

**ESTIMATES OF BRAZILIAN INTERNATIONAL NET MIGRATION AND
EMIGRANTS, THROUGH THE COMBINATION OF CENSUS DATA
ESTIMATES OF NET MIGRATION¹.**

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The last demographic Brazilian censuses contain a remarkable set of data on population movements that, if appropriately handled, can provide estimates on important aspects of the migratory flows. On the other hand, data not directly linked to the migration, allow estimating the net migration through indirect techniques. (CARVALHO, 1980). The combination of net migration estimates with census data directly related to migration represented a methodological challenge faced by researchers and students of Cedeplar, dedicated to the migration studies. Several theses, dissertations, research reports and papers deal with the development and improvement of methods and techniques addressed to the estimate of analytical categories, such as inter-census net migration, return migration, step migration, passage migration and international emigration. CARVALHO (1980 e 1996), CARVALHO e FERNANDES (1996), RIBEIRO (1997), CARVALHO and RIGOTTI (1998), RIGOTTI (1999) e CARVALHO et al. (2001) are basic references.

This paper will describe the procedures to estimate the net migration of Brazil and its Macro Regions during the 1980/1990 decade and 1980/1985 and 1985/1990 periods as well as the 1985/1990.

The methodological procedures and the estimates to be presented refer to fixed-date migrants. Fixed-date in-migrant is the individual that, in the beginning of the period lived in another area and, at the end, lives in the studied area. Fixed-date out-migrant is the person that lived in the area in the beginning of the period and lives in another, at the end of the period.

¹ This paper benefited from an institutional grant of The William and Flora Hewlett Foundation to CEDEPLAR/UFMG. The author thanks comments and suggestion of Prof. José Alberto Carvalho.

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2. METHODOLOGICAL PROCEDURES

2.1. Net migration and net migration rate - some comments

The net migration (NM) constitutes during a certain period, the result of the difference between fixed-date (in- and im) migrants and (out- and e) migrants, considering the indirect effects of the flows, through the births in the areas of destiny. "NM measures the contribution of the migrations to the stock of persons in the end of the period" (CARVALHO & RIGOTTI, 1998).

The net migration rate (NMR) in this paper is considered as the ratio between the NM and the closed population at the end of the period or the ratio between the NM and the observed population, also at the end of the period. In the last case, the NMR corresponds to the "...proportion of the observed population, in the second census, resulting from the migratory process, if the rate is positive, and to the proportion that the population would be increased in the absence of migration, if negative" (CARVALHO & RIGOTTI, 1998). If the denominator is the closed population at the end of the period, the NMR refers to the net effect of migration on the size of the population. The inter-censuses NM, when estimated by indirect technique, is obtained by residue. In other words, it is obtained by the difference, in the second census, between the observed and the expected populations (closed).

Given an inter-censal period of n years, the expected population in the area j , in the second census, in the age group $x+n, x+n+m$, corresponds to the population observed in the first census, in the age group $x, x+m$, multiplied by the survival ratio of the period. Then:

$${}_m P_{x+n,exp}^{j,n} = {}_m P_{x,ob}^{j,0} \cdot {}_m S_x^j \quad (1), \text{ where,}$$

${}_m P_{x+n,exp}^{j,n}$ = the expected population (closed) in the area j , of the group age $x+n$, $x+n+m$, in the second census (year n);

${}_m P_{x,ob}^{j,0}$ = population observed in the area, in the first census (year 0), in the age group x , $x+m$;

${}_m S_x^j$ = the survival ratio of the age group x , $x+m$, of the year 0, during the period of n years.

The NM is given by the following expression:

$${}_m^j NM_{x+n}^{j,n} = {}_m P_{x+n,ob}^{j,n} - {}_m P_{x+n,exp}^{j,n} \quad (2), \text{ where,}$$

${}_m^j NM_{x+n}^{j,n}$ = NM of the n years period, of the age group $x+n$, $x+n+m$, at the end of period (at year n).

The net migration rate of the age group $x+n$, $x+n+m$, at the end of the period, (${}_m^j NMR_{x+n}^{j,n}$) is given by one of the following equations:

$${}_m^j NMR_{x+n}^{j,n} = \frac{{}_m^j NM_{x+n}^{j,n}}{{}_m P_{x+n,ob}^{j,n}} \quad (3) \text{ or}$$

$${}_m^j NMR_{x+n}^{j,n} = \frac{{}_m^j SM_{x+n}^{j,n}}{{}_m P_{x+n,exp}^{j,n}} \quad (4)$$

NMR corresponds to the quotient between the net migration (${}_m^j NM_{x+n}^{j,n}$) and the population at the end of the period, observed (${}_m P_{x+n,ob}^{j,n}$), or expected (${}_m P_{x+n,exp}^{j,n}$) (CARVALHO & RIGOTTI, 1998).

The NM, as the NMR, of a certain period, contains the fixed-date migrants of the area, that is, those who did not live in the area at the beginning of the period and live there

at the end -(in and i) migrants - and those who lived in the area at the beginning of the period and not at the end -(out- and e) migrants.

2.2. The inter-censusal survival ratio technique

Due to age errors deficiency of census covering, if the population of the country, as a whole, can be considered as closed, it is advisable to use the inter-censusal survival ratios (ISR) of the country, adjusted for the mortality level of the area in study, instead of using, as it could be thought more appropriate, the survival ratios, obtained from the mortality tables of the area. (CARVALHO & RIGOTTI, 1998). From the country ISR, the ISR of the area “closed” population can be estimated. For a ten-year inter-censusal period we have:

$${}^{10}\overline{{}_5\text{ISR}}_x^j = {}^{10}\text{ISR}_x^{\text{BR}} \cdot \frac{\frac{{}_5L_{x+10}^j}{{}_5L_x^j}}{\frac{{}_5L_{x+10}^{\text{BR}}}{{}_5L_x^{\text{BR}}}} \quad (5), \text{ in which,}$$

${}^{10}\overline{{}_5\text{ISR}}_x^j$ is the estimated inter-censusal survival ratio of area j , of the age group $x, x+5$;
 $\frac{{}_5L_{x+10}^j}{{}_5L_x^j}$ and $\frac{{}_5L_{x+10}^{\text{BR}}}{{}_5L_x^{\text{BR}}}$ are the ten years survival ratio, of the age group $x, x+5$, derived from the area and the country life tables.

Thus, the area j expected (closed) population, of a certain age group, at the end of the decade, is the product of the population observed in the beginning of the period by the estimated ISR, for that same area:

$${}_5P_{x+10,\text{exp}}^{j,70} = {}_5P_{x,\text{ob}}^{j,60} \cdot {}^{10}\overline{{}_5\text{ISR}}_x^{j,60/70} \quad (6)$$

The NMs of the 0-4 and 5-9 age groups, at the end of the decade, are obtained by multiplying the sum of NM of the area, referring to women in reproductive age, by the child/woman ratios, observed in the area population (LEE, 1957).

2.2.1. The problem of using the Brazilian ISRs to obtain estimates in the 80's.

The application of the ISR technique requires the assumption that the country population was closed during the period. This did not happen in Brazil during the 1980 decade (the international emigration was significant in that period).

CARVALHO (1996) proposes the estimation of the closed Brazilian population ISRs of the 1980 decade, from those observed during the 70's, when the Brazilian population was basically closed. For that, the 1970 decade mortality levels must be adjusted to the 1980 decade levels. The assumption is that the variations in the age declaration and in the census covering errors pattern, between the 1980 and the 1991 Censuses were the same that occurred between the 1970 and 1980 Censuses.

$$\overline{{}_5ISR_x}^{BR,80/90} = {}_5ISR_x^{BR,70/80} \cdot \frac{\frac{{}_5L_{x+10}^{BR,80/90}}{\frac{{}_5L_x^{BR,80/90}}{\frac{{}_5L_{x+10}^{BR,70/80}}{\frac{{}_5L_x^{BR,70/80}}{}}}}{\frac{{}_5L_{x+10}^{BR,70/80}}{\frac{{}_5L_x^{BR,70/80}}{}}} \quad (7)$$

where:

$\overline{{}_5ISR_x}^{BR,80/90}$ = estimated Brazilian closed population ISR, for the 1980/1990 period, of the $x, x+5$ age group;

${}_5ISR_x^{BR,70/80}$ = observed Brazilian ISR, for the 1970/1980 period, of the $x, x+5$ age group;

$\frac{\frac{{}_5L_{x+10}^{BR,80/90}}{\frac{{}_5L_x^{BR,80/90}}{\frac{{}_5L_{x+10}^{BR,70/80}}{\frac{{}_5L_x^{BR,70/80}}{}}}}{\frac{{}_5L_{x+10}^{BR,70/80}}{\frac{{}_5L_x^{BR,70/80}}{}}} =$ survival decade differential level of the $x, x+5$ age group, between 1970 and 1980.

The j region 1980 decade estimated ISR, needed to the estimation of the NM, are those proposed by CARVALHO & RIGOTTI (1998):

$${}^{10}_5\overline{ISR}_x^{j,80/90} = {}^{10}_5ISR_x^{BR,70/80} \cdot \frac{\frac{{}_5L_{x+10}^{j,80/90}}{{}_5L_x^{j,80/90}}}{\frac{{}_5L_{x+10}^{BR,70/80}}{{}_5L_x^{BR,70/80}}} \quad (8)$$

As the international Brazilian population losses during the eighties, were concentrated in the active ages (CARVALHO, 1996), it was decided to consider as closed, for the decade, the age groups, in 1980, below 5 years and above 55 years. For those, the regional ISR were directly estimated from the Brazilian ISR, during in the eighties:³

$${}^{10}_5\overline{ISR}_x^{j,80/90} = {}^{10}_5ISR_x^{BR,80/90} \cdot \frac{\frac{{}_5L_{x+10}^{j,80/90}}{{}_5L_x^{j,80/90}}}{\frac{{}_5L_{x+10}^{BR,80/90}}{{}_5L_x^{BR,80/90}}} \quad (9), \text{ for which,}$$

in 1980, $5 > x \geq 55$

2.3. How to obtain quinquennial NM and NMR estimates from decennial ISR

To estimate the net migrations of each quinquennium that corresponds the 10 years census interval, it is necessary to estimate the resident population, as much as the expected (closed) population of the area j, in the middle of the inter-censusal period. For that, in both cases, the method of cohorts relationship, proposed by Duchesne (1989),⁴ was applied.

