

PARENTS' MIGRANT STATUS

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The goal of this document is to explain the process of creation of the variables mother's migrant status and father's migrant status.

The construction of these two variables is developed in 3 steps: identification of birth place and nationality of each family member, imputation of missing values and creation of parents' migrant status variable. In this document we present, as example, the code for parental family at 2 months, but exactly the same process is developed for the maternal family members. The full STATA code at 2 months is at the end of the document.

In the ELFE mini-site you can find two different migration status imputation codes: *2 months* and *1 year*. In the *2 months* code, we just use information from the 2 months wave to develop the process; while both 2 months and 1 year waves are used in the *1 year* code.

1. RESTRICTION OF THE SAMPLE

First of all, we recommend you to take into account the population of interest in your analysis. It could simplify the proposed imputation since you may get zero missing values in your variables quicker than working with the full sample. Then, you would not apply the full code proposed in this document. However, you should not restrict the sample before imputation since it could bias the random generation of binomial distributions which takes place in the imputation. As a consequence, you should check the result of missing values as follows:

```
tab fbirthfr fnationfr if RESTRICTIVE_VARIABLE==1, missing
```

We restrict our sample in order to keep all children included in maternity and 2 months, either with a completed or a partially completed questionnaire. We decided to keep both completed and partially completed in order to get the maximum number of observations with information. Partially completed questionnaires represent 887 observations in the sample, and most of them have information on the variables of interest.

However, notice that individual weights proposed by the Elfe team are computed just for children with a fully completed questionnaire. Then, observations of babies with partially completed questionnaires do not have a weight in the dataset. In order to get only individuals with weights, you should modify your restriction condition.

```
//1. Children for which we have data in 2months wave  
g months2 = 1 if inlist(M02X_QMERECOMP2M,1,2) & inlist(M02X_TYPQMERE2M,1,2,3) //completed and partially  
completed, mother referent
```

```

replace months2 = 1 if inlist(M02X_QPECFCOMP2M,1,2) & inlist(M02X_TYPQPECF2M,1,2) //completed and partially
completed, father referent
replace months2 = 0 if missing(months2)
label var months2 "The elfe child is in the 2months wave"
label define months2 1 "Yes" 0 "No"
tab months2
tab months2 if M02X_QMERECOMP2M==2 | M02X_QPECFCOMP2M==2

```

Then, we will work with a 16567 observations sample of children both included in maternity and 2 months. Moreover, we propose a new variable which identifies unknown fathers in order to avoid imputation efforts on this group. We consider as unknown fathers all fathers who are not in the baby's household, who did not answer the father's questionnaire and who did not recognized his child. Also, this variable allows us to account for this type of situation in future analysis.

```

//2. WE NEED TO IDENTIFY FATHERS WHO ARE NOT PRESENT IN CHILDS LIFE, OR AT //
//LEAST WE DO NOT HAVE ANY INFORMATION ABOUT THEM.

```

* The father recognized the child

```

g father_recogn_child=.
replace father_recogn_child = 1 if M00M2_ETATMAT==1 & M00M2_COUPLE==1
replace father_recogn_child = 1 if M00M2_RECONU==1 & father_recogn_child==.
replace father_recogn_child = 1 if M02M_RECON==1 & father_recogn_child==.
replace father_recogn_child = 0 if M00M2_RECONU==0 & father_recogn_child==.
replace father_recogn_child = 0 if M02M_RECON==2 & father_recogn_child==.

```

label var father_recogn_child "Father has recognized the child, 2 months"

label define father_recogn_child 0 "No" 1 "Yes"

tab father_recogn_child, missing

* The baby lives with the mother and the father is not in the household.

```

g child_hhld = 1 if M02M_EFVIT==1
replace child_hhld = 2 if M02M_EFVIT==2
replace child_hhld = 3 if M02M_EFVIT==3
replace child_hhld = 4 if M02M_EFVIT==4
replace child_hhld = 5 if M02M_EFVIT==5
replace child_hhld = 6 if inlist(M02M_EFVIT,6,7)

```

replace child_hhld = 6 if M02X_TYPQMERE2M==3 & missing(child_hhld)

replace child_hhld = 5 if M02X_TYPQMERE2M==4 & missing(child_hhld)

replace child_hhld = 3 if M02X_TYPQPECF2M==3 & missing(child_hhld)

replace child_hhld = 6 if M02X_TYPQPECF2M==5 & missing(child_hhld)

replace child_hhld = 5 if M02X_TYPQPECF2M==6 & missing(child_hhld)

replace child_hhld = 2 if M02X_TYPQPECF2M==7 & missing(child_hhld)

replace child_hhld = 6 if M02X_TYPQPECF2M==8 & missing(child_hhld)

replace child_hhld = 5 if M02X_TYPQPECF2M==9 & missing(child_hhld)

replace child_hhld = 1 if M02M_LIENTYP_4==1 & missing(child_hhld)

replace child_hhld = 2 if !inlist(M02M_LIENTYP_4,1) & missing(child_hhld)

label var child_hhld "person living with the child, 2 months"

label define child_hhld 1 "both father and mother" 2 "mother" 3 "father" 4 ///

"rotating custody" 5 "placed child" 6 "at the hospital"

tab child_hhld, missing

**if father is not in the household, the father did not recognize the child and he did not answer the questionnaire:

```
g f_unknown = 1 if child_hhld==2 & !inlist(M02P_LIENTYP_4,1) & ///
father_recogn_child==0
replace f_unknown = 1 if inlist(M02M_INFPER,2,3,4) & f_unknown==.
replace f_unknown = 0 if f_unknown==.
```

```
lab var f_unknown "The father is unknown for us"
lab define f_unknown 1 "Yes" 0 "No"
tab f_unknown, missing
tab f_unknown if months2==1, missing
```

There are 346 babies with an unknown father in our restricted sample (2 months).

2. BIRTH PLACE AND NATIONALITY VARIABLES

In this stage, we identify the birth place and nationality of each family member: father, paternal grandmother and paternal grandfather. In order to do that, we use all available information in the Elfe data set (maternity and 2 months). These variables are needed to construct the final migration status. Moreover, we identified the main language of each member, which will be used later on the imputation.

```
//3. INFORMATION ABOUT FATHER'S FAMILY
```

```
//3.1. Father
```

```
//Born in france
```

```
g fbirthfr = 1 if M02P_LNAIS_4==1 & M02P_LIENTYP_4==1
replace fbirthfr = 0 if M02P_LNAIS_4==2 & M02P_LIENTYP_4==1
replace fbirthfr = 0 if !missing(M02P_PAYSNAIS_4) & M02P_LIENTYP_4==1 //correcting
replace fbirthfr = 1 if M02M_LNAIS_4==1 & M02M_LIENTYP_4==1 & missing(fbirthfr)
replace fbirthfr = 0 if M02M_LNAIS_4==2 & M02M_LIENTYP_4==1 & missing(fbirthfr)
replace fbirthfr = 0 if !missing(M02M_PAYSNAIS_4) & M02M_LIENTYP_4==1 & missing(fbirthfr)
replace fbirthfr = 1 if M00M2_LIEUNAISP==1 & missing(fbirthfr)
replace fbirthfr = 0 if M00M2_LIEUNAISP==2 & missing(fbirthfr)
```

```
label var fbirthfr "Father born in France"
```

```
label define fbirthfr 1 "yes" 0 "no"
```

```
tab fbirthfr, missing
```

```
//French nationality at birth
```

```
g fnationfr = 1 if M02P_NATIO1N_4==1 & M02P_LIENTYP_4==1 //born french nationality
replace fnationfr = 0 if inlist(M02P_NATIO1N_4,2,3,4) & M02P_LIENTYP_4==1
replace fnationfr = 1 if M02M_NATIO1N_4==1 & M02M_LIENTYP_4==1 & missing(fnationfr)
replace fnationfr = 0 if inlist(M02M_NATIO1N_4,2,3,4) & M02M_LIENTYP_4==1 & missing(fnationfr)
replace fnationfr = 1 if M00M2_NATIOP==1 & missing(fnationfr)
replace fnationfr = 0 if inlist(M00M2_NATIOP,2,3) & missing(fnationfr)
```

```
label var fnationfr "Father french nationality at birth"
```

```
label define fnationfr 1 "yes" 0 "no"
```

```
tab fnationfr, missing
```

```
//Father's language
```

```
g flenghome = 1 if M02P_LANG1E==2 //language spoken at home with the child
replace flenghome = 0 if flenghome==. & !inlist(M02P_LANG1E,.)
```

```
label var flenghome "language spoken at home with the child, father"  
label define flenghome 1 "French" 0 "Other"
```

```
g flengent = 1 if M02P_LANG==1 //interview language  
replace flengent = 0 if flengent==. & !inlist(M02P_LANG,.)  
label var flengent "Language at interview, father"  
label define flengent 1 "French" 0 "Other"
```

```
g fleng = 1 if flenghome==1 & flengent==1  
replace fleng = 0 if flenghome==0 & flengent==1 //french origin language  
replace fleng = 0 if flenghome==0 & flengent==0 //foreign language as origin  
replace fleng = 2 if flenghome==1 & flengent==0 //french at home but foreign language at interview  
label var fleng "Main language"  
label define fleng 1 "French" 0 "foreign language" 2 "Not clear"  
tab fleng, missing
```

```
//3.2. Grandmother father
```

```
//Born in france
```

```
g f_gmbirthfr = 1 if M02P_MBLIEU==1  
replace f_gmbirthfr = 0 if M02P_MBLIEU==2  
foreach i of numlist 4/12{  
  replace f_gmbirthfr = 1 if M02P_LNAIS_`i'==1 & M02P_LIENTYP_`i'==9 & M02P_SEXE_`i'==2 & missing(f_gmbirthfr)  
  //grandparent (father), female, born in france  
  replace f_gmbirthfr = 0 if M02P_LNAIS_`i'==2 & M02P_LIENTYP_`i'==9 & M02P_SEXE_`i'==2 & missing(f_gmbirthfr)  
}  
replace f_gmbirthfr = 1 if M02M_BMLIEU==1 & missing(f_gmbirthfr)  
replace f_gmbirthfr = 0 if M02M_BMLIEU==2 & missing(f_gmbirthfr)  
foreach i of numlist 4/12{  
  replace f_gmbirthfr = 1 if M02M_LNAIS_`i'==1 & M02M_LIENTYP_`i'==9 & M02M_SEXE_`i'==2 & missing(f_gmbirthfr)  
  //grandparent (father), female, born in france  
  replace f_gmbirthfr = 0 if M02M_LNAIS_`i'==2 & M02M_LIENTYP_`i'==9 & M02M_SEXE_`i'==2 & missing(f_gmbirthfr)  
}  
label var f_gmbirthfr "Grandmother born in France (father)"  
label define f_gmbirthfr 1 "yes" 0 "no"
```

```
//French nationality at birth
```

```
g f_gmnationfr = 1 if M02P_MBFRANC==1  
replace f_gmnationfr = 0 if inlist(M02P_MBFRANC,2,3,4)  
foreach i of numlist 4/12{  
  replace f_gmnationfr = 1 if M02P_NATIO1N_`i'==1 & M02P_LIENTYP_`i'==9 & M02P_SEXE_`i'==2 & missing(f_gmnationfr)  
  //grandparent (father), female french nationality at birth  
  replace f_gmnationfr = 0 if inlist(M02P_NATIO1N_`i',2,3,4) & M02P_LIENTYP_`i'==9 & M02P_SEXE_`i'==2 & missing(f_gmnationfr)  
}  
replace f_gmnationfr = 1 if M02M_BMFRANC==1 & missing(f_gmnationfr)  
replace f_gmnationfr = 0 if inlist(M02M_BMFRANC,2,3,4) & missing(f_gmnationfr)  
foreach i of numlist 4/12{  
  replace f_gmnationfr = 1 if M02M_NATIO1N_`i'==1 & M02M_LIENTYP_`i'==9 & M02M_SEXE_`i'==2 & missing(f_gmnationfr)  
  //grandparent (father), female french nationality at birth  
  replace f_gmnationfr = 0 if inlist(M02M_NATIO1N_`i',2,3,4) & M02M_LIENTYP_`i'==9 & M02M_SEXE_`i'==2 & missing(f_gmnationfr)  
}  
label var f_gmnationfr "Grandmother french nationality at birth (father)"  
label define f_gmnationfr 1 "yes" 0 "no"
```

