

# Factors That Predispose Youth to Risk in Mexico and Chile

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## Abstract

About half of Latin America's youth are considered "at risk," meaning that they engage in or are at risk of engaging in risky behaviors that are detrimental to their own development and to the well-being of their societies. While child psychologists identify many factors that may cause some youth to engage in at-risk behaviors and others not to, only empirical evidence can identify the set that is relevant to a particular population. This paper uses youth surveys from Chile and Mexico to test which of a large set of potential factors are correlated with a range of risky behaviors among youth. These factors range from relationships with parents and institutions to household

behaviors (abuse, discipline techniques) to social exclusion. The authors use stepwise regressions to sort out which variables best explain the observed variance in seven different risky behaviors. They find that higher socioeconomic status, a good relationship with parents and peers, strong connection with local governmental institutions and schools, urban residence, younger age, and spirituality emerge as key explanatory factors for all seven behaviors for boys and girls in both countries. This points to a wider range of policy entry points than currently used, including targeting parents and the relationship with schools.

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This paper—a product of the Children & Youth Unit, Human Development Network—is part of a larger effort in the department to understand the factors leading to at-risk behaviors by youth. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [wcunningham@worldbank.org](mailto:wcunningham@worldbank.org).

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**Factors That Predispose Youth to Risk in Mexico and Chile**

Wendy Cunningham & Emilie Bagby

## **I. Introduction**

Latin American and Caribbean (LAC) governments and societies are giving more attention to youth than ever before. In response, several studies at the country and the regional level have been published recently to better understand the situation of young people in the LAC Region and to provide policy directions (CEPAL 2004, National Research Council and Institute of Medicine 2005). A shortcoming of many of these studies is that they do not identify the reasons that young people engage in negative behaviors, thus limiting the ability to design policies and programs that address the underlying factors driving choices that young people make.

Young people's preferences are formed early in life through the influences of family, community, local institutions, and their macro environment (Bronfenbrenner 1979), which, together with constraints faced during the youth period (World Bank 2006a), are the basis of the decisions that young people make. The challenge, therefore, is to identify those factors underlying positive preference formation that can be encouraged via public policy and those factors behind negative preference formation that could be prevented so that young people arrive at their youth years with a healthy preference set to guide them through their experimental path toward adulthood.

The objective of this study is to identify key factors behind positive decision-making by young people in two Latin American countries. It uses unique data sets that contain information about youth behaviors related to school, the labor market, sexual health, alcohol, and social participation and information on potential causal factors such as mental health, family relationships, and local institutions. We use stepwise regression analysis to identify key explanatory factors behind seven behaviors.

This study contributes to the literature in two ways. First, most of the research to identify factors underlying youth behaviors uses US data; this study uses data from Mexico and Chile. These countries were selected based on the absence of research of the factors behind risky behaviors in these countries and the availability of data sets that include behavioral and causal factor information. Second, the results from Mexico and

Chile can be examined relative to findings from similar studies using data from the English-speaking Caribbean<sup>1</sup>, Brazil, and Honduras from which we can draw regional lessons about which factors matter most for LAC youth.

A caveat should be made up front: the majority of the US and LAC studies, and this study, only have available cross-sectional data for a single year, so it is not possible to establish a causal relationship between the factors and behaviors. Thus, the findings of this paper are most useful for establishing hypotheses regarding which factors may be the most important in explaining behaviors in Latin America and the Caribbean; they are “best guesses” given the existing data.

The paper starts with a description of the conceptual framework in Section II followed by the estimation methodology in Section III. Section IV presents a description of the data and gives a brief characterization of youth in Chile and Mexico. Section V presents the results by identifying which factors are most important in explaining seven different behaviors and Section VI concludes.

## **II. Conceptual Framework and Empirical Literature**

### **Conceptual Framework**

This study borrows its conceptual framework from the public health literature. The ecological risk framework posits that youth are a product of individual (personal), micro-, and macro-environmental factors (Bronfenbrenner 1979). The individual factors are those skills, behaviors, and ideas that are “hardwired”, rather than formed, such as rage, optimism, or general health. The micro factors include preferences taught and formed by the family, peers, community, and local institutions and the constraints imposed by the same, including household poverty. The macro factors include more general influences and constraints, such as gender/race discrimination, armed conflict, national poverty and economic inequality. These factors are commonly classified into two groups: the set of individual, macro, and micro factors that increases the risk of

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<sup>1</sup> Antigua, Bahamas, Barbados, British Virgin Islands, Dominica, Grenada, Guyana, Jamaica and St Lucia participated

negative behaviors (risk factors) and the set that increases the likelihood of engaging in positive behaviors (protective factors). Each person has a set of risk and protective factors that influences preference formation, constraints, and thus behaviors, leading to observed outcomes.

The ecological risk framework can be stated more formally (Bagby and Cunningham 2007). A person  $i$  has a set of behaviors,  $B_i$ , that are determined by a vector of risk factors,  $r_i$ , and protective factors,  $p_i$ , determined at the individual ( $I_i$ ), micro ( $c_i$ ), and macro ( $M_i$ ) levels.

$$B_i = f(r(I_i, c_i, M_i), p(I_i, c_i, M_i)) \quad (1)$$

If an element in any of the vectors  $I_i, c_i$ , or  $M_i$  leads to a positive behavior in  $B_i$ , it will take a positive value in  $p(I_i, c_i, M_i)$  and a 0 in  $r(I_i, c_i, M_i)$ . Likewise, an element that leads to risky behavior in  $B_i$  will take a 0 value in  $p(I_i, c_i, M_i)$  and a positive value in  $r(I_i, c_i, M_i)$ . A weighted average of the risk ( $r_i$ ) and protective factors ( $p_i$ ) specific to each person will predict the behavior elements in the vector  $B_i$ . Behaviors include elements such as unprotected sex, school truancy, or substance use.

