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Informal Employment and the Earnings of Home-Based Home Care Workers

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Abstract

Informal employment continues to exist in parallel with formal employment among home-based home care workers. This study examines the extent to which home care workers' earnings are adversely affected by informal employment and state labor policies. Using a sample of 1,318 home-based home care workers from the Current Population Survey of 2017 and 2018, this study found that (1) workers informally employed had a 9% reduction in annual earnings and that (2) the positive effect of generous state minimum wages and Domestic Workers' Bill of Rights did not reach the earnings of informally employed workers. Implications for employers' responsibilities and government regulations are discussed.

Keywords: Home care workers, household employees, independent contractors, state minimum wages, Domestic Workers Bill of Rights

Informal Employment and the Earnings of Home-Based Home Care Workers

Although data on informal work are not readily available in a developed country like the United States, informal employment continues to exist in parallel with formal employment in the home-based home care industry. Some home care workers directly employed by private households or misclassified as independent contractors are treated as unpaid caregivers or domestic workers employed under the table. These employment arrangements leave the workers in a very precarious situation unprotected by labor policies designed to protect employees. Despite the labor market situation, the home care workforce more than doubled in size over the past ten years, from nearly 840,000 in 2007 to over two million in 2017 (Paraprofessional Healthcare Institute, 2018). The demand for the workforce is projected to reach up to 3.4 million by 2030, making it an urgent national agenda to train and retain the workforce (U.S. Department of Health and Human Services, 2018).

Home care workers, in most cases, refer to personal care workers and home health aides (or nursing assistants) who assist elderly, patients, or persons with disabilities at the person's homes with daily living activities (i.e., personal care, housekeeping, and cooking). In addition to personal care, home health aides provide routine individualized health care under the supervision of a licensed health professional to monitor and report clients' health status to their families and health care providers. Home-based home care workers work at clients' homes caring for one client at a time and are hired through home care agencies or directly by individual clients or private households as Figure 1 shows below (Note that for this study home care workers do not include those who work in long-term care facilities) (U.S. Department of Labor, 2016). These workers are predominantly female, racial/ethnic minorities, and immigrants, and with limited education (Paraprofessional Healthcare Institute, 2018).

[Insert Figure 1 about here]

The demand for home care workers was due to the rising numbers of retirees and individuals with chronic health conditions who prefer to stay at home. It has also increased due to the increase in female labor force participation and cut-backs in social services (Chamberlain, 2013; Lobel, 2001). Government social policies and funding created home care and shaped the structure of the industry and the conditions of work. The welfare nexus - linking old age, disability, health, and welfare policies - transformed direct care hidden in the home into public service (Boris & Klein, 2006).

Despite the growing needs for home care workers, worker recruitment and retention remain challenging because of the labor market injustice that the workers endure: persistent low wages, lack of benefits, poor working conditions, emotional and physical drains, and lack of career advancement. Many do not have guaranteed full-time hours of work, and when they work, they earn, on average, around \$10-11 per hour with inconsistent hours (Paraprofessional Healthcare Institute, 2018). Indeed, nearly 50 percent of home care workers or a quarter of all direct care workers were reported to live in households that receive public assistance such as Medicaid, food assistance, and housing and heating assistance because their earnings are not enough to make ends meet (Paraprofessional Healthcare Institute, 2018; National Employment Law Project, 2017).

Most (65%) direct care services are funded by the governments primarily through Medicaid and Medicare; both Medicare and Medicaid pay for home health care, and personal care can be covered only by Medicaid for home-bound patients and individuals (U.S. Census Bureau, 2017; Reaves & Musemecci, 2015). As states in general offer limited reimbursement rates, home care agencies that provide Medicare- or Medicaid-based home health services are

under financial strains to continue their businesses and to offer home care workers competitive pays (Artiga, Hinton, Rudowitz & Musumeci, 2017). It means the federal and state governments' fixed reimbursement rates for Medicare and Medicaid recipients effectively cap the wage level of home care workers low (Dawson, 2016). Home care services in private market are out-of-pocket costs for clients and their households or paid for by long-term care insurance, both of which are quite limited; those in need of the services typically have limited incomes, and long-term insurance is costly and has only limited coverage for clients (Dawson, 2016; Reaves & Musumeci, 2015). These situations provide an essential backdrop in explaining the earnings level of home care workers.

Low earnings of home care workers may get even smaller with informal and nonstandard employment arrangements that are significantly correlated with labor market violations. Many home care workers, particularly those in private markets for patients or clients who pay out-of-pocket, still work in an informal sector of the economy outside of state regulations, where formal labor contracts, payment of taxes and benefits, and standards for hiring are typically absent (Hondagneu-Sotelo, 1997). As they may also work alone at the private homes of their employers and clients, their work is mostly invisible and outside state regulations, making home care workers one of the most vulnerable groups of workers in the economy.

With this background, this study aims to examine the extent to which home care workers' earnings are explained by employment arrangement, state labor policies, and workers' skill qualifications and demographic vulnerabilities. The primary focus of this study is to explore how informal employment arrangements, in particular, are related to low earnings of home care workers. Although home care workers have become legally entitled to minimum wages and overtime pays, those who are directly or informally hired by individual clients or households or

those classified as self-employed (i.e., independent contractors) can still be denied such benefits. Denial of these protections, mainly minimum wage and overtime pay guarantees, often bring down the workers' wages and earnings even lower than the on-going level that is considered to be already poverty earnings.

