

Employer History Roster Creation Programs

- Variable Names in Programs and NLSY79 Data Releases
- Linkjobs79_20
- Endjob20
- Stopdate20_final
- Employers_roster_7920_job
- Employers_roster_20_uid_name_stadate
- Employers_roster_20_id
- Employers_roster_20_others
- Employers_roster_20_stodate_whyleft
- Employers_roster_20_stdate_stweek
- Employers_roster_20_wksnotworked

Variable Names in Programs and NLSY79 Data Releases

(## index reference variables for employers 1-67 in the Employer History Roster)

<u>Variable Name in Program</u>	<u>Variable Name in NLSY79 Data Release</u>
UID_## (1-67)	EMPLOYERS_ALL_UID.## (1-67)
STAD_ORI_## (1-67)	EMPLOYERS_ALL_STARTDATE_ORIGINAL.##~D (1-67)
STAM_ORI_## (1-67)	EMPLOYERS_ALL_STARTDATE_ORIGINAL.##~M (1-67)
STAY_ORI_## (1-67)	EMPLOYERS_ALL_STARTDATE_ORIGINAL.##~Y (1-67)
STOD_FIN_## (1-67)	EMPLOYERS_ALL_STOPDATE_MOST_RECENT.##~D (1-67)
STOM_FIN_## (1-67)	EMPLOYERS_ALL_STOPDATE_MOST_RECENT.##~M (1-67)
STOY_FIN_## (1-67)	EMPLOYERS_ALL_STOPDATE_MOST_RECENT.##~Y (1-67)
REASONLEFT_## (1-67)	EMPLOYERS_ALL_WHYLEFT_MOST_RECENT.## (1-67)
REASONLEFTC_## (1-67)	EMPLOYERS_ALL_WHYLEFT_MOST_RECENT_COL.## (1-67)
ID_2020_## (1-67)	EMPLOYERS_ALL_ID_2020.## (1-67)
STAD_2020_## (1-67)	EMPLOYERS_ALL_STADATE_2020.##~D (1-67)
STAM_2020_## (1-67)	EMPLOYERS_ALL_STADATE_2020.##~M (1-67)
STAY_2020_## (1-67)	EMPLOYERS_ALL_STADATE_2020.##~Y (1-67)
STOD_2020_## (1-67)	EMPLOYERS_ALL_STOPDATE_2020.##~D (1-67)
STOM_2020_## (1-67)	EMPLOYERS_ALL_STOPDATE_2020.##~M (1-67)
STOY_2020_## (1-67)	EMPLOYERS_ALL_STOPDATE_2020.##~Y (1-67)
STAWK_2020_## (1-67)	EMPLOYERS_ALL_STARTWEEK_2020.## (1-67)
STOWK_2020_## (1-67)	EMPLOYERS_ALL_STOPWEEK_2020.## (1-67)
COW_2020_## (1-67)	EMPLOYERS_ALL_COW_2020.## (1-67)
CPSJOB_2020_## (1-67)	EMPLOYERS_ALL_CPSJOB_2020.## (1-67)
CURWK_2020_## (1-67)	EMPLOYERS_ALL_CURWK_2020.## (1-67)
HRP_2020_## (1-67)	EMPLOYERS_ALL_HRLY_WAGE_2020.## (1-67)
HRSDAY_2020_## (1-67)	EMPLOYERS_ALL_HOURSDAY_2020.## (1-67)
HRSWK_2020_## (1-67)	EMPLOYERS_ALL_HOURSWEK_2020.## (1-67)
IND_2020_## (1-67)	EMPLOYERS_ALL_IND_2020.## (1-67)
JOBNUM_A_2020_## (1-67)	EMPLOYERS_ALL_NUM_ARRAY_2020.## (1-67)
MOSLI_2020_## (1-67)	EMPLOYERS_ALL_PRETEN_2020.## (1-67)
OCC_2020_## (1-67)	EMPLOYERS_ALL_OCC_2020.## (1-67)
PREVID_2020_## (1-67)	EMPLOYERS_ALL_PREVID_2020.## (1-67)

RELEFT_2020_## (1-67)	EMPLOYERS_ALL_WHYLEFT_2020.## (1-67)
ROP_2020_## (1-67)	EMPLOYERS_ALL_PAYRATE_2020.## (1-67)
TENURE_2020_## (1-67)	EMPLOYERS_ALL_TENURE_2020.## (1-67)
TUROP_2020_## (1-67)	EMPLOYERS_ALL_TIMERATE_2020.## (1-67)
UNI_2020_## (1-67)	EMPLOYERS_ALL_UNION_2020.## (1-67)
WBEFDI_2020_## (1-67)	EMPLOYERS_ALL_PAST_2020.## (1-67)
UNEM_2020_## (1-67)	EMPLOYERS_ALL_WKSNOTWK_2020.## (1-67)
STAWK_GAP1_2020_## (1-67)	EMPLOYERS_ALL_PERSTAR_2020.##.01 (1-67)
STAWK_GAP2_2020_## (1-67)	EMPLOYERS_ALL_PERSTAR_2020.##.02 (1-67)
STAWK_GAP3_2020_## (1-67)	EMPLOYERS_ALL_PERSTAR_2020.##.03 (1-67)
STAWK_GAP4_2020_## (1-67)	EMPLOYERS_ALL_PERSTAR_2020.##.04 (1-67)
STOWK_GAP1_2020_## (1-67)	EMPLOYERS_ALL_PERSTOP_2020.##.01 (1-67)
STOWK_GAP2_2020_## (1-67)	EMPLOYERS_ALL_PERSTOP_2020.##.02 (1-67)
STOWK_GAP3_2020_## (1-67)	EMPLOYERS_ALL_PERSTOP_2020.##.03 (1-67)
STOWK_GAP4_2020_## (1-67)	EMPLOYERS_ALL_PERSTOP_2020.##.04 (1-67)
REA_GAP1_2020_## (1-67)	EMPLOYERS_ALL_WHYNOWK_2020.##.01 (1-67)
REA_GAP2_2020_## (1-67)	EMPLOYERS_ALL_WHYNOWK_2020.##.02 (1-67)
REA_GAP3_2020_## (1-67)	EMPLOYERS_ALL_WHYNOWK_2020.##.03 (1-67)
REA_GAP4_2020_## (1-67)	EMPLOYERS_ALL_WHYNOWK_2020.##.04 (1-67)
LOOK_GAP1_2020_## (1-67)	EMPLOYERS_ALL_LOOK_2020.##.01 (1-67)
LOOK_GAP2_2020_## (1-67)	EMPLOYERS_ALL_LOOK_2020.##.02 (1-67)
LOOK_GAP3_2020_## (1-67)	EMPLOYERS_ALL_LOOK_2020.##.03 (1-67)
LOOK_GAP4_2020_## (1-67)	EMPLOYERS_ALL_LOOK_2020.##.04 (1-67)
NLOOK_GAP1_2020_## (1-67)	EMPLOYERS_ALL_NOTLOOK_2020.##.01 (1-67)
NLOOK_GAP2_2020_## (1-67)	EMPLOYERS_ALL_NOTLOOK_2020.##.02 (1-67)
NLOOK_GAP3_2020_## (1-67)	EMPLOYERS_ALL_NOTLOOK_2020.##.03 (1-67)
NLOOK_GAP4_2020_## (1-67)	EMPLOYERS_ALL_NOTLOOK_2020.##.04 (1-67)

Linkjobs79_20 Program

```

data aa20; set numflip;
did2020=SYMBOL_CURDATE_D;
dim2020=SYMBOL_CURDATE_M;
diy2020=SYMBOL_CURDATE_Y;
stay20201=EMPLOYER_STARTDATE_01_Y;
stay20202=EMPLOYER_STARTDATE_02_Y;
stay20203=EMPLOYER_STARTDATE_03_Y;
stay20204=EMPLOYER_STARTDATE_04_Y;
stay20205=EMPLOYER_STARTDATE_05_Y;
stay20206=EMPLOYER_STARTDATE_06_Y;
stay20207=EMPLOYER_STARTDATE_07_Y;
stay20208=EMPLOYER_STARTDATE_08_Y;
stay20209=EMPLOYER_STARTDATE_09_Y;
stay202010=EMPLOYER_STARTDATE_10_Y;
stay202011=EMPLOYER_STARTDATE_11_Y;
stay202012=EMPLOYER_STARTDATE_12_Y;
stay202013=EMPLOYER_STARTDATE_13_Y;

array stay (i) stay20201-stay20209 stay202010-stay202013;
array curf (i) EMPLOYER_CURFLAG_01-EMPLOYER_CURFLAG_13;

```

```

array curwk (i) curwk20201-curwk20209 curwk202010-curwk202013;

totemp2020=0;

do i=1 to 13;
  if stay~=. then do;
    totemp2020=totemp2020+1;
    if curf~=. then curwk=curf;
    else if curf=. then curwk=-3;
  end;
  else if stay=. then curwk=-4;
end;

keep norcid did2020 dim2020 diy2020 totemp2020 curwk2020;;

data bb20;
merge aa20 emp18.jobs2018 jobs2016 jobs2014 jobs2012 emp16.jobs2010 emp16.jobs2008
emp16.jobs2006
  emp16.jobs2004 emp16.jobs2002 emp16.jobs2000 emp16.jobs1998 emp16.jobs1996
emp16.jobs1994 emp16.jobs1993
  emp16.jobs1992 emp16.jobs1991 emp16.jobs1990 emp16.jobs1989 emp16.jobs1988
emp16.jobs1987 emp16.jobs1986
  emp16.jobs1985 emp16.jobs1984 emp16.jobs1983 emp16.jobs1982 emp16.jobs1981
emp16.jobs1980; by norcid;

array intyear (*) diy1979 diy1980 diy1981 diy1982 diy1983 diy1984 diy1985 diy1986 diy1987
diy1988 diy1989 diy1990
  diy1991 diy1992 diy1993 diy1994 diy1996 diy1998 diy2000 diy2002 diy2004 diy2006
diy2008 diy2010
  diy2012 diy2014 diy2016 diy2018;
array intrd (*) i1-i28 (1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990
  1991 1992 1993 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018);

if dim2020=. then dim2020=-5;
if did2020=. then did2020=-5;
if diy2020=. then diy2020=-5;

do i=dim(intyear) to 1 by -1;
  if (intyear(i)>0) then do;
    linty=intrd(i);
    leave;
  leave;
  end;
end;

data jobs18_20;

