

MANAGING LONGITUDINAL RESEARCH STUDIES:

CLASSIFYING WORK

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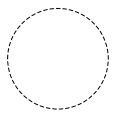

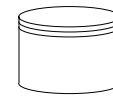


	From program creating incoming file or name of next program using file
	Excel file input or output
	SAS file input or output
	Flat or text file input or output
	SAS program with brief description of steps.

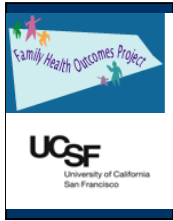
Table of Abbreviations

BSMF	Birth Statistical Master File, California Vital Statistics
CalWORKs	California Work Opportunities and Responsibility to Kids
CDPH	California Department of Public Health
CDSS	California Department of Social Services
DSMF	Death Certificate, California Vital Statistics
EDD	California Employment Development Department
FHOP	Family Health Outcomes Project
NAICS	North American Industry Classification System
NIOCCS	NIOSH Industry and Occupation Computerized Coding System
NIOSH	National Institute for Occupational Safety and Health
OMB	Office of Management and Budget
SIC	Standard Industry Classification
SOC	Standard Occupation Classification
UCSF	University of California San Francisco

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CLASSIFYING WORK

BACKGROUND

The Family Health Outcomes Project (FHOP) was awarded the contract to evaluate the Home Visiting Program (HVP) operated under the auspices of CalWORKs (California Work Opportunities and Responsibility to Kids), a division of the California Department of Social Services (CDSS) [1]. CalWORKs is the state's implementation of the federal welfare-to-work Temporary Assistance for Needy Families program that provides cash aid and services to eligible needy California families. A key aspect of the HVP evaluation is to report if home visiting services enabled parents of young children to gain better work opportunities.

Among many sources, the evaluation will use data from the California Employment Development Department (EDD). In addition to information such as employment dates and income, these files use Federal codes that classify employers.

Federal agencies use the North American Industry Classification System (NAICS) to classify business establishments and to collect, analyze, and publish statistical data related to the U.S. business economy [2]. Developed under auspices of the Office of Management and Budget (OMB), NAICS was adopted in 1997 to replace the Standard Industrial Classification (SIC) system. To allow for a high level of comparability in business statistics among North American countries, NAICS was developed jointly by the U.S. Economic Classification Policy Committee, Statistics Canada, and Mexico's Instituto Nacional de Estadística y Geografía.

NIOCCS is a free web-based tool used to translate word descriptions (free text) of type of work and type of business into a standard numeric code [3]. This means each occupation and industry has a unique number associated with it to enable grouping and better data analysis [4]. Coding is based on the U.S. Census Industry and Occupation Classification system with options for coding to the 2000, 2002, and 2010 Census schemes. Output files include the NAICS and U.S. Standard Occupation Classification (SOC) codes associated with the Census [5].

The evaluation design also incorporates vital statistics (birth, death, and fetal death) files to help understand important life events for HVP client families. We use these to assess if pregnancy and birth outcomes improved for HVP clients and their children. The California Birth Statistical Master File (BSMF) has text fields describing usual occupation and business for mother and father, and the Death Statistical Master File (DSMF) has similar text fields for decedents. The purpose of this brief is to describe steps we took to make formats from BSMF and DSMF occupation and business lists to classify work-related fields for the evaluation and to classify similar data for other studies in the future.

PREPARE VITAL STATISTICS FILES

Birth Statistical Master File

Work-related variables became available in the BSMF in the year (yyyy) 2000 and 2017 was the last year of BSMF data in our possession when we began this project. In working with the BSMF, our usual practice is to exclude births in California to non-resident mothers. However, we wanted to cast the largest possible net to gather work-related information. In this context, we used all records and included the BCC(*onfidential*)yyyy file to get the father's last name. When parents are not married, the father must fill out and sign a voluntary Acknowledgement of Parentage to name him on the birth certificate [6]. When the father does not declare paternity, his name is missing on the birth certificate and that can be the primary reason for poor data quality about fathers.

Figure 1 summarizes the steps to process work variables in the BSMF, with parallel sets of variables for mother and father. Because codes changed over time, we standardized education longitudinally, then output two temporary files, one each for mother and father (not shown). These temporary files include renamed sex-specific variables we used in the next step (e.g., FAGE = AGEYRS). We concatenated the files, assigning sex by source (father = male = 1; mother = female = 2).