The outcomes of these behaviors are a function of the behaviors, the individual, micro, and macro environments, and luck ( $\delta$ ). The vector of outcome,  $O_i$ , is given by

$$O_i = f(B_i, I_i, c_i, M_i, \delta) \quad (2)$$

Outcomes can be good (school completion, youth participation) or negative (school dropout, violence). Risk and protective factors are included in the function since they can magnify or mitigate the outcomes of a behavior. We assume a distribution of  $\delta$  that is constant across people, but instrumental in determining if behavior  $B_i$  becomes outcome  $O_i$ . These outcomes can vary over a lifecycle as youth develop.

## **Empirical Application of the Ecological Risk Framework**

Most of the empirical testing of the ecological risk framework estimates correlations between risky behaviors and individual, micro, and macro factors of the youth population. The extensive public health literature in the US concludes that positive youth behavior is a result of a positive school environment, a supportive home life, absence of gender stereotypes, high self-esteem and self-efficacy, spirituality, peers with pro-social norms, trust in public institutions, and low levels of inequality and poverty (Rew and Horner 2003, Zweig et. al. 2002, Blum et. al. 2000, 2002).<sup>2</sup> The economics literature adds to the list the role of legal penalties, prices, and income (Gruber 2001). More recently, researchers have begun to take advantage of longitudinal data available in the US to demonstrate that many of those factors correlated with risk taking behaviors are actually causal factors (Resnick et. al. 2004).<sup>3</sup>

The few studies that have tested the model using data from Latin American and the Caribbean find similar results to those in the US. They are unanimous in identifying “connectedness” – an emotional bond with parents or with schools (teacher, institutions) – as a strong and consistent correlate with a range of positive behaviors by youth (Blum and Ireland 2004 for the Caribbean; World Bank 2007 for Brazil; ESA Consultores, 2001 for Honduras; Brook et. al. 2001, 2002a, 2002b for Colombia). Other common correlates include macro variables - gender (Koller et. al. 2004), race, and urban/rural residence (World Bank, 2007) –; micro variables, including household poverty (World Bank 2007, Hutz and Silva 2003, Brook et. al. 2001, 2002a, 2002b, ESA Consultores 2001, Bagby and Cunningham 2007), household abuse (Blum and Ireland 2004, Koller 2004), and peer relationships (ESA Consultores 2001); and individual variables such as spirituality

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<sup>2</sup> The US National Library of Medicine and National Institute of Health maintains a web page (<http://www.ncbi.nlm.nih.gov/sites/entrez>), that lists hundreds of published articles that have found similar results.

<sup>3</sup> The most commonly used surveys are the National Longitudinal Survey of Adolescent Health (ADDHEALTH) that surveys students in grades 7-12 for the initial interview in 1994 with subsequent interviews in 1996 and 2002 (<http://www.cpc.unc.edu/projects/addhealth/design>) and asks about risk and protective factors and behaviors. The National Longitudinal Survey of Youth (NLSY) 1997 from the Bureau of Labor Statistics, surveyed males and females born in 1980-1984 (<http://www.bls.gov/nls/nlsy97.htm>) and focuses primarily on educational and employment outcomes.

(Ohene et. al. 2005, Koller 2004; World Bank 2007) or mental health (Blum and Ireland 2004, Koller 2004).

Young people who engage in one risky behavior often engage in many; i.e. negative behaviors often co-occur (Zweig et. al. 2002). The US data show that most of the risky behavior is being undertaken by a small set of young people who are engaging in multiple risky behaviors (Lindberg et. al. 2000, Bartlett et. al. 2005, Husler et. al. 2005, Brener et. al. 1998, and Zweig et. al. 2001). Similarly, smoking, drug and alcohol use, early sexual initiation, violence, and delinquencies co-occur in the Caribbean (Ohene et. al. 2005) and in Brazil (World Bank 2007). The co-occurrence is not surprising given the common set of risk and protective factors correlated with different negative behaviors. However, the co-occurrence may also be due to causal factors between behaviors. For example, youth in Peru, the Dominican Republic, Honduras, Brazil, and Argentina report that early school dropout results primarily from early work as well as substance abuse, violence and pregnancy and a myriad of other risk factors. Further, the respondents point to early dropout and early parenthood as underlying causes of their current unemployment or employment in low-quality jobs (IDDI 2006, Dasso 2006, Weiss 2006, World Bank 2006b).

### **III. Methodology**

This paper uses step-wise regression analysis to identify those variables with the highest explanatory power for positive youth behaviors. The regressions are estimated using the forward stepwise method, which is an iterative method in which a set of independent variables is identified a priori. A variable is then randomly selected from that set and included in the regression. If the newly included variable is significant at the 1% level, it is maintained in the regression and another randomly selected variable is added to the regression. If any variable loses significance, it is dropped in the next round. Once all the variables in the initial set have been tested, the regression will only contain those variables that are significant at the 1% level, which can be interpreted as the sub-set of variables that are most correlated with the dependent variable. The regressions were also run using the backward stepwise method as a robustness check, with similar results.