```

```

merge bb20
  emp20.WH_jobstable20(keep=norcid job_num_a2020:)
  wh.previdsr29; by norcid;

array prev  previd2020_1-previd2020_13;
array reset  previd_reset1-previd_reset13;

do over prev;
  prev=reset;
end;

array curwk20  curwk20201-curwk20209 curwk202010-curwk202013;

do over prev;
  if diy2020=-5 then do;
    prev=-5;
    curwk20=-5;
    totemp2020=-5;
  end;
end;

array job2020  (j) job2020_job2020_1-job2020_job2020_13;
array curwk2020  (j) curwk20201-curwk20209 curwk202010-curwk202013;
array jobnum2020  (j) job_num_a2020_1-job_num_a2020_13;

totemp_wh2020=0;

do j=1 to 13;
  if curwk2020=-5 then do;
    job2020=-5;
    totemp_wh2020=-5;
  end;
  else if curwk2020>-4 then job2020=j;
  else job2020=-4;

  if jobnum2020>0 then totemp_wh2020=totemp_wh2020+1;
end;

array previd  (13) previd2020_1-previd2020_13;
array check  (13) check1-check13;

do h=1 to 13;
  do k=1 to 13;
    if h~k then do;
      if previd(h)>0 and previd(h)=previd(k) then check(h)=k;
    end;
  end;
end;

```

```

end;
end;

%macro cc(linty);
%do a=1 %to 19;
%do i=1 %to 13;
if previd2020_&i=&a then do;
if linty=&linty and job&linty._job&linty._&a~=-4 then job&linty._job2020_&i=&a;
if linty=&linty and job&linty._job&linty._&a=-4 then flag_jmatch2020_&i=1;
end;
else if previd2020_&i=-4 then do;
job2018_job2020_&i=-4;
end;
else if previd2020_&i=-5 then do;
job2018_job2020_&i=-5;
flag_jmatch2020_&i=-5;
end;
if job&linty._job2020_&i=. then job&linty._job2020_&i=-4;
if flag_jmatch2020_&i=. then flag_jmatch2020_&i=0;
%end;
%end;
%mend cc;

%macro lint;
%do linty=2018 %to 1994 %by -2;
%cc(&linty);
%end;
%do linty=1993 %to 1979 %by -1;
%cc(&linty);
%end;
%mend lint;

%lint;

data emp20.jobs79_20; set jobs18_20;
%macro cc(a,linty);
%if job&linty._job2020_&a>0 %then %do;
%do yr=1994 %to 1979 %by -1;
%if &linty>&yr %then %do;
%do i=1 %to 14;
%do j=1 %to 14;
if job&linty._job2020_&a=&i and job&yr._job&linty._&i=&j then
job&yr._job2020_&a=&j;
else if job&linty._job2020_&a=-5 then job&yr._job2020_&a=-5;
%end;
%end;
%end;

```

```

    %end;
  %end;
%end;

%do yr=2016 %to 1994 %by -2;
  %if &linty>&yr %then %do;
    %do i=1 %to 14;
      %do j=1 %to 14;
        if job&linty._job2020_&a=&i and job&yr._job&linty._&i=&j then
job&yr._job2020_&a=&j;
        else if job&linty._job2020_&a=-5 then job&yr._job2020_&a=-5;
      %end;
    %end;
  %end;
%end;
%end;
%end;

%mend cc;

%macro job(linty);
  %do a=1 %to 13;
    %cc(&a,&linty);
  %end;
%mend job;

%macro lint;
  %do linty=2018 %to 1994 %by -2;
    %job(&linty);
  %end;
  %do linty=1993 %to 1980 %by -1;
    %job(&linty);
  %end;
%mend lint;

%lint;
run;

data emp20.jobs2020; set emp20.jobs79_20;
keep pubid norcid totemp2020 totemp_wh2020
previd2020:
dim2020 did2020 diy2020
job1979_job2020_1-job1979_job2020_13
job1980_job2020_1-job1980_job2020_13
job1981_job2020_1-job1981_job2020_13
job1982_job2020_1-job1982_job2020_13
job1983_job2020_1-job1983_job2020_13

```

```

job1984_job2020_1-job1984_job2020_13
job1985_job2020_1-job1985_job2020_13
job1986_job2020_1-job1986_job2020_13
job1987_job2020_1-job1987_job2020_13
job1988_job2020_1-job1988_job2020_13
job1989_job2020_1-job1989_job2020_13
job1990_job2020_1-job1990_job2020_13
job1991_job2020_1-job1991_job2020_13
job1992_job2020_1-job1992_job2020_13
job1993_job2020_1-job1993_job2020_13
job1994_job2020_1-job1994_job2020_13
job1996_job2020_1-job1996_job2020_13
job1998_job2020_1-job1998_job2020_13
job2000_job2020_1-job2000_job2020_13
job2002_job2020_1-job2002_job2020_13
job2004_job2020_1-job2004_job2020_13
job2006_job2020_1-job2006_job2020_13
job2008_job2020_1-job2008_job2020_13
job2010_job2020_1-job2010_job2020_13
job2012_job2020_1-job2012_job2020_13
job2014_job2020_1-job2014_job2020_13
job2016_job2020_1-job2016_job2020_13
job2018_job2020_1-job2018_job2020_13
job2020_job2020_1-job2020_job2020_13;
run;

```

```

data startjob2020; set emp20.jobs79_20;
if diy2000>0 then diy2000=2000;
if diy2002>0 then diy2002=2002;
if diy2004>0 then diy2004=2004;
if diy2006>0 then diy2006=2006;
if diy2008>0 then diy2008=2008;
if diy2010>0 then diy2010=2010;
if diy2012>0 then diy2012=2012;
if diy2014>0 then diy2014=2014;
if diy2016>0 then diy2016=2016;
if diy2018>0 then diy2018=2018;
if diy2020>0 then diy2020=2020;

```

```

%macro cc(a);
%do j=1994 %to 1979 %by -1;
if (job&j._job2020_&a >0 and job&j._job2020_&a <=9) and diy&j>0 then do;
staj1_job2020_&a=put(diy&j,4.)||'0'||put(job&j._job2020_&a,1.);
end;
else if job&j._job2020_&a >=10 and diy&j>0 then do;
staj1_job2020_&a=put(diy&j,4.)||put(job&j._job2020_&a,2.);

```

```

    end;
%end;
%do j=2020 %to 1996 %by -2;
    if (job&j._job2020_&a >0 and job&j._job2020_&a <=9) and diy&j>0 then do;
        staj2_job2020_&a=put(diy&j,4.)||'0'||put(job&j._job2020_&a,1.);
    end;
    else if job&j._job2020_&a >=10 and diy&j>0 then do;
        staj2_job2020_&a=put(diy&j,4.)||put(job&j._job2020_&a,2.);
    end;
%end;
%mend cc;

%macro job;
    %do a=1 %to 13;
        %cc(&a);
    %end;
%mend job;

%job;

%macro dd(b);
    %do i=2 %to 1 %by -1;
        if staj&i._job2020_&b ~=' ' then do;
            staj_job2020_&b=staj&i._job2020_&b;
        end;
    %end;
%mend dd;

%macro jb;
    %do b=1 %to 13;
        %dd(&b);
    %end;
%mend jb;

%jb;

array staj_job2020 (k) staj_job2020_1-staj_job2020_13;
array job2020 (k) job2020_job2020_1-job2020_job2020_13;

do k=1 to 13;
    if staj_job2020=. and job2020=-5 then staj_job2020=-5;
    else if staj_job2020=. then staj_job2020=-4;
end;

array staj2020 (*) staj_job2020_1-staj_job2020_13;

```



```

do i=1 to 13;
  do j=1 to 13;
    if i~=j then do;
      if staj2020(i)>0 and staj2020(i)=staj2020(j) then check=1;
    end;
  end;
end;
run;

```

Endjob20 Program

```

data alljobs;
merge emp20.jobs2020 emp18.jobs2018 emp16u.jobs2016 emp16u.jobs2014 emp16u.jobs2012
      emp16u.jobs2010 emp16u.jobs2008 emp16u.jobs2006 emp16u.jobs2004
emp16u.jobs2002 emp16u.jobs2000
      emp16u.jobs1998 emp16u.jobs1996 emp16u.jobs1994 emp16u.jobs1993
emp16u.jobs1992 emp16u.jobs1991 emp16u.jobs1990
      emp16u.jobs1989 emp16u.jobs1988 emp16u.jobs1987 emp16u.jobs1986
emp16u.jobs1985 emp16u.jobs1984 emp16u.jobs1983
      emp16u.jobs1982 emp16u.jobs1981 emp16u.jobs1980; by norcid;

