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AN EVALUATION OF THE PROGRAMS AIMED AT REDUCING ILLITERACY IN CEARÁ

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Textos para Discussão do Instituto de Pesquisa e Estratégia Econômica do Ceará (IPECE)

A Série Textos para Discussão do Instituto de Pesquisa e Estratégia Econômica do Ceará (IPECE), tem como objetivo a divulgação de trabalhos elaborados pelos servidores do órgão, que possam contribuir para a discussão de diversos temas de interesse do Estado do Ceará.

AN EVALUATION OF THE PROGRAMS AIMED AT REDUCING ILLITERACY IN CEARÁ

ABSTRACT

This article presents an analysis on the results of the latest programs aimed at reducing illiteracy among adults in the State of Ceará, Brazil. After a brief discussion on the illiteracy issue in the state, comparing with the rest of the Northeast region and Brazil, a questioning on the possible factors that contribute to the state to present a not-decreasing illiteracy rate in recent years is carried out, despite the efforts in order to minimize this serious social problem. The analyses had shown that the great majority of the people who had attended those courses in the State of the Ceará did not leave the condition of illiterate, independently of age or gender. In order to evaluate the impact of these courses on the illiteracy, econometric models were estimated, verifying which factors have greater effect to reduce the illiteracy. Even when the problem of simultaneity between illiteracy and attendance of those courses is taken in account, the attendance does not seem to have a significant effect in the reduction of the illiteracy in the State of the Ceará.

Key-Words: Illiteracy, Policy Evaluation, Biprobit.

IPECE – Instituto de Pesquisa e Estratégia Econômica do Ceará

1. INTRODUCTION

Illiteracy is considered one of the most serious problems of Brazilian society and therefore is one of the most discussed topics when social policies are considered. One question that arises from those debates is: "Why the State of Ceará, with several programs for the eradication of illiteracy, could not reduce the illiteracy rate in recent years? This questioning motivated this article, in order to evaluate the various programs implemented for the eradication of illiteracy in Ceará, both national and state, verifying that the programs are effective.[4]

The discussion about the best way to combat the illiteracy problem, comes from the consensus assumption that a person to be able to read and write is a basic condition to an individual to have their rights and duties as citizens and to be able to qualify itself minimally in the labor market. Besides, from a social standpoint, the illiteracy rate is a criterion needed to characterize the levels of human development and social inclusion of a society..

In the present work, the illiteracy rate is defined as the percentage of the population aged 15 or more who is not able to read or write. Using data from the National Survey of Household Sampling – "Pesquisa Nacional por Amostras de Domicílios" - PNAD from the Brazilian Institute of Geography and Statistics – Instituto Brasileiro de Geografia e Estatística - IBGE, which gets this statistic from the question: "Are you able to read and write?", it is clear that illiteracy in Brazil has been reduced, but in a very slow pace. The state of Ceará followed this long-term trend, however, this falling trajectory not only slowed as there was a small elevation in the years of 2003 and 2005.

These results are more worrying when it is observed that the programs to combat illiteracy in recent years have implemented significant amounts of resources. An example is the Program *Brazil Alfabetizado*, which spent more than R$ 700 million since its establishment in 2003. The magnitude and scope of the literacy programs can be found in the work previously cited.

In this context, the present study, in section 2, analyzes the behavior of illiteracy rate in recent periods, characterizing it in terms of what are the socioeconomic categories, age groups and

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[4] To more information about the illiteracy topic in Brazil, see IPECE NT n. 22 at www.ipece.ce.gov.br.

geographic location where the problem happens with more intensity. Using econometric methodology, in the section 3 will be examined the effectiveness of the programs of literacy in activity in Ceará, seeking to identify the effects of some determinants of illiteracy. Finally, section 4 presents the results and in the conclusion are proposed alternatives of educational policies.

2. EVOLUTION OF ILLITERACY RATE IN CEARÁ

In order to conduct a well-founded assessment of programs to combat illiteracy, it will be examined, firstly, the evolution of the illiteracy rate in Ceará, comparing to the rates recorded in the rest of the country and in the Northeast region (where the Ceará State is situated), as well as the metropolitan region of Fortaleza - RMF. In figure 2.1, it is possible to observe rates of illiteracy in the period between 2002 and 2005, which are compared to 1992's rates.

