Adolescent Fertility, Marriage, Race and Religion in Brazil

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Introduction

Marriage as an institution is defined in a wide variety of ways throughout the world. These differences are tied to a multitude factors, and often fluctuate between different social groups. Also differing dramatically is the ability or opportunity to enter into a union despite how it is defined in a particular culture. Perhaps nowhere are such differences more evident than with respect to early, premarital pregnancies when a young woman or couple must decide whether to bring the pregnancy to term and, if so, whether to marry, cohabitate, or remain single. In the United States, non-marital births have been tied to a number of factors including race, religion, and socioeconomic status. In addition, both culture and history likely affect a group's attitude toward pregnancy, childbearing, and family formation. These factors also play an integral part in the study of Brazilian fertility and family formation. Brazil has recently undergone dramatic changes in both religious composition and adolescent fertility, and offers an unusually interesting environment for studying the meaning of and potential influences on marriage.

In Brazil, although the overall total fertility rate has steadily decreased since the 1960's, the birth rate among adolescents has actually increased. Using data from the Brazilian Census, we found that the percentage of adolescents aged 15 to 17 who have had a live birth increased from 8.2 in 1960 to 14.7 in 2000. Data from the Demographic Health Survey (DHS) in Brazil supports this finding with increases in age-specific fertility rates among women 15 to 19 years from 74 per thousand in 1986 to 86 per thousand in 1996 (DHS 2004).

The increasing rate of adolescent fertility differs from many other countries that are seeing reductions within the adolescent age group. In the United States, birth rates for women aged 15 to 17 fell by 33% from 61.8 per thousand in 1991 to 41.1 per thousand in 2004 (Martin et. al 2002). Among countries in Latin America, however, only Colombia and Peru share the distinction with Brazil of having relative increases of adolescent fertility in the 90s (Singh 1998).

High rates of adolescent fertility in Brazil have not affected all segments of the populations equally. Low levels of education are strongly associated with adolescent births (Gupta and Leite 1999). In Northeastern Brazil, DHS data showed that women 15 to 19 with 4 or less years of education had more than double the probability of having a birth compared to women with five or more years of education for years 1986, 1991 and 1996 (1999). According to country-wide results from the 1986 and 1996 DHS, lower education results in lower age at first sexual intercourse, lower age at first birth, and higher adolescent fertility (DHS 2004). In addition, the likelihood of pregnancy among adolescents is associated with low education, low family income, non-white race, lack of employment, and earlier age of sexual initiation (Aquino et al 2003). In terms of marital status following adolescent fertility, there is evidence that both race and socioeconomic status are important factors. Iutaka, Bock and Berardo (1975) found social status to be the most significant background factor associated with illegitimacy; women with no mobility were most likely to have had an illegitimate birth while women with upward mobility were least likely to have had an illegitimate birth.

At the same time that adolescent fertility has increased in Brazil, the country has also undergone a dramatic change in its religious composition. Brazil, long known as the world's largest Catholic country, consistently demonstrated rates of Catholicism exceeding 90%. However, according to the 1980 Census, for the first time in its modern-history rates fell below

this number. In what seems to be an accelerating religious transformation, Catholicism fell to 83% in 1991 and 74% in 2000. Although much of the decrease in Catholicism was the result of a loss of religious affiliation altogether, it has also been due to an increase in other religions, especially Protestant denominations. Protestantism increased from 5.2% in 1970 to 15.6% in 2000, a numerical increase of almost 22 million people (Alves and Novellino 2003).

In Brazil, the large number of Protestant churches in the country are often divided into two broad categories, mainline and Pentecostal. Mainline Protestantism appeared first in Brazil in the late 19th century, with the arrival of foreign missionaries, primarily from the United States. The mainline Protestants are largely composed of Baptist denominations with sizeable proportions of Lutherans, Presbyterian, Methodist, and Episcopalian denominations as well (See Belloti 2000; Ferreira 1959). In contrast, the Pentecostal movement is largely made up of independent and autonomous churches of Brazilian, rather than foreign, origin. The largest Pentecostal churches are the Assembly of God and the Universal Church of the Kingdom of God. Not only do these churches constitute the most rapidly growing segment of Protestantism, but they have been growing particularly rapidly among the poorer and non-white segments of the population (Potter and McKinnon 2006; xxxx???).

