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Migrant Demographic Behaviour: Fertility

Foreign mothers in Italy

Cinzia Castagnaro, Adriano Pareto, Sabrina Prati and Valentina Talucci

Italian National Institute of Statistics (ISTAT)

DRAFT VERSION

1. Introduction

The analysis of the foreign citizens' family and reproductive behaviours is evermore important, as a growing number of foreigners decide to form or recompose their family and/or have children in Italy.

In the last decade, the percentage of foreign births has increased from 1.7 percent in 1995 to 10.3 percent in 2006 (about 58,000 children born to foreign parents). It rises to 14.3 percent when considering also children born to mixed couples (about 22,000 in 2006).

The increase in the births of children who have at least one foreign parent can partly be explained by the increase in the foreign population that stably lives in Italy; however, it can also be attributed to a large extent to the higher propensity of foreigners to have children in Italy. The birth rate of foreign citizens has indeed risen from 12.7 per thousand inhabitants in 1995 to 20.6 per thousand inhabitants in the most recent year. Hence, some immigrated communities show a progressive stabilisation of their presence.

The reproductive behaviours of foreign mothers can be analysed based on the individual data from the Population Register and from the Sample Survey on Birth carried out by Istat in 2005. Thanks to the latter source, it is possible to greatly widen the range of available information, hence putting in relation the reproductive behaviours of foreign mothers with some of the main characteristics of the parents, the migratory project and the family context.

2. The sample survey on birth in Italy: a special issue for estimates of foreign mothers

The Sample Survey on Birth was carried out by Istat in 2002 for the first time, and a second edition has been carried out in 2005; for this paper we'll analyse data on the 2005 edition. The population is made up of live births enrolled at the Population Register during the year 2003.

This survey gathers the main demographic characteristics of births, parents and any household member and also collects context characteristics of the birth (as mothers are interviewed directly), such as mothers' participation in the labour market, formal and informal childcare network, and the sharing of roles for domestic tasks. The comparison of some of the mothers' socio-demographic characteristics with those of women in general – which can be taken from other surveys carried out by the Institute (Census, Sample surveys on families etc) - will also be extremely interesting, in the study of the main determinants of fertility.

Mothers were interviewed by telephone (using *C.A.T.I - Computer Assisted Telephone Interview*) around one and a half years after the childbirth. One of the advantages of acquiring data by telephone is the possibility of drawing up a more efficient sample, as it is without "stages": the "Municipality" stage is

indeed skipped and mothers are extracted directly from the population list. Furthermore, data are recorded directly, carrying out a series of checks and controls on incompatibility and allowing some inconsistencies to be resolved immediately together with the interviewees. These aspects ensures quality of information and quicker production of results.

The sample is stratified by regions and mothers' age groups and produces representative estimates at regional level. The sample size is about 50,000 births (10percent of the reference population) registered during 2003 at the Population Registers.

The sample survey derives from the need to provide estimates representative of the whole resident population, without citizenship-based distinction.

The coefficients to bring it back to the universe were determined by means of a general Istat-planned software that calculates the final weights of the sample units based on additional information, expressed in terms of totals known of auxiliary variables linked with the variables of interest. Thus, the weights to be attributed to the sample units were obtained through a complex procedure that corrects the total non-response bias and considers the equality constraints among some of the totals known of the population and corresponding estimates.

The auxiliary variables considered are age, civil status and citizenship (Italian and foreigner) of the mother. These data are known for the respondent and non-respondent units and they enable to construct corrective factors for the total non-response.

However, the estimates relative to children born to foreign mothers were calculated considering some other characteristics too such as family and work behaviours of the foreign mothers. Hence, the macro-area of citizenship was used among the auxiliary variables for constructing the coefficients.

Prospect 1 shows the distribution of children born to foreign mothers, in the universe and in the sample, by mother's age, civil status and area of origin.

The sample includes 1,397 units¹, while children born to a foreign mother amounts to 44,924. The most interesting aspect regards the values of the sampling fraction, which is the ratio of sample size to population size.

On the one hand, this ratio results rather homogeneous despite change in the civil status and age classes, except for mothers aged less than 24 and over 40. On the other hand, it assumes particularly high values for citizens from the European Union, other European countries and North America (7.2 percent) and for those from Central-South America (6.3 percent), and very low values for African (1.5 percent) and Asian (1.8 percent) mothers.

These differences are due to the fact that the area of origin was not considered during the planning of the survey, since children born to foreign mothers only account for 8.5 percent of all persons listed in the birth registers.

The introduction of the citizenship macro-area as auxiliary variable for calculating the weights of the foreign mothers allows obtaining estimates in which the children born to mothers from different areas are adequately represented.

¹ This size is random, since the sample size of foreign mothers was not established beforehand.

Prospect 1 – Foreign mother live births (universe and sample), by age group, marital status and macro area of origin – Year 2003

Auxiliary Variables	Universe	Sample	Sample (%)
AGE GROUP OF MOTHER			
Up to 24	11,618	465	4.0
25 - 29	14,920	404	2.7
30 - 34	11,615	301	2.6
35 - 39	5,476	148	2.7
40 years and over	1,295	79	6.1
MARITAL STATUS			
Not married	8,983	284	3.2
Married	35,941	1,113	3.1
MACROAREAS OF ORIGIN			
UE, other european countries and North America	2,954	212	7.2
Central-East Europe	16,692	577	3.5
Africa	13,054	199	1.5
Asia	7,935	140	1.8
Central-South America	4,289	269	6.3
Total	44,924	1,397	3.1

Source: Istat

The main statistics for evaluating the sampling variability of the estimates produced by the survey are the standard error (SE) and the relative error (RE). Indicating with $\hat{V}ar(\hat{Y}_d)$ the estimated variance of the estimate \hat{Y}_d , the standard error of \hat{Y}_d is obtained as follows:

$$\hat{\sigma}(\hat{Y}_d) = \sqrt{\hat{V}ar(\hat{Y}_d)}$$

and the relative error of \hat{Y}_d is given by:

$$\hat{\varepsilon}(\hat{Y}_d) = \frac{\hat{\sigma}(\hat{Y}_d)}{\hat{Y}_d}.$$

The standard error allows constructing a confidence interval, with level of confidence P, for the parameter object of estimate:

$$\left\{ \hat{Y}_d - k_p \hat{\sigma}(\hat{Y}_d) \leq Y_d \leq \hat{Y}_d + k_p \hat{\sigma}(\hat{Y}_d) \right\},$$

where k_p depends on the value set for probability P (e.g. for P=0,95, $k=1,96$).