Figure 2.1: Illiteracy rate (people aged 15 or more)
Brazil, Northeast Region, Ceará and RMF - 1992 and 2002/2005
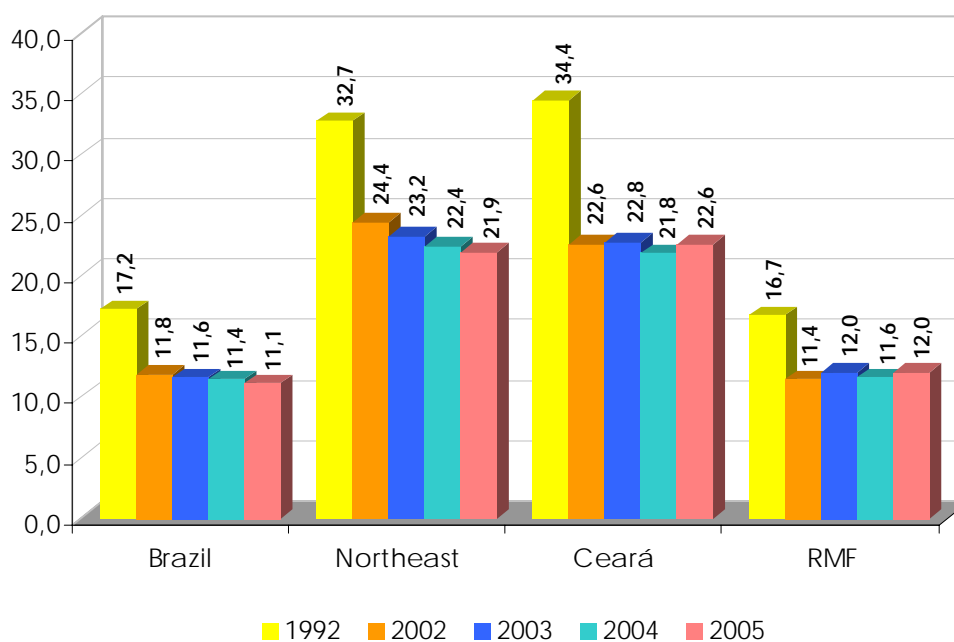
Source: PNAD/IBGE

As the figure indicates, the illiteracy rate has a falling trend in all regions during the considered period: Ceará, Brazil, Northeast region and Metropolitan Region of Fortaleza (RMF). In

proportional terms, the rate verified in Ceará reduced in a similar fashion as observed to the rest of the region e the country.

Despite the reduction occurred, the illiteracy rate in the state is still relatively high, especially when it is observed that in 2005, 22.6% of the population in Ceará (people aged 15 or more), was not able to read and write. Comparing this information with the one observed for Brazil, one realizes that the proportion of illiterate people in the state is more than double the national average, while maintaining the same proportionate relationship observed in 1992. The RMF presents a better situation and is closer to the Brazilian standard, a fact that provides clues about the great disparity that exists between the metropolitan region and the rest of the state.

Another aspect that calls attention in the figure above is the behavior of the rate of illiteracy considering a shorter period, between 2002 and 2005. It seems that the rate of Ceará (and also, RMF) presented some stiffness during the period, in contrast to the rates of Brazil and Northeast region, which remain showing a falling trend. More specifically, in 2005, it was registered an elevation of that rate in Ceará and RMF in relation to 2004. This behavior of the rates of illiteracy has caused the state of Ceará cease to be below the average of states in the Northeast, and to register a illiteracy rate higher than average ii the rest of region in 2005.

Some assumptions can be made on the short-term illiteracy rate in Ceará. The first one is that the elevation in the illiteracy rate observed in the data of the PNAD are not suitable for short term analysis because it uses different samples each year and therefore changes recorded may not be statistically significant. This argument can be really important when compared two years alone, but between 2002 and 2005, it is possible to identify some trends of the indicator behavior.

The second hypothesis that can be raised to justify this trend is, for example, that the population of elderly, which is the most frequent occurrence of illiteracy has increased significantly over recent years. However, the trend of an ageing population has also been identified in other regions, and even then, they have been able to reduce illiteracy.

These demographic issues give subsidies to understand the behavior of the rate of illiteracy in Ceará in recent years, but if this is in only one of the dimensions that can be considered to

explain the evolution of this indicator. Among those other things, it is interesting to highlight the impact of policies aimed at combating illiteracy on this indicator.

