

# **Female adolescent childbearing in Brazil, 1997 and 2007: determinants and association with school attendance and labor market participation**

André Junqueira Caetano<sup>♦</sup>

## **INTRODUCTION**

This article examines adolescent childbearing in Brazil over the period 1997-2007 and analyzes the chance of school attendance, labor force participation, both or neither one among adolescents and young women aged 15 to 29 years, according to whether they had a child before 20 years old or not. The key assumption is that adolescent childbearing has a cost regardless of whether it was welcomed and motherhood was gratifying or not. In this sense, adolescent childbearing is a major event in the intergenerational transmission of poverty, especially among the underprivileged female population. The inclusion of women older than 19 years is due to the fact that they may present consolidated outcomes regarding school/work as well as differentials between those who have had a child and those who have not.

The outcome variable refers to school attendance and job market participation at the time of the Brazilian National Household Survey (Pesquisa Nacional por Amostra de Domicílio – PNAD) of 1997 and 2007. Although these outcomes do not capture educational and professional accomplishments, they function as an indication of their insertion in the school and labor domain. Thus I expect that adolescent childbearing diminishes the chance of being only studying among the individuals in the 15-19 years age group and increases the chance of being out of school and out of the job market for the those individuals 20 years old and older. Number of families in the household and type of family may reflect net of cares that might facilitate the return to school and to work. In this sense, a teenager living with her family, for example, may have higher odds to keep going to school. To check these hypotheses I employ a multinomial logit model.

I employ control variables to account for socioeconomic context, demographic characteristics, and for potential family resources. I also use variables to control for age and period. Finally, I introduce a variable to control for place of residence, whether in metropolitan areas, urban non-metropolitan areas, and rural areas. It is worth highlighting that there all the analysis carried out in Brazil about adolescent childbearing took place in metropolitan areas.

Preliminarily, I look at the number of births over the 1990s and 2000s and at the marital status of teenagers who gave birth during this period. These data are available in the system or birth registration at the Brazilian Ministry of Health website ([www.datasus.gov.br](http://www.datasus.gov.br)). Adolescent fertility rose during the 1990s and there and indications that it fell from during the 2000s (Berquó and Cavenaghi 2006). Although income and educational decreases the odds of adolescent childbearing, there income and schooling compositional effects mixing the effects between 1997 and 2007 because the schooling level has been on the rise during this period as well as the income, especially among the poor segments. In this sense, I fitted a binary logit to estimate the odds of adolescent childbearing in 2007 as compared to 1997 controlling for age, schooling, income, and area of residence. The results indicate that the chances of adolescent childbearing rose from 1997 to 2007 in spite of income and educational improvements.

---

<sup>♦</sup> PUC Minas and Cedeplar/UFMG, Brazil.

I assume that adolescent childbearing is associated to reproductive patterns defined by age at first intercourse, first birth and first union, reproductive preferences and contraceptive use. Different reproductive patterns reflect different life cycle transitions and thus distinct life courses. Indeed, among the Brazilian low-income strata there is a tendency of an early onset of childbearing as well as an early termination of reproductive life, mainly through the use of female surgical sterilization. In the higher income groups women tend to postpone family formation and first birth until the late twenties or older ages, following the lowest-low fertility pattern observed in a number European countries (Berquó and Cavenaghi 2006).

As a consequence, adolescent childbearing tends to be more likely among the poor and socially vulnerable population. Social vulnerability is defined by (a) the exposition to specific events such as intermittence or school dropout, pregnancy, and maternity, (b) the potential consequences of these events such as life projects interruption, unstable and unfavorable insertion in the labor market and low levels of individual autonomy, and (c) the resources to face these potential consequences – information, familial help and support, social nets, public services and programs (Cunha 2006).

In this context, the structures and mechanisms that imprint sense and purpose to attitudes and behavior, the life course menu available to low socioeconomic status adolescents, and the higher social vulnerability are key elements for the individual's autonomy construction, definition of personal goals, life projects and achievements related to education, family formation and work. Adolescent maternity takes its toll and may block advancement in terms of education and work quality, especially for young women lacking minimal levels autonomy and tangible resources.

