis of the New York State civil service jobs, Steinberg et al. (1986) found that a number of scales that tapped caring social skills had negative returns. These included communication with the public and group facilitation, both of which relate to caring work (Steinberg et al. 1986:152). Kilbourne et al. (1994) developed a scale to measure nurturant skill from the dummy variable developed by England (1992, Ch. 3) described above, plus other skill measures from the Dictionary of Occupational Titles involving dealing with people and communication. Other things equal, working in an occupation scoring higher on this scale reduced earnings for both men and women.

One study looked at the relative wages of something closer to our concept of caring labor. England et al. (1994) constructed a measure from a survey of undergraduates asking them to rank Census occupational titles according to "how much they involve helping people, encour-

aging the development of people, or taking care of people." They found that, in 1980, occupations ranked higher on this scale had lower earnings, net of a number of characteristics. While the survey item given to the undergraduates clearly seemed to call for an evaluation of care that increases people's capabilities, the fact that it is based on undergraduates' knowledge of what is entailed in occupations is a limitation of the scale.

Hypotheses To Be Tested

Based on our theoretical arguments and the past research reviewed above, our major hypothesis is: *Net of other individual and occupation-industry characteristics, care work will be associated with a wage penalty.* While past research has not directly examined the relative pay of care work, it has shown that a broader concept of interactive service work suffers a relative pay penalty, and that the social skills entailed in care work receive negative returns. We base our prediction on this, as well as the theoretical reasoning above.

We also have some auxiliary hypotheses based on the reasoning and research above. First, we predict that *the care work wage penalty will be larger than the wage penalty associated with interactive service work.* (Recall that interactive service work is a broader category that includes care work, but also service work such as retail sales.) Some of the rationale for why care work would pay less does not apply to those kinds of service work that do not involve increasing recipients' capabilities. For example, retail sales are less likely to be culturally associated with mothering. Moreover, store customers do not have a tendency to be unable to work to support themselves, but those who need care are disproportionately needy. Other services may be more amenable than care to substituting capital for labor (e.g., machines have simplified the work of cashiers). Second, we predict that *part of the low pay of caring labor results from the sex composition of the occupation/industry, so the wage penalty will be reduced when sex composition is controlled, but it will not be entirely eliminated by this control.* The fact that the estimated care penalty will be reduced when sex composition is controlled is suggested by the fact that care work is disproportionately done by women, and by past research finding a negative effect of occupational percent female on wages. But the hypothesis that some penalty for care will still be present even when sex composition is controlled flows from the notion that caring labor has its pay lowered by other mechanisms, including a greater association with mothering than non-care jobs with as high a percent female, the labor intensive nature of the work, the inability of recipients to pay, and the intrinsic motivation of some workers to do this work.

Data and Methods

Sources of Data

To examine the relative pay of caring labor, we pooled the 1982–1993 waves of the NLSY (National Longitudinal Survey of Youth), a national probability sample of individuals aged 14–21 in 1979, with over-sampling for Blacks and Latinos. Respondents were interviewed annually. We limit the sample to those employed part- or full-time during at least two of the years 1982–1993, since the fixed-effect models we will employ require at least two observations on each person. Out of the total of 12,686 respondents in the 1979 NLSY, we had at least two years of employment for 10,670 (5,291 women and 5,379 men). After deletions for person-years with missing values on one or more variables, our analyses were based on 85,880 person-years as units of analyses, which was an average of 8 years (waves) of data for each of the 10,670 respondents.

The advantage of using the NLSY is its panel data. Because the same people were surveyed year after year, we can use the fixed-effect model, described below, which increases our ability to minimize omitted-variable bias.

The age restriction of the sample is disadvantage of these data; we are seeing only early careers. Since respondents were 14–21 years of age in 1979, the oldest of them were 35 in 1993, the last year in our data. What are the implications of the youth of the sample for possible bias in answering our question? *If care workers get larger* pay increases with experience than workers in other jobs when they are over 35, then our estimate of the pay penalty for care work, while accurate for the young workers we studied, would exaggerate the penalty experienced by care workers later in their careers. But we suspect that the opposite is true—that care workers get smaller returns to experience than other workers. If that is true, then our estimates of the penalty are lower than those experienced by workers above 35. Unfortunately, our data do not let us adjudicate this. Another limitation of the data set is that it underrepresents immigrants in later years; immigration has increased dramatically since 1980, but individuals had to be in the country by 1979 to be in the sample. Particularly relevant to our focus on care work is the fact that, especially in the southwest, maids and live-in nannies are disproportionately Latina immigrants (Romero 1992).