Figure 1. Prepare birth certificates

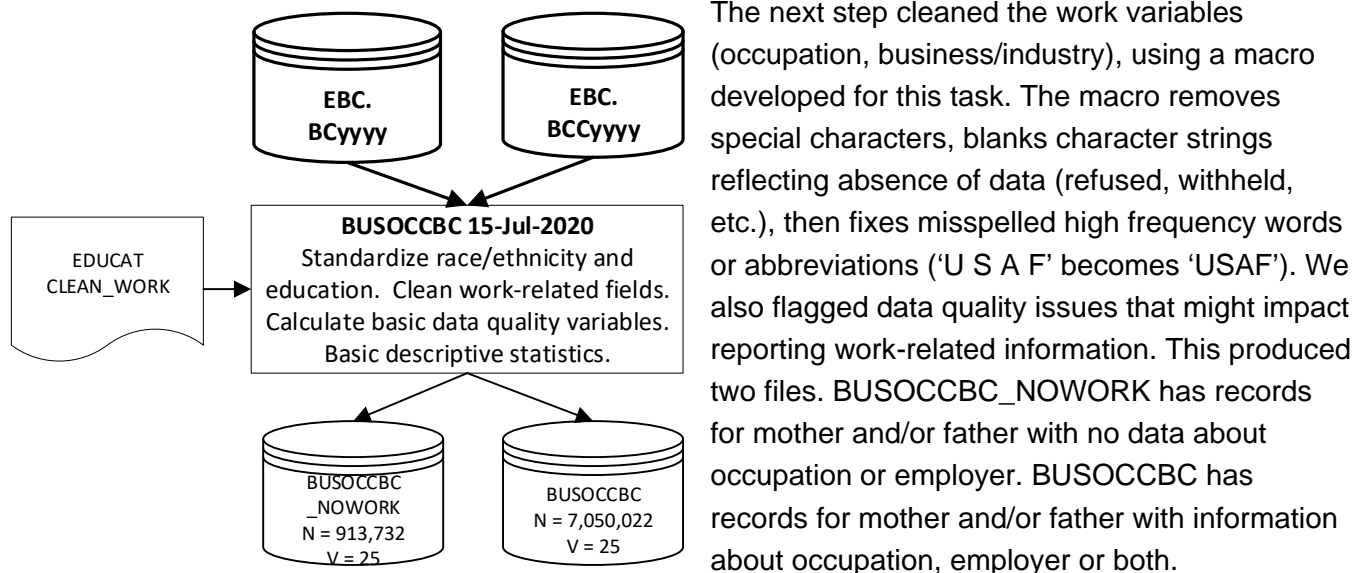


Table 1 summarizes results. After cleaning work-related variables, 88.5% of records had initially usable information for occupation or employer. Records missing work-related information also were missing large percentages of demographic-related information. For example, of records missing all work-related information: 92.6% were missing race/ethnicity; 95.3%, missing age; and 97.8%, missing education. Fathers were three times more likely to be missing information than mothers, reflecting that they had not declared paternity before the birth certificate was filed.

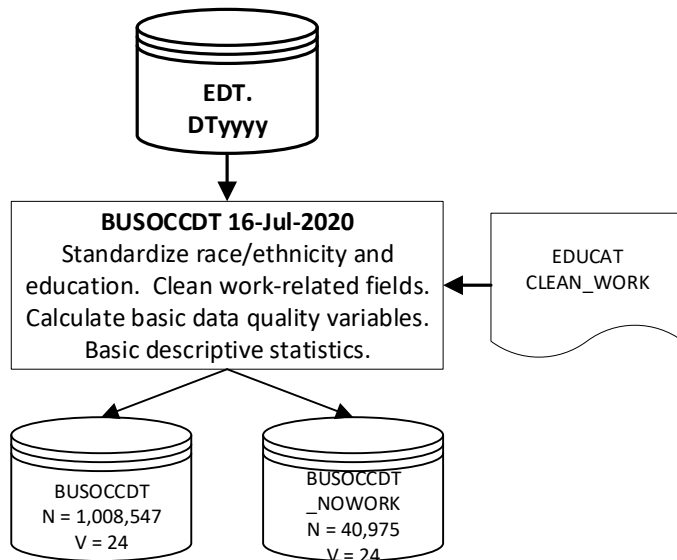
Table 1. Data quality: Birth certificate by availability of work-related data - 2010-2017