## **BACKGROUND**

In 1976, the delegates of 36 countries who participated in the First Interhemispheric Conference on Adolescent Fertility used the term “teenage pregnancy epidemic” (Alan Guttmacher Institute 1976, p. 1) to refer to the increasing number of this event, seen as a serious problem in several countries. In fact, the participants singled out various problems linked to health, socioeconomic, and demographic consequences for young women and men, their offspring and ultimately to the whole society. They proposed actions to prevent teen pregnancy as well as to support those teenagers who choose to bring to terms the pregnancy. The delegates argued that adolescent marriage diminishes the chance of economic independence and that adolescent childbearing is associated to formal schooling termination with negative impacts on future labor opportunities regardless of marital status (op. cit.).

Thirteen years later were held the International Conference on Adolescent Fertility in Latin America and the Caribbean. As in the past, the main perspective of the 1989 conference was that what had long been taken as a standard feature of Latin America and Caribbean societies, childbearing at young ages, had turned out to be an event of hazardous results. In the opening ceremony the regional adviser for PAHO stated that teenage childbearing transcended “...the physical and psychosocial health of individuals of a single generation to become a strong indicator of social development, having repercussions throughout the evolution of several generations” (Remez 1989, p. 144). He went further mentioning that “...early sexual initiation and childbearing should [not] be considered as isolated events; instead, they reflect generalized problems such as those stemming from negative attitudes toward female sexuality, inadequate

sexual education and a lack of alternative roles and opportunities for women” (op. cit., p. 144).

Results of several surveys carried out in the region over the fifteen years previous to this conference indicated that adolescent sexual activity was sporadic and unplanned, that adolescents in the region initiate sexual activity at an early age, mainly at 16 and 17 years-old, and that a substantial part of the female adolescent in union had their first child before going to live together (Remez 1989). It is worth mentioning that the data referred only to live births and that pregnancy termination by abortion could also be termed as epidemic (op. cit.).

There is another line of analysis that argues that teenage childbearing cannot be automatically taken as a source of problems, let alone social problems. Data analysis of a survey carried out in Porto Alegre, Rio de Janeiro and Salvador, Brazil, indicates a clear association between social class, gender and teenage childbearing (Heilborn et al. 2002). Nevertheless, middle-class teenage girls tended to change life projects and school trajectories in face of childbearing while this was not observed in the same proportions among lower-income girls. Such a result seems to be due to the fact, according to the authors, that intermittence of school attendance or dropping-out among low-income girls tend to be independent of childbearing. The study found no substantial differences across classes for boys. The middle-class male adolescent keep studying and the low-income ones tend to make the transition from school to labor market earlier in life in spite of their reproductive context (op. cit. 2002).

This analytical perspective stresses that among low-income population the socialization of girls for maternity and domestic labor usually begins at very young ages, engendering perceptions and attitudes and influencing the definition of aspirations and life projects in which childbearing and family formation in a context of asymmetric gender relations tend to be taken as natural. The association of gender roles as wife and mother added to childbearing duties becomes a substantial hurdle to continued school attendance. Maternity is taken as fate and in most cases the only alternative available to these girls for whom high-school completion, or even college education, and a better professional insertion tend to be out of reach (Aquino et al 2006).

In another survey done among low-income individuals from 15 to 24 years old in Belo Horizonte, Brazil, Chacham et al. (2007) identified a significant association between age, marital status, family structure, condom use and individual autonomy. According to the results of the analysis, female adolescents and young married or cohabiting women and those who were household heads with children present the worst schooling and income indicators and tended to get pregnant earlier, when compared to adolescents and young women living in other types of family composition. Moreover, married or cohabiting adolescents had the worst indicators related to individual use of time and mobility as well as to access to social resources, when compared to the adolescents who were single. Asked about their future plans, the teenagers spelled out plans to enter or finish college and to obtain a qualified job. On the other hand, the young women, among who only 30% were engaged in paid work, stated the desire of getting a good or better job in order to be able to provide a better life to their offspring. In this environment life seems to change drastically for females in the transition from the age group 15-19 years to the 20-24.

One way or another, the literature indicates that adolescent childbearing is more likely in low-income populations. In urban Brazil, adolescent pregnancy rates are at the same level of those of poorer Latin America countries and also of some African countries (Heilborn 2006). In contrast, in the high-income groups the rates are similar to those of Western Europe. Among the underprivileged and socially vulnerable teenagers

the chance of interruption or dropping out school is higher, be that linked to childbearing or not (op. cit. 2006). This event is closely related to the type of insertion and future trajectory in the labor market, which is an important source of autonomy in market economies.