The third hypothesis that seeks to explain the relative rigidity of the rate of illiteracy in Ceará is that the existing programs are not effective in decreasing the rate of illiteracy. In other words, students attending literacy courses, but still are unable to read and write in a minimally satisfactory fashion. This hypothesis is investigated in the next sections.

It is important to realize that the Government of the State of Ceará released in March 2003, the program "*Alfabetização é Cidadania*" (Literacy is Citizenship), aiming to educate youth and adults aged 15 years or more, and seeking the eradication of illiteracy in Ceará. In 2003, the project covered 143 municipalities, turning 80,971 people to become literate. In 2005, according to preliminary data from the Basic Education Secretary of Ceará, 165 municipalities were covered by the program and, until October, 205, 707 students were served.

In the national level, it can be said that the program "*Brasil Alfabetizado*", which transfers resources, based on the number of people attending the courses, directly to the governments of states, municipalities and also the non-governmental organizations (NGOs) who coordinate literacy courses. In Brazil, in 2005, only through direct transfer the states and municipalities, the Ministry of Education attended more than 1.1 million people. Other 713 thousand students were assisted through agreements with non-governmental organizations. The investment in the program this year reached R$ 186.6 million.

Considering the reality of these programs, it is important to consider that the high evasion[5] and lack of continuity rates of such programs can be a key factor in this context. It can be argued that the evasion prevents the content of the course to be fully absorbed by students, reducing the ability of the individual to learn to read and write. Besides, the lack of continuity of the programs can lead to the neglect of knowledge obtained over time due to lack of practice, returning them to the condition of illiterate people again.

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[5] In "Brasil Alfabetizado" program, for example, this rate reaches 50% of the pupils. See more about this program in the Brazilian Council of Economic and Social Development report (Conselho de Desenvolvimento Econômico e Social).

The latter hypothesis raised concerns of the fact that the audience attended by the existing programs is not exactly the absolute illiterate people. That is, those who are not really able to read or write, but the functionally illiterate who can read and write, but are unable to interpret what they read and to use reading and writing in daily activities[6]. Thus, the illiteracy rate would be reduced more slowly because many functional illiterates may declare not to know how to read and write and attend the courses in an attempt to improve their limited ability to read and write.

3. ASSESSMENT OF THE RESULTS OBTAIND BY THE PROGRAMS AGAINST ILLITERACY

In order to accomplish a more accurate assessment of the programs aimed at combating illiteracy, it will be considered below the quantitative development of these programs over time, comparing the state of Ceará with the Northeast region and Brazil as a whole.

From the figure 3.1, it can be observed that the percentage of the population benefited by the programs of literacy has been growing up in recent years, with emphasis on the state of Ceará, which has the highest percentage, with approximately 1.6% of the population above the age of 15 participating in programs of education of young people and adults. This statistic is related to the fact that the state has the highest rate of illiteracy in the Northeast Region and in Brazil, and have a wide program to combat illiteracy.

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[6] The definition of a functional illiterate person and calculation of this indicator varies by country. In Brazil, functional illiteracy adjective is given to people aged more than 20 and who did not complete four years of formal study. In Poland and Canada, for example, someone is considered an illiterate functional person, every adult with less than eight years of schooling.