According to Duchesne, the ten years survival ratios of two consecutive five years age groups, the five years survival ratio will be given, approximately, by the average of their square roots.⁵

³ For that, it was necessary to estimate the 1990 resident population.

⁴ The Duchesne method, was originally developed to project opened populations of small areas, using the components method. The procedure is to project a larger area that contains the small areas for which the projections are required. In this paper the original proposal was adapted. As an example of the application of the method in population projection of small areas in Brazil, see: Waldvogel, 1998.

⁵ ${}^{10}_5S_x = {}^5_5S_x \cdot {}^5_5S_{x+5}$
 ${}^{10}_5S_{x+5} = {}^5_5S_{x+5} \cdot {}^5_5S_{x+10}$

$${}^5S_{x+5} \cong \frac{\sqrt{{}^{10}S_x} + \sqrt{{}^{10}S_{x+5}}}{2} \quad (10)$$

The relationships of observed cohorts, here denominated as survival decennial observed ratios, part of the algorithm proposed by Duchesne, refer to opened populations. These ratios include the effects of the mortality, the migratory flows, the age declaration errors and the changes of census covering degree between the two dates. The application of the same algorithm to closed populations would produce better estimates because they are not influenced by the migratory flows.

In this paper, the Duchesne algorithm is adopted for two different purposes.

2.3.1. Estimate of the five years cohort relationships of the opened population to obtain the resident population of the area at the end of the first five quinquennium of the decade

$${}^5CR_{x+5}^j = \frac{\sqrt{{}^{10}CR_x^j} + \sqrt{{}^{10}CR_{x+5}^j}}{2} \quad (11),$$

where:

${}^5CR_{x+5}^j$ = estimated cohort five year “survival” ratio of the opened population, age group $x+5, x+10$, of the region j ;

${}^{10}CR_x^j$ = cohort ten years “survival” ratio, $x, x+5$ age group, of the region j ;

${}^{10}CR_{x+5}^j$ = cohort ten years “survival” ratio, $x+5, x+10$ age group, of the region j .

In the case of the five years “survival” ratios, they refer to the first five years of the decade.

$$\begin{aligned} \sqrt{{}^{10}S_x} &= \sqrt{{}^5S_x \cdot {}^5S_{x+5}} \cong {}^5S_{x+2,5} \\ \sqrt{{}^{10}S_{x+5}} &= \sqrt{{}^5S_{x+5} \cdot {}^5S_{x+10}} \cong {}^5S_{x+7,5} \\ \frac{\sqrt{{}^{10}S_x} + \sqrt{{}^{10}S_{x+5}}}{2} &\cong \frac{{}^5S_{x+2,5} + {}^5S_{x+7,5}}{2} \cong {}^5S_{x+5} \end{aligned}$$

For opened group (last age group) 5S_x

$${}^5S_x \cong \frac{\sqrt{{}^{10}S_{x-5}} + \sqrt{{}^{10}S_x}}{2}$$

The estimated resident population, aged 10 years and over, in the middle of the decade, is calculated by the product of the observed population 5 years and over, in the beginning of the period, by the estimated 5 years “survival”.

$${}^5\bar{P}_{x+10,r}^{j,5} = {}^5P_{x+5,ob}^{j,0} \cdot {}^5\bar{CR}_{x+5}^j \quad (12),$$

where:

${}^5\bar{P}_{x+10,r}^{j,5}$ = region j estimated resident population, in the year 5, $x+10$, $x+15$ age group;

${}^5P_{x+5,ob}^{j,0}$ = region j observed population, in the year 0, $x+5$, $x+10$ age group.

The estimated 0 to 4 year-old resident population, in the middle of the decade, was obtained by the application to the estimated resident women at reproductive age the average observed child/woman ratios in the beginning and the end of the decade.

2.3.2 Disaggregation of decennial ISR into two quinquennial ISRs.

$${}^5\bar{ISR}_{x+5}^{j,I} = \frac{\sqrt{{}^{10}\bar{ISR}_x^j} + \sqrt{{}^{10}\bar{ISR}_{x+5}^j}}{2} \quad (13) \text{ and}$$

$${}^5\bar{ISR}_{x+10}^{j,II} = \frac{{}^{10}\bar{ISR}_{x+5}^j}{{}^5\bar{ISR}_{x+5}^{j,I}} \quad (14)^{6,7}$$

where:

${}^5\bar{ISR}_{x+5}^{j,I}$ = closed population estimated ISR, for the first quinquennium, $x+5$, $x+10$ initial age group, region j;

${}^5\bar{ISR}_{x+10}^{j,II}$ = closed population estimated ISR, for the second quinquennium, $x+10$, $x+15$ initial age group, region j.

⁶ It's important to observe that, for the same cohort, the decade survival ratio is equal to the product of the ISR in the two five years decade periods which compose the decade. Thus, ${}^{10}\bar{ISR}_{x+5}^j = {}^5\bar{ISR}_{x+5}^{j,I} \cdot {}^5\bar{ISR}_{x+10}^{j,II}$.

⁷ The first estimated ISR of the second quinquennium, by this equation, is the initial 10 to 14 age group ISR.

2.3.3. Quinquennium NM estimation

Multiplying the estimated quinquennium ISR (equation 13) by the observed population in the beginning of the period, the estimated expected (closed) population in the middle of the decade is obtained, for the population 10 years of age and over. Subtracting this population, in each age group, from the estimated resident population (equation 12), the first quinquennium NM is obtained.

$${}_5\bar{P}_{x+10,esp}^{j,5} = {}_5P_{x+5,ob}^{j,0} \cdot {}_5\overline{RIS}_{x+5}^{j,I} \quad (15) \text{ and}$$

$${}_5\bar{P}_{x+10,exp}^{j,5} = {}_5P_{x+5,ob}^{j,0} \cdot {}_5\overline{ISR}_{x+5}^{j,I} \quad (16),$$

where:

${}_5\bar{P}_{x+10,exp}^{j,5}$ = expected (closed) population of region j, in the end of the first quinquennium, $x+10$ to $x+15$ age group;

${}_5\overline{SM}_{x+10,exp}^{j,I}$ = first quinquennium NM, of the region j, $x+10$, $x+15$ age group (in the year 5).

To obtain the resident population in the 5 to 9 age group, at the end of the first quinquennium, and its correspondent NM, it is necessary to estimate the 0 to 4 age group ISR.

In this case, it was assumed that ${}_5\overline{ISR}_5^{j,II} = {}_5\overline{ISR}_5^{j,I}$, already estimated. It is important to observe that this is not possible to estimate ${}_5\overline{ISR}_5^{j,II}$ through equation (12). The assumption leads to:

$${}_5\overline{ISR}_0^{j,I} = \frac{{}_{10}\overline{ISR}_0^j}{{}_5\overline{ISR}_5^{j,I}} \quad (17)$$

The first quinquennium NM, of the 0 to 4 age group, is obtained by the same procedure adopted to estimate the 0 to 4 age group resident population, that is, by the application of the child/woman ratio to the sum of the NMs women at reproductive ages.

To obtain the NMs of the second quinquennium, it is necessary to estimate, for the age groups above 5 years, the expected (closed) population at the end of the second quinquennium.⁸ For such, the resident population at the end of the first quinquennium, in each age group, that was already estimated (equation 12), is multiplied by the second quinquennium ISR⁹ (equation 14).

$${}_5\overline{P}_{x+5,\text{exp}}^{j,0(5-10)} = {}_5\overline{P}_{x,r}^{j,5} \cdot \text{ISR}_x^{j,II} \quad (18), \text{ where}$$

${}_5\overline{P}_{x+5,\text{exp}}^{j,0(5,10)}$ = expected population of region j (closed during the second quinquennium), in the year 10, age group $x+5$ to $x+10$.

The NM of the second quinquennium of decade will be given by the equation:

$${}_5\overline{NM}_{x+5}^{j,II} = {}_5P_{x+5,ob}^{j,10} \cdot {}_5\overline{P}_{x+5,\text{exp}}^{j,10(5-10)} \quad (19),$$

where:

${}_5P_{x+5,ob}^{j,10}$ = observed population of region j , in the year 10, age group $x+5$ to $x+10$.

The quinquennium NM, of the 0 to 4 age group, at the end of the period, is obtained by the application of the observed child/woman ratio, at the end of the decade, to the sum of the NMs of reproductive age women.

Such procedures produce good NM and NMR five years estimates. However, these estimates refer to the net result of the population changes, between two fixed dates, of the area in study with the other areas of the country and with other countries.

⁸ The closed population at the end of the decade is different from the closed population at the end of the second quinquennium. In the first case, the population remains closed during the whole decade. In the second case, it is the resident population in the beginning of the second quinquennium period that remains closed.

⁹ As the equation (14) only provides, for the second quinquennium, the estimates of ISR for the population it is adopted, for the 0 to 4 and 5 to 9 age groups the assumption that their ISRs are 10 years and over the same already estimated for the first quinquennium. In other words, that: ${}_5\overline{ISR}_0^{j,II} = \overline{ISR}_0^{j,I}$
 ${}_5\overline{ISR}_5^{j,II} = {}_5\overline{ISR}_5^{j,I}$

2.4. Estimation of the number of emigrants, of the 1985-1990 period

To estimate the emigrants of the Brazilian regions during the 1985/1990 period, the following equations are used:

$${}_5NM_x^{j,II} = {}_5I_x^{j,II} + {}_5IM_x^{j,II} - {}_5E_x^{j,II} - {}_5OM_x^{j,II} \quad (20) \text{ and}$$

$${}_5\bar{E}_x^{j,II} = {}_5I_x^{j,II} + {}_5IM_x^{j,II} - {}_5OM_x^{j,II} - {}_5NM_x^{j,II} \quad (21),$$

where:

${}_5NM_x^{j,II}$ = net migration of region j , of the 1985/1990 period;

${}_5\bar{E}_{x,int}^{j,II}$ = estimated emigrants of region j , of the 1985/1990 period;

${}_5I_{x,int}^{j,II}$ = immigrants of region j , of the 1985/1990 period;

${}_5IM_x^{j,II}$ = in-migrants of region j , of the 1985/1990 period.

As already mentioned the 1991 Brazilian Census provides information on the place of residence of individuals exactly five years previous the census, at municipal level. This allows the identification of the number of the fixed date in-migrants, immigrants and out-migrants. Consequently, equation (21) provides the number of emigrants of region j . For the country as a whole (c) equation (21) is reduced to:

$${}_5NM_{x,int}^{j,II} = {}_xI_x^{j,II} - {}_5\bar{E}_x^{j,II}$$

because ${}_5IM_x^{c,II} = 0$ and ${}_5OM_x^{c,II} = 0$.