To simplify the exposition of the results, a synthetic presentation of the relative errors based on the regressive models method was adopted. This method is based on the determination of an algebraic equation expressing the relationship between each estimate and its relative error.

The equation used for the absolute frequency estimates was as follows:

$$\log \hat{\varepsilon}^2(\hat{Y}_d) = a + b \log(\hat{Y}_d)$$

where the parameters a and b were estimated through the Least Squares method.

The values of the model used for extrapolating the sampling errors of the frequency estimates referred to the children born to foreign mothers, for the total of Italy, were the following ones:

$$a = 6,63635 \text{ and } b = -1,34331.$$

The coefficient of determination (*R*-squared) equals 0.86, thus indicating a good fitting of the model to the estimates obtained with the direct calculation.

Based on these data, it is possible to calculate the relative error of a given absolute frequency estimate \hat{Y}_d^* , for the total of Italy, through the following formula:

$$\hat{\varepsilon}(\hat{Y}_d^*) = \sqrt{\exp(a + b \log(\hat{Y}_d^*))}$$

and to construct a 95 percent confidence interval of the form:

$$\{\hat{Y}_d^* - 1,96 \cdot \hat{\varepsilon}(\hat{Y}_d^*) \cdot \hat{Y}_d^*; \hat{Y}_d^* + 1,96 \cdot \hat{\varepsilon}(\hat{Y}_d^*) \cdot \hat{Y}_d^*\}.$$

To make it easier to calculate the sampling errors, prospect 2 reports the relative percentage errors and the standard errors corresponding to the growing values of the absolute frequency estimates. These data enables to approximate the sampling errors of a general absolute frequency estimate \hat{Y}_d^* with the values indicated in the prospect, corresponding to the estimation level that comes closer to \hat{Y}_d^* .

Prospect 2 – Relative error (%) and Standard error referred to the total live births by foreign mother - Year 2003

Value	Relative error RE (%)	Standard error SE
500	42.5	212
750	32.4	243
1,000	26.7	267
1,250	23.0	287
1,500	20.3	305
1,750	18.3	321
2,000	16.7	335
2,500	14.4	360
3,000	12.8	383
3,500	11.5	402
4,000	10.5	421
4,500	9.7	437
5,000	9.0	452
7,500	6.9	517
10,000	5.7	568
15,000	4.3	649
20,000	3.6	713
25,000	3.1	768
30,000	2.7	815
35,000	2.4	857
40,000	2.2	896
45,000	2.1	931

Source: Istat

Prospect 3 reports the estimates and the sampling errors of the main variables of interest.

For example, the estimate of the number of children born to foreign mothers per caesarean section equals 13,801 units, with a relative error RE=6.19 percent and a confidence interval included between 12,126 and 15,475 units.

The estimate of “rare” events, such as the birth of twins, produces higher relative errors and, proportionally, wider confidence intervals. Indeed, the estimate of the number of twins born amounts to 938 units, with a relative error RE=25.26 percent and a confidence interval that varies between 474 and 1,402 units.

Prospect 3 – Estimate value and sampling errors of some variables referred to the total live births by foreign mother – Year 2003

Variables	Estimate value	Standard error SE	Relativ error RE (%)	Confidence Interval CI	
				Inferior limit	Superior limit
Birth order					
I°	24,382	798	3.27	22,818	25,946
II°	15,046	865	5.75	13,350	16,741
III° and over	5,496	620	11.28	4,281	6,712
Born					
in wedlock	34,318	359	1.04	33,615	35,020
out of wedlock	10,606	359	3.38	9,904	11,309
Plurality					
Singleton	43,986	237	0.54	43,522	44,450
Twin or multiple	938	237	25.26	474	1,402
Mode of delivery					
Spontaneous	31,123	854	2.74	29,449	32,798
Caesarean	13,801	854	6.19	12,126	15,475
Professional status					
Working	13,974	793	5.68	12,418	15,529
Not working	30,950	793	2.56	29,395	32,506

Source: Istat

3. Foreign mothers

The Sample Survey on Births provides new data on the characteristics of the foreign mothers and of their migratory project, especially the stability of their presence, expressed in terms of stay duration in Italy.

About 62 percent of the foreign mothers declared they had been living in Italy for more than 4 years and about a quarter for more than 10 years.

In 58.4 percent of the cases, their residence was preceded by a stay period. One mother out of three declared that such stay period lasted for more than 3 years. The total duration of the stays of the foreign mothers interviewed reveals a rather stable presence. Overall, about 60 percent indeed have been living in Italy for 6 years and more and half of them for 10 years and more.

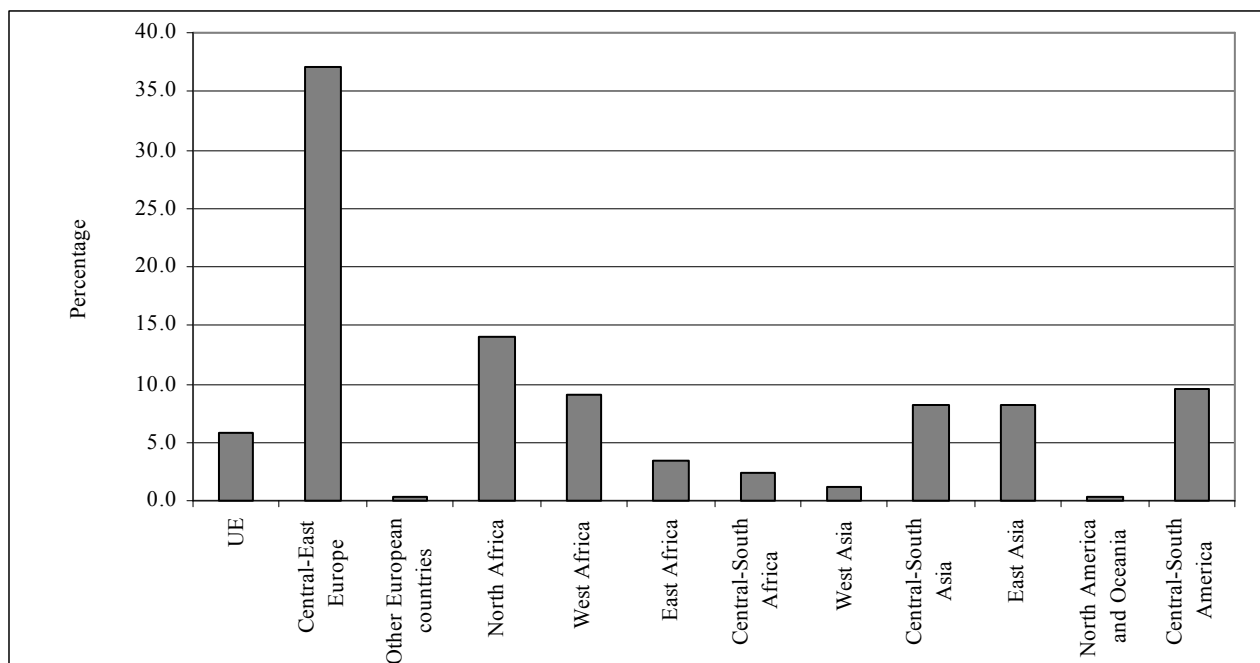
Table 1 – Foreign mother live births by duration of stay in Italy of the mother - Year 2005 (absolute values and percentages)