We run three different models, depending on the nature of the dependent variables: Ordinary Least Squares (OLS) for continuous dependent variables, Logit for binary dependent variables and Ordered Logit for ordered ordinal variables, where higher numbers correspond with a better outcome.

We estimate the key correlates for seven behavioral outcomes in Mexico and six outcomes in Chile. We run separate analyses for each country since the data are sufficiently different to not allow pooling. However, to the extent possible, similar variables are used in our analysis of Chile and Mexico. We estimate separate regressions for men and women to ensure that differences between genders would not confound results.<sup>4</sup>

We assume that factors are constant during a person's youth. For example, we assume that family risk factors do not vary extensively over a youth's age range. This assumption is necessary since we do not have longitudinal data that would allow variance in factors over time.

#### **IV. Data and Summary Statistics**

##### **Data**

We use data from two surveys: the 2003 National Youth Survey from Chile and the 2000 National Youth Survey from Mexico. These cross-sectional data contain rarely available information on perceptions, family background, attitudes, and behaviors, thus providing a rare insight into the youth populations in these countries.

Chile initiated its National Youth Survey, *Encuesta Nacional de Juventud* (ENJ), in 1994 and has repeated it every three years. We use the 2003 data, which was the most recent that could be accessed at the time of the analysis. The survey contains information about risk factors – household poverty, ethnicity, family cohesion, neighborhood violence, and social exclusion – and protective factors - trust in institutions,

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<sup>4</sup> Bagby and Cunningham (2007) find large differences between male and female youth typologies, including different incidence of certain behaviors and different exposure to/levels of risk and protective factors.

connectedness, good relationship with parents, and mental health. The behaviors and outcomes are limited to employment, schooling, sexual health, and participation in activities. There is no information about drug use or violent behavior. We limit the sample to those aged 15-24, giving us a sample size of 5321.<sup>5</sup>

Mexico's National Youth Survey, *Encuesta Nacional de Juventud* (ENJ) was carried out in 2000.<sup>6</sup> The sample is nationally representative and was performed in two stages: first, the entire household was surveyed and asked basic household characteristics, and later, youth ages 12-29 were asked a separate set of youth-specific questions. Only those aged 12 to 24 were included in this analysis, resulting in a sample of 37,979 respondents.<sup>7</sup>

As with Chile, the Mexican dataset includes information on several risk and protective factors and behaviors. However, the Mexican data also include data on attitudes towards alcohol and drugs, parental residence in the household, parental response to their children's behaviors, attitudes toward school (a proxy for school connectedness) and various proxies for family poverty. Unfortunately, this dataset does not have information about connectedness with other adults, abuse in home (aside from the form used to respond to misbehavior), community violence, ethnicity, or sexual behavior for those aged 12-14.

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<sup>5</sup> For this analysis, 195 observations out of 7,189 (2.7% of sample) for youth aged 15 to 29 were dropped due to missing data. We then restricted the sample to youth aged 15 to 24 dropping another 1674 observations. In many cases, missing responses could be coded based on responses to related questions so as to maintain a larger sample size. For instance, if someone does not respond as to whether they attend church, after they have already indicated that they do not believe in God, then we assume that they do not attend church.

<sup>6</sup> The survey was repeated in 2005, but the data were not available at the time this paper was under preparation.

<sup>7</sup> Of the almost 60,000 youth in the original sample, about 10,000 youth aged 12-29 were not surveyed the second time, and were dropped from the sample used for the analysis. The reasons for not interviewing these youth were tracked in the dataset: they did not want to participate, were not at home at the time of the interview and would not return within the week, were on vacation, were working or at school in another city, were disabled, and other. Comparing the poverty variables (education level and monthly earnings of heads of households) and rural means of this dataset before and after dropping the data showed no significant difference at  $\alpha=.01$ . An additional 5% of the observations were dropped in creation of the variables; the resulting sample was not statistically different from the original. Finally, the data were restricted to youth aged 12 to 24, thus further decreasing the sample size by 8903.

Three groups of variables are used in the analysis as posited by the ecological risk framework: protective factors, risk factors, and behaviors/outcomes.<sup>8</sup> The empirical findings from the US, Latin America, and Caribbean studies guided our selection of risk and protective factors to include in the Mexico and Chile analysis. The twelve risk factors in the analysis include low socioeconomic status (parental education level);<sup>9</sup> rural residence, indigenous ethnicity, low healthcare access, social exclusion, weak family cohesion, physical or psychological abuse by a parent, household substance abuse, poor parental response to bad behavior, positive parental influence on smoking and alcohol, perceived high neighborhood violence; and experienced discrimination. The fifteen protective factors considered include trust in institutions (government & community); live with both parents; connectedness (overall, with mother, with father, with other adult); engage in activities with parents; church attendance and spirituality; school quality; feeling of preparedness for the future; optimism towards employment; and sense of wellbeing. The independent variables in the stepwise regressions are these risk and protective factors. The data permit us to analyze seven positive behaviors/outcomes: not inactive,<sup>10</sup> secondary school completion, older age at first job, safe sexual behavior (not sexually active, using contraception if sexually active), older age at first pregnancy/parenthood, participation in activities, and healthy attitudes towards alcohol. These are the dependent variables in the stepwise regressions. Table 1 shows which variables are used in the Mexico analysis and which are used for Chile, defines the variables, and discusses the methodology for the creation of composite proxy variables.