2.5. Some observations about the results

The decennial NM is not simply the sum of the two quinquennium period NMs. It is the result of the sum of the NM of the second period plus the survivors of the NM of the first quinquennium (CARVALHO & RIGOTTI, 1998), as showed by the following equation:

$${}^{10}_5NM_{x+10}^{j,d} = {}^5_5NM_{x+5}^{j,I} \cdot {}^5\overline{ISR}_{x+5}^{j,II} + {}^5_5NM_{x+10}^{j,II} \quad (23), \text{ where, for region } j:$$

${}^{10}_5NM_{x+10}^{j,d}$ = decennial NM;

${}^5_5NM_{x+5}^{j,I}$ = NM of the first quinquennium of the decade;

${}^5\overline{ISR}_{x+5}^{j,II}$ = 1985/1990 estimated inter-censusal survival ratio; and

${}^5_5NM_{x+10}^{j,II}$ = 1985/1990 net migration.

In a similar way, the decennial net migration rate does not also correspond to the product of the net migration rates of the first and the second quinquenniums. " When the net migration rates have, as denominator, the observed population, at the end of the period, the decennial NMR is equal to the sum of the two quinquennial NMRs, minus their product". (CARVALHO & RIGOTTI, 1998), as shown in equation:

$${}^5_5{}^{10}NMR_{x+10}^{j,d} = {}^5_5NMR_{x+5}^{j,I} + {}^5_5NMR_{x+10}^{j,II} - ({}^5_5NMR_{x+5}^{j,I} * {}^5_5NMR_{x+10}^{j,II}) \quad (24)$$

"When the quinquennial NMRs have, as denominator, the estimated closed population at the end of the period, the decennial NMR is equal to the sum of the two quinquennial NMRs, plus their product". (CARVALHO & RIGOTTI, 1998), as shown in equation :

$${}^5_5{}^{10}NMR_{x+10}^{j,d} = {}^5_5NMR_{x+5}^{j,I} + {}^5_5NMR_{x+10}^{j,II} + ({}^5_5NMR_{x+5}^{j,I} * {}^5_5NMR_{x+10}^{j,II}) \quad (25)$$

3. ESTIMATES PRESENTATION:

To obtain the estimates, regional mortality tables were used, disaggregated by sex and age. They were generated by CEDEPLAR, for the 1980/1990 decade, based on data from the Information System on Mortality (SIM), of the Brazilian Ministry of Health, corrected for sub-registration through Growth Balance and of Preston & Coale techniques (CEDEPLAR, 1999). The mortality tables for Brazil and States, also disaggregated by sex and age, to the 70's were taken from CARVALHO & PINHEIRO (1986) and CARVALHO (1978).

Based on the procedures previously described, estimates were generated of net migration and the net migration rates, for the 1980/1990 decade and its two quinquenniums for Brazil as a whole and its five Regions, by age and sex, as well as of the number of emigrants of the 1985/1990 period. The results are presented in the following Tables:

Table 1

Brasil: 1990
Estimates of the Net Migration and the Net Migration Rates, for Sex and Age Group,
for the periods 1980/1990, 1980/1985 and 1985/1990

Age group	09/01/80		09/01/90		1980/1990		Net Migration Rate (%): 1980/1990			
	Observed Population		Observed Population		Net Migration:		Expected Population*		Observed Population**	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	8.318.764	8.124.039	8.370.806	8.136.628	-138.698	-137.230	-1.6299	-1.6586	-1.6569	-1.6866
5 to 9	7.485.905	7.304.188	8.699.296	8.454.151	-127.523	-127.055	-1.4447	-1.4806	-1.4659	-1.5029
10 to 14	7.167.166	7.111.940	8.439.889	8.323.119	0	0	0.0000	0.0000	0.0000	0.0000
15 to 19	6.713.196	6.877.189	7.382.592	7.485.985	-7.161	-63.256	-0.0969	-0.8379	-0.0970	-0.8450
20 to 24	5.679.890	5.845.198	6.605.518	6.749.144	-219.092	-272.735	-3.2103	-3.8841	-3.3168	-4.0410
25 to 29	4.646.160	4.805.624	6.013.288	6.288.053	-177.159	-14.323	-2.8618	-0.2273	-2.9461	-0.2278
30 to 34	3.804.469	3.889.614	5.234.227	5.464.624	-78.128	86.732	-1.4707	1.6128	-1.4926	1.5872
35 to 39	3.129.685	3.229.637	4.437.904	4.685.803	-127.496	-5.807	-2.7927	-0.1238	-2.8729	-0.1239
40 to 44	2.856.807	2.872.891	3.755.256	3.856.941	-131.842	-78.232	-3.3918	-1.9880	-3.5109	-2.0283
45 to 49	2.303.365	2.354.718	2.922.926	3.048.838	16.002	79.065	0.5505	2.6623	0.5474	2.5933
50 to 54	2.037.874	2.075.558	2.476.751	2.580.623	-114.728	-101.469	-4.4271	-3.7832	-4.6322	-3.9320
55 to 59	1.562.172	1.581.859	1.970.146	2.155.922	-104.321	-2.424	-5.0288	-0.1123	-5.2951	-0.1124
60 to 64	1.189.119	1.258.977	1.658.719	1.848.408	-75.929	4.369	-4.3772	0.2369	-4.5776	0.2364
65 to 69	983.567	1.047.528	1.274.326	1.422.992	0	0	0.0000	0.0000	0.0000	0.0000
70 +	1.244.522	1.499.806	1.834.340	2.301.051	0	0	0.0000	0.0000	0.0000	0.0000
Total	59.122.662	59.878.765	71.075.986	72.802.283	-1.286.075	-632.366	-1.7773	-0.8611	-1.8094	-0.8866

Age group	09/01/80		09/01/85		1980/1985		Net Migration Rate (%): 1980/1985			
	Observed Population		Estimated Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	8.318.764	8.124.039	8.462.545	8.247.288	-68.750	-68.677	-0.8059	-0.8258	-0.8124	-0.8327
5 to 9	7.485.905	7.304.188	8.433.547	8.217.930	0	0	0.0000	0.0000	0.0000	0.0000
10 to 14	7.167.166	7.111.940	7.480.697	7.386.708	-8.246	-22.821	-0.1101	-0.3080	-0.1102	-0.3089
15 to 19	6.713.196	6.877.189	6.982.106	7.049.422	-75.353	-99.170	-1.0677	-1.3873	-1.0792	-1.4068
20 to 24	5.679.890	5.845.198	6.393.774	6.636.173	-104.862	-72.639	-1.6136	-1.0827	-1.6401	-1.0946
25 to 29	4.646.160	4.805.624	5.427.033	5.627.780	-46.461	26.341	-0.8488	0.4703	-0.8561	0.4681
30 to 34	3.804.469	3.889.614	4.498.635	4.695.093	-60.808	16.053	-1.1168	0.3431	-1.1294	0.3419
35 to 39	3.129.685	3.229.637	3.746.743	3.854.733	-61.521	-22.979	-1.6155	-0.5926	-1.6420	-0.5961
40 to 44	2.856.807	2.872.891	3.065.785	3.175.756	-23.885	3.258	-0.7731	0.1027	-0.7791	0.1026
45 to 49	2.303.365	2.354.718	2.708.893	2.755.912	-28.065	-9.379	-1.0254	-0.3392	-1.0360	-0.3403
50 to 54	2.037.874	2.075.558	2.136.401	2.242.110	-53.371	-22.818	-2.4373	-1.0075	-2.4982	-1.0177
55 to 59	1.562.172	1.581.859	1.861.358	1.971.997	-45.724	274	-2.3976	0.0139	-2.4565	0.0139
60 to 64	1.189.119	1.258.977	1.409.579	1.496.106	0	0	0.0000	0.0000	0.0000	0.0000
65 +	2.228.090	2.547.335	2.601.113	3.061.442	0	0	0.0000	0.0000	0.0000	0.0000
Total	59.122.662	59.878.765	65.208.209	66.418.449	-586.523	-258.627	-0.9823	-0.4301	-0.9920	-0.4319

Age group	09/01/85		09/01/90		1985/1990		Net Migration Rate (%): 1985/1990			
	Estimated Population		Observed Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	8.462.545	8.247.288	8.370.806	8.136.628	-75.778	-74.967	-0.8971	-0.9129	-0.9053	-0.9213
5 to 9	8.433.547	8.217.930	8.699.296	8.454.151	-62.575	-62.322	-0.7142	-0.7318	-0.7193	-0.7372
10 to 14	7.480.697	7.386.708	8.439.889	8.323.119	0	0	0.0000	0.0000	0.0000	0.0000
15 to 19	6.982.106	7.049.422	7.382.592	7.485.985	1.655	-39.476	0.0224	-0.5246	0.0224	-0.5273
20 to 24	6.393.774	6.636.173	6.605.518	6.749.144	-145.771	-175.520	-2.1592	-2.5347	-2.2068	-2.6006
25 to 29	5.427.033	5.627.780	6.013.288	6.288.053	-76.999	53.512	-1.2643	0.8583	-1.2805	0.8510
30 to 34	4.498.635	4.695.093	5.234.227	5.464.624	-33.054	61.081	-0.6275	1.1304	-0.6315	1.1177
35 to 39	3.746.743	3.854.733	4.437.904	4.685.803	-76.397	-22.051	-1.6923	-0.4684	-1.7215	-0.4706
40 to 44	3.065.785	3.175.756	3.755.256	3.856.941	-68.864	-54.870	-1.8008	-1.4027	-1.8338	-1.4226
45 to 49	2.708.893	2.755.912	2.922.926	3.048.838	38.568	76.020	1.3372	2.5572	1.3195	2.4934
50 to 54	2.136.401	2.242.110	2.476.751	2.580.623	-88.116	-92.441	-3.4355	-3.4583	-3.5577	-3.5821
55 to 59	1.861.358	1.971.997	1.970.146	2.155.922	-53.750	19.349	-2.6558	0.9056	-2.7282	0.8975
60 to 64	1.409.579	1.496.106	1.658.719	1.848.408	-34.298	4.252	-2.0258	0.2305	-2.0677	0.2300
65 to 69***	2.601.113	3.061.442	1.274.326	1.422.992	0	0	0.0000	0.0000	0.0000	0.0000
70 +	1.834.340	2.301.051	1.834.340	2.301.051	0	0	0.0000	0.0000	0.0000	0.0000
Total	65.208.209	66.418.449	71.075.986	72.802.283	-656.847	-320.844	-0.9157	-0.4388	-0.9241	-0.4407