We calculated the percent female in each detailed occupation/industry combination from 1990 Census data (U.S. Bureau of the Census 1993). NLSY responses to questions about jobs were coded into 1980 occupation and industry codes starting in 1982, and these codes were easily mapped onto 1990 occupation and industry codes. Since pre-1982 occupations and industries are coded into 1970 codes, which do not easily map onto 1990 codes, we limited our sample to person-years after 1982.

The Dictionary of Occupational Titles (U.S. Department of Labor 1977) contains data on over 10,000 occupations. Department of Labor observers coded occupations for their skill demands and other characteristics of the work. DOT variables were transformed into averages for each 1980-detailed Census occupation (England 1992, Ch. 3). They were merged onto our data according to Census occupation codes.

Description of Variables

The dependent variable is the natural log of hourly wage in the respondent's current job. We dropped person-years where hourly wages are outliers below \$1.00 or above \$75.00.

The principal independent variable is a dummy variable indicating whether the occupation meets our operational definition of caring labor: it entails giving a face-to-face service to a client or customer of the organization in which one is employed which increases the capabilities of this recipient. The first author did the coding. We considered occupations to be care work if they involve the face-to-face provision of childcare, health care, or education, and we included helping professions such as therapists, social workers, and clergy. These occupations involve providing a face-to-face service, and develop human capabilities such as physical and psychological health or cognitive and social skills.⁴ Appendix Table A1 provides a list of all occupations coded as care work. We also estimate models that include dummy variables for broad sub-types of caring labor, also listed in Table A1. Finally, in sensitivity tests, we try a broader definition, interactive service work, which also includes service occupations such as retail sales and receptionist (see Table A2 for a list of these occupations).

Our control variables are chosen to minimize omitted-variable bias in our estimate of the causal effect of holding a care work occupation on one's wage. Failure to include a variable will cause such bias if it is a characteristic of individuals that affects whether they work in care work versus other kinds of jobs and affects the individuals wage through some mechanism other than the differential wages offered by care work. For example, if care work disproportionately recruited workers with low education or little full-time job experience, then given the well-known effects of these types of human capital on earnings, failure to control for these

4. Our operationalization of care is in terms of the occupation the respondent holds, not whether his or her behavior is actually caring, or whether s/he actually increases recipients' capabilities.

variables could produce negative coefficients on the dummy for care work. But it would be misleading to interpret these coefficients to indicate that caring labor offers low pay relative to the qualifications of its incumbents. To avoid this, we control for education and job experience. We include measures of education, years of full-time and part-time experience, and years of full-time and part-time seniority (i.e., experience in the organization for which one currently works). These measures include the entire life cycle back to 1978. Experience includes seniority in one's present workplace. Finally, the total number of breaks in employment is included to capture the possibility that, for example, ten years of continuous experience may help earnings more than 10 years of experience accrued across 15 years with several breaks in between. A break is defined as time out of employment lasting longer than 6 weeks since one's first full-time job of at least 6 weeks in duration.

We also controlled for occupational or industry characteristics to remove omitted-variable bias. That is, we want to control for other characteristics common to jobs involving care that might affect the wage offered. In this way we can assess whether caring labor has low pay *relative to its skill requirements*, the working conditions it forces workers to face, its sex composition, and other earnings-relevant occupation or industry characteristics. As an example of how such specification error producing omitted-variable bias could work absent these controls, consider the fact that care work is disproportionately female. Past research indicates that predominantly female occupations pay less than one would expect given their skill demands and the education of their incumbents (e.g., Kilbourne et al. 1994). Thus, without controlling for the sex composition of the occupation, we might get a negative coefficient on the care work dummy even if care work pays no less than other occupations with similarly female tilted sex compositions. To avoid misleading inferences like this, we control for a number of occupation and industry characteristics. (In an auxiliary test, we will examine the coefficient on the care work dummy before and after controlling for sex composition.) A dummy variable is included for whether the respondent's current job is part-time, defined as less than 35 hours per week. (In results not shown we substituted hours per week and its square for the part-time dummy, and it changed other coefficients only trivially.) Union status is a dummy variable for whether the respondent reported that wages in his or her job were set by collective bargaining. We include a dummy variable for working in the public sector (local, state, or federal government), as well as a dummy for whether the individual is self-employed. Authority is a dummy variable giving a score of 1 to all Census detailed occupational categories with titles containing the words "management," "supervisor," or "foreman" (England 1992:137–139).

