

Socio-economic and Cultural Correlates of Cohabitation in Brazil

Maira Covre-Sussai*

Koen Matthijs*

This study uses cross-sectional couples' data derived from the 2000 census to verify the economic and cultural correlates of cohabitation in Brazil. The impact of economic factors such as women income and education is verified. Special attention is paid on the role of cultural environment in union formation across different Brazilian contexts. The cultural milieu, grounded in historical specificities and socialization, was measured by couples' place of residence (26 states and the Distrito Federal) and the birth cohort of the male by using multilevel procedures. Social class, religion and the state-level ethnicity composition were considered as well. The results indicate that socio-economic factors are related to cohabitation in Brazil. However, different from developed countries, informal unions are more common among the lower social classes and less educated women. In addition, although the presence of children is a disincentive to cohabit among the upper classes, its effect is smaller among the lower classes. At the same time, the cultural diversity found between Brazilian states is reflected in nuptial behavior. While significant variance lies on the state level (even controlling for poverty level, urbanization rate, sex ratio and human development index), the ethnicity composition of each state relates to both couple's behavior and state-level differences.

Key words: nuptiality, marriage, cohabitation, culture.

1. INTRODUCTION

Family patterns have changed noticeably in the Western countries since the 1960s. With the increasing incidence of divorce and social acceptance of non-marital cohabitation, marriage is no longer considered as the only way to establish a family. Brazil follows the Western trends with growing divorce and cohabitation¹ rates. According to the Brazilian Census Bureau (IBGE), the divorce rate in Brazil increased by 300% since the 1970s and 28.58% of the Brazilian couples were cohabiting out of wedlock in 2000 while the figure for 1960 was 6.45%. These changes in nuptiality patterns, associated with the postponement of marriage and decreases in fertility are interpreted by sociologists and demographers as consistent results of a shift in the ideational domain, meaning values and beliefs (Lesthaeghe and Surkyn, 1988). Conversely, these behavioral changes are understood by neoclassical economics theory as a product of the reduction in gains of marriage and in high opportunity costs associated with parenthood, mainly for women (Becker, 1981).

Family is a fundamental social unity, thus a better understanding of the factors related to family formation is crucial to understand the majority of population processes. For instance, to study fertility it is more accurate to look at birth rate among women at risk of bearing a child (marital specific fertility rate) rather than at a crude birth rate (births per thousand in the population). Therefore, family formation is a sequential process where different factors influence the outcomes of succeeding transitions (Neels, 2006). In migration studies, it is also important to distinguish between married people and others, since married and unmarried people can have remarkably different migration rates (Troyer, 2002). In addition, it is intriguing to verify that married men have lower mortality rate than unmarried ones (Waite and Gallagher, 2001).

Considering the relevance to better understand the factors behind changes in union formation and the lack of information about union formation in Latin-American countries (United Nations, 1990), this study uses multilevel procedures to verify the economic and cultural factors related to cohabitation

* Catholic University Leuven. Centre for Sociological Research. Research domain: Family and Population. For more information about the paper, please contact maira.covre@student.kuleuven.be.

¹ In this study we use the terms cohabitation, out of wedlock cohabitation, consensual unions and informal unions to define couples living together without getting married.

in Brazil. The impact of economic factors like women income and education is verified. In addition, special attention is paid on the role of cultural environment as a determinant of union formation in different Brazilian contexts.

Brazil is a continental country with accentuated regional and social inequalities as well as cultural differences. The Brazilian urbanization rate ranges from 97% (in Rio de Janeiro, Southeast region) to 63% (in Piauí, Northeast) and the illiteracy rate varies from 19% in the Northeast to 5% in the South (IBGE, 2009). These differences among Brazilian regions are also manifested in terms of nuptiality patterns. According to the 2000 census, while 25% and 24% of couples in the Southeast and South regions were cohabiting instead of being married, 33% and 44% of their Northeast and North counterparts were living in out of wedlock unions (IBGE, 2000). In addition, the Northeast and North are the poorest regions. These are places where, in 2000, 36% and 49% of the population had family incomes below the poverty line (Monteiro, 2003).

This diversity makes Brazil an ideal focus site for examining the impacts of economic and cultural dimensions on individual demographic behavior: each Brazilian state² has its own colonization history, race and religious composition and economic development stage (ranging from very industrialized to quite rural), but at the same time, they are under the same legislation. Still, to our knowledge, this is the first study on nuptiality that focuses on the different Brazilian realities - analyzing the differences between and within states. As the Brazilian states are autonomous, this research is a relevant source of information for governors and police makers, concerned about the implications of the growing number of informal unions on family organization and wellbeing of the involved parts.

Consequently, we evaluate the economic influences on nuptial behavior by asking *what are the economic correlates of cohabiting rather than getting married in Brazil?* More specifically, *are women with socio-economic advantages more likely to cohabit instead of getting married?* And *does the presence of children represent a marital-specific capital and minimize the probability of cohabitation?*

Nuptial behavior is not just related to economic factors. It is also related to cultural dynamics, such as changes in values and traditions. As this type of change is cohort related, we ask if *younger cohorts are more likely to cohabit than older ones*. In addition, the Brazilian expansive cultural diversity implies the need to understand that couples' dynamics are embedded in distinct socio-economic and cultural contexts. These cultural variances found in Brazil lead us to ask *how does the cultural context affect couples' probability of being married on the one hand or cohabiting on the other?* In particular, *are the social class, place of residence and religious orientation related to nuptial behavior?*

In the following sections the paper is situated within the theoretical framework and previous empirical results found on the theme by highlighting the Brazilian context. We discuss (i), the most common theoretical explanations and empirical results on cohabitation, as well as some Brazilian particularities. Following (ii) the points of view of economic theory on marriage and the cultural explanation of demographic change are introduced, contextualizing cohabitation. In the next section (iii) differences between regional and religious influences on nuptial behavior are considered, underlining the Brazilian case.

2. THE CASE OF COHABITATION IN THE WESTERN SOCIETY

Unmarried cohabitation is not a new or isolated phenomenon in the West. Until the 1970s unmarried cohabitation was less common but an option for very poor people that could not afford the costs of marriage, for separated people unable to obtain a divorce and for some intellectuals who saw

² Politically, Brazil is divided into 26 states and the Distrito Federal (Brasília) which are grouped into five regions (North, Northeast, Southeast, South and Central-west). The states have independent administration, subject only to the Brazilian Constitution, the Civil Code and its own state Constitution. They have autonomy but not sovereignty. For more details about the differences between Brazilian states and the Distrito Federal, see Appendix 1.

marriage as a bourgeois institution or protested against the fact that only church marriages were acceptable (Kiernan, 2001).

Over the course of preceding decades cohabitation rates increased sharply. It can be encountered in all layers of the population and in several Western countries the majority of marriages and remarriages now begin as cohabitation relationships (Smock, 2000). The social acceptance of this kind of relationship is growing everywhere, in lesser or greater degrees.

The Brazilian reality is not different, although presenting some particularities. Until the 19th century informal unions were quite common among the slaves who were not allowed to get married or among Portuguese colonizers who left their wives in Portugal and constituted new unions with indigenous women. At the same time, marriage was the most socially acceptable way to form families among the white middle and upper classes during the same period (Samara, 1987). It was during the middle 1960s that cohabitation rates started to increase again, while 6.45% of people aged 15 years or more were cohabiting in 1960, the figures for the same age group in 2000 were 29% (IBGE, 2010).

Several researchers have suggested that Western society is experiencing a social transition related to the way families are established: nowadays men and women are free to choose to marry formally or to cohabit. Northern European countries, especially Sweden, are used as examples of countries where this transition is complete, in other words, where marriage and cohabitation have become essentially identical in form and function (Kiernan, 2001).

The speed of family change depends on the institutional context in which the family is embedded. Countries' institutional differences are associated with the family patterns adopted by their citizens. There is evidence that the normative context (such as generational or structural resistance to change and religious influences), development level, educational expansion, labour market circumstances for women, and the legal framework that regulate cohabiter's reciprocal entitlements and obligations all play important roles (Nazio and Blossfeld, 2008). Consequently, the incidence and meaning of cohabitation depends on the cultural milieu in which these couples live.

Bearing in mind that the meaning of cohabitation outside marriage and other family relationships depends on the social context in which they occur, Heuveline and Timberlake (2004) compared six ideal types of cohabitation (with respect to incidence, duration, childrearing and proportion ending in marriage) for seventeen industrialized nations. They found that on the (i) *marginal stage* cohabitation is not prevalent and is discouraged by public attitudes and policies; traditional Catholic countries like Italy, Spain, and Poland are included in this group. For another group of countries, such as Belgium and Switzerland, cohabitation exists as a (ii) *prelude to marriage*, a childless phase, where unions tend to be brief but end in marriage. It can also exist as a (iii) *stage in the marriage process*, with longer unions, and children more likely to be born outside, but reared inside marriage. Austria, Finland and Germany were classified in this stage. In the United States and New Zealand cohabitation is (iv) an *alternative to singlehood*, a brief, non-reproductive union that ends in separation instead of marriage. At the same time, in Canada and France cohabitation can be considered an (v) *alternative to marriage*; while in Sweden there is little social distinction between them, with cohabitation and marriage being (vi) *indistinguishable* (Heuveline and Timberlake, 2004, Tables 1 and 4).