ta f_gmbirthfr f_gmnationfr, missing

```
//Grandmother father main language
g f_gmleng = 1 if M02P_PEREMLAN==1
replace f_gmleng = 0 if f_gmleng==. & !inlist(M02P_PEREMLAN,.)
replace f_gmleng = 1 if M02P_MBLANG==1 & f_gmleng==.
replace f_gmleng = 0 if !inlist(M02P_MBLANG,.) & f_gmleng==.
replace f_gmleng = 1 if M02M_PEREMLAN==1 & f_gmleng==.
replace f_gmleng = 0 if !inlist(M02M_PEREMLAN,.) & f_gmleng==.
replace f_gmleng = 1 if M02M_BMLANG==1 & f_gmleng==. & M02M_LIENTYP_4==1
replace f_gmleng = 0 if !inlist(M02M_BMLANG,.) & !inlist(M02M_BMLANG,1) & !inlist(M02M_BMLANG,999) &
M02M_LIENTYP_4==1 //Not condition
//on missing data, because there are some differences and I tend to trust info on foreign language
```

```
label var f_gmleng "main langue grand-mère"
label define f_gmleng 1 "Français" 0 "Autre langue"
tab f_gmleng
```

```
//3.3. Grandfather father
//Born in france
g f_gfbirthfr = 1 if M02P_PBLIEU==1
replace f_gfbirthfr = 0 if M02P_PBLIEU==2
foreach i of numlist 4/12{
replace f_gfbirthfr = 1 if M02P_LNAIS_`i'==1 & M02P_LIENTYP_`i'==9 & M02P_SEXE_`i'==1 & missing(f_gfbirthfr)
//grandparent (father), male, born in france
replace f_gfbirthfr = 0 if M02P_LNAIS_`i'==2 & M02P_LIENTYP_`i'==9 & M02P_SEXE_`i'==1 & missing(f_gfbirthfr)
}
replace f_gfbirthfr = 1 if M02M_BPLIEU==1 & missing(f_gfbirthfr)
replace f_gfbirthfr = 0 if M02M_BPLIEU==2 & missing(f_gfbirthfr)
foreach i of numlist 4/12{
replace f_gfbirthfr = 1 if M02M_LNAIS_`i'==1 & M02M_LIENTYP_`i'==9 & M02M_SEXE_`i'==1 & missing(f_gfbirthfr)
//grandparent (father), male, born in france
replace f_gfbirthfr = 0 if M02M_LNAIS_`i'==2 & M02M_LIENTYP_`i'==9 & M02M_SEXE_`i'==1 & missing(f_gfbirthfr)
}
label var f_gfbirthfr "Grandfather born in France (father)"
label define f_gfbirthfr 1 "yes" 0 "no"
tab f_gfbirthfr, missing
```

```
//French nationality at birth
g f_gfnationfr = 1 if M02P_PBFRANC==1
replace f_gfnationfr = 0 if inlist(M02P_PBFRANC,2,3,4)
foreach i of numlist 4/12{
replace f_gfnationfr = 1 if M02P_NATIO1N_`i'==1 & M02P_LIENTYP_`i'==9 & M02P_SEXE_`i'==1 & missing(f_gfnationfr)
//grandparent (father), male french nationality at birth
replace f_gfnationfr = 0 if inlist(M02P_NATIO1N_`i',2,3,4) & M02P_LIENTYP_`i'==9 & M02P_SEXE_`i'==1 &
missing(f_gfnationfr)
}
replace f_gfnationfr = 1 if M02M_BPFRANC==1 & missing(f_gfnationfr)
replace f_gfnationfr = 0 if inlist(M02M_BPFRANC,2,3,4) & missing(f_gfnationfr)
foreach i of numlist 4/12{
replace f_gfnationfr = 1 if M02M_NATIO1N_`i'==1 & M02M_LIENTYP_`i'==9 & M02M_SEXE_`i'==1 & missing(f_gfnationfr)
//grandparent (father), male french nationality at birth
replace f_gfnationfr = 0 if inlist(M02M_NATIO1N_`i',2,3,4) & M02M_LIENTYP_`i'==9 & M02M_SEXE_`i'==1 &
missing(f_gfnationfr)
```

```

}
label var f_gfnationfr "Grandfather french nationality at birth (father)"
label define f_gfnationfr 1 "yes" 0 "no"
tab f_gfnationfr, missing

//Grandfather father main language
g f_gfleng = 1 if M02P_PEREPLAN==1
replace f_gfleng = 0 if f_gfleng==. & !inlist(M02P_PEREPLAN,.)
replace f_gfleng = 1 if M02P_PBLANG==1 & f_gfleng==.
replace f_gfleng = 0 if !inlist(M02P_PBLANG,.) & f_gfleng==.
replace f_gfleng = 1 if M02M_PEREPLAN==1 & f_gfleng==.
replace f_gfleng = 0 if !inlist(M02M_PEREPLAN,.) & f_gfleng==.
replace f_gfleng = 1 if M02M_BPLANG==1 & f_gfleng==. & M02M_LIENTYP_4==1
replace f_gfleng = 0 if !inlist(M02M_BPLANG,,1,999) & M02M_LIENTYP_4==1 //Not condition
//on missing data, because there are some differences and I tend to trust info on foreign language

label var f_gfleng "Main language grandfather father"
label define f_gfleng 1 "French" 0 "Other"
tab f_gfleng

```

Thus, we identified information on birth place, nationality and main language for each family member:

Birth place:

fbirthfr, f_gmbirthfr, f_gfbirthfr

Nationality:

fnationfr, f_gmnationfr, f_gfnationfr

Language:

fleng, f_gmleng, f_gfleng

3. IMPUTATION OF MISSING VALUES

After the identification of the main variables used in the construction of parents' migration status, we find numerous missing observations in birth place and nationality of all members, but mainly in all grandparents. This issue could make very difficult the identification of parents' immigrant status as first or second generation immigrants. As a consequence, we need to impute the maximum number of missing values from other strongly related variables.

3.1.LANGUAGE

The main language is considered as a potential indicator about the migrant status, and can be used to impute missing values. In the previous step, we identified the main language spoken by each member of the family and we now suppose that individuals who spoke a foreign language at home have a higher probability to have a foreign nationality and birth place, or to be second generation immigrants. Thus, we will use this variable to impute the missing values of nationality and birth place of each family member.

Then, we propose to use the distribution of nationality (French or foreign) within the population who speaks a foreign language at home, as the probability to be on each nationality category for foreign language speakers. For example, within foreign language speakers, 93% of population has a foreign nationality, while 7% of population has French nationality. Then, we will randomly generate the same binomial distribution on missing observations, using proportions as the probability to be assigned to each category.

The same method is applied for foreign speakers and French speakers, both for nationality and birth place. Finally, we will generate a random binomial distribution of birth place and nationality to all missing values for which we have information on the main language. This method is applied to all family members (father, parental grandmother and parental grandfather).

```
//4. IMPUTATIONS OF FATHER' FAMILLY -> LANGUAGE
```

```
//4.1. FATHER
```

```
tab fleng fbirthfr, missing
```

```
tab fleng fbirthfr
```

```
replace fbirthfr = rbinomial(1, 0.93) if fbirthfr==. & fleng==1
```

```
tab fleng fbirthfr, missing
```

```
tab fleng fnationfr, missing
```

```
tab fleng fnationfr
```

```
replace fnationfr = rbinomial(1, 0.245) if fnationfr==. & flenghome==0
```

```
replace fnationfr = rbinomial(1, 0.936) if fnationfr==. & flenghome==1
```

```
tab fleng fnationfr, missing
```

```
//4.2. GRANDMOTHER FATHER
```

```
tab f_gmleng f_gmbirthfr, missing
```

```
tab f_gmleng f_gmbirthfr
```

```
replace f_gmbirthfr = rbinomial(1, 0.164) if f_gmleng==0 & f_gmbirthfr==.
```

```
replace f_gmbirthfr = rbinomial(1, 0.902) if f_gmleng==1 & f_gmbirthfr==.
```

```
tab f_gmleng f_gmbirthfr, missing
```

```
tab f_gmleng f_gmnationfr, missing
```

```
tab f_gmleng f_gmnationfr
```

```
replace f_gmnationfr = rbinomial(1, 0.195) if f_gmleng==0 & f_gmnationfr==.
```

```
replace f_gmnationfr = rbinomial(1, 0.937) if f_gmleng==1 & f_gmnationfr==.
```

```
tab f_gmleng f_gmnationfr, missing
```

```
//4.3. GRANDFATHER FATHER
```

```
tab f_gfleng f_gfbirthfr, missing
```

```
tab f_gfleng f_gfbirthfr
```

```
replace f_gfbirthfr = rbinomial(1, 0.171) if f_gfleng==0 & f_gfbirthfr==.
```

```
replace f_gfbirthfr = rbinomial(1, 0.882) if f_gfleng==1 & f_gfbirthfr==.
```

```
tab f_gfleng f_gfbirthfr, missing
```

```
tab f_gfleng f_gfnationfr, missing
```

```
tab f_gfleng f_gfnationfr
```

```
replace f_gfnationfr = rbinomial(1, 0.193) if f_gfleng==0 & f_gfnationfr==.
```

```
replace f_gfnationfr = rbinomial(1, 0.923) if f_gfleng==1 & f_gfnationfr==.
```

```
tab f_gfleng f_gfnationfr, missing
```

3.2. OTHER FAMILY MEMBERS' INFORMATION

After reducing the total number of missing values for each family member using the language spoken at home, we still have several missing values for all of them.

