CALIFORNIA POLICY LAB

Employment and Earnings Among LA County Residents Experiencing Homelessness

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This document provides additional details about the data and methodology used in **"Employment and Earnings Among LA County Residents Experiencing Homelessness."** This project linked administrative data from Los Angeles County's Homeless Management Information System (HMIS) to California's Employment Development Department (EDD) Unemployment Insurance Base Wage and Quarterly Census of Employment and Wages data.

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LAHSA'S HMIS DATA

The Los Angeles Homeless Services Authority (LAHSA) provided the HMIS data for this project. The data include enrollment and client information for all services rendered in the Los Angeles Continuum of Care between 2010 and 2018.

The HMIS is a comprehensive longitudinal database containing hundreds of variables on homeless clients, the services they receive, and the organizations providing them. Our analysis uses only the variables needed to identify a client's first observed enrollment into the HMIS, their demographic information at the time of enrollment, and the type of HMIS project they were enrolled into. We focus on an individual's first observed enrollment in homelessness services as a proxy for their first homeless spell in order to better understand the employment dynamics around becoming homeless for the first time.

In order to uniquely identify clients, and their first enrollment, we use the following set of variables:

- **Personal ID** — Uniquely identifies clients

- **Enrollment ID** — Uniquely identifies each enrollment in the HMIS, used to determine the first observed entry

- **Household ID** — Uniquely identifies households, used to group clients into families within a given HMIS enrollment

Our analysis uses demographic characteristics obtained from the HMIS including gender, race, ethnicity, and date of birth. We also use characteristics associated with a client's first observed enrollment including the entry date, the project type they were enrolled into, the presence of any self-reported health conditions, head of household status, and family size. Detailed descriptions of the demographic and other client characteristics used are as follows:

Gender: Six categories are recorded in the HMIS data — female, male, trans female, trans male, gender nonconforming, and declined to state or missing. Our analysis groups trans male, trans female, and gender nonconforming into a single "trans or nonconforming" category.

Race and Ethnicity: In the HMIS, each race has a binary indicator. Service providers can only choose one race during program intake. The binary ethnicity variable indicates whether a client identifies as "Hispanic," allowing for individuals to identify as "Black and Hispanic" or "Caucasian and Hispanic" for example. In our analysis, we combine these race and ethnic categories to create a single race and ethnicity variable. Individuals who identify as ethnically Hispanic are categorized as Latinx, regardless of their race identify. Our analysis focuses on five main race and ethnicity categories — Black, Latinx, White, Other, and declined to state or missing. "Other" includes American Indian, Alaska Native, Asian, Native Hawaiian, and Pacific Islander.

Family Type and Head of Household: Our analysis groups HMIS clients into four categories based on age and family type: transition age youth, single adults, families, and other. Transition age youth are individuals aged 18 to 24 who are not identified as part of a family at the time of their first observed HMIS enrollment. Single adults are individuals 25 and older who are not identified as part of a family at the time of their first observed HMIS enrollment. Families are adults or transition age youth who report having at least one minor child at the time of their first observed HMIS enrollment. Other includes individuals 25 and older in families without minor children. In addition to identifying families with and without minor children, we also observe head of household status for one individual within each family.

Health Issues and Disabilities: Service providers ask individuals if they have any health issues or disabilities during enrollment. Our analysis focuses on self-reported physical disabilities, mental health issues, and substance abuse issues. Substance abuse issues can include either drugs or alcohol, or both. Clients are not asked to report specific physical or mental health concerns. The definitions below are from HUD's FY 2020 HMIS Data Standards.

A physical disability is defined as a physical impairment.

A developmental disability is defined as a severe, chronic disability that is attributed to a mental or physical impairment

(or combination of physical and mental impairments) that occurs before 22 years of age and limits the capacity for independent living and economic self-sufficiency.

A chronic condition is defined as a diagnosed condition that is more than three (3) months in duration and is either not curable or has residual effects that limit daily living and required adaptation in function or special assistance. Examples of chronic health conditions include, but are not limited to: heart disease (including coronary heart disease, angina, heart attack and any other kind of heart condition or disease); severe asthma; diabetes; arthritis related conditions (including arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia); adult onset cognitive impairments (including traumatic brain injury, posttraumatic distress syndrome, dementia, and other cognitive related conditions); severe headache/ migraine; cancer; chronic bronchitis; liver condition; stroke; or emphysema.

A mental health problem may range from situational depression to serious mental illnesses.

Substance abuse issue is defined as any one of: 1) Alcohol abuse — alcohol abuse without drug abuse 2) drug abuse — drug abuse without alcohol abuse 3) both alcohol and drug abuse.[1]

Project Type: There are twelve homeless services program categories, identified as "project types" in the HMIS, which are characterized by the programs' target populations, housing resources, and the nature of services provided.[2] Our analysis groups the project types into a smaller set of categories based on the intensity of the associated services as follows:

- Permanent Supportive Housing

- Rapid Rehousing

- Transitional Housing

- Interim Housing
  - Emergency Shelter
  - Day Shelter
  - Safe Haven

- Street Outreach

- Services Only

- Homelessness Prevention

- Coordinated assessments and other
  - Coordinated assessment
  - Housing only (<0.1% of clients in sample)
  - Housing with services (<0.1% of clients in sample)
  - Other

HMIS SAMPLE RESTRICTIONS

Due to HMIS data quality concerns, entries prior to January 1, 2010 are excluded from our analysis. Entries after December 31, 2018 are excluded in order to align with the EDD data described below. Clients with missing entry dates are excluded.

Our analysis retains transition age youth, single adults, and the family heads of household whose first enrollment in HMIS services occurs between the ages of 18 and 70. Individuals with missing birthdates are removed from the analysis.