We measure the cognitive skill demanded by an occupation with a scale created by England (1992:134–135). It was created from a factor analysis of numerous items, mostly from the Dictionary of Occupational Titles. The score is merged onto NLSY respondents' records according to their detailed (1990) Census occupational category (U.S. Bureau of the Census 1993). Measures of the physical strength demanded and the physical hazards associated with one's occupation are occupational averages of variables taken from the Dictionary of Occupational Titles, merged onto these data according to NLSY respondents' detailed occupation.

The percent female in respondents' occupation-industry cell in 1990 is calculated from 1990 Census data described above. It is the percent female of the persons employed in a cell of a matrix cross classifying detailed 1990, 3-digit occupational category with detailed 3-digit industry category. We also included 12 dummy variables to represent industry.

Statistical Model

We use fixed-effects regression models to analyze NLSY data arranged in a pooled time-series cross-section with person-year as units of analysis. Effects are fixed for years and persons. That is, the coefficients on independent variables are estimated to control for person and year dummies. Person fixed-effects are useful for eliminating omitted-variable bias created by

the failure to include controls for unmeasured, unchanging personal characteristics that have additive effects. For example, if people in care work disproportionately had some unmeasured personal characteristic associated with low wages, this pay deficit would be adjusted out of our coefficient on the care work dummies, because, in effect, the models enter a dummy variable for each person, so they control for additive effects of all unchanging characteristics of the person, even those that are unmeasured. For example, suppose that care work disproportionately employed people who do not drive a hard salary bargain or who prioritize intrinsic over monetary goals. To the extent that these personal characteristics are relatively stable and serve to lower individuals' pay whether they are in care work or not, they are "netted" out of our estimates of the effect of being in care work on earnings by the implicit control for the person in the fixed effects model.

For all models, the Hausman test was conducted to assess whether random effects models were adequate. In each case, the test indicated a need for fixed-effects. As part of our sensitivity tests, we present results from some ordinary least squares (OLS) regression models to allow com-

Table 1 • Means and Standard Deviations for Major Variables

	<i>Women</i> <i>N = 41,988</i>	<i>Men</i> <i>N = 43,892</i>
Care work (narrow definition—used in Tables 2, 3) (dummy)	0.25 (0.35)	0.05 (0.17)
Broader concept of interactive service work (dummy)	0.32 (0.47)	0.08 (0.27)
Specific sub-types of caring labor (dummies)		
Higher education	0.001 (0.02)	0.0004 (0.02)
Secondary education	0.02 (0.13)	0.01 (0.08)
Primary education	0.03 (0.18)	0.004 (0.06)
Childcare workers	0.03 (0.16)	0.001 (0.03)
Medical doctors	0.002 (0.05)	0.003 (0.05)
Other medical	0.09 (0.29)	0.01 (0.12)
Other caring labor	0.08 (0.27)	0.02 (0.15)
Other job characteristics		
Hazardous conditions	7.98 (18.29)	23.95 (30.80)
Strength	1.99 (0.67)	2.61 (0.75)
Authority (dummy)	0.08 (0.27)	0.12 (0.33)
Cognitive skill	1.07 (1.67)	0.85 (1.64)
Proportion female in industry*occupation cell	0.67 (0.25)	0.27 (0.24)
Union (dummy)	0.13 (0.34)	0.18 (0.38)
Self-employed (dummy)	0.05 (0.21)	0.09 (0.28)
Human capital and labor supply		
Education (years)	13.08 (2.22)	12.79 (2.39)
Full-time seniority (years)	1.81 (2.64)	2.24 (2.96)
Part-time seniority (years)	0.43 (1.16)	0.19 (0.75)
Full-time experience (years)	4.32 (3.47)	5.40 (3.83)
Part-time experience (years)	2.39 (2.21)	1.65 (1.84)
Number of breaks in employment	2.24 (1.92)	2.26 (2.03)
Current Job is part-time (dummy)	0.28 (0.45)	0.13 (0.34)
Usual Hours per week	35.45 (11.43)	41.47 (11.81)
Dependent variable		
Ln hourly wage	1.84 (0.56)	2.06 (0.57)
Hourly wage (\$)	6.30 (1.75)	7.85 (1.77)

Source: NLSY 1982–1993. Units of analysis = person-years.