The available information regarding nationality and birth place of grandparents could give us some information about their son's nationality, and vice versa. Thus, we are able to identify some statuses:

- If at least one grandparent has French nationality, their son had French nationality at birth.
- If both grandparents have foreign nationality, their son had foreign nationality at birth.

```
//5. IMPUTATIONS FATHER' FAMILLY -> OTHER MEMBERS' INFO
```

```
//5.1. From grandparents' information, FATHER  
g f_parents = 1 if f_gfnationfr==1 | f_gmnationfr==1  
replace f_parents = 0 if f_gfnationfr==0 & f_gmnationfr==0  
label var f_parents "At least one grandparent has french nationality, father"  
label define f_parents 1 "Yes" 0 "No"
```

```
tab fbirthfr fnationfr, missing  
replace fnationfr = 1 if f_parents==1 & fnationfr==.  
replace fnationfr = 0 if f_parents==0 & fnationfr==.  
tab fbirthfr fnationfr, missing
```

Moreover, we can impute some information of grandparents using father's and couple information.

- If the father had foreign nationality at birth, both parents should have foreign nationality.
- If the father had French nationality at birth and the grandfather has foreign nationality, then, the grandmother has French nationality.
- If the father had French nationality at birth and the grandmother has foreign nationality, then, the grandfather has French nationality.

```
//7. IMPUTATIONS FATHER' FAMILLY -> OTHER MEMBERS' INFO
```

```
//7.1. From father nationality, GRANDMOTHER FATHER  
tab f_gmbirthfr f_gmnationfr, missing  
replace f_gmnationfr = 0 if fnationfr==0 & f_gmnationfr==.  
replace f_gmnationfr = 1 if fnationfr==1 & f_gfnationfr==0 & f_gmnationfr==.  
tab f_gmbirthfr f_gmnationfr, missing
```

```
//7.2. From father nationality, GRANDFATHER FATHER  
tab f_gfbirthfr f_gfnationfr, missing  
replace f_gfnationfr = 0 if fnationfr==0 & f_gfnationfr==.  
replace f_gfnationfr = 1 if fnationfr==1 & f_gmnationfr==0 & f_gfnationfr==.  
tab f_gfbirthfr f_gfnationfr, missing
```

3.3. OWN BIRTH PLACE AND NATIONALITY

After using language and family member's information, we still have missing values. The last source of information to impute missing values on birth place and nationality are these variables by

themselves. We suppose that the nationality is highly related with the birth place and vice versa. Thus, we propose to use the same method proposed in 3.1.

Hence, we use the distribution of nationality (French or foreign) within the group of individuals of the sample who is born abroad, as the probability to be on each nationality category for born abroad individuals. For instance, 99% of fathers born in France have French nationality, while 1% has foreign nationality. As a consequence, we will randomly assign nationality missing values of individuals born in France into a binomial distribution with probability 0,99 and 0,01.

The same process is developed for both nationality and birth place as follows:

```
//6. IMPUTATIONS FATHER' FAMILLY -> OWN BIRTH PLACE AND NATIONALITY
//6.1. FATHER
tab fbirthfr fnationfr, missing
tab fbirthfr fnationfr
replace fbirthfr = rbinomial(1, 0.05) if fnationfr==0 & fbirthfr==.
replace fbirthfr = rbinomial(1, 0.983) if fnationfr==1 & fbirthfr==.
replace fnationfr = rbinomial(1, 0.099) if fnationfr==. & fbirthfr==0
replace fnationfr = rbinomial(1, 0.992) if fnationfr==. & fbirthfr==1
tab fbirthfr fnationfr, missing
```

```
//8. IMPUTATIONS FATHER' FAMILLY -> OWN BIRTH PLACE AND NATIONALITY
//8.1. GRANDMOTHER FATHER
tab f_gmbirthfr f_gmnationfr
replace f_gmbirthfr = rbinomial(1, 0.952) if f_gmnationfr==1 & f_gmbirthfr==.
replace f_gmbirthfr = rbinomial(1, 0.038) if f_gmnationfr==0 & f_gmbirthfr==.
replace f_gmnationfr = rbinomial(1, 0.993) if f_gmnationfr==. & f_gmbirthfr==1
replace f_gmnationfr = rbinomial(1, 0.21) if f_gmnationfr==. & f_gmbirthfr==0
tab f_gmbirthfr f_gmnationfr, missing
```

```
//8.2. GRANDFATHER FATHER
tab f_gfbirthfr f_gfnationfr
replace f_gfbirthfr = rbinomial(1, 0.947) if f_gfnationfr==1 & f_gfbirthfr==.
replace f_gfbirthfr = rbinomial(1, 0.035) if f_gfnationfr==0 & f_gfbirthfr==.
replace f_gfnationfr = rbinomial(1, 0.993) if f_gfnationfr==. & f_gfbirthfr==1
replace f_gfnationfr = rbinomial(1, 0.215) if f_gfnationfr==. & f_gfbirthfr==0
tab f_gfbirthfr f_gfnationfr, missing
```

After all possible imputations of nationality and birth place missing observations from strongly related variables, we find that, for our restricted sample, we still have 28 father missing values. In all cases, the father did not participated in the survey. Moreover, most of baby's mothers defined themselves as single or divorced not living in couple, except two of them. The ones who declared themselves living in couple, are in charge of the Elfe child, but the father is not present in the household in any case. Finally, the three observations for which we do not know the family status and couple situation, are families in which the father is not in the household and the mother declared that he lives abroad.

La mère vit en couple	Etat matrimonial mère			.	Total
	Mariée ou	Divorcée	Célibatai		
Non	1	5	17	0	23
Oui	1	0	1	0	2
.	0	0	0	3	3
Total	2	5	18	3	28

La mère vit en couple	person living with the child, 2 months		Total
	2	4	
Non	21	2	23
Oui	2	0	2
.	3	0	3
Total	26	2	28

4. PARENTS' IMMIGRANT STATUS

To construct the migrant status of parents, we will use nationality and birth place of parents and grandparents. Analyzing all possible combinations between family members, we will be able to know if the individual is first or second generation immigrant. All possible combinations are presented at the end of the document, specifying the considered definition of migrant status.

A last imputation is proposed using grandparents' migrant status to set the partner's status, as previously. We just impute the cases in which the grandmother status is missing but we know the grandfather status is 0 (not "born abroad with foreign nationality"), and vice versa. 1/. and ./1 cases are included as "descendant of at least one immigrant" in parents' migrant status and then, we do not need to impute the missing values.

```
//1. Grandparents
//mother
g m_gmimm = 1 if m_gmbirthfr==0 & m_gmnationfr==0
replace m_gmimm = 0 if m_gmimm==. & !inlist(m_gmbirthfr,.) & !inlist(m_gmnationfr,.)
label var m_gmimm "Grandmother born abroad with foreign nationality (regardless of current residence place), mother"
label define m_gmimm 1 "yes"
tab m_gmimm if months2==1, missing
```

```
g m_gfimm = 1 if m_gfbirthfr==0 & m_gfnationfr==0
replace m_gfimm = 0 if m_gfimm==. & !inlist(m_gfbirthfr,.) & !inlist(m_gfnationfr,.)
label var m_gfimm "Grandfather born abroad with foreign nationality (regardless of current residence place), mother"
label define m_gfimm 1 "yes"
tab m_gfimm if months2==1, missing
```

```
**EXTRA IMPUTATION
tab m_gmimm m_gfimm if months==1, missing //WE CAN IMPUTE MORE
tab m_gmimm m_gfimm, missing
replace m_gmimm = rbinomial(1, 0.04) if m_gfimm==0 & m_gmimm==.
replace m_gfimm = rbinomial(1, 0.05) if m_gmimm==0 & m_gfimm==.
tab m_gmimm m_gfimm if months==1, missing
```

```
//father
```

```

g f_gmimm = 1 if f_gmbirthfr==0 & f_gmnationfr==0
replace f_gmimm = 0 if f_gmimm==. & !inlist(f_gmbirthfr,.) & !inlist(f_gmnationfr,.)
label var f_gmimm "Grandmother born abroad with foreign nationality (regardless of current residence place), father"
label define f_gmimm 1 "yes"
tab f_gmimm if months2==1 & f_unknow==0, missing

```

```

g f_gfimm = 1 if f_gfbirthfr==0 & f_gfnationfr==0
replace f_gfimm = 0 if f_gfimm==. & !inlist(f_gfbirthfr,.) & !inlist(f_gfnationfr,.)
label var f_gfimm "Grandfather born abroad with foreign nationality (regardless of current residence place), father"
label define f_gfimm 1 "yes"
tab f_gfimm if months2==1 & f_unknow==0, missing

```

**EXTRA IMPUTATION

```

tab f_gmimm f_gfimm if months==1 & f_unknow==0, missing //WE CAN IMPUTE MORE
tab f_gmimm f_gfimm, missing
replace f_gmimm = rbinomial(1, 0.04) if f_gfimm==0 & f_gmimm==.
replace f_gfimm = rbinomial(1, 0.055) if f_gmimm==0 & f_gfimm==.
tab f_gmimm f_gfimm if months==1 & f_unknow==0, missing

```

//2. Mother

```

g mimm = 1 if mbirthfr==0 & mnationfr==0 //immigrant mother
replace mimm = 2 if m_gmimm==1 & m_gfimm==1 & mbirthfr==1 & missing(mimm) //mother descendant of two
immigrants

```

```

g m_oneimm = 1 if m_gmimm==1 & m_gfimm==0
replace m_oneimm = 1 if m_gmimm==1 & m_gfimm==.
replace m_oneimm = 1 if m_gmimm==0 & m_gfimm==1
replace m_oneimm = 1 if m_gmimm==. & m_gfimm==1

```

```

replace mimm = 3 if m_oneimm==1 & mbirthfr==1 & missing(mimm) //mother descendant of at least one immigrant
replace mimm = 4 if !inlist(mbirthfr,.) & !inlist(mnationfr,.) & missing(mimm) //rest of population

```

```

label var mimm "mother immigrant history"
label define mimm 1 "immigrant mother" 2 "mother descendant of two immigrants" 3 "mother descendant of at least one
immigrant" 4 "rest of population"
tab mimm, missing
tab mimm if months2==1, missing
tab mimm m_gmimm if months2==1, missing