The point then is to examine the differential effect of childbearing in school attendance and labor force participation among teenagers in a period when the 15-19 age group fertility rose until 2000 and then fell down. In this first approach I use two cross-sectional datasets to contrast the conditions in two contrasting points in time in respect to adolescent childbearing in Brazil.

## MATERIAL AND METHODS

The PNAD is a large nationally representative sample of households whose members are interviewed directly. Demographic, education, labor force, income and health information is collected for all household members annually. PNAD incorporated fertility questions in 1992. The survey was not executed in 1994 and 2000.

The PNAD's fertility section asks whether the female respondent aged 10 or older have already had a child and month and year of the last live birth, which allows for the identification of teen mothers. Besides, PNAD permits to identify household and family composition and has sections on household conditions, education, and labor, which makes possible to perform multivariate analysis employing information about household, family and individual socioeconomic and demographic characteristics as well as proxies for family resourcefulness.

Firstly, I fit a binomial logit model to estimate the odds of adolescent childbearing among girls aged 15 to 29 years-old categorized into three age groups. Formally, the logit model for  $k$  independent explanatory is

$$\log\left(\frac{p_{ij}}{1-p_{ij}}\right) = \alpha + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_k x_{ik}$$

where  $p_i$  is the probability that  $y_i = 1$  (Alisson 1999). The logit equation can be solved for  $p_i$  so that

$$p_i = \frac{1}{1 + \exp(\alpha + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_k x_{ik})}$$

In this stage,  $y_i = 1$  indicates adolescent childbearing. The explanatory variables are

- Age group,
- Schooling years,
- Income decil, and
- Place of residence, whether metropolitan, urban areas, and rural areas,

Secondly, I fit a multinomial logit model to estimate the chance of attending school, working, both or neither. For  $J$  categories in the dependent variable, the model for  $k$  independent explanatory is

$$\log\left(\frac{p_{ij}}{p_{i1}}\right) = \beta_j x_i$$

where  $p_{ij}$  is the probability that an observation is in the category  $j$ ,  $\mathbf{x}_i$  is a vector of explanatory variables  $\beta_j$  is a row vector of coefficients (Alisson 1999).

In this stage,  $y_i = 1$  indicates that the individual was only studying at the time of the survey,  $y_i = 2$  indicates just work,  $y_i = 3$  indicates school attendance and work simultaneously and  $y_i = 4$  indicates that the respondent was neither studying nor working. The explanatory variables are

- Adolescent childbearing
  - No adolescent childbearing (omitted category)
  - Adolescent childbearing
  - No, childbearing after 19 years old
- Year
  - 1997 (reference)
  - 2007
- Age group
  - 15-19 years old (omitted category)
  - 20-24
  - 25-29
- Number of families in the household<sup>1</sup>
  - One family
  - More than one family, the girl/woman's parents living in the household
  - More than one family, the girl/woman's parents not in the household
- Type of family
  - Couple, girl/woman is the head of the household (omitted category).
  - Couple, girl/woman is wife/partner of the head of the household
  - Couple, girl/woman is daughter or other relative of the head of the household
  - Girl/woman is the head of the household, without husband/partner
  - Girl/woman, without husband/partner, is the daughter or other relative of the head of the household
  - Other type of family
- Income decil
- Region
  - North
  - Northeast
  - Southeast
  - South
  - Center-west
- Area of residence
  - Metropolitan area
  - Urban non-metropolitan area
  - Rural areas