Table 2 • Percent of Each Ethnic-Sex Group in Occupations Coded as Care Work

	<i>Hispanic Women</i>	<i>Black Women</i>	<i>White Women</i>	<i>Hispanic Men</i>	<i>Black Men</i>	<i>White Men</i>
Care work	23	23	23	5	6	5

Notes:

Percents are % of person-years. Blacks and Whites are non-Hispanic. Hispanics may be of any race.

Source: NLSY 1982–1993.

parison; since they presumably contain more omitted-variable bias, the comparison provides some insight into whether those in caring labor have lower earning-potential based on their unobserved characteristics. Since the multiple observations on each individual are not independent, we use the Huber-White method to correct the standard errors in the OLS models. This correction only changed standard errors trivially. We place more confidence in fixed-effects models for causal inference. Following Winship and Radbill (1994), we weight means and standard deviations by sampling weights provided in the NLSY, but do not weight regressions.

Findings

The empirical analysis is designed to examine the relative pay of occupations involving care. Our interest is not in the absolute pay level of these occupations, which are quite diverse in educational requirements and on many characteristics that past stratification research has shown to predict earnings. Rather, the analysis shows how caring labor pays relative to its predicted pay level on the basis of its other characteristics. Sample means and standard deviations of major variables are presented in Table 1.

Table 2 shows the proportion of men and women of each of the three largest U.S. ethnic groups who work in occupations defined here as care work. While ethnic differences in occupation are large along many dimensions, Table 2 makes clear that this is not true for whether or not a person does care work. Here the large differences are by gender, not race or ethnicity. Twenty-three percent of women in each of the three ethnic groups are in care occupations, whereas care work employs only 5–6% of the men in each ethnic group. It is possible that this conclusion would be changed if immigrants were not under-represented in the NLSY data. And it is important to note that there are some racial/ethnic differences in which care occupations individuals are concentrated in, as well as in wages within occupations. The regression analysis to follow will divide the sample by sex, with race/ethnicity controlled in the person-fixed-effect.

The Pay Penalty for Care Work

Table 3 shows results from the regression analysis designed to isolate net effects on wages of working in caring labor. We see that, net of controls, working in a caring occupation leads to a significant net wage penalty of 5–6% for both men and women.⁵

5. A test for sex differences in coefficients was conducted by taking all the person-years in the separate male and female analyses in Table 3 and pooling them into one model. We cannot put an additive effect of sex into fixed-effects models because it doesn't change between years for individuals. However, fixed-effects models can interact sex with other independent variables. We added an interaction term for sex and each other variable. The interaction of sex and caring labor was not significant at the .01 level (two-tailed test). Tests showed no within-sex interactions between doing care work and race/ethnicity significant at .05 (two-tailed test). (Results not shown, available upon request.)

Table 3 • Results from Regression of Ln Hourly Earnings on Whether Occupation Involves Care Work and Control Variables, with Year and Person Fixed Effects

	Women	Men
Job characteristics		
Care work	-0.05 (0.01)*	-0.06(0.01)*
Proportion female	-0.07 (0.01)*	-0.12 (0.01)*
Union	0.08 (0.01)*	0.04 (0.01)*
Self-employed	-0.11 (0.01)*	0.03 (0.01)*
Authority	0.02 (0.01)*	0.03 (0.01)*
Cognitive skill	0.03 (0.00)*	0.03 (0.00)*
Strength requirement	0.01 (0.00)	-0.03 (0.00)*
Hazardous conditions	0.00 (0.00)*	0.00 (0.00)*
Human capital and labor supply		
Education	0.06 (0.00)*	0.07 (0.00)*
Part-time experience	0.02 (0.00)*	0.00 (0.00)*
Full-time experience	0.03 (0.00)*	0.01 (0.00)*
Part-time seniority	0.01 (0.00)*	-0.00 (0.00)*
Full-time seniority	0.01 (0.00)*	0.02 (0.00)*
Number of breaks in employment	-0.01 (0.00)*	-0.02 (0.00)*
Current job is part-time	-0.03 (0.00)*	-0.02 (0.01)*

Notes:

* $p < .05$, two-tailed test.