```

```

data emp20.previd_edited7920; set alljobs;
keep norcid previd;;
run;

```

```

data emp20.di7920; set alljobs;
keep norcid dim: did: diy;;

```

```

data emp20.bwlink7920; set alljobs;
keep norcid job;;

```

```

data fwlink7920; merge emp20.bwlink7920 emp20.di7920; by norcid;
%macro id(yra,yrb);
  %do j=1 %to 19;
    %do i=1 %to 13;
      if job&yra._job&yrb._&j=&i then job&yrb._job&yra._&i=&j;
      else if job&yra._job&yrb._&j=-4 and job&yrb._job&yra._&i=. then
job&yrb._job&yra._&i=-4;
      else if diy&yrb=-5 or diy&yra=-5 then job&yrb._job&yra._&i=-5;
    %end;
  %end;
%mend id;

```

```

%macro rd(yrb);
  %do yra = 1979 %to 1994;

```

```
    %id(&yra,&yrb);  
%end;  
%do yra = 1996 %to 2020 %by 2;  
    %id(&yra,&yrb);  
%end;  
%mend rd;
```

```
%macro rds;  
    %do yrb = 1979 %to 1994;  
        %rd(&yrb);  
    %end;  
    %do yrb = 1996 %to 2020 %by 2;  
        %rd(&yrb);  
    %end;  
%mend rds;
```

```
%rds;  
run;
```

```
data emp20.fwlink7920; set fwlink7920;
```

```
keep norcid  
job1979_job1979_1-job1979_job1979_5  
job1980_job1980_1-job1980_job1980_5  
job1981_job1981_1-job1981_job1981_5  
job1982_job1982_1-job1982_job1982_5  
job1983_job1983_1-job1983_job1983_5  
job1984_job1984_1-job1984_job1984_5  
job1985_job1985_1-job1985_job1985_5  
job1986_job1986_1-job1986_job1986_5  
job1987_job1987_1-job1987_job1987_5  
job1988_job1988_1-job1988_job1988_5  
job1989_job1989_1-job1989_job1989_5  
job1990_job1990_1-job1990_job1990_5  
job1991_job1991_1-job1991_job1991_5  
job1992_job1992_1-job1992_job1992_5  
job1993_job1993_1-job1993_job1993_5  
job1994_job1994_1-job1994_job1994_5  
job1996_job1996_1-job1996_job1996_5  
job1998_job1998_1-job1998_job1998_12  
job2000_job2000_1-job2000_job2000_10  
job2002_job2002_1-job2002_job2002_9  
job2004_job2004_1-job2004_job2004_12  
job2006_job2006_1-job2006_job2006_11  
job2008_job2008_1-job2008_job2008_11  
job2010_job2010_1-job2010_job2010_9
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job2012_job2012_1-job2012_job2012_9
job2014_job2014_1-job2014_job2014_14
job2016_job2016_1-job2016_job2016_8
job2018_job2018_1-job2018_job2018_19
job2020_job2020_1-job2020_job2020_13

job1980_job1979_1-job1980_job1979_5
job1981_job1979_1-job1981_job1979_5
job1982_job1979_1-job1982_job1979_5
job1983_job1979_1-job1983_job1979_5
job1984_job1979_1-job1984_job1979_5
job1985_job1979_1-job1985_job1979_5
job1986_job1979_1-job1986_job1979_5
job1987_job1979_1-job1987_job1979_5
job1988_job1979_1-job1988_job1979_5
job1989_job1979_1-job1989_job1979_5
job1990_job1979_1-job1990_job1979_5
job1991_job1979_1-job1991_job1979_5
job1992_job1979_1-job1992_job1979_5
job1993_job1979_1-job1993_job1979_5
job1994_job1979_1-job1994_job1979_5
job1996_job1979_1-job1996_job1979_5
job1998_job1979_1-job1998_job1979_5
job2000_job1979_1-job2000_job1979_5
job2002_job1979_1-job2002_job1979_5
job2004_job1979_1-job2004_job1979_5
job2006_job1979_1-job2006_job1979_5
job2008_job1979_1-job2008_job1979_5
job2010_job1979_1-job2010_job1979_5
job2012_job1979_1-job2012_job1979_5
job2014_job1979_1-job2014_job1979_5
job2016_job1979_1-job2016_job1979_5
job2018_job1979_1-job2018_job1979_5
job2020_job1979_1-job2020_job1979_5

job1981_job1980_1-job1981_job1980_5
job1982_job1980_1-job1982_job1980_5
job1983_job1980_1-job1983_job1980_5
job1984_job1980_1-job1984_job1980_5
job1985_job1980_1-job1985_job1980_5
job1986_job1980_1-job1986_job1980_5
job1987_job1980_1-job1987_job1980_5
job1988_job1980_1-job1988_job1980_5
job1989_job1980_1-job1989_job1980_5
job1990_job1980_1-job1990_job1980_5
job1991_job1980_1-job1991_job1980_5

job1992_job1980_1-job1992_job1980_5
job1993_job1980_1-job1993_job1980_5
job1994_job1980_1-job1994_job1980_5
job1996_job1980_1-job1996_job1980_5
job1998_job1980_1-job1998_job1980_5
job2000_job1980_1-job2000_job1980_5
job2002_job1980_1-job2002_job1980_5
job2004_job1980_1-job2004_job1980_5
job2006_job1980_1-job2006_job1980_5
job2008_job1980_1-job2008_job1980_5
job2010_job1980_1-job2010_job1980_5
job2012_job1980_1-job2012_job1980_5
job2014_job1980_1-job2014_job1980_5
job2016_job1980_1-job2016_job1980_5
job2018_job1980_1-job2018_job1980_5
job2020_job1980_1-job2020_job1980_5

job1982_job1981_1-job1982_job1981_5
job1983_job1981_1-job1983_job1981_5
job1984_job1981_1-job1984_job1981_5
job1985_job1981_1-job1985_job1981_5
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job2020_job1996_1-job2020_job1996_5

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job2002_job1998_1-job2002_job1998_12
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job2016_job1998_1-job2016_job1998_12
job2018_job1998_1-job2018_job1998_12
job2020_job1998_1-job2020_job1998_12

job2002_job2000_1-job2002_job2000_10
job2004_job2000_1-job2004_job2000_10
job2006_job2000_1-job2006_job2000_10
job2008_job2000_1-job2008_job2000_10
job2010_job2000_1-job2010_job2000_10
job2012_job2000_1-job2012_job2000_10
job2014_job2000_1-job2014_job2000_10
job2016_job2000_1-job2016_job2000_10
job2018_job2000_1-job2018_job2000_10
job2020_job2000_1-job2020_job2000_10

job2004_job2002_1-job2004_job2002_9
job2006_job2002_1-job2006_job2002_9
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job2012_job2002_1-job2012_job2002_9
job2014_job2002_1-job2014_job2002_9
job2016_job2002_1-job2016_job2002_9
job2018_job2002_1-job2018_job2002_9
job2020_job2002_1-job2020_job2002_9

job2006_job2004_1-job2006_job2004_12
job2008_job2004_1-job2008_job2004_12
job2010_job2004_1-job2010_job2004_12
job2012_job2004_1-job2012_job2004_12
job2014_job2004_1-job2014_job2004_12
job2016_job2004_1-job2016_job2004_12
job2018_job2004_1-job2018_job2004_12
job2020_job2004_1-job2020_job2004_12

job2008_job2006_1-job2008_job2006_11
job2010_job2006_1-job2010_job2006_11
job2012_job2006_1-job2012_job2006_11
job2014_job2006_1-job2014_job2006_11
job2016_job2006_1-job2016_job2006_11
job2018_job2006_1-job2018_job2006_11
job2020_job2006_1-job2020_job2006_11

job2010_job2008_1-job2010_job2008_11

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job2012_job2008_1-job2012_job2008_11
job2014_job2008_1-job2014_job2008_11
job2016_job2008_1-job2016_job2008_11
job2018_job2008_1-job2018_job2008_11
job2020_job2008_1-job2020_job2008_11
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job2012_job2010_1-job2012_job2010_9
job2014_job2010_1-job2014_job2010_9
job2016_job2010_1-job2016_job2010_9
job2018_job2010_1-job2018_job2010_9
job2020_job2010_1-job2020_job2010_9
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job2014_job2012_1-job2014_job2012_9
job2016_job2012_1-job2016_job2012_9
job2018_job2012_1-job2018_job2012_9
job2020_job2012_1-job2020_job2012_9
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job2016_job2014_1-job2016_job2014_14
job2018_job2014_1-job2018_job2014_14
job2020_job2014_1-job2020_job2014_14
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job2018_job2016_1-job2018_job2016_8
job2020_job2016_1-job2020_job2016_8
```

```
job2020_job2018_1-job2020_job2018_19
;
run;
```

```
data endjob7920;
merge emp20.fwlink7920 emp20.di7920; by norcid;
```

```
if diy2000>0 then diy2000=2000;
if diy2002>0 then diy2002=2002;
if diy2004>0 then diy2004=2004;
if diy2006>0 then diy2006=2006;
if diy2008>0 then diy2008=2008;
if diy2010>0 then diy2010=2010;
if diy2012>0 then diy2012=2012;
if diy2014>0 then diy2014=2014;
if diy2016>0 then diy2016=2016;
if diy2018>0 then diy2018=2018;
if diy2020>0 then diy2020=2020;
```

```
%macro dd(a,yrb);
    %do j=1979 %to 1994 %by 1;
        if &j>=&yrb then do;
```

```

        if (job&j._job&yrb._&a>=1 and job&j._job&yrb._&a<=9) and diy&j>0
then do;
            endj1_job&yrb._&a=put(&j,4.)||'0'||put(job&j._job&yrb._&a,1.);
        end;
        else if job&j._job&yrb._&a>=10 and diy&j>0 then do;
            endj1_job&yrb._&a=put(&j,4.)||put(job&j._job&yrb._&a,2.);
        end;
    end;
end;
%end;
%do j=1996 %to 2020 %by 2;
    if &j>=&yrb then do;
        if (job&j._job&yrb._&a>=1 and job&j._job&yrb._&a<=9) and diy&j>0
then do;
            endj2_job&yrb._&a=put(&j,4.)||'0'||put(job&j._job&yrb._&a,1.);
        end;
        else if job&j._job&yrb._&a>=10 and diy&j>0 then do;
            endj2_job&yrb._&a=put(&j,4.)||put(job&j._job&yrb._&a,2.);
        end;
    end;
end;
%end;
%mend dd;

%macro job(yrb);
    %do a=1 %to 19;
        %dd(&a,&yrb);
    %end;
%mend job;

%macro rds;
    %do yrb = 1979 %to 1994;
        %job(&yrb);
    %end;
    %do yrb = 1996 %to 2020 %by 2;
        %job(&yrb);
    %end;
%mend rds;

%rds;

%macro ee(b,yrc);
    %do i=1 %to 2 %by 1;
        if endj&i._job&yrc._&b ~=' ' then do;
            endj_job&yrc._&b=endj&i._job&yrc._&b;
        end;
    %end;
%end;