Factors Contributing to Low Earnings

England (2005) argued that care work pays less than it would be predicted by the skill level and even less than other predominantly female jobs at its skill level. Empirical studies report that direct care occupations, in general, bear significant wage or earning penalties up to 8% (e.g., Budig & Misra, 2010; England, Budig, & Folbre, 2002; Kilbourne, England, Farkas, Beron & Weir, 1994). In the sections below, the following three critical factors identified in the literature that contribute to the low earnings of home care workers are discussed in detail: (1) Informal and nonstandard employment arrangements, (2) state policies – minimum wages and Domestic Workers Bill of Rights, and (3) limited skills and qualifications.

Informal and Nonstandard Employment Arrangements

It is well-known in the literature that employment arrangements can generate precarious work and worker insecurity (Kallerberg, 2009). While employment arrangement is the primary means by which workers in the United States obtain rights and benefits associated with paid work, the arrangements differ in the relative power of employers and employees in controlling tasks, negotiating the conditions of employment, and terminating a job (Kallerberg, 2009). Within direct care occupations, home care occupation is unique in its relationship to public funding and informal employment arrangement, both of which are the additional sources of earnings penalties for working in the occupation. For publicly funded personal care workers and home health aides, Medicaid and Medicare reimbursement rates keep their wages and earnings

low. They are, however, hired and employed by licensed home care agencies and more likely to have a defined employment relationship with the agencies subject to the applicable federal and state employment and health and safety regulations. Their work hours and wages and other working conditions, therefore, stand a better chance of being regulated (Smith, 2011). They are also likely to have access to employment benefits such as Social Security benefits, Medicare, workman' compensation, unemployment compensation, and disability insurance.

When personal care and home health services are not funded through Medicare or Medicaid; however, home care workers are employed directly by individual clients or households. This particular arrangement, of course, does not preclude an employment relationship between the households and the workers from being formal and subject for legal obligations. Private households qualify as the worker's employers if workers are paid more than \$2,100 annually (in 2018). They are required to keep work hour records and pay for overtime and at least the minimum wages (or state minimum wage, if higher) along with payroll taxes (Internal Revenue Service, 2016). Nevertheless, the relationship between home care workers and household employers is more likely to be informal based on verbal agreements and less likely to be on a written contract (Hayashi, 2010). Even with a written contract, the employment terms specified are often limited in scope. More importantly, the employment terms on the contracts are not always abided by, and the terms tend to break down over time gradually. Once emotional closeness is developed between workers and clients of the families through direct care service, workers may be treated as members of the households who are expected to perform the tasks out of "love" rather than for "money" (Chamberlain, 2013; England, 2005). Under this situation, workers are left unprotected from the hour and wage violations that can lower their wages and earnings even more.

Home care workers can also be classified as independent contractors when individual clients and households hire home care workers directly or even when employed by home care agencies (Smith, 2011; National Employment Law Project, 2015). Some home care employers, as a business model or for more profits, require their workers to sign “independent contractor” agreements although few of them have their own business nor have the power and ability to set their duties, hours, and wages. When misclassified as independent contractors, they are not entitled to minimum wage and overtime pay, which can make them more vulnerable to lower wages and earnings. Effective October 16, 2015, according to the new definitions and regulations within the FLSA, no individuals employed by a home care agency may be classified as a companion. However, both those employed by a home care agency and directly employed by a private household, remain vulnerable to misclassification. An informal employment arrangement, either through lack of clear contracts or employee misclassification, is prevalent among home-based home care workers, putting the workers in a very precarious situation (Jokela, 2017).

State Policies: Minimum Wages and Domestic Workers’ Bill of Rights

Due to the origin of unpaid care or domestic worker status, home care workers have a long history of being excluded from labor laws until recently. Both the National Labor Relations Act of 1935 that provides workers with rights to organize and the Fair Labor Standards Act (FLSA) of 1938 that ensures workers minimum wage and overtime pay (for 40+ hours of work weekly) had excluded these workers from coverage as they used to be deemed companionship service providers to elderly persons or persons with illnesses, injuries, or disabilities. Home health care workers used to be partially or wholly exempted from these workplace laws (Bernhardt, Spiller & Theodore, 2013) and could not (in theory) experience a violation of those

laws, which often resulted in lower earnings. The 2015 amendment of FLSA began protecting companionship services providers such as certified nursing assistants, home health aides, personal care aides, and other caregivers.

As one of the low-wage occupations, home care occupation is very vulnerable to the federal and state minimum wages (Howes, 2005). Although their pays are universally low, they vary somewhat by state and region – the mean hourly wage for home health aides in California, for example, was \$16.19 while the wage in Ohio was \$10.85 in 2018 (U.S. Bureau of Labor Statistics, 2019a). Again in part due to the histories of exclusion in the FLSA, home care workers continue to work under highly variable conditions mainly depending on which state they live as well as how they are employed and whether they have succeeded in organizing the workers in the area (Stacey, 2005). As for 2019, as many as 29 States (in addition to District of Columbia and territories) had their minimum wages set higher than the federal minimum wage ranging from \$7.5 in Minnesota and \$14 in District of Columbia while in the rest of areas, the federal minimum wage of \$7.25 prevails (U.S. Department of Labor, 2019).