All variables were normalized in the range 0 to 1. Behaviors were normalized such that a 1 indicates good behavior and a 0 indicates “risky” behavior. For factors, a high level of a risk factor would get a 1 and a high level of a protective factor would be 1.

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<sup>8</sup> The classification of a variable as a “risk factor” or “protective factor” may seem like an artificial distinction. For example, poverty is a risk factor while lack of poverty may be a protective factor. However, there are some risk factors without corresponding protective factors and vice versa. Rather than enter the debate in this paper, we simply classify a factor as “risk” or “protective” based on how the question was asked in the survey.

<sup>9</sup> Various proxies for poverty were tested, including household earnings, household luxury/durable goods ownership, and socio-economic indicators generated by the government. All had similar results as the “parental education” variable, but the parental education was used since the first alternative is a poor measure due to earnings being only a temporal measure of wealth, there was not sufficient variance in the second measure, and the algorithm for the third variable was not available.

<sup>10</sup> Inactivity is defined as not being in school or work and not searching for a job.

So for example, a risk factor variable that takes on three values would be assigned a 1 for the worst situation (for example, household abuse), a 0 for the best situation (for example, no household abuse), and a 0.5 for intermediate (for example, the threat of household abuse).

### **Summary Statistics: Characterizing Chilean and Mexican Youth**

A sizeable share of Chilean and Mexican youth engage in a range of negative behaviors. In both countries, a significant percentage of youth are dropping out of school early and not working after age 18. Nearly 30 percent of Mexican and 14 percent of Chilean youth in the samples dropped out of school prior to completing high school (Table 2). While about 30 percent of Mexican and Chilean youth are inactive after age 18, 12.8 percent of Mexican and 6.7 percent Chilean youth are inactive before age 18. Chileans have earlier, and more risky, sex than Mexicans. While only 13 percent of Mexicans age 15 to 17 report having had their first sexual experience, 27 percent of Chileans in this age group report the same. Half of the sexually active Mexicans use contraception; Chileans are 12 percentage points less likely to use condoms than are Mexicans. 2.5 percent of Mexicans age 15-17 have had their first child while nearly 4 percent of Chileans in the same age group are parents (Table 2). Nearly 30 percent of Mexican youth and 80 percent of Chilean youth report having ever been involved in activities outside of school; this percentage decreases with age. Finally, only 3.4 percent of the sample of youth aged 12-24 in Mexico can justify getting drunk and 1 percent justify drug use.

Many of these behaviors by Mexican and Chilean youth co-occur, as is also reported by young people interviewed across Latin America (IDDI 2006, Dasso 2006, Weiss 2006, World Bank 2006b) and found in empirical work in the US (Bartlett et. al. 2005), Caribbean (World Bank 2003), and Brazil (World Bank 2007). For example, inactive youth disproportionately leave school before completing their secondary education as demonstrated by the high correlation between not dropping out early and not being inactive (0.42 in Mexico and 0.38 in Chile). Risky and early sexual behaviors are also positively correlated with youth inactivity (0.21 in Mexico and 0.30 in Chile),

but also with early school leaving (0.35 in Mexico and 0.27 in Chile) and early working (0.14 in Mexico and 0.29 in Chile) (Tables 3a and 3b). There is a positive correlation between participation in activities and positive youth behaviors in both countries (Tables 3a and 3b).

Many Mexican and Chilean youth have risk factors in their lives, which may underlie their negative behaviors. Over half of the Mexican sample and one-third of the Chilean sample are from families whose parents have no more than a primary education and thus can be considered poor. In Chile, about 13 percent of the sample is considered rural<sup>11</sup> while in Mexico about 25 percent is rural. About 11 percent of the Chilean sample self-identifies as indigenous. Fortunately, abuse and substance abuse in the home are not very prevalent; six percent of Chileans report suffering abuse in the home and 8.5 percent report substance abuse in their homes. Approximately half of Mexican youth and 18 percent of Chilean youth report social exclusion. The incidence increases with age in Chile and decreases with age in Mexico (Table 2).

These risk factors are correlated with many negative behaviors. Young people with less educated parents engage in riskier behaviors as shown by the negative correlation coefficients in Tables 3a and 3b. Living in a rural area is negatively correlated with six of the seven behavior variables – not inactive, secondary school completion, later age of initial job, later age of first parenthood and participation in activities. Figures 1 and 2 suggest that rural living has different implications for men’s and women’s behaviors. Rural men generally initiate sexual activity later than do urban men, particularly in Mexico, while rural women begin their sexual lives earlier than do urban women. In Mexico, rural men and urban women are more likely to use contraception but in Chile rural women are more likely to use contraception. Being indigenous is not highly correlated with most behavior variables (Table 3b). Indigeneity has a significantly negative correlation with older age at first job, but the magnitude is small (-0.05). Table 3b shows that abuse and substance abuse are negatively correlated

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<sup>11</sup> The sampling was done in communities with at least 2000 inhabitants, so a rural indicator means that the respondent comes from a community with between 2000 and 5000 inhabitants. An urban respondent lives in a community of at least 5000 people.