```

```

%mend ee;

%macro jb(yrc);
    %do b=1 %to 19;
        %ee(&b,&yrc);
    %end;
%mend jb;

%macro rd;
    %do yrc = 1979 %to 1994;
        %jb(&yrc);
    %end;
    %do yrc = 1996 %to 2020 %by 2;
        %jb(&yrc);
    %end;
%mend rd;

%rd;
run;

data emp20.endjob7920; set endjob7920;
keep norcid
endj_job1979_1-endj_job1979_5
endj_job1980_1-endj_job1980_5
endj_job1981_1-endj_job1981_5
endj_job1982_1-endj_job1982_5
endj_job1983_1-endj_job1983_5
endj_job1984_1-endj_job1984_5
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endj_job1985_1-endj_job1985_5
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endj_job1988_1-endj_job1988_5
endj_job1989_1-endj_job1989_5
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endj_job1993_1-endj_job1993_5
endj_job1994_1-endj_job1994_5
endj_job1996_1-endj_job1996_5
endj_job1998_1-endj_job1998_12
endj_job2000_1-endj_job2000_10
endj_job2002_1-endj_job2002_9
endj_job2004_1-endj_job2004_12
endj_job2006_1-endj_job2006_11
endj_job2008_1-endj_job2008_11
endj_job2010_1-endj_job2010_9

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endj_job2012_1-endj_job2012_9
endj_job2014_1-endj_job2014_14
endj_job2016_1-endj_job2016_8
endj_job2018_1-endj_job2018_19
endj_job2020_1-endj_job2020_13
;
run;
```

Stopdate20_final Program

```
data stopdate20_final;
merge emp20.stopdate20 emp20.endjob7920; by norcid;

%macro id(a,yra,yrb);
    %do i=1 %to 9;
        if endj_job&yra._&a=put((&yrb.0&i),6.) then do;
            stod_final&yra._&a=stod&yrb._&i;
            stom_final&yra._&a=stom&yrb._&i;
            stoy_final&yra._&a=stoy&yrb._&i;
        end;
    %end;
    %do i=10 %to 13;
        if endj_job&yra._&a=put((&yrb&i),6.) then do;
            stod_final&yra._&a=stod&yrb._&i;
            stom_final&yra._&a=stom&yrb._&i;
            stoy_final&yra._&a=stoy&yrb._&i;
        end;
    %end;
%mend id;

%macro jb(yra,yrb);
    %do a=1 %to 19;
        %id(&a,&yra,&yrb);
    %end;
%mend jb;

%macro rd(yrb);
    %do yra = 1979 %to 1994;
        %jb(&yra,&yrb);
    %end;
    %do yra = 1996 %to 2020 %by 2;
        %jb(&yra,&yrb);
    %end;
%mend rd;
```

```
%macro rds;
  %do yrb = 2020 %to 2020;
    %rd(&yrb);
  %end;
%mend rds;
```

```
%rds;
run;
```

Employers_roster_7920_job Program

```
data startjob7920a;
merge emp16u.startjob1980 emp16u.startjob1981 emp16u.startjob1982 emp16u.startjob1983
emp16u.startjob1984 emp16u.startjob1985 emp16u.startjob1986 emp16u.startjob1987
emp16u.startjob1988 emp16u.startjob1989 emp16u.startjob1990 emp16u.startjob1991
emp16u.startjob1992 emp16u.startjob1993 emp16u.startjob1994 emp16u.startjob1996
emp16u.startjob1998 emp16u.startjob2000 emp16u.startjob2002 emp16u.startjob2004
emp16u.startjob2006 emp16u.startjob2008 emp16u.startjob2010 emp16u.startjob2012
emp16u.startjob2014 emp16u.startjob2016 emp18.startjob2018 emp20.startjob2020; by norcid;
run;
```

```
data ori_job7920b;set startjob7920a;
length job1-job222 $6.;
array staj (222) staj_job1979_1-staj_job1979_5 staj_job1980_1-staj_job1980_5
staj_job1981_1-staj_job1981_5 staj_job1982_1-staj_job1982_5
staj_job1983_1-staj_job1983_5 staj_job1984_1-staj_job1984_5
staj_job1985_1-staj_job1985_5 staj_job1986_1-staj_job1986_5
staj_job1987_1-staj_job1987_5 staj_job1988_1-staj_job1988_5
staj_job1989_1-staj_job1989_5 staj_job1990_1-staj_job1990_5
staj_job1991_1-staj_job1991_5 staj_job1992_1-staj_job1992_5
staj_job1993_1-staj_job1993_5 staj_job1994_1-staj_job1994_5
staj_job1996_1-staj_job1996_5 staj_job1998_1-staj_job1998_12
staj_job2000_1-staj_job2000_10 staj_job2002_1-staj_job2002_9
staj_job2004_1-staj_job2004_12 staj_job2006_1-staj_job2006_11
staj_job2008_1-staj_job2008_11 staj_job2010_1-staj_job2010_9
staj_job2012_1-staj_job2012_9 staj_job2014_1-staj_job2014_14
staj_job2016_1-staj_job2016_8 staj_job2018_1-staj_job2018_19
staj_job2020_1-staj_job2020_13;
```

```
do i=1 to 222;
  do j=1 to 222;
    if i~=j then do;
      if staj(i)=-4|staj(i)=-5 then staj(i)=' ';
```



```

                else if staj(j)=-4| staj(j)=-5 then staj(j)=' ';
                else if staj(j)=staj(i) then staj(j)=' ';
            end;
        end;
    end;

end;

array job      (*)      job1-job222;

count=0;
do i=1 to 222;
    if staj(i)~=' ' then do;
        count=count+1;
        j=count;
        job(j)=staj(i);
    end;
end;

keep norcid job1-job67;

proc freq;table job;;
run;

proc transpose data=ori_job7920b name=qname out=ori_job7920c (rename=(COL1=jobcode));
by norcid;
var job;;

data ori_job7920d; set ori_job7920c;
if jobcode=' ' then delete;
drop qname;

proc sort data=ori_job7920d; by norcid jobcode;
run;

data a;
merge emp16u.startdate7916 emp16u.stopdate7916 emp18.startdate18 emp18.stopdate18
      emp16u.others9816_oracle (keep=norcid stadj: stamp: stajp:)
      emp18.others18 (keep=norcid stadj: stamp: stajp:)
      emp20.others20 (keep=norcid stadj: stamp: stajp:); by norcid;

length jobcode $6.;

array stad      (j)      stad1979_1-stad1979_5 stad1980_1-stad1980_5 stad1981_1-stad1981_5
                    stad1982_1-stad1982_5 stad1983_1-stad1983_5 stad1984_1-stad1984_5
                    stad1985_1-stad1985_5 stad1986_1-stad1986_5 stad1987_1-stad1987_5
                    stad1988_1-stad1988_5 stad1989_1-stad1989_5 stad1990_1-stad1990_5