Residence preceded by a period of stay	Values	%
Yes	25952	58.4
No	18305	41.2
DK	162	0.4
Total	44419	100.0
Years of stay before the residence	Values	%
less than 1 year	6473	24.9
1 year	6276	24.2
2 years	4907	18.9
3 years and more	7068	27.2
DK	1228	4.7
Total	25952	100.0
Years of residence	Values	%
Up to 2 years	3251	7.3
3 years	8270	18.6
4 years	5425	12.2
5 years	5698	12.8
6-9 years	11258	25.3
10 years and more	10474	23.6
DK	43	0.1
Total	44419	100.0
		48.9
Total years in Italy	Values	%
Up to 3 years	7207	16.2
4-5 years	10762	24.2
6-9 years	13073	29.4
10 years and more	13377	30.1
Total	44419	100.0

Source: Sample Survey on births - Short Form - Year 2005 - Istat

According to the analysis of the foreign mother's area of origin, more than one out of three comes from Central-East Europe, while, among non-European countries, they mainly come from North Africa (14.1 percent on the total of children born to foreign mothers) and Central-South America (9.5 percent).

Figure 1 - Foreign mother live births by macro area of origin of the mother – Year 2005 (percentage values)

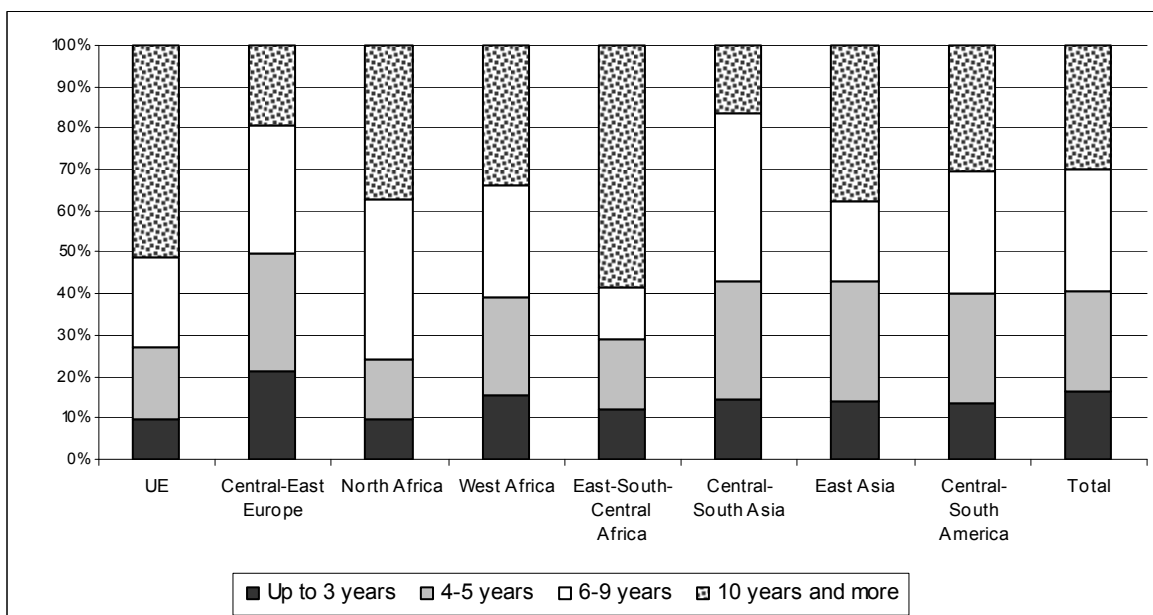


Source: Sample Survey on births - Short Form - Year 2005 - Istat

In following analysis based on the sample survey we'll consider only the most representative macro areas in term of population size.

The total duration of stay in Italy presents some significant differences from one area of origin to another. Despite being the most numerous ones, about half of mothers from Central-east Europe have been in Italy for a relatively short period (less than 6 years), being, among all foreign mothers, those with the most recent immigration. Mothers from North Africa are those who have been in Italy the longest (about 3 out of 4 have been in Italy for 6 years and more). The other relevant areas are Central-south America (more than 5 years in 59.7 percent of the cases) and East Asia (more than 5 years for 57.1 percent). These differences can partly be attributed to the migratory "history" of the different communities (see figure 2).

Figure 2 – Foreign mother live births by duration of stay in Italy and main macro area of origin of the mother – Year 2005 (percentage values)



Source: Sample Survey on births - Short Form - Year 2005 - Istat

Through the survey, it is also possible to analyse the main socio-demographic characteristics of the mothers and their family context, considering their stabilisation process too.

Foreign mothers are married in 80 percent of the cases, a proportion under that of Italian mothers (88 percent). This difference is mainly due to the strong presence of single mothers (18 percent), a proportion twice that of Italian mothers. The various communities, though, differ based on the characteristics of their migratory project: African and East Asian women are more frequently married (more than 90 percent). However, the migratory project of African citizens has a strong male connotation. In other words, men, who are the breadwinners, open the way and only after they have stabilised their presence in Italy does the propensity to recompose the family rise.