Age group	1985/1990		1985/1990		1985/1990		Net Migration Rate (%): 1985/1990			
	Internal Net Migration		International Net Migr.		International Emigrants		Expected Population		International	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4							0.0052	0.0045		
5 to 9	451	380								
10 to 14	249	318	18.049	5.590	-15.175	-2.450	0.0029	0.0038	0.2139	0.0672
15 to 19	403	430	-12.350	-57.299	14.587	60.072	0.0055	0.0057	-0.1673	-0.7654
20 to 24	618	643	-146.389	-176.162	149.472	179.335	0.0094	0.0095	-2.2162	-2.6101
25 to 29	389	459	-77.389	53.053	82.715	-48.555	0.0065	0.0073	-1.2870	0.8437
30 to 34	257	326	-33.311	60.755	39.033	-56.300	0.0049	0.0060	-0.6364	1.1118
35 to 39	240	286	-76.637	-22.337	80.722	25.349	0.0054	0.0061	-1.7269	-0.4767
40 to 44	254	212	-69.118	-55.082	72.156	57.195	0.0068	0.0055	-1.8406	-1.4281
45 to 49	133	207	38.435	75.812	-36.250	-74.351	0.0046	0.0068	1.3150	2.4866
50 to 54	176	108	-88.293	-92.549	89.426	93.381	0.0071	0.0042	-3.5649	-3.5863
55 to 59	67	79	-53.817	19.270	54.554	-18.693	0.0034	0.0037	-2.7316	0.8938
60 to 64	106	60	-34.404	4.191	35.130	-3.712	0.0064	0.0033	-2.0741	0.2267
65 to 69	99	158					0.0077	0.0111		
70 +	104	153					0.0057	0.0066		
Total	3.548	3.819	-535.223	-184.758	566.370	211.270	0.0050	0.0052	-0.7474	-0.2531

Source: IBGE. Censos Demográficos de 1980 e 1991.

* Net Migration Rate obtained by the quotient between Net Migration and Expected Population in the end of the period.

** Net Migration Rate obtained by the quotient between Net Migration and Observed Population in the end of the period.

*** In relation to the Estimated Population for 09/01/1986, to consider 65 and and more.

Table 2

Sudeste: 1990
Estimates of the Net Migration and the Net Migration Rates, for Sex and Age Group,
for the periods 1980/1990, 1980/1985 and 1985/1990

Age group	09/01/80		09/01/90		1980/1990		Net Migration Rate (%): 1980/1990			
	Observed Population		Observed Population		Net Migration:		Expected Population*		Observed Population**	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	3.232.066	3.140.849	3.185.941	3.087.131	81.224	78.843	2.6162	2.6209	2.5495	2.5539
5 to 9	2.895.859	2.821.431	3.338.399	3.238.612	89.350	86.622	2.7501	2.7482	2.6764	2.6747
10 to 14	2.807.197	2.770.238	3.302.560	3.240.241	-8.257	-6.492	-0.2494	-0.2000	-0.2500	-0.2004
15 to 19	2.843.359	2.893.633	2.954.654	2.991.362	94.992	71.046	3.3218	2.4328	3.2150	2.3750
20 to 24	2.697.863	2.690.074	2.884.074	2.891.533	213.477	152.146	7.9936	5.5540	7.4019	5.2618
25 to 29	2.263.209	2.281.683	2.740.004	2.838.530	119.609	182.053	4.5645	6.8532	4.3653	6.4136
30 to 34	1.820.033	1.834.100	2.472.094	2.569.699	-51.621	89.538	-2.0455	3.6102	-2.0882	3.4844
35 to 39	1.464.007	1.496.163	2.118.427	2.223.970	-105.561	-9.417	-4.7465	-0.4216	-4.9830	-0.4234
40 to 44	1.338.312	1.343.120	1.761.054	1.813.267	-98.075	-48.778	-5.2753	-2.6196	-5.5691	-2.6900
45 to 49	1.115.270	1.141.949	1.357.416	1.428.081	-1.650	45.788	-0.1214	3.3124	-0.1216	3.2062
50 to 54	984.569	1.017.946	1.155.341	1.217.306	-56.084	-44.378	-4.6296	-3.5173	-4.8543	-3.6456
55 to 59	737.779	771.373	939.479	1.039.974	-60.976	-13.902	-6.0948	-1.3192	-6.4904	-1.3368
60 to 64	552.448	610.944	788.400	904.768	-44.346	-5.865	-5.3253	-0.6441	-5.6248	-0.6483
65 to 69	431.642	486.213	575.393	676.043	-22.741	-23.418	-3.8020	-3.3481	-3.9522	-3.4641
70 +	545.489	705.306	785.330	1.074.249	-25.347	-18.213	-1.6954	-1.6672	-3.2276	-1.6954
Total	25.729.102	26.005.023	30.358.567	31.234.764	123.993	535.572	1.7147	1.7446	0.4084	1.7147

Age group	09/01/80		09/01/85		1980/1985		Net Migration Rate (%): 1980/1985			
	Observed Population		Estimated Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	3.232.066	3.140.849	3.244.671	3.149.000	43.951	42.565	1.3732	1.3702	1.3546	1.3517
5 to 9	2.895.859	2.821.431	3.267.853	3.168.000	-32.629	-27.298	-0.9886	-0.8543	-0.9985	-0.8617
10 to 14	2.807.197	2.770.238	2.925.347	2.884.456	21.119	14.985	0.7272	0.5222	0.7219	0.5195
15 to 19	2.843.359	2.893.633	2.836.666	2.837.702	72.853	51.144	2.6360	1.8354	2.5683	1.8023
20 to 24	2.697.863	2.690.074	2.834.412	2.909.663	83.057	84.648	3.0188	2.9964	2.9303	2.9092
25 to 29	2.263.209	2.281.683	2.619.257	2.649.521	19.826	69.241	0.7627	2.6835	0.7569	2.6134
30 to 34	1.820.033	1.834.100	2.178.508	2.242.020	-37.628	17.856	-1.6979	0.8028	-1.7272	0.7964
35 to 39	1.464.007	1.496.163	1.775.223	1.817.020	-46.569	-14.285	-2.5562	-0.7801	-2.6233	-0.7862
40 to 44	1.338.312	1.343.120	1.424.946	1.474.664	-20.145	1.906	-1.3941	0.1294	-1.4138	0.1292
45 to 49	1.115.270	1.141.949	1.265.914	1.295.270	-15.407	-1.085	-1.2024	-0.0837	-1.2170	-0.0838
50 to 54	984.569	1.017.946	1.029.797	1.088.398	-28.849	-13.506	-2.7251	-1.2257	-2.8014	-1.2409
55 to 59	737.779	771.373	892.216	965.465	-28.722	-4.890	-2.9079	-0.5039	-2.9950	-0.5064
60 to 64	552.448	610.944	655.795	724.622	-10.103	-7.623	-1.5172	-1.0410	-1.5406	-1.0520
65 +	977.131	1.191.519	1.140.430	1.438.860	-18.968	-14.684	-1.6360	-1.0102	-1.6632	-1.0205
Total	25.729.102	26.005.023	28.091.035	28.644.662	3.785	198.976	0.0147	0.7710	0.0147	0.7651

Age group	09/01/85		09/01/90		1985/1990		Net Migration Rate (%): 1985/1990			
	Estimated Population		Observed Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	3.244.671	3.149.000	3.185.941	3.087.131	40.394	39.211	1.2842	1.2865	1.2679	1.2702
5 to 9	3.267.853	3.168.000	3.338.399	3.238.612	44.016	43.083	1.3361	1.3482	1.3185	1.3303
10 to 14	2.925.347	2.884.456	3.302.560	3.240.241	24.433	22.248	0.7453	0.6914	0.7398	0.6866
15 to 19	2.836.666	2.837.702	2.954.654	2.991.362	74.225	55.816	2.5769	1.9014	2.5121	1.8659
20 to 24	2.834.412	2.909.663	2.884.074	2.891.533	143.218	101.821	5.2253	3.6499	4.9658	3.5213
25 to 29	2.619.257	2.649.521	2.740.004	2.838.530	40.704	102.368	1.5079	3.7413	1.4855	3.6064
30 to 34	2.178.508	2.242.020	2.472.094	2.569.699	-70.863	22.885	-2.7866	0.8986	-2.8665	0.8906
35 to 39	1.775.223	1.817.020	2.118.427	2.223.970	-67.845	-27.397	-3.1032	-1.2169	-3.2026	-1.2319
40 to 44	1.424.946	1.474.664	1.761.054	1.813.267	-50.581	-34.256	-2.7920	-1.8542	-2.8722	-1.8892
45 to 49	1.265.914	1.295.270	1.357.416	1.428.081	17.272	43.988	1.2888	3.1781	1.2724	3.0802
50 to 54	1.029.797	1.088.398	1.155.341	1.217.306	-41.544	-43.353	-3.4710	-3.4389	-3.5958	-3.5614
55 to 59	892.216	965.465	939.479	1.039.974	-33.737	-1.006	-3.4665	-0.0966	-3.5910	-0.0967
60 to 64	655.795	724.622	788.400	904.768	-20.159	-1.272	-2.4932	-0.1404	-2.5569	-0.1406
65 to 69 ***	1.140.430	1.438.860	575.393	676.043	-13.645	-16.275	-2.3164	-2.3508	-2.3714	-2.4074
70 +	977.131	1.191.519	785.330	1.074.249	-12.009	-7.085	-1.5062	-0.6552	-1.5292	-0.6595
Total	28.091.035	28.644.662	30.358.567	31.234.764	73.877	300.775	0.2439	0.9723	0.2433	0.9629

Age group	1985/1990		1985/1990		1985/1990		Net Migration Rate (%): 1985/1990			
	Internal Net Migration		International Net Migr.		International Emigrants		Expected Population		International	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4										
5 to 9	23.342	20.458					0.7041	0.6357		
10 to 14	18.397	24.977	6.036		-2.729	-7.986	4.179	0.5602	0.1828	-0.0842
15 to 19	64.357	78.013	9.868		-22.197	-6.888	27.051	2.2267	0.3340	-0.7420
20 to 24	127.456	107.384	15.762		-5.563	-14.278	6.938	4.6236	0.5465	-0.1924
25 to 29	54.835	54.775	-14.131		47.593	16.937	-45.162	2.0421	1.9677	-0.5157
30 to 34	13.973	14.664	-84.836		8.221	88.292	-5.676	0.5684	0.5739	-3.4317
35 to 39	2.466	5.074	-70.312		-32.471	72.646	34.143	0.1166	0.2287	-3.3190
40 to 44	3.758	5.956	-54.339		-40.212	55.808	41.373	0.2138	0.3295	-3.0856
45 to 49	3.384	5.546	13.888		38.442	-12.507	-37.526	0.2499	0.3898	1.0231
50 to 54	2.559	4.032	-44.103		-47.385	44.761	47.763	0.2220	0.3323	-3.8174
55 to 59	1.459	3.668	-35.195		-4.674	35.540	5.000	0.1555	0.3540	-3.7462
60 to 64	1.525	1.035	-21.684		-2.307	22.089	2.600	0.1938	0.1145	-2.7504
65 to 69	-23	435					-0.0040	0.0644		
70 +	1.003	889					0.1279	0.0828		
Total	318.490	326.906	-277.995	-66.936	294.614	80.683	1.0602	1.0577	-0.9074	-0.2138

Source: IBGE, Censos Demográficos de 1980 e 1991.