Furthermore, thanks to organizing efforts by alt-labor in the recent decades, nine states (New York, California, Connecticut, Hawaii, Illinois, Massachusetts, Nevada, New Mexico and Oregon) and one municipality (Seattle) have so far passed the Domestic Workers' Bill of Rights (Bernhardt & Osterman, 2017; National Domestic Workers Alliance, 2019), which in most states, focused on having a written employment contract, overtime payment, paid time-off, and protection from workplace harassment (National Domestic Workers Alliance, 2019). Although home care workers are now legally entitled to minimum wages, and overtime pays as well as the coverages of essential social insurance (Social Security, Medicare, unemployment insurance, and workers' compensation), those who are directly or informally hired by individual clients or

households or those misclassified as independent contractors can be denied such benefits. As stated before, denial of these protections, mainly minimum wage and overtime pay violations, often bring down the workers' wages and earnings even lower than the on-going level that is considered to be already poverty earnings. Home care workers whose rights to minimum wage and overtime pay are violated experience a significant reduction in earnings. According to Bernhardt and her team (2013) who conducted a landmarked survey of the 2008 Unregulated Work Study for 4,387 low wage workers in Los Angeles, New York, and Chicago, nonstandard work and employment informality are correlated with workplace violations. Among workers employed by private households, home health care workers had the highest violation rates in their sample. They measured the number of employment benefits such as health insurance, paid sick days, and vacation days, and annual raises as an indicator of informal employment arrangement and found that minimum wage violation was more frequent when employment arrangement was informal (i.e., the employers provided at most only one benefit) (Bernhardt, et al., 2013).

Limited Skills and Qualifications

The fact that direct care workers receive, on average, lower than expected pays is explained by the characteristics of the jobs, the skill demands, and the qualifications of those holding the jobs. Direct care that homecare workers perform is associated with unpaid work traditionally carried out by caregivers to their family members. Also, the skills qualifications are relatively low, and workers typically have below or at the high school level education and sometimes with other employment barriers (e.g. family obligations, limited English proficiency, legal residency). Regulations by the federal Medicare, one of the primary payers for direct care services, require that home health aides employed by Medicare-certified agencies to be trained

for at least 75 hours through state-approved training programs and pass a standardized test (U.S. Bureau of Labor Statistics, 2019). Four states allow Certified Nursing Aides to become certified Home Health Aides with additional training (Paraprofessional Healthcare Institute, 2018). Most states require just the minimum 75 hours of training, and eleven states require home health aides to be Certified Nursing Aides with a varying level of additional training requirements and clinical hours.

Nevertheless, these skill requirements in most states have not changed for decades. Furthermore, workers who work for private companies or directly hired by households may not need to meet these training requirements, which may help explain the home care workers' low earnings. Even with certification, home care workers remained classified as domestic workers in some states (e.g., Oregon, North Carolina), indicating that the occupational credential may not be related to higher earnings among home care workers (Boris & Klein, 2006).

Methods

Data and Sample

The data for this study came from the Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS) of 2017 and 2018, collected by the Bureau of Census and Labor Statistics. (Data from the CPS Contingent Supplement were inappropriate because the supplement excluded self-employed and did not interview all CPS monthly sample. Data from the CPS basic monthly data were also inappropriate because earning data were not available). The CPS-ASEC provides data for earnings from self-employment either through the respondents' primary jobs or supplementary jobs. Using the occupation and industry classification codes in CPS, employees or workers who worked as nursing, psychiatric, and home health aides and personal and home care aides (home care workers) in the previous years

were identified. Those who worked in facility settings (e.g., hospitals, nursing care facilities, residential care facilities, outpatient care centers, etc.) were excluded from the sample. The sample was limited to home-based workers, that is, only those who are likely to work at private homes by confining the data to the following three industries: Private households, home health care services, and individuals and family services. Using class of worker recode in CPS, the sample was further classified into either (1) agency employees (workers employed by home care agencies), (2) household employees or self-employees (workers directly hired by individuals or households or self-employed).

Workers who did not report positive weekly hours of work and earnings were excluded from the analysis. Also excluded from this study were managers or business owners (self-employed with incorporated business and self-employed with employees) in this direct care industry. Many individuals choose to work as home health aides to explore health care professionals as their careers or for flexible work hours while in school or in training (to eventually move out of the profession). So, those in school or training were also excluded from the sample as they are not entirely in the labor market. Individuals who voluntarily worked part-time part-year were excluded from the sample. Individuals who worked 4 hours or less weekly are also excluded from the sample because they are not likely to be qualified as hourly employees under any circumstances (a minimum of \$2,100 annual earning to be qualified as employees at \$10-11 hourly wages). The final analytical sample included 1,312 personal and home care workers as well as nursing, psychiatric, and home health aides.