```

//3. Father

```

g fimm = 1 if fbirthfr==0 & fnationfr==0 //immigrant mother
replace fimm = 2 if f_gmimm==1 & f_gfimm==1 & fbirthfr==1 & missing(fimm) //mother descendant of two immigrants

```

```

g f_oneimm = 1 if f_gmimm==1 & f_gfimm==0
replace f_oneimm = 1 if f_gmimm==1 & f_gfimm==.
replace f_oneimm = 1 if f_gmimm==0 & f_gfimm==1
replace f_oneimm = 1 if f_gmimm==. & f_gfimm==1

```

```

replace fimm = 3 if f_oneimm==1 & fbirthfr==1 & missing(fimm) //mother descendant of at least one immigrant
replace fimm = 4 if !inlist(fbirthfr,.) & !inlist(fnationfr,.) & missing(fimm) //rest of population

```

```

label var fimm "father immigrant history"

```

```

label define fimm 1 "immigrant father" 2 "father descendant of two immigrants" 3 "father descendant of at least one
immigrant" 4 "rest of population"
tab fimm, missing
tab fimm if months2==1 & f_unknow==0, missing
tab fimm f_gmimm if months2==1 & f_unknow==0, missing
tab fimm f_gfimm if months2==1 & f_unknow==0, missing

tab fimm if months2==1 & f_unknow==0 & !missing(f_gfimm), missing
tab fimm if months2==1 & f_unknow==0, missing

```

We finally have very few missing observations on maternal grandparents status (40 missing values), which would not strongly affect the results of mother’s immigrant status. However, parental grandparents migrant status present around 1884 missing observations, which would highly bias the construction of father’s immigrant status if we keep these fathers in the analysis. Thus, keeping just parents with full family information after imputation, we have 16527 observations in mother’s immigrant status, and 14330 observations in father’s immigrant status in our restricted sample (2 months).

Mother immigrant status:

mimm	Freq.	Percent	Cum.
1	1,814	10.98	10.98
2	888	5.37	16.35
3	903	5.46	21.81
4	12,922	78.19	100.00
Total	16,527	100.00	

Father immigrant status:

father immigrant history	Freq.	Percent	Cum.
1	1,924	13.43	13.43
2	620	4.33	17.75
3	758	5.29	23.04
4	11,028	76.96	100.00
Total	14,330	100.00	

5. MULTIVARIATE MULTIPLE IMPUTATION

If you want to continue imputing missing observations, multiple imputations method in STATA could be a solution. In particular, multivariate chained multiple imputation will impute missing values of the variables you need (more than one if necessary), specifying the distribution of the variables to be imputed and using the rest of variables of the data set or analysis (as you wish). This method will compute coefficients of an estimation (imputed variables as dependent variables) using just full observations, and then, it will apply coefficients to get estimations of missing values. The process is repeated till convergence.

```
mi impute chained (logit) var1 var2 = var3 var4 var5, add(15) force
```

- You can have missing values in all imputed, but not in explanatory variables. Otherwise, you should use the option *force*.
- You can define the distribution of the imputed variables.
- Then you can use just the variables you are going to include later in your model, or all the variables in the data set.
- It is recommended to include the final dependent variable of your latter model as explanatory variable in the imputation.
- If your variable has a lot of missing observations, you must set a higher number of imputations. *add(15)*
- Assumption: Missing at Random observations. It means that missing values are explained by observed variables. The fact that someone did not answer the question depends on observed characteristics.

However, we should use *mi estimate* to estimate our models when we imputed missing values using multivariate multiple imputations in STATA.

mi estimate: logit depvar indepvars

APENDIX

MIGRANT STATUS COMBINATIONS

Migrant first generation	
Descendant of two immigrants	
Descendant of one immigrant	
Rest of population	

1 Grandfather Grandmother FATHER			2 Grandfather Grandmother			3 Grandfather Grandmother			4 Grandfather Grandmother		
Nationality	0	0	Nationality	0	1	Nationality	0	0	Nationality	0	1
Birth place	0	0	Birth place	0	0	Birth place	0	1	Birth place	0	1
Residence	0	0	Residence	0	0	Residence	0	0	Residence	0	0
5 Grandfather Grandmother			6 Grandfather Grandmother			7 Grandfather Grandmother			8 Grandfather Grandmother		
Nationality	1	0	Nationality	1	1	Nationality	1	0	Nationality	1	1
Birth place	0	0	Birth place	0	0	Birth place	0	1	Birth place	0	1
Residence	0	0	Residence	0	0	Residence	0	0	Residence	0	0
9 Grandfather Grandmother			10 Grandfather Grandmother			11 Grandfather Grandmother			12 Grandfather Grandmother		
Nationality	0	0	Nationality	0	1	Nationality	0	0	Nationality	0	1
Birth place	1	0	Birth place	1	0	Birth place	1	1	Birth place	1	1
Residence	0	0	Residence	0	0	Residence	0	0	Residence	0	0
13 Grandfather Grandmother			14 Grandfather Grandmother			15 Grandfather Grandmother			16 Grandfather Grandmother		
Nationality	1	0	Nationality	1	1	Nationality	1	0	Nationality	1	1
Birth place	1	0	Birth place	1	0	Birth place	1	1	Birth place	1	1
Residence	0	0	Residence	0	0	Residence	0	0	Residence	0	0
17 Grandfather Grandmother			18 Grandfather Grandmother			19 Grandfather Grandmother			20 Grandfather Grandmother		
Nationality	0	0	Nationality	0	0	Nationality	0	1	Nationality	0	1
Birth place	0	0	Birth place	0	1	Birth place	0	0	Birth place	0	1
Residence	1	1	Residence	1	1	Residence	1	1	Residence	1	1
21 Grandfather Grandmother			22 Grandfather Grandmother			23 Grandfather Grandmother			24 Grandfather Grandmother		
Nationality	0	0	Nationality	0	0	Nationality	0	1	Nationality	0	1
Birth place	1	0	Birth place	1	1	Birth place	1	0	Birth place	1	1
Residence	1	1	Residence	1	1	Residence	1	1	Residence	1	1
25 Grandfather Grandmother			26 Grandfather Grandmother			27 Grandfather Grandmother			28 Grandfather Grandmother		
Nationality	1	0	Nationality	1	0	Nationality	1	1	Nationality	1	1
Birth place	0	0	Birth place	0	1	Birth place	0	0	Birth place	0	1
Residence	1	1	Residence	1	1	Residence	1	1	Residence	1	1
29 Grandfather Grandmother			30 Grandfather Grandmother			31 Grandfather Grandmother			32 Grandfather Grandmother		
Nationality	1	0	Nationality	1	0	Nationality	1	1	Nationality	1	1
Birth place	1	0	Birth place	1	1	Birth place	1	0	Birth place	1	1
Residence	1	1	Residence	1	1	Residence	1	1	Residence	1	1

FULL CODE

//1. WE NEED A VARIABLE TO IDENTIFY THE CHILDREN WE KEEP IN OUR ANALYSIS

* Children for which we have data in 2months wave

g months2 = 1 if inlist(m02x_qmerekomp2m,1,2) & inlist(m02x_typqmerek2m,1,2,3) //completed and partially completed, mother referent

replace months2 = 1 if inlist(m02x_qpecfcomp2m,1,2) & inlist(m02x_typqpecf2m,1,2) //completed and partially completed, father referent

replace months2 = 1 if m02x_partimerek2m==10 & missing(months2)

replace months2 = 0 if missing(months2)

label var months2 "the child is included in the 2months wave"

label define months2 1 "yes" 0 "no"

```
label values months2 months2
tab months2, missing
```

```
//2. we need to identify fathers who are not present in elfe
g father_recogn_child=.
replace father_recogn_child = 1 if m00m2_etatmat==1 & m00m2_couple==1
replace father_recogn_child = 1 if m00m2_reconu==1 & father_recogn_child==.
replace father_recogn_child = 1 if m02m_recon==1 & father_recogn_child==.
replace father_recogn_child = 0 if m00m2_reconu==0 & father_recogn_child==.
replace father_recogn_child = 0 if m02m_recon==2 & father_recogn_child==.
```

```
label var father_recogn_child "father has recognized the child, 2 months"
label define father_recogn_child 0 "no" 1 "yes"
tab father_recogn_child, missing
*
```

```
g child_hhld = 1 if m02m_efvit==1
replace child_hhld = 2 if m02m_efvit==2
replace child_hhld = 3 if m02m_efvit==3
replace child_hhld = 4 if m02m_efvit==4
replace child_hhld = 5 if m02m_efvit==5
replace child_hhld = 6 if inlist(m02m_efvit,6,7)
```

```
replace child_hhld = 6 if m02x_typqmere2m==3 & missing(child_hhld)
replace child_hhld = 5 if m02x_typqmere2m==4 & missing(child_hhld)
```

```
replace child_hhld = 3 if m02x_typqpecf2m==3 & missing(child_hhld)
replace child_hhld = 6 if m02x_typqpecf2m==5 & missing(child_hhld)
replace child_hhld = 5 if m02x_typqpecf2m==6 & missing(child_hhld)
replace child_hhld = 2 if m02x_typqpecf2m==7 & missing(child_hhld)
replace child_hhld = 6 if m02x_typqpecf2m==8 & missing(child_hhld)
replace child_hhld = 5 if m02x_typqpecf2m==9 & missing(child_hhld)
```

```
replace child_hhld = 1 if m02m_lientyp_4==1 & missing(child_hhld)
replace child_hhld = 2 if !inlist(m02m_lientyp_4,1) & missing(child_hhld)
```

```
label var child_hhld "person living with the child, 2 months"
label define child_hhld 1 "both father and mother" 2 "mother" 3 "father" 4 ///
"rotating custody" 5 "placed child" 6 "at the hospital"
tab child_hhld, missing
```

```
**if father is not in the household, the father did not recognise the child, //
* and he did not answer the questionnaire...
g f_unknown = 1 if child_hhld==2 & !inlist(m02p_lientyp_4,1) & ///
father_recogn_child==0
replace f_unknown = 1 if inlist(m02m_infper,2,3,4) & f_unknown==.
```

```
replace f_unknown = 0 if f_unknown==.
```

```
lab var f_unknown "the father is unknown to elfe, 2 months"
lab define f_unknown 1 "yes" 0 "no"
lab values f_unknown f_unknown
tab f_unknown, missing
tab f_unknown if months2==1, missing
```

```
*****
***** FATHER'S FAMILY *****
*****
```