* Net Migration Rate obtained by the quotient between Net Migration and Expected Population in the end of the period.

** Net Migration Rate obtained by the quotient between Net Migration and Observed Population in the end of the period.

*** In relation to the Estimated Population for 09/01/1986, to consider 65 and more.

Table 3

Sul: 1990
 Estimates of the Net Migration and the Net Migration Rates, for Sex and Age Group,
 for the periods 1980/1990, 1980/1985 and 1985/1990

Age group	09/01/80		09/01/90		1980/1990		Net Migration Rate (%): 1980/1990			
	Observed Population		Observed Population		Net Migration:		Expected Population*		Observed Population**	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	1.202.124	1.163.456	1.182.844	1.140.631	-59.827	-57.840	-4.8144	-4.8261	-5.0579	-5.0709
5 to 9	1.139.060	1.102.122	1.215.075	1.170.792	-49.100	-47.487	-3.8840	-3.8979	-4.0409	-4.0560
10 to 14	1.161.006	1.135.700	1.186.745	1.151.750	-56.509	-65.450	-4.5452	-5.3771	-4.7617	-5.6826
15 to 19	1.128.878	1.138.662	1.070.948	1.069.592	-55.368	-70.992	-4.9158	-6.2242	-5.1700	-6.6373
20 to 24	941.537	958.351	1.010.236	1.018.844	-99.934	-104.534	-9.0017	-9.3054	-9.8921	-10.2601
25 to 29	777.368	788.863	971.375	1.002.522	-78.523	-43.822	-7.4791	-4.1881	-8.0837	-4.3711
30 to 34	640.315	638.825	858.340	881.464	-33.517	-3.538	-3.7581	-0.3998	-3.9048	-0.4014
35 to 39	527.873	528.505	734.889	760.703	-40.694	-13.314	-5.2469	-1.7202	-5.5374	-1.7503
40 to 44	476.608	462.224	620.309	624.274	-44.246	-26.435	-6.6579	-4.0625	-7.1328	-4.2345
45 to 49	395.604	390.686	486.725	497.265	-10.504	7.184	-2.1125	1.4659	-2.1581	1.4447
50 to 54	340.174	336.211	406.569	413.408	-30.885	-22.242	-7.0602	-5.1054	-7.5965	-5.3801
55 to 59	260.409	261.432	332.640	355.011	-26.796	-6.934	-7.4549	-1.9158	-8.0555	-1.9532
60 to 64	198.156	206.658	276.200	302.491	-14.433	-198	-4.9660	-0.0655	-5.2255	-0.0655
65 to 69	154.321	163.770	199.971	226.611	-12.206	-12.067	-5.7529	-5.0556	-6.1041	-5.3248
70 +	188.168	224.095	274.816	357.809	-12.677	-732	-0.2046	-0.2042	-4.6131	-0.2046
Total	9.531.602	9.499.560	10.827.682	10.973.169	-625.218	-468.401	-4.2686	-4.0938	-5.7743	-4.2686

Age group	09/01/80		09/01/85		1980/1985		Net Migration Rate (%): 1980/1985			
	Observed Population		Estimated Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	1.202.124	1.163.456	1.216.143	1.175.065	-28.928	-28.077	-2.3234	-2.3336	-2.3787	-2.3894
5 to 9	1.139.060	1.102.122	1.208.259	1.162.610	-27.519	-34.175	-2.2268	-2.8556	-2.2776	-2.9395
10 to 14	1.161.006	1.135.700	1.117.321	1.090.400	-28.229	-33.882	-2.4642	-3.0137	-2.5265	-3.1073
15 to 19	1.128.878	1.138.662	1.104.075	1.097.052	-40.826	-45.386	-3.5659	-3.9728	-3.6978	-4.1371
20 to 24	941.537	958.351	1.050.609	1.073.991	-45.684	-38.017	-4.1671	-3.4188	-4.3483	-3.5398
25 to 29	777.368	788.863	886.406	909.322	-25.791	-10.504	-2.8274	-1.1420	-2.9096	-1.1552
30 to 34	640.315	638.825	748.902	765.535	-17.631	-4.209	-2.3001	-0.5469	-2.3542	-0.5499
35 to 39	527.873	528.505	626.243	629.294	-19.707	-9.470	-3.0508	-1.4826	-3.1468	-1.5049
40 to 44	476.608	462.224	512.971	517.341	-12.067	-3.819	-2.2983	-0.7329	-2.3523	-0.7383
45 to 49	395.604	390.686	448.723	442.673	-10.860	-4.254	-2.3630	-0.9518	-2.4202	-0.9609
50 to 54	340.174	336.211	364.034	370.977	-14.015	-6.702	-3.7073	-1.7746	-3.8500	-1.8066
55 to 59	260.409	261.432	309.221	319.745	-10.117	-1.581	-3.1680	-0.4919	-3.2717	-0.4943
60 to 64	198.156	206.658	231.437	245.695	-4.438	-3.304	-1.8815	-1.3271	-1.9176	-1.3450
65 +	342.489	387.865	400.829	476.252	-9.677	-2.884	-2.3573	-0.6020	-2.4142	-0.6056
Total	9.531.602	9.499.560	10.225.173	10.275.953	-295.488	-226.266	-3.0069	-2.3264	-3.1001	-2.3819

Age group	09/01/85		09/01/90		1985/1990		Net Migration Rate (%): 1985/1990			
	Estimated Population		Observed Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	1.216.143	1.175.065	1.182.844	1.140.631	-29.205	-28.234	-2.4096	-2.4155	-2.4691	-2.4753
5 to 9	1.208.259	1.162.610	1.215.075	1.170.792	-19.225	-18.454	-1.5576	-1.5517	-1.5822	-1.5762
10 to 14	1.117.321	1.090.400	1.186.745	1.151.750	-28.813	-31.874	-2.3704	-2.6929	-2.4279	-2.7674
15 to 19	1.104.075	1.097.052	1.070.948	1.069.592	-27.669	-36.724	-2.5185	-3.3195	-2.5836	-3.4335
20 to 24	1.050.609	1.073.991	1.010.236	1.018.844	-60.356	-59.914	-5.6376	-5.5540	-5.9745	-5.8806
25 to 29	886.406	909.322	971.375	1.002.522	-34.790	-8.072	-3.4577	-0.7987	-3.5815	-0.8051
30 to 34	748.902	765.535	858.340	881.464	-8.330	6.547	-0.9612	0.7483	-0.9705	0.7427
35 to 39	626.243	629.294	734.889	760.703	-22.878	-9.097	-3.0191	-1.1817	-3.1131	-1.1959
40 to 44	512.971	517.341	620.309	624.274	-23.990	-16.802	-3.7234	-2.6209	-3.8674	-2.6914
45 to 49	448.723	442.673	486.725	497.265	904	10.757	0.1861	2.2111	0.1858	2.1633
50 to 54	364.034	370.977	406.569	413.408	-20.564	-18.123	-4.8143	-4.1998	-5.0578	-4.3839
55 to 59	309.221	319.745	332.640	355.011	-13.468	-532	-3.8913	-0.1496	-4.0489	-0.1498
60 to 64	231.437	245.695	276.200	302.491	-5.202	1.278	-1.8487	0.4243	-1.8835	0.4225
65 to 69 ***	400.829	476.252	199.971	226.611	-9.359	-8.950	-4.4709	-3.7993	-4.6802	-3.9494
70 +			274.816	357.809	-5.895	1.417	-2.1000	0.3977	-2.1451	0.3961
Total	10.225.173	10.275.953	10.827.682	10.973.169	-308.841	-216.776	-2.7732	-1.9372	-2.8523	-1.9755

Age group	1985/1990		1985/1990		1985/1990		Net Migration Rate (%): 1985/1990			
	Internal Net Migration		International Net Migr.		International Emigrants		Internal		International	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4							-0.7862	-0.6531		
5 to 9	-9.629	-7.697								
10 to 14	-9.165	-8.869	-19.648	-23.005	16.539	21.496	-0.7664	-0.7642	-1.6557	-1.9974
15 to 19	-15.876	-15.990	-11.793	-20.734	15.368	25.751	-1.4608	-1.4729	-1.1012	-1.9385
20 to 24	-23.229	-20.313	-37.127	-39.601	37.802	40.395	-2.2477	-1.9548	-3.6751	-3.8869
25 to 29	-15.658	-13.903	-19.132	5.831	20.215	-4.857	-1.5864	-1.3678	-1.9696	0.5817
30 to 34	-6.191	-4.827	-2.139	11.374	3.161	-10.458	-0.7161	-0.5446	-0.2492	1.2903
35 to 39	-3.534	-2.809	-19.344	-6.288	20.087	6.860	-0.4786	-0.3679	-2.6322	-0.8266
40 to 44	-3.513	-3.286	-20.477	-13.516	21.163	13.940	-0.5631	-0.5236	-3.3011	-2.1651
45 to 49	-2.929	-3.013	3.833	13.770	-3.511	-13.561	-0.5982	-0.6023	0.7875	2.7692
50 to 54	-2.972	-2.506	-17.592	-15.617	17.742	15.775	-0.7257	-0.6025	-4.3268	-3.7777
55 to 59	-2.318	-1.815	-11.150	1.283	11.305	-1.163	-0.6920	-0.5087	-3.3520	0.3614
60 to 64	-2.037	-683	-3.165	1.961	3.311	-1.882	-0.7321	-0.2253	-1.1460	0.6483
65 to 69	-806	-283					-0.4014	-0.1247		
70 +	-627	-262					-0.2276	-0.0732		
Total	-98.484	-86.256	-157.004	-86.551	163.182	92.296	-0.9014	-0.7799	-1.4293	-0.7826

Source: IBGE. Censos Demográficos de 1980 e 1991.