One could expect this religious transformation to have a strong impact on both adolescent fertility and corresponding rates of family formation. Much of the growth in Protestantism has occurred among groups at highest risk of adolescent fertility, but Pentecostal churches often have strict rules regarding dress, and where and when one spends one's time (Chesnut 1997). Moreover, their emphasis on family values, and male responsibility may act as a powerful lever leading the father to form a union with the pregnant teen. The purpose of our paper is to explore the combined effects of both race and religion on marital status among adolescents who

experienced childbearing. In this study, we will explore how family formation following a pregnancy differs by particular religious affiliations, and whether such religious effects differ by race.

Data and Methods

We use microdata from the 10% sample of the 2000 Brazilian census. The 10% sample comes from a long-form questionnaire that includes pertinent questions on race, religion, and fertility. We limit our analysis to women between the ages of 15 and 17 who reported being white, black, or brown and had a live birth in the previous year (n = 4,892). To identify adolescents who have had a live birth in the previous year we use two questions from the census: number of children ever born and the date of the last live birth. Our dependent variable, marital status, is measured using an ordinal categorical variable where 1 = not married or cohabiting, 2 = cohabiting, and 3 = formally married.

Religion is determined from an open-ended question that was subsequently recoded by the Brazilian Census Bureau (IBGE) into 143 religious categories. In our analysis we further recode the religion categories to identify 8 different religious affiliations: 1) Catholic; 2) Baptist; 3) mainline Protestant; 4) Assembly of God Church (ARD); 5) Universal Church of the Kingdom of God Church (IURD); 6) other Pentecostal Protestant; 7) other religion; and 8) no religion. Other controls included in our analysis are age (measured as continuous) and migrant status (determined by previous residence in another municipio). We also use dummy variables for each municipio to control for unmeasured differences between the cities. Finally, education is a categorical variable based on the number of completed years of schooling: 1) 0-3 years, 2) 4 years, 3) 5 years, 4) 6 years, 5) 7 years, 6) 8 years, and 7) 9 or more years.

For the preliminary results presented below, we limit our analysis to the 20 largest cities in Brazil. In the full paper, we will use the entire census, along with a more complete set of covariates to account for local socioeconomic circumstances. All analyses were conducted using SAS version 9.1. To explore the likelihood of cohabiting or being married vs. being single we conduct ordinal regression models assigning a code of 1 to being in a consensual union and 2 to marriage.

Results

According to Table 1, adolescent females with a live birth in the previous year belonging to different racial groups vary considerably in regard to a number of sociodemographic variables. Blacks are, by far, the most likely to be single (55.0%) followed by browns (48.0%) and whites (44.1%). Likewise, whites have the highest percentage of married adolescents (12.5%) with both browns and blacks demonstrating substantially lower percentages (8.2 and 6.9, respectively). The majority of the sample was Catholic although about 15% of the sample belonged to the various Protestant denominations. In addition, 24.7% of blacks, 17.9% of browns, and 15.9% of whites reported having no religious affiliation. Educational levels are much higher among whites with 20.8% of the sample reporting 9 or more years of education vs. 11.5% for browns and 13.4% for blacks. The percentage of adolescent females who reported residing in another municipio at some point in their lives varied considerably across the racial groups with the highest percentage (20.8%) found among whites. Finally, age did not vary much with an average of 16 years of age for each group.