Brazilian women are more likely than their U.S. equivalents to cohabit with male partners (Light and Ureta, 2004). Ethnographic evidence show that Brazilian cohabitants generally refer to themselves as married, and use the words husband and wife to refer to their partners (Rao and Greene, 1996).

Furthermore, since 1996 the Brazilian law states that cohabitants have similar duties and rights applicable to formally married couples. Cohabitants have the option to formalize the relationship through a contract with the purpose of delimitation of property division. In case of dissolution, the content of the contract if it exists is followed. In the absence of a formal contract and in case of disagreement, if one of the partners proves that they lived "as family", the judge applies the same legislation used for formally married couples, except for inheritance (Brazil, 2002). In this case, all property acquired after the union will be shared by the partners.

Despite of the law and similarities between married and cohabiting couples, we can also find some evidence that it is too soon to affirm that marriage and cohabitation are indistinguishable in Brazil. While the average duration of a marriage in Brazil is 10 years (IBGE, 2007), half of cohabitations last no more than 6 years (Rangel, 2006). Declines in fertility rates were sharper for couples in formal unions than for those in consensual ones and the total fertility among cohabiting couples is higher than among officially married ones, even controlling for age, education and duration of union (Lazo, 1999). Also, cohabitants started to be considered "as married" by law from 1996 and the majority of research on the theme was done using data from prior years (and they rarely consider the whole country). Consequently, we don't know the implications of the law on couple's behavior.

3. THE ECONOMIC AND CULTURAL EXPLANATIONS OF COHABITATION

3.1 THE ECONOMIC VIEW

According to the neoclassic economic theory the family is a group of people whose objectives lie in maximizing the own welfare and the production of their commodities in marriage. The best allocation is a result of the balance of the couple's well-being, where preferences are maximized. The great incentive of marriage is to provide a safe place for the production of *marital-specific capital*, capital which is composed by the investments made in the relationship, something specific and exclusive for each marriage. Own children, along with love, companionship and time, are considered one of the highest representation of marital-specific capital (Becker *et al*, 1977).

Cohabitants tend to be cautious about investing in their relationships (accumulating less marital-specific capital) because of the uncertainty³ regarding the stability of the relationship and the lack of institutional protection against the risks of the investments (Waite and Gallagher, 2001). Cohabiting individuals are expected to make lower investments in their relationships (Brines and Joyner, 1999), forming less interdependent dealings than married people; both financially (Heimdal and Houseknecht, 2003) and emotionally (Waite and Gallagher, 2001).

Apart from the finding that the total fertility rate is higher for cohabitants than for officially married couples in some regions of Brazil (Lazo, 1999) there is little information about the role of children on the probability of being in cohabitation. Subsequently, we look ahead to verify if *(H1) the probability of cohabiting is decreased by the accumulation of marital-specific capital (children)*.

In economic terms, the gains obtained from marriage are related to market characteristics (income, property, social position) and non-market characteristics (beauty, intelligence, affinity). The determinants of gains are related to spouses' time maximization, complementarity of investments and opportunities on the marriage market. Such gains are higher when the replacement time for men and women is more difficult. Thus, the non-market characteristics tend to combine with the market ones to increase the gains in the relationship (Becker, 1973). In this way, the gains from marriage and parenthood are diminished by the rise in the earnings and labour force participation of women, when time is scarce and several competing options available (Becker, 1981).

Consequently, it is expected that *(H2) women with socio-economic advantages (income and education) have less time and more opportunities in the marriage market, which increases their probability of cohabiting*.

³ The lack of investments made for cohabitants in their relationship can be also explained by the selection hypothesis, which focuses on the background differences between cohabiting and married individuals. It is assumed that, individuals with non-traditional values or low family orientation – for example, poor relationship skills – are "selected" into cohabitation (Smock, 2000). Out-of-wedlock cohabitation is supposed to be practiced by a self-selected group that differs from people who start to live together after marriage for feeling less beholden to normative obligations (Hogerbrugge and Dykstra, 2009), having less conventional attitudes toward family ideology (Clarkberg, Stolzenberg and Waite, 1995) and partner homogamy (Schoen and Weinick, 1993). Due to data limitations this hypothesis will not be tested in this study.

3.2 THE ROLE OF CULTURAL DYNAMICS ON NUPTIALITY PATTERNS

Sociologists and demographers usually accept the value of opportunity structures and cost and benefits calculations to explain social behavior, but they also stress the important role played by cultural dynamics. These cultural dynamics are shaped by ideational goals, historical specificities and socialization processes (Lesthaeghe and Surkyn, 1988).

The effect of cultural dynamics on behavioral change is cohort-related. Cohorts have their value orientation defined through the socialization process and preserve it during their lives. Parents, schools and peer groups are responsible for determining the enduring values of the new cohorts. According to the educational-cohort model proposed by Lesthaeghe and Surkyn (1988), "*values, preferences and aspirations are already largely shaped prior to decision-making with respect to the major events of adult life such as marriage, procreation and career development*" (pp.17).

The wave of changes in norms and attitudes that occurred in the western European society from the 1960s is called the Second Demographic Transition (SDT). There is no consensus about the determinants of this second transition. However, secularization, privatization, individualization and urbanization seemed to contribute to the shifts from collective to individual behavior. Among these changes, Van de Kaa (1993 [1985]) highlights the prevalence of individuals' critical view and evaluation of current rules (progressiveness), as well as the desire for self-fulfillment, equality and freedom. As a result, people started to forge their families based on new and flexible standards. Rise in divorce, cohabitation and age at first marriage, decline in fertility and proportions of people ever married and female economic autonomy are related to the SDT (Lesthaeghe and Neels, 2002).

These changes reflect a common social background: the detraditionalization of customs and beliefs that had anchored people's lives in conventional, intergenerational practices. In other words, there was a rupture with the strictly pre-structured social foundation that opened the possibility for individual autonomy. In this interim, less rigid gender roles and sexual identities enabled a greater degree of personal choice. Couples started to be faced with the possibility of choosing their own life course (to marry or not, to live together or not, to have children or not), modifying their intimate relationships enormously (Matthijs, 2003).

In this sense, we expect that *(H3) the probability of cohabitation is related to changes in the ideational domain and as a consequence, higher among the younger cohorts.*

4. HISTORICAL ROOTS AND CONTEMPORARY EVIDENCE

Family organization in Brazil follows the Brazilian history which was marked by patriarchal and interracial relationships. During the colonization period, Portuguese colonizers used to leave their wives in Portugal and constitute 'new families' abroad, with indigenous women. With the advent of slavery (from middle 16th to the end of 19th century), African slaves were massively introduced in the country coming from different parts of the African continent, some of them from polytheist societies (Ribeiro, 1997). At that time marriage was under the control of the Catholic Church and slaves and indigenous people were not allowed to get married, nor even if they were marrying to whites or if they were baptized (Greene and Rao, 1992). Therefore, whites, blacks and indigenous people used to constitute their families in out of wedlock relationships. It produces the idea of "tradition of illegitimacy" prevalent in studies on nuptiality in Brazil and in Latin America (De Vos, 1987; Greene and Rao, 1992).

At the same time, marriage was always highly valorized by the middle and upper classes in the Brazilian society. While until the 19th century cohabitation was common among the lower social strata (which always were in the majority), the institutions of marriage and the family among the middle and upper classes (which always retained the influence) were constructed based on hierarchic, authoritarian and patriarchal relationships, under strong influence of the Catholic morality (Freyre, 2000 [1933]). The families described by Freyre (2000 [1933]) were based on marriage, large and surrounded by servants and slaves, all under the control of the patriarch.

Machado (2001) uses qualitative research to illustrate the different meanings of family among different social strata in the Brazilian contemporary society. She suggests that among the popular classes the value of family is based on a morality established by a set of rules of reciprocity, mutuality and bonds. For the upper classes, the value of family is founded on the power of the surname, based on the possibility to change social capital into economic and political capital and vice versa. It is in the middle classes that more individualistic values are nurtured. For the Brazilian middle class the value of the (married) family continues to establish prestige, but this prestige is relative to individualistic goals (Machado, 2001, pp.16).

The Brazilian contemporary reality differs from a fully developed Western-European on many points. Brazil (and Latin America) never achieved the welfare state that provides basic needs and education to people from different social strata. In addition, the Iberian-American cultural model that generates the social construction of family forms, sociability and notion of the individual has historically strong Catholic roots, and to some degree Moorish ones (De Vos, 1998). This cultural model engenders hierarchical relations in all spheres of society, similar to the family model stated by Freyre (2000 [1933]).

The historical roots and the different meanings attached to conjugal relationships in different Brazilian social classes, allow us to expect that the *(H4) cohabitation is more common among the lower social classes*.

4.1 LONG TERM DEMOGRAPHIC DEVELOPMENTS:

Brazil has an expansive cultural diversity which implies the need to understand how couples' dynamics are embedded in distinct socio-economic and cultural contexts. The anthropologist Darcy Ribeiro (1997) states that, the Brazilian wide territorial area (8,547,403.5 square kilometer), its big population (176 million inhabitants, in 2000) formed by different cultures (native indigenous, African and European), and its extensive variety of climate and vegetation, determine the division of Brazilian culture into five subcultures, distributed throughout the five Brazilian regions.

The North and Northeast regions have populations originated by indigenous and African descendents. It is in these regions that the family model described by Freyre (2000 [1933]), as patriarchal and hierarchic, is more visible. In the Northeast the history was constructed by African slaves, who worked under the orders of the Portuguese colonizers. In the North, mixed descendents of indigenous people, African slaves and Europeans are the remaining inhabitants. Nowadays, both subcultures are characterized by a patriarchal social system highlighting group norms and group loyalty (Ribeiro, 1997). The Northeastern and Northern regions are also the poorest and least urbanized (IBGE, 2009).