Per department policy, the Employment Development Department can only link its data to external data sources for individuals with a complete and valid Social Security Number. Accordingly, all individuals who did not provide a valid or complete Social Security Number are removed from our analysis. Valid Social Security Numbers have nine numerals, and do not start with "9," "000," or "666."[3]

The U.S. Department of Housing and Urban Development defines literal homelessness as when an individual or family "lacks a fixed, regular, and adequate nighttime residence."[4] All HMIS clients are considered homeless by HUD standards at the time of project enrollment, except homelessness prevention clients. Coordinated assessment enrollments can include people who meet the HUD definition and those who do not. Accordingly, prevention clients are excluded from our study except when examining employment by project type. Client enrollments in "coordinated assessment and other" projects are excluded from all analyses due to the ambiguity of the services being provided and whether these individuals meet the HUD definition of homeless.

After applying these filters, the resulting sample, including prevention clients, is 142,159 individuals. Without prevention clients, our main analytic sample is 136,726 individuals.

EDD'S UNEMPLOYMENT INSURANCE BASE WAGE DATA

Data Elements and Structure

The California EDD provides earnings data for the project. Each observation in the data is an individual's earnings at a single employer during a single quarter for each quarter between Q1 of 1995 and Q4 of 2018. The files include earnings information for all workers covered by California Unemployment Insurance (UI) laws and all federal workers in California covered by the Unemployment Compensation for Federal Employees (UCFE) program. The data does *not* include those who are contractors or self-employed, those working out-of-state, and those working in the "gig economy." We summarize this earnings info at the client-quarter level. In this summary format, an observation contains an individual identifier, an identifier for the employer (employer accounting for the largest proportion of earnings if a client holds multiple jobs in a quarter), and an earnings amount (total earnings across all employers for that client-quarter). If a client has no covered earnings in the quarter, the value is 0.

Standardizing Employment and Earnings Measurements

All earnings are converted to 2018 U.S. dollars. To reduce any possible effects of extreme outliers among earnings, we Winzorize the data, replacing earnings higher than the 99.5th percentile for the sample to the value of the earnings value at the 99.5th percentile, and earnings lower than the 0.1th percentile to the 0.1th percentile.

Recent Workers

In order to provide insight for targeted interventions with the objective of increasing employment or earnings, we identify a group of individuals with recent employment histories. These "recent workers," as we label them in the data, are adults working at any point between quarters -16 and -9, relative to service enrollment. As we focus on quarters -8 to +8 in the majority of our analysis, we choose to identify recent workers as those with positive earnings in -16 to -9 to avoid regression to the mean.

QUARTERLY CENSUS OF EMPLOYMENT AND WAGES DATA

The Quarterly Census of Employment and Wages (QCEW) Program is a Federal-State cooperative program between the U.S. Department of Labor's Bureau of Labor Statistics (BLS) and the California EDD's Labor Market Information Division (LMID). The QCEW program produces a comprehensive tabulation of employment and wage information for workers covered by California UI laws and federal workers covered by the UCFE program. The data does *not* include those who are contractors or self-employed, those working out-of-state, and those working in the "gig economy." We utilize QCEW data at the quarterly level from Q1 of 2003 to Q4 of 2018.

Data Elements and Structure

Each observation in the data is an establishment which is not the same as an employer (a given employer can have multiple establishments in California). We utilize the following information on each establishment in the data: a unique employer identifier (which corresponds to employer identifiers available in the UI Base Wage Files), total employment (number of employees with positive earnings from the employer in the relevant quarter), and industry. The QCEW identifies industries with a 6-digit North American Industry Classification System (NAICS) code.

Combining Industry and Earnings Information

To utilize industry information in our analyses we first summarize industry at the employer (as opposed to establishment) level. We do this by assigning each employer to the 6-digit NAICS code that accounts for the largest proportion of its employees (different establishments for the same employer may have different NAICS codes). Using employer identifiers, we then link this information to earnings records in the UI Base Wage Files, which allows us to determine which industries HMIS clients are working in.