```

stad1991_1-stad1991_5 stad1992_1-stad1992_5 stad1993_1-stad1993_5
stad1994_1-stad1994_5 stad1996_1-stad1996_5 stad1998_1-stad1998_12
stad2000_1-stad2000_10 stad2002_1-stad2002_9 stad2004_1-
stad2004_12
stad2006_1-stad2006_11 stad2008_1-stad2008_11 stad2010_1-
stad2010_9
stad2012_1-stad2012_9 stad2014_1-stad2014_14 stad2016_1-stad2016_8
stad2018_1-stad2018_19 stad2020_1-stad2020_13;

array stam (j) stam1979_1-stam1979_5 stam1980_1-stam1980_5 stam1981_1-stam1981_5
stam1982_1-stam1982_5 stam1983_1-stam1983_5 stam1984_1-stam1984_5
stam1985_1-stam1985_5 stam1986_1-stam1986_5 stam1987_1-stam1987_5
stam1988_1-stam1988_5 stam1989_1-stam1989_5 stam1990_1-stam1990_5
stam1991_1-stam1991_5 stam1992_1-stam1992_5 stam1993_1-stam1993_5
stam1994_1-stam1994_5 stam1996_1-stam1996_5 stam1998_1-stam1998_12
stam2000_1-stam2000_10 stad2002_1-stam2002_9 stam2004_1-stam2004_12
stam2006_1-stam2006_11 stad2008_1-stam2008_11 stad2010_1-stam2010_9
stam2012_1-stam2012_9 stad2014_1-stam2014_14 stad2016_1-stam2016_8
stam2018_1-stam2018_19 stad2020_1-stam2020_13;

array stay (j) stay1979_1-stay1979_5 stay1980_1-stay1980_5 stay1981_1-stay1981_5
stay1982_1-stay1982_5 stay1983_1-stay1983_5 stay1984_1-stay1984_5
stay1985_1-stay1985_5 stay1986_1-stay1986_5 stay1987_1-stay1987_5
stay1988_1-stay1988_5 stay1989_1-stay1989_5 stay1990_1-stay1990_5
stay1991_1-stay1991_5 stay1992_1-stay1992_5 stay1993_1-stay1993_5
stay1994_1-stay1994_5 stay1996_1-stay1996_5 stay1998_1-stay1998_12
stay2000_1-stay2000_10 stay2002_1-stay2002_9 stay2004_1-stay2004_12
stay2006_1-stay2006_11 stay2008_1-stay2008_11 stay2010_1-stay2010_9
stay2012_1-stay2012_9 stay2014_1-stay2014_14 stay2016_1-stay2016_8
stay2018_1-stay2018_19 stay2020_1-stay2020_13;

array stod (j) stod1979_1-stod1979_5 stod1980_1-stod1980_5 stod1981_1-stod1981_5
stod1982_1-stod1982_5 stod1983_1-stod1983_5 stod1984_1-stod1984_5
stod1985_1-stod1985_5 stod1986_1-stod1986_5 stod1987_1-stod1987_5
stod1988_1-stod1988_5 stod1989_1-stod1989_5 stod1990_1-stod1990_5
stod1991_1-stod1991_5 stod1992_1-stod1992_5 stod1993_1-stod1993_5
stod1994_1-stod1994_5 stod1996_1-stod1996_5 stod1998_1-stod1998_12
stod2000_1-stod2000_10 stod2002_1-stod2002_9 stod2004_1-stod2004_12
stod2006_1-stod2006_11 stod2008_1-stod2008_11 stod2010_1-stod2010_9
stod2012_1-stod2012_9 stod2014_1-stod2014_14 stod2016_1-stod2016_8
stod2018_1-stod2018_19 stod2020_1-stod2020_13;

array stom (j) stom1979_1-stom1979_5 stom1980_1-stom1980_5 stom1981_1-stom1981_5
stom1982_1-stom1982_5 stom1983_1-stom1983_5 stom1984_1-stom1984_5
stom1985_1-stom1985_5 stom1986_1-stom1986_5 stom1987_1-stom1987_5
stom1988_1-stom1988_5 stom1989_1-stom1989_5 stom1990_1-stom1990_5
stom1991_1-stom1991_5 stom1992_1-stom1992_5 stom1993_1-stom1993_5
stom1994_1-stom1994_5 stom1996_1-stom1996_5 stom1998_1-stom1998_12
stom2000_1-stom2000_10 stom2002_1-stom2002_9 stom2004_1-stom2004_12
stom2006_1-stom2006_11 stom2008_1-stom2008_11 stom2010_1-stom2010_9

stom2012_1-stom2012_9 stom2014_1-stom2014_14 stom2016_1-stom2016_8
stom2018_1-stom2018_19 stom2020_1-stom2020_13;
array stoy (j) stoy1979_1-stoy1979_5 stoy1980_1-stoy1980_5 stoy1981_1-stoy1981_5
stoy1982_1-stoy1982_5 stoy1983_1-stoy1983_5 stoy1984_1-stoy1984_5

stoy1985_1-stoy1985_5 stoy1986_1-stoy1986_5 stoy1987_1-stoy1987_5
stoy1988_1-stoy1988_5 stoy1989_1-stoy1989_5 stoy1990_1-stoy1990_5

stoy1991_1-stoy1991_5 stoy1992_1-stoy1992_5 stoy1993_1-stoy1993_5
stoy1994_1-stoy1994_5 stoy1996_1-stoy1996_5 stoy1998_1-stoy1998_12
stoy2000_1-stoy2000_10 stoy2002_1-stoy2002_9 stoy2004_1-stoy2004_12
stoy2006_1-stoy2006_11 stoy2008_1-stoy2008_11 stoy2010_1-stoy2010_9
stoy2012_1-stoy2012_9 stoy2014_1-stoy2014_14 stoy2016_1-stoy2016_8
stoy2018_1-stoy2018_19 stoy2020_1-stoy2020_13;

array stadp1 (j) stadp1_1979_1-stadp1_1979_5 stadp1_1980_1-stadp1_1980_5
stadp1_1981_1-stadp1_1981_5 stadp1_1982_1-stadp1_1982_5 stadp1_1983_1-stadp1_1983_5
stadp1_1984_1-stadp1_1984_5 stadp1_1985_1-stadp1_1985_5 stadp1_1986_1-stadp1_1986_5
stadp1_1987_1-stadp1_1987_5 stadp1_1988_1-stadp1_1988_5 stadp1_1989_1-stadp1_1989_5
stadp1_1990_1-stadp1_1990_5 stadp1_1991_1-stadp1_1991_5 stadp1_1992_1-stadp1_1992_5
stadp1_1993_1-stadp1_1993_5 stadp1_1994_1-stadp1_1994_5 stadp1_1996_1-stadp1_1996_5
stadp1_1998_1-stadp1_1998_12 stadp1_2000_1-stadp1_2000_10
stadp1_2002_1-stadp1_2002_9 stadp1_2004_1-stadp1_2004_12
stadp1_2006_1-stadp1_2006_11
stadp1_2008_1-stadp1_2008_11 stadp1_2010_1-stadp1_2010_9
stadp1_2012_1-stadp1_2012_9 stadp1_2014_1-stadp1_2014_14 stadp1_2016_1-stadp1_2016_8
stadp1_2018_1-stadp1_2018_19 stadp1_2020_1-stadp1_2020_13;

array stamp1 (j) stamp1_1979_1-stamp1_1979_5 stamp1_1980_1-stamp1_1980_5
stamp1_1981_1-stamp1_1981_5 stamp1_1982_1-stamp1_1982_5
stamp1_1983_1-stamp1_1983_5 stamp1_1984_1-stamp1_1984_5
stamp1_1985_1-stamp1_1985_5 stamp1_1986_1-stamp1_1986_5
stamp1_1987_1-stamp1_1987_5 stamp1_1988_1-stamp1_1988_5
stamp1_1989_1-stamp1_1989_5 stamp1_1990_1-stamp1_1990_5
stamp1_1991_1-stamp1_1991_5 stamp1_1992_1-stamp1_1992_5
stamp1_1993_1-stamp1_1993_5 stamp1_1994_1-stamp1_1994_5
stamp1_1996_1-stamp1_1996_5 stamp1_1998_1-stamp1_1998_12
stamp1_2000_1-stamp1_2000_10 stamp1_2002_1-stamp1_2002_9
stamp1_2004_1-stamp1_2004_12 stamp1_2006_1-stamp1_2006_11
stamp1_2008_1-stamp1_2008_11 stamp1_2010_1-stamp1_2010_9
stamp1_2012_1-stamp1_2012_9 stamp1_2014_1-stamp1_2014_14
stamp1_2016_1-stamp1_2016_8 stamp1_2018_1-stamp1_2018_19
stamp1_2020_1-stamp1_2020_13;

array stayp1 (j) stayp1_1979_1-stayp1_1979_5 stayp1_1980_1-stayp1_1980_5
stayp1_1981_1-stayp1_1981_5 stayp1_1982_1-stayp1_1982_5
stayp1_1983_1-stayp1_1983_5 stayp1_1984_1-stayp1_1984_5 stayp1_1985_1-stayp1_1985_5
stayp1_1986_1-stayp1_1986_5 stayp1_1987_1-stayp1_1987_5 stayp1_1988_1-stayp1_1988_5

stayp1_1989_1-stayp1_1989_5 stayp1_1990_1-stayp1_1990_5 stayp1_1991_1-stayp1_1991_5
stayp1_1992_1-stayp1_1992_5 stayp1_1993_1-stayp1_1993_5 stayp1_1994_1-stayp1_1994_5
stayp1_1996_1-stayp1_1996_5 stayp1_1998_1-stayp1_1998_12
stayp1_2000_1-stayp1_2000_10 stayp1_2002_1-stayp1_2002_9
stayp1_2004_1-stayp1_2004_12 stayp1_2006_1-stayp1_2006_11
stayp1_2008_1-stayp1_2008_11 stayp1_2010_1-stayp1_2010_9
stayp1_2012_1-stayp1_2012_9 stayp1_2014_1-stayp1_2014_14 stayp1_2016_1-stayp1_2016_8
stayp1_2018_1-stayp1_2018_19 stayp1_2020_1-stayp1_2020_13;