Models also control for urban/rural residence, region dummies (south, north central, northeast), and twelve industry dummies.

Source: NLSY 1982–1993.

Sensitivity Tests for Robustness of Finding a Penalty for Care Work

We undertook additional analyses to see whether the finding that there is a penalty for caring labor is robust, and to provide additional insights about this kind of work. These are presented in Tables 4 and 5. In Table 4, we first examine the care penalty when we omit controls for industry dummies. Our presumption is that care work is concentrated in low paying industries, and thus, that the estimated penalty would be even larger without such controls. This is borne out for men more than women (men's penalty goes from 6% to 12%). Similarly, because occupations involving caring labor are disproportionately female, and the sex composition of occupations has an effect on their wages, we would expect that the penalty would be larger if it was estimated so as to include the portion attributable to the fact that caring labor usually is done in occupations with a high percent female. We find this for both sexes, but the change is slight^{6,7}

6. Tam (1997, 2000) argued against using many job variables, particularly in fixed-effects models, because of effects of measurement error on coefficients. We ascertained that our conclusions about the care penalty hold with fewer variables; we included 3 (care work, cognitive factor, and % female) rather than the 8 job characteristics in Table 3 (also retaining the industry dummies). The penalty for care work did not change. Tam (1997) advocated using the variable from the Dictionary of Occupational Titles measuring Standard Vocational Preparation. In the model just discussed, with the cognitive factor replaced by this variable, care work has a penalty of 9% ($p < .05$, 2-tailed test) for women and 2% (nonsignificant on 2-tail test at .05 level) for men. Adding union status, the effect for women remains significant, and the male penalty (of 3%) becomes significant ($p = .05$) on a 1 but not 2-tailed test. Overall, the care penalty seems fairly robust to specification.

7. A critic contested our exclusion of protective service workers (e.g., police), arguing that, through increasing public safety, they increase capabilities such as health. This raises the question of whether including these workers would change the care penalty. In results not shown, we re-estimate models in Table 3 including protective service workers in care work. Men's penalty is unchanged while women's is reduced slightly; both remain significant ($p < .05$, 2-tailed test). If we add a dummy for protective service workers to the models in Table 5, this type of work shows a significant penalty for men but has no significant effect for women.

Table 4 • Sensitivity Analyses for Effects of Working in Occupation Involving Care

	<i>Women</i>	<i>Men</i>
Effect from Table 3	-.05*	-.06*
Industry dummies not controlled	-.04*	-.05*
% Female in occupation/industry not controlled	-.06*	-.08*
OLS rather than fixed effects	-.07*	-.09*
Broader category of interactive service work	-.08*	-.05*
Broader category, industry dummies not controlled	-.06*	-.07*
Broader category, % female in occupation/industry not controlled	-.04*	-.07*
Broader definition, OLS rather than fixed effects	-.04*	-.05*

Notes:

* $p < .05$, two-tailed test.

Except where stated otherwise, models control for education, full-time experience, part-time experience, full-time seniority, part-time seniority, number of breaks in employment since 1st full-time job, whether current job is part-time, urban/rural residence, region dummies, occupational characteristics (hazards, strength requirement, authority, cognitive factor), union membership, whether person is self-employed, % female in occupation/industry cell, and industry dummies.

Source: NLSY 1982–1993.

Next, Table 4 presents the penalty using OLS, rather than fixed-effects. In fixed-effects models, coefficients are driven entirely by changes in wage when an individual moves into or out of occupations involving caring labor, above and beyond what can be explained by simultaneous changes in other measured independent variables. By contrast, OLS coefficients are also affected by cross-sectional comparisons between people, and thus, by unmeasured differences between the individuals who work in care work versus other occupations. If caring occupations contain individuals with unmeasured characteristics causing lower earnings (e.g., because they have low skill, are victims of discrimination, or prioritize values other than money when selecting their job), this should lead the OLS coefficient on the caring labor dummy to be a larger negative number than the fixed-effects coefficient. This is true for both sexes, but the difference between the fixed-effects and OLS estimates is small ($-.05$ versus $-.06$ for women, $-.06$ versus $-.08$ for men), suggesting that selectivity of those with low earnings potential or proclivity into caring labor (relative to others of their sex) is not pronounced for man or woman.