Variable	Category	Total	Work Data		Col %	Row %	
			Yes	No		Yes	No
Total		7,963,754	7,050,022	913,732	100.0	88.5	11.5
Parents	2010	1,023,650	906,755	116,895	12.9	88.6	11.4
	2011	1,007,712	892,585	115,127	12.7	88.6	11.4
	2012	1,011,364	887,743	123,621	12.7	87.8	12.2
	2013	992,564	877,623	114,941	12.5	88.4	11.6
	2014	1,010,102	893,876	116,226	12.7	88.5	11.5
	2015	987,866	877,818	110,048	12.4	88.9	11.1
	2016	982,346	870,046	112,300	12.3	88.6	11.4
	2017	948,150	843,576	104,574	11.9	89.0	11.0
Sex	Male	3,981,877	3,303,742	678,135	50.0	83.0	17.0
	Female	3,981,877	3,746,280	235,597	50.0	94.1	5.9
Race/Ethnicity	White	2,169,529	2,062,238	107,291	27.2	95.1	4.9
	Black	425,239	364,199	61,040	5.3	85.6	14.4
	Hispanic	3,663,422	3,414,253	249,169	46.0	93.2	6.8
	A/PI	1,061,123	993,364	67,759	13.3	93.6	6.4
	AIAN	25,349	21,719	3,630	0.3	85.7	14.3
	Multi	173,716	161,176	12,540	2.2	92.8	7.2
Age	Le 14	2,763	2,537	226	0.0	91.8	8.2
	15-24	1,582,924	1,416,739	166,185	19.9	89.5	10.5
	25-34	4,041,530	3,738,502	303,028	50.7	92.5	7.5
	35-44	1,861,040	1,716,252	144,788	23.4	92.2	7.8
	45-54	169,022	148,152	20,870	2.1	87.7	12.3
	55-64	15,591	13,067	2,524	0.2	83.8	16.2
	65-max	1,485	1,119	366	0.0	75.4	24.6
Education	Grade 1-8	431,881	411,842	20,039	5.4	95.4	4.6
	Grade 9-12	2,923,784	2,709,087	214,697	36.7	92.7	7.3
	1-3 years College	1,828,541	1,757,863	70,678	23.0	96.1	3.9
	4 years College	1,332,574	1,294,377	38,197	16.7	97.1	2.9
	5+ years College	780,687	764,719	15,968	9.8	98.0	2.0
Data quality - Missing	Ethnicity	430,669	26,036	404,633	5.4	6.0	94.0
	Race	449,936	35,359	414,577	5.6	7.9	92.1
	Age	289,399	13,654	275,745	3.6	4.7	95.3
	Education	666,287	112,134	554,153	8.4	16.8	83.2
	Any demographic	719,757	151,739	568,018	9.0	21.1	78.9
	No paternity	338,505	39,430	299,075	4.3	11.6	88.4
	Business/industry	966,480	52,748	913,732	12.1	5.5	94.5
	Occupation	933,975	20,243	913,732	11.7	2.2	97.8

Appendix Table A.1 reports overall data quality by county. Thirty counties with 23.4% of births had less than 10% of parent work data missing (3.0% (Mono) to 9.9% (San Bernardino)), while 28 counties with 76.7% of births had more than 10% missing. Counties with the worst data quality rates included one of the state’s larger counties (San Diego, 18.8%), and 3 of the smallest: Lassen (20.3%), Siskiyou (26.1%), and Mono (65.4%). These data quality issues will affect our ability to report work-related information.

Death Statistical Master File

Figure 2. Prepare death certificates



The DSMF we use did not include work-related variables before 2014. When we began this task we had files through 2017. Preparing these files involved one datastep, shown in Figure 2. As with the BSMF, we did not exclude deaths in California to out-of-state residents.

Demographic variables generally are comparable across vital statistics files. As a result, we were able to use basically the same code for the DSMF that we developed for the BSMF, with minor modifications.

Table 2 summarizes results of this work. Of 1,049,505 deaths recorded between 2014 and 2017, only 40,975 DSMF records (3.9%) lacked work-related information, as contrasted with the BSMF which lacked work-related information on 11.5% of parents. Overall, the DSMF data is cleaner than the BSMF data, consistent with our experiences working with these files. Records missing work-related information again were missing large percentages of demographic-related information.

Appendix Table A.2 summarizes overall DSMF data quality by county. With a county-level range from 1.2% to 9.6%, we do have better data quality issues than in the birth files. Again, however, smaller counties have the most problems.

Table 2. Data quality: Death certificate by availability of work-related data - 2014-2017

