

```
/* Program making what-if-scenarios and the decomposition */
```

```
LIBNAME sftmappe '$INNVBRN/wk48/ny2019/sft';
LIBNAME alder '$INNVBRN/wk48/ny2019/alder';
LIBNAME wk '$INNVBRN/wk48/ny2019';
LIBNAME innvbrn '$INNVBRN/wk48/ny2019';
LIBNAME mfm '$INNVBRN/wk48/ny2019/mfm';
```

```
%LET startar = 2000;
%LET sluttar = 2017;
```

```
/* making pooled data sets */
```

```
DATA asfrsamle;
SET alder.asfrgruppe111 alder.asfrgruppe112 alder.asfrgruppe113
alder.asfrgruppe114 alder.asfrgruppe121 alder.asfrgruppe122
alder.asfrgruppe123 alder.asfrgruppe124 alder.asfrgruppe131
alder.asfrgruppe132 alder.asfrgruppe133 alder.asfrgruppe134
alder.asfrgruppe141 alder.asfrgruppe142 alder.asfrgruppe143
alder.asfrgruppe144 alder.asfrgruppe151 alder.asfrgruppe152
alder.asfrgruppe153 alder.asfrgruppe154 alder.asfrgruppe161
alder.asfrgruppe162 alder.asfrgruppe163 alder.asfrgruppe164
alder.asfrgruppe171 alder.asfrgruppe172 alder.asfrgruppe173
alder.asfrgruppe174 alder.asfrgruppe181 alder.asfrgruppe182
alder.asfrgruppe183 alder.asfrgruppe184;
RUN;
```

```
DATA asfr1; SET asfrsamle; WHERE aldgr='1'; RUN;
DATA asfr2; SET asfrsamle; WHERE aldgr='2'; RUN;
DATA asfr3; SET asfrsamle; WHERE aldgr='3'; RUN;
DATA asfr4; SET asfrsamle; WHERE aldgr='4'; RUN;
DATA asfr5; SET asfrsamle; WHERE aldgr='5'; RUN;
DATA asfr6; SET asfrsamle; WHERE aldgr='6'; RUN;
DATA asfr7; SET asfrsamle; WHERE aldgr='7'; RUN;
```

```
DATA kvinnersamle;
SET mfm.mfmgruppe111 mfm.mfmgruppe112 mfm.mfmgruppe113 mfm.mfmgruppe114
mfm.mfmgruppe121 mfm.mfmgruppe122 mfm.mfmgruppe123 mfm.mfmgruppe124
mfm.mfmgruppe131 mfm.mfmgruppe132 mfm.mfmgruppe133 mfm.mfmgruppe134
mfm.mfmgruppe141 mfm.mfmgruppe142 mfm.mfmgruppe143 mfm.mfmgruppe144
mfm.mfmgruppe151 mfm.mfmgruppe152 mfm.mfmgruppe153 mfm.mfmgruppe154
mfm.mfmgruppe161 mfm.mfmgruppe162 mfm.mfmgruppe163 mfm.mfmgruppe164
mfm.mfmgruppe171 mfm.mfmgruppe172 mfm.mfmgruppe173 mfm.mfmgruppe174
mfm.mfmgruppe181 mfm.mfmgruppe182 mfm.mfmgruppe183 mfm.mfmgruppe184;
RUN;
```

```
DATA kvinne1; SET kvinnersamle; WHERE aldgr='1'; RUN;
DATA kvinne2; SET kvinnersamle; WHERE aldgr='2'; RUN;
DATA kvinne3; SET kvinnersamle; WHERE aldgr='3'; RUN;
DATA kvinne4; SET kvinnersamle; WHERE aldgr='4'; RUN;
DATA kvinne5; SET kvinnersamle; WHERE aldgr='5'; RUN;
DATA kvinne6; SET kvinnersamle; WHERE aldgr='6'; RUN;
DATA kvinne7; SET kvinnersamle; WHERE aldgr='7'; RUN;
```

```

/* WHAT-IF SCENARIOS, FIRST ONLY CHANGED FERTILITY, CONSTANT COMP. */
/* NB: If composition is changed, do also change where marked below */