Variables and Measures

The dependent of interest was person-level annual earning, which was log-transformed to correct for a high level of skewness. Hourly wage data are available only for hourly earners in

ASEC; weekly earnings data are not available in ASEC to enable the estimation of hourly wages with weekly hours of work. Therefore, the variable for annual earnings was used while controlling for weekly hours of work and annual work status.

The first major independent variable for this study was employment arrangement- employed by agencies, directly employed by individuals or households, and self-employed (or independent contractors). Home care workers directly employed by individual patients or households were considered as informally employed, and the self-employed were considered to be in a nonstandard arrangement. Note that because incorporated business owners and owners with employees were excluded from the sample, the self-employed in the sample were lone-independent contractors only.

The second independent variable for this study was State variations in labor laws. The twenty-nine states whose minimum wages were higher than the federal minimum wage were first identified, and then those who enacted the Domestic Workers Bill of Rights were also identified (NY, CA, CT, HI, IL, MA, NV, OR, NM, and Seattle). Using the State minimum wages and Domestic Workers' Bill of Rights, the following four State categories were created: (1) Higher State minimum wages=Yes, Domestic Workers' Bill of Rights=Yes; (2) Higher State minimum wages=No, Domestic Workers' Bill of Rights=Yes; (3) Higher State minimum wages=Yes, Domestic Workers' Bill of Rights=No; and (4) Higher State minimum wages=Yes, Domestic Workers' Bill of Rights=Yes.

Demographic variables were analyzed as control variables. Age was continuously measured in years; all other following control variables were categorically measured: gender (male vs. female), race/ethnicity (White, Black, Hispanic, or others), marital status (married, single, or never married), parental status (having at least one child under age 18), immigration and

citizenship status (native-born citizen, naturalized citizen, or noncitizen), educational attainment (less than high school, high school, some college or college or more), and occupational certification holding (yes or no) as required by the laws.

Other variables that measured *employment characteristics* were also included as control variables. The first variable measured if the workers were personal care workers or home health aides (e.g., nursing, psychiatric aides). As briefly stated above, although both personal care workers and home health aides were home care workers, their job tasks and pay rates are known to slightly differ. It was necessary, therefore, to control for such differences. The second group of control variables measured the most crucial determinant of the dependent variable: *year-round work status* (full-year full-time; full-year part-time; part-year full-time; part-year part-time) and weekly hours of work (in hours). Controlling for these two variables were critical for the multivariate regression models as individuals' annual earnings predicated on how many hours they worked throughout the year. Workers' *memberships in labor unions or associations* were also measured (yes or no) as there is ample evidence in the extant literature about the effects of collective bargaining or union membership on workers' earnings (Boris & Klein, 2006). The number of employers (one or at least two) in a year was included in the analyses to control for the effects of employment regularity or permanency on the workers' earning. (Jokela, 2017) The last control variables measured if the workers were live-in workers (yes or no) – controlling for this variable was essential to distinguish family members who worked as paid caregivers, who could have identified themselves as self-employed.

Data Analysis

A series of descriptive analyses were conducted to examine home care workers' characteristics by employment arrangement. Marginal treatment effect (MTE) models were used

to estimate the effects of employment arrangement on the earnings of home care workers following the most recent studies from the relevant literature (Heckman & Vytlacil, 2007). MTE was used to estimate the causal effect of treatment with observational data by removing the effects of the confounding variables through modeling either the treatment assignment or the outcome or both. One of the biggest obstacles in estimating the causal effect of treatment (e.g., employment classification in this case) on the treatment outcomes (e.g., earnings in this case) is that workers ‘selected’ their occupations, employment arrangements, and employers. Another critical issue is that the impact of a treatment is often heterogeneous within a population depending on its characteristics. The MTE is used when the impact of a treatment is thought to vary within a population in correlation with unobserved characteristics (Brave & Walstrum, 2014). [Please note that the sample is confined to only one occupation to minimize the effects of unobservable characteristics that affected occupational choices and at the same time would affect hours of work and earnings].

More specifically, workers’ characteristics such as education, home care certifications, and immigration status, affect both their employment classifications as well as annual earnings, the dependent variable of interest. Workers with limited education, without home care certification, and questionable legal status, for example, are more likely to be informally employed or self-employed and also earn less than those without the vulnerabilities. If the observed differences in demographic or other characteristics serve as pretreatment confounders, they may inflate the relationship between employment classification and annual earnings, and these confounders must be taken into account to estimate the causal effect. The MTE method, via CAUSALTRT procedure in SAS, calculates an unbiased estimate with the assumption that no important confounding pretreatment characteristics are missing in the regression model (SAS,

2016; Lamm & Yung, 2017).

$$Y_{\text{Annual earnings}} = \chi_{\text{EmploymentArrangement}} + \chi_{\text{Occupational credential}} + \chi_{\text{State labor policies}} + \chi_{\text{Weekly hours of work}} + \chi_{\text{Annual work status}} + \chi_{\text{Union/association membership}} + \chi_{\text{Education}} + \chi_{\text{Demographics}} + \mu$$

The CAUSALTRT procedure estimates the following two types of causal effects for the binary treatment variable, employment classification, (agency-employed vs. informally or self-employed): (1) Average Treatment Effect (ATE) and (2) Average Treatment Effect for the Treated (ATT). The formal ATE measures the causal effect of informal or self-employment within the entire study population of home care workers irrespective of their actual classification. Because the ATE is an estimate of the average effect of informal or self-employment, a positive or negative ATE does not indicate that any particular individual would benefit or be harmed by the employment arrangement (that is, the average treatment effect neglects the distribution of the treatment effect). The latter ATT, therefore, is called for to measure the effect of employment arrangement only for those informally employed or self-employed (SAS, 2016; Lamm & Yung, 2017).