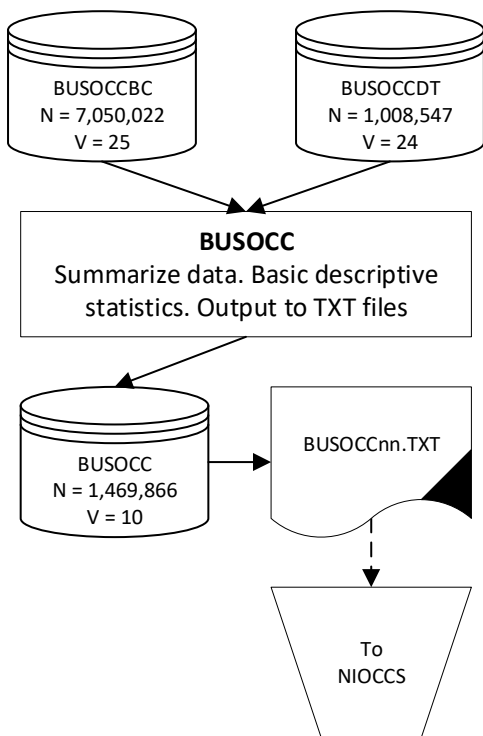
Variable	Category	Total	Work Data		Col %	Row %	
			Yes	No		Yes	No
Total		1,049,505	1,008,530	40,975	100.0	96.1	3.9
Decedents	2014	248,953	238,224	10,729	23.7	95.7	4.3
	2015	262,627	253,143	9,484	25.0	96.4	3.6
	2016	265,786	255,604	10,182	25.3	96.2	3.8
	2017	272,156	261,576	10,580	25.9	96.1	3.9
Sex	Male	541,972	514,378	27,594	51.6	94.9	5.1
	Female	507,533	494,152	13,381	48.4	97.4	2.6
Race/Ethnicity	White	654,078	631,145	22,933	62.3	96.5	3.5
	Black	79,202	73,213	5,989	7.5	92.4	7.6
	Hispanic	195,263	188,467	6,796	18.6	96.5	3.5
	A/PI	102,770	100,151	2,619	9.8	97.5	2.5
	AIAN	5,194	4,923	271	0.5	94.8	5.2
	Multi	9,255	8,917	338	0.9	96.3	3.7
Age	00-14	12,132	10,876	1,256	1.0	89.6	11.5
	15-24	12,649	11,320	1,329	1.1	89.5	11.7
	25-34	20,525	18,237	2,288	1.7	88.9	12.5
	35-44	28,724	26,142	2,582	2.5	91.0	9.9
	45-54	66,866	61,061	5,805	5.8	91.3	9.5
	55-64	136,617	126,040	10,577	12.0	92.3	8.4
	65-74	182,635	173,897	8,738	16.6	95.2	5.0
	75-max	589,116	580,956	8,160	55.4	98.6	1.4
Education	Grade 1-8	133,640	127,528	6,112	12.7	95.4	4.6
	Grade 9-12	441,729	428,246	13,483	42.1	96.9	3.1
	1-3 years College	231,736	229,076	2,660	22.1	98.9	1.1
	4 years College	133,893	132,952	941	12.8	99.3	0.7
	5+ years College	81,895	81,507	388	7.8	99.5	0.5
Data quality - Missing	Ethnicity	1,813	177	1,636	0.2	9.8	90.2
	Race	2,193	276	1,917	0.2	12.6	87.4
	Age	258	18	240	0.0	7.0	93.0
	Education	26,629	9,238	17,391	2.5	34.7	65.3
	Any demographic	26,997	9,547	17,450	2.6	35.4	64.6
	Business/industry	51,777	10,802	40,975	4.9	20.9	79.1
	Occupation	42,638	1,663	40,975	4.1	3.9	96.1

CLASSIFY OCCUPATION AND INDUSTRY

Prepare and Send Data to NIOCCS

The next step, shown in Figure 3, involved concatenating the birth and death files, then summarizing the cleaned business and occupation fields. Starting with a total of 9,013,259 records from the birth and death files, we came out of the summary with 1,469,866 records. Preliminary cleaning reduced our volume more than 6-fold.

Figure 3. Prepare data for NIOCCS



Per NIOCCS rules, we output the summary file to comma-delimited text files. We began online processing using the publicly available NIOCCS3 [3]. The first file of 150,000 records took 6 days to process. This would have translated into about two months to convert the summarized list we compiled.

After discussing our situation (including the sheer volume) with officials at the National Institute for Occupational Safety and Health (NIOSH), they offered to let us process these data using NIOCCS4, which is not yet publicly available as of this report. They also gave permission to upload our files to the NIOSH server. We gladly became their guinea pigs!