Until the second half of the 19th century, Southeastern and Southern people were formed by the union of the Portuguese colonizer with indigenous people and some African slaves. The participation of the African slaves on the formation of Southeastern and Southern people is smaller than on Northeastern ones. During the colonial period (16th to the end of 19th century) it was from São Paulo that expeditions left in charge to explore the mines found in the countryside and spread the Brazilian population to beyond the Tordesilhas line. At that time, while husbands went to the countryside, wives took care of children and the household unit as a whole. This system fostered more democratic family relationships than the ones observed in the North (Ricardo, 1959). Nowadays, these people share the Southeast and South region with distinct social groups composed of descendents of the large European immigration of the 19th and 20th centuries, especially Italians and Germans.

The last sub-culture identified by Ribeiro (1997) includes people from the inland part of the Northeast and, particularly, from the Central-west area, which presents quite rural characteristics. The Central-west region contains the most equilibrated division of ethnicities in Brazil with 42.2% of whites, 50.2% of mixed races people (pardos), 6.5% of African descendents and 1% of indigenous and Asiatic descendents. The development of this region started later compared to the coastline and was in part

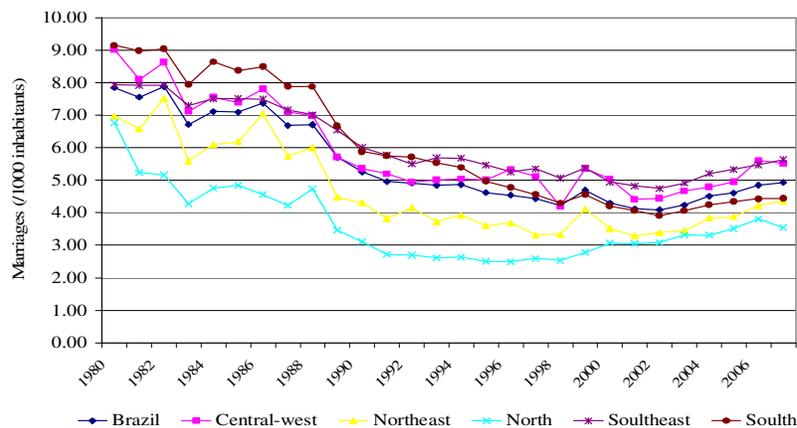
accelerated when the country's administrative capital was transferred from Rio de Janeiro to Brasília (Distrito Federal), in 1960. Although this region was quite empty until that time, the creation of a new city (Brasília was built between 1956 and 1960) legitimated autonomy and social status differences, while the rural area still holds small populations devoted to subsistence (Ribeiro, 1997). As an illustration, the demographic density of this region ranges from 3.16 inhabitants/ km² in the state of Mato Grosso to 410.86 inhabitants/km² in Distrito Federal (IBGE, 2009).

4.1.1 NUPTIALITY TRENDS

The differences among Brazilian regions are reflected in nuptiality trends⁴. The graphs 1 and 2 present longitudinal marriage and divorce rates for Brazil and its five regions.

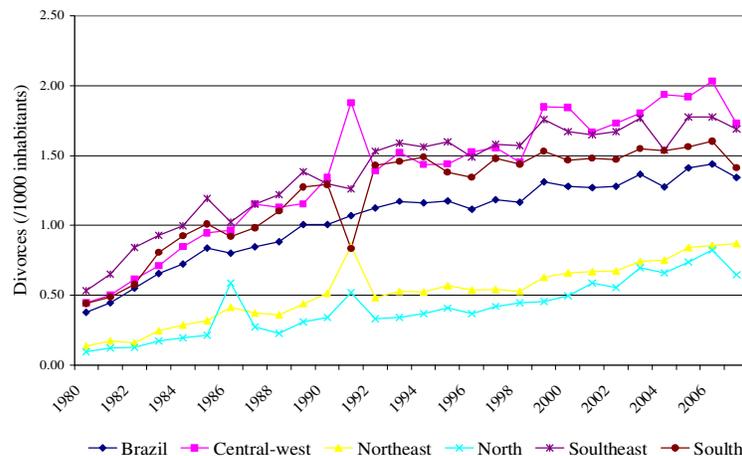
The general trend shows almost constant marriage rates since the 1990s, but growing divorce rates since the 1980s. On the other hand, the divorce rates for the regions Southeast, South and Central-west were clearly higher and increasing more sharply than the figures for the North and Northeast.

Graph 1: Marriage rate in Brazil (1980-2007)



Source IBGE: Estatísticas do Registro Civil (Civil Register Statistics), own calculations.

Graph 2: Divorce rate in Brazil (1980-2007)

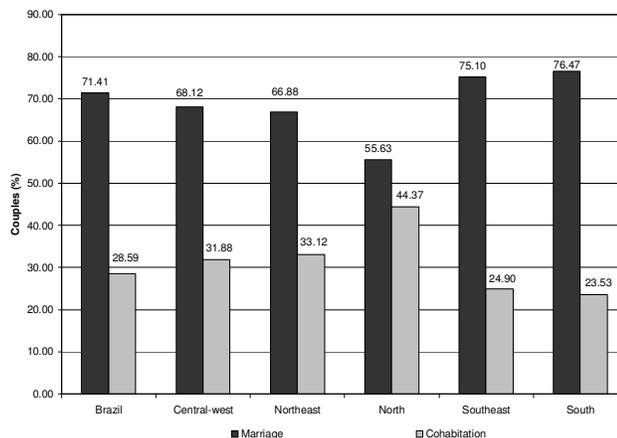


Source IBGE: Estatísticas do Registro Civil (Civil Register Statistics), own calculations.

⁴ Social, economical and cultural differences can be also observed between states from the same region. For parsimonious reasons we will give examples at region level, but test the differences between states.

These two regions present a divergent percentage of couples living in consensual unions. Graph 3 demonstrates the proportion of married and cohabitant couples in Brazil and its five regions. While 24.9% and 23.5% of couples in the Southeast and South regions are cohabiting instead of being married, the figures for the Northeast and North are respectively 33% and 44.3%.

Graph 3: (%) Couples by Type of Union (2000)



Source: IBGE - Census 2000, own calculations.

Accordingly we expect to find significant variance at states-level, but also that this variance is mainly related to the contextual differences, such as development, urbanization and ethnicity composition. In other words, (H_{5a}) the socio-economic and cultural differences observed among the Brazilian states affect people's decision for marriage or cohabitation and (H_{5b}) although couples from the South and Southeast have smaller incidence of cohabitation than couples from the other regions, this difference is related to socio-economic and cultural differences and will be diminished when controlling for the other variables in the model.

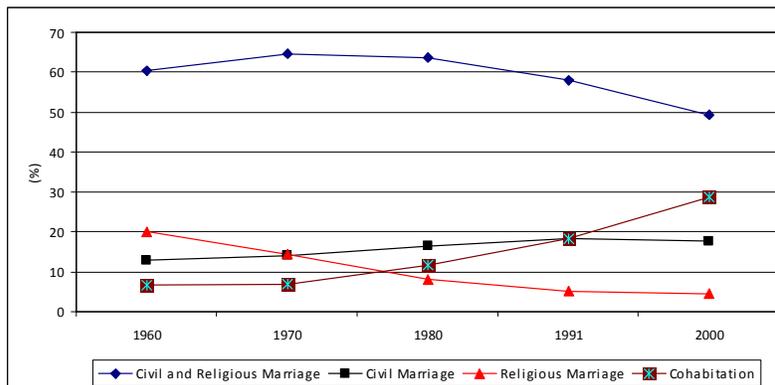
4.1.2 RELIGIOUS DIFFERENCES

Although the Catholic Church has lost much of its previous authority, it is not possible to say that Brazil has become a secular country. Controversially, religious diversity in Brazil has grown substantially in recent decades. The main trends which were revealed by the last census (2000) are the great variety of religions (141 different religions and sects) concentrated predominantly in the urban areas of the country. However the majority of Brazilians remain Roman Catholic though, with slow growth. The second highest proportion of religious people is the Evangelicals and Protestants, who had noticeable expansion, mainly among Pentecostals. In 2000, the proportion of people without religion also increased with 3% in comparison to 1990 (IBGE, 2000).

Meanwhile, the proportion of religious marriages (just religious or combined with the civil one) declined substantially through time. The religious marriage was the predominant in Brazil until 1890, when the only official form of marriage was the Catholic one. With the Republic in 1890, the civil marriage became the only one with juridical validity, but people were allowed to choose for civil or civil and religious marriage (Berquó, 1998). The combination of civil and religious marriage was predominant until the 1980s, when its rate started to decline sharply.

The Brazilian Census Bureau started to differentiate the type of union (civil, religious, civil and religious or stable union) of people from the 1960 census. Graph 4 illustrates the evolution of these unions from 1960 to 2000.