---

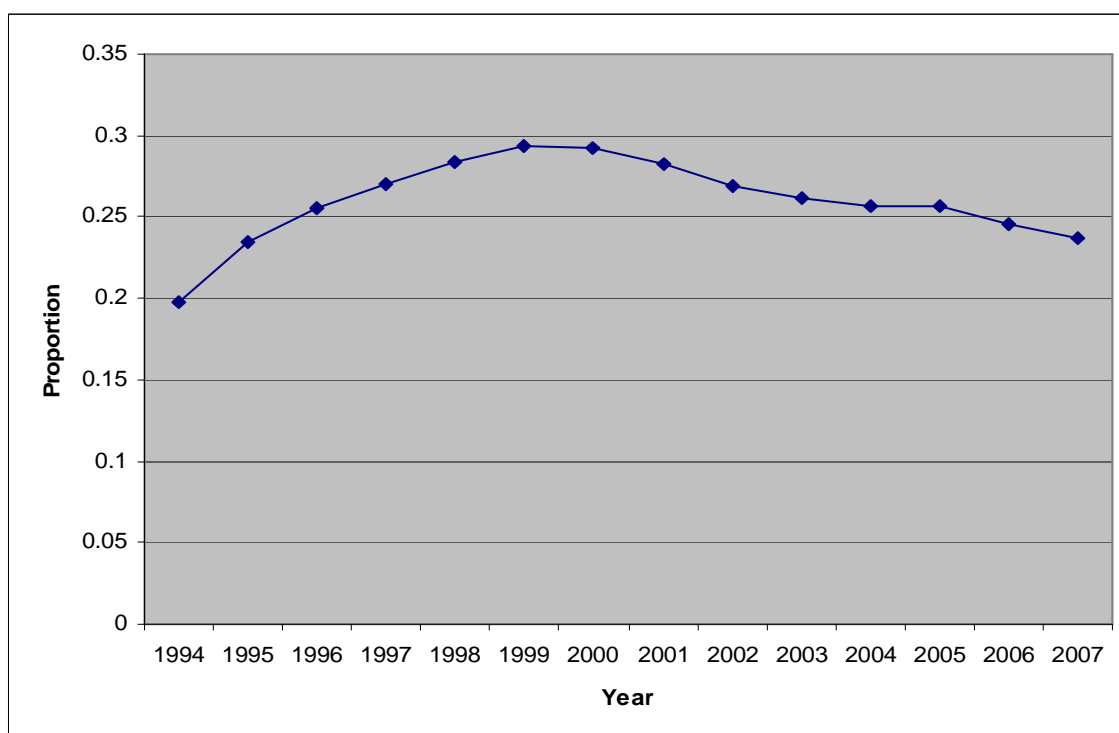
<sup>1</sup> Defines the number of families by considering the number of nuclear families living in the same household.

It is worth mentioning that the Southeast region is the most populated, most urbanized, and the wealthiest one. The largest metropolitan regions – São Paulo, Rio de Janeiro and Belo Horizonte – are located in the Southeast. The Northeast region, on the other hand is the second most populated, but the most rural and the poorest one.

## RESULTS

The graphic in Figure 1 shows the trend of births from teenage mothers relative to the total number of births in Brazil from 1994 to 2007<sup>2</sup>. There is a clear tendency of increasing proportions of teenage childbearing as a proportion of total births from 1994 to 1999, reaching 29.3 percent in 1999. From 2000 on one can see a reversal in this trend reflected in decreasing proportions, to reach 23.7 percent in 2007. Nevertheless, the decrease from was not enough to put the levels back to the figure of 1994, 19.8 percent. In 2007, more than 1 in each 4 births was to teenage women. In 1997, this percentage was 27 percent.