Table 2 – Foreign mother live births by marital status, main macro of origin and duration of stay in Italy of the mother – Year 2005 (percentage values)

Macroareas of origin	Marital status of the mother		
	Married	Not married	Total
UE	62.1	37.9	100.0
Central-East Europe	71.3	28.7	100.0
North Africa	94.3	5.7	100.0
West Africa	90.2	9.8	100.0
East-South-Central Africa	92.5	7.5	100.0
Central-South Asia	88.8	11.2	100.0
East Asia	92.7	7.3	100.0
Central-South America	64.4	35.6	100.0
Total	80.0	20.0	100.0

Source: Sample Survey on births - Short Form - Year 2005 - Istat

Tendentially foreign mothers have more children than Italian women: 12.2 percent of foreign mothers and only 10.5 per cent of Italian mothers have three or more children. In addition, foreign mothers tend to have children at a younger age (see figure 3): 34.3 percent have had their first child before their 25th birthday while such percentage drops to 16.2 percent in the case of Italian women. As regards the macro-areas of origin, the most prolific mothers come from North Africa and, though to a lesser extent, from east, central and south Africa: as regards the first ones, one birth out of three is of a third child and for the second ones, more than one out of four. Mothers from east, central and south Africa present the most anticipated calendar: half of them have had their first child before their 25th birthday and most of them have had at least three children when aged 30 to 34. On the other hand, mothers from central-eastern Europe mainly declare to be at their first child (70 percent) and only 3.8 percent their third child or more.

The number of children is in inverse relation to the duration of stay in Italy. This partly explains the positive correlation between stay duration and age of the mother and between stay duration and area of origin.

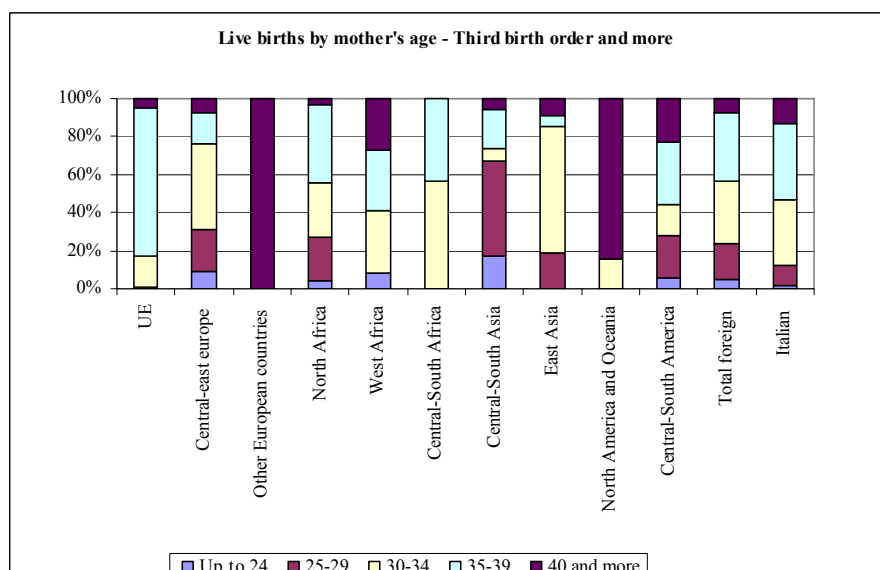
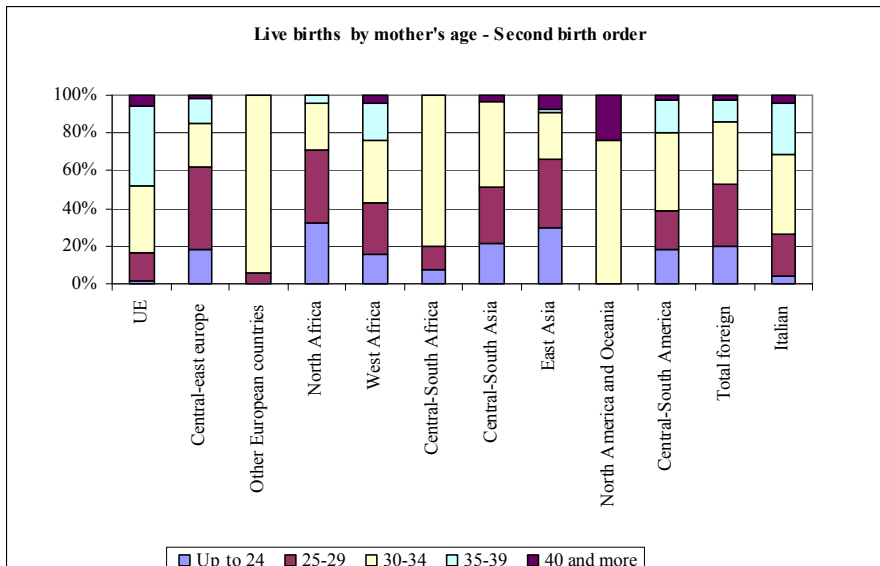
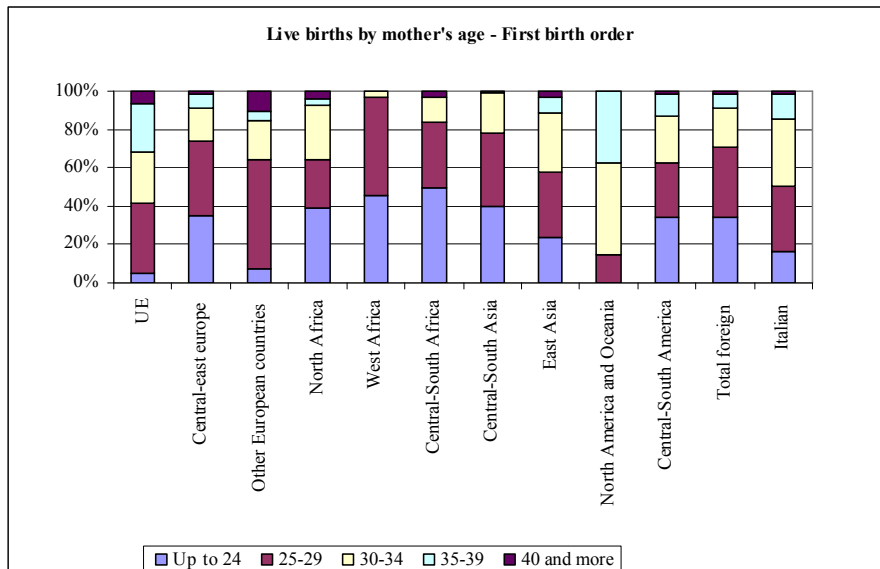
Table 3 – Foreign mother live births by birth order, macro area of origin and total time spent in Italy of the mother – Year 2005 (percentage values)