Table 2 presents the results of ordinal regression models predicting marital status (single, cohabiting, or married) among adolescent girls with a live birth in the previous year. In the first

model controlling only for race and age, both blacks and browns are significantly less likely to cohabit or be married than whites. In the next model, we include controls for both religion and migrant status. Although the coefficients increase somewhat, there are still substantial and significant differences between whites and nonwhites in terms of marital status. In this model, we also see a strong association between religion and marital status among adolescents who have had a live birth in the prior year. The coefficients for Baptists, Assembly of God, Universal Kingdom of God, other Pentecostal Protestant, and no religion are all positive and statistically significant. In models 3 and 4 we add education and municipio controls into our analysis and find, once again, little change in the race coefficients. Interestingly, the effect of education does not appear to be very consistent. Compared to adolescents with 0-3 years of schooling, those with 4, 5, 6, and 8 years of schooling all have a significantly greater likelihood of cohabitation or marriage. However, adolescents with 7 and 9 or more years of schooling do not differ significantly from the reference group or actually have a lower likelihood of cohabitation and marriage. The effect of the municipio of residence also varies substantially. With São Paulo as the comparison group, we find that adolescents residing in Fortaleza, Curitiba, Nova Iguaçu, São Gonçalo, and Teresina have a higher likelihood of living with their partner if they experienced a live birth in the previous year.

In the final model, we include an interaction term for race and religion to examine a possible differential effect of religion on marital status among adolescents of different races. We convert the coefficients into odds ratios and graph our results in Figure 1 for greater ease in interpretation. As seen in the figure, the effect of religion does vary somewhat by racial group. For Catholics, both black and brown adolescent females who have had a child in the previous year are less likely to be cohabiting or married as compared to their white counterparts.

However, among Baptists, both groups are most likely to marry or cohabit (brown OR = 1.78; black OR = 1.35). Other mainline Protestantism appears to have a very different effect on marital status for whites compared to non-whites. Whereas the odds ratio for white mainline Protestants is 1.29 it is less than 1.00 for both browns and blacks. In contrast, the Assembly of God Church leads to greater likelihood of marriage for all racial groups with an odds ratio of 2.44 for whites, 1.57 for browns, and 3.29 for blacks. However, membership in the Universal Church of the Kingdom of God leads to greater cohabitation or marriage among browns but not among whites or blacks. In fact, blacks who belong to the Universal Church of the Kingdom of God have half the odds of cohabitation or marriage compared to white Catholics. For all groups belonging to other Pentecostal Protestant churches, there is a greater likelihood of being married or cohabiting. Among whites and browns, those belonging to other religions are actually less likely to be married or cohabiting when compared to white Catholics. However, blacks belonging to other religions are more likely to be in some sort of a union. Finally, adolescents who have had a live birth in the previous year are less likely to be married or cohabiting than white Catholics if they have no religion and are brown or black but are actually more likely if they have no religion and are white.

Discussion

These preliminary results show that both religion and race have large effects on the likelihood that a young woman who becomes pregnant and gives birth will be in a consensual or marital union with the father. In the black population, affiliation with one of several Pentecostal Churches or a Baptist church more than offsets the usually lower rates of union formation in this group. Expanding the analysis to include the entire 10% sample and not just the ten largest cities

will enable us to get more precise estimates of these effects, but here even with these results, the advantage of having a very large sample and distinguish between different churches is evident. Particularly notable is the absence of any detectable influence of the Universal Church of the Kingdom of God, one of the largest and fastest growing Pentecostal Churches, but also one with a great emphasis on collecting money and "wealth theology".

Of course, these census data do not give us a complete picture regarding the timing of family formation—we can only observe marital status at the time of the census. However, we can safely assume on the basis of survey data that very few of these births were conceived in a stable union. The most elusive aspect of the phenomenon we are observing has to do with possible changes in religious affiliation. It is possible that some of the effect we observe in the census data may arise from unwed mothers being pressured to leave the more strict congregations unless they marry. To date there is little ethnographic evidence on this topic, but just how congregations and pastoral leaders in Brazil are dealing with sexuality, abortion, and adolescent pregnancy is an important topic for future research.

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Table 1. Descriptive Statistics of Adolescent Females[1] with a Live Birth in the Previous Year: 2000 Brazil Census, 20 Largest Cities.