//3. INFORMATION ABOUT FATHER'S FAMILY

//3.1. Father

//Born in france

```
g fbirthfr = 1 if m02p_l nais_4==1 & m02p_li entyp_4==1
replace fbirthfr = 0 if m02p_l nais_4==2 & m02p_li entyp_4==1
replace fbirthfr = 1 if m02m_l nais_4==1 & m02m_li entyp_4==1 & missing(fbirthfr)
replace fbirthfr = 0 if m02m_l nais_4==2 & m02m_li entyp_4==1 & missing(fbirthfr)
replace fbirthfr = 1 if m00m2_lieunaisp==1 & missing(fbirthfr)
replace fbirthfr = 0 if m00m2_lieunaisp==2 & missing(fbirthfr)
```

```
label var fbirthfr "father born in france"
label define fbirthfr 1 "yes" 0 "no"
label values fbirthfr fbirthfr
tab fbirthfr, missing
```

//French nationality at birth

```
g fnationfr = 1 if m02p_natio1n_4==1 & m02p_li entyp_4==1 //born with french nationality
replace fnationfr = 0 if inlist(m02p_natio1n_4,2,3,4) & m02p_li entyp_4==1
replace fnationfr = 1 if m02m_natio1n_4==1 & m02m_li entyp_4==1 & missing(fnationfr)
replace fnationfr = 0 if inlist(m02m_natio1n_4,2,3,4) & m02m_li entyp_4==1 & missing(fnationfr)
replace fnationfr = 1 if m00m2_natiop==1 & missing(fnationfr)
replace fnationfr = 0 if inlist(m00m2_natiop,2,3) & missing(fnationfr)
```

```
label var fnationfr "father french nationality at birth"
label define fnationfr 1 "yes" 0 "no"
label values fnationfr fnationfr
tab fnationfr, missing
```

//father's language

```
g flenghome = 1 if m02p_l ang1e==2 //language spoken at home with the child
replace flenghome = 0 if flenghome==. & !inlist(m02p_l ang1e,.)
label var flenghome "language spoken at home with the child, father"
label define flenghome 1 "french" 0 "other"
```

```
g flengent = 1 if m02p_l ang==1 //interview language
replace flengent = 0 if flengent==. & !inlist(m02p_l ang,.)
label var flengent "language at interview, father"
label define flengent 1 "french" 0 "other"
```

```
g fleng = 1 if flenghome==1 & flengent==1
replace fleng = 0 if flenghome==0 & flengent==1 //french origin language
replace fleng = 0 if flenghome==0 & flengent==0 //foreign language as origin
replace fleng = 2 if flenghome==1 & flengent==0 //french at home but foreign language at interview
label var fleng "main language"
```



```
label define fleng 1 "french" 0 "foreign language" 2 "not clear"  
tab fleng, missing
```

```
//3.2. Grandmother father  
//Born in france  
g f_gmbirthfr = 1 if m02p_mblieu==1  
replace f_gmbirthfr = 0 if m02p_mblieu==2  
foreach i of numlist 5/10{ //5/11  
replace f_gmbirthfr = 1 if m02p_l nais_`i'==1 & m02p_lientyp_`i'==9 & m02p_sexec1_`i'==2 & missing(f_gmbirthfr)  
//grandparent (father), female, born in france  
replace f_gmbirthfr = 0 if m02p_l nais_`i'==2 & m02p_lientyp_`i'==9 & m02p_sexec1_`i'==2 & missing(f_gmbirthfr)  
}  
replace f_gmbirthfr = 1 if m02m_bmlieu==1 & missing(f_gmbirthfr)  
replace f_gmbirthfr = 0 if m02m_bmlieu==2 & missing(f_gmbirthfr)  
foreach i of numlist 4/10{  
replace f_gmbirthfr = 1 if m02m_l nais_`i'==1 & m02m_lientyp_`i'==9 & m02m_sexec1_`i'==2 & missing(f_gmbirthfr)  
//grandparent (father), female, born in france  
replace f_gmbirthfr = 0 if m02m_l nais_`i'==2 & m02m_lientyp_`i'==9 & m02m_sexec1_`i'==2 & missing(f_gmbirthfr)  
}
```

```
label var f_gmbirthfr "grandmother born in france (father)"  
label define f_gmbirthfr 1 "yes" 0 "no"  
label values f_gmbirthfr f_gmbirthfr  
tab f_gmbirthfr, missing
```

```
//French nationality at birth  
g f_gmnationfr = 1 if m02p_mbfranc==1  
replace f_gmnationfr = 0 if inlist(m02p_mbfranc,2,3,4)  
foreach i of numlist 5/10{ //5/11  
replace f_gmnationfr = 1 if m02p_natio1n_`i'==1 & m02p_lientyp_`i'==9 & m02p_sexec1_`i'==2 & missing(f_gmnationfr)  
//grandparent (mother), female french nationality at birth  
replace f_gmnationfr = 0 if inlist(m02p_natio1n_`i',2,3,4) & m02p_lientyp_`i'==9 & m02p_sexec1_`i'==2 &  
missing(f_gmnationfr)  
}  
replace f_gmnationfr = 1 if m02m_bmfranc==1 & missing(f_gmnationfr)  
replace f_gmnationfr = 0 if inlist(m02m_bmfranc,2,3,4) & missing(f_gmnationfr)  
foreach i of numlist 4/10{  
replace f_gmnationfr = 1 if m02m_natio1n_`i'==1 & m02m_lientyp_`i'==9 & m02m_sexec1_`i'==2 & missing(f_gmnationfr)  
//grandparent (mother), female french nationality at birth  
replace f_gmnationfr = 0 if inlist(m02m_natio1n_`i',2,3,4) & m02m_lientyp_`i'==9 & m02m_sexec1_`i'==2 &  
missing(f_gmnationfr)  
}
```

```
label var f_gmnationfr "grandmother french nationality at birth (father)"  
label define f_gmnationfr 1 "yes" 0 "no"  
label values f_gmnationfr f_gmnationfr  
tab f_gmnationfr, missing
```

```
//grandmother father main language  
g f_gmleng = 1 if m02p_peremlan==1  
replace f_gmleng = 0 if f_gmleng==. & !inlist(m02p_peremlan,.)  
replace f_gmleng = 1 if m02p_mblang==1 & f_gmleng==.  
replace f_gmleng = 0 if !inlist(m02p_mblang,.) & f_gmleng==.  
replace f_gmleng = 1 if m02m_peremlan==1 & f_gmleng==.
```

```

replace f_gmleng = 0 if !inlist(m02m_peremlan,.) & f_gmleng==.
replace f_gmleng = 1 if m02m_bmlang==1 & f_gmleng==. & m02m_lientyp_4==1
replace f_gmleng = 0 if !inlist(m02m_bmlang,.) & !inlist(m02m_bmlang,1) & !inlist(m02m_bmlang,999) &
m02m_lientyp_4==1 //not condition
//on missing data, because there are some differences and i tend to trust info on foreign language

```

```

label var f_gmleng "main langue grand-mère"
label define f_gmleng 1 "français" 0 "autre langue"
tab f_gmleng

```

```
//3.3. Grandfather father
```

```
//Born in france
```

```

g f_gfbirthfr = 1 if m02p_pblieu==1
replace f_gfbirthfr = 0 if m02p_pblieu==2
foreach i of numlist 5/10{ //5/11
replace f_gfbirthfr = 1 if m02p_inais_`i`==1 & m02p_lientyp_`i`==9 & m02p_sexec1_`i`==1 & missing(f_gfbirthfr)
//grandparent (father), male, born in france
replace f_gfbirthfr = 0 if m02p_inais_`i`==2 & m02p_lientyp_`i`==9 & m02p_sexec1_`i`==1 & missing(f_gfbirthfr)
}
replace f_gfbirthfr = 1 if m02m_bplieu==1 & missing(f_gfbirthfr)
replace f_gfbirthfr = 0 if m02m_bplieu==2 & missing(f_gfbirthfr)
foreach i of numlist 4/10{
replace f_gfbirthfr = 1 if m02m_inais_`i`==1 & m02m_lientyp_`i`==9 & m02m_sexec1_`i`==1 & missing(f_gfbirthfr)
//grandparent (father), male, born in france
replace f_gfbirthfr = 0 if m02m_inais_`i`==2 & m02m_lientyp_`i`==9 & m02m_sexec1_`i`==1 & missing(f_gfbirthfr)
}

```

```

label var f_gfbirthfr "grandfather born in france (father)"
label define f_gfbirthfr 1 "yes" 0 "no"
label values f_gfbirthfr f_gfbirthfr
tab f_gfbirthfr, missing

```

```
//French nationality at birth
```

```

g f_gfnationfr = 1 if m02p_pbfranc==1
replace f_gfnationfr = 0 if inlist(m02p_pbfranc,2,3,4)
foreach i of numlist 5/10{ //5/11
replace f_gfnationfr = 1 if m02p_natio1n_`i`==1 & m02p_lientyp_`i`==9 & m02p_sexec1_`i`==1 & missing(f_gfnationfr)
//grandparent (father), male french nationality at birth
replace f_gfnationfr = 0 if inlist(m02p_natio1n_`i`,2,3,4) & m02p_lientyp_`i`==9 & m02p_sexec1_`i`==1 &
missing(f_gfnationfr)
}
replace f_gfnationfr = 1 if m02m_bpfranc==1 & missing(f_gfnationfr)
replace f_gfnationfr = 0 if inlist(m02m_bpfranc,2,3,4) & missing(f_gfnationfr)
foreach i of numlist 4/10{
replace f_gfnationfr = 1 if m02m_natio1n_`i`==1 & m02m_lientyp_`i`==9 & m02m_sexec1_`i`==1 & missing(f_gfnationfr)
//grandparent (father), male french nationality at birth
replace f_gfnationfr = 0 if inlist(m02m_natio1n_`i`,2,3,4) & m02m_lientyp_`i`==9 & m02m_sexec1_`i`==1 &
missing(f_gfnationfr)
}
label var f_gfnationfr "grandfather french nationality at birth (father)"
label define f_gfnationfr 1 "yes" 0 "no"
label values f_gfnationfr f_gfnationfr
tab f_gfnationfr, missing

```

```

//grandfather father main language
g f_gfleng = 1 if m02p_pereplan==1
replace f_gfleng = 0 if f_gfleng==. & !inlist(m02p_pereplan,.)
replace f_gfleng = 1 if m02p_pblang==1 & f_gfleng==.
replace f_gfleng = 0 if !inlist(m02p_pblang,.) & f_gfleng==.
replace f_gfleng = 1 if m02m_pereplan==1 & f_gfleng==.
replace f_gfleng = 0 if !inlist(m02m_pereplan,.) & f_gfleng==.
replace f_gfleng = 1 if m02m_bplang==1 & f_gfleng==. & m02m_lientyp_4==1
replace f_gfleng = 0 if !inlist(m02m_bplang,.,1,999) & m02m_lientyp_4==1 //not condition
//on missing data, because there are some differences and i tend to trust info on foreign language