Graph 4: (%) Couples per type of union 1960-2000

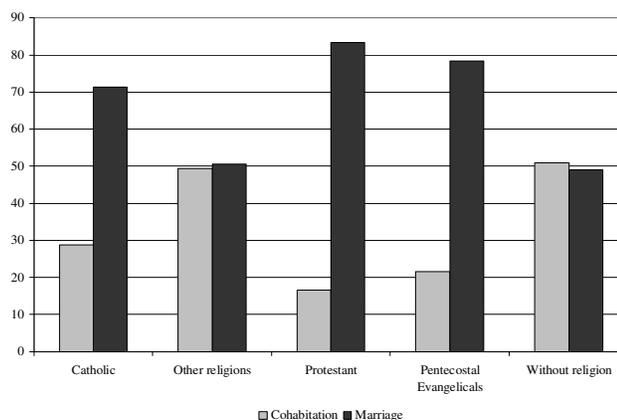


Source: IBGE – Séries Estatísticas (Statistical Series). Own calculations.

The chart shows practically constant rates of civil marriage, associated with a sharp increase in cohabitation and almost constant decreases of civil and religious and only religious marriages since the 1970s.

Brazilian religious trends and regions differences are also reflected on the type of union chosen by Brazilian couples. Graph 5 relates the figures for peoples' religion orientation to the type of relationship chosen for Brazil.

Graph 5: Relationship type per people's religious orientation (Brazil: 2000)

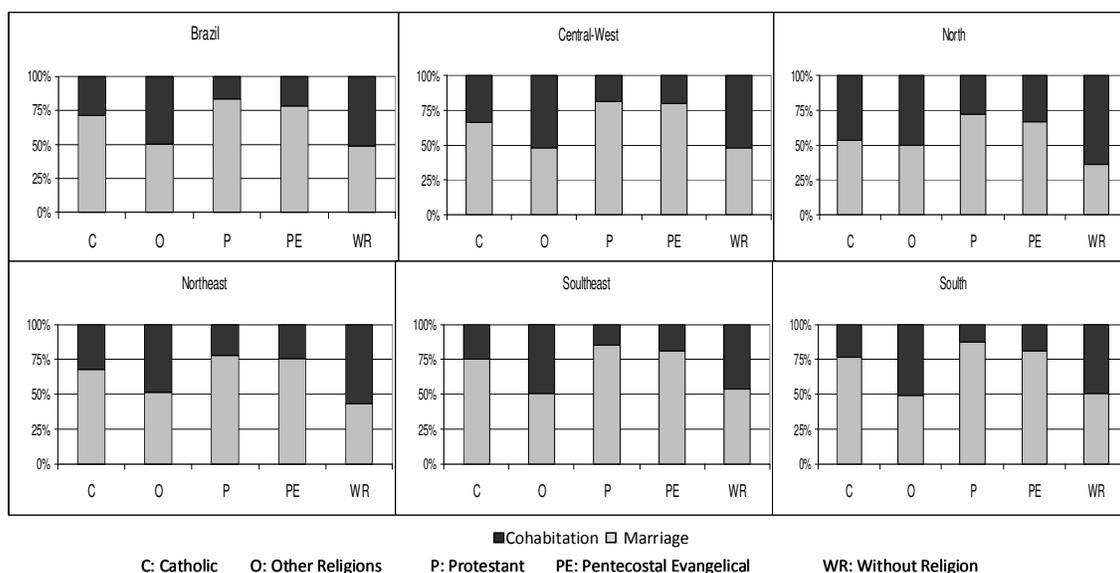


Source: IBGE - Census 2000, own calculations.

It is easy to see that, while people without religious orientation or from other religions tend to choose to get married or cohabit in roughly equal proportion, Catholics, Protestants and Pentecostal Evangelicals apparently prefer to get married instead of cohabit.

Figure 1 compares the same figures across Brazilian five regions.

Figure 1: People's religious orientation per relationship type (Regions: 2000)



Source: IBGE - Census 2000, own calculations.

In general the regions follow the national trend, with Catholic, Protestant and Pentecostal Evangelicals tending to get married and people without religion orientation or from other religions choosing both, marriage and cohabitation equally. Some particularities can be found by looking at the North region, where the figures for Catholics for married and cohabitants are closer to the figures for people without religion or people from other religion orientation than to Protestant or Pentecostal Evangelicals. It can be useful to remember that the marriage and cohabitation rates for the North region were more similar ones (Graph 3).

These differences lead to the hypotheses that *(H6) couples from Evangelical or Protestant religious orientation are less likely to cohabit rather than get married.*

5. RESEARCH METHOD

5.1 DATA AND VARIABLES:

We use an anonymous individual level dataset from the household survey of the Brazilian 2000 census. The data were collected by a specific sample of the homes surveyed during the demographic census and allow inferences about the overall population. The questionnaires administered to this sample of homes obtain information on demographic characteristics and on more detailed socioeconomic information regarding family, people and homes. It is possible to access, for instance, information about the individuals' civil status (civil marriage, religious marriage, both or cohabitation). Using the Brazilian census we can access also information about religious orientation, socio-economic position and children.

The total sample is composed of 7,541,418 people living with a spouse or a partner. From this sample, a couple file composed of 3,770,709 couples was created. Following, 5% of the couples were selected using a Simple Random Sampling procedure. Couples living in post-marital cohabitation are considered a different group from those in pre-marital cohabitation (Smock, 2000) and were excluded from this analysis. The final data set is composed of 183,123 couples.

In order to verify the hypothesis the variables were constructed as explained in the table 01:

Table 1: Variables Operationalization

Construct	Variable Operationalization	Type
Cohabitation	1: Cohabitation; 0: Marriage. This variable was measured by the combination of two questions: the first related to the individual own civil status and the second about the existence of spouse or partner. Single people living with a partner were considered cohabitants.	Dependent variable
Couples' Religion	Catholics: both, man and woman are Catholics. Evangelicals: both, man and woman are Evangelicals, Pentecostal Evangelicals or Protestant. Other: both, man and woman are from other religious groups, the same. Without religion: both, man and woman are declared without religion Different religion: man and woman have different religious orientation.	Couples level predictor variable (CLPV)
Marital Specific Capital	None (no children); Up to two (one or two children) and Three or more children.	CLPV
Female Income ^a	None: Women with no income Low: income smaller than R\$768.00 Medium: income between R\$768.00 and R\$4590.00. High: income higher than R\$4591.00.	CLPV
Female Education	Illiterate, Basic, Secondary (high school) or College and more.	CLPV
Cohort	Birth cohort of the man: 1980: Man was born in the 1980s or 1990s. 1970: Man was born in the 1970s. 1960: Man was born in the 1960s. 1950: Man was born in the 1950s. 1940: Man was born in the 1940s. 1930: Man was born in the 1930s. 1920: Man was born in the 1920s or earlier.	CLPV
Class ^a	Poor: family income smaller than R\$768.00 Working class: family income between R\$768.00 and R\$1063.00 Middle class: family income between R\$1064.00 and R\$4590.00 Upper classes: family income higher than R\$4591.00	CLPV
Migration	Dummy: 1 if one or both partners/spouses were not born in the state where they live.	Control
Cultural environment	Place of residence: the 26 states and the Distrito Federal. For more details, see Appendix 1.	Structural Variable
Urbrate	State-level urbanization rate	State-level predictor variables
HDI ^b	State-level Human Development Index (HDI)	
Whites	Proportion of whites in the state.	
Poverty ^c	Percentage of people living in permanent private households with household income per capita below to half the minimum wage in August 2000	
Sex ratio ^{c,d}	Sex ratio is the ratio of males to females per state.	State-level control

Notes: (a) In order to categorize social classes in Brazil, I use the values proposed by Neri (2008). To achieve these values, Neri and his colleagues considered factors as social ascension possibility, quality of life, consumption potential (which is measured by access to goods, services and educational level of the reference person) and the ability to keep this potential throughout time (Neri, 2008, pp.24). (b) It is obtained by the mean of three sub-indexes relating to Longevity (HDI-longevity), Education (HDI-Education) and Income (HDI-income). Source: IPEADATA (2000). (c) Source: IPEADATA (2000). (d) Rao and Greene (1992) found that cohabitation is a solution for the marriage squeeze in Brazil. Faced with higher number of women in the marriage market, Brazilian men tend to be "recycled" through several unions (a type of longitudinal polygamy). As cohabitation is easier to dissolve, there was an increase in this type of union.

5.2 METHOD:

In order to verify the Brazilian contextual differences on demographic behavior, the milieu in which the relationship occurs, can not be ignored. For that reason, it is important to take into account the communities in which individuals live by using multi-level models to analyze the data. With the multilevel approach, it is possible to estimate both the general relationship across all places and the particular relationship in specific places (Duncan *et al*, 1998), or the cultural environment.

By adopting a multilevel approach we are not restricted to work at a single level. It allows us to model contextuality (micro and macro relations) and complex structures (couples nested in states). This provides several advantages. For instance, if we would work exclusively at couples' level this would mean that the context of the different regional cultures is ignored, while if we would work just at the

aggregate level we would fail to capture couples dynamics. At the same time, using multilevel procedures we can also avoid the underestimation problems caused by contextual variation (Duncan *et al*, 1998). If we use graphs 1 and 2 as examples, we can easily see that the Brazilian divorce and marriage rates are “shrunk” between the regional rates.

In multilevel modelling, the residual variance is partitioned into between-group and within-group variance. There is an individual (couples)-level micro-model which represents the within-place equation, and an environmental, macro-model in which the parameters of the within place model are the responses in the overall, between-places model (Duncan *et al*, 1998). This simultaneous specification allocates for the quantitative division of the individual from the contextual (Duncan *et al*, 1998), the micro-model, from the macro-model.