* Net Migration Rate obtained by the quotient between Net Migration and Expected Population in the end of the period.

** Net Migration Rate obtained by the quotient between Net Migration and Observed Population in the end of the period.

*** In relation to the Estimated Population for 09/01/1986, to consider 65 and and more.

Table 4

Nordeste: 1990
Estimates of the Net Migration and the Net Migration Rates, for Sex and Age Group,
for the periods 1980/1990, 1980/1985 and 1985/1990

Age group	09/01/80		09/01/90		1980/1990		Net Migration Rate (%): 1980/1990			
	Observed Population		Observed Population		Net Migration:		Expected Population*		Observed Population**	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	2.782.609	2.747.109	2.744.536	2.689.263	-263.251	-258.043	-8.7523	-8.7552	-9.5918	-9.5953
5 to 9	2.485.253	2.445.098	2.866.443	2.808.839	-270.172	-264.737	-8.6135	-8.6133	-9.4253	-9.4251
10 to 14	2.328.203	2.342.201	2.738.667	2.735.953	-11.424	-3.669	-0.4154	-0.1339	-0.4171	-0.1341
15 to 19	1.974.940	2.060.650	2.316.943	2.367.498	-134.672	-154.452	-5.4932	-6.1243	-5.8125	-6.5238
20 to 24	1.394.450	1.549.546	1.799.367	1.925.893	-416.004	-380.846	-18.7781	-16.5101	-23.1194	-19.7750
25 to 29	1.078.263	1.217.239	1.503.873	1.644.317	-310.224	-236.810	-17.1007	-12.5887	-20.6283	-14.4017
30 to 34	923.537	1.017.231	1.232.417	1.347.684	-60.507	-69.621	-4.6799	-4.9122	-4.9096	-5.1660
35 to 39	787.253	875.246	1.030.068	1.153.449	-17.689	-25.439	-1.6883	-2.1579	-1.7173	-2.2055
40 to 44	726.425	791.829	917.918	996.701	-15.532	-22.044	-1.6640	-2.1638	-1.6921	-2.2117
45 to 49	553.762	612.395	727.304	797.693	-2.456	3.387	0.3388	0.4264	0.3377	0.4246
50 to 54	517.593	553.382	628.460	694.474	-27.907	-32.880	-4.2517	-4.5205	-4.4405	-4.7345
55 to 59	422.061	427.408	483.609	561.420	-16.090	10.528	-3.2199	1.9112	-3.3270	1.8753
60 to 64	334.238	347.700	425.164	484.931	-20.304	2.263	-4.5578	0.4690	-4.7755	0.4668
65 to 69	312.018	317.897	374.602	404.919	22.574	27.141	6.4126	7.1845	6.0261	6.7029
70 +	415.618	469.921	607.705	695.009	19.562	9.682	1.3930	1.4127	3.2190	1.3930
Total	17.036.225	17.774.852	20.397.077	21.308.044	-1.519.181	-1.395.539	-6.5494	-6.1468	-7.4480	-6.5494

Age group	09/01/80		09/01/85		1980/1985		Net Migration Rate (%): 1980/1985			
	Observed Population		Estimated Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	2.782.609	2.747.109	2.808.651	2.763.715	-131.327	-129.255	-4.4669	-4.4679	-4.6758	-4.6769
5 to 9	2.485.253	2.445.098	2.797.739	2.760.831	30.858	36.970	1.1152	1.3572	1.1029	1.3391
10 to 14	2.328.203	2.342.201	2.432.349	2.422.786	-37.172	-39.708	-1.5052	-1.6125	-1.5283	-1.6389
15 to 19	1.974.940	2.060.650	2.146.838	2.214.031	-144.913	-137.553	-6.3232	-5.8494	-6.7500	-6.2128
20 to 24	1.394.450	1.549.546	1.728.801	1.854.081	-180.861	-152.857	-9.4708	-7.6164	-10.4616	-8.2444
25 to 29	1.078.263	1.217.239	1.264.147	1.414.503	-75.313	-66.690	-5.6226	-4.5024	-5.9576	-4.7147
30 to 34	923.537	1.017.231	1.033.517	1.159.792	-17.014	-21.223	-1.6195	-1.7970	-1.6462	-1.8299
35 to 39	787.253	875.246	911.640	998.513	-7.825	-11.049	-0.8510	-1.0944	-0.8583	-1.1065
40 to 44	726.425	791.829	770.642	850.846	-2.717	-3.949	-0.3513	-0.4619	-0.3526	-0.4641
45 to 49	553.762	612.395	686.745	748.676	-7.013	-7.961	-1.0108	-1.0521	-1.0211	-1.0633
50 to 54	517.593	553.382	516.116	579.855	-10.031	-3.969	-1.9065	-0.6799	-1.9435	-0.6845
55 to 59	422.061	427.408	476.615	524.073	-9.421	3.197	-1.9384	0.6138	-1.9767	0.6101
60 to 64	334.238	347.700	390.110	408.029	6.701	7.396	1.7477	1.8461	1.7177	1.8126
65 +	727.636	787.818	833.511	920.344	16.134	11.181	1.9738	1.2298	1.9356	1.2149
Total	17.036.225	17.774.852	18.797.422	19.620.076	-569.914	-515.470	-3.2370	-2.8183	-3.3453	-2.9000

Age group	09/01/85		09/01/90		1985/1990		Net Migration Rate (%): 1985/1990			
	Estimated Population		Observed Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	2.808.651	2.763.715	2.744.536	2.689.263	-141.464	-138.655	-4.9017	-4.9031	-5.1544	-5.1559
5 to 9	2.797.739	2.760.831	2.866.443	2.808.839	-136.613	-136.827	-4.6444	-4.6450	-4.8706	-4.8713
10 to 14	2.432.349	2.422.786	2.738.667	2.735.953	-42.094	-41.341	-1.5137	-1.4885	-1.5370	-1.5110
15 to 19	2.146.838	2.214.031	2.316.943	2.367.498	-97.718	-113.766	-4.0468	-4.5850	-4.2175	-4.8053
20 to 24	1.728.801	1.854.081	1.799.367	1.925.893	-275.806	-245.891	-13.2907	-11.3221	-15.3279	-12.7676
25 to 29	1.264.147	1.414.503	1.503.873	1.644.317	-138.228	-93.501	-8.4178	-5.3804	-9.1915	-5.6863
30 to 34	1.033.517	1.159.792	1.232.417	1.347.684	12.276	-5.790	1.0061	-0.4278	0.9961	-0.4296
35 to 39	911.640	998.513	1.030.068	1.153.449	-699	-4.238	-0.0678	-0.3660	-0.0678	-0.3674
40 to 44	770.642	850.846	917.918	996.701	-7.543	-10.859	-0.8150	-1.0778	-0.8217	-1.0895
45 to 49	686.745	748.676	727.304	797.693	5.044	7.088	0.6984	0.8966	0.6936	0.8886
50 to 54	516.116	579.855	628.460	694.474	-21.279	-25.202	-3.2750	-3.5019	-3.3858	-3.6290
55 to 59	476.615	524.073	483.609	561.420	-6.597	14.286	-1.3457	2.6110	-1.3641	2.5445
60 to 64	390.110	408.029	425.164	484.931	-11.648	-6.46	-2.6666	-0.1330	-2.7397	-0.1332
65 to 69 ***	833.511	920.344	374.602	404.919	16.114	20.187	4.4950	5.2471	4.3016	4.9855
70 +	607.705	695.009	803.9	803.9	1.291	1.291	1.3406	0.1861	1.3228	0.1857
Total	18.797.422	19.620.076	20.397.077	21.308.044	-841.214	-773.863	-3.9608	-3.5045	-4.1242	-3.6318

Age group	1985/1990		1985/1990		1985/1990		Net Migration Rate (%): 1985/1990			
	Internal Net Migration		International Net Migr.		International Emigrants		Expected Population		International	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4										
5 to 9	-35.217	-35.411					-1.2137	-1.2450		
10 to 14	-30.421	-39.507	-11.673	-1.834	6.853	761	-1.0986	-1.4234	-0.4262	-0.0670
15 to 19	-78.724	-97.195	-18.994	-16.571	22.930	20.691	-3.2861	-3.9435	-0.8198	-0.6999
20 to 24	-151.653	-126.217	-124.153	-119.673	124.333	119.822	-7.7730	-6.1506	-6.8998	-6.2139
25 to 29	-76.834	-67.849	-61.395	-25.652	61.836	26.009	-4.8607	-3.9628	-4.0824	-1.5600
30 to 34	-28.275	-22.722	40.551	16.933	-40.134	-16.661	-2.2428	-1.6581	3.2904	1.2564
35 to 39	-11.197	-10.750	10.498	6.512	-9.980	-6.160	-1.0753	-0.9234	1.0192	0.5646
40 to 44	-8.594	-8.496	1.051	-2.363	-819	2.492	-0.9276	-0.8452	0.1145	-0.2371
45 to 49	-6.764	-7.874	11.808	14.962	-11.667	-14.880	-0.9215	-0.9774	1.6236	1.8757
50 to 54	-4.963	-5.922	-16.316	-19.280	16.357	19.330	-0.7835	-0.8456	-2.5962	-2.7762
55 to 59	-3.186	-4.869	-3.410	19.155	3.457	-19.126	-0.6546	-0.8598	-0.7052	3.4118
60 to 64	-2.062	-2.966	-9.586	2.320	9.619	-2.292	-0.4827	-0.6079	-2.2546	0.4784
65 to 69	-845	-1.922					-0.2250	-0.4725		
70 +	-2.113	-3.373					-0.3466	-0.4830		
Total	-440.847	-435.075	-180.334	-128.196	182.784	129.985	-2.1156	-2.0010	-0.8764	-0.5980

Source: IBGE. Censos Demográficos de 1980 e 1991.