	White (n = 2,028)	Brown (n = 2,399)	Black (n = 407)	χ^2
Marital status				359**
Single	44.11	47.98	55.00	
Cohabiting	43.39	43.80	38.13	
Married	12.49	8.22	6.87	
Religion				497**
Catholic	64.61	64.12	56.84	
Baptist	1.86	2.14	1.79	
Other Mainline Protestant	2.20	1.33	1.80	
Assembly of God	5.31	6.18	5.23	
Universal Kingdom of God	2.30	3.37	2.61	
Other Pentecostal Protestant	4.52	3.39	3.04	
Other Religion	3.27	1.58	3.98	
No Religion	15.93	17.88	24.72	
Years of education				1426**
0-3	10.83	15.22	18.17	
4	8.27	13.33	14.13	
5	12.84	17.45	15.61	
6	14.00	14.07	12.54	
7	15.65	15.12	14.35	
8	17.60	13.31	11.76	
9 or more	20.80	11.50	13.43	
Migrant	30.74	29.71	18.76	235**
Mean age (s.d.)	16.40 (2.26)	16.39 (2.28)	16.31 (2.32)	

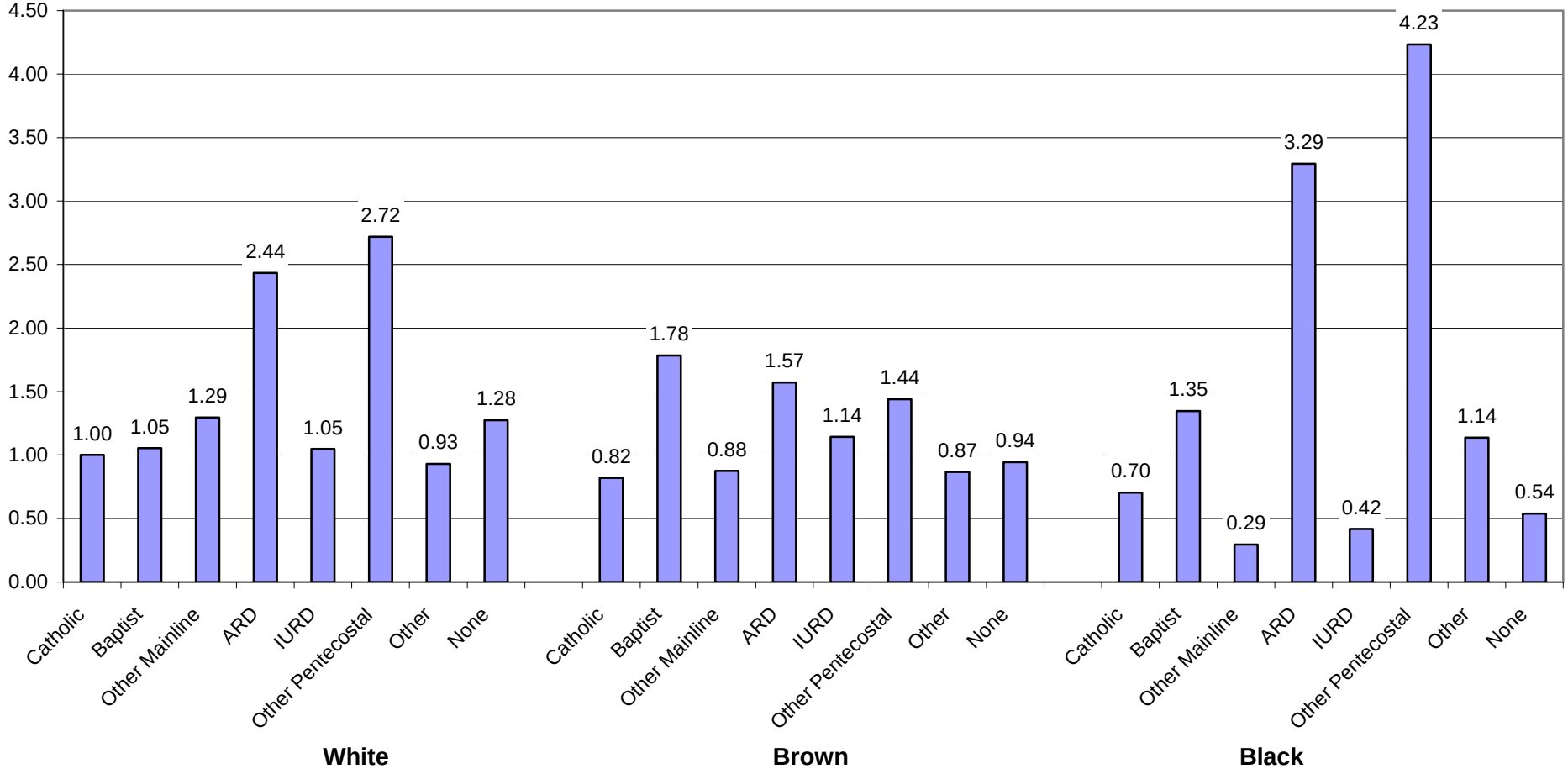
[1]Ages 15-17 *p<.05 **p<.01

Table 2. Ordinal Logistic Regression Models Predicting Marital Status among Adolescent Females[1] with a Live Birth in the Previous Year: 2000 Brazil Census, 20 Largest Cities.

Individual Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Race/Color (vs. White)					
Brown	-0.2129**	-0.2141**	-0.2413**	-0.2021**	-0.1979**
Black	-0.4641**	-0.4229**	-0.4416**	-0.3819**	-0.3519**
Religion (vs. Catholic)					
Baptist		0.3528**	0.3667**	0.4725**	0.0521
Other Mainline Protestant		0.0922	0.1066	0.1006	0.2585**
Assembly of God		0.8166**	0.8087**	0.8233**	0.8900**
Universal Kingdom of God		0.1557**	0.1433**	0.1753**	0.0457
Other Pentecostal Protestant		0.6479**	0.6459**	0.6280**	0.5356**
Other Religion		0.0208	0.0303	0.0475	-0.0706
No Religion		0.1344**	0.1219**	0.1367**	0.2430**
Education (vs0-3 years)					
4 years			0.2573**	0.2585**	0.2639**