Our central empirical question regarding the Brazilian regional effects on couples’ nuptiality behavior is whether the states variation will continue to be significant when the other contextual variables are included in the overall model. For instance, if the states variance is related to poverty or socio-economic differences, it will disappear (or decrease significantly) when we insert the states level of poverty or the HDI in the model. If, in turn, the variance is caused by different levels of urbanization, it will be minimized by the insertion of the state-level urbanization rate (urbrate). If on the other hand the state-level variation on cohabitation probability is associated to ethnicity composition, it will be reduced when we include the proportion of whites in each state in the model.

6. RESULTS

In this study we use multilevel procedures to test a linear probability model for the probability π_i that a couple will cohabit rather than get married, with children (children), women income (wincome), women education (weduction), social class (class) and birth cohort of the man (mcohort) as couples’ level explanatory variables and with level of poverty, HDI, urbanization rate (urbrate) and proportion of whites (Whites) as state level explanatory variables. We also control for the states-level sex ratio:

$$\text{Cohabit}_i = \pi_i + \hat{u}_{0j}$$

$$\pi_i = \beta_0 + \beta_1 \text{Children}_{ij} + \beta_2 \text{Wincome}_{ij} + \beta_3 \text{Weduction}_{ij} + \beta_4 \text{Class}_{ij} + \beta_5 \text{Mcohort}_{ij} + \beta_6 \text{Religion}_{ij} + \beta_7 \text{Urbrate}_j + \beta_8 \text{HDI}_j + \beta_9 \text{Poverty}_j + \beta_{10} \text{Whites}_j + \beta_{11} \text{Sexratio}_j$$

where $\hat{u}_{0j} \sim N(0, \sigma_e^2)$ is the state level differential.

The random intercept models were fit stepwise. We start with the random intercept null model with Cohabitation as response variable and only a constant term in the model. Subsequently we test models with increasing complexity until finished with the full model.

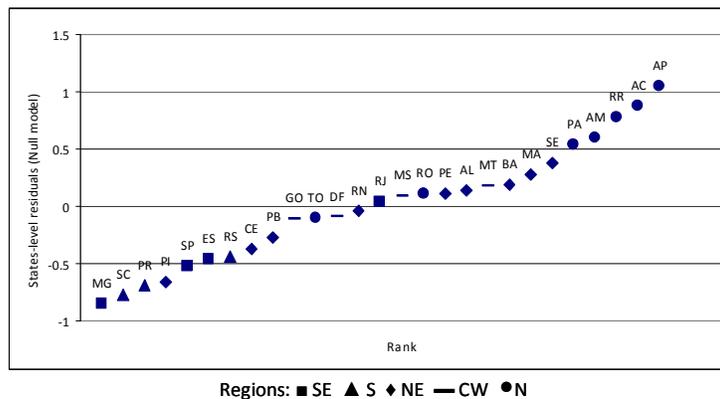
Across the country, or for every couple, everywhere, the logit for cohabitation are -0.803. In other words, the logit to cohabit in an average state (with $u_{0j}=0$) in Brazil is -0.803. However, there is significant (at level 0.001) evidence that this log-odds varies over the country. The variance of u_{0j} between states on the logit scale is estimated as $\hat{\sigma}_{0j}^2 = 0.25$. Subsequently, we can attest that the fitted line for a given state (j) will differ from the Brazilian average line in its intercept, by an amount \hat{u}_{0j} of 0.25. Accordingly, a multilevel approach is hence meaningful.

In terms of probabilities, the cluster-specific estimated probability is given by the median of 0.29, with 95% confidence intervals (CI) of 0.25 and 0.33; while the population averages values are 0.30 with 95% CI of 0.27 and 0.34. Accordingly, the median rate of cohabitation in Brazil is 0.32. The estimated average cohabitation probability is 30%, while the 95% coverage interval for Brazilian states is between 0.14 and 0.51⁵. In other words the probability to cohabit in Brazil can range from 14% to 51% by considering states effect.

⁵ Considering that these values are derived from simulation, it is possible to find slightly differences from these values.

By analyzing the residuals, it is possible to verify the latent variable at states-level, or the “state effect” as shown in the graph 06:

Graph 6: Null model State’ residuals against the Brazilian average



The line at 0 is the mean probability of cohabitation across Brazil. Accordingly, in the states close to the line at 0 the probability of cohabiting is very similar to the probability across the country, or 30%. At the bottom left of the graph we find Minas Gerais, where the probability to cohabit is -0.8 lower than the Brazilian average and, in terms of probabilities 14%. At the upper right we find Amapá, where couples present 1.1 higher chances to live together out of wedlock in comparison to the average, or, 51% of probability to cohabit.

In the next steps we add the variables stepwise until reaching the full model⁶. The final models (table 2) were estimated by using Markov chain Monte Carlo (MCMC) methods, which produce more reliable results (Steele, 2009). MCMC method also provides more precise diagnostics. The Deviance Information Criterion (DIC) combines goodness of fit with model complexity. In this sense, DIC values for diverse models can be contrasted directly and the model with the lowest DIC can be considered the “best” one.

For Model 1, the intercept terms represent the couple from the oldest cohort of the men, upper classes, living in metropolitan areas, without religion orientation and in which women had attained college education. These couples present -2.45 lower odds of cohabitation than the Brazilian average. In terms of probabilities, they have in average 24% of chance to cohabit instead of getting married. However, taking into account the between states differences (\hat{u}_{oj} 0.26 for state j) these probabilities range from 10% to 45%.

The existence of children reduces the chances to cohabit rather than getting married. In comparison with couples without children, couples with one or two children have 0.30 lower chances to cohabit, while couples with three or more children have 0.37 less likelihood to live in informal unions instead of being married.

⁶ The effect of the variable ‘women income’ was not significant. Accordingly this variable was not included in the final model.

Table 2: MCMC models

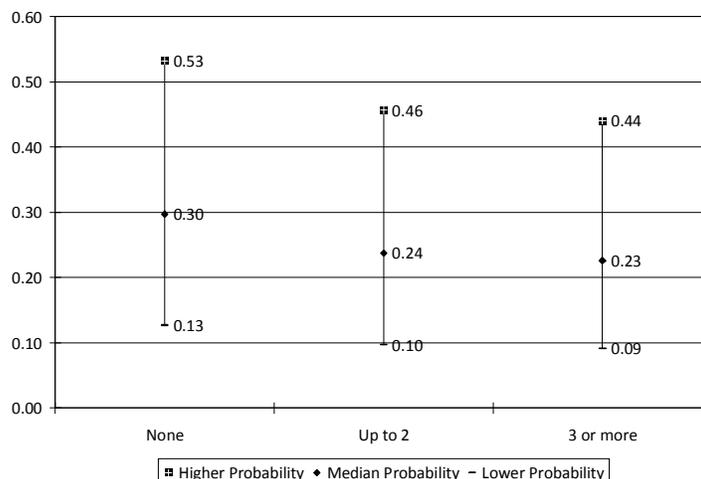
	Model 1	Model 2	Model 3	Model 4
<i>Fixed Part</i>				
Constant	-2.451 *** (0.122)	-1.758 *** (0.145)	-1.731 *** (0.144)	-1.027 *** (0.239)
Children: None ^a				
Children: Up to two	-0.304 *** (0.021)	-1.017 *** (0.107)	-1.019 *** (0.107)	-1.018 *** (0.108)
Children: Three or more	-0.369 *** (0.022)	-1.893 *** (0.144)	-1.901 *** (0.145)	-1.899 *** (0.143)
Women Education: College ^a				
Women Education: Illiterate	1.339 *** (0.04)	1.426 *** (0.04)	1.427 *** (0.04)	1.426 *** (0.041)
Women Education: Basic	0.904 *** (0.035)	1.007 *** (0.036)	1.009 *** (0.036)	1.009 *** (0.036)
Women Education: Secondary	0.254 *** (0.035)	0.349 *** (0.037)	0.351 *** (0.036)	0.351 *** (0.037)
Social class: Upper ^a				
Social class: Poor	0.84 *** (0.048)	-0.092 *** (0.096)	-0.096 *** (0.096)	-0.095 *** (0.096)
Social class: Working	0.433 *** (0.05)	-0.38 *** (0.108)	-0.385 *** (0.108)	-0.382 *** (0.108)
Social class: Middle	0.194 *** (0.048)	-0.215 *** (0.099)	-0.221 *** (0.1)	-0.219 *** (0.099)
Cohort (man): 1920 ^a				
Cohort (man): 1930	0.316 *** (0.047)	0.32 *** (0.047)	0.32 *** (0.047)	0.319 *** (0.047)
Cohort (man): 1940	0.734 *** (0.043)	0.74 *** (0.042)	0.741 *** (0.043)	0.74 *** (0.043)
Cohort (man): 1950	1.161 *** (0.041)	1.161 *** (0.041)	1.163 *** (0.041)	1.162 *** (0.042)
Cohort (man): 1960	1.758 *** (0.041)	1.746 *** (0.041)	1.747 *** (0.041)	1.747 *** (0.041)
Cohort (man): 1970	2.507 *** (0.042)	2.503 *** (0.042)	2.504 *** (0.042)	2.504 *** (0.042)
Cohort (man): 1980	3.697 *** (0.068)	3.733 *** (0.067)	3.733 *** (0.068)	3.733 *** (0.068)
Religion: None ^a				
Religion: Catholics	-0.875 *** (0.031)	-0.872 *** (0.031)	-0.906 *** (0.046)	-0.91 *** (0.045)
Religion: Evangelicals	-1.895 *** (0.037)	-1.889 *** (0.037)	-1.908 *** (0.037)	-1.909 *** (0.037)
Religion: Different religion	-0.55 *** (0.034)	-0.548 *** (0.034)	-0.556 *** (0.034)	-0.556 *** (0.034)
Religion: Other	-0.839 *** (0.063)	-0.833 *** (0.063)	-0.839 *** (0.063)	-0.838 *** (0.064)
Place of living: Metropolitan ^a				
Place of living: Urban	-0.437 *** (0.015)	-0.435 *** (0.015)	-0.434 *** (0.015)	-0.434 *** (0.015)
Place of living: Rural	-0.854 *** (0.018)	-0.858 *** (0.018)	-0.854 *** (0.019)	-0.854 *** (0.018)
Migrant	0.266 *** (0.015)	0.268 *** (0.014)	0.266 *** (0.014)	0.267 *** (0.014)
No child*Upper class ^a				
Up to two children*Poor class		0.854 *** (0.11)	0.857 *** (0.11)	0.856 *** (0.11)
Three or more children*Poor class		1.702 *** (0.147)	1.712 *** (0.147)	1.709 *** (0.145)
Up to two children*Working class		0.732 *** (0.124)	0.733 *** (0.124)	0.732 *** (0.125)
Three or more children*Working class		1.571 *** (0.159)	1.581 *** (0.159)	1.577 *** (0.156)
Up to two children*Middle class		0.366 *** (0.115)	0.369 *** (0.117)	0.369 *** (0.116)
Three or more children*Middle class		0.943 *** (0.152)	0.955 *** (0.153)	0.952 *** (0.15)
Proportion of Whites (States level)				-1.782 (0.487)
<i>Random Part</i>				
cons/cons	0.263 *** (0.081)	0.264 *** (0.153)	0.263 *** (0.081)	0.209 *** (0.069)
Cath/cons			-0.005 (0.021)	-0.029 (0.02)
Cath/Cath			0.023 *** (0.009)	0.024 *** (0.009)
DIC:	168863.258	168572.763	168479.68	168479.587