array code (j) \$ a1-a222

('197901' '197902' '197903' '197904' '197905'
'198001' '198002' '198003' '198004' '198005'
'198101' '198102' '198103' '198104' '198105'
'198201' '198202' '198203' '198204' '198205'
'198301' '198302' '198303' '198304' '198305'
'198401' '198402' '198403' '198404' '198405'
'198501' '198502' '198503' '198504' '198505'
'198601' '198602' '198603' '198604' '198605'
'198701' '198702' '198703' '198704' '198705'
'198801' '198802' '198803' '198804' '198805'
'198901' '198902' '198903' '198904' '198905'
'199001' '199002' '199003' '199004' '199005'
'199101' '199102' '199103' '199104' '199105'
'199201' '199202' '199203' '199204' '199205'
'199301' '199302' '199303' '199304' '199305'
'199401' '199402' '199403' '199404' '199405'
'199601' '199602' '199603' '199604' '199605'
'199801' '199802' '199803' '199804' '199805' '199806' '199807' '199808' '199809' '199810'
'199811' '199812'
'200001' '200002' '200003' '200004' '200005' '200006' '200007' '200008' '200009' '200010'
'200201' '200202' '200203' '200204' '200205' '200206' '200207' '200208' '200209'
'200401' '200402' '200403' '200404' '200405' '200406' '200407' '200408' '200409' '200410'
'200411' '200412'
'200601' '200602' '200603' '200604' '200605' '200606' '200607' '200608' '200609' '200610'
'200611'
'200801' '200802' '200803' '200804' '200805' '200806' '200807' '200808' '200809' '200810'
'200811'
'201001' '201002' '201003' '201004' '201005' '201006' '201007' '201008' '201009'
'201201' '201202' '201203' '201204' '201205' '201206' '201207' '201208' '201209'
'201401' '201402' '201403' '201404' '201405' '201406' '201407' '201408' '201409' '201410'
'201411' '201412' '201413' '201414'
'201601' '201602' '201603' '201604' '201605' '201606' '201607' '201608'
'201801' '201802' '201803' '201804' '201805' '201806' '201807' '201808' '201809' '201810'
'201811' '201812' '201813' '201814' '201815' '201816' '201817' '201818' '201819'
'202001' '202002' '202003' '202004' '202005' '202006' '202007' '202008' '202009' '202010'
'202011' '202012' '202013');

```

do over stay;
    sta_d=stad;
    sta_m=stam;
    sta_y=stay;
    sto_d=stod;
    sto_m=stom;
    sto_y=stoy;
    gapsta_d=stadp1;
    gapsta_m=stamp1;
    gapsta_y=stayp1;

    jobcode=code;
    output;
end;
keep norcid sta_d sta_m sta_y sto_d sto_m sto_y gapsta_d gapsta_m gapsta_y jobcode;
run;

data b; set a;
year=substr(jobcode,1,4);
run;

data c; merge emp20.di7920 emp20.dli7920; by norcid;
length year $4.;

array dido (k) did1979 did1980 did1981 did1982 did1983 did1984 did1985 did1986 did1987
did1988 did1989 did1990 did1991 did1992 did1993 did1994 did1996 did1998 did2000 did2002
did2004 did2006 did2008 did2010 did2012 did2014 did2016 did2018 did2020;

array dimo (k) dim1979 dim1980 dim1981 dim1982 dim1983 dim1984 dim1985 dim1986
dim1987 dim1988 dim1989 dim1990 dim1991 dim1992 dim1993 dim1994 dim1996 dim1998
dim2000 dim2002 dim2004 dim2006 dim2008 dim2010 dim2012 dim2014 dim2016 dim2018
dim2020;

array diyo (k) diy1979 diy1980 diy1981 diy1982 diy1983 diy1984 diy1985 diy1986 diy1987
diy1988 diy1989 diy1990 diy1991 diy1992 diy1993 diy1994 diy1996 diy1998 diy2000 diy2002
diy2004 diy2006 diy2008 diy2010 diy2012 diy2014 diy2016 diy2018 diy2020;

array dlido (k) dlid1979 dlid1980 dlid1981 dlid1982 dlid1983 dlid1984 dlid1985 dlid1986
dlid1987 dlid1988 dlid1989 dlid1990 dlid1991 dlid1992 dlid1993 dlid1994 dlid1996 dlid1998
dlid2000 dlid2002 dlid2004 dlid2006 dlid2008 dlid2010 dlid2012 dlid2014 dlid2016 dlid2018
dlid2020;

array dlimo (k) dlim1979 dlim1980 dlim1981 dlim1982 dlim1983 dlim1984 dlim1985 dlim1986
dlim1987 dlim1988 dlim1989 dlim1990 dlim1991 dlim1992 dlim1993 dlim1994 dlim1996
dlim1998 dlim2000 dlim2002 dlim2004 dlim2006 dlim2008 dlim2010 dlim2012 dlim2014
dlim2016 dlim2018 dlim2020;

```

```

array dliyo (k) dliy1979 dliy1980 dliy1981 dliy1982 dliy1983 dliy1984 dliy1985 dliy1986
dliy1987 dliy1988 dliy1989 dliy1990 dliy1991 dliy1992 dliy1993 dliy1994 dliy1996 dliy1998
dliy2000 dliy2002 dliy2004 dliy2006 dliy2008 dliy2010 dliy2012 dliy2014 dliy2016 dliy2018
dliy2020;
array code (k) $ a1-a29 ('1979' '1980' '1981' '1982' '1983' '1984' '1985' '1986' '1987' '1988'
'1989' '1990' '1991' '1992' '1993' '1994' '1996' '1998' '2000' '2002'
'2004' '2006' '2008' '2010' '2012' '2014' '2016' '2018' '2020');

do over dido;
    dim=dimo;
    did=dido;
    diy=diyo;
    dlim=dlimo;
    dlid=dlido;
    dliy=dliyo;

    year=code;
    output;
end;

keep norcid dim did diy dlim dlid dliy year;

proc sort data=b; by norcid year;
proc sort data=c; by norcid year;

data d; merge b c; by norcid year;

proc contents data=ori_job7920d;

data e; merge ori_job7920d(in=ori) d; by norcid jobcode; if ori;
run;

data f; set e;

if sta_y=0 or sta_y=1900 then do;
    sta_d=-3;
    sta_m=-3;
    sta_y=-3;
end;

lintdate=mdy(dlim, dlid, dliy);
startdate=mdy(sta_m, sta_d, sta_y);
gapdate=mdy(gapsta_m, gapsta_d, gapsta_y);
stopdate=mdy(sto_m, sto_d, sto_y);
intdate=mdy(dim, did, diy);

```

```

if (sta_d<0 and sta_m>0 and sta_y>0) then do;
    sta_d1=1;
    sta_m1=sta_m;
    sta_y1=sta_y;
end;

else if (sta_d<0 and sta_m<0 and sta_y>0) then do;
    sta_d1=1;
    sta_m1=1;
    sta_y1=sta_y;
end;

else if (sta_d>0 and sta_m<0 and sta_y>0) then do;
    if stopdate>0 and sta_y<sto_y and sta_y>dliy then do;
        sta_m1=1;
        sta_d1=sta_d;
        sta_y1=sta_y;
    end;
    else if stopdate>0 and sta_y<sto_y and sta_y=dliy then do;
        sta_m1=dlim+3;
        sta_d1=sta_d;
        sta_y1=sta_y;
    end;
    else if stopdate>0 and sta_y=sto_y and sta_y>=dliy then do;
        sta_m1=sto_m-1;
        sta_d1=sta_d;
        sta_y1=sta_y;
    end;
end;

else if stopdate=. and sto_y>0 and dliy<sto_y then do;
    sta_m1=1;
    sta_d1=sta_d;
    sta_y1=sta_y;
end;
end;

else if (sta_y<0) then do;
    if gapsta_y>0 then do;
        if gapsta_d<0 and gapsta_m<0 then do;
            sta_d1=1;
            sta_m1=8;
            sta_y1=2004;
        end;
        else if gapsta_d<0 and gapsta_m>0 then do;

```

```

        gapsta_d=1;
        a=((mday(gapsta_m, gapsta_d, gapsta_y))-(lintdate))/2;
        b=lintdate+a;
        sta_d1=day(b);
        sta_m1=month(b);
        sta_y1=year(b);
    end;
else if gapsta_d>0 and gapsta_m>0 then do;;
    if year=1979 then do;
        sta_d1=gapsta_d;
        sta_m1=gapsta_m;
        sta_y1=gapsta_y;
    end;
    else if year~=1979 then do;
        a=(gapdate-lintdate)/2;
        b=lintdate+a;
        sta_d1=day(b);
        sta_m1=month(b);
        sta_y1=year(b);
    end;
end;
end;
else if gapsta_y<0 then do;
    if year=1979 then do;
        b=intdate-180;
        sta_d1=day(b);
        sta_m1=month(b);
        sta_y1=year(b);
    end;
    else if stopdate<lintdate and stopdate~=. then do;
        b=stopdate-90;
        sta_d1=day(b);
        sta_m1=month(b);
        sta_y1=year(b);
    end;
    else if stopdate<intdate and stopdate~=. then do;
        a=(stopdate-lintdate)/2;
        b=lintdate+a;
        sta_d1=day(b);
        sta_m1=month(b);
        sta_y1=year(b);
    end;
    else if stopdate=intdate or stopdate=. then do;
        a=(intdate-lintdate)/2;
        b=lintdate+a;
        sta_d1=day(b);

```



```

                sta_m1=month(b);
                sta_y1=year(b);
            end;
        end;
    end;
else do;
    sta_d1=sta_d;
    sta_m1=sta_m;
    sta_y1=sta_y;
end;

if sta_y1<0 then do;
    c=intdate-365;
    sta_d1=day(c);
    sta_m1=month(c);
    sta_y1=year(c);
end;

startdate1=mdy(sta_m1, sta_d1, sta_y1);

if diy>=2014 then do;
    if startdate1<lintdate then do;
        sta_m1=dlim;
        sta_d1=dliid+1;
        sta_y1=dliy;
    end;
end;

proc sort; by norcid sta_y1 sta_m1 sta_d1;

proc transpose data=f out=emp7920_job (drop=_name_) prefix=job;
by norcid;
var jobcode;

proc sort;by norcid;