The rest of Table 4 compares the effect of working in caring labor to working in a broader category, which, following Leidner (1993), we call interactive service work. (The detailed occupations included in caring labor and in interactive service work are listed in the Appendix.) All caring labor is interactive service work, but this broader category also includes work that, in our judgment, does not generally develop the capabilities of the recipient (it simply provides a service). Examples of occupations coded as doing interactive service work, but not caring labor are sales workers, waiters and waitresses, and receptionists. Table 4 shows that interactive service work carries a relative wage penalty. The penalty for interactive service work is close in size to the penalty for care work for men but somewhat smaller for women (3% versus 5% for caring labor); it is reduced for both sexes in the OLS as well.

Table 5 returns to our narrower concept of caring labor, dividing it into several occupational clusters to see if each sub-type of caring labor has a “care penalty.” To do this, instead of entering one dummy variable for care work as in Table 3, we created separate dummies for several sub-types, and entered each of these into the regression model. The categories are childcare workers, primary school teachers, secondary school teachers, professors and teachers in higher education, doctors, other medical workers (registered nurses, LPNs, orderlies) and a residual category for other caring labor, such as social and religious workers (see Appendix). We make no predictions about which categories will pay particularly badly rela-

Table 5 • Coefficients on Dummies for Particular Categories of Care Work

	<i>Women</i>	<i>Men</i>
Childcare workers	−0.41*	−0.12*
Primary school teachers	−0.12*	−0.04*
Secondary school teachers	−0.06*	−0.07*
Higher education-professors	−0.26*	0.00
Doctors (includes dentists)	−0.10*	−0.17*
Other medical	0.08*	0.04*
Other caring labor (social workers, religious workers, etc.)	0.01	−0.11*

Notes:

* $p < .05$, two-tailed test.

Effects are for the indicated sub-type of care work relative to working in other occupations. Models are the same as those in Table 3 except that they include the list of dummy variables above instead of the single dummy variable for care occupations. Models control for education, full-time experience, part-time experience, full-time seniority, part-time seniority, number of breaks in employment since 1st full-time job, whether current job is part-time, urban/rural residence, region dummies, occupational characteristics (hazards, strength requirement, authority, cognitive factor), union membership, whether person is self-employed, % female in occupation/industry cell, and industry dummies.

Source: NLSY 1982–1993.

tive to their predicted wage, but simply predict that all will have a relative wage penalty. It is important to remember that these coefficients do not tell which occupations pay more in an absolute sense, but rather whether they pay more or less than occupations not involving caring labor after adjusting for differences in the (measured and unmeasured) human capital of their incumbents, occupational skill demands, and other occupation-industry characteristics controlled in the models. In general, most of the signs are negative, as expected.

The largest penalty by far is for doing childcare, especially for women, who suffer a 41% penalty for doing this work. Men also receive a large penalty, 12%, for working in childcare. Observing in our data that almost half of women who are childcare workers are self-employed, whereas few of male childcare workers or those doing other care work of either sex are self-employed, we wondered if there is a penalty for both employed and self-employed childcare workers. To test this, in results not shown, we interacted self-employment status with the childcare dummy (all other caring labor dummies were also interacted with self-employment status in the model). The results showed that for women, working in childcare work has a 26% penalty if one is an employee, but a 69% penalty if one is self-employed. (Both are significant.) Compared to women childcare workers who are employees, self-employed childcare workers are disproportionately white, married mothers who live outside inner city areas and have an employed husband. (Calculations are from results not shown.) Self-employed childcare workers may occasionally be nannies, but much more often, they are women taking children into their homes for pay, while they also care for their own children. The work may pay even less than working as an employee at a day care center because fewer children are cared for per worker in in-home arrangements, and those doing the child care are often simultaneously caring for their own children, thus, saving costs of childcare and travel to work. Because of these factors, women who have the responsibility of caring for their own children sometimes find this their best option despite the low pay.

Other than two non-significant coefficients, all effects in Table 4 are negative, except the significant positive effect of working in the “other medical” category. In results not shown, we subdivided the “other medical” category and ascertained that this effect is largely driven by a wage premium (relative to the variables in our regressions) for nurses. The other non-doctor

medical occupations also showed wage premia, but they were smaller. We were curious as to whether the night and other unusual shift work required in nursing might explain this pay premium. In results not shown, we included a measure of whether the individual worked irregular shifts (e.g. nights or weekends), but this reduced the positive coefficient on nursing very little. The premium persists even if we remove sex composition of occupation from the model (results not shown). This deviation from the general rule of a caring penalty may result because there has been a large increase in demand for nurses in recent decades owing to the aging of the population and the availability of Medicare and Medicaid to make third-party payments for such care. Another possibility is that nursing and many other medical specialties require that people have licenses to practice. Weeden's (forthcoming) recent work shows that this form of occupational closure raises pay, and that the penalty for working in nurturant work (using England's 1992 operationalization, which we call interactive service work) gets larger when a control for licensure is added.