* Net Migration Rate obtained by the quotient between Net Migration and Expected Population in the end of the period.

** Net Migration Rate obtained by the quotient between Net Migration and Observed Population in the end of the period.

*** In relation to the Estimated Population for 09/01/1986, to consider 65 and and more.

Table 5

Norte: 1990
Estimates of the Net Migration and the Net Migration Rates, for Sex and Age Group,
for the periods 1980/1990, 1980/1985 and 1985/1990

Age group	09/01/80		09/01/90		1980/1990		Net Migration Rate (%): 1980/1990			
	Observed Population		Observed Population		Net Migration:		Expected Population*		Observed Population**	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	596.554	582.531	711.613	692.446	50.535	48.833	7.6443	7.5873	7.1015	7.0523
5 to 9	507.982	492.985	718.405	695.444	50.357	48.552	7.5380	7.5054	7.0096	6.9814
10 to 14	440.115	435.543	662.500	652.909	49.704	45.747	8.1111	7.5346	7.5025	7.0067
15 to 19	366.426	373.515	545.849	548.237	45.410	39.447	9.0740	7.7532	8.3191	7.1953
20 to 24	303.688	300.660	452.011	444.252	34.153	15.112	8.1733	3.5215	7.5557	3.4017
25 to 29	245.770	236.988	382.296	373.743	45.730	32.319	13.5873	9.4659	11.9620	8.6473
30 to 34	193.306	180.086	323.496	310.169	40.781	34.172	14.4248	12.3812	12.6064	11.0171
35 to 39	160.468	150.087	263.254	252.947	22.795	22.279	9.4798	9.6586	8.6590	8.8079
40 to 44	143.579	126.188	216.454	194.470	19.525	13.109	9.9145	7.2283	9.0202	6.7411
45 to 49	109.891	97.133	165.491	149.290	16.633	11.757	11.1739	8.5488	10.0508	7.8756
50 to 54	92.121	79.316	134.383	118.218	4.190	664	3.2185	0.5644	3.1182	0.5613
55 to 59	67.221	56.707	99.876	91.356	837	2.574	0.8452	2.8994	0.8382	2.8177
60 to 64	49.268	44.863	80.798	73.452	2.410	3.281	3.0749	4.6751	2.9831	4.4663
65 to 69	43.244	41.027	61.109	55.961	8.365	5.699	15.8585	11.3382	13.6878	10.1835
70 +	47.292	54.599	82.532	88.468	9.641	4.013	4.5365	4.7520	11.6822	4.5365
Total	3.366.925	3.252.227	4.900.067	4.741.362	401.067	327.558	6.9085	7.4212	8.1849	6.9085

Age group	09/01/80		09/01/85		1980/1985		Net Migration Rate (%): 1980/1985			
	Observed Population		Estimated Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	596.554	582.531	657.838	641.358	22.266	21.535	3.5033	3.4744	3.3847	3.3577
5 to 9	507.982	492.985	632.640	616.790	22.121	18.728	3.6233	3.1315	3.4966	3.0364
10 to 14	440.115	435.543	529.691	519.610	20.182	17.565	3.9611	3.4987	3.8102	3.3804
15 to 19	366.426	373.515	449.453	448.006	16.613	10.606	3.8381	2.4248	3.6962	2.3674
20 to 24	303.688	300.660	370.794	374.071	16.689	10.138	4.7129	2.7856	4.5008	2.7101
25 to 29	245.770	236.988	310.353	302.143	18.331	14.386	6.2772	4.9993	5.9064	4.7613
30 to 34	193.306	180.086	253.197	242.181	13.087	11.748	5.4506	5.0981	5.1689	4.8508
35 to 39	160.468	150.087	201.799	185.984	8.650	6.790	4.4783	3.7893	4.2864	3.6510
40 to 44	143.579	126.188	165.875	152.387	7.615	5.243	4.8115	3.5629	4.5906	3.4404
45 to 49	109.891	97.133	141.953	123.690	4.454	2.396	3.2390	1.9752	3.1373	1.9370
50 to 54	92.121	79.316	105.256	93.898	776	591	0.7428	0.6332	0.7374	0.6292
55 to 59	67.221	56.707	86.915	76.472	707	1.255	0.8197	1.6682	0.8130	1.6409
60 to 64	49.268	44.863	63.423	55.364	4.895	1.960	8.3640	3.6707	7.7184	3.5407
65 +	90.536	95.625	111.716	115.639	6.836	3.159	6.5183	2.8081	6.1195	2.7314
Total	3.366.925	3.252.227	4.080.903	3.947.594	163.222	126.099	5.0948	4.0337	4.8478	3.8773

Age group	09/01/85		09/01/90		1985/1990		Net Migration Rate (%): 1985/1990			
	Estimated Population		Observed Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	657.838	641.358	711.613	692.446	26.758	25.837	3.9071	3.8758	3.7602	3.7312
5 to 9	632.640	616.790	718.405	695.444	26.557	25.408	3.8386	3.7921	3.6967	3.6535
10 to 14	529.691	519.610	662.500	652.909	27.266	26.843	4.2923	4.2875	4.1156	4.1113
15 to 19	449.453	448.006	545.849	548.237	25.821	21.897	4.9652	4.1603	4.7304	3.9941
20 to 24	370.794	374.071	452.011	444.252	18.184	4.731	4.1916	1.0763	4.0230	1.0648
25 to 29	310.353	302.143	382.296	373.743	29.962	22.836	8.5037	6.5078	7.8373	6.1102
30 to 34	253.197	242.181	323.496	310.169	23.125	20.387	7.6989	7.0353	7.1485	6.5729
35 to 39	201.799	185.984	263.254	252.947	9.764	10.519	4.3388	3.3888	3.7090	4.1584
40 to 44	165.875	152.387	216.454	194.470	10.752	6.241	5.2270	3.3154	4.9674	3.2090
45 to 49	141.953	123.690	165.491	149.290	9.488	6.867	6.0822	4.8216	5.7335	4.5999
50 to 54	105.256	93.898	134.383	118.218	-1	-1.646	-0.0008	-1.3730	-0.0008	-1.3921
55 to 59	86.915	76.472	99.876	91.356	138	2.028	0.1388	2.2707	0.1386	2.2203
60 to 64	63.423	55.364	80.798	73.452	1.807	2.135	2.2880	2.9943	2.2368	2.9073
65 to 69 ***	111.716	115.639	61.109	55.961	4.791	3.888	8.5061	7.4664	7.8393	6.9476
70 +			82.532	88.468	4.977	1.572	6.4174	1.8092	6.0304	1.7770
Total	4.080.903	3.947.594	4.900.067	4.741.362	219.390	179.543	4.6871	3.9358	4.4773	3.7867

Age group	1985/1990		1985/1990		1985/1990		Net Migration Rate (%): 1985/1990			
	Internal Net Migration		International Net Migr.		International Emigrants		Expected Population		International	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4										
5 to 9	7.863	8.205					1.1066	1.1939		
10 to 14	9.223	7.368	18.043	19.475	-21.809	-21.126	1.4118	1.1413	2.7235	2.9828
15 to 19	9.684	5.269	16.136	16.628	-13.120	-12.934	1.8062	0.9705	2.9562	3.0330
20 to 24	15.188	8.614	2.996	-3.883	-2.685	4.100	3.4769	1.9773	0.6629	-0.8741
25 to 29	15.528	7.365	14.434	15.472	-14.072	-15.284	4.2337	2.0102	3.7755	4.1396
30 to 34	7.348	3.425	15.777	16.962	-15.489	-16.735	2.3243	1.1165	4.8770	5.4687
35 to 39	3.488	1.597	6.276	8.922	-6.141	-8.798	1.3429	0.6354	2.3839	3.5271
40 to 44	3.785	1.869	6.967	4.372	-6.815	-4.291	1.7799	0.9703	3.2186	2.2480
45 to 49	2.521	1.765	6.968	5.102	-6.828	-5.035	1.5467	1.1963	4.2104	3.4177
50 to 54	2.610	1.696	-2.611	-3.341	2.727	3.395	1.9810	1.4551	-1.9433	-2.8264
55 to 59	1.995	848	-1.856	1.181	1.909	-1.178	2.0380	0.9364	-1.8587	1.2925
60 to 64	1.018	787	789	1.349	1.909	-771	1.2759	1.0824	0.9770	1.8365
65 to 69	587	735					0.9696	1.3312		
70 +	424	963					0.5163	1.1002		
Total	81.262	50.504	85.017	80.579	-83.093	-79.219	1.6864	1.0766	1.7657	1.7289

Source: IBGE, Censos Demográficos de 1980 e 1991.

* Net Migration Rate obtained by the quotient between Net Migration and Expected Population in the end of the period.

** Net Migration Rate obtained by the quotient between Net Migration and Observed Population in the end of the period.

*** In relation to the Estimated Population for 09/01/1986, to consider 65 and more.

Table 6

Centro Oeste: 1990
Estimates of the Net Migration and the Net Migration Rates, for Sex and Age Group,
for the periods 1980/1990, 1980/1985 and 1985/1990

Age group	09/01/80		09/01/90		1980/1990		Net Migration Rate (%): 1980/1990			
	Observed Population		Observed Population		Net Migration:		Expected Population*		Observed Population**	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	505.411	490.094	545.873	527.157	52.620	50.976	10.6681	10.7053	9.6397	9.6700
5 to 9	457.750	442.552	560.975	540.464	52.041	49.996	10.2255	10.1936	9.2769	9.2506
10 to 14	430.645	428.258	549.415	542.265	26.485	29.863	5.0648	5.8281	4.8206	5.5072
15 to 19	399.593	410.730	494.199	509.297	42.476	51.695	9.4032	11.2970	8.5950	10.1503
20 to 24	342.351	346.566	459.829	468.622	49.216	45.386	11.9861	10.7236	10.7032	9.6850
25 to 29	281.550	280.849	415.740	428.941	46.248	51.937	12.5167	13.7761	11.1243	12.1081
30 to 34	227.279	219.372	347.879	355.608	26.736	36.182	8.3252	11.3272	7.6854	10.1747
35 to 39	190.084	179.636	291.267	294.735	13.653	20.083	4.9179	7.3123	4.6874	6.8141
40 to 44	171.882	149.530	239.520	228.229	6.487	5.915	2.7837	2.6606	2.7083	2.5916
45 to 49	128.838	112.554	185.989	176.509	9.066	10.949	5.1244	6.6134	4.8746	6.2031
50 to 54	103.418	88.704	151.999	137.217	-4.043	-2.633	-2.5909	-1.8830	-2.6598	-1.9191
55 to 59	74.701	64.939	114.541	108.161	-1.297	5.310	-1.1195	5.1626	-1.1322	4.9092
60 to 64	55.008	48.812	88.157	82.764	743	4.888	0.8505	6.2771	0.8434	5.9063
65 to 69	42.342	38.622	63.251	59.458	4.009	2.645	6.7664	4.6558	6.3376	4.4487
70 +	47.955	45.885	83.958	85.516	8.821	5.250	6.1395	6.5411	10.5070	6.1395
Total	3.458.808	3.347.103	4.592.592	4.544.943	333.264	368.444	8.1067	8.8218	7.2565	8.1067