```

Employers_roster_20_uid_name_stadate Program

```

data one;
merge emp20.emp7920_job emp20.empnames7920 emp20.startdate20; by norcid;

%macro id(a,yra);
%do i=1 %to 9;
    if job&a=put((&yra.0&i),6.) then do;
        unique_id_&a=put((&yra.0&i),6.)||'00';
    end;
%end;

```

```

if empname&yra._&i~=' ' then empname_&a=empname&yra._&i;
else if empname&yra._&i=' ' then empname_&a='MISSING NAME';

if (stad&yra._&i~=-4|stam&yra._&i~=-4|stay&yra._&i~=-4) then do;
  stad_ori_&a=stad&yra._&i;
  stam_ori_&a=stam&yra._&i;
  stay_ori_&a=stay&yra._&i;
end;
else if (stad&yra._&i=-4 and stam&yra._&i=-4 and stay&yra._&i=-4) then do;
  stad_ori_&a=-3;
  stam_ori_&a=-3;
  stay_ori_&a=-3;
end;
end;
%end;
%do i=10 %to 13;
if job&a=put((&yra&i),6.) then do;
  unique_id_&a=put((&yra&i),6.)||'00';

if empname&yra._&i~=' ' then empname_&a=empname&yra._&i;
else if empname&yra._&i=' ' then empname_&a='MISSING NAME';

if (stad&yra._&i~=-4|stam&yra._&i~=-4|stay&yra._&i~=-4) then do;
  stad_ori_&a=stad&yra._&i;
  stam_ori_&a=stam&yra._&i;
  stay_ori_&a=stay&yra._&i;
end;
else if (stad&yra._&i=-4 and stam&yra._&i=-4 and stay&yra._&i=-4) then do;
  stad_ori_&a=-3;
  stam_ori_&a=-3;
  stay_ori_&a=-3;
end;
end;
%end;
%mend id;

%macro jb(yra);
  %do a=1 %to 67;
    %id(&a,&yra);
  %end;
%mend jb;

%macro rds;
  %do yra = 2020 %to 2020;
    %jb(&yra);
  %end;

```

```

%mend rds;

%rds;
run;

data emp20.Emp20_uid_name_stadate; set one;

array unique_id (i) unique_id_1-unique_id_67;
array uid (i) uid_1-uid_67;

do i=1 to 67;
  uid =input(unique_id,comma9.);
end;

run;

```

Employers_roster_20_id Program

```

data emp1; merge emp20.emp7920_job emp20.fwlink7920; by norcid;

data a2020; set emp1;

%macro id(yra);
  %do a=1 %to 67;
    %do i=1 %to 9;
      if job&a=put((&yra.0&i),6.) and job2020_job&yra._&i>0 then
id_2020_&a=job2020_job&yra._&i;
      else if job&a=put((&yra.0&i),6.) and job2020_job&yra._&i=-5 then id_2020_&a=-5;
    %end;
    %do i=10 %to 19;
      if job&a=put((&yra&i),6.) and job2020_job&yra._&i>0 then
id_2020_&a=job2020_job&yra._&i;
      else if job&a=put((&yra&i),6.) and job2020_job&yra._&i=-5 then id_2020_&a=-5;
    %end;
  %end;
%mend id;

%macro rd;
  %do yra = 1979 %to 1994;
    %id(&yra);
  %end;
  %do yra = 1996 %to 2020 %by 2;
    %id(&yra);
  %end;
%mend rd;

```

```
%rd;  
run;
```

Employers_roster_20_others Program

```
data emp20_others1;  
merge emp20.others20 (keep= norcid occ: ind: cow: mosli: wbefdi: releft: uni: cpsemp: rop: tu:  
hrp: hrsday: hrswk: curwk: previd:)  
emp20.WH_jobstable20 (keep=norcid tu: hrp: ten: job_num_a:); by norcid;
```

```
data emp20_others2; merge emp20_others1 emp20.emp20_id; by norcid;
```

```
%macro att(yrb,b);  
%do l=1 %to 13;  
if id_&yrb._&b=&l then do;  
if cpsemp&yrb._&l=-4 and cpsemp&yrb._&l= . then cpsjob_&yrb._&b=cpsemp&yrb._&l;  
else if cpsemp&yrb._&l=-4|cpsemp&yrb._&l= . then cpsjob_&yrb._&b=-4;  
  
if occ&yrb._&l=-4 and occ&yrb._&l= . then occ_&yrb._&b=occ&yrb._&l;  
else if occ&yrb._&l=-4|occ&yrb._&l= . then occ_&yrb._&b=-4;  
  
if ind&yrb._&l=-4 and ind&yrb._&l= . then ind_&yrb._&b=ind&yrb._&l;  
else if ind&yrb._&l=-4|ind&yrb._&l= . then ind_&yrb._&b=-4;  
  
if cow&yrb._&l=-4 and cow&yrb._&l= . then cow_&yrb._&b=cow&yrb._&l;  
else if cow&yrb._&l=-4|cow&yrb._&l= . then cow_&yrb._&b=-4;  
  
if rop&yrb._&l=-4 and rop&yrb._&l= . then rop_&yrb._&b=rop&yrb._&l;  
else if rop&yrb._&l=-4|rop&yrb._&l= . then rop_&yrb._&b=-4;  
  
if tu&yrb._&l=-4 and tu&yrb._&l= . then turop_&yrb._&b=tu&yrb._&l;  
else if tu&yrb._&l=-4|tu&yrb._&l= . then turop_&yrb._&b=-4;  
  
if hrp&yrb._&l=-4 and hrp&yrb._&l= . then hrp_&yrb._&b=hrp&yrb._&l;  
else if hrp&yrb._&l=-4|hrp&yrb._&l= . then hrp_&yrb._&b=-4;  
  
if uni&yrb._&l=-4 and uni&yrb._&l= . then uni_&yrb._&b=uni&yrb._&l;  
else if uni&yrb._&l=-4|uni&yrb._&l= . then uni_&yrb._&b=-4;  
  
if hrsday&yrb._&l=-4 and hrsday&yrb._&l= . then hrsday_&yrb._&b=hrsday&yrb._&l;  
else if hrsday&yrb._&l=-4|hrsday&yrb._&l= . then hrsday_&yrb._&b=-4;  
  
if hrswk&yrb._&l=-4 and hrswk&yrb._&l= . then hrswk_&yrb._&b=hrswk&yrb._&l;  
else if hrswk&yrb._&l=-4|hrswk&yrb._&l= . then hrswk_&yrb._&b=-4;
```

if mosli&yrb._&l~-=-4 and mosli&yrb._&l~=. then mosli_&yrb._&b=mosli&yrb._&l;
else if mosli&yrb._&l=-4|mosli&yrb._&l=. then mosli_&yrb._&b=-4;

if ten&yrb._&l~-=-4 and ten&yrb._&l~=. then tenure_&yrb._&b=ten&yrb._&l;
else if ten&yrb._&l=-4|ten&yrb._&l=. then tenure_&yrb._&b=-4;

if (wbefdi&yrb._&l~-=-4 and wbefdi&yrb._&l~=.) then wbefdi_&yrb._&b=wbefdi&yrb._&l;
if (wbefdi&yrb._&l=-4|wbefdi&yrb._&l=.) then wbefdi_&yrb._&b=-4;

if (previd&yrb._&l~-=-4 and previd&yrb._&l~=.) then previd_&yrb._&b=previd&yrb._&l;
if (previd&yrb._&l=-4|previd&yrb._&l=.) then previd_&yrb._&b=-4;

if job_num_a&yrb._&l~-=-4 and job_num_a&yrb._&l~=. then
jobnum_a_&yrb._&b=job_num_a&yrb._&l;
else if job_num_a&yrb._&l=-4|job_num_a&yrb._&l=. then jobnum_a_&yrb._&b=-4;

if curwk&yrb._&l~-=-4 and curwk&yrb._&l~=. then curwk_&yrb._&b=curwk&yrb._&l;
else if curwk&yrb._&l=-4|curwk&yrb._&l=. then curwk_&yrb._&b=-4;

if (curwk&yrb._&l>=-3 and curwk&yrb._&l<=0) and (releft&yrb._&l~-=-4 and
releft&yrb._&l~=.) then releft_&yrb._&b=releft&yrb._&l;

else if (curwk&yrb._&l>=-3 and curwk&yrb._&l<0) and (releft&yrb._&l=-
4|releft&yrb._&l=.) then releft_&yrb._&b=-4;

else if curwk&yrb._&l=0 and (releft&yrb._&l=-4|releft&yrb._&l=.)
then releft_&yrb._&b=-3;

else if curwk&yrb._&l=-4 and (releft&yrb._&l=-4|releft&yrb._&l=.)
then releft_&yrb._&b=-4;

else if curwk&yrb._&l=1 then releft_&yrb._&b=-4;
end;

else if id_&yrb._&b=-5 then do;

cpsjob_&yrb._&b=-5;

occ_&yrb._&b=-5;

ind_&yrb._&b=-5;

cow_&yrb._&b=-5;

rop_&yrb._&b=-5;

turop_&yrb._&b=-5;

hrp_&yrb._&b=-5;

uni_&yrb._&b=-5;

hrsday_&yrb._&b=-5;

hrswk_&yrb._&b=-5;

mosli_&yrb._&b=-5;

tenure_&yrb._&b=-5;

wbefdi_&yrb._&b=-5;

previd_&yrb._&b=-5;

jobnum_a_&yrb._&b=-5;

```

    curwk_&yrb._&b=-5;
    releft_&yrb._&b=-5;
end;
%end;
%mend att;