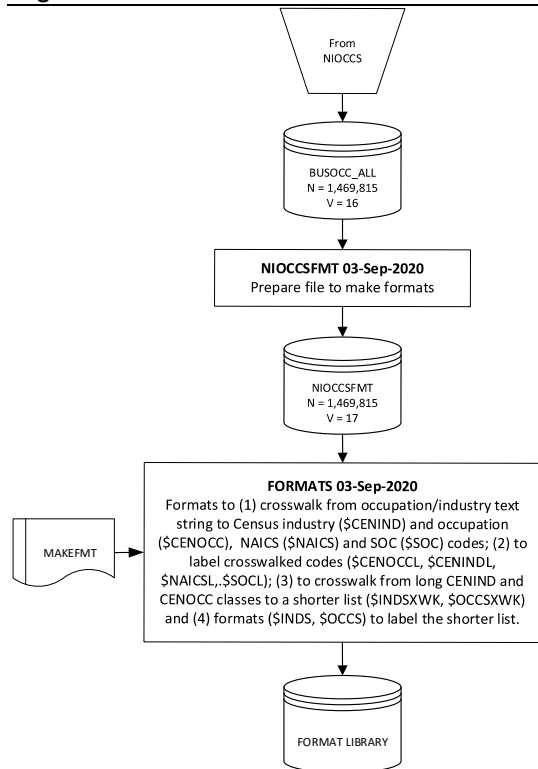
According to NIOSH, NIOCCS4 uses a machine learning algorithm that has proven to be both faster and more efficient. Files that take days in NIOCCS3 take a few hours in NIOCCS4. NIOSH currently uses this version for its own internal projects and plans to make it public near the end of 2020.

Receive NIOCCS Data and Make Formats

After NIOSH returned the coded dataset, we read back it into SAS. Then we used the coded dataset to make the formats, as shown in Figure 4.

To classify occupation and employer, call the macro to clean the strings, make variables to assess data quality after cleaning, concatenate the cleaned strings, make new variables crosswalking the cleaned text strings to formatted numbers, then attach the appropriate formats to the newly created variables. Below is sample code:

Figure 4. Make formats from NIOCCS data



```
* Clean work text strings;
BUSINO = upcase(BUSIN);
OCCUPO = upcase(OCCUP);
%clean_work(inwork = OCCUP);
%clean_work(inwork = BUSIN);
```

```
* Assess data quality;
BUSOK = strip(BUSINO) = strip(BUSIN);
OCCOK = strip(OCCUPO) = strip(OCCUP);
BUSOCCQ = max(of BUSOK OCCOK);
format BUSOK OCCOK BUSOCCQ ny.;
```

```
* Concatenate the cleaned strings;
length BUSOCC $100;
BUSOCC = catx('|*|', BUSIN, OCCUP);
```

```
* Assign the industry and occupation codes;
length CENIND CENOCC $4;
CENIND = put(BUSOCC, $cenind.);
CENOCC = put(BUSOCC, $cenocc.);
format CENIND $cenindl. CENOCC $cenoccl.;
```

```
* Assign the short industry and occupation codes
length INDS OCCS $2;
INDS = put(CENIND, $indsxwk);
OCCS = put(CENOCC, $occsxwk);
Format INDS $inds. OCCS $occs.;
```

```
* Assign the NAICS code;
length NAICS $6;
NAICS = put(BUSOCC, $naics.);
format NAICS $naicsl.;
```

```
* Assign the SOC code;
length SOC $7;
SOC = put(BUSOCC, $SOC.);
format SOC $socl.;
```

```
* then label the variables;
```

Table 3 summarizes the short industry and occupation classification codes for mothers and fathers based on total births. Occupation could not be classified for 303,318 mothers (7.62% of births) and 789,558 fathers (19.83% of births). Industry could not be classified for 308,491 mothers (7.75%) and 788,976 fathers (19.81% of births). The ratio is based on the father's percent divided by mother's.

Table 3. Work classification for mother and father (Total births = 3,981,877)