^a Reference category. *** p-value<0.001

While the cohabiting probability of a couple without a child is 30%, the likelihood of being in cohabitation for couples with one or two, or three or more children are respectively 24% and 23% . In addition, we can attest that across Brazil, the average probability of a couple without a child being in

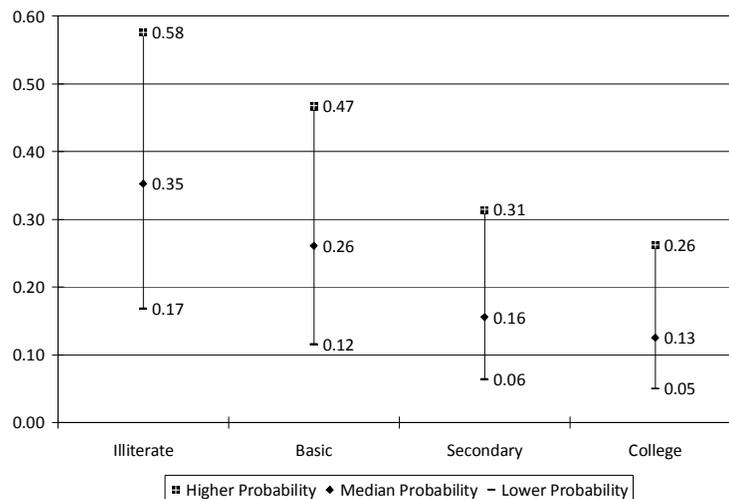
informal unions; in the 95% more or less favorable states, are 13% and 53% respectively. Conversely, the figures for a couple with a higher number of children (three or more) are 9% and 44% respectively. Graph 7 illustrates these differences:

Graph 7: Predicted probabilities of Cohabiting by Number of Children



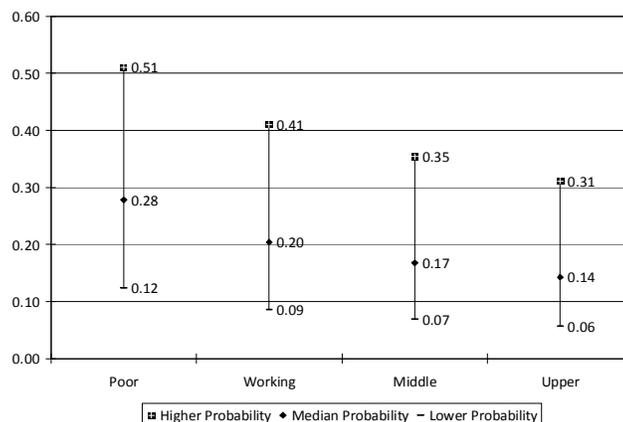
In disagreement with Backer (1985) statement that schooling would increase women’s propensity to cohabit, in Brazil the probability of cohabitation decreases significantly when women’s schooling increases. While the median predicted probabilities of women with college education to cohabit rather than get married is about 12%, the figures for illiterate women are 35%. These probabilities, as well as the differential for the 95% more or less favorable states are illustrated in the graph 8.

Graph 8: Predicted probabilities of Cohabiting by Women Education



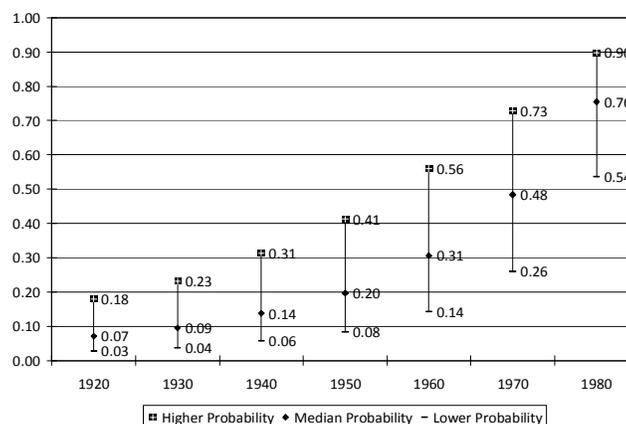
Considering different social classes, we found that the probability of cohabitation decreases almost linearly as the social class increases. The results are shown in the graph 09:

Graph 9: Predicted probabilities of Cohabiting by Social Class



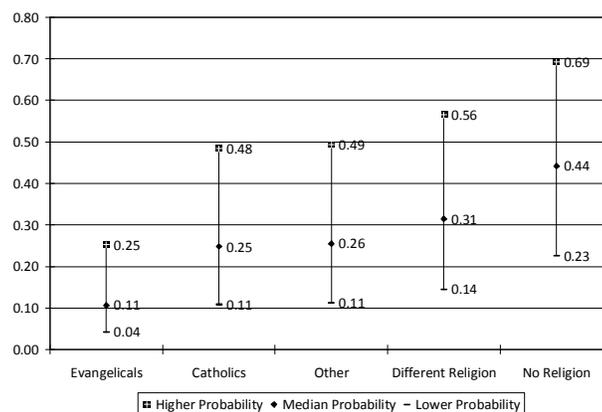
We can also see that the incidence of cohabitation is related to changes in the ideational domain as proposed by Lesthaeghe and Neels (2002). As expected, we found that younger cohorts have higher probability to cohabit in comparison to older ones. The predicted probabilities are illustrated in graph 10.

Graph 10: Predicted probabilities of Cohabiting by Birth cohort of the man



Graph 11 illustrates the clustered-specific predicted probabilities of cohabitation for couples from different religious groups, controlling for children, women education, social class and birth cohort of the man.

Graph 11: Predicted probabilities of Cohabiting by Couples Religion Orientation

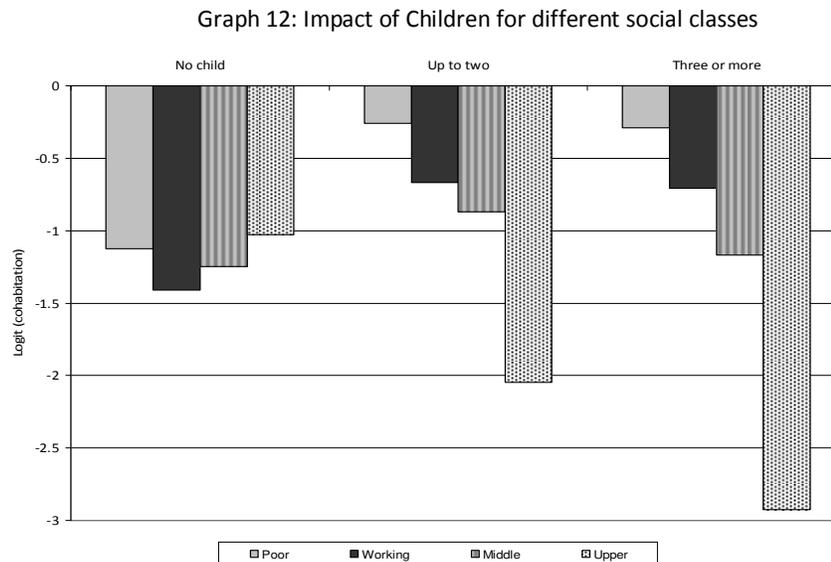


Evangelic couples present the lower chances to form out of wedlock unions (10%), followed by Catholics (25%) and by couples from other religious orientation (25% same religion), couples with different religious orientation (31%) and finally couples without religion (44%).