```

```

label var f_gfleng "main language grandfather father"
label define f_gfleng 1 "french" 0 "other"
tab f_gfleng

```

//4. IMPUTATIONS OF FATHER' FAMILY -> LENGUAGE

//4.1. FATHER

```

tab fleng fbirthfr, missing
tab fleng fbirthfr //[aweight = M00E_PONDVAL]
replace fbirthfr = rbinomial(1, 0.93) if fbirthfr==. & fleng==1
tab fleng fbirthfr, missing

```

```

tab fleng fnationfr, missing
tab fleng fnationfr //[aweight = M00E_PONDVAL]
replace fnationfr = rbinomial(1, 0.245) if fnationfr==. & flenghome==0
replace fnationfr = rbinomial(1, 0.936) if fnationfr==. & flenghome==1
tab fleng fnationfr, missing

```

//4.2. GRANDMOTHER FATHER

```

tab f_gmleng f_gmbirthfr, missing
tab f_gmleng f_gmbirthfr
replace f_gmbirthfr = rbinomial(1, 0.164) if f_gmleng==0 & f_gmbirthfr==.
replace f_gmbirthfr = rbinomial(1, 0.902) if f_gmleng==1 & f_gmbirthfr==.
tab f_gmleng f_gmbirthfr, missing

```

```

tab f_gmleng f_gmnationfr, missing
tab f_gmleng f_gmnationfr
replace f_gmnationfr = rbinomial(1, 0.195) if f_gmleng==0 & f_gmnationfr==.
replace f_gmnationfr = rbinomial(1, 0.937) if f_gmleng==1 & f_gmnationfr==.
tab f_gmleng f_gmnationfr, missing

```

//4.3. GRANDFATHER FATHER

```

tab f_gfleng f_gfbirthfr, missing
tab f_gfleng f_gfbirthfr
replace f_gfbirthfr = rbinomial(1, 0.171) if f_gfleng==0 & f_gfbirthfr==.
replace f_gfbirthfr = rbinomial(1, 0.882) if f_gfleng==1 & f_gfbirthfr==.
tab f_gfleng f_gfbirthfr, missing

```

```

tab f_gfleng f_gfnationfr, missing
tab f_gfleng f_gfnationfr
replace f_gfnationfr = rbinomial(1, 0.193) if f_gfleng==0 & f_gfnationfr==.
replace f_gfnationfr = rbinomial(1, 0.923) if f_gfleng==1 & f_gfnationfr==.

```

```
tab f_gfleng f_gfnationfr, missing
```

```
//5. IMPUTATIONS FATHER' FAMILLY -> OTHER MEMBERS' INFO
```

```
//5.1. From grandparents' information, FATHER
```

```
g f_parents = 1 if f_gfnationfr==1 | f_gmnationfr==1
```

```
replace f_parents = 0 if f_gfnationfr==0 & f_gmnationfr==0
```

```
label var f_parents "At least one grandparent has french nationality, father"
```

```
label define f_parents 1 "Yes" 0 "No"
```

```
tab fbirthfr fnationfr, missing
```

```
replace fnationfr = 1 if f_parents==1 & fnationfr==.
```

```
replace fnationfr = 0 if f_parents==0 & fnationfr==.
```

```
tab fbirthfr fnationfr, missing
```

```
//6. IMPUTATIONS FATHER' FAMILLY -> OWN BIRTH PLACE AND NATIONALITY
```

```
//6.1. FATHER
```

```
tab fbirthfr fnationfr, missing
```

```
tab fbirthfr fnationfr
```

```
replace fbirthfr = rbinomial(1, 0.05) if fnationfr==0 & fbirthfr==.
```

```
replace fbirthfr = rbinomial(1, 0.983) if fnationfr==1 & fbirthfr==.
```

```
replace fnationfr = rbinomial(1, 0.099) if fnationfr==. & fbirthfr==0
```

```
replace fnationfr = rbinomial(1, 0.992) if fnationfr==. & fbirthfr==1
```

```
tab fbirthfr fnationfr, missing
```

```
//7. IMPUTATIONS FATHER' FAMILLY -> OTHER MEMBERS' INFO
```

```
//7.1. From father nationality, GRANDMOTHER FATHER
```

```
tab f_gmbirthfr f_gmnationfr, missing
```

```
replace f_gmnationfr = 0 if fnationfr==0 & f_gmnationfr==.
```

```
replace f_gmnationfr = 1 if fnationfr==1 & f_gfnationfr==0 & f_gmnationfr==.
```

```
tab f_gmbirthfr f_gmnationfr, missing
```

```
//7.2. From father nationality, GRANDFATHER FATHER
```

```
tab f_gfbirthfr f_gfnationfr, missing
```

```
replace f_gfnationfr = 0 if fnationfr==0 & f_gfnationfr==.
```

```
replace f_gfnationfr = 1 if fnationfr==1 & f_gmnationfr==0 & f_gfnationfr==.
```

```
tab f_gfbirthfr f_gfnationfr, missing
```

```
//8. IMPUTATIONS FATHER' FAMILLY -> OWN BIRTH PLACE AND NATIONALITY
```

```
//8.1. GRANDMOTHER FATHER
```

```
tab f_gmbirthfr f_gmnationfr
```

```
replace f_gmbirthfr = rbinomial(1, 0.952) if f_gmnationfr==1 & f_gmbirthfr==.
```

```
replace f_gmbirthfr = rbinomial(1, 0.038) if f_gmnationfr==0 & f_gmbirthfr==.
```

```
replace f_gmnationfr = rbinomial(1, 0.993) if f_gmnationfr==. & f_gmbirthfr==1
```

```
replace f_gmnationfr = rbinomial(1, 0.21) if f_gmnationfr==. & f_gmbirthfr==0
tab f_gmbirthfr f_gmnationfr, missing
```

```
//8.2. GRANDFATHER FATHER
```

```
tab f_gfbirthfr f_gfnationfr
replace f_gfbirthfr = rbinomial(1, 0.947) if f_gfnationfr==1 & f_gfbirthfr==.
replace f_gfbirthfr = rbinomial(1, 0.035) if f_gfnationfr==0 & f_gfbirthfr==.
replace f_gfnationfr = rbinomial(1, 0.993) if f_gfnationfr==. & f_gfbirthfr==1
replace f_gfnationfr = rbinomial(1, 0.215) if f_gfnationfr==. & f_gfbirthfr==0
tab f_gfbirthfr f_gfnationfr, missing
```

```
***
```

```
//9. WHAT ABOUT ALL MISSING OBSERVATIONS??
```

```
//FATHER
```

```
tab fbirthfr fnationfr, missing
tab fbirthfr fnationfr if months2==1, missing
tab fbirthfr fnationfr if f_unknown==0, missing
tab fbirthfr fnationfr if months2==1 & f_unknown==0, missing
```

```
**-> Excluding unknown fathers and keeping just children in 2 months survey,
```

```
*we just have 28 missing values
```

```
*keep if fbirthfr==. & fnationfr==. & months2==1 & f_unknown==0
```

```
*tab M00M2_COUPLE M00M2_ETATMAT, missing
```

```
*tab M00M2_COUPLE child_hhld, missing
```

```
*tab child_hhld, missing
```

```
*keep M00M2_ETATMAT M00M2_COUPLE child_hhld M02M_LIENTYP_4 M02P_LIENTYP_4 ///
```

```
*M02X_CONTPECF2M father_recogn_child father_present_birth M02M_INFPER
```

```
//GRANDMOTHER, FATHER
```

```
tab f_gmbirthfr f_gmnationfr, missing
tab f_gmbirthfr f_gmnationfr if months2==1, missing
tab f_gmbirthfr f_gmnationfr if f_unknown==0, missing
tab f_gmbirthfr f_gmnationfr if months2==1 & f_unknown==0, missing
```

```
//GRANDFATHER, FATHER
```

```
tab f_gfbirthfr f_gfnationfr, missing
tab f_gfbirthfr f_gfnationfr if months2==1, missing
tab f_gfbirthfr f_gfnationfr if f_unknown==0, missing
tab f_gfbirthfr f_gfnationfr if months2==1 & f_unknown==0, missing
```

```
***
```

```
*****
***** MOTHER'S FAMILY *****
*****
```

```
//3. INFORMATION ABOUT MOTHER'S FAMILY
```

```
//3.1. Mother
```

```

//Born in france, MOTHER
g mbirthfr = 1 if m02m_inais_3==1 //born in france
replace mbirthfr = 0 if m02m_inais_3==2 //born abroad
foreach i of numlist 3/10{
replace mbirthfr = 1 if m02p_inais_`i'==1 & m02p_lientyp_`i'==2 & missing(mbirthfr)
replace mbirthfr = 0 if m02p_inais_`i'==2 & m02p_lientyp_`i'==2 & missing(mbirthfr)
}
replace mbirthfr = 1 if m00m2_lieunaism==1 & missing(mbirthfr)
replace mbirthfr = 0 if m00m2_lieunaism==2 & missing(mbirthfr)

label var mbirthfr "mother born in france"
label define mbirthfr 1 "yes" 0 "no"
label values mbirthfr mbirthfr
tab mbirthfr, missing

//French nationality at birth, MOTHER
g mnationfr = 1 if m02m_natio1n_3==1 //born with french nationality
replace mnationfr = 0 if inlist(m02m_natio1n_3,2,3,4) //not born with french nationality
foreach i of numlist 3/10{
replace mnationfr = 1 if m02p_natio1n_`i'==1 & m02p_lientyp_`i'==2 & missing(mnationfr)
replace mnationfr = 0 if inlist(m02p_natio1n_`i',2,3,4) & m02p_lientyp_`i'==2 & missing(mnationfr)
}
replace mnationfr = 1 if m00m2_natiom==1 & missing(mnationfr)
replace mnationfr = 0 if inlist(m00m2_natiom,2,3,4) & missing(mnationfr)

label var mnationfr "mother french nationality at birth"
label define mnationfr 1 "yes" 0 "no"
label values mnationfr mnationfr
tab mnationfr, missing

//mother's language, mother
g mlenghome = 1 if m02m_lang1e==2 //language spoken at home with the child
replace mlenghome = 0 if mlenghome==. & linlist(m02m_lang1e,.)
label var mlenghome "language spoken at home with the child, mother"
label define mlenghome 1 "french" 0 "other"

g mlengt = 1 if m02m_lang==1 //interview language
replace mlengt = 0 if mlengt==. & linlist(m02m_lang,.)
label var mlengt "language at interview, mother"
label define mlengt 1 "french" 0 "other"

g mleng = 1 if mlenghome==1 & mlengt==1
replace mleng = 0 if mlenghome==0 & mlengt==1 //french origin language
replace mleng = 0 if mlenghome==0 & mlengt==0 //foreign language as origin
replace mleng = 2 if mlenghome==1 & mlengt==0 //french at home but foreign language at interview
label var mleng "main language, mother"
label define mleng 1 "french" 0 "foreign language" 2 "not clear"
tab mleng, missing

//3.2. Grandmother mother
//Born in france
g m_gmbirthfr = 1 if m02m_mblieu==1
replace m_gmbirthfr = 0 if m02m_mblieu==2
foreach i of numlist 4/10{