The finding of a relative wage penalty for doctors is puzzling at first glance, given their well-known high pay. This penalty persists in OLS models (not shown). We believe it results from the young age of the sample. Workers were always under 36 in these data, and most doctors this age are interns or residents who work incredibly long hours for a moderate salary, and thus, are making a small amount per hour relative to their education and skill level. We suspect that doctors would be found to be exceptions to the caring labor penalty if we had a sample with a larger age span.⁸

Overall, the analyses in Tables 4 and 5 invite confidence that the relative wage penalty for caring labor is real, and that it applies to most sub-types of caring labor other than health work.

Summary and Conclusion

Our empirical analysis has shown that care work carries a wage penalty. The fixed-effects analysis uses persons as their own controls, taking wage changes as people move into and out of care work as the basis of the estimates of the penalties for doing this kind of work. After controlling for changes in measured characteristics of individuals and jobs,⁹ the analysis shows that workers generally experience a decline in wage when entering a care occupation and an increase when leaving care work. This relative penalty identified here cannot be explained by low unmeasured human capital or a disinclination to bargain for high pay among care workers, because these individual characteristics would presumably affect their pay in all jobs. Rather, the relative penalty for care occupations identified here shows that the same person earns less when in an occupation coded as care work, than when working in other occupations. Nor is any of the wage penalty in our estimates in Tables 3 and 5 explained by the predominantly female nature of the jobs, their location in marginal industries or the public sector, the fact that they are often not unionized, low cognitive or physical demands of the jobs, or low education and experience of incumbents, since these factors are statistically controlled through explicit inclusion of control variables. The 5–6% penalty for doing care work in Table 3 that we estimate is net of all these factors.

We suggested several reasons for the relatively low pay of care work. It often serves clients with little or no ability to pay, it involves a function culturally associated with women,

8. Another problem with estimating the effect of being a doctor with a fixed-effect model is that the technique is driven by changes in pay individuals experience as they enter or leave the occupation. However, people rarely enter medicine as a second career, and few leave medicine.

9. Some authors prefer that the term "job" be reserved for a specific detailed job title in a specific firm. Our analysis has no firm-specific measures (except seniority). We use the term "job" more broadly and have controlled for "job" characteristics by entering occupational or industry characteristics, as explained above.

and thus devalued, and care work has not been able to take advantage of productivity per worker increases from capital investment to the extent that other work has.

We believe that the relatively low pay of care work constitutes a social problem. First, there is the equity problem that those who do care work, mostly women, earn less than other workers at their skill level. This contributes to the gender gap in pay. But in our view, it is an equity problem even if care workers were not disproportionately from any gender or race/ethnic group.

Second, because of the relatively low pay, care may be undersupplied to those who need it. In our view, this is a social problem because neither individuals nor society can flourish without care. Deciding on the optimal level of care for a society, given that there are always competing needs and wants that resources could be spent on, is beyond our scope here and entails normative judgments as well as assessments of the societal effects of various jobs. But one beginning of an answer is suggested to us by the following considerations about the critical importance for society of care. Our claim, admittedly speculative, is that care work creates more diffuse social benefits than other kinds of work. This is because caring labor is an investment in the capabilities of those who receive care; it enhances their cognitive, physical, or emotional skills, their health, and their development of functional habits. Much other work produces things that are consumed and their benefits largely end there. In contrast, investments in people's capabilities make them more able to do things that increase their own and others' well-being. When care-giving is effective, its recipients learn to make a living, to meet many of their physical and emotional needs in daily life, and to get along with others. As these recipients interact with others, these others are *indirect* beneficiaries of the care received by the direct recipients of care, whose enhanced capabilities have made them better friends, parents, spouses, workers, neighbors, or citizens. As an example of how the benefits of care work extend well beyond the direct recipients of care to many indirect beneficiaries, consider that the work of teachers makes their students more productive, increasing their later productivity in a job, which benefits the owner and customers of the employing organization. The teacher has created a benefit not just for the student (the direct beneficiary of care work), but also for the employer the student will one day work for, and even the customers who will buy the goods or services offered by that employer. These individuals are indirect beneficiaries of teachers' work. To take another example, if a client in psychotherapy learns to listen deeply and articulate his wants in a nonblaming way, this is likely to benefit his spouse, children, friends, and coworkers. Both unpaid and paid care work helps many in society, but markets provide no mechanism to make all those who indirectly benefit from the labor of the care worker pay her or him. Thus, we believe that the present system of providing care through a combination of the free market and relatively low levels of public subsidy leads to a sub-optimal amount of care (Folbre 1994a, 1994b).