We collapse the 6-digit NAICS code down to the first two digits, which define the industry sector. We use the two-digit sector as a grouping variable for our analyses.[5]
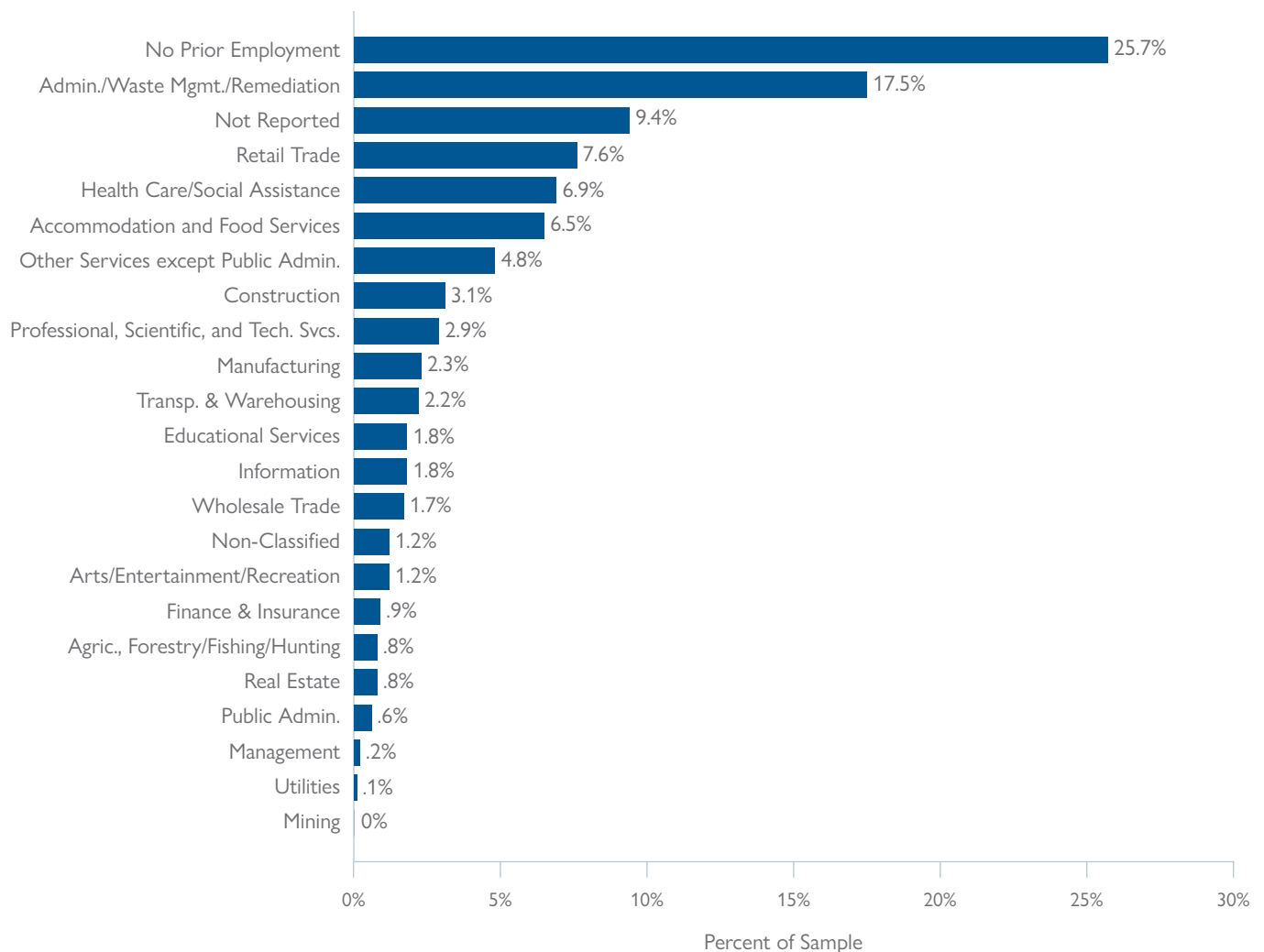
TABLE A1. Industry sector and NAICS code

NAICS NUMBER	INDUSTRY SECTOR	NAICS NUMBER	INDUSTRY SECTOR
11	Agriculture, Forestry, Fishing, and Hunting	54	Professional, Scientific, and Technical Services
21	Mining	55	Management of Companies and Enterprises
22	Utilities	56	Administrative and Support and Waste Management and Remediation Services
23	Construction		
31–33	Manufacturing	61	Educational Services
42	Wholesale Trade	62	Health Care and Social Assistance
44–45	Retail Trade	71	Arts, Entertainment, and Recreation
48–49	Transportation and Warehousing	72	Accommodation and Food Services
51	Information	81	Other Services (except Public Administration)
52	Finance and Insurance		
53	Real Estate Rental and Leasing	92	Public Administration

Appendix Figure A1 shows the distribution of the most recent industry worked in for homeless clients. Figure A2 shows the same broken out by gender, where non-male includes females and individuals identifying as transgender or gender-nonconforming. Figure A1 shows that homeless service clients are heavily concentrated in certain kinds of low-wage jobs. These include the *administrative and support and waste management and remediation services* industry (such as customer service reps, loading dock workers, janitors, and landscapers), the *retail trade* industry (such as cashiers, salespersons, and shelf-stockers), the *health care and social assistance* industry (such as personal care aides, office clerks, and receptionists), and the *accommodation and food services* industry (such as cooks, waiters, dishwashers, and hotel desk clerks).