Age group	09/01/80		09/01/85		1980/1985		Net Migration Rate (%): 1980/1985			
	Observed Population		Estimated Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	505.411	490.094	535.242	518.150	25.288	24.555	4.9589	4.9747	4.7246	4.7389
5 to 9	457.750	442.552	527.057	509.698	7.169	5.775	1.3790	1.1461	1.3602	1.1331
10 to 14	430.645	428.258	475.990	469.456	15.854	18.220	3.4456	4.0377	3.3308	3.8810
15 to 19	399.593	410.730	445.075	452.631	20.920	22.018	4.9322	5.1133	4.7003	4.8645
20 to 24	342.351	346.566	409.157	424.366	21.937	23.449	5.6653	5.8489	5.3616	5.5257
25 to 29	281.550	280.849	346.870	352.290	16.486	19.908	4.9899	5.9895	4.7528	5.6511
30 to 34	227.279	219.372	284.510	285.564	8.377	11.882	3.0336	4.3414	2.9443	4.1607
35 to 39	190.084	179.636	231.839	223.922	3.929	5.035	1.7241	2.3001	1.6948	2.2484
40 to 44	171.882	149.530	191.350	180.518	3.429	3.877	1.8250	2.1949	1.7922	2.1477
45 to 49	128.838	112.554	165.558	145.602	760	1.525	0.4612	1.0582	0.4591	1.0471
50 to 54	103.418	88.704	121.197	108.982	-1.252	768	-1.0225	0.7096	-1.0331	0.7046
55 to 59	74.701	64.939	96.391	86.242	-170	2.292	-0.1765	2.7308	-0.1769	2.6582
60 to 64	55.008	48.812	68.813	62.395	2.945	1.571	4.4714	2.5826	4.2800	2.5175
65 +	90.297	84.507	114.626	110.346	5.675	3.228	5.2085	3.0139	4.9506	2.9257
Total	3.458.808	3.347.103	4.013.676	3.930.164	131.348	144.103	3.9474	4.4990	3.7975	4.3053

Age group	09/01/85		09/01/90		1985/1990		Net Migration Rate (%): 1985/1990			
	Estimated Population		Observed Population		Net Migration:		Expected Population		Observed Population	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4	535.242	518.150	545.873	527.157	27.740	26.875	5.3538	5.3719	5.0817	5.0981
5 to 9	527.057	509.698	560.975	540.464	25.689	24.468	4.7992	4.7418	4.5794	4.5271
10 to 14	475.990	469.456	549.415	542.265	19.208	24.124	3.6228	4.6558	3.4962	4.4487
15 to 19	445.075	452.631	494.199	509.297	26.996	33.302	5.7782	6.9962	5.4626	6.5388
20 to 24	409.157	424.366	459.829	468.622	28.989	23.734	6.7284	5.3349	6.3043	5.0647
25 to 29	346.870	352.290	415.740	428.941	25.354	29.881	6.4946	7.4878	6.0985	6.9662
30 to 34	284.510	285.564	347.879	355.608	10.738	17.051	3.1849	5.0365	3.0866	4.7950
35 to 39	231.839	223.922	291.267	294.735	5.261	8.162	1.8394	2.8480	1.8062	2.7691
40 to 44	191.350	180.518	239.520	228.229	2.498	807	1.0538	0.3547	1.0428	0.3535
45 to 49	165.558	145.602	185.989	176.509	5.860	7.319	3.2531	4.3262	3.1506	4.1468
50 to 54	121.197	108.982	151.999	137.217	-4.729	-4.117	-3.0171	-2.9128	-3.1109	-3.0002
55 to 59	96.391	86.242	114.541	108.161	-87	4.572	-0.0759	4.4140	-0.0760	4.2274
60 to 64	68.813	62.395	88.157	82.764	904	2.756	1.0363	3.4447	1.0257	3.3300
65 to 69 ***	114.626	110.346	63.251	59.458	2.099	1.149	3.4326	1.9714	3.3187	1.9333
70 +	83.958	85.516	83.958	85.516	4.888	2.805	6.1822	3.3911	5.8223	3.2799
Total	4.013.676	3.930.164	4.592.592	4.544.943	181.409	202.888	4.1125	4.6726	3.9500	4.4640

Age group	1985/1990		1985/1990		1985/1990		Net Migration Rate (%): 1985/1990			
	Internal Net Migration		International Net Migr.		International Emigrants		Expected Population		International	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 to 4										
5 to 9	14.092	14.825					2.5768	2.8204		
10 to 14	12.215	16.350	6.994	7.774	-8.772	-7.759	2.2737	3.1088	1.2730	1.4336
15 to 19	20.962	30.332	6.034	2.970	-3.903	-487	4.4295	6.3329	1.2210	0.5831
20 to 24	32.856	31.175	-3.867	-7.441	4.301	8.079	7.6950	7.1266	-0.8410	-1.5878
25 to 29	22.518	20.072	2.836	9.809	-2.202	-9.261	5.7265	4.9091	0.6822	2.2868
30 to 34	13.402	9.786	-2.664	7.265	3.202	-6.770	4.0068	2.8298	-0.7658	2.0430
35 to 39	9.017	7.173	-3.756	989	4.111	-696	3.1945	2.4944	-1.2895	0.3354
40 to 44	4.818	4.170	-2.320	-3.363	2.819	3.681	2.0529	1.8610	-0.9688	-1.4735
45 to 49	3.922	3.784	1.938	3.536	-1.737	-3.350	2.1539	2.1905	1.0421	2.0032
50 to 54	2.941	2.809	-7.670	-6.925	7.840	7.118	1.9733	2.0895	-5.0461	-5.0469
55 to 59	2.118	2.248	-2.205	2.325	2.343	-2.226	1.8841	2.1221	-1.9252	2.1493
60 to 64	1.663	1.888	-7.58	868	881	-804	1.9222	2.3343	-0.8602	1.0489
65 to 69	1.186	1.193					1.9109	2.0471		
70 +	1.418	1.937					1.7180	2.3174		
Total	143.127	147.740	-4.908	16.346	8.883	-12.474	3.2167	3.3599	-0.1068	0.3610

Source: IBGE, Censos Demográficos de 1980 e 1991.

* Net Migration Rate obtained by the quotient between Net Migration and Expected Population in the end of the period.

** Net Migration Rate obtained by the quotient between Net Migration and Observed Population in the end of the period.

*** In relation to the Estimated Population for 09/01/1986, to consider 65 and and more.

4. REFERENCES

CARVALHO, José Alberto M. **Tendências Regionais de Fecundidade e Mortalidade no Brasil**. Monografia nº 8. Belo Horizonte: UFMG/CEDEPLAR, 1974.

CARVALHO, José Alberto M. de. Migrações internas: mensuração direta e indireta. In: ENCONTRO NACIONAL DE ESTUDOS POPULACIONAIS, 2., Águas de São Pedro, 1980. **Anais...** São Paulo: ABEP, 1980.

CARVALHO, José Alberto M. de. O saldo dos fluxos migratórios internacionais do Brasil na década de 80 - uma tentativa de estimação. **Revista Brasileira de Estudos de População**, Campinas: ABEP, v. 13, n. 1, p. 3-14, jan./jun. 1996.

CARVALHO, José Alberto M. de, et al. Estimativas dos saldos migratórios internacionais e do número de emigrantes internacionais das grandes regiões do Brasil – 1996/1991 e 1991/1996. In: CASTRO, Mary Garcia. **Migrações Internacionais: Contribuições para políticas**. Brasília:CNPD, 2001.

CARVALHO, José Alberto M. de & FERNANDES, Fernando. **Estimativas de saldos migratórios e taxas líquidas de migração das unidades da federação e grandes regiões do Brasil, por sexo, idade e setores rural e urbano 1960-1970 e 1970-1980**. Belo Horizonte: CEDEPLAR/UFMG, 1996. 151p.

CARVALHO, José Alberto M. de & PINHEIRO, Sílvia de M. G. **Fecundidade e mortalidade no Brasil – 1970/80**. Belo Horizonte: CEDEPLAR/UFMG, 1986. 151p.

CARVALHO, José Alberto M. de & RIGOTTI, José Irineu R. Os dados censitários brasileiros sobre migrações internas: algumas sugestões para análise. **Revista Brasileira de Estudos de População**, Brasília: ABEP, v. 15, n. 2, p. 7-17, jul./dez. 1998.

CEDEPLAR. Projeção populacional das Unidades da Federação, Brasil, por sexo e grupos quinquenais de idades, 1990-2020. Belo Horizonte: CEDEPLAR, 1999.

DUCHESNE, Louis (1989). **Proyecciones de población por sexo y edad para áreas intermedias y menores - Método “relación de cohortes”.** In: SUBNACIONALES DE POPULACION. DANE/CELADE

LEE. E. S, et al. **Population redistribution and economic growth. United State, 1870-1950.** Philadelphia: The American Philosophical Society, 1957.

RIBIERO, José Lopes. **Estimativa da Migração de Retorno e de Alguns de seus Efeitos Demográficos Indiretos no Nordeste Brasileiro.** CEDEPLAR/UFMG: 1997 (Tese de Doutorado)

RIGOTTI, José Irineu R. **Técnicas de mensuração das migrações, a partir de dados censitários: aplicação aos casos de Minas Gerais e São Paulo.** Belo Horizonte, 1999. 141p. Tese (Doutorado), CEDEPLAR/UFMG.

WALDVOLGEL, Bernadete C. **Técnicas de Projeção populacional para o planejamento regional.** Belo Horizonte: CEDEPLAR, 1977.