The CAUSALTRT procedure creates weights, estimated in a propensity score model, to balance the sample characteristics and remove the confounding effects of pretreatment characteristics. The CAUSALTRT procedure fits both the employment arrangement model (i.e., treatment model) and annual earnings model (i.e., outcome model) separately and then combines their results to estimate ATE using a propensity score. In the propensity score model, factors associated with the choice of employment arrangement are entered into the regression model, and the variables used to fit the propensity score model are also related to annual earnings. As both the propensity and outcome are modeled in a doubly robust estimation method, the procedure provides unbiased estimates even if one of the two models is miss-specified. It is

critical to diagnose if the weights estimated by the propensity score model indeed improve the balance between the characteristics of treatment group (self or informal employment arrangement) and control group (traditional employment arrangement) to establish the causal interpretation of the treatment effect (SAS, 2016; Lamm & Yung, 2017).

As stated above, one of the goals of this research is to examine the Average Treatment Effect for the Treated (ATT), that is, the effects of informal and nonstandard employment arrangement conditional on those who had those employment arrangements. In the following analysis, ATT was estimated using inverse probability weights in the CAUSALTRT procedure (SAS, 2016, p.2090).

Findings

Demographic Characteristics

The descriptive analyses revealed that the sample's demographic characteristics vary significantly by employment arrangement. More specifically, those employed by private agencies were more or less equally divided to be home health aides or home care workers, but workers directly employed by households or self-employed were mostly home or personal care workers. Few workers hired by private agencies were lived-in caregivers, but more than 5% of workers directly hired by households or self-employed were (p<.01). Significantly fewer percentages of workers directly hired by households were married or had children under age 18 compared to workers hired by agencies (p<.001).

There were significant differences in citizenship status by employment arrangement; a higher percentage (17.03%) of workers directly hired by households were noncitizens, compared 12.82% of agency-hired workers. Workers' educational attainment also differed by employment arrangement. That is, 56% of workers directly hired by households had some college or more

education, compared to 41% of those employed by agencies. Contrary to educational attainment, a significantly smaller share of workers directly hired by households were certified or licensed ($p < .01$), which was not surprising. More specifically, 19.16% of workers directly hired by households held a credential, compared to 30.11% of workers hired by agencies. As expected, the shares of workers with union/organizational membership and health insurance coverage were also significantly lower if workers were directly hired by households ($p < .001$). When workers' distribution was examined by state minimum wage laws and Domestic Workers' Bill of Right, an interesting pattern emerged. Higher percentages of agency-hired workers, than those directly hired or self-employed, lived in states where the state minimum wages were higher than the federal minimum wages, and state-wide Domestic Workers' Bill of Rights were enacted (23.86% vs. 12.83%). More of agency-hired workers than directly-hired or self-employed workers also lived in states where neither state policies were available (57% vs. 39%). Significantly higher percentages of direct-hire workers lived in the states where at least one state policy was available ($p < .001$).

[Insert Table 1 about here]

Employment Characteristics

Home care workers' work status significantly varied by employment arrangement; 58% of agency-hired worker worked full-time year-round, only 41.24% of directly hired workers did so. Indeed, higher percentages of directly hired workers than their agency-hired counterpart worked part-time full-year or part-year full-time. Approximately 13-15% of workers in both employment arrangements had more than one employer in the survey year. When poverty status was measured with a worker's *person* earning, 29% of direct-hire workers had annual personal earnings below 50% of the Federal Poverty Lines, compared to 23% of agency hired workers.

This indicates that an extreme level of poverty is more severe among directly hired care workers than it is among the agency-hired, although more than a half of both groups had annual person earnings below 100% of the Federal Poverty Lines. Using *family* incomes for both groups of workers, nearly the same percentages of them had annual family incomes below 100% of the Federal Poverty Lines. Both direct hire and agency hire care workers worked around 34-35 hours of weekly (median), but the mean hour of work per week was 40 hours for those employed by agencies, 5 hours more than workers directly hired by households or self-employed. Similarly, agency hire care workers had a mean of approximately \$21,000 in annual earnings, which was about \$2,000 more than those directly hired by households or self-employed ($p < .10$).

Informal and Nonstandard Employment Arrangements: ATE and ATT

As stated above, before jumping into the ATE analysis, it was necessary to investigate the covariate balance of the propensity score model and examine if the weights in the model improve the balance. When the balance is improved, the weighted versions compared to the unweighted versions generate the following two: (1) the standardized mean differences that are closer to 0 and (1) the variance ratios that are closer to 1 (Lamm & Yung, 2017). According to Table 2, all the propensity score model effects show improvement in balance after weighting when compared to the unweighted and weighted numbers. That is, compared to the corresponding unweighted variance ratios, all the weighted standardized mean differences came to be less than 0.04 in magnitude, and each weighted variance ratio became closer to 1 (for example, see the change from 0.8039 to 1.0084 for the variable, “occupational credential”).