with all positive youth behaviors in Chile. Poor parental response to misbehavior (such as hitting their child, insulting their child, or accusing their child in front of others) is significantly negatively correlated with all seven behaviors in Mexico. Social exclusion is negatively correlated with positive behaviors in Chile (Table 3b), while being socially excluded is positively correlated with school completion, starting work at an older age, safe sexual behavior and later age at first parenthood in Mexico (Table 3b).<sup>12</sup>

Protective factors are also prevalent in the lives of young Mexicans and Chileans. More than 70 percent of Mexican youth live with both parents (Chilean youth were not asked this question). Mexican and Chilean youth report a high level of personal connections with caring adults. Mexican youth regularly discuss a wide range of topics with their parents including school, work, politics, and religion. While Chileans report good relationships with their parents, ten percent of Chileans also note important relationships with other adults. Fewer than 7 percent of Mexican youth are verbally or physically abused by their parents. Nearly 95 percent of youth Chileans believe in a god, and 66 percent of Mexican youth attend church with some frequency. School quality, a proxy for school connectedness, is high in Mexico. Youth are generally content with their schools in Mexico, with small percentages of youth reporting dissatisfaction in school attributes such as the physical environment, teacher preparedness, and teacher attendance (Table 2). However, Mexican youth trust government institutions (6.5% trust politicians, 16.1% trust judges, and 12.3% trust the police) less than they trust local institutions (66.2% trust teachers, 70.8% trust doctors, 15.9% trust shop owners, 12.5% trust union leaders, and 61.8% trust priests). Similarly, in Chile, youth trust local institutions more than government institutions (Table 2). Youth have positive outlooks towards life and the future. Nearly 70 percent of Mexican youth report that they are very happy (compared to 1.7 percent reporting they are not happy at all), In Chile, 87 percent of youth feel optimistic about future work possibilities.

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<sup>12</sup> The opposite trends in the two countries is likely due to the definition that “social exclusion” takes in each survey. In Chile, social exclusion is defined as not having friends to spend time with, whereas the Mexico survey asks who the respondent spends his or her free time with. If the respondent answers “friend” or “boyfriend/girlfriend”, he or she is not considered to be socially excluded. However, most who were coded as socially excluded replied that they spend their free time with parents, siblings, and other family. Thus, these respondents may have a rich social life such that they spend time with friends while in school or at their sports club while they are with family during their unstructured free time.

Living with both parents, having a positive relationship with parents, and spirituality are highly correlated with positive youth behaviors in both Chile and Mexico (Tables 3a and 3b). Trust in governmental institutions has a positive and significant correlation with many behaviors in Chile and Mexico, but the magnitude of the relationship is not very large. The school quality composite variable that focuses primarily on teacher and school characteristics is positively and significantly correlated with many behaviors by Mexican youth but the magnitude is small (Table 3a). A sense of well-being is weakly, but positively, correlated with Mexican youth behaviors (Table 3a).<sup>13</sup>

## V. Results

Many of the same risk and protective factors identified in the US and existing Latin American and Caribbean literature explain the variance in inactivity, school completion, age of first job, safe sexual behavior, age of first pregnancy/parenthood and involvement in activities in Chile and Mexico, as well. The explanatory power of these sets of variables for our sample ranged from (0.01 R<sup>2</sup> – 0.25 R<sup>2</sup>), and correctly predicted 68% - 90%<sup>14</sup> of the behaviors. The variables are most successful in explaining the variance in four behaviors: staying in school, safe sexual behavior, and later age of first pregnancy/parenthood for boys and girls in Chile and Mexico and female inactivity in both countries. They explain very little of the variance in involvement in activities in both countries, in later labor force entry and in attitudes toward alcohol in Mexico, and in inactivity among Chilean males.

Table 4a presents the coefficient estimates from the stepwise regressions for Mexico and Table 4b presents the results for Chile. A positive coefficient indicates that the independent variable is correlated with a “good” behavior, i.e. not inactive, school completion, older age at first job, safe sexual behavior, older age at first pregnancy/parenthood, participation in activities, and healthy attitudes about alcohol.

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<sup>13</sup> Based on the literature from the US, mental health is very important in a youth’s life, and one would expect these correlations to be larger.

<sup>14</sup> This is only for the binary variables “not inactive” and “school completion”.

Among the macro-factors, gender and rural/urban residence are key explanatory factors for many behaviors while ethnicity plays a lesser role. For all seven behaviors in both countries, gender is one of the key variables that emerged in the stepwise regressions<sup>15</sup> and risk and protective factors affect the schooling and work outcomes differently for males and females. The  $R^2$  for each female regression is about equal to or much higher than that for males, suggesting that the regressions better explain the variance in girls' behaviors than boys' behaviors. A large set of micro variables, ranging from the family to the community, were useful in explaining girls' behavior, but not that of boys. In Mexico, positive female behaviors were strongly and positively correlated with living with both parents and with a good relationship with the mother. These factors played a lesser role for boys. Finally, certain factors affected female behavior in an opposite manner than they affected male behaviors, especially among those variables that were measured only for Mexico. For example, older females are less likely to be working and not in school (defined as "inactive") while there is no strong work/age relationship for males. This is clearly a result of gender roles where women increasingly allocate their time toward homecare as their families grow.