FIGURE A1. Recent industry employment at HMIS entry
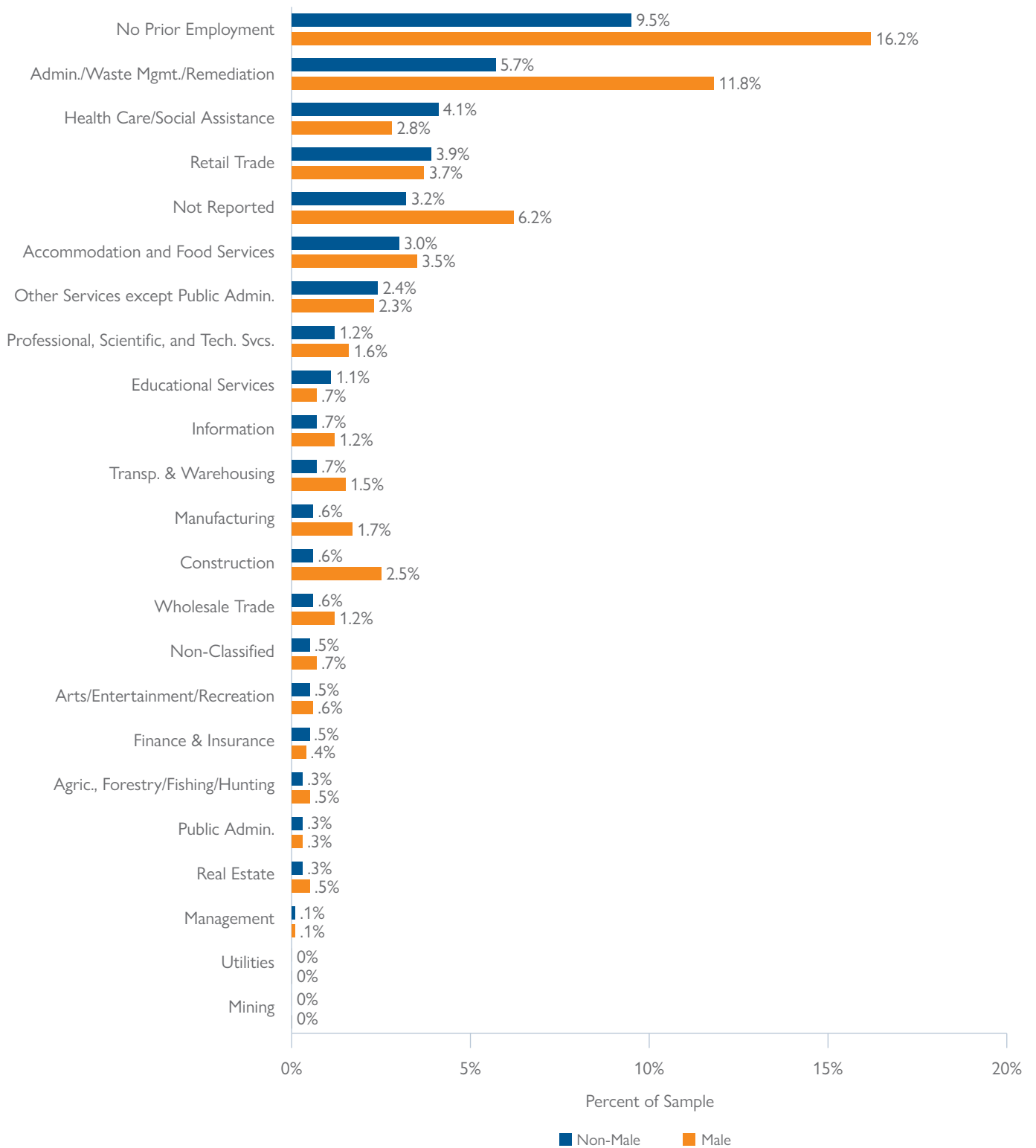
Source: HMIS, 2010–2018. Figure shows the percentage of the sample whose last observed employment was in each NAICS industry sector. N=136,726. Not reported includes clients whose last industry information was missing or whose last employment precedes 2003, the earliest available date for QCEW data.

Source: HMIS, 2010–2018. Figure shows the percentage of the sample whose last observed employment was in each NAICS industry sector. N=136,726. Not reported includes clients whose last industry information was missing or whose last employment precedes 2003, the earliest available date for QCEW data.

COMPARISON OF CLIENTS WITH AND WITHOUT VALID SSN

In order to determine whether there are systematic differences between clients in the HMIS who provided a valid Social Security Number and those who did not we compare observable demographics available in the HMIS across these groups in Table A2 and Figure A3 below. After calculating the sampling weights, all of the figures and tables in the full policy brief were regenerated using the reweighted sample. We found no differences in employment rates between the weighted and unweighted samples, as seen in Figures A4–A7.

Comparing columns (1) and (3) of Table A2 suggests that that clients with a valid SSN are slightly more likely to be female, slightly more likely to be enrolled as part of a family, somewhat more likely to be black, and somewhat more likely to report a disability.
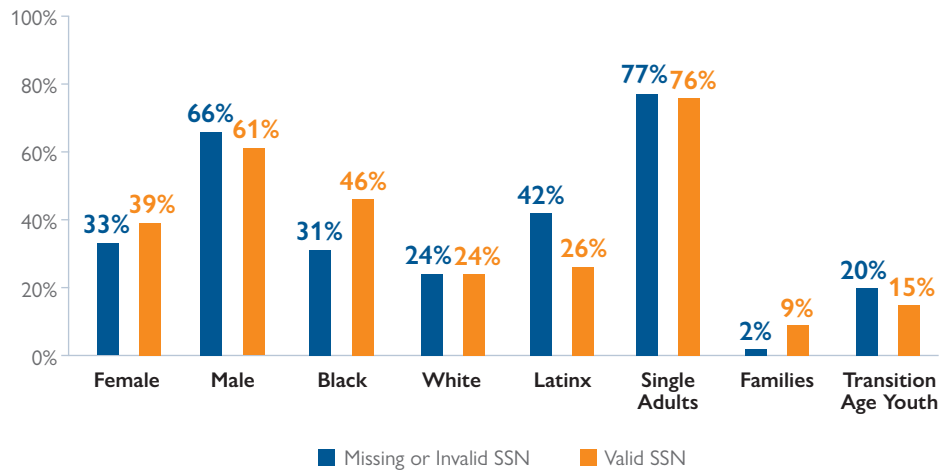
Next, we assessed whether the small to moderate differences we found could affect whether our results based on the sample of individuals with a valid reported SSN are representative of the full set of HMIS clients (including clients who provided valid SSNs and those who did not).

TABLE A2. Characteristics of individuals with and without valid SSN

	ALL HMIS CLIENTS	MISSING OR INVALID SSN	VALID SSN	SSN LINKS TO EDD
Gender				
Female	36.7	32.7	38.5	39.7
Male	62.5	66.2	61	59.8
Age Group				
TAY (18–24)	16.8	20.3	15.1	15.4
25–34	21.2	20.5	21.6	22.8
35–49	31.6	31.7	31.6	32.4
50–59	21.7	19.3	22.8	21.9
60+	8.6	8.1	8.9	7.4
Family Type				
Single Adult	76.5	76.7	76.4	75
Single TAY	15.1	19.8	13	13
Family	7	2.4	9.1	10.5
Race				
Black	41.8	30.7	46.4	46.4
White	23.9	23.7	24	21.8
Latinx	30.5	42.3	25.6	28
Other	3.8	3.3	3.9	3.8
Physical Disability	17.3	9.1	21.1	19.6
Mental Health Issues	16	6.9	20.2	19.5
Substance Use Disorder	11.3	5.1	14.1	14.3
Total Clients	200,172	63,444	136,726	109,155

Source: HMIS, 2010–2018.