Category	Description	N in Category		% of Total		Ratio
		Mother	Father	Mother	Father	
Occupation	01 Management	201,871	325,410	5.07	8.17	1.61
	02 Business & Financial Operations	124,681	101,120	3.13	2.54	0.81
	03 Computer & Mathematical	42,128	135,296	1.06	3.40	3.21
	04 Architecture & Engineering	23,157	113,231	0.58	2.84	4.89
	05 Life, Physical, & Social Science	33,512	34,003	0.84	0.85	1.01
	06 Community & Social Services	45,439	26,479	1.14	0.66	0.58
	07 Legal	38,435	32,520	0.97	0.82	0.85
	08 Education, Training, & Library	180,139	62,272	4.52	1.56	0.35
	09 Arts, Design, Entertainment, Sports, & Media	60,795	80,736	1.53	2.03	1.33
	10 Healthcare Practitioners & Technical	210,045	94,321	5.28	2.37	0.45
	11 Healthcare Support	106,420	17,300	2.67	0.43	0.16
	12 Protective Service	18,296	112,469	0.46	2.82	6.15
	13 Food Preparation & Serving Related	114,710	145,174	2.88	3.65	1.27
	14 Building & Grounds Cleaning & Maintenance	36,836	131,166	0.93	3.29	3.56
	15 Personal Care & Service	127,601	50,988	3.20	1.28	0.40
	16 Sales & Related	254,904	266,029	6.40	6.68	1.04
	17 Office & Administrative Support	331,582	152,128	8.33	3.82	0.46
	18 Farming, Fishing, & Forestry	42,588	121,577	1.07	3.05	2.85
	19 Construction & Extraction	3,341	384,517	0.08	9.66	115.1
	20 Installation, Maintenance, & Repair	4,696	155,753	0.12	3.91	33.17
	21 Production	46,877	177,410	1.18	4.46	3.78
	22 Transportation & Material Moving	39,577	303,746	0.99	7.63	7.67
	24 NIOSH NCHS Military	12,968	74,476	0.33	1.87	5.74
	25 NIOSH NCHS Other--Misc(exc Housewife)	451,492	864,149	11.34	21.70	1.91
	25 <i>except missing</i>	148,174	74,591	3.72	1.87	0.50
	25 <i>missing (9900)</i>	303,318	789,558	7.62	19.83	2.60
26 NIOSH NCHS Other--Housewife	1,429,787	19,607	35.91	0.49	0.01	
Industry	01 Agriculture, Forestry, Fishing & Hunting	43,850	138,216	1.10	3.47	3.15
	02 Mining	1,397	17,885	0.04	0.45	12.80
	03 Utilities	8,540	34,447	0.21	0.87	4.03
	04 Construction	20,543	436,460	0.52	10.96	21.25
	05 Manufacturing	101,846	295,736	2.56	7.43	2.90
	06 Wholesale Trade	17,210	49,488	0.43	1.24	2.88
	07 Retail Trade	265,550	287,206	6.67	7.21	1.08
	08 Transportation & Warehousing	48,520	239,865	1.22	6.02	4.94
	09 Information	40,812	86,263	1.02	2.17	2.11
	10 Finance & Insurance	116,787	103,794	2.93	2.61	0.89
	11 Real Estate & Rental & Leasing	38,984	50,123	0.98	1.26	1.29
	12 Professional, Scientific, & Technical Services	207,104	303,944	5.20	7.63	1.47
	13 Management Of Companies & Enterprises	2,258	1,854	0.06	0.05	0.82
	14 Admin & Support, Waste Mgmt & Remed Svcs	44,069	159,005	1.11	3.99	3.61
	15 Education Services	224,815	98,497	5.65	2.47	0.44
	16 Healthcare & Social Assistance	476,201	164,193	11.96	4.12	0.34
	17 Arts, Entertainment, & Recreation	46,507	67,006	1.17	1.68	1.44
	18 Accommodation & Food Services	180,850	190,768	4.54	4.79	1.05
	19 Other Services (Except Public Administration)	124,300	156,421	3.12	3.93	1.26
	20 Public Administration	71,059	140,367	1.78	3.53	1.98
	21 Census Military	195	768	0.00	0.02	3.94
	22 NIOSH NCHS Military	13,725	76,497	0.34	1.92	5.57
	23 NIOSH NCHS Other--Misc, Missing	1,886,755	883,074	47.38	22.18	0.47
23 <i>Except missing</i>	1,578,264	94,098	39.64	2.36	0.06	
23 <i>Missing (9990)</i>	308,491	788,976	7.75	19.81	2.56	

RESOURCES

We have described the methods FHOP used to classify work-related data in the California birth and death master statistical files and to prepare that data for use in longitudinal research. The resulting format library to classify work based on text strings in the California birth and death files is available on our [website](#). We strongly recommend that programmers join FHOP's [SAS User Group](#). All SAS programs described here are in the public domain and are available upon request. Because staff time is limited, researchers will have to contract for more than one hour of support.

ENDNOTES

- 1 Connecting CalWORKs with Home Visiting. May, 2018. Last access 22-Aug-2020 at: <http://www.cdss.ca.gov/inforesources/calworkshomevisitinginitiative>
- 2 North American Industry Classification System (NAICS). Last access 28-Jun-2020 at: <https://www.census.gov/eos/www/naics/>.
- 3 See: <https://wwwn.cdc.gov/nioccs3/>. Last access 28-Jun-2020.
- 4 Collecting and Using Industry and Occupation Data. Last access 22-Aug-2020 at: <https://www.cdc.gov/niosh/topics/coding/code.html>
- 5 See: <https://www.census.gov/topics/employment/industry-occupation/guidance/code-lists.html>. Last access 28-Jun-2020.
- 6 Establishing Legal Parentage. California Child Support Services. Last access 22-Aug-2020 at: <https://childsupport.ca.gov/establishing-legal-parentage/>