Figure 3.1: Percentage of people who attend a course of literacy of adults in relation to the population aged 15 or more - Brazil, Northeast and Ceará
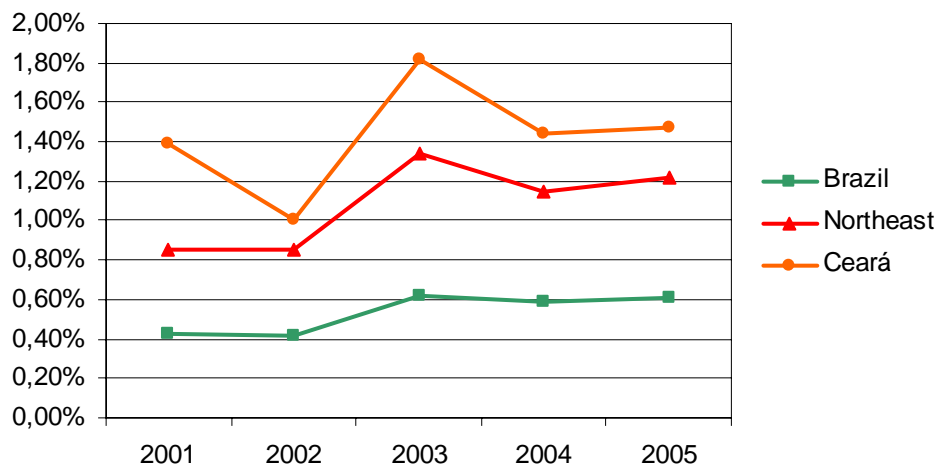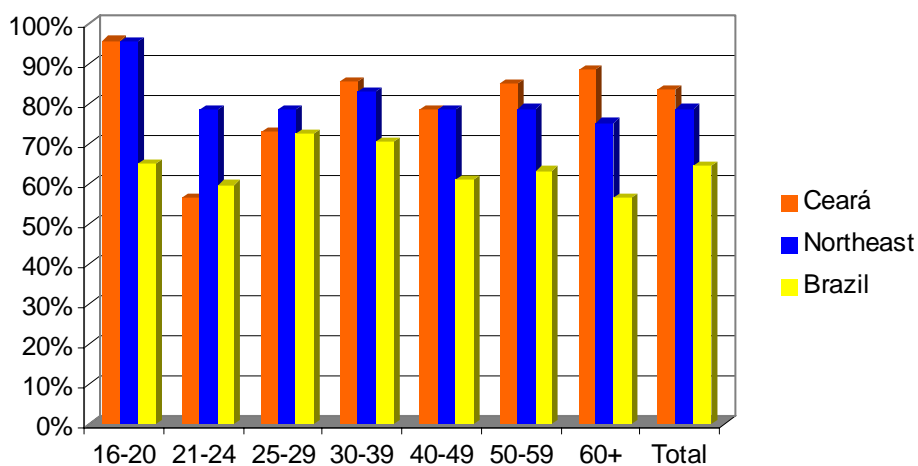

Source: PNAD/IBGE

When the percentage of the population who attend a course of literacy is compared with the rates of illiteracy in these regions, where the state of Ceará owns 22.6% of the population illiterate in 2005, while in the Northeast and Brazil as a whole, the rates of illiteracy are 21, 9% and 11.1%, respectively, it is clear that only a small proportion of illiterates is being achieved by the programs to combat illiteracy.

When considering the absolute value of people attending literacy courses for adults, it is interesting to note that this number has grown in recent years throughout Brazil, with a significant elevation in the number of people attending these courses between the years 2002 and 2003, with the state of Ceará presenting a more moderate growth when compared to other regions.

By assessing the effectiveness of literacy courses for young people and adults, the basic question becomes clear when the proportion of students who attended the literate course and are no longer illiterate is compared to the total of students who attended these courses. Alternatively, it is possible to make considerations on the percentage of people who attend a literacy course and still remain illiterate in order to infer on the effectiveness of the programs of literacy for young people and adults. These proportions are shown in the figure 3.2 below.

Figure 3.2: Percentage of people who attended the literacy course of adults remain illiterate and by groups of age - Ceará, in northeastern Brazil - 2005
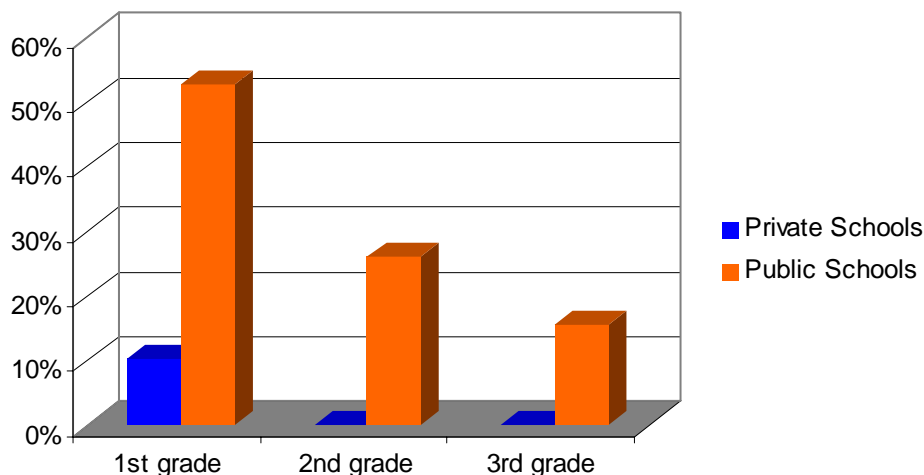

Source: PNAD/IBGE

The proportions are very high in all regions, especially in the state of Ceará, where more than 80% of students who attended literacy courses remained illiterate. The lowest percentages are in the age group between 21 and 24.