Source: HMIS, 2010–2018. N=136,726.

Generating Sampling Weights

As a more direct test to determine whether clients with a valid SSN are representative of the full HMIS population, we calculated sampling weights based on the predicted likelihood of having a valid SSN at HMIS enrollment.

We then reweighted our sample of clients that had valid SSNs such that on average, they had similar average characteristics as the full sample. Intuitively, the procedure puts more weight on those demographic groups that are slightly underrepresented (and less weight on those overrepresented) in the sample with valid SSNs compared to the full sample.

These weights were calculated by using the inverse of the predicted values resulting from a Probit regression model in which an indicator for presence of a valid SSN in the data is the outcome. The predictors in this model are gender, race, age at entry, HMIS project type, family type, year of HMIS enrollment, and a set of binary indicator variables for veteran status, physical disability, mental health issue, and substance abuse.

After calculating the sampling weights, all of the figures and tables in the full policy brief were regenerated using the reweighted sample. Since the reweighted analysis did not meaningfully differ from the unweighted analysis, the full policy brief does not make use of the sampling weights.

FIGURE A4. Applying sampling weights has no significant impact on employment statistic
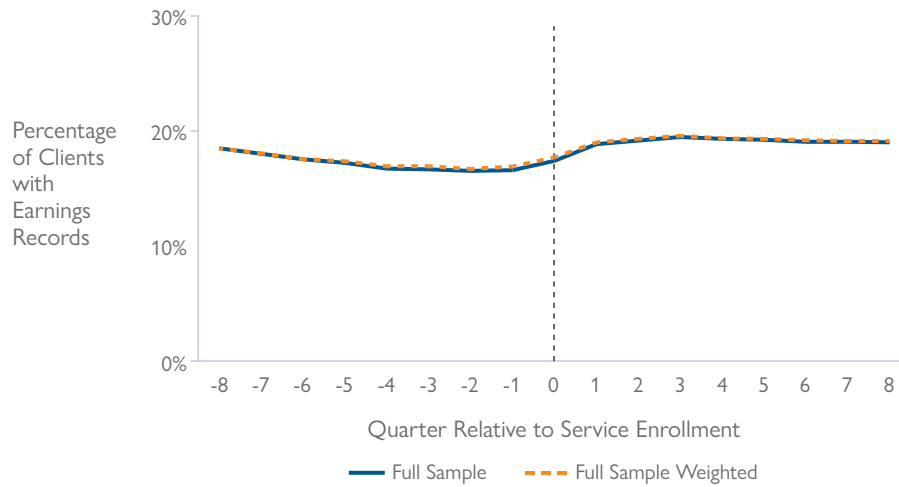
Source: HMIS, 2010–2018. Figure shows the percentage of the sample successfully matched to at least one quarter of covered employment prior to homeless service enrollment with and without sampling weights applied. N=136,726.

FIGURE A5. Reweighted Figure 1 from brief shows no significant differences in employment
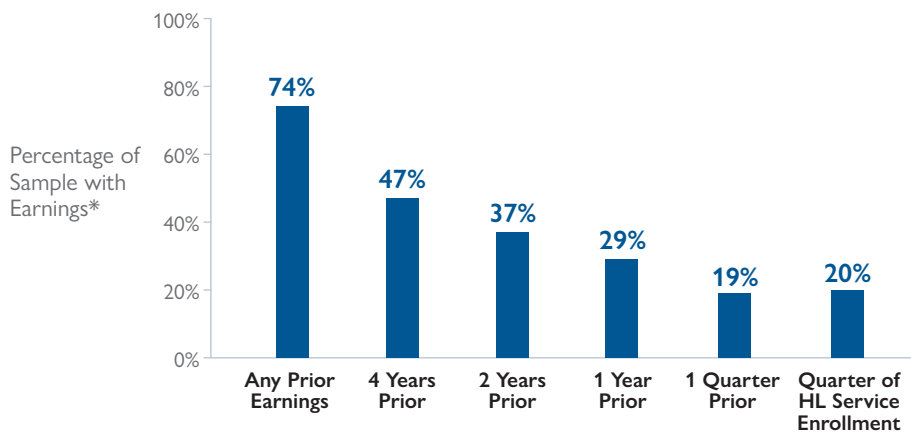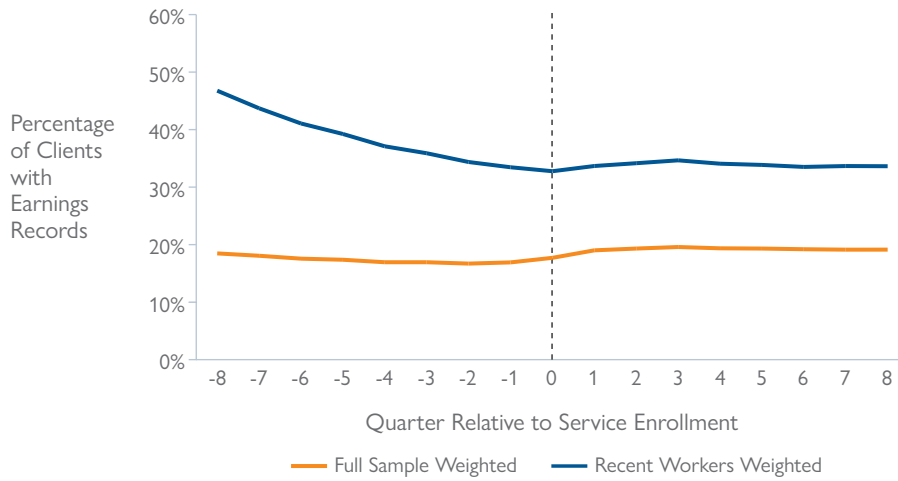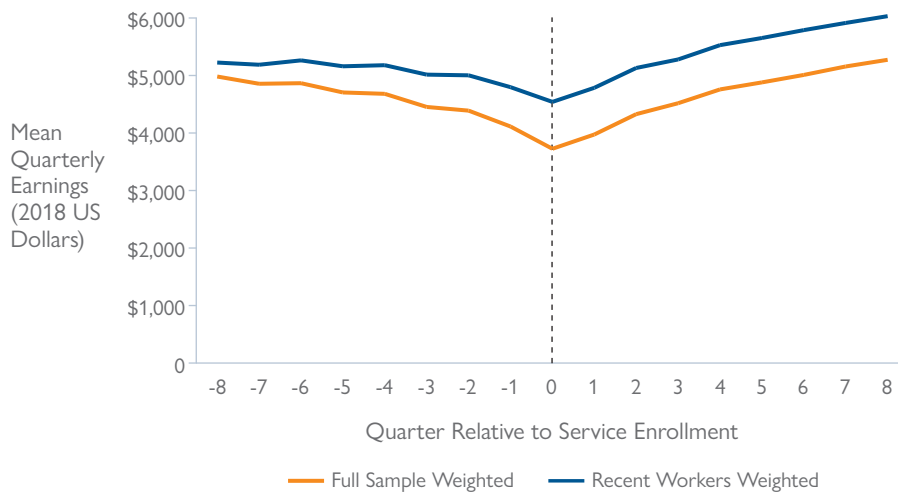