Being from rural areas helps to explain who leaves school earlier, who goes to work at a younger age and who is inactive in both Chile and Mexico. This is not surprising given the familial and greater informal nature of rural labor markets compared to those in urban areas. Notably, these results emerge even when controlling for household poverty and ethnicity (Chile). In spite of the unconditional positive correlation between rural residence and younger marriage or risky sexual activity discussed above, being from rural areas is not a key explanatory variable for risky sexual activity (proxied by earlier age of sexual initiation and use of contraception) in either country (with the exception of Mexican females) or for parenthood in Chile.

Being indigenous does not emerge as a key explanatory factor for any of the behaviors in Chile. While 11% of the sample is indigenous, it appears that other factors better explain the variance in behaviors. This seems contrary to evidence from elsewhere that suggests that ethnic disparities are important for explaining the seven behaviors

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<sup>15</sup> The regression estimates of the pooled sample can be obtained from the authors

discussed in this paper (Rew and Horner 2003 for the US, Koller et. al. 2004 for Brazil). However, we cannot conclude that indigeneity is not a valuable characteristic for understanding youth behavior since it is possible that other variables that consistently emerge as key explanatory factors are correlated with being indigenous and thus pick up the variance. For example, there is a high correlation (significant at the 1% level) between indigeneity and household poverty (low parental education level). Or, feelings of being discriminated against, which may be ethnic, racial, spatial, or based on other variables, emerge as a key explanatory factor for earlier age of employment for boys and girls.

Three micro-factors - household poverty, relationship with the family, and use of/relationship with local institutions - repeatedly emerge as key explanatory factors in both countries for all seven behaviors, i.e. significant at the 1% level in the stepwise regressions. Household poverty, proxied by parental education level, explains a significant amount of the variance in all the behaviors considered for both genders in both countries. Young men and women who live in poorer households leave school earlier, are more likely to be inactive, start working earlier, engage in riskier sexual activity, have their first pregnancy (females only) at a younger age, and engage in fewer activities than those in wealthier households. This correlation emerges even though we have controlled for connectedness with parents and others. They are, however, less likely to justify drunkenness compared to youth from wealthier households in Mexico. The strong role of household poverty is confirmed by studies from other countries.<sup>16</sup>

The importance of personal connections with peers, parents or other adult figures and positive behaviors found in the US, Latin American, and Caribbean literature is confirmed for the cases of Mexico and Chile. A positive relationship with parents as well as living with both parents explain some of the variance in all seven behaviors and is positively correlated with not being inactive, not dropping out of school early, older age

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<sup>16</sup> For example, positive shocks to household income has been found to affect school attendance in Mexico (Skoufias and Parker 2001), Brazil (Duryea, Edwards, and Ureta 2003), and Colombia (Attanasios, Meghir, and Santiago 2005), negative shocks to household income affect labor force entry (Cunningham and Maloney, forthcoming for Mexico and Argentina), household poverty increases youth violence in Brazil (World Bank 2007), Colombia (Duque, Klevens, and Ramirez 2003) and the US (Grogger 1998, Mocan and Reese 1999).

at first job, less risky sexual activity, older age at first parenthood, and participation in activities. Males with a good relationship with their fathers or mothers stay in school, are not inactive, and participate in activities. Girls' relationships with their fathers is more related to staying in school, not working and greater participation in activities while the relationship with the mother is also related to safe sexual practices. Although living with both parents is important for all seven behaviors, the actual relationship with parents is also important, as shown by controlling for the former. This relationship is largely an emotional connection, since engaging in activities with parents did not emerge as a strong protective factor in the analysis.

Abuse in the family weakly emerges as a deterrent to positive behaviors. Physical abuse in the household explains the variance of early working and early and unsafe sexual behavior for females but it does not emerge as a potential explanatory variable for male behaviors. Parental responsiveness to youth behaviors, whether good or bad, is a good explanatory variable for both males and females. Poor parental response to misbehavior – which may range from a lack of parental responsiveness (no connectedness) to verbal abuse to physical abuse – is negatively correlated with an older age at first job, safe sexual behavior, later age at first parenthood and a healthy attitude towards alcohol for both genders in Mexico. Poor parental response to good behavior is negatively correlated with school completion, an older age at first job and participation in activities for both genders. The small role played by household abuse may be surprising given how it is negatively correlated with all behaviors in Tables 3a and 3b and that it emerges as a key factor in the Caribbean (World Bank 2003) and Brazil (World Bank 2007) research. Three factors may be at play. First, the conditional analysis controls for household poverty, which is strongly correlated with all behaviors and with household abuse; the other studies and Tables 3a and 3b were unconditional estimates. Second, the incidence of household abuse is small, so there may not be sufficient variation to explain the variance in the dependent variable. Third, the relationship variables may be picking up the variance in the effect of parental abuse. Given these explanations, the fact that family abuse emerges as an important factor for girls demonstrates how damaging household abuse is for young women's behavioral choices.