Changes in the ideational domain are usually more visible in urban than in rural areas. As expected in comparison with couples living in capitals or metropolitan regions, couples living in urban areas have -0.44 of the odds of establishing consensual unions while couples living in rural areas have -0.85.

We include the control variable MIGRANT indicating if at least one of the spouses/partners was not born in the state of residence. In this way, we can attest that the between states variance found in the model is not related to the influence of internal migration.

In order to better understand the different meanings attached to marriage in different social classes, we verified to what extent the effect of children on the probability of cohabitation differ from one class to another. To make the interpretation of the interaction results more intuitive we calculated the logit of cohabitation for all categories of children and social classes. The results are shown on the graph 12.



The chart clearly shows that the effect of children differs from one social class to another. Couples from different social strata and without children have quite similar chances of cohabiting. However, in the presence of children this similarity disappears. Children represent a strong disincentive to cohabit for the upper classes, but its effect is much smaller for the lower social strata.

Model 3 illustrates the random intercept model in which we allow both intercept and the Catholic⁷ religion orientation to vary randomly across the states. In this sense, the effect of the Catholic religion orientation on the log-odds of *cohabiting* in state j is estimated at $-0.91 + \hat{u}_{8j}$, and the between-state variance in the effect of being Catholic is estimated at 0.02.

The intercept-slope covariance (Cath/cons) is not significant and reflects the absence of a correlation between the slopes.

The question addressed in model 4 is whether the state variances are explained by the ethnical composition of the state, since part of cultural differences in Brazil is supposed to be related with different miscegenation processes throughout the country (Ribeiro, 1997). We found that Whites are

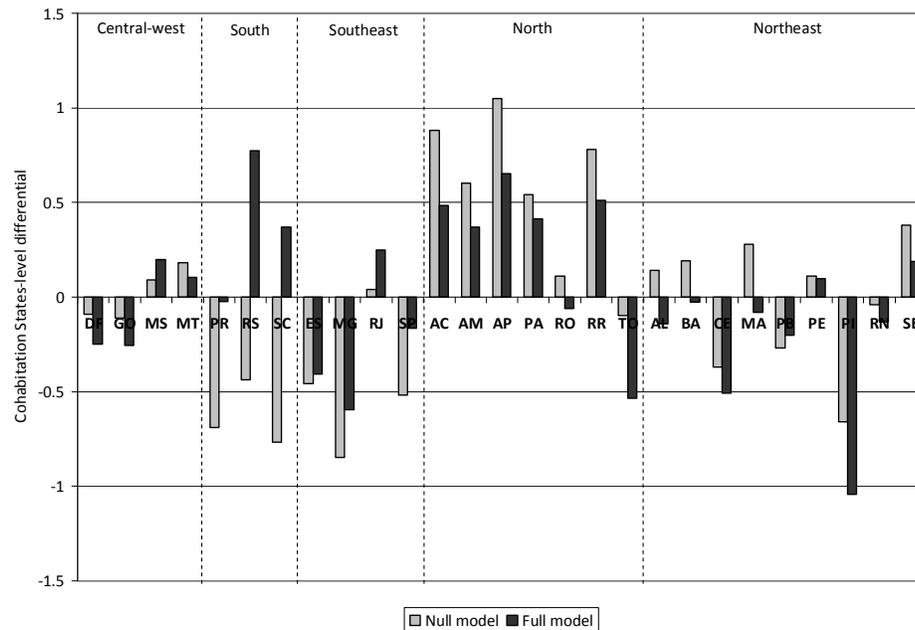
⁷ We choose to use the Catholic religion orientation based on statistical and theoretical validity. Statistically this was the parameter that, allowed to vary across states, increases more the significance of the model. Theoretically, Longo et al (2009) showed that Catholics in Brazil are far more liberal than they should be if they followed the rules imposed by the Catholic Church.

less prone to cohabit than non-Whites. In addition, considering the decrease on the between states variance from \hat{u}_{oj} 0.26 to \hat{u}_{oj} 0.21, we can attest that a part of the between-state variance can be explained by ethnical differences.

We verified if state variances are similarly or better explained by level of poverty, urbanization or social-economic development (HDI). We also controlled our analysis by the state-level sex ratio. Considering that none of these effects were significant neither add validity on the models, we did not include these results in the table 2.

To answer our research question about how the cultural context affects couples' probability of being married on the one hand or cohabiting on the other, we contrast the states-level differential from the null model with the ones from the full model. The comparison is shown in the Graph 13.

Graph 13: States-level residuals comparison - Null model x Full model



The point zero in the graph represents the Brazilian average chances of cohabitation. The results for the null model show that couples from the states of the regions South and Southeast present, in their majority, probability of cohabitation below the Brazilian average, the states of the North are located above it and states from the Northeast and Central-west present mixed results. When considering the full model, with all economic and social variables included, we can attest that these differences are minimized and sometimes inverted. Although the Central-west states still present mixed results, with the chances of cohabitation being increased in some states and decreased in others, the trends to the other regions are more clear: considering the economic and social differences, the odds of cohabitation is decreased in all Northern and Northeastern states and increased in Southern and Southeastern ones, meaning that the Brazilian economic, social and cultural differences all play important role in nuptial behavior.

7. CONCLUSIONS

This study investigated the correlates of cohabitation in Brazil. We contrast the economic theory which states that the rise in cohabitation is a product of the reduction of gains in marriage, mainly for women, with the sociological argument that these changes are related to shifts in values and beliefs, and depends on the cultural environment in which the couple is embedded.

The economics' hypotheses were two: (H₁) children is a type of marital-specific capital, reducing the chances of cohabitation and (H₂) women with socio-economic advantages (income and education) have less time and more opportunities in the marriage market, which increases their probability of cohabiting. They were not totally supportive.

Children seem to represent a valuable marital-specific capital for the upper classes reducing the chances of cohabitation; although their impact on the decision to get married for the lower classes (poor, working and middle) is much smaller than for the upper class: in comparison to this group, having more children increases the lower classes probabilities to cohabit. This result is partially in line with previous qualitative research which states that it is in the Brazilian middle class that individualistic values are nurtured (Machado, 2001). However, this assumption must be investigated with more detailed data.

At the same time, there is no significant association between women income and cohabitation. Also, low educated women are more prone to cohabit rather than get married than their high educated counterparts. These results can be related to our fourth hypothesis (H₄) which confirms that, due to historical roots, in Brazil cohabitation is more common among the lower social classes. In fact, the results found for the economics (H₁ and H₂) and social (H₄) hypothesis attest that the meaning (and value) given to the marriage varies significantly among different social classes in Brazil.

The outcomes for the cultural argument are more consistent. The hypothesis (H₃) that the probability of cohabitation is related to changes in the ideational domain and as a consequence, higher among the younger cohorts is easily confirmed. We found evidence that cohabitation is more common the youngest cohorts, which can be related to the individualization of society and the detraditionalization of family life.

Religion was shown to (still) be a powerful mechanism of behavioral restriction. As expected in our sixth hypothesis (H₆), couples with the same religion orientation tend to cohabit less, mainly Evangelicals. The Catholic faith is also a disincentive to cohabitation, even though presenting different levels of influence between the states.

Cultural differences also play an important role. As we declared in our fiftieth hypothesis (H₅), while significant proportion of the probability to cohabit in Brazil is explained at state-level, the differences between states of the South and Southeast and the other regions are significantly minimized when controlling for the other couples-level variables in the model. Considering that we also controlled for contextual variables, such as sex ratio, level of poverty and urbanization, HDI and the ethnicity composition, we can suggest that the remaining states-level variance is due to cultural differences. This results lead us to agree with the statement of Lesthaeghe and Surkyn (1988) that the cultural dynamics cannot be considered a random error term and must be structured in social-sciences and demographic research.

This study contributes to the research on family sociology and demography in Brazil by modelling the effect of different Brazilian contexts on nuptial behavior. Based on it, it is possible to attest that demographic behavior varies not only between states, but also between different social classes within each state.

Census data has the advantage to cover the whole country, however its use implies several limitations if we consider the "state of the art" in international research on family sociology. The cross-sectional design does not allow us to verify changes in couples' life. For instance, we do not know if the older cohorts had cohabited before getting married and consequently, if the younger ones tend to get married in the future. Still, the particularities of each family are missed. We do not know about stepfamily configurations and spouses' individual opinion about their family situation.

Apart from the need to collect more detailed nationally representative data (which is obvious, although very expensive), next research using census data should focus on cohort level rather than on the couples' one. The focus on cohorts allows the creation of retrospective longitudinal data, which provides the possibility to access change.