Source: HMIS, 2010–2018. Figure shows the percentage of the sample successfully matched to at least one quarter of covered employment prior to homeless service enrollment. Sampling weights applied. N=136,726.

FIGURE A6. Reweighted Figure 5 from brief shows no significant differences in employment relative to the unweighted estimates

Source: HMIS, 2010–2016. Figure shows the percentage of the sample successfully matched to covered employment in a given quarter relative to enrollment in HMIS. Recent workers are those with any recorded earnings in quarters -16 to -9, relative to service enrollment. Sampling weights applied. N=100,693 (including 37,151 recent workers).

FIGURE A7. Reweighted Figure 9 from full brief shows minimal differences in earnings relative to the unweighted estimates

Source: HMIS, 2010–2016. Figure shows the mean quarterly earnings in 2018 dollars among employed individuals relative to enrollment in HMIS. Recent workers are those with any recorded earnings in quarters -16 to -9, relative to service enrollment. Sampling weights applied. Full sample N=48,476 (including 29,547 recent workers). To reduce any possible effects of extreme outliers, earnings are Winsorized (see text).

EMPLOYMENT RATES OF PRIME-AGE HEALTHY INDIVIDUALS

Table A3 shows the employment rates of those who are viewed as most likely to be in the labor force: individuals aged 24–55 and without major disabilities. For this group, the table analyzes the employment rates before, during, and after entry into the HMIS, and further splits the sample into various demographic groups. Employment rates tend to be steady in the two years preceding entry, matching the pattern seen in the "full sample" group of Figure 5 in the full policy brief; however, employment rates in the first and second year after entry show significantly more variation.

TABLE A3. Employment rates among prime age healthy individuals

	(1) PERCENT PRIME-AGED AND HEALTHY	(2) YEAR -4 ANNUAL EMPLOYMENT	(3) YEAR -2 ANNUAL EMPLOYMENT	(4) YEAR -1 ANNUAL EMPLOYMENT	(5) QUARTERLY EMPLOYMENT AT ENTRY	(6) YEAR +1 ANNUAL EMPLOYMENT	(7) YEAR +2 ANNUAL EMPLOYMENT
		ANNUAL EMPLOYMENT RATE BEFORE AND AFTER HMIS ENTRY, *QUARTERLY EMPLOYMENT RATE* AT ENTRY					
Gender							
Female	45.7	43.9	40.1	40	28.4	43.7	42.2
Male	36.4	35.7	32.5	32.5	22.6	35.4	31.6
Family Type							
Single Adult	40.7	36.9	33.1	32.7	22.7	35.4	32.2
Family	65.3	48.2	45.3	47	33.8	52.2	50.8
Other	46.5	41.1	38	38.5	29.5	41	40.8
Race							
Black	40.7	39.4	36.2	37	26.8	41.4	38.6
White	34.3	29.2	25.7	24.8	16.3	27.2	24.1
Latinx	44.1	47.4	43.4	42.6	29.5	44.7	42.4
Other	39.6	37.4	32.9	32.2	21.6	34.3	30.7
Total	40	39.4	35.9	35.8	25.2	39.1	36.4

Source: HMIS 2010–2016. Column 1 reports the share of HMIS clients in each demographic group who are prime-aged (24–55) and without any reported substance abuse, mental health, or physical disabilities, Columns 2–7 show the percentage of each demographic group employed in the associated time period.