Having a connection with peers is important in explaining variance in Chile, but the relationship is less clear in Mexico. Chilean youth who do not have a group of friends with whom they spend time engage in a range of negative behaviors, including inactivity, school dropout, early labor force entry by women, and unsafe sexual behavior, earlier parenthood and less participation in activities (males and females) –, i.e. more social exclusion and worse behaviors go together. The Mexican data do not allow us to measure social exclusion directly, since it only tells us with whom Mexican youth spend their free time. Not spending free time with friends or a girlfriend/partner means greater school completion among Mexican males and participating in fewer in activities among Mexican females; it also means an older work age, safer sexual behavior, an older age at first parenthood and a healthier attitude among males and females. What this may be reflecting is that Mexican youth spend their free time (outside of school) with parents and siblings which, as discussed above, have a strong, positive correlation with good behaviors. Thus the composite variable that we call “social exclusion” may actually be another proxy for family connections among Mexican youth.

Trust in government institutions emerges as an explanatory factor of variance in Chilean behaviors, but it plays a much lesser role for explaining Mexican behaviors. Chilean males who trust in government institutions are older when they take their first job and have safer sexual behaviors while females are less likely to complete school. In Mexico, females that trust in government figures are more likely to be younger when first becoming a parent. Of course, this may be endogenous such that the trust is developed once these behaviors are established. This difference between Chile – where the variable emerges for several behaviors – and Mexico where it is virtually absent may reflect the difference in the access to, coverage of, and quality of institutions in the two countries. Or, it may reflect the different definitions of “government institutions” in the two surveys. In Chile, it is defined as higher level institutions – congress, city government, the judicial system, political parties – while in Mexico it is more personal – police, judges, and politicians.

School quality – which may be a proxy for school connectedness – is positively correlated with school- and labor market- related behaviors in Mexico (the variable is not

included in the Chile data set). Those who perceive high school quality are less inactive, and are older when they begin working but are more likely to not complete secondary school. This particularly emerges for girls. It is also important for explaining responsible attitudes toward alcohol. Surprisingly, the link between school quality and sexual behaviors is not strong; it is positively correlated to safe sexual practices for males only, despite the large literature that identifies school connectedness as a protective factor in sexual behavior decisions (see Blum et al 2002 for the US, Ohene and Blum 2005 for the Caribbean, and World Bank 2007 for Brazil). Since the Mexico data do not directly measure school connectedness, though, we should not necessarily dismiss this factor.

Age and spirituality are the only individual factors that consistently emerged in the regression analysis. Age plays a part in explaining the variance in all seven behaviors considered. It is negatively correlated with all the behaviors in Chile and with all behaviors except “older age at first job” for males in Mexico. This confirms the evidence found elsewhere that risky behaviors and negative outcomes increase with age (Bagby and Cunningham 2007).

Young people who identify themselves as being more spiritual also have safer sexual behaviors and participate in more activities. This variable emerges as highly significant for explaining the variance in these behaviors in Chile and Mexico, but it is correlated with younger labor force entry in Mexico. Young Mexican women are particularly influenced by spirituality. The exact role played by spirituality is not clear. One hypothesis is that spirituality in itself is not important, but the connection with a group – whether parents who accompany a young person to church or the church community itself – may be protective (Blum and Ireland 2004). However, the Mexican data allow us to control for church attendance and connectedness with parents and spirituality still emerge as a key explanatory factor. Alternatively, the actual teachings of the religion may be a guide for daily behavior. Or, as posited in World Bank (2007), those who believe that there is a higher being may have less feelings of hopelessness, and thus less risky behavior, than do those who feel that they are not being monitored and judged.

Mental health plays a small role in explaining the variance of the seven behaviors in Mexico and Chile. Good mental health – proxied by feeling prepared for future employment, feeling optimistic about job prospects, or having a sense of well-being – emerge as key explanatory variables for not being inactive in Mexico and Chile, and for older age at first job for Mexican females and younger age at first parenthood for Mexican males. This is perhaps due to the small variance of the well-being variable in Mexico, and the focus of the outlook variables in Chile being primarily related to employment.

## **VI. Conclusion**

Of the risk and protective factors investigated in this study, higher socioeconomic status (proxied by parental education), good relationship with parents and peers (social inclusion), strong connection with local government and school institutions, urban residence, younger age, and feelings of spirituality repeatedly emerge as key explanatory factors in the stepwise regressions, being positively correlated with each of seven youth behaviors examined for Mexico and Chile – not inactive, school completion, later age of first job, safe sexual behavior, later age of sexual initiation/parenthood, participation in activities, and healthy attitudes toward alcohol. This finding is consistent with findings from other LAC countries - including the English-speaking Caribbean, Brazil, and Honduras - as well as studies using US data. Unlike other studies, though, self identified indigeneity and household abuse do not emerge as key explanatory factors for Chile, and the variables that proxy positive mental health do not emerge strongly in the analysis for either country.

Gender is also an important variable. The incidence of risk factors, protective factors, and behaviors differ by gender and the set of factors that is most important in explaining behaviors differed by gender. Most notably, the relationship with government institutions has differing effects on women’s and men’s behaviors (Chile) while local institutions (school) seem particularly relevant for women. Spirituality also emerges as a more influential factor for women than for men.

The study also confirms the evidence elsewhere that behaviors co-occur. Young people in Mexico and Chile who engage in one positive behavior tend to engage in other positive behaviors. This is not surprising since a common set of protective factors continuously emerge as important explanatory variables for each behavior. Thus, by strengthening positive factors and minimizing negative factors, it is possible to influence a range of youth behaviors.