County	Total	Work Data		Col %	Row %	
		Yes	No		Yes	No
	7,963,754	7,050,022	913,732	100.0	88.5	11.5
01 Alameda	309,342	270,102	39,240	3.9	87.3	12.7
02 Alpine	92	80	12	0.0	87.0	13.0
03 Amador	4,586	4,223	363	0.1	92.1	7.9
04 Butte	38,924	36,405	2,519	0.5	93.5	6.5
05 Calaveras	5,758	5,226	532	0.1	90.8	9.2
06 Colusa	4,918	4,558	360	0.1	92.7	7.3
07 Contra Costa	196,614	180,554	16,060	2.5	91.8	8.2
08 Del Norte	5,058	4,170	888	0.1	82.4	17.6
09 El Dorado	25,362	24,325	1,037	0.3	95.9	4.1
10 Fresno	249,922	216,855	33,067	3.1	86.8	13.2
11 Glenn	6,282	5,968	314	0.1	95.0	5.0
12 Humboldt	23,646	19,617	4,029	0.3	83.0	17.0
13 Imperial	49,308	40,550	8,758	0.6	82.2	17.8
14 Inyo	3,354	3,055	299	0.0	91.1	8.9
15 Kern	224,850	193,477	31,373	2.8	86.0	14.0
16 Kings	38,126	35,419	2,707	0.5	92.9	7.1
17 Lake	11,808	10,301	1,507	0.1	87.2	12.8
18 Lassen	4,880	3,887	993	0.1	79.7	20.3
19 Los Angeles	2,036,122	1,802,143	233,979	25.6	88.5	11.5
20 Madera	36,842	33,085	3,757	0.5	89.8	10.2
21 Marin	37,126	31,914	5,212	0.5	86.0	14.0
22 Mariposa	2,330	2,132	198	0.0	91.5	8.5
23 Mendocino	16,748	13,647	3,101	0.2	81.5	18.5
24 Merced	67,166	63,323	3,843	0.8	94.3	5.7
25 Modoc	1,400	484	916	0.0	34.6	65.4
26 Mono	2,334	2,264	70	0.0	97.0	3.0
27 Monterey	103,392	98,368	5,024	1.3	95.1	4.9
28 Napa	23,218	21,591	1,627	0.3	93.0	7.0
29 Nevada	12,906	12,183	723	0.2	94.4	5.6
30 Orange	607,034	565,520	41,514	7.6	93.2	6.8
31 Placer	59,606	56,712	2,894	0.7	95.1	4.9
32 Plumas	2,580	2,300	280	0.0	89.1	10.9
33 Riverside	485,710	438,419	47,291	6.1	90.3	9.7
34 Sacramento	314,304	272,695	41,609	3.9	86.8	13.2
35 San Benito	11,778	10,895	883	0.1	92.5	7.5
36 San Bernardino	491,136	442,519	48,617	6.2	90.1	9.9
37 San Diego	698,050	567,033	131,017	8.8	81.2	18.8
38 San Francisco	143,146	131,555	11,591	1.8	91.9	8.1
39 San Joaquin	162,234	147,650	14,584	2.0	91.0	9.0
40 San Luis Obispo	41,980	37,660	4,320	0.5	89.7	10.3

Prepared by: Linda L Remy PhD

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UCSF Family Health Outcomes Project

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County	Total	Work Data		Col %	Row %	
		Yes	No		Yes	No
	7,963,754	7,050,022	913,732	100.0	88.5	11.5
41 San Mateo	143,850	119,263	24,587	1.8	82.9	17.1
42 Santa Barbara	90,988	83,500	7,488	1.1	91.8	8.2
43 Santa Clara	375,038	325,543	49,495	4.7	86.8	13.2
44 Santa Cruz	47,444	43,170	4,274	0.6	91.0	9.0
45 Shasta	33,240	29,663	3,577	0.4	89.2	10.8
46 Sierra	390	368	22	0.0	94.4	5.6
47 Siskiyou	7,350	5,431	1,919	0.1	73.9	26.1
48 Solano	82,598	75,345	7,253	1.0	91.2	8.8
49 Sonoma	80,732	69,258	11,474	1.0	85.8	14.2
50 Stanislaus	122,486	110,060	12,426	1.5	89.9	10.1
51 Sutter	20,958	19,927	1,031	0.3	95.1	4.9
52 Tehama	12,322	11,616	706	0.2	94.3	5.7
53 Trinity	1,808	1,569	239	0.0	86.8	13.2
54 Tulare	122,158	110,727	11,431	1.5	90.6	9.4
55 Tuolumne	7,394	6,844	550	0.1	92.6	7.4
56 Ventura	164,658	144,447	20,211	2.1	87.7	12.3
57 Yolo	38,398	33,695	4,703	0.5	87.8	12.2
58 Yuba	19,378	18,342	1,036	0.2	94.7	5.3
99 Missing	32,592	28,390	4,202	0.4	87.1	12.9