REGRESSION METHODOLOGY

We estimate four linear regression models of post-entry outcomes; outcomes in models 1–3 are measured within four calendar quarters after an individual's first entry into the HMIS. Our sample is limited to individuals entering the HMIS between 2010–2017, so that each individual has at least four quarters of employment data after entry. Models 1 and 2 are linear probability models, predicting the probability of being employed in any of the four quarters immediately post-entry, and the probability of having earnings above the 2018 Federal Poverty Line ($12,140 for individuals, $25,100 for a family of four) in the four quarters post-entry, respectively. Model 3 predicts the log-transformed total earnings in the four quarters post entry, and model 4 estimates the log transformed number of quarters worked post-entry, though not subject to the four quarter restriction seen in the other models. As models 3 and 4 use a logarithmic transformation, they are only estimated for the subset of the sample who reports positive earnings in the relevant time frame.

The full regression table, Table A4, is included at the end of this appendix due to the number of coefficients included in the models.

Four examples of how to interpret the coefficients across these models are below:

Model 1: Holding other factors constant, individuals identifying as black are associated with a 5% higher probability of having employment in the four quarters following entry than individuals who identify as white.

Model 2: Holding other factors constant, individuals identifying as black are associated with a 1.5% higher probability of having earnings above the Federal Poverty Line in the four quarters following entry than individuals who identify as white.

Model 3: Holding other factors constant, individuals who report Developmental Disabilities *and* have *any* positive earnings in the year after entry are associated with about 16% lower total earnings over that period than those who have positive earnings but *don't* report a developmental disability.

Model 4: Holding other factors constant, individuals who identify as black *and* have *any* positive income after entry are associated with about 9% higher total earnings over that period than those who have positive earnings but identify as white.

	(1)	(2)	(3)	(4)
	ANY EMPLOYMENT	EARN > FPL	LN (TOTAL EARN) (IF EARN > 0)	LN (QTRS WORKED) (IF > 0)
Age Group (Ref: 60+)				
TAY (18–24)	0.160***	0.006	-0.089	0.215***
	(0.011)	(0.006)	(0.061)	(0.046)
25–34	0.114***	0.020***	0.046	0.154***
	(0.006)	(0.003)	(0.054)	(0.041)
35–49	0.086***	0.023***	0.192***	0.158***
	(0.004)	(0.002)	(0.051)	(0.038)
50–59	0.046***	0.012***	0.137*	0.084*
	(0.003)	(0.002)	(0.057)	(0.033)
Male	-0.004	-0.001	-0.019	-0.087***
	(0.003)	(0.002)	(0.023)	(0.011)
Family Type (Ref: Single Adult)				
Single TAY	0.059***	0.013*	0.107*	0.122***
	(0.013)	(0.006)	(0.047)	(0.027)
Family	0.071***	-0.048***	0.281***	0.140***
	(0.006)	(0.004)	(0.030)	(0.016)
Other	0.005	0.009	0.019	0.072*
	(0.012)	(0.006)	(0.078)	(0.035)
Race (Ref: White)				
Black	0.050***	0.015***	0.016	0.093***
	(0.005)	(0.002)	(0.033)	(0.013)
Latinx	0.036***	0.012***	0.082*	0.114***
	(0.004)	(0.002)	(0.033)	(0.018)
Other	0.009	0.006	0.074	0.058*
	(0.006)	(0.004)	(0.052)	(0.027)
Physical Disability	-0.070***	-0.016***	-0.138**	-0.137***
	(0.004)	(0.002)	(0.040)	(0.016)
Developmental Disability	-0.012*	-0.006*	-0.155**	-0.037
	(0.006)	(0.002)	(0.049)	(0.025)
Chronic Health Condition	-0.014***	-0.004*	-0.042	-0.038+
	(0.003)	(0.002)	(0.035)	(0.019)

continued

	(1) ANY EMPLOYMENT	(2) EARN > FPL	(3) LN (TOTAL EARN) (IF EARN > 0)	(4) LN (QTRS WORKED) (IF > 0)
HIV/AIDS	0.009 (0.008)	0.001 (0.004)	0.009 (0.078)	0.033 (0.030)
Mental Health Issues	-0.063*** (0.004)	-0.017*** (0.002)	-0.194*** (0.037)	-0.170*** (0.019)
Substance Use Disorder	-0.005 (0.004)	-0.009*** (0.002)	-0.078* (0.033)	-0.086*** (0.012)
Program Type (Ref: Transitional Housing)				
Permanent Supportive Housing	-0.084*** (0.009)	-0.012* (0.004)	-0.082 (0.074)	-0.035 (0.025)
Rapid Rehousing	0.050*** (0.010)	0.036*** (0.007)	0.141** (0.044)	0.040* (0.017)
Transitional Housing	0.048*** (0.008)	0.002 (0.004)	-0.007 (0.039)	0.051*** (0.014)
Interim Housing	-0.042*** (0.009)	-0.017*** (0.003)	-0.236*** (0.034)	-0.121*** (0.019)
Street Outreach	-0.073*** (0.012)	-0.012** (0.004)	-0.125* (0.055)	-0.094** (0.028)
Service Planning Area (SPA) (Ref: Antelope Valley)				
San Fernando	0.057** (0.017)	-0.001 (0.009)	-0.098 (0.092)	0.019 (0.038)
San Gabriel	0.023+ (0.013)	-0.008 (0.007)	-0.135 (0.087)	-0.023 (0.035)
Metro	0.056** (0.017)	-0.000 (0.008)	-0.045 (0.086)	0.021 (0.031)
West	0.009 (0.016)	-0.010 (0.009)	-0.131 (0.111)	-0.085* (0.036)
South	0.043** (0.014)	-0.003 (0.007)	-0.121 (0.086)	0.002 (0.029)
East	0.040** (0.013)	0.000 (0.008)	-0.104 (0.105)	0.033 (0.037)