```

```

replace m_gmbirthfr = 1 if m02m_inais_`i`==1 & m02m_lientyp_`i`==8 & m02m_sexec1_`i`==2 & missing(m_gmbirthfr)
//grandparent (mother), female, born in france
replace m_gmbirthfr = 0 if m02m_inais_`i`==2 & m02m_lientyp_`i`==8 & m02m_sexec1_`i`==2 & missing(m_gmbirthfr)
}
replace m_gmbirthfr = 1 if m02p_bmlieu==1 & missing(m_gmbirthfr)
replace m_gmbirthfr = 0 if m02p_bmlieu==2 & missing(m_gmbirthfr)
foreach i of numlist 5/9{
replace m_gmbirthfr = 1 if m02p_inais_`i`==1 & m02p_lientyp_`i`==8 & m02p_sexec1_`i`==2 & missing(m_gmbirthfr)
//grandparent (mother), female, born in france
replace m_gmbirthfr = 0 if m02p_inais_`i`==2 & m02p_lientyp_`i`==8 & m02p_sexec1_`i`==2 & missing(m_gmbirthfr)
}
label var m_gmbirthfr "grandmother born in france (mother)"
label define m_gmbirthfr 1 "yes" 0 "no"
label values m_gmbirthfr m_gmbirthfr
tab m_gmbirthfr, missing

//French nationality at birth
g m_gmnationfr = 1 if m02m_mbfranc==1
replace m_gmnationfr = 0 if inlist(m02m_mbfranc,2,3,4)
foreach i of numlist 4/10{
replace m_gmnationfr = 1 if m02m_natio1n_`i`==1 & m02m_lientyp_`i`==8 & m02m_sexec1_`i`==2 &
missing(m_gmnationfr) //grandparent (mother), female french nationality at birth
replace m_gmnationfr = 0 if inlist(m02m_natio1n_`i`,2,3,4) & m02m_lientyp_`i`==8 & m02m_sexec1_`i`==2 &
missing(m_gmnationfr)
}
replace m_gmnationfr = 1 if m02p_bmfranc==1 & missing(m_gmnationfr)
replace m_gmnationfr = 0 if inlist(m02p_bmfranc,2,3,4) & missing(m_gmnationfr)
foreach i of numlist 5/9{
replace m_gmnationfr = 1 if m02p_natio1n_`i`==1 & m02p_lientyp_`i`==8 & m02p_sexec1_`i`==2 & missing(m_gmnationfr)
//grandparent (mother), female french nationality at birth
replace m_gmnationfr = 0 if inlist(m02p_natio1n_`i`,2,3,4) & m02p_lientyp_`i`==8 & m02p_sexec1_`i`==2 &
missing(m_gmnationfr)
}
label var m_gmnationfr "grandmother french nationality at birth (mother)"
label define m_gmnationfr 1 "yes" 0 "no"
label values m_gmnationfr m_gmnationfr
tab m_gmnationfr, missing

//grandmother mother main language
g m_gmleng = 1 if m02m_meremlan==1
replace m_gmleng = 0 if m_gmleng==. & !inlist(m02m_meremlan,.)
replace m_gmleng = 1 if m02m_mblang==1 & m_gmleng==.
replace m_gmleng = 0 if !inlist(m02m_mblang,.) & m_gmleng==.
replace m_gmleng = 1 if m02p_meremlan==1 & m_gmleng==.
replace m_gmleng = 0 if !inlist(m02p_meremlan,.) & m_gmleng==.
replace m_gmleng = 1 if m02p_bmlang==1 & m_gmleng==. & m02p_lientyp_4==1
replace m_gmleng = 0 if !inlist(m02p_bmlang,.) & !inlist(m02p_bmlang,1) & !inlist(m02p_bmlang,999) &
m02p_lientyp_4==1 //not condition
//on missing data, because there are some differences and i tend to trust info on foreign language

label var m_gmleng "main language grandmother, mother"
label define m_gmleng 1 "french" 0 "other"
tab m_gmleng

```

```

//3.3. Grandfather
//Born in france
g m_gfbirthfr = 1 if m02m_pblieu==1
replace m_gfbirthfr = 0 if m02m_pblieu==2
foreach i of numlist 4/10{
replace m_gfbirthfr = 1 if m02m_l'nais_`i`==1 & m02m_lientyp_`i`==8 & m02m_sexec1_`i`==1 & missing(m_gfbirthfr)
//grandparent (mother), male, born in france
replace m_gfbirthfr = 0 if m02m_l'nais_`i`==2 & m02m_lientyp_`i`==8 & m02m_sexec1_`i`==1 & missing(m_gfbirthfr)
}
replace m_gfbirthfr = 1 if m02p_bplieu==1 & missing(m_gfbirthfr)
replace m_gfbirthfr = 0 if m02p_bplieu==2 & missing(m_gfbirthfr)
foreach i of numlist 5/9{
replace m_gfbirthfr = 1 if m02p_l'nais_`i`==1 & m02p_lientyp_`i`==8 & m02p_sexec1_`i`==1 & missing(m_gfbirthfr)
//grandparent (mother), male, born in france
replace m_gfbirthfr = 0 if m02p_l'nais_`i`==2 & m02p_lientyp_`i`==8 & m02p_sexec1_`i`==1 & missing(m_gfbirthfr)
}
label var m_gfbirthfr "grandfather born in france (mother)"
label define m_gfbirthfr 1 "yes" 0 "no"
label values m_gfbirthfr m_gfbirthfr
tab m_gfbirthfr, missing

//French nationality at birth
g m_gfnationfr = 1 if m02m_pbfranc==1
replace m_gfnationfr = 0 if inlist(m02m_pbfranc,2,3,4)
foreach i of numlist 4/10{
replace m_gfnationfr = 1 if m02m_natio1n_`i`==1 & m02m_lientyp_`i`==8 & m02m_sexec1_`i`==1 & missing(m_gfnationfr)
//grandparent (mother), male french nationality at birth
replace m_gfnationfr = 0 if inlist(m02m_natio1n_`i`,2,3,4) & m02m_lientyp_`i`==8 & m02m_sexec1_`i`==1 &
missing(m_gfnationfr)
}
replace m_gfnationfr = 1 if m02p_bpfranc==1 & missing(m_gfnationfr)
replace m_gfnationfr = 0 if inlist(m02p_bpfranc,2,3,4) & missing(m_gfnationfr)
foreach i of numlist 5/9{
replace m_gfnationfr = 1 if m02p_natio1n_`i`==1 & m02p_lientyp_`i`==8 & m02p_sexec1_`i`==1 & missing(m_gfnationfr)
//grandparent (mother), male french nationality at birth
replace m_gfnationfr = 0 if inlist(m02p_natio1n_`i`,2,3,4) & m02p_lientyp_`i`==8 & m02p_sexec1_`i`==1 &
missing(m_gfnationfr)
}
label var m_gfnationfr "grandfather french nationality at birth (mother)"
label define m_gfnationfr 1 "yes" 0 "no"
label values m_gfnationfr m_gfnationfr
tab m_gfnationfr, missing

//grandfather mother main language
g m_gfleng = 1 if m02m_mereplan==1
replace m_gfleng = 0 if m_gfleng==. & !inlist(m02m_mereplan,.)
replace m_gfleng = 1 if m02m_pblang==1 & m_gfleng==.
replace m_gfleng = 0 if !inlist(m02m_pblang,.) & m_gfleng==.
replace m_gfleng = 1 if m02p_mereplan==1 & m_gfleng==.
replace m_gfleng = 0 if !inlist(m02p_mereplan,.) & m_gfleng==.
replace m_gfleng = 1 if m02p_bplang==1 & m_gfleng==. & m02p_lientyp_4==1
replace m_gfleng = 0 if !inlist(m02p_bplang,.,1,999) & m02p_lientyp_4==1 //not condition
//on missing data, because there are some differences and i tend to trust info on foreign language

```



```
label var m_gfleng "main language grandfather mother"  
label define m_gfleng 1 "french" 0 "other"  
tab m_gfleng
```

//4. IMPUTATIONS MOTHER'FAMILY -> LANGUAGE

//4.1. We keep initial proportions before any imputation for last step, MOTHER

```
tab mbirthfr mnationfr, missing  
tab mbirthfr mnationfr
```

//4.2. MOTHER

```
tab mleng mbirthfr, missing  
tab mleng mbirthfr //no missing obs
```

```
tab mleng mnationfr, missing
```

```
tab mleng mnationfr
```

```
replace mnationfr = rbinomial(1, 0.211) if mnationfr==. & mlenghome==0
```

```
replace mnationfr = rbinomial(1, 0.931) if mnationfr==. & mlenghome==1
```

```
tab mleng mnationfr, missing
```

//4.3. GRANDMOTHER MOTHER

```
tab m_gmleng m_gmbirthfr, missing
```

```
tab m_gmleng m_gmbirthfr
```

```
replace m_gmbirthfr = rbinomial(1, 0.142) if m_gmleng==0 & m_gmbirthfr==.
```

```
replace m_gmbirthfr = rbinomial(1, 0.889) if m_gmleng==1 & m_gmbirthfr==.
```

```
tab m_gmleng m_gmbirthfr, missing
```

```
tab m_gmleng m_gmnationfr, missing
```

```
tab m_gmleng m_gmnationfr
```

```
replace m_gmnationfr = rbinomial(1, 0.159) if m_gmleng==0 & m_gmnationfr==.
```

```
replace m_gmnationfr = rbinomial(1, 0.924) if m_gmleng==1 & m_gmnationfr==.
```

```
tab m_gmleng m_gmnationfr, missing
```

//4.4. GRANDFATHER MOTHER

```
tab m_gfleng m_gfbirthfr, missing
```

```
tab m_gfleng m_gfbirthfr
```

```
replace m_gfbirthfr = rbinomial(1, 0.144) if m_gfleng==0 & m_gfbirthfr==.
```

```
replace m_gfbirthfr = rbinomial(1, 0.871) if m_gfleng==1 & m_gfbirthfr==.
```

```
tab m_gfleng m_gfbirthfr, missing
```

```
tab m_gfleng m_gfnationfr, missing
```

```
tab m_gfleng m_gfnationfr
```

```
replace m_gfnationfr = rbinomial(1, 0.157) if m_gfleng==0 & m_gfnationfr==.
```

```
replace m_gfnationfr = rbinomial(1, 0.912) if m_gfleng==1 & m_gfnationfr==.
```

```
tab m_gfleng m_gfnationfr, missing
```