```

```

%macro rd(b);
    %do yrb = 2020 %to 2020;
        %att(&yrb,&b);
    %end;
%mend rd;

```

```

%macro job;
    %do b=1 %to 67;
        %rd(&b);
    %end;
%mend job;

```

```

%job;

```

Employers_roster_20_stodate_whyleft Program

```

data two;
merge emp20.endjob7920 emp20.others20 (keep=norcid whyleft_recode: curwk:); by norcid;

```

```

%macro id(a,yra,yrb);
    %do i=1 %to 9;
        if endj_job&yra._&a=put((&yrb.0&i),6.) then do;
            if curwk&yrb._&i>=-3 & curwk&yrb._&i<=0 then do;
                reasonleft&yra._&a=whyleft_recode&yrb._&i;
                reasonleftC&yra._&a=whyleft_recodeC&yrb._&i;
            end;
            else if (curwk&yrb._&i>=-3 & curwk&yrb._&i<0) & (whyleft_recode&yrb._&i=.) then do;
                reasonleft&yra._&a=-4;
                reasonleftC&yra._&a=-4;
            end;
            else if curwk&yrb._&i=0 & (whyleft_recode&yrb._&i=.) then do;
                reasonleft&yra._&a=-3;
                reasonleftC&yra._&a=-3;
            end;
        end;
    %end;
    %do i=10 %to 13;
        if endj_job&yra._&a=put((&yrb&i),6.) then do;
            if curwk&yrb._&i>=-3 & curwk&yrb._&i<=0 then do;

```

```

    reasonleft&yra._&a=whyleft_recode&yrb._&i;
    reasonleftC&yra._&a=whyleft_recodeC&yrb._&i;
end;
else if (curwk&yrb._&i>=-3 & curwk&yrb._&i<0) & (whyleft_recode&yrb._&i=.) then do;
    reasonleft&yra._&a=-4;
    reasonleftC&yra._&a=-4;
end;
else if curwk&yrb._&i=0 & (whyleft_recode&yrb._&i=.) then do;
    reasonleft&yra._&a=-3;
    reasonleftC&yra._&a=-3;
end;
end;
%end;
%mend id;

%macro jb(yra,yrb);
    %do a=1 %to 19;
        %id(&a,&yra,&yrb);
    %end;
%mend jb;

%macro rd(yrb);
    %do yra = 1979 %to 1994;
        %jb(&yra,&yrb);
    %end;
    %do yra = 1996 %to 2020 %by 2;
        %jb(&yra,&yrb);
    %end;
%mend rd;

%macro rds;
    %do yrb = 2020 %to 2020;
        %rd(&yrb);
    %end;
%mend rds;

%rds;

run;

data three; merge two emp20.emp7920_job emp20.stopdate20_final; by norcid;

%macro id(a,yra);
    %do i=1 %to 9;
        if job&a=put((&yra.0&i),6.) then do;
            if (stod_final&yra._&i~=-4|stom_final&yra._&i~=-4|stoy_final&yra._&i~=-4) then do;

```

```

    stod_fin_&a=stod_final&yra._&i;
    stom_fin_&a=stom_final&yra._&i;
    stoy_fin_&a=stoy_final&yra._&i;
end;
else if (stod_final&yra._&i=-4 and stom_final&yra._&i=-4 and stoy_final&yra._&i=-4) then
do;
    stod_fin_&a=-3;
    stom_fin_&a=-3;
    stoy_fin_&a=-3;
end;

    reasonleft_&a=reasonleft&yra._&i;
    reasonleftC_&a=reasonleftC&yra._&i;
end;
%end;
%do i=10 %to 13;
if job&a=put((&yra&i),6.) then do;
    if (stod_final&yra._&i~=-4|stom_final&yra._&i~=-4|stoy_final&yra._&i~=-4) then do;
        stod_fin_&a=stod_final&yra._&i;
        stom_fin_&a=stom_final&yra._&i;
        stoy_fin_&a=stoy_final&yra._&i;
    end;
    else if (stod_final&yra._&i=-4 and stom_final&yra._&i=-4 and stoy_final&yra._&i=-4) then
do;
        stod_fin_&a=-3;
        stom_fin_&a=-3;
        stoy_fin_&a=-3;
    end;

    reasonleft_&a=reasonleft&yra._&i;
    reasonleftC_&a=reasonleftC&yra._&i;
end;
%end;
%mend id;

%macro jb(yra);
    %do a=1 %to 67;
        %id(&a,&yra);
    %end;
%mend jb;

%macro rds;
    %do yra = 1979 %to 1994;
        %jb(&yra);
    %end;
    %do yra = 1996 %to 2020 %by 2;

```



```

        %jb(&yra);
    %end;
%mend rds;

%rds;
run;

```

Employers_roster_20_stddate_stweek Program

```

data emp20_stddate_stweek;
merge emp20.emp20_id
      emp20.startdate20
      emp20.stopdate20
      emp20.Wh_jobstable20 (keep=norcid stawk: stowk:);by norcid;

%macro att(yrb,b);
  %do l=1 %to 13;
    if id_&yrb._&b=&l then do;
      if stad_&yrb._&l~=-4 then stad_&yrb._&b=stad_&yrb._&l;
      else if stad_&yrb._&l=-4 then stad_&yrb._&b=-3;

      if stam_&yrb._&l~=-4 then stam_&yrb._&b=stam_&yrb._&l;
      else if stam_&yrb._&l=-4 then stam_&yrb._&b=-3;

      if stay_&yrb._&l~=-4 then stay_&yrb._&b=stay_&yrb._&l;
      else if stay_&yrb._&l=-4 then stay_&yrb._&b=-3;

      if stod_&yrb._&l~=-4 then stod_&yrb._&b=stod_&yrb._&l;
      else if stod_&yrb._&l=-4 then stod_&yrb._&b=-3;

      if stom_&yrb._&l~=-4 then stom_&yrb._&b=stom_&yrb._&l;
      else if stom_&yrb._&l=-4 then stom_&yrb._&b=-3;

      if stoy_&yrb._&l~=-4 then stoy_&yrb._&b=stoy_&yrb._&l;
      else if stoy_&yrb._&l=-4 then stoy_&yrb._&b=-3;

      if stawk_&yrb._&l~=-4 then stawk_&yrb._&b=stawk_&yrb._&l;
      else if stawk_&yrb._&l=-4 then stawk_&yrb._&b=-3;

      if stowk_&yrb._&l~=-4 then stowk_&yrb._&b=stowk_&yrb._&l;
      else if stowk_&yrb._&l=-4 then stowk_&yrb._&b=-3;
    end;
  else if id_&yrb._&b=-5 then do;
    stad_&yrb._&b=-5;
    stam_&yrb._&b=-5;
  end;
%end;

```

```

        stay_&yrb._&b=-5;
        stod_&yrb._&b=-5;
        stom_&yrb._&b=-5;
        stoy_&yrb._&b=-5;
        stawk_&yrb._&b=-5;
        stowk_&yrb._&b=-5;
    end;
%end;
%mend att;

%macro rd(b);
    %do yrb = 2020 %to 2020;
        %att(&yrb,&b);
    %end;
%mend rd;

%macro job;
    %do b=1 %to 67;
        %rd(&b);
    %end;
%mend job;

%job;
run;

```

Employers_roster_20_wksnotworked Program

```

data emp20_wksnotworked1;
merge emp20.others20 (keep=norcid reap: lookp: nlook: unemsdli:)
    emp20.wh_jobstable20 (keep=norcid stawkgap: stowkgap:)
    emp20.emp20_id; by norcid;

run;

data emp20_wksnotworked2;set emp20_wksnotworked1;

%macro att(b);
    %do l=1 %to 19;
        %do k=1 %to 4;
            if id_2020_&b=&l and unemsdli2020_&l=1 then do;
                unem_2020_&b=1;

                if stawkgap&k._2020_&l~=-4 and stawkgap&k._2020_&l~=. then
                    stawk_gap&k._2020_&b=stawkgap&k._2020_&l;
            end;
        end;
    %end;
%mend att;

```

```
    else if stawkgap&k._2020_&l=-4|stawkgap&k._2020_&l=. then stawk_gap&k._2020_&b=-3;
```

```
    if stowkgap&k._2020_&l~=-4 and stowkgap&k._2020_&l~=. then stowk_gap&k._2020_&b=stawkgap&k._2020_&l;
```

```
    else if stowkgap&k._2020_&l=-4|stawkgap&k._2020_&l=. then stowk_gap&k._2020_&b=-3;
```

```
    if reap&k._2020_&l~=-4 and reap&k._2020_&l~=. then rea_gap&k._2020_&b=reap&k._2020_&l;
```

```
    else if reap&k._2020_&l=-4|reap&k._2020_&l=. then rea_gap&k._2020_&b=-3;
```

```
    if lookp&k._2020_&l~=-4 and lookp&k._2020_&l~=. then look_gap&k._2020_&b=lookp&k._2020_&l;
```

```
    if nlookp&k._2020_&l~=-4 and nlookp&k._2020_&l~=. then nlook_gap&k._2020_&b=nlookp&k._2020_&l;
```

```
    end;
```

```
    %end;
```

```
    %end;
```

```
%mend att;
```

```
%macro job;
```

```
    %do b=1 %to 67;
```

```
        %att(&b);
```

```
    %end;
```

```
%mend job;
```

```
%job;
```

```
run;
```