	(1) ANY EMPLOYMENT	(2) EARN > FPL	(3) LN (TOTAL EARN) (IF EARN > 0)	(4) LN (QTRS WORKED) (IF > 0)
South Bay/Harbor	0.035* (0.013)	0.003 (0.007)	-0.013 (0.087)	-0.003 (0.034)
Not Reported	0.006 (0.015)	-0.008 (0.007)	-0.129 (0.081)	-0.050 (0.032)
Any Employment w/in 4 Years Prior	0.076*** (0.005)	0.014*** (0.002)	0.066 (0.057)	0.088*** (0.022)
Any Employment w/in 2 Years Prior	0.249*** (0.008)	0.063*** (0.004)	0.455*** (0.046)	0.346*** (0.021)
Earn > FPL Either 2 Yrs Pre-Entry	0.304*** (0.010)	0.459*** (0.007)	1.491*** (0.042)	0.489*** (0.028)
Last Industry Employed Before Entry (Ref: Agric./Forestry/Fishing/Hunting)				
Mining	-0.118 (0.071)	-0.036 (0.039)	0.642 (0.439)	0.004 (0.166)
Utilities	0.017 (0.050)	0.059 (0.039)	0.805+ (0.442)	0.260* (0.127)
Construction	-0.016 (0.018)	-0.011 (0.009)	0.066 (0.094)	-0.008 (0.039)
Manufacturing	-0.014 (0.020)	-0.002 (0.010)	0.224* (0.105)	0.042 (0.050)
Wholesale Trade	-0.003 (0.022)	0.004 (0.010)	0.224* (0.109)	0.066 (0.046)
Retail Trade	0.001 (0.019)	-0.014 (0.009)	0.027 (0.084)	0.046 (0.039)
Transportation and Warehousing	0.013 (0.019)	0.011 (0.008)	0.142 (0.092)	0.035 (0.047)
Information	0.053* (0.022)	-0.034** (0.010)	-0.700*** (0.112)	0.145** (0.043)
Finance and Insurance	0.005 (0.021)	0.008 (0.011)	0.088 (0.117)	0.053 (0.049)
Real Estate	-0.025 (0.023)	0.002 (0.011)	0.286* (0.130)	0.068 (0.052)

	(1)	(2)	(3)	(4)
			LN (TOTAL EARN)	LN (QTRS WORKED)
	ANY EMPLOYMENT	EARN > FPL	(IF EARN > 0)	(IF > 0)
Professional, Scientific, and Tech. Services	-0.007 (0.020)	-0.020* (0.010)	0.046 (0.100)	0.010 (0.049)
Management of Companies and Enterprises	-0.053+ (0.029)	-0.006 (0.017)	0.444* (0.182)	-0.092 (0.092)
Admin. Support, Waste Management and Remediation Svcs.	-0.008 (0.018)	-0.027** (0.009)	-0.172+ (0.087)	-0.046 (0.038)
Educational Services	0.020 (0.019)	0.023* (0.011)	0.331*** (0.087)	0.169*** (0.038)
Health Care and Social Assistance	-0.006 (0.019)	0.001 (0.009)	0.202* (0.091)	0.070 (0.043)
Arts, Entertainment, and Recreation	-0.018 (0.023)	-0.015+ (0.009)	0.031 (0.120)	0.035 (0.049)
Accommodation and Food Services	-0.016 (0.018)	-0.018* (0.008)	0.042 (0.087)	0.023 (0.042)
Other Services except Public Admin.	-0.038* (0.017)	-0.026** (0.008)	0.016 (0.099)	-0.018 (0.049)
Public Admin.	-0.014 (0.021)	0.048** (0.016)	0.512*** (0.123)	0.145* (0.055)
Non-Classified	-0.068** (0.025)	-0.032** (0.009)	-0.211+ (0.124)	-0.105+ (0.055)
No Prior Emp.	-0.013 (0.018)	-0.005 (0.008)	0.148 (0.105)	0.049 (0.043)
Not Reported	-0.022 (0.018)	-0.007 (0.008)	0.127 (0.132)	-0.077+ (0.043)

continued

	(1)	(2)	(3)	(4)
	ANY EMPLOYMENT	EARN > FPL	LN (TOTAL EARN) (IF EARN > 0)	LN (QTRS WORKED) (IF > 0)
Firm Size (Ref: 1–10)				
11–50	0.012	0.011***	0.046	-0.016
	(0.007)	(0.003)	(0.042)	(0.017)
50+	0.027***	0.012**	-0.052	0.001
	(0.006)	(0.004)	(0.038)	(0.014)
No Prior Emp	-	-	-	-
Not Reported	-	-	-	-
Any UI Claims w/in 1 Year Prior	0.026***	0.005	0.029	-0.037*
	(0.006)	(0.005)	(0.035)	(0.017)
Constant	0.048*	0.023*	7.653***	1.261***
	(0.021)	(0.011)	(0.144)	(0.064)
Observations	113,813	113,813	34,511	50,122
R-Squared	0.293	0.258	0.167	0.137

Standard errors in parentheses
Notes: HMIS, 2010-2017. Outcomes in Models 1-3 are within 4 calendar quarters after the quarter of HMIS entry.
Year of entry dummy variables suppressed
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Endnotes

1   For additional info, see HUD FY 2020 HMIS Standards.
2   For additional detail on project type, see HUD FY 2020 HMIS Standards.
3   We compare observable characteristics of clients with and without valid Social Security Numbers and consider sample re-weighting in Section 4 of this appendix.
4   For additional detail on HUD's Criteria for defining homelessness, see here.
5   For more information on NAICS codes, see https://www.census.gov/eos/www/naics/.