8. REFERENCES

- Becker, G. S. (1973). A Theory of Marriage: Part I. *Journal of Political Economy*, 81: 813-846.
- _____ (1974). A Theory of Marriage: Part II. *Journal of Political Economy*, 82:511-526.
- _____ (1981). *A Treatise on the Family*. Cambridge: Harvard U. Press.
- Becker, G. S.; Landes, E. M e Michael, R. T. An Economic Analysis of Marital Instability. *Journal of Political Economy*. 85: 1141-1188, 1977.
- Brazil, Código Civil, 2002 (Civil Code)
- Brines, J. and Joyner, K. (1999). The ties that bind: Principles of cohesion in cohabitation and Marriage. *American Sociological Review*, 64, 333-355.
- Crouch, C. (1999). *Social change in Western Europe*. Oxford University Press, 190-230.
- De Vos, S. (1987). Latin American Households in comparative perspective. *Population Studies*, 41(3):501-517.
- De Vos, S. (1998). Nuptiality in Latin America: The view of a sociologist and a family demographer. Center of Demography and Ecology, Working paper No. 98-21. University of Wisconsin-Madison.
- Duncan, C.; Jones, K. and Moon, G. (1998) Context, composition and heterogeneity: using multilevel models in health research. *Social Sciences & Medicine* 46 (1)97-117.
- Freyre, G. (2000 [1933]). *Casa grande e senzala: formação da família brasileira sob o regime de economia patriarcal* [Brazilian family formation under a patriarchal economy]. 41. ed. Rio de Janeiro: Record.
- Greene, M. and Rao, V. (1992). A compressão do mercado matrimonial e o aumento das uniões consensuais no Brasil (The marriage squeeze and the rise in informal marriage in Brazil). *Revista Brasileira de Estudos Populacionais, Campinas*, 9, 2:168-204.
- Heimdal, K.R. and Houseknecht, S.K. (2003). Cohabiting and married couples' income organization: Approaches in Sweden and the United States. *Journal of Marriage and Family*, 65, 525–538.
- Heuveline, P. and Timberlake, J. M. (2004) The role of cohabitation in family formation: the United States in comparative perspective. *Journal of Marriage and Family*, 66, 1214-1230.
- IBGE – Instituto Brasileiro de Geografia e Estatística (2010). Séries estatísticas [Statistical series]. Available in http://www.ibge.gov.br/series_estatisticas/.
- IBGE – Instituto Brasileiro de Geografia e Estatística (2010). Estatísticas do Registro Civil [Civil register statistics]. Available in <http://www.sidra.ibge.gov.br/>.
- _____ (2009). Síntese de indicadores sociais: Uma análise das condições de vida da população brasileira 2009 [Synthesis of social indicators: An analysis of the living conditions of the Brazilian population 2009]. Vol. 26. Estudos e Pesquisas. Informação demográfica e socioeconômica. Rio de Janeiro, RJ.
- _____ (2007). Síntese de indicadores sociais: Uma análise das condições de vida da população brasileira 2007 [Synthesis of social indicators: An analysis of the living conditions of the Brazilian population 2007]. Vol. 21. Estudos e Pesquisas. Informação demográfica e socioeconômica. Rio de Janeiro, RJ: Autor.
- _____ (2000) Censo demográfico: Resultados da amostra [2000 Demographic census: sample results]. Rio de Janeiro, RJ: Autor.
- IPEA - Instituto de pesquisa econômica aplicada (2000). Available at www.ipeadata.gov.br/.
- Kaa, D. van de (1993). Europe's Second Demographic Transition. *Population Bulletin*, 42:1 September 1993 reprint.

- Kiernan, K. (2001) The rise of cohabitation and childbearing outside marriage in Western-Europe. *International Journal of Law, Policy and the Family*, 15, 1-21.
- Lazo, A. (1999). Marital fertility in Brazil: differential by type of union and its importance in the fertility transition 1976–1991. *Demographic and Health Surveys Working Paper Series*, No. 15 (August).
- Lesthaeghe, R. J. and Surkyn, J. (1988). Cultural Dynamics and Economic Theories of Fertility Change. *Population and Development Review*, 14, 1:1-45.
- Lesthaeghe, R. J. and Neels, K. (2002). From the First to the Second Demographic Transition: An Interpretation of the Spatial Continuity of Demographic Innovation in France, Belgium and Switzerland. *European Journal of Population*, 18 (4): 325-260.
- Light, A. and Ureta, M. (2004) Living Arrangements, Employment Status, and the Economic Well-Being of Mothers: Evidence from Brazil, Chile, and the U.S. *Journal of Family and Economic Issues*, 25(3): 301-334.
- Longo, L. A. F. B., Miranda-Ribeiro, P., Potter, J. E., Ellison, C G. (2009) Is Brazil really a catholic country? What opinions about abortion, sex between individuals who are not married to each other, and homosexuality say about the meaning of Catholicism in three Brazilian cities. Belo Horizonte: UFMG/Cedeplar, 2009.
- Matthijs, K. (2003) Demographic and social indicators of privatization of marriage in the 19th century in Flanders. *European Journal of Population* 19, 375-412.
- Nazio, T. and Blossfeld, H. (2008). The Diffusion of Cohabitation among Young Women in Europe. A long-term longitudinal analysis. Working paper presented at Annual Meeting of Population Association of America, New Orleans, April 17-19.
- Neels, K. (2006). Reproductive Strategies in Belgian Fertility: 1930-1990. Brussels and The Hague, NIDI-CBGS Publications, Monograph Series, 38.
- Neri, M. C. (org.) (2008). A nova classe média [The new middle class]. Rio de Janeiro: FGV/IBRE, CPS.
- Rangel, M. A. (2006) Alimony rights and intrahousehold allocation of resources: evidence from Brazil. *The Economic Journal*, 116:627–658.
- Rao, V. and Greene, M. (1996). Bargaining and fertility in Brazil: a qualitative and econometric analysis, The Center for Development Economics at the Williams College Research Memorandum Series, RM-153.
- Ribeiro, D. (1997). O povo brasileiro: a formação e sentido do Brasil [Brazilian people: The formation and meaning of Brazil]. São Paulo: Companhia das Letras.
- Ricardo, C. (1959). *Marcha para Oeste* [Marching to the West]. Rio de Janeiro: José Olympio.
- Samara, E. M. (1987). Tendências atuais da história da família no Brasil. In: ALMEIDA, A. M. et al. (Orgs.) *Pensando a família no Brasil*. Rio de Janeiro: Espaço e Tempo/UFRRJ, 1987. p.25-36.
- Smock, P. J. (2000). Cohabitation in the United States. An appraisal of research themes, findings and implications. *Annual Review of Sociology*, 26, 1-20.
- Steele, F. (2009) Module 6 and 7: Multilevel models for Binary Responses MLwiN. Center for Multilevel Modeling.
- Troyer, J. L. (2002). Decomposing the effect of marital status on migration. *Applied Economics Letters*, 9:10, 641 — 644.
- United Nations (1990). *Patterns of First Marriage: Timing and Prevalence*. New York: United Nations. (ST/ESA/SER.R/111).
- Waite, L. J. and Gallagher, M. (2001). *The case for marriage. Why married people are happier, healthier, and better off financially*. New York: Broadway books.

APPENDIX 1: The Brazilian states and the Distrito Federal

Table 3: Brazilian states and Distrito Federal overview

	Acronym	Population					HDI 2000	Level of Urbanization
		Total (1 000 people)	Distribution by ethnicity (%)					
			White	Black	Pardo	Asian or Indigenous		
Brazil		189 953	48.4	6.8	43.8	0.9		
North		15 327	22.9	5.1	71.0	1.0		
Rondônia	RO	1 519	36.0	7.6	54.8	1.6	0.74	
Acre	AC	692	23.9	3.2	71.5	1.1	0.70	
Amazonas	AM	3 399	22.4	2.6	73.9	1.1	0.71	
Roraima	RR	421	22.1	4.6	71.3	2.0	0.75	
Pará	PA	7 367	20.8	5.4	72.9	0.8	0.72	
Amapá	AP	626	17.6	7.3	74.7	0.4	0.75	
Tocantins	TO	1 303	23.1	7.5	68.9	0.6	0.71	
Northeast		53 493	29.3	7.9	62.2	0.6		
Maranhão	MA	6 400	25.6	6.4	66.7	1.3	0.64	
Piauí	PI	3 164	23.4	4.6	71.8	0.2	0.66	
Ceará	CE	8 472	33.1	3.0	63.4	0.5	0.70	
Rio Grande do Norte	RN	3 153	37.0	3.1	59.5	0.3	0.71	
Paraíba	PB	3 794	37.2	5.2	57.2	0.4	0.66	
Pernambuco	PE	8 745	37.8	6.4	54.9	0.8	0.71	
Alagoas	AL	3 173	30.4	3.0	66.2	0.4	0.65	
Sergipe	SE	2 030	31.2	7.2	61.1	0.5	0.68	
Bahia	BA	14 561	20.6	16.0	62.8	0.5	0.69	
Southeast		79 800	56.8	7.7	34.4	1.0		
Minas Gerais	MG	19 904	45.7	9.1	44.9	0.4	0.77	
Espírito Santo	ES	3 448	43.4	8.0	48.2	0.4	0.77	
Rio de Janeiro	RJ	15 685	54.3	11.5	33.8	0.3	0.81	
São Paulo	SP	40 764	64.4	5.4	28.4	1.6	0.82	
South		27 556	78.7	3.5	17.0	0.8		
Paraná	PR	10 605	71.7	2.6	24.3	1.4	0.79	
Santa Catarina	SC	6 091	87.0	2.6	10.0	0.3	0.82	
Rio Grande do Sul	RS	10 860	80.8	4.9	13.8	0.5	0.81	
Central-west		13 777	42.2	6.5	50.2	1.0		
Mato Grosso do Sul	MS	2 372	48.8	5.1	44.5	1.5	0.78	
Mato Grosso	MT	3 010	39.2	7.9	50.9	1.8	0.77	
Goiás	GO	5 870	41.5	5.6	52.4	0.5	0.78	
Distrito Federal	DF	2 526	41.4	8.1	49.6	0.8	0.84	

Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 2008 and IPEADATA.