**FIGURE 1: Births from women aged 10-19 years as a proportion of total number of births – Brazil 1994-2007**

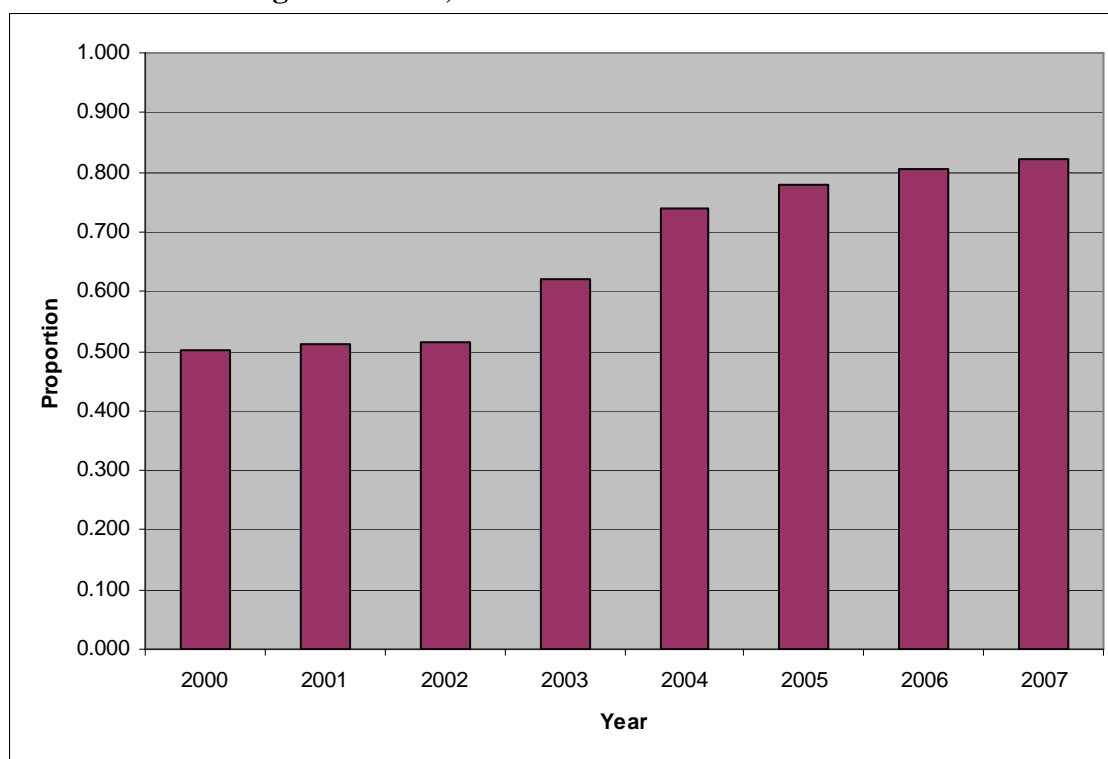


Although the quality of the information present in the system of birth register about marital status of the women who have was not quite trustable in the past, it has improved over the time. The graphic in Figure 2 presents the proportion of births from single mothers as a proportion of the total number of births from teenage girls in Brazil from 2000 to 2007. The graphic shows that the proportion increased from about 50 percent in 2000, 2001, and 2002 to around 80 percent in 2005, 2006, and 2008. Indeed, these figures indicated the better quality of the data rather than a tendency. In this sense, it is possible to assume that real level of births from single teenage girls as a proportion

<sup>2</sup> Minister of Health birth register in [www.datasus.gov.br](http://www.datasus.gov.br), accessed in July 15<sup>th</sup> 2009.

of total births from teenage girls is closer to the figures observed in the last years of this period, i.e., around 89 percent.

**FIGURE 2: Proportion of births from single mothers aged 10-19 years to the total of births from teenagers – Brazil, 2000-2007**



**TABLE 1: Adolescent childbearing by age – Brazil, 1997 and 2007**

Adolescent childbearing	Year		Total	n
	1997	2007		
<i>15-19 years-old</i>				
No	93.1	93.7	93.4	9,225,239
Yes	6.9	6.3	6.6	653,421
Total	100.0	100.0	100.0	9,878,566
<i>20-24 years-old</i>				
No	66.7	72.0	69.6	10,378,071
Yes	27.3	23.4	25.2	3,756,533
Childbearing after 19 years old	6.0	4.6	5.2	780,221
Total	100.0	100.0	100.0	14,914,825
<i>25-29 years-old</i>				
No	34.3	41.3	38.2	7,340,512
Yes	29.1	28.7	28.8	5,544,298
Childbearing after 19 years old	36.7	30.1	33.0	6,338,561
Total	100.0	100.0	100.0	19,223,371

Data source: PNAD 1997 and 2007, IBGE.

Table 1 presents the proportion of adolescent childbearing by age groups in 1997 and 2007. As expected, the older the women the larger is proportion of teenage

childbearing since respondents in the first age group are censored in the time of the survey. Thus, the percentage of adolescent childbearing increases from 6.9 percent, in 1997, and 6.3 percent, in 2007, in the first age group to 27.3 percent, in 1997, and 23.4, in 2007. By the same token, the percentage of women who had a child after the adolescent period in the second age group increases from 6 percent, in 1997, and 4.6 percent, in 2007, to 36.7 percent and 30.1 percent in the third age group. Overall, the information in Table 1 indicates that the percentage of women who had child during adolescence did not change substantially from 1997 to 2007 in the group of girls aged 15 to 19 years and in the group of women aged 25-29 years.