[Insert Table 2 about here]

The Average Treatment Effect (ATE) presented in Table 3 shows that the relationship between employment arrangement and the sample home care workers’ earning was not

statistically significant ($\beta = 0.018, p = 0.5021$). This average effect, however, obviously masks the distribution of the effects of employment arrangement within the sample workers, as shown in the result of ATT (Average Treatment on the Treated) analysis presented in the last row of Table 2. The ATT suggests that being directly employed by households or self-employed was associated with a 9% decrease in the earnings of home care workers in informal and nonstandard employment arrangements ($\beta = -0.09, p = 0.0082$). The ATT unveils that the earnings penalty associated with being informally employed or self-employed are sizable for home care workers. Please note that this estimation of earnings penalty factored into the effects of the workers' choices of employment arrangement on their earnings based on their observable characteristics (i.e., occupation, race/ethnicity, immigration and citizenship statuses, and occupational credential holding).

[Insert Table 3 about here]

State minimum wage and Domestic Workers' Bill of Rights

Table 4 presents full results from the marginal treatment effects model, separately run by the workers' employment arrangement. For both employment arrangements, occupational certification holding did not appear to have a significant effect on home care workers' earnings. Further analyses indicated that occupational license holding affected employment status (results are not shown here), but it was not a significant predictor of the worker's earnings.

The results indicated that state minimum wage laws and Domestic Workers' Bill of Rights were significant determinants of the earnings of home care workers employed by private agencies. Compared to the workers who lived in the states with higher minimum wages than the federal level as well as those who lived in states with the Domestic Workers' Bill of Right, the home care workers living in the states where neither of the policies was available had earnings

approximately 5.88% less ($p < .05$). Agency-hire workers' earnings dropped about a 5.7% when they resided in the states where Domestic Workers' Bill of Right were adopted, but their state minimum wages were not higher than the federal level ($p < .05$). On the other hand, the workers' earnings dropped about a 6.3% ($p < .10$) when they resided in the states where a Domestic Workers' Bill of Right was not adopted, but their state minimum wages were higher than the federal level ($p < .10$). Overall, it appeared that state-level policies were significant determinants of the earnings of home care workers employed by agencies. On the contrary, these state-level labor policies did not appear to affect the earnings of those directly hired by households or self-employed. Home care workers employed by agencies were much more affected by the state-level labor policies and policy enforcement. Earnings of those employed directly by households or self-employed, however, seemed out of the state policies' influence. It appears that the adverse effects of informal and nonstandard employment arrangement are aggravated by the fact that state policies designed to protect the vulnerable workers do not reach them when they are outside the standard employment arrangement.

[Insert Table 4 about here]

For both groups of home care workers, educational attainment was a significant determinant of earnings, so was the amount of work expressed in the weekly hours of work and year-round work status in the regression models. Not surprisingly, workers with a higher level of education and more numbers of work hours were likely to earn higher earnings regardless of their employers. Workers who had employer-provided health insurance were likely to make higher earnings, and this positive relationship was the same for workers hired by either private agencies or households. This finding is consistent with Howes' finding (2005) about the importance of health insurance for earning (or the use of health insurance as an indicator of

‘good’ employment). In terms of workers’ demographic characteristics, race/ethnicity and immigration/citizenship status were not significant to the earnings of both groups of workers. Being male was associated with higher earnings for workers employed by private agencies, but not among those directly hired by households or self-employed.

Discussions

To the author’s best knowledge, this research adds an important piece of empirical evidence to the literature of nonstandard employment. Many conceptual and review studies discussed the potential adverse effects of informal employment and employee misclassification (e.g., Hondagneu-Sotelo, 1997; Howes, 2005). Findings from qualitative and survey studies also provide evidence on how the unlawful labor market practices affect home care workers’ labor market outcomes including earnings (e.g., Bernhardt, Spiller, & Polson, 2013; Quinlan, Bohle & Rawlings-Way, 2015). Nevertheless, empirical evidence on the effects of informal employment and state-level policies, especially from a nationally representative sample, is scant in the literature, and this study fills a void in the existing knowledge.