```

```

%MACRO whatif;

```

```

%DO ar=&startar. %TO &sluttar.;

```

```

    %DO alder = 1 %TO 7;

```

```

    DATA nyebarn&alder.;

```

```

    MERGE wk.gruppenr asfr&alder. kvinner&alder.;

```

```

        /* To be used to change fertility only for sub groups */

```

```

        nyebarn&ar.=rate2000*mfm2000/5;

```

```

        IF gruppe=111 or gruppe=121 or gruppe=131 or gruppe=181

```

```

/* IF gruppe=141 or gruppe=151 or gruppe=161 or gruppe=171 */
    THEN

```

```

        nyebarn&ar.=rate&ar.*mfm2000/5;

```

```

        /* To be used for changing composition and constant fert */

```

```

        /* NB! Remember to also change two places below */

```

```

        * nyebarn&ar.=rate2000*mfm&ar./5;

```

```

        /* To let everything change like it actually did

```

```

        nyebarn&ar.=rate&ar.*mfm&ar./5;*/

```

```

        /* Calculate #births and #women, and then the new TFR*/

```

```

        PROC MEANS DATA=nyebarn&alder. noprint;

```

```

        VAR nyebarn&ar. MFM2000; /*NB: Change to MFM&ar. if composition
is allowed to change!*/

```

```

        OUTPUT OUT = sumkvbarn&alder. (drop= _type_ _freq_)

```

```

sum(nyebarn&ar.)=sumbarn sum(MFM2000)=sumkv; /* Also here! */

```

```

        DATA nyasfr&ar.&alder. (KEEP=nyasfr&alder. sumbarn&alder.);

```

```

        SET sumkvbarn&alder.;

```

```

        nyasfr&alder.=(sumbarn/sumkv)*5;

```

```

        sumbarn&alder.=sumbarn;

```

```

        RUN;

```

```

        %END;

```

```

DATA nysft&ar. (KEEP=nysft&ar.);

```

```

MERGE nyasfr&ar.1-nyasfr&ar.7;

```

```

nysft&ar. = SUM (OF nyasfr1-nyasfr7);

```

```

RUN;

```

```

DATA fodte&ar. (KEEP= nybarn&ar.);

```

```

MERGE nyasfr&ar.1-nyasfr&ar.7;

```

```

nybarn&ar. = SUM (OF sumbarn1-sumbarn7);

```

```

RUN;

```

```

%END;