//5. IMPUTATIONS MOTHER'FAMILY -> OTHERS' INFO

//5.1. MOTHER

```
g m_parents = 1 if m_gfnationfr==1 | m_gmnationfr==1
```

```
replace m_parents = 0 if m_gfnationfr==0 & m_gmnationfr==0
```

```
label var m_parents "At least one grandparent has french nationality, mother"
```

```
label define m_parents 1 "Yes" 0 "No"
```

```
tab mbirthfr mnationfr, missing  
replace mnationfr = 1 if m_parents==1 & mnationfr==.  
replace mnationfr = 0 if m_parents==0 & mnationfr==.  
tab mbirthfr mnationfr, missing
```

```
//6. IMPUTATIONS MOTHER'FAMILY -> BIRTH PLACE AND NATIONALITY
```

```
//6.1. MOTHER
```

```
tab mbirthfr mnationfr, missing  
tab mbirthfr mnationfr  
replace mbirthfr = rbinomial(1, 0.063) if mnationfr==0 & mbirthfr==.  
replace mbirthfr = rbinomial(1, 0.986) if mnationfr==1 & mbirthfr==.  
replace mnationfr = rbinomial(1, 0.094) if mnationfr==. & mbirthfr==0  
replace mnationfr = rbinomial(1, 0.991) if mnationfr==. & mbirthfr==1  
tab mbirthfr mnationfr, missing
```

```
//7. IMPUTATIONS MOTHER'FAMILY -> OTHERS' INFO
```

```
//7.1. GRANDMOTHER MOTHER
```

```
tab m_gmbirthfr m_gmnationfr, missing  
replace m_gmnationfr = 0 if mnationfr==0 & m_gmnationfr==.  
replace m_gmnationfr = 1 if mnationfr==1 & m_gfnationfr==0 & m_gmnationfr==.  
tab m_gmbirthfr m_gmnationfr, missing
```

```
//7.2. GRANDFATHER MOTHER
```

```
tab m_gfbirthfr m_gfnationfr, missing  
replace m_gfnationfr = 0 if mnationfr==0 & m_gfnationfr==.  
replace m_gfnationfr = 1 if mnationfr==1 & m_gmnationfr==0 & m_gfnationfr==.  
tab m_gfbirthfr m_gfnationfr, missing
```

```
//8. IMPUTATIONS MOTHER'FAMILY -> BIRTH PLACE AND NATIONALITY
```

```
//8.1. GRANDMOTHER MOTHER
```

```
tab m_gmbirthfr m_gmnationfr  
replace m_gmbirthfr = rbinomial(1, 0.952) if m_gmnationfr==1 & m_gmbirthfr==.  
replace m_gmbirthfr = rbinomial(1, 0.034) if m_gmnationfr==0 & m_gmbirthfr==.  
replace m_gmnationfr = rbinomial(1, 0.992) if m_gmnationfr==. & m_gmbirthfr==1  
replace m_gmnationfr = rbinomial(1, 0.181) if m_gmnationfr==. & m_gmbirthfr==0  
tab m_gmbirthfr m_gmnationfr, missing
```

```
//8.2. GRANDFATHER MOTHER
```

```
tab m_gfbirthfr m_gfnationfr  
replace m_gfbirthfr = rbinomial(1, 0.945) if m_gfnationfr==1 & m_gfbirthfr==.  
replace m_gfbirthfr = rbinomial(1, 0.039) if m_gfnationfr==0 & m_gfbirthfr==.  
replace m_gfnationfr = rbinomial(1, 0.99) if m_gfnationfr==. & m_gfbirthfr==1  
replace m_gfnationfr = rbinomial(1, 0.191) if m_gfnationfr==. & m_gfbirthfr==0  
tab m_gfbirthfr m_gfnationfr, missing
```

```

***
//9. WHAT ABOUT ALL MISSING OBSERVATIONS??
//MOTHER
tab m_bIRTHFR m_nATIONFR, missing
tab m_bIRTHFR m_nATIONFR if months2==1, missing

//GRANDMOTHER, FATHER
tab m_gm_bIRTHFR m_gm_nATIONFR, missing
tab m_gm_bIRTHFR m_gm_nATIONFR if months2==1, missing

*afther all imputations, when we keep just women in 2 months survey,
*we have 53 missing values
*keep if m_gm_bIRTHFR==. & m_gm_nATIONFR==. & months2==1

```

```

//GRANDFATHER, FATHER
tab m_gf_bIRTHFR m_gf_nATIONFR, missing
tab m_gf_bIRTHFR m_gf_nATIONFR if months2==1, missing

*afther all imputations, when we keep just women in 2 months survey,
*we have 219 missing values
***

```

```

*****
***** MIGRATION VARIABLES *****
*****

```

```

//1. Grandparents
//mother
g m_gmimm = 1 if m_gm_bIRTHFR==0 & m_gm_nATIONFR==0
replace m_gmimm = 0 if m_gmimm==. & !inlist(m_gm_bIRTHFR,.) & !inlist(m_gm_nATIONFR,.)
label var m_gmimm "Grandmother born abroad with foreign nationality (regardless of current residence place), mother"
label define m_gmimm 1 "yes"
tab m_gmimm if months2==1, missing

```

```

g m_gfimm = 1 if m_gf_bIRTHFR==0 & m_gf_nATIONFR==0
replace m_gfimm = 0 if m_gfimm==. & !inlist(m_gf_bIRTHFR,.) & !inlist(m_gf_nATIONFR,.)
label var m_gfimm "Grandfather born abroad with foreign nationality (regardless of current residence place), mother"
label define m_gfimm 1 "yes"
tab m_gfimm if months2==1, missing

```

```

**EXTRA IMPUTATION
tab m_gmimm m_gfimm if months==1, missing //WE CAN IMPUTE MORE
tab m_gmimm m_gfimm, missing
replace m_gmimm = rbinomial(1, 0.04) if m_gfimm==0 & m_gmimm==.
replace m_gfimm = rbinomial(1, 0.05) if m_gmimm==0 & m_gfimm==.
tab m_gmimm m_gfimm if months==1, missing

```

```

//father
g f_gmimm = 1 if f_gm_bIRTHFR==0 & f_gm_nATIONFR==0

```

```

replace f_gmimm = 0 if f_gmimm==. & !inlist(f_gmbirthfr,.) & !inlist(f_gmnationfr,.)
label var f_gmimm "Grandmother born abroad with foreign nationality (regardless of current residence place), father"
label define f_gmimm 1 "yes"
tab f_gmimm if months2==1 & f_unknow==0, missing

```

```

g f_gfimm = 1 if f_gfbirthfr==0 & f_gfnationfr==0
replace f_gfimm = 0 if f_gfimm==. & !inlist(f_gfbirthfr,.) & !inlist(f_gfnationfr,.)
label var f_gfimm "Grandfather born abroad with foreign nationality (regardless of current residence place), father"
label define f_gfimm 1 "yes"
tab f_gfimm if months2==1 & f_unknow==0, missing

```

****EXTRA IMPUTATION**

```

tab f_gmimm f_gfimm if months==1 & f_unknow==0, missing //WE CAN IMPUTE MORE
tab f_gmimm f_gfimm, missing
replace f_gmimm = rbinomial(1, 0.04) if f_gfimm==0 & f_gmimm==.
replace f_gfimm = rbinomial(1, 0.055) if f_gmimm==0 & f_gfimm==.
tab f_gmimm f_gfimm if months==1 & f_unknow==0, missing

```

//2. Mother

```

g mimm = 1 if mbirthfr==0 & mnationfr==0 //immigrant mother
replace mimm = 2 if m_gmimm==1 & m_gfimm==1 & mbirthfr==1 & missing(mimm) //mother descendant of two
immigrants

```

```

g m_oneimm = 1 if m_gmimm==1 & m_gfimm==0
replace m_oneimm = 1 if m_gmimm==1 & m_gfimm==.
replace m_oneimm = 1 if m_gmimm==0 & m_gfimm==1
replace m_oneimm = 1 if m_gmimm==. & m_gfimm==1

```

```

replace mimm = 3 if m_oneimm==1 & mbirthfr==1 & missing(mimm) //mother descendant of at least one immigrant
replace mimm = 4 if !inlist(mbirthfr,.) & !inlist(mnationfr,.) & missing(mimm) //rest of population

```

label var mimm "mother immigrant history"

label define mimm 1 "immigrant mother" 2 "mother descendant of two immigrants" 3 "mother descendant of at least one immigrant" 4 "rest of population"

tab mimm, missing

tab mimm if months2==1, missing

tab mimm if months2==1 & !missing(m_gmimm), missing //we just keep if now missings from grandparents

//3. Father

```

g fimm = 1 if fbirthfr==0 & fnationfr==0 //immigrant mother
replace fimm = 2 if f_gmimm==1 & f_gfimm==1 & fbirthfr==1 & missing(fimm) //mother descendant of two immigrants

```

```

g f_oneimm = 1 if f_gmimm==1 & f_gfimm==0
replace f_oneimm = 1 if f_gmimm==1 & f_gfimm==.
replace f_oneimm = 1 if f_gmimm==0 & f_gfimm==1
replace f_oneimm = 1 if f_gmimm==. & f_gfimm==1

```

```

replace fimm = 3 if f_oneimm==1 & fbirthfr==1 & missing(fimm) //mother descendant of at least one immigrant
replace fimm = 4 if !inlist(fbirthfr,.) & !inlist(fnationfr,.) & missing(fimm) //rest of population

```

label var fimm "father immigrant history"

label define fimm 1 "immigrant father" 2 "father descendant of two immigrants" 3 "father descendant of at least one immigrant" 4 "rest of population"

```
tab fimm, missing
tab fimm if months2==1 & f_unknow==0, missing
tab fimm if months2==1 & f_unknow==0 & !missing(f_gfimm), missing
```

```
**** EXTRA
```

```
**** MULTIVARIATE MULTIPLE IMPUTATION_CHEINED
```

```
mi register imputed f_gmbirthfr f_gmnationfr f_gfbirthfr f_gfnationfr // we indicate the set of variables to be imputed
```

```
mi register regular fbirthfr fnationfr fleng // variables to use in imputation -> must be full variables. without missings
```

```
mi describe
```

```
keep if months2==1 & f_unknow==0
```

```
mi impute chained (logit) f_gmbirthfr f_gmnationfr f_gfbirthfr f_gfnationfr = i.fbirthfr i.fnationfr i.fleng, add(10) force //10
```

```
number of imputations
```

```
*===== THE END =====
```