Considering that the majority of home care workers directly hired by households or self-employed is likely to work informally without an explicit contract (or their contracts are not likely to be strictly upheld), the result provides empirical support for a significant earnings penalty for informal employment arrangement. This study shows that informal arrangement is a contributing factor of home-based home care workers’ low earnings after accounting for the workers’ selection into the occupation as well as the number of annual hours of work. As the results of this study suggest, state policy initiatives (increases in minimum wages and Domestic Workers’ Bill of Rights), while positively affecting the home care workers employed by private agencies, do not affect the earnings of those informally employed. This finding shed light into

the importance of employment formality; employment through a private home care agency may not be necessarily sufficient to protect home care workers from labor market violations, but it may be crucial in ensuring the fundamental employment rights and benefits related to adequate earning. In an informal arrangement, workers' employment conditions and earnings are more likely to be at employers' discretion, making it easy for employers to not pay proper wages including the prevailing state minimum wages, overtime pay, annual raises, and payment when they cancel the work on short notice. It is important to know that strengthening the enforcement of the FLSA regulations to household employers seems necessary to curtail an employment arrangement that is likely to degrade into an informal one. Efforts should be made to educate the general public and potential household employers with caregiving needs about the FLSA regulations. As the FLSA began covering most home care workers relatively recently, many individuals and families may not be aware of the fact that they should pay the prevailing minimum wages and overtime pay. According to Rodgers & Zundl (2018), who surveyed New Jersey households hiring domestic workers, the majority of households are unfamiliar with the laws that mandate their responsibilities as employers. As the U.S. Department of Labor (2016) provides more explicit guidelines and rules for household employers, it remains to be seen if more household employers would become better at tracking their obligations and more compliant with the rules over time. Equally important is to provide more government oversight for both household employers and private home care agencies that may continue to misclassify their employees as independent contractors and fail to pay them according to the FLSA.

The United States is used to be known to take a 'no-policy' approach to its citizens' needs for direct care and domestic service (Jokela, 2017), and labor policies that govern earnings and working conditions of domestic workers are either nonexistent or enforced weakly. Workers

often find little help from the policies to obtain fair wages and sufficient hours of work that lead to adequate earnings. The absence of institutional protections for the workers directly hired by households or self-employed leaves them particularly susceptible to labor market exploitation and low earnings. Therefore, strict enforcement of FLSA rules, in addition to public education and compliance assistance, is necessary to address the violations that can contribute to low earnings of home care workers. As discussed in the beginning, home-based long-term care need has been on the public agenda, and it is likely to gain more importance in the future with the increasing size of long-term care population. Availability and quality of the home care workforce are critical for long-term care services, and adequate earnings are probably important the most for both availability and quality of the workforce (Bernhardt & Osterman, 2017; Howes, 2005).

This study also found that occupational credentials (i.e., being certified home care workers) were not significantly related to home care workers' earning. This finding may suggest that even an indicator of occupational skills is undervalued in home-based home care job market. The idea behind professionalizing of the home care occupation through occupational credentialing may have enabled some women to enter the field, but it does not seem to be associated with increased earnings. Osterman (2017) suggested that one way of improving the wages and benefits of home care workers is to expand the scope of their practice by providing them additional training and permitting them to take on some medical duties, currently performed by more skilled medical practitioners (depending on state laws). In light of this suggestion, it will be interesting to examine in future studies if the occupational credential holding is related to higher earnings for the workers when accompanied by additional medical duties.

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Figure 1. Employment arrangements of home-based home care workers

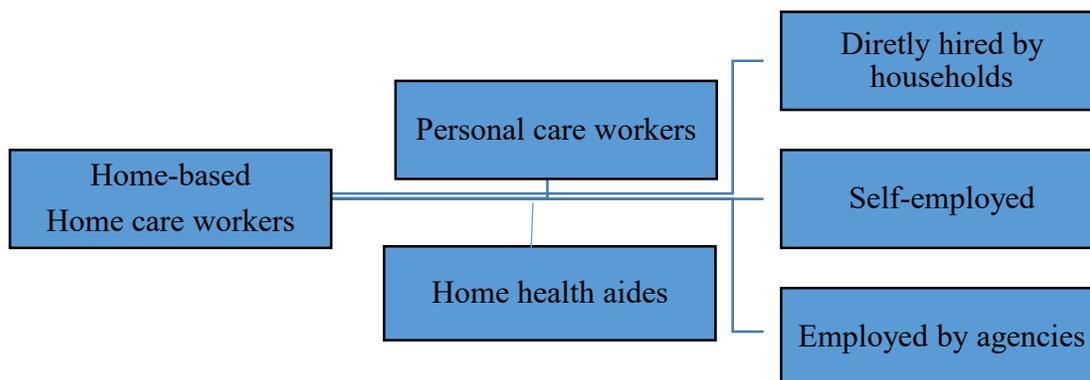


Table 1. Demographic characteristics of home-based home care workers, weighted (N=1,318)

	Employed by Private Agencies (N=1,097)	Employed by Households or Self-Employed (N=221)	
Occupation			***
Nursing, psychiatric, home health aides	51.50	14.72	
Home or personal care workers	48.50	85.28	
Female	91.42	85.35	
Live-in	0.92	5.37	***
Race/Ethnicity			***
White	36.00	50.32	
African American	33.78	19.31	
Hispanic	19.01	21.88	
Others	11.21	8.50	
Married	40.55	32.78	***
Having children	39.86	21.88	***
Citizenship			***
Native-born	70.76	73.25	
Naturalized citizens	16.43	9.72	
Noncitizens	12.82	17.03	
Age (in years, mean)	46	50	***
Education			***
Less than high school	14.07	10.05	
High school	43.65	33.76	
Some college	31.94	33.24	
College or more	10.34	22.95	
Occupational credential holding	34.68	24.72	***
Occupational credentials required	30.11	19.16	***
Union/Employee association	16.76	8.81	***
Health insurance coverage	29.53	7.86	***
State Policy environment			***
State Minimum wage=0 Bill of Right=0	37.57	29.81	
State Minimum wage=0 Bill of Right=1	29.19	36.00	
State Minimum wage=1 Bill of Right=0	9.38	21.35	
State Minimum wage=1 Bill of Right=1	23.86	12.83	
Year-round work status			***
Full-year full-time	57.58	41.24	
Full-year part-time	25.45	29.07	
Part-year full-time	6.07	12.27	
Part-year part-time	10.91	17.42	
Multiple employers	13.25	15.24	
Personal working poverty (person			***