A binomial logit regression of adolescent childbearing – yes or no – on age group, number of schooling years, income decil, and area of residence indicates (Table 2) that the odds of a birth among teenage in 2007 was twice the odds of it in 1997.<sup>3</sup> Further analysis is necessary to unravel the reasons of such difference, but it is important to stress that the odds of adolescent are 12 percent higher in urban non-metropolitan areas and as compared to metropolitan areas. Residence in rural areas decreases the odds of adolescence childbearing in 22 percent relative to residence in urban non-metropolitan areas.

**TABLE 2: Binomial logit regression of adolescent childbearing (yes/no) on age, income, schooling, year and area of residence**

Parameter	Estimate	OR	Pr > ChiSq
Intercept	-1.5505		<.0001
Age group (reference: 15-19 years)	0.7538	2.125	<.0001
Income decil (reference: first decil)	-0.2139	0.807	<.0001
Schooling (reference: 0-3 years)	-0.4383	0.645	<.0001
Year (reference: 1997)	0.8736	2.395	<.0001
Rural area (omitted category: rural area)	-0.2425	0.785	<.0001
Metropolitan area	-0.1259	0.882	<.0001

Among those girls and women who had a child during adolescence, Table 3 presents their distribution by age in 1997 and 2007. The figures indicate that 58.4 of them in 2007 were 25 to 29 years old, i.e., they had their child during the period of increasing proportions of births from teenagers during the 1990s. The proportion of adolescent mothers in the second age group decreased from 1997 to 2007, which is consistent with the decreasing tendency during the 2000s observed in Figure 1.

**TABLE 3: Girls and women who had a child during adolescence by age at the time of the survey – Brazil, 1997 and 2007**

Age group	Year		Total	n
	1997	2007		
15-19	7.4	5.8	6.6	653,421
20-24	39.9	35.8	37.7	3,756,510
25-29	52.7	58.4	55.7	5,544,298
Total	100	100	100	9,954,229

Data source: PNAD 1997 and 2007, IBGE.

Tables 4 and 5 indicate a compositional effect stemming from the gains in education and income between 1997 and 2007. According to Table 3, among the

<sup>3</sup> Results not shown.



teenage and women who had a child during adolescence in 1997, 75 percent had fewer than eight years of schooling. This proportion went down to 48 percent ten years later. In the same line, among the teenage and women who had a child during adolescence in 1997, 84 percent were in the first two income quintiles. In 2007, this percentage was 34.6 percent and the majority of the teenage and women who had a child during adolescence were in the third and fourth quintiles. Regarding income, it is necessary to deflate the nominal income and check the cutoff values to examine whether there was a real shift in the income distribution of adolescent childbearing.

**TABLE 4: Girls and women who had a child during adolescence by number of schooling years at the time of the survey – Brazil, 1997 and 2007**

Schooling years	Year		Total	n
	1997	2007		
0-3	27.9	12.9	19.9	1,966,525
4-7	47.2	35.0	40.7	4,018,490
8	10.6	15.5	13.2	1,301,541
9-10	6.3	12.1	9.4	928,361
11	6.4	21.3	14.3	1,407,951
12 +	1.6	3.3	2.5	244,394
Total	100	100	100	9,867,262

Frequency Missing = 86,967

Data source: PNAD 1997 and 2007, IBGE.

**TABLE 5: Girls and women who had a child during adolescence by income quintile at the time of the survey – Brazil, 1997 and 2007**

Income quintile	Year		Total	n
	1997	2007		
1	47.1	27.3	36.6	3,639,999
2	37.0	7.3	21.2	2,113,007
3	11.5	26.3	19.4	1,926,869
4	3.6	26.4	15.6	1,557,811
5	0.9	12.8	7.2	716,543
Total	100	100	100	9,954,229

Data source: PNAD 1997 and 2007, IBGE.

Table 6 presents the results of the multinomial logit regression of school/work status on adolescent childbearing, age, number of families in the household, type of family, income, region, and area of residence. The results indicate that adolescent childbearing increases the odds of neither studying nor working in relation to only working in 82 percent as compared to girls and women who have not had a child during adolescence. This result is not far from what was found for women who had a child after they left the adolescent period. Indeed, the odds of not be studying neither working, relative to be only working, is twice the odds of those who have not had a child when adolescents. In other words, adolescent childbearing has a substantial effect in augmenting the odds of no school and no work, which is close to the effect of having a child later in life.