Macro areas of origin	Birth order			Total
	I°	II°	III° and more	
UE	43.8	35.1	21.1	100.0
Central-East Europe	70.0	26.2	3.8	100.0
North Africa	33.5	36.3	30.2	100.0
West Africa	42.3	46.7	11.1	100.0
East-South-Central Africa	43.9	28.9	27.3	100.0
Central-South Asia	47.2	38.6	14.3	100.0
East Asia	50.0	40.0	10.0	100.0
Central-South America	59.6	35.3	5.0	100.0
Total	54.3	33.5	12.2	100.0

Total years of stay in Italy	Birth order			Total
	I°	II°	III° and more	
Up to 3 years	83.3	14.2	2.5	100.0
4-5 years	68.3	26.3	5.4	100.0
6-9 years	46.1	44.2	9.8	100.0
10 years and more	35.3	38.9	25.8	100.0
Total	54.2	33.4	12.4	100.0

Source: Sample Survey on births - Short Form - Year 2005 - Istat

Figure 3 – Foreign mother live births by mother’s age group, birth order, and macro area of origin of the mother– Year 2005 (percentage values)



Source: Sample Survey on births - Short Form - Year 2005 - Istat

As regards the level of education², no particular differences were observed between foreign and Italian mothers (for example, foreigners with a high education degree equalled 17.9 percent and Italian women 18.8 percent). It is, however, possible to gather some aspects linked to the different communities. Mothers with a lower education degree mainly come from North and West Africa, as 9 out of 10 declare to have a lower secondary school degree at most.

Mothers with the highest education degree come from the European Union (more than half have a bachelor's degree) and from East Asia (one out of four declares to have a high education degree).

Table 4 – Foreign mother live births by level of education and main macro areas of origin of the mother– Year 2005 (percentage values)

Macroareas of origin	Live births by mother's educational level		
	medium-low	high	Total
UE	46.7	53.3	100.0
Central-East Europe	82.5	17.5	100.0
North Africa	91.2	8.8	100.0
West Africa	92.4	7.6	100.0
East-South-Central Africa	84.4	15.6	100.0
Central-South Asia	83.1	16.9	100.0
East Asia	74.2	25.8	100.0
Central-South America	86.3	13.7	100.0
Total	82.1	17.9	100.0

Source: Sample Survey on births - Short Form - Year 2005 - Istat

The interviewed foreign mothers are mostly non-employed (Table 5): almost 7 out of 10 (*versus* 4 out of 10 in the case of Italian mothers).

Hence, many foreign mothers live in Italy more for family reasons than for work. Lower proportions of employed mothers were surveyed among those from Central-South Asia (21 percent) and North Africa (22.8 percent), notoriously characterised by a high percentage of family reunions. Women from central-east Europe, who more frequently choose an Italian partner, also registered rather contained proportions (27.7 percent). The highest share of employed mothers was surveyed among those from advanced development countries (57 percent from the EU).

The professional status of foreign mothers is generally closely linked with the total duration of their stay. Almost 48 percent of women who have been living longer in Italy (10 years and more) are employed, while lower percentages were surveyed among those in Italy since 3 years (14 percent).

² For the purposes of our analysis, we considered as high a university degree (bachelor's or master degree, post-degree specialisation). The average-low category includes all the other cases, including those who have no education title.

Table 5 – Foreign mother live births by professional status, main macro areas of origin and total time spent in Italy of the mother – Year 2005 (percentage values)

Macro-area of Origin	Live births by mother's professional status		
	Working	Not Working	Total
UE	57.0	43.0	100.0
Central-East Europe	27.7	72.3	100.0
North Africa	22.8	77.2	100.0
West Africa	35.0	65.0	100.0
East-South-Central Africa	41.4	58.6	100.0
Central-South Asia	21.0	79.0	100.0
East Asia	37.4	62.6	100.0
Central-South America	31.1	68.9	100.0
Total	31.1	68.9	100.0

Total years in Italy	Live births by mother's professional status		
	Working	Not Working	Total
Up to 2 years	24.7	75.3	100.0
3 years	14.2	85.8	100.0
4 years	22.9	77.1	100.0
5 years	19.6	80.4	100.0
6-9 years	30.5	69.5	100.0
10 years and more	47.7	52.3	100.0
Total	31.1	68.9	100.0

Source: *Sample Survey on births - Short Form - Year 2005 - Istat*

Foreign mothers who do work mainly have a subordinate job (Table 6). Their position within the job is generally lower, even if their education level is similar to that of Italian women, in almost 8 cases out of ten (23 percent of the Italian women). The remaining ones are self-employed mainly in a trade or art activity.

Generally, when working in a productive activity sector, 30 percent foreign mothers out of ten work in the trade, hotel and restaurant sector, 25.5 percent in other social public service (including domestic services to families and cohabitations) and 21 percent in the industry.

Just as for Italian women, foreign mothers mainly work in the private sector. However, the proportion of the latter is slightly higher (88.8 percent against 69.8 percent of the Italian mothers).

They also generally have a more atypical job than Italian mothers. About 22 percent have a fixed-term contract (14 percent in the case of Italian mothers), and 11 percent a job without a contract, or have a temporary or seasonal job (7 percent in the case of Italian mothers).

Generally speaking, the job status of the foreign mothers appears more precarious: the risk of leaving or losing their job due to maternity is twice that of the Italian mothers (37.6 percent vs. 17.6 percent respectively).

Foreign mothers resort to part-time jobs more than Italian mothers (49.6 percent and 40.5 percent respectively). Just as for every mother, the main reason for working part-time is the desire or necessity to dedicate more time to caring for the children, the house or themselves. For 15.6 percent of the foreign mothers, it is impossible to find a job with different working hours (about 10 percent of Italian mothers). Hence, for these mothers, it is an immediate part-time job and not a choice to reconcile work with family. It is not surprising that, among the mothers who were employed at the beginning of their pregnancy, 37.6 percent of foreigners are no longer employed two years after living birth, a share more than twice the already high one of the Italian mothers (17.7 percent). No particular differences were surveyed between Italians and total foreigners as regards the causes that made them lose their job (about 68 percent of foreign mothers and 70.5 percent of Italian mothers resigned), and the reasons for resigning (58 percent of foreigners and 56 percent of Italians to spend more time with their children).