```

```
/* Collect the new TFR in a time series*/  
DATA nysfttidserie;  
MERGE nysft&startar. - nysft&sluttar.;  
RUN;
```

```
DATA nyebarntidsserie;  
MERGE fodte&startar.-fodte&sluttar.;  
run;
```

```
%MEND whatif;  
%whatif;  
RUN;
```

```
/* THE DECOMPOSITION */
```

```
/* Make common file with all 32x7 groups, dekomp in own columns*/  
DATA dekomphil (KEEP= lgr bgr aldgr rate&startar. rate&sluttar.  
mfm&startar. mfm&sluttar.);  
MERGE wk.lgrbgraldgr asfrsamle kvinnersamle;  
IF rate&startar. = '.' THEN rate&startar.=0;  
IF rate&sluttar. = '.' THEN rate&sluttar.=0;  
RUN;
```

```
/*Calculate total #women*/  
PROC SORT data=dekomphil;  
BY aldgr;  
RUN;
```

```
PROC MEANS DATA=dekomphil noprint;  
VAR mfm&startar. mfm&sluttar.;  
BY aldgr;  
OUTPUT OUT = andelmfm (drop= _type_ _freq_)  
sum(mfm&startar.)=sum&startar. sum(mfm&sluttar.)=sum&sluttar.;  
RUN;
```

```
/*Calculate the shares in each age group*/  
DATA dekomphil;  
MERGE dekomphil andelmfm;  
BY aldgr;  
andel&startar.=mfm&startar./sum&startar.;  
andel&sluttar.=mfm&sluttar./sum&sluttar.;  
RUN;
```

```
/* calculating the effect of overall changed composition (sms) and
changed fertility (frb) */
```

```
DATA dekomphil2;
SET dekomphil;
smseffekt=((rate&startar.+rate&sluttar.)/2)*(andel&startar.-
andel&sluttar.);
frbeffekt=((andel&startar.+andel&sluttar.)/2)*(rate&startar.-
rate&sluttar.);
RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;
VAR smseffekt; OUTPUT OUT = smseffekt (drop= _type_ _freq_)
sum(smseffekt)=sumsms; RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;
VAR frbeffekt; OUTPUT OUT = frbeffekt (drop= _type_ _freq_)
sum(frbeffekt)=sumfrb; RUN;
```

```
/* effect of changed fertility for each group of duration of stay */
```

```
PROC MEANS DATA=dekomphil2 noprint;
WHERE bgr='1';
VAR frbeffekt; OUTPUT OUT = frbeffektbgr1 (drop= _type_ _freq_)
sum(frbeffekt)=bgr1; RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;
WHERE bgr='2';
VAR frbeffekt; OUTPUT OUT = frbeffektbgr2 (drop= _type_ _freq_)
sum(frbeffekt)=bgr2; RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;
WHERE bgr='3';
VAR frbeffekt; OUTPUT OUT = frbeffektbgr3 (drop= _type_ _freq_)
sum(frbeffekt)=bgr3; RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;
WHERE bgr='4';
VAR frbeffekt; OUTPUT OUT = frbeffektbgr4 (drop= _type_ _freq_)
sum(frbeffekt)=bgr4; RUN;
```

```
/* among the newly arrived: effect of changed fertility for each origin
country group */
```

```
PROC MEANS DATA=dekomphil2 noprint;
WHERE bgr='1' and lgr='1';
VAR frbeffekt; OUTPUT OUT = frbeffektlgr1 (drop= _type_ _freq_)
sum(frbeffekt)=lgr1; RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;
WHERE bgr='1' and lgr='2';
```

```
VAR frbeffekt; OUTPUT OUT = frbeffektlgr2 (drop= _type_ _freq_)  
sum(frbeffekt)=lgr2; RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;  
WHERE bgr='1' and lgr='3';  
VAR frbeffekt; OUTPUT OUT = frbeffektlgr3 (drop= _type_ _freq_)  
sum(frbeffekt)=lgr3; RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;  
WHERE bgr='1' and lgr='4';  
VAR frbeffekt; OUTPUT OUT = frbeffektlgr4 (drop= _type_ _freq_)  
sum(frbeffekt)=lgr4; RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;  
WHERE bgr='1' and lgr='5';  
VAR frbeffekt; OUTPUT OUT = frbeffektlgr5 (drop= _type_ _freq_)  
sum(frbeffekt)=lgr5; RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;  
WHERE bgr='1' and lgr='6';  
VAR frbeffekt; OUTPUT OUT = frbeffektlgr6 (drop= _type_ _freq_)  
sum(frbeffekt)=lgr6; RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;  
WHERE bgr='1' and lgr='7';  
VAR frbeffekt; OUTPUT OUT = frbeffektlgr7 (drop= _type_ _freq_)  
sum(frbeffekt)=lgr7; RUN;
```

```
PROC MEANS DATA=dekomphil2 noprint;  
WHERE bgr='1' and lgr='8';  
VAR frbeffekt; OUTPUT OUT = frbeffektlgr8 (drop= _type_ _freq_)  
sum(frbeffekt)=lgr8; RUN;
```