A note should be made regarding to this percentage of frequency of literacy courses and illiteracy. Certainly these figures are overestimated, since the information collected by the PNAD comes to the highest course that the individual attended in his life. Thus, there may be people who have attended other courses after the course of literacy, not counting for these statistics. However, due to the great amount of people who attended the course and continued to be illiterate, and considering that such cases are not so frequent, these values should not be much above the reality.

Considering the illiterate people in the elementary schools, figure 3.3, it seems that the vast majority of illiterate people come from public schools. From this figure, it is possible to assume that the public schools are less effective in combating illiteracy or, which is more expected, people who attend the public schools are less able to learn, due to a variety of difficulties. These factors are associated with socioeconomic and cultural conditions of the students of the public schools network.

Figure 3.3: Percentage of people who have attended the elementary school and are illiterate per network of education - Ceará - 2005

Source: PNAD/IBGE

A relevant point that should be mentioned when considering the target audience of literacy courses for adults in Ceará is that the 2005's PNAD shows that 12.16% of Ceará's population aged 15 years old or more never attended the school, or even literacy courses either. These results indicate that the literacy programs are reaching a larger portion of the population, but given the significant population of illiterates, it still can be considered insufficient. Therefore, the literacy courses have to improve to become efficient in helping people to leave the illiterate condition.

4. ESTIMATING THE EFFECT OF THE LITERACY COURSES ON ILLITERACY IN CEARÁ

Contributing to our evaluation of the programs to combat illiteracy, it was used econometric models, more specifically, a methodology using binary variables from the PNAD data, making possible to evaluate the effect that attending a literacy course causes on the condition of being illiterate or not. Thus, we will see if there is a statistically significant relationship between attend the literacy course and not be illiterate, which would be an evidence regarding the effectiveness of the programs of literacy.

4.1. Database

For estimation of the econometric model, it was used information from the National Survey Household Sampling – PNAD, in 2005, provided by the Brazilian Institute of Geography and Statistics - IBGE. For explanation of the condition of illiteracy of an individual, it was considered the variables with the individual characteristics described in the table below:

Table 4.1: Statistics descriptive of the econometric model

Variable	Mean	Standard Deviation	Minimum	Maximum
Illiterate	0.1880	0.3907	0	1
Age	37.5989	17.3666	15	98
Gender (Male)	0.4740	0.4993	0	1
Race (white)	0.3492	0.4767	0	1
Attended School	0.8928	0.3094	0	1
Attended Literacy Course	0.0258	0.1586	0	1
Metropolitan	0.6269	0.4837	0	1
Urban	0.8395	0.3671	0	1

Source: Prepared by the authors from data.

The sample consists of 17,208 people residing in the state of Ceará who are 15 years old or more. As individual variables will be considered the age, sex and race. The variables relating to the school are given by school attendance and frequency of literacy courses. The region of housing will be classified as metropolitan and non-metropolitan, and rural or urban. Because these variables are qualitative, for the most part, these variables will be grouped in order to be expressed as 0 or 1 depending on the reference adopted.

4.2. Methodology

In order to estimate the effect of frequency in the literacy courses has on illiteracy, as well as the effect of other explanatory variables, it will be used econometric models that seek explanatory variables relate binary variables with a dependent variable also binary. This methodology is based on the evidence that one given individual of the population, there is a likelihood of this being illiterate or not, regardless of their individual characteristics. However, it is possible to determine the conditional probability given some individual characteristics, such as age, sex and whether or not he/she has attended a literacy course.

A model widely used for this purpose is the model Probit, briefly described below, where the limited dependent variable, based on the normal distribution, is explained by other variables, binary or not, allowing to identify which factors are most important to affect the likelihood of a person to be illiterate or not.[7]

4.2.1. Probit Model

The Probit Model assumes the following conditional probability, where y is the dependent variable binary X and a vector of explanatory variables:

$$P(Y = 1 | X = x) = \phi(x'\beta)$$

where ϕ is the cumulative distribution function of the standard normal distribution, β is a vector of parameters to be estimated by the method of maximum likelihood.