Table 6 – Live births by some characteristics of mother’s employment (foreign mothers and Italian mothers) – Year 2005 (percentage values)

Characteristics of mother's employment	Foreign mothers	Italian mothers
Employed	79.1	81.2
Own	20.9	18.8
Total	100.0	100.0
Labour employed		
Managing director framework	0.2	6.0
employee, intermediate	23.9	70.4
head worker, worker and subordinate assimilated	71.9	22.4
apprentice, worker at home	4.0	1.2
Total	100.0	100.0
Own		
entrepreneur	9.8	9.2
free trader	19.0	33.6
worker's own	50.1	42.2
member of the cooperative	5.0	3.6
family helper	11.0	9.2
Other	5.2	2.2
Total	100.0	100.0
Business sector production		
agriculture hunting and fishing	1.8	2.6
industry	20.8	15.8
construction	1.8	1.5
commerce	28.3	23.7
transport	1.8	2.9
brokerage	7.3	12.8
public administration	0.4	7.1
education	12.1	26.3
other services	25.5	7.3
DK	0.2	0.0
Total	100.0	100.0
Risk of leaving or losing their jobs	37.6	17.6

Source: Sample Survey on births - Short Form - Year 2005 - Istat

Particularly interesting aspects to understand the foreign mothers’ reproductive behaviours are the family context and type of couple (foreign mother and Italian father, foreign parents).

The propensity to form a family with an Italian man is strongly linked with the mother’s area of origin. Based on the *2003 Population registers* (Table 7), almost half of children born to a mixed couple have a mother from a central-eastern Europe country (45.0 percent) and 20.5 percent of them a mother from Central-south America.

Table 7 – Foreign mother live births by family characteristics and main macro areas of origin – Year 2003 (column percentage values)

Macro areas of origin	Foreign mothers/Italian Fathers	Foreign mothers/Foreign fathers
UE (15)	16.7	1.2
Central-East Europe	45.0	34.1
Other European countries	1.1	0.1
North Africa	4.6	27.5
West Africa	3.0	7.4
East-South-Central Africa	1.7	1.8
West Asia	0.7	0.9
Central-South Asia	0.9	9.8
East Asia	3.7	11.7
North America and Oceania	2.0	0.2
Central-South America	20.5	5.3
Total	100	100.0

Source: Survey on live births (Resident Population) - Year 2003 - Istat

The analysis of the mothers' macro-areas of origin per type of couple shows the high propensity of people from central-south Asia, North Africa and western Africa to form a family between fellow-citizens.

On the other hand, women from the European Union, North America and central-south America who live in Italy present a higher tendency to form a family with an Italian partner.

Table 8 – Foreign mother live births by family characteristics and main macro areas of origin – Year 2003 (row percentage values)

Macro areas of origin	Foreign mothers/Italian Fathers	Foreign mothers/Foreign fathers
UE (15)	84.3	15.7
Central-East Europe	33.8	66.2
Other European countries	78.9	21.1
North Africa	6.0	94.0
West Africa	13.7	86.3
East-South-Central Africa	27.5	72.5
West Asia	24.1	75.9
Central-South Asia	3.5	96.5
East Asia	11.0	89.0
North America and Oceania	81.5	18.5
Central-South America	59.9	40.1
Total	27.9	72.1

Source: Survey on live births (Resident Population) - Year 2003 - Istat

As regards the mixed couples, the reproductive behaviours of the foreign mothers tend to be more like that of the Italian ones, in particular regarding the number of children in spite of the anticipated birth calendar of foreign mothers. About 7.6 percent of foreign mothers with an Italian partner (Table 9) have 3 or more children, a percentage even lower than that of the Italian couples (about 10 percent). On the other hand, all-foreigner couples tend to keep as long as possible the reproductive models of their socio-cultural context. The proportion of children of the third order and over almost accounts for 20 percent of all births.

As for the variable "education degree of the mother", those who are more inclined to mixed unions are also those with a higher education degree, even higher than in all Italian couples. When considering the education title of the father, no particular differences were surveyed as in the case of the mother. The less educated fathers are those in which both parents are Italian. There are, however, no significant differences in the level of education among fathers in mixed couple and among fellow-citizen couples.

Table 9 – Foreign mother live births by family characteristics and some socio-demographic variables – Year 2005 (percentage values)

Socio-demographic variables	Foreign mothers/ Italian fathers	Foreign mothers/ Foreign fathers	Italian mothers/ Italian fathers
Birth order			
I°	65.4	35.6	50.4
II°	27	44.5	39.8
III° and more	7.6	19.9	10.6
Total	100	100	100
Educational level (mother)			
Low	22.1	36.4	29.8
Medium-High	77.9	63.6	70.2
Total	100	100	100
Educational level (father)			
Low	35.4	36	39
Medium-High	64.6	64	61
Total	100	100	100

Source: Sample Survey on births - Short Form - Year 2005 - Istat

4. The analysis model

The analysis carried out up until now has explained the foreign mothers' behaviour in relation to the main socio-demographic aspects and type of couple. Now, a multivariate analysis will evaluate the simple effects of some determinants both on their reproductive behaviours and on their tendency to form mixed unions. The asymmetric approach adopted involves applying two logistic models whose answer variables are "to have a second child" and "to be in couple with an Italian partner" respectively.

The parameters selected followed the logical parsimony criterion rather than the statistical one of convergence. Hence, the only characteristics considered were those that showed an association with the characteristics to be explained, based on the descriptive analyses.

The *stepwise* procedure was used as selection criterion.

4.1 Reproductive models: the decision to have a second child

In this analysis the question to be answered is: "*What are the variables that most influence the decision of foreign mothers to have a second child?*"

The objective is to evaluate the effect of the variables age, education degree, macro-area of origin and stay duration of the mother and type of couple (mixed or all-foreigner).

Table 10 reports the estimates of the parameters relative to the application of the logistic model. Here, the variable that most influences the decision of foreign mothers to have a second child is the duration of their stay on the Italian territory. This variable indeed enters first in the selection procedure.