If we care about the collective well-being of society, about the well-being of those who need care but have limited means to pay for it, and about those who do care work, the most practical way to express this concern is through collective action to ensure governmental and other support for the work of care. Whether care workers are state employees or their wages are subsidized by the state in some way is beyond our scope to discuss here. But, in either case, state support is important because the state can tax all citizens. By doing this, the state internalizes some of the positive externality produced by care workers and enjoyed by all members of society. Those who pay taxes are in this way sharing in the costs of producing the indirect benefits they have received from care workers, such as the level of civility and productivity they can usually expect from their fellow citizens because they have been brought up with adequate care. Implementing a tax scheme to provide decent pay to care workers requires political will and organization as well as a change in cultural schemas. The best care work may be a bit like good mothering, but relegation to the impoverished pedestal is neither a way to honor mothers, nor to ensure that care is available to those who need it. A more reasonable wage for paid care work is consistent with principles of equity

and will help ensure an adequate supply of care to the community, and thereby increase the odds that the fellow citizens we encounter (including our friends and spouses) are civil, humane, and productive.

Appendix

Table A1 • List of Detailed Census Occupations Which Were Coded as Involving Care Work

<i>Occupation</i>	<i>1980 Census Code</i>	<i>Occupation</i>	<i>1980 Census Code</i>
Doctors		Primary education	
Physicians	084	Prekindergarten and	
Dentists	085	kindergarten teachers	155
Optometrists	087	Elementary school teachers	156
Podiatrists	088	Secondary education	
Other medical		Secondary school teachers	157
Registered nurses	095	Child care	
Health diagnosing practitioners, not elsewhere classified	089	Childcare workers, private household	406
Inhalation therapists	098	Childcare workers, except private household	468
Occupational therapists	099	Other caring labor	
Physical therapists	103	Special education teachers	158
Speech therapists	104	Teachers, not elsewhere classified	159
Therapists, not elsewhere classified	105	Educational and	
Physicians' assistants	106	vocational counselors	163
Dental hygienists	204	Teachers' aides	387
Licensed practical nurses	207	Librarians	164
Dental assistants	445	Social workers	174
Health aides, except nursing	446	Recreation workers	175
Higher education		Clergy	176
Professors (separate codes for various fields)	113–149	Religious workers, not elsewhere classified	177
Teachers, postsecondary, n.e.c.	153		
Postsecondary teachers, subject not specified	154		

Table A2 • Occupations Included in Broader Category of Interactive Service Work, But Not in Care Work

Motor vehicles and boats sales workers	263	Waiters and waitresses	
Apparel sales workers	264	Receptionists	319
Shoe sales workers	265	Information clerks, not elsewhere classified	323
Furniture and home furnishing sales workers	266	Bank tellers	383
Radio, television, hi-fi, and appliance sales workers	267	Elevator operators	454
Hardware and building supplies sales	268	Barbers	457
Parts sales workers	269	Hairdressers and cosmetologists	458
Other commodities sales workers	274	Attendants, amusement and recreation facilities	459
Sales counter clerks	275	Guides	463
Cashiers	276	Usher	464
Hotel clerks	317	Public transportation attendants	465
Transportation ticket and reservation agents	318	Baggage porters and bellhops	466
Bartenders	434	Welfare service aides	467
		Personal service occupations, not elsewhere classified	469
		Taxicab drivers and chauffeurs	809
		Parking lot attendants	813

Note:

Occupations above were used in the analyses in Table 4 assessing the effect of the broader category of interactive service work. These occupations were not counted as care work because, while they involve a face-to-face service to a recipient, they were not judged to increase the recipient's capabilities.

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