5 years			0.1456**	0.1628**	0.1572**
6 years			0.1758**	0.2028**	0.1853**
7 years			-0.0493	-0.0312	-0.0301
8 years			0.1106**	0.1222**	0.1228**
9 or more years			-0.1401**	-0.1354**	-0.1360**
Age	0.1967**	0.1871**	0.1951**	0.1977**	0.1985**
Migrant[2]		0.4574**	0.4425**	0.4199**	0.4235**
Municipios (vs. São Paulo)					
Rio de Janeiro				-0.3417**	-0.3373**
Salvador				-0.1187**	-0.1157**
Belo Horizonte				-0.2491**	-0.2525**
Fortaleza				0.2077**	0.2042**
Brasilia				-0.3265**	-0.3051**
Curitiba				0.4664**	0.4639**
Recife				-0.2626**	-0.2611**
Manaus				-0.0937*	-0.0848*
Porto Alegre				-0.0091	0.0133
Belem				-0.1245*	-0.1219*
Goiania				-0.1042	-0.1039
Guarulhos				0.0955	0.0769
Campinas				-0.1466*	-0.1270
Nova Iguaçu				0.1982**	0.2065**
São Gonçalo				0.2199**	0.2278**
São Luis				-0.1472**	-0.1291*
Maceio				0.0041	-0.0095
Duque de Caxias				0.0544	0.0742
Teresina				0.1285*	0.1285*

Race*Religion		
Brown*Baptist		0.7248**
Brown*Other Mainline Protestant		-0.1925
Brown*Assembly of God		-0.2396**
Brown*Universal Kingdom of God		0.2857*
Brown*Other Pentecostal Protestant		0.0271
Brown*Other Religion		0.1273
Brown*No Religion		-0.1028*
Black*Baptist		0.5969*
Black*Other Mainline Protestant		-1.1311**
Black*Assembly of God		0.6536**
Black*Universal Kingdom of God		-0.5672*
Black*Other Pentecostal Protestant		1.2592**
Black*Other Religion		0.5503**
Black*No Religion		-0.5085**
[1]Ages 15-17	*p<.05	**p<.01

Figure 1. Odds[1] of Cohabitation or Marriage among Adolescents[2] with a Live Birth in the Previous Year: 2000 Brazil Census, 20 Largest Cities.



[1]Controlling for age, migrant status, education, municipio

[2]Ages 15-17