Table 10 a – SECOND CHILD VS FIRST CHILD: analysis of maximum likelihood estimates

Parameter		Estimates	Standard error	Pr>ChiSq
Intercept		-0.2654	0.0222	<0.0001
Total years in Italy	Up to 3 years	-1.0761	0.0289	<0.0001
Total years in Italy	4-5 years	-0.0693	0.0215	0.0013
Total years in Italy	6-9 years	0.6519	0.0194	<0.0001
Type of family	Foreign mothers/Foreign fathers	0.5494	0.0139	<0.0001
Mother's age	25-29	-0.2418	0.0243	<0.0001
Mother's age	30-34	0.1174	0.0256	<0.0001
Mother's age	35-39	0.6392	0.0360	<0.0001
Mother's age	More than 40	0.1264	0.0609	0.0378
Macro area of origin	West Africa	0.3362	0.0356	<0.0001
Macro area of origin	North Africa	0.1670	0.0326	<0.0001
Macro area of origin	Other Africa	-0.5905	0.0551	<0.0001
Macro area of origin	South-Central America	0.1520	0.0350	<0.0001
Macro area of origin	Other Asia	-0.0519	0.0367	0.1581
Macro area of origin	East Asia	0.1776	0.0366	<0.0001
Macro area of origin	European countries, North America and Oceania	0.1530	0.0439	<0.0001
Mothter's educational level	Medium-hight	-0.0865	0.0143	<0.0001

Table 10 b – SECOND CHILD VS FIRST CHILD: odds ratio estimates

Effect		Odds ratio	95% Wald Confidence Limits	
Total years in Italy	Up to 3 years vs 10 years and more	0.208 ***	0.191	0.227
Total years in Italy	4-5 years vs 10 years and more	0.570 **	0.533	0.609
Total years in Italy	6-9 years vs 10 years and more	1.172 ***	1.103	1.245
Type of family	Foreign mothers/Foreign fathers vs Foreign mothers/Italian fathers	3.000 ***	2.841	3.169
Mother's age	25-29 vs Up to 24	1.491 ***	1.400	1.588
Mother's age	30-34 vs Up to 24	2.135 ***	1.991	2.290
Mother's age	35-39 vs Up to 24	3.598 ***	3.266	3.964
Mother's age	More than 40 vs Up to 24	2.155 **	1.841	2.522
Macro area of origin	West Africa vs Central and Eastern Europe	1.973 ***	1.812	2.148
Macro area of origin	North Africa vs Central and Eastern Europe	1.666 ***	1.539	1.803
Macro area of origin	Other Africa vs Central and Eastern Europe	0.781 ***	0.687	0.888
Macro area of origin	South-Central America vs Central and Eastern Europe	1.641 ***	1.514	1.779
Macro area of origin	Other Asia vs Central and Eastern Europe	1.339 ns	1.225	1.463
Macro area of origin	East Asia vs Central and Eastern Europe	1.684 ***	1.545	1.835
Macro area of origin	European countries, North America and Oceania vs Central and Eastern Europe	1.643 **	1.489	1.812
Mothter's educational level	Medium-hight vs Low	0.841 ***	0.795	0.890

(***): < 0.0001

(**): < 0.05

(ns): > 0.1

Consequently, stability seems to be the factor that, net of other factors, most affects the propensity to have a second child. Mothers who have been living in Italy for at least 6 years indeed present the highest proportion of those expecting their second child.

The type of couple, the second variable to be entered in the model, reveals that the propensity to have a second child is three times higher among foreign mothers living in couple with a foreign partner.

Hence, the reproductive behaviour of mixed couples most likely converges more quickly to that of the native couples.

The third variable to be entered in the model is the age class of the mother at childbirth. The probability that it is the mother's second child increases as the woman gets older, reaching its peak between 35-39 years of age, during which it is 3.5 times higher than mothers who are having their first child. Subsequently, it registers a "physiological" drop after reaching 40 years of age.

The second-last variable is the macro-area of origin of the mother. It is particularly important because it encloses many relevant aspects linked with the migratory project and the cultural models of the country of origin. Women from central-east Europe were considered as reference category, being the most consistent

area of origin in Italy. The probability for a mother to be expecting her second child is higher in all the other nationalities than this category, except for mothers from east and central-south Africa. The latter community is indeed characterised by migratory projects with a strong male connotation; they only rarely form or reunite the family in Italy. The simple effects of this variable show that, all other characteristics considered being equal, women from East and North Africa have about twice the probability of expecting their second child than women from central-eastern Europe.

The last variable is the education degree. The simple effect of education is such that, all other variables being equal, rising levels of education correspond to lower proportions of women expecting a second child.

4.2 Type of couple: the choice of the foreign women

In this second application the question to be answered is: *“What are the variables that most influence the propensity of foreign mothers to a union with an Italian man”?*

Here the analysis examines the effect of the variables age, education degree, area of origin and stay duration of the mother.

The first variable entered in the selection procedure is the mother’s macro-area of origin. The previous descriptive analysis indeed revealed a strong correlation between the nationality of the mother and the type of family.

Mothers from central-south America are those who most choose an Italian partner. Considering the Central and Eastern Europe as reference area, the probabilities to be in a mixed couple are lower for all other nationalities, except for mothers from European countries (the probability for the latter to be in a mixed couple is 10 times that of homogamy couples); this confirm the higher proportion (compared with the average) of mothers coming from the Central and Eastern Europe to be in couple with an Italian man.

The citizenship mostly characterised by homogamic union are the African people and West Asia one.

The second variable that influences the decision of mothers to be in a mixed couple is the duration of their stay in Italy. The probability to be with an Italian man is higher for women who have been in Italy for a shorter period compared to women who have been longer in the country. Compared to mothers who have been living in Italy for more than 10 years, the highest probability was registered among women who have been in Italy for 4 – 5 years (about 2.6 times more), and less than 3 years (about 2 times more).

The education degree has also an impact on the decision of foreign women to choose an Italian partner. Confirming the previously explained descriptive analysis, women with a higher education degree are those who mainly choose an Italian partner. Hence, the education degree affects the decision to be in this type of couple, thereby representing a type of integration for immigrated populations.

Age is the last variable to be entered in the model and, all other factors being equal, younger women are lightly more inclined to take an Italian partner.