earning/FPL)			
Below 50% FPL	22.57	29.11	
Between 50 and 100% FPL	29.52	23.18	
Family poverty (family income/FPL)			***
100% FPL	17.57	19.29	
200% FPL	31.18	22.32	
Weekly hours of work (hr) mean (median)	34.61(40)	33.85(35)	
Annual earning (\$) mean (median)	21,093 (19,314)	18,981 (17,200)	***

+ $p \leq 0.10$; $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

Table 2. Covariate differences for propensity score model (N=1,318)

	Standardized Difference		Variance Ratio	
	Unweighted	Weighted	Unweighted	Weighted
Home Health (vs. Personal care)	-0.7360	-0.0397	0.5340	0.9866
Race				
White	0.1589	0.0415	1.0608	1.0182
African American	-0.2500	-0.0207	0.7438	0.9798
Hispanic	0.1358	-0.0220	1.1873	0.9691
(Other)				
Citizenship				
Native	0.0788	-0.0008	0.9180	1.0008
Naturalized citizen	-0.2342	-0.0435	0.5659	0.9120
(Non-citizen)				
Occupational credential (yes vs. no)	0.2290	-0.0112	0.8039	1.0084

Note: Reference groups are in parentheses.

Table 3. Effects of employment arrangement on home care workers' annual person earnings (Logged)

Average Treatment Effect (ATE)										
Parameter	Treatment Level	Estimate	Robust S.E.	Bootstrap S.E.	Wald 95% Confidence Limits		Bootstrap Bias Corrected 95% Confidence Limits		Z	
Potential Outcome Mean	Yes	4.2227	0.0265	0.0361	4.1708	4.2747	4.1441	4.2886	159.24	***
Potential Outcome Mean	No	4.2000	0.0106	0.0109	4.1791	4.2208	4.1769	4.2199	394.45	***
ATE		0.0179	0.0269	0.0363	-0.0299	0.0755	-0.0594	0.0870	0.85	
Treatment Effect on the Treated (ATT)										
Parameter	Treatment Level	Estimate	Robust S.E.	Bootstrap S.E.	Wald 95% Confidence Limits		Bootstrap Bias Corrected 95% Confidence Limits		Z	
Potential Outcome Mean	Yes	4.0999	0.0320	0.0327	4.0372	4.1625	4.0370	4.1631	128.21	***
Potential Outcome Mean	No	4.1948	0.0135	0.0137	4.1683	4.2212	4.1657	4.2200	310.71	***
ATT		-0.0906	0.0344	0.0353	-0.1624	-0.0274	-0.1635	-0.0256	-2.76	**

+ $p \leq 0.10$; $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

Table 4. Marginal treatment effects model of the annual person earning (Logged)

	Employed by Private Agency (Control)		Directly Hired by Households Or Self-Employed (Treated)	
	Estimate		Estimate	
Age (years)	0.0004		0.0013	
Home Health (ref. Personal Care)	0.0219		0.0996	
Male (ref: female)	0.0600	*	-0.0324	
Race/Ethnicity (ref: "other" race)				
White	0.0372		0.0206	
African American	-0.0094		0.0301	
Hispanic	-0.0099		-0.0258	
Education (ref: college or more)				
Less than high school	-0.0839	*	-0.1533	
High school	-0.1020	***	-0.2254	**
Some college	-0.0714	*	-0.1619	*
No license (ref: yes)	0.0149		0.0150	
Citizenship (ref: noncitizen)				
Native citizen	-0.0346		-0.1537	
Naturalized citizen	-0.0009		-0.1092	
No union or association membership (ref: yes)	0.0561	*	-0.1687	
No employer-provided health insurance (ref: yes)	-0.0817	***	-0.2135	*
Single employer (ref: two or more)	-0.0429		-0.2238	**
Weekly hours of work (hours)	0.0095	***	0.0081	**
Year-round work status (ref: Part-year part-time)				
Full-year full-time	0.4420	***	0.3872	***
Full-year part-time	0.2911	***	0.3343	***
Part-year full-time	0.0911	*	-0.0809	
State policy environment (ref: minimum=1, Bill=1)				
State Minimum Wage=0 Bill of Right=0	-0.0588	*	-0.0035	
State Minimum Wage=0 Bill of Right=1	-0.0570	*	-0.0437	
State Minimum Wage=1 Bill of Right=0	-0.0632	+	-0.1235	

Note: Reference groups are in parentheses.

+ $p \leq 0.10$; $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$