As important, adolescent childbearing decreases the chance of a girl or a women be only studying in, relative to be only working, by 39 percent. On the other hand, type of family in which the girl or woman is a daughter or other relative increases the odds of

be only studying in 3.5 times and 3.1 times compared to families of couples where the girl or woman is the head of the household. The type of family also increases the odds of school and working activities simultaneously, but for couples in which the girl or woman has a husband or a partner, i.e., individuals who are head of the household with no husband or partners have higher chance to be studying (and working) when compared to married women.

**TABLE 5: Multinomial logit regression: School/work status regressed on adolescent childbearing, age, household type, type of family, income, region, and residence status**

Variables	Outcome ('Only working' is the base outcome)					
	Only studying		Studying and working		Neither studying nor working	
	RRR	P> z	RRR	P> z	RRR	P> z
Yes, adolescent chilbearing (omitted category: No adolescent childbearing)	<b>0.610*</b>	0.0000	<b>0.486</b>	0.0000	<b>1.823</b>	0.0000
No, chilbearing after 19 years old	0.922	0.2210	<b>0.496</b>	0.0000	<b>2.027</b>	0.0000
Year (reference: 1997)	<b>0.774</b>	0.0000	<b>0.844</b>	0.0000	1.019	0.4390
20-24 years (omitted category: 15-19 years old)	<b>0.089</b>	0.0000	<b>0.315</b>	0.0000	<b>0.444</b>	0.0000
25-29 years	<b>0.032</b>	0.0000	<b>0.192</b>	0.0000	<b>0.282</b>	0.0000
More than 1 family in the HH, with parents (omitted category: 1 family in the hh)	0.931	0.1590	<b>0.842</b>	0.0020	<b>1.271</b>	0.0000
More than 1 family in the HH, without parents	1.045	0.5110	0.908	0.2050	<b>1.312</b>	0.0000
Couple, girl/woman is wife/partner (omitted category: couple, girl/woman is head omitted)	0.932	0.5270	<b>0.772</b>	0.0070	<b>1.256</b>	0.0000
Couple, girl/woman is daughter/other relative	<b>3.581</b>	0.0000	<b>1.942</b>	0.0000	0.894	0.0500
Girl/woman is head, no husband/partner	1.048	0.7210	<b>1.666</b>	0.0000	<b>0.603</b>	0.0000
Girl/woman is daughter/other relative, no husband/partner	<b>3.096</b>	0.0000	<b>1.806</b>	0.0000	<i>0.884</i>	0.0380
Other types of family	<b>2.392</b>	0.0000	<b>1.591</b>	0.0000	<b>0.817</b>	0.0030
Income decile 2 (omitted category: income decile 1)	<b>0.496</b>	0.0000	<b>0.834</b>	0.0220	1.097	0.0940
Income decil 3	<b>0.628</b>	0.0000	1.032	0.6690	<i>1.124</i>	0.0250
Income decil 4	<b>0.650</b>	0.0000	<i>1.153*</i>	0.0450	1.016	0.7520
Income decil 5	0.907	0.1040	<b>1.324</b>	0.0000	<b>1.143</b>	0.0050
Income decil 6	0.978	0.7210	<b>1.396</b>	0.0000	1.005	0.9240
Income decil 7	1.048	0.4280	<b>1.440</b>	0.0000	0.957	0.3580
Income decil 8	1.041	0.5010	<b>1.521</b>	0.0000	0.912	0.0560
Income decil 9	1.062	0.3110	<b>1.538</b>	0.0000	<b>0.871</b>	0.0050
Income decil 10	<b>1.826</b>	0.0000	<b>2.391</b>	0.0000	<b>0.745</b>	0.0000
Northeast region (omitted category: North region)	<b>0.759</b>	0.0000	<b>0.799</b>	0.0000	0.936	0.0880
Southeast	<b>0.383</b>	0.0000	<b>0.582</b>	0.0000	<b>0.688</b>	0.0000
South	<b>0.326</b>	0.0000	<b>0.665</b>	0.0000	<b>0.505</b>	0.0000
Center-west	<b>0.516</b>	0.0000	<b>0.788</b>	0.0000	<b>0.751</b>	0.0000
Metropolitan area (omitted category: urban non-metropolitan area)	<b>0.872</b>	0.0000	<b>1.094</b>	0.0010	<b>0.885</b>	0.0000
Rural area	<b>0.481</b>	0.0000	<b>0.872</b>	0.0010	<b>0.701</b>	0.0000

\*Statistically significant effects at 0.01 are bolded and at 0.05 are italicized.