Table 11 a – FOREIGN MOTHERS/ITALIAN FATHERS VS FOREIGN MOTHERS/FOREIGN FATHERS: analysis of maximum likelihood estimates

Parameter		Estimates	Standard error	Pr>ChiSq
Intercept		0.4680	0.0235	<0.0001
Macro area of origin	West Africa	-1.1500	0.0343	<0.0001
Macro area of origin	North Africa	-1.3798	0.0309	<0.0001
Macro area of origin	Other Africa	-0.6384	0.0419	<0.0001
Macro area of origin	South-Central America	0.9727	0.0394	<0.0001
Macro area of origin	Other Asia	-1.9136	0.0384	<0.0001
Macro area of origin	East Asia	0.1112	0.0361	0.0021
Macro area of origin	European countries, North America and Oceania	3.1468	0.0957	<0.0001
Total years in Italy	Up to 3 years	0.2034	0.0247	<0.0001
Total years in Italy	4-5 years	0.4596	0.0220	<0.0001
Total years in Italy	6-9 years	-0.1535	0.0196	<0.0001
Mohter's educational level	Medium-high	0.1281	0.0136	<0.0001
Mother's age	25-29	0.1061	0.0242	<0.0001
Mother's age	30-34	-0.0009	0.0254	0.9717
Mother's age	35-39	-0.0836	0.0334	0.0124
Mother's age	40 years and more	-0.1019	0.0580	0.0791

Table 11 b – FOREIGN MOTHERS/ITALIAN FATHERS VS FOREIGN MOTHERS/FOREIGN FATHERS: odds ratio estimates

Effect		Odds ratio	95% Wald Confidence Limits	
Macro area of origin	West Africa vs Central and Eastern Europe	0.135 ***	0.125	0.146
Macro area of origin	North Africa vs Central and Eastern Europe	0.107 ***	0.100	0.115
Macro area of origin	Other Africa vs Central and Eastern Europe	0.225 ***	0.205	0.248
Macro area of origin	South-Central America vs Central and Eastern Europe	1.129 ***	1.033	1.235
Macro area of origin	Other Asia vs Central and Eastern Europe	0.063 ***	0.058	0.069
Macro area of origin	East Asia vs Central and Eastern Europe	0.477 **	0.440	0.518
Macro area of origin	European countries, North America and Oceania vs Central and Eastern Europe	9.932 ***	7.999	12.332
Total years in Italy	Up to 3 years vs 10 years and more	2.040 ***	1.890	2.201
Total years in Italy	4-5 years vs 10 years and more	2.635 ***	2.458	2.825
Total years in Italy	6-9 years vs 10 years and more	1.427 ***	1.341	1.519
Mohter's educational level	Medium-high vs Low	1.292 ***	1.225	1.363
Mother's age	25-29 vs Up to 24	1.026 ***	0.964	1.092
Mother's age	30-34 vs Up to 24	0.922 ns	0.859	0.989
Mother's age	35-39 vs Up to 24	0.849 **	0.776	0.929
Mother's age	40 years and more vs Up to 24	0.833 *	0.717	0.969

(***): < 0.0001

(**): < 0.05

(*): < 0.1

(ns): > 0.1

5. Conclusions

This document analyses some relevant behaviours of the foreign mothers, the main aspects of the women and of the couple. It attempts to integrate the registry data, exhaustive but poor as regards the data surveyed, with the evidence of the sample survey on births, which provides an estimation of the main determinants of the family and reproductive behaviours.

The results obtained present many original points on which it would be good to continue working, such as the important role of a stable presence, as it involves positive effects on the reproductive decisions. It confirms that stability and integration propel to realise family projects in the host country.

Another important result is the positive association between average high education degree of the mother and the forming of mixed unions. Hence, education plays an important role in the integration process of immigrated populations.

However, the survey data present some limitations due to its sample character and survey technique. The number of interviewees carried out for the long questionnaire did not allow using the survey's wide informative patrimony.

The sample of women was partly selected following the impossibility to contact women without a fixed telephone and those who were not able to answer a phone interview in Italian. Hence, the mothers part of the interview cannot be considered as representative of all foreign mothers living in Italy, but only of a sub-population whose presence is more stable and consolidated.

The calculation of the *ad hoc* weights that consider the mothers' macro-area of origin allowed controlling ex-post the effects of some distortions due to the selection of the interviewees, in particular as regards the nationality-related characteristics.

In planning the next survey edition, it will be important to keep these limitations in consideration, adopting for example a mixed cati-capi technique to reach women who do not have a fixed telephone too.

References

Cnel (2003) *Maternità e partecipazione femminile al mercato del lavoro: tra vincoli e strategie di conciliazione*, Documenti, n° 49.

Birindelli, .P. Farina (2003). "Genere, migrazioni, genere e migrazioni" in A. Pinnelli, F. Racioppi, R. Rettaroli (a cura di), *Genere e Demografia*, Bologna: il Mulino;

Istat (2005a), *Gli stranieri in Italia: analisi dei dati censuari*, Istat, Approfondimenti tematici, 2006;

Istat (2005b), *Gli stranieri in Italia: gli effetti dell'ultima regolarizzazione*. Stima al 1° gennaio 2005, Statistiche in breve del 15 dicembre 2005;

Istat (2006), *Popolazione straniera residente (1° gennaio 2006)*, Statistiche in breve del 17 ottobre 2006;

Istat (2006a) *Avere un figlio in Italia. Approfondimenti tematici dall'indagine campionaria sulle nascite*, Collana "Informazioni", n° 32.

Istat (2006b) *L'indagine campionaria sulle nascite: obiettivi, metodologia e organizzazione*, Collana "Metodi e Norme", n° 28.

Istat (2007) *Essere madri in Italia. Anno 2005*, Statistica in breve, 17 gennaio 2007.

Neri A., Lo Conte M., Casadio P. (2004) *Balancing work and family in Italy: the new mothers' employment decisions around childbearing*, European Society for Population Economics XIX annual conference, Paris, June 16-18/2005.

Natale M., Strozza S. (1997), *Gli immigrati stranieri in Italia. Quanti sono, chi sono, come vivono?*, Cacucci ed., Bari;

Strozza S., Ballacci F., Natale M. e Todisco E. (2002), *La rilevazione delle migrazioni internazionali e la predisposizione di un sistema informativo sugli stranieri*, Rapporto di Ricerca 02.11, Presidenza del Consiglio dei Ministri, Commissione per la Garanzia dell'Informazione Statistica, Novembre 2002;