Category	Total	Work Data		Col %	Row %	
		Yes	No		Yes	No
	1,049,522	1,008,547	40,975	100.0	96.1	3.9
01 Alameda	39,228	37,594	1,634	3.7	95.8	4.2
02 Alpine	42	38	4	0.0	90.5	9.5
03 Amador	1,740	1,698	42	0.2	97.6	2.4
04 Butte	9,435	9,209	226	0.9	97.6	2.4
05 Calaveras	1,972	1,938	34	0.2	98.3	1.7
06 Colusa	607	600	7	0.1	98.8	1.2
07 Contra Costa	30,908	30,197	711	2.9	97.7	2.3
08 Del Norte	1,195	1,134	61	0.1	94.9	5.1
09 El Dorado	6,143	5,971	172	0.6	97.2	2.8
10 Fresno	26,891	25,929	962	2.6	96.4	3.6
11 Glenn	1,039	1,017	22	0.1	97.9	2.1
12 Humboldt	5,302	5,074	228	0.5	95.7	4.3
13 Imperial	4,326	4,084	242	0.4	94.4	5.6
14 Inyo	849	800	49	0.1	94.2	5.8
15 Kern	23,757	22,486	1,271	2.3	94.6	5.4
16 Kings	3,331	3,227	104	0.3	96.9	3.1
17 Lake	3,474	3,330	144	0.3	95.9	4.1
18 Lassen	945	856	89	0.1	90.6	9.4
19 Los Angeles	247,842	236,322	11,520	23.6	95.4	4.6
20 Madera	4,294	4,174	120	0.4	97.2	2.8
21 Marin	7,732	7,556	176	0.7	97.7	2.3
22 Mariposa	792	775	17	0.1	97.9	2.1
23 Mendocino	3,452	3,321	131	0.3	96.2	3.8
24 Merced	6,946	6,767	179	0.7	97.4	2.6
25 Modoc	455	415	40	0.0	91.2	8.8
26 Mono	208	188	20	0.0	90.4	9.6
27 Monterey	10,206	9,969	237	1.0	97.7	2.3
28 Napa	4,953	4,876	77	0.5	98.4	1.6
29 Nevada	4,081	3,997	84	0.4	97.9	2.1
30 Orange	77,717	75,619	2,098	7.4	97.3	2.7
31 Placer	12,619	12,379	240	1.2	98.1	1.9
32 Plumas	907	836	71	0.1	92.2	7.8
33 Riverside	64,432	62,415	2,017	6.1	96.9	3.1
34 Sacramento	45,635	43,646	1,989	4.3	95.6	4.4
35 San Benito	1,301	1,283	18	0.1	98.6	1.4
36 San Bernardino	55,143	52,842	2,301	5.3	95.8	4.2
37 San Diego	84,106	80,981	3,125	8.0	96.3	3.7
38 San Francisco	22,852	21,210	1,642	2.2	92.8	7.2
39 San Joaquin	21,761	20,667	1,094	2.1	95.0	5.0
40 San Luis Obispo	9,554	9,365	189	0.9	98.0	2.0

Category	Total	Work Data		Col %	Row %	
		Yes	No		Yes	No
	1,049,522	1,008,547	40,975	100.0	96.1	3.9
41 San Mateo	18,881	18,414	467	1.8	97.5	2.5
42 Santa Barbara	12,514	12,214	300	1.2	97.6	2.4
43 Santa Clara	40,239	38,930	1,309	3.8	96.7	3.3
44 Santa Cruz	6,997	6,807	190	0.7	97.3	2.7
45 Shasta	9,035	8,615	420	0.9	95.4	4.6
46 Sierra	137	126	11	0.0	92.0	8.0
47 Siskiyou	2,336	2,226	110	0.2	95.3	4.7
48 Solano	12,993	12,461	532	1.2	95.9	4.1
49 Sonoma	16,378	15,920	458	1.6	97.2	2.8
50 Stanislaus	16,875	16,310	565	1.6	96.7	3.3
51 Sutter	3,250	3,191	59	0.3	98.2	1.8
52 Tehama	2,512	2,429	83	0.2	96.7	3.3
53 Trinity	634	620	14	0.1	97.8	2.2
54 Tulare	12,043	11,580	463	1.1	96.2	3.8
55 Tuolumne	2,664	2,602	62	0.3	97.7	2.3
56 Ventura	22,705	22,215	490	2.2	97.8	2.2
57 Yolo	5,185	5,006	179	0.5	96.5	3.5
58 Yuba	2,538	2,441	97	0.2	96.2	3.8
99 Missing	13,434	11,655	1,779	1.3	86.8	13.2