Number of obs: 84,148

LR chi2 (81) = 40,013.15

Prob > chi2 = 0.0000

Log likelihood = -93,187.085

Pseudo R2 = 0.1767

## **FINAL REMARKS**

The results indicate that the odds of adolescent childbearing are higher among girls and women in the lower income strata, less educated, who live in the less-developed region of the country – although in urban areas. Moreover, adolescent childbearing has a substantial effect on school/work status. In fact, those who had a child during adolescence were more likely to not be studying neither working, when contrasted to those who were only working. This effect was almost to the same level to the one found for women who had a child during their twenties. Moreover, adolescent childbearing indeed decreases the chance of girls and women to be only studying. Girls and women in nuclear families as wives or partners have lower odds to be studying or studying and working. These results are in line with those found in the literature. Nevertheless, refinements can be achieved by using a two-stage fitting approach in which only girls and women who bore a child during adolescence are included in the school/work status model.

There are several limitations to this type of approach. Teenagers in the group 15-19 years old have their adolescent reproductive censored at the time of the survey and the characteristics for the women aged 20 to 29 years do not refer to the time these women had their children. Besides, long-term consequences analysis of teenage childbearing demand longitudinal studies. Where it was done, the results indicate a significant negative impact of a teenage birth on rates and years of completed schooling (Hofferth, Reid, and Mott 2001) and significantly higher odds of unfavorable socioeconomic outcome in later life (Olausson 2001). The next step of this endeavor is to use pseudo-panel technique to get a longitudinal approach as close as possible.

## REFERENCES

Alan Guttmacher Institute. 1976. Birth Control, Sex Education, Health and Social Services Needed to Curb Worldwide Teenage Pregnancy Epidemic Source: International Family Planning Digest, Vol. 2, No. 4, pp. 1-6.

Allison, P.D. 1999. **Logistic regression using SAS system: theory and application**. Cary, NC: SAS Institute Inc.

Aquino, ESTELA M.L. *et al.* 2006. Gravidez na adolescência: heterogeneidade revelada. In: Heilborn, M. L. *et al.* (orgs.), **O aprendizado da sexualidade: reprodução e trajetórias sociais de jovens brasileiros**. Fiocruz and Grammond: Rio de Janeiro.

Berquó, Elza and Cavenaghi, Suzana. 2006. Fecundidade em declínio: breve nota sobre a redução no número médio de filhos por mulher no Brasil. **Novos estudos - CEBRAP** [online], no. 74, pp. 11-15.

Chacham, Alessandra S. *et al.* 2007. Autonomy and susceptibility to HIV/AIDS among young women living in a slum in Belo Horizonte, Brazil. **AIDS Care**. V.19, S12 - S22.

Cunha, José Marcos P. *et al.* 2006. A vulnerabilidade social no contexto metropolitano: o caso de Campinas. In CUNHA, José Marcos P. (Org): **Novas Metrôpoles Paulistas: população, vulnerabilidade e segregação**. Campinas: NEPO/UNICAMP.

Deaton, Angus S. 1997. **The Analysis of Household Surveys: A Microeconomic Approach to Development Policy**. 1997. Johns Hopkins University Press, World Bank.

Heilborn, M. L. *et al.* 2002. Aproximações socioantropológicas sobre a gravidez na adolescência. **Horizontes Antropológicos**, n.17, pp.13-45.

Heilborn, M. L. 2006. Experiência da sexualidade, reprodução e trajetórias biográficas juvenis. In: HEILBORN, M. L. *et al.* (orgs.), **O aprendizado da sexualidade: reprodução e trajetórias sociais de jovens brasileiros**. Fiocruz and Grammond: Rio de Janeiro.

Hofferth Sandra L., Reid, Lori, and Mott, Frank L. 2001. The Effects of Early Childbearing on Schooling over Time. **Family Planning Perspectives**, Vol. 33, No. 6, pp. 259-267.

Olausson, Petra Otterblad *et al.* 2001. Teenage Childbearing and Long-Term Socioeconomic Consequences: A Case Study in Sweden. **Family Planning Perspectives**, Vol. 33, No. 2, pp. 70-74.