The probit model can be generalized from a latent variable Y* as follows:

$Y^* = X'\beta + \varepsilon$, where $\varepsilon | X \sim N(0;1)$ and Y is an indicator of Y *, so that:

$$Y = 1_{(Y^*>0)} = \begin{cases} 1 & if\ Y^* > 0 \\ 0 & otherwise \end{cases}$$

Therefore, we can consider that the probability of a person being illiterate can be explained directly by the individual characteristics considered in the vector X.

However, there is a particular problem in the estimation of the effects of the variables listed above on the condition of being illiterate or not. Although there is an effect of the frequency of literacy courses on illiteracy, it is not difficult to see that there is an opposite effect, since there is a prerequisite for enrollment in courses such as this, which is the individual to be illiterate. In this fashion, estimates of this effect can be inconsistent and biased if this fact is not taken into account. In order to consider this issue, is discussed below the seemingly unrelated bivariate probit regression model.

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[7] To further discussion on those methodologies, see Wooldridge (2002) and Maddala (2000).

4.2.2. Seemingly Unrelated Bivariate Probit Regression Model - Biprobit

The biprobit model with SUR consists of a generalization of the above probit model, considering two dependent variables on two different equations correlated by errors. In this case, illiteracy is considered a function of individual characteristics, where one of them is considered endogenous, since there is simultaneity, so that illiteracy determines how often the literacy course, and this probably affects the probability of an individual to be illiterate.

Assuming Y_1^* to be the latent variable representing the condition of illiteracy and Y_2^* representing the decision to attend a literacy course. In a bivariate probit model, the specification of the two equations takes the following general structure:

$$Y_1^* = X_1' \beta_1 + \varepsilon_1 \quad Y_1 = 1 \text{ se } Y_1^* > 0, 0 \text{ otherwise;}$$

$$Y_2^* = X_2' \beta_2 + \varepsilon_2 \quad Y_2 = 1 \text{ se } Y_2^* > 0, 0 \text{ otherwise;}$$

$$E(\varepsilon_1) = E(\varepsilon_2) = 0; \ Var(\varepsilon_1) = Var(\varepsilon_2) = 1; \ Cov(\varepsilon_1, \varepsilon_2) = \rho;$$

$$\begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \end{bmatrix} \mid X_1, X_2 \sim N\left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 & \rho \\ \rho & 1 \end{bmatrix}\right).$$

that is, errors are jointly normally distributed with zero mean, unit variances and a correlation coefficient, ρ. Under the null hypothesis that ρ is equal to zero, the model consists of two independent probit equations, which can be estimated separately. If this hypothesis is rejected, the model biprobit is more appropriate.

4.3. Results

The following tables present the estimation of econometric models that seek a more detailed explanation of the factors that contribute to a person to be illiterate.

We started the analysis with the estimation of the probit model presented in table 4.2 below, with the binary dependent variable being the individual's characterization in relation to the ability to read and write, assuming 1 in the cases in which a person is considered illiterate and 0 otherwise. As discussed above, these results must be viewed carefully in light of the endogeneity problem which comes from de simultaneity between illiteracy and the frequency of literacy courses.

Table 4.2: Result of Regression - Probit

Illiteracy	Coefficient	dy/dx	Standard Deviation	P-value
Attended Literacy Course	1.3832	0.4745	0.0738	0.0000
Gender	0.2515	0.0569	0.0250	0.0000
Age	0.0298	0.0066	0.0007	0.0000
Race	-0.2912	-0.0623	0.0270	0.0000
Metropolitan Region	-0.4657	-0.1112	0.0280	0.0000
Urban	-0.4350	-0.1130	0.0337	0.0000
Constant	-1.5890	-	0.0426	0.0000
	N° of obs.	11580	Pseudo R²	0,4109

Source: Prepared by the authors from the regression result.

Among the variables that explain illiteracy, it is observed that they are all statistically significant and have the expected sign, exception given by the frequency of literacy course for young people and adults. In the state of Ceará, in 2005, males have a higher probability of being illiterate than the females. Similarly, older people have a greater chance of not knowing how to read and write. From the table above, we still can see that people who declare themselves to be white have a lower probability of being illiterate in the state of Ceará. The fact that the individual lives in RMF and / or urban, negatively affects the probability of an individual being illiterate.

Even in table 4.2, it is observed that the frequency of literacy courses has a positive effect on illiteracy. As discussed previously, this estimate is not reliable in the light of the problem of simultaneity between this variable and the dependent variable, generating endogeneity in the model.

In order to correct this difficulty and assess consistently the effect of the frequency of literacy courses, it is proceeded ahead an estimation of a seemingly unrelated bivariate probit regression model, where the endogenous variable is considered as the dependent variable of the second equation. With this procedure, it is possible to control a significant part of simultaneity, enabling a more consistent result. Table 4.3 presents these estimates.

Table 4.3: Result of Regression - Biprobit equations with apparently non-correlated

Illiteracy	Coefficient	dy/dx	Standard Deviation	P-value
Attended Literacy Course	-0.0391	-0.0086	0.5347	0.9420
Gender	0.2573	0.0582	0.0246	0.0000
Age	0.0307	0.0069	0.0007	0.0000
Race	-0.3108	-0.0664	0.0271	0.0000
Metropolitan Region	-0.5165	-0.1242	0.0316	0.0000
Urban	-0.4519	-0.1181	0.0330	0.0000
Constant	-1.5344	-	0.0500	0.0000
Attended Literacy Course				
Gender	0.1188	0.0041	0.0440	0.0070
Age	0.0177	0.0006	0.0012	0.0000
Race	-0.2961	-0.0094	0.0505	0.0000
Metropolitan Region	-0.6311	-0.0276	0.0516	0.0000
Urban	-0.2728	-0.0117	0.0509	0.0000
Constant	-2.2009	-	0.0736	0.0000
N° of obs. = 17,280				
$\rho =$ 0.5719179	$\chi^2 =$ 8.46334	Prob. = 0.0036		

Source: Prepared by the authors from the regression result.

It is possible to observe in the results presented in table 4.3 that there are no significant changes in the values of the coefficients estimated by probit model simple, except for the literacy courses frequency variable, that turns its sign and is not significant. Moreover, it can be observed that the variables that affect the probability of an individual being illiterate have a similar effect on the likelihood this individual has attended a literacy course.

The correlation coefficient ρ measures the correlation between the terms of disturbances of the two equations. As expected, the estimated value of this coefficient is positive and statistically significant, indicating that these two situations, illiteracy and literacy courses frequency, are directly dependent, and that the estimated equations must be estimated jointly in a biprobit model, instead of separate probit equations.

The results presented in table 4.3 above, where the literacy courses frequency does not seem to have a significant effect to change the condition of an individual ceases to be illiterate, confirms the previous section analysis, which considers that the literacy courses has not been effective for the reduction of illiteracy in the state of Ceará, at least until the year 2005.

Once the parameters have been obtained, it can be considered the marginal effects of the independent variables over the probabilities of being illiterate and attend a literacy course for adults. Table 4.3 presents the estimates of the marginal effects. The marginal effects correspond to changes in the estimated probability given a variation of one percent in the explanatory variable that is statistically significant. In the case of explanatory variables dummy, the marginal effects correspond to a discrete variation from 0 to 1.

Male individuals are 25.73% more likely to be illiterate, as well as a chance to attend a literacy course is only 11.88% higher. Individuals who live in the metropolitan region of Fortaleza have 51.65% less chance to be illiterate. While people living in the urban area have 45.19% smaller probability of being illiterate.

It is possible to get, even from the model biprobit estimated above, the probability of an individual being illiterate conditioned to the fact that he/she attended a literacy course. The value found was 67.91%, as show table 4.4 below, that is, since the current higher a person who attended was that of literacy of adults, the likelihood of this being illiterate is 67.91%.

Table 4.4: Conditional Probability of a individual to be illiterate given this person attended a literacy course

P(Illiterate=1| Attended Literacy Course=1) = 0.6791

	dy/dx
Attended Literacy Course	-0.0169
Gender	0.0832
Age	0.0092
Race	-0.0678
Metropolitan Region	-0.0800
Urban	-0.1237

Source: Prepared by the authors from the regression result.

Obviously, the non-conditional probability of an individual being illiterate can be expressed by the illiteracy rate observed in Ceará in 2005, 22.6%. Considering the fact that being illiterate is a necessary condition for a person attend a course like, it should not seem strange that the conditional probability is greater than the simple probability, but the difference leads us once again to the conclusion that the literacy courses has not been effective in reducing illiteracy.

5. CONCLUSIONS

The results of this study showed that the literacy programs are reaching a larger portion of the population, but given the significant population that still is considered illiterate, it still may be considered inadequate to combat illiteracy. In Ceará, both the elementary school and, in particular, the literacy courses are showing themselves to be inefficient to educate people aged over 15 years old.

The econometric models estimated failed to capture any statistically significant effect on the frequency of adult literacy courses on illiteracy, corroborating the descriptive analysis that shows that a significant percentage of people who complete these courses remain illiterate. Such evidence and the findings of this study leads to the conclusion that programs to combat illiteracy must reconsider its strategies for literacy, aiming to become more effective. Such changes in strategy could take into account the possibility of extending the duration of the course of literacy, the change of methodology, as well as the target audience.

Moreover, regardless of age, newly literate students could be immediately forwarded to the regular process of education. That would avoid a problem expected in the short duration literacy programs: the return of a individual to the condition of illiterate in short a period of time.

This perception of the existing problems in the literacy program is already being considered and is incorporated into the current program *"Brasil Alfabetizado"*, which in 2007 is being amended accordingly. Some of the main changes are: the extension of the period of the course from six to up to eight months; a 50% increase in the resources for training people to teach in literacy courses; expansion of the quantity of classes, especially in areas with low population density and

popular communities of urban peripheries; beyond the deployment of an integrated system for monitoring and evaluating the program.

Thus, it is clear that one of the most important challenges is to build up educational policies in order to allow greater efficiency in the fight against illiteracy, which is a problem that afflicts our society and still constitutes a barrier to national development.

6. REFERENCES

BELTRÃO, KAIZÔ I. **Alfabetização por Sexo e Raça no Brasil: Um Modelo Linear Generalizado para Explicar a Evolução no Período 1940-2000, Texto para Discussão IPEA N° 1003,** Rio de Janeiro, 2003.

BARROS, R. P., MENDONÇA, R. SANTOS, D. D. e QUINTAES, G. Determinantes do Desempenho Educacional no Brasil, **Texto para Discussão IPEA N° 834,** Rio de Janeiro, 2001.

CASTRO-CALDAS, A., PETERSSON, K. M., REIS A., STONE-ELANDER, S., INGVAR, M. **The Illiterate Brain: Learning to Read and Write During Childhood Influences The Functional Organization of the Adult Brain**, Brain 121, p. 1053-1063, 1998.

DIAS, J., DIAS, M. H., **Educação dos Jovens, Analfabetismo e o Custo Governo: Teoria e Aplicações Econométricas para o Brasil.** ANPEC, 2004.

HOLANDA, M.C. et al. **As metas do milênio e os avanços socioeconômicos do Ceará**. Fortaleza: IPECE, 2006.

HOLANDA, M. C. et al. **O Analfabetismo no Ceará: Caracterização e Tendências Recentes – NT no**. **22**. Fortaleza: IPECE, 2006b.

IBGE. **Pesquisa Nacional por Amostragem de Domicílios (PNAD)** – 1992, 2002, 2003, 2004 e 2005.

INEP. **Mapa do analfabetismo no Brasil**. Brasília: INEP. Disponível em: http://www.inep.gov.br/estatisticas/analfabetismo/ Acesso em: 06 out. 2006.

IPEA. **Brasil**: o estado de uma nação – mercado de trabalho, emprego e informalidade. Rio de Janeiro: IPEA, 2006.

IPECE. **Síntese dos indicadores sociais do Ceará – 2004**. Fortaleza: IPECE, 2006.

MADDALA, G. S. **Limited-Dependent and Qualitative Variables in Econometrics**, Cambridge University Press, 1983.

ORAZEM, P. F. The Benefits and Costs of Alternative Strategies to Combat Illiteracy. **Iowa State University Working paper 6029**, 2006.

PREAL. Quantidade sem Qualidade. **PREAL**, Washington, DC, 2006. http://www.preal.org.

RIBEIRO, V. M., **Questões em torno da construção de indicadores de analfabetismo e letramento. Educação e Pesquisa**, São Paulo, V.27, n.2, p.283-300, jul./dez. 2001.

SOUZA, MARCELO M. C. **O Analfabetismo no Brasil sob o Enfoque Demográfico, Texto para Discussão IPEA N°639**, Brasília, 1999.

WOOLDRIDGE, JEFFREY M., **Econometric Analysis of Cross Section and Panel Data.** The MIT Press, Cambridge, MA, 2002.