Despite the limitations in identifying causality, our ability to determine the key factors important for a range of behaviors can be useful to policymakers. While poverty alleviation and education are common policy entry points, programs that tap into other areas of a young people's lives to ensure the presence of positive influences have the potential for a significant impact in preventing risky youth behaviors in LAC. For example, young people without family support can benefit from mentoring programs. Or, certain models of "after" school clubs are effective for affecting a range of behaviors. Or, those from poor households can benefit from cash transfers that reward positive behaviors. In fact, there are a range of evidence-based program and policy interventions at the individual-, micro-, and macro-levels that prevent negative youth behaviors and provide second opportunities to those who have made poor decisions (Cunningham et. al. 2008).

While this paper highlights some non-traditional variables for policy attention in order to better support young people in Mexico and Chile, the causes behind youth behavior are still largely unknown. Our analysis only explained up to 24% of the variance in some youth behaviors, so three-quarters of the behavior is explained by other factors that were not captured by our data. Further, we cannot claim that the variables that we identified as important are causing each behavior in question. To further understand the challenges facing LAC's youth, we will need time series data with explanatory variables that proxy relationships in a child's life, both with her parents as well as her peers, to complement the more commonly included variables and more complex models that allow us to better construct and quantify the complex environment that shapes youth decision-making.

## Tables

Table 1. Construction of Variables, and in which dataset the variable is found

	Chile	Mexico
<b>Behaviors/outcomes</b>		
Not inactive (in school, working, or searching for work)	X	X
Secondary school completion	X	X
Older age when started working	X	X
Safe sexual behavior (not sexually active, contraception use)	X	X
Older age at first pregnancy/parenthood	X	X <sup>a</sup>
Participate in extracurricular activities	X	X
Negative attitude towards alcohol (cannot justify drunkenness)		X <sup>a</sup>
<b>Risk factors</b>		
Low parental education level (proxy for poverty)	X	X
Rural residence (versus urban)	X	X
Negative parental response to misbehavior <sup>b</sup>		X
Physical/verbal abuse in the home	X	
Substance abuse in the home	X	
Limited access to healthcare		X
Have felt discriminated against	X	
Level of perceived violence in the neighborhood	X	
Positive parental influence toward smoking and alcohol <sup>c</sup>		X
Social exclusion	X <sup>d</sup>	X <sup>e</sup>
Poor family cohesion <sup>f</sup>	X	
Indigenous (self-identifying with an indigenous group)	X	
<b>Protective factors</b>		
Living with both parents		X
Positive relationship with father	X <sup>g</sup>	X <sup>h</sup>
Positive relationship with mother	X <sup>i</sup>	X <sup>j</sup>
Spiritual influence in beliefs, opinions and attitudes		X
Church attendance	X	X
Trust in governmental institutions	X <sup>k</sup>	X <sup>a,l</sup>
Trust in community institutions	X <sup>m</sup>	X <sup>a,n</sup>
Sense of wellbeing (level of happiness reported by the youth)		X <sup>a</sup>
School quality <sup>o</sup>		X
Connected (whether youth reaches out – for talk or help- to someone when they have problems)	X	X
Connected with an adult other than parents	X	
Feeling prepared for future employment	X	
Positive view on youth employment	X	
Feeling optimistic about future work	X	
Activities with parents		X

<sup>a</sup> for respondents age 15 or older

<sup>b</sup> how parents respond when child bothers/angers them (0=by talking with their child, 0.5 = punishing, 1 = beating/hitting, insulting, accusation in front of others)

<sup>c</sup> degree to which parents attempt to control children's substance use. For each of smoking and drinking alcohol the respondent indicates whether the parent forbids the use of, will sometimes provide permission, or will allow the child to decide what to do. These three are put on a 0-1 scale for each of smoking and drinking alcohol. The composite variable then sums the two and takes the average (so if smoking =1 but alcohol use = 0, the composite variable = 0.5). If there is a non response for one of the variables but a response for the other, the composite variable uses the response for the variable that has the information.

<sup>d</sup> not having a group of friends with whom the respondent frequently spends time, Chile

<sup>e</sup> if the respondent does not spend free time with friends or a boyfriend/girlfriend, Mexico

<sup>f</sup> combined report to yes/no questions of the following 4 specific problems within the family: lack of communication, poor relations between parents and children, lack of time to share with the family, and poor relations with siblings

<sup>g</sup> quality of relationship with father on various attributes (communication, demonstration of love or affection, understanding and help with problems, respect for private life of youth, the time spent with father)

<sup>h</sup> variety of topics that the youth communicates with the father about (school, politics, religion, sexual relations, work, and other topics)

<sup>i</sup> quality of relationship with mother on various attributes (communication, demonstration of love or affection, understanding and help with problems, respect for private life of youth, the time spent with mother)

<sup>j</sup> variety of topics that the youth communicates with the mother about (school, politics, religion, sexual relations, work, and other topics)

<sup>k</sup> combined level of confidence in government, congress, city government, political parties, judicial system and national police created from questions asking respondents if they trust or mistrust each institution

<sup>l</sup> combined level of confidence in politicians, judges, the police, and the military asking respondents if they have trust, a little trust, or no trust in each group

<sup>m</sup> combined level of confidence in hospitals, the Catholic Church, schools, universities, and family asking respondents if they trust or mistrust each institution

<sup>n</sup> combined level of confidence in teachers, doctors, shop owners, union leaders and priests asking respondents if they have trust, a little trust, or no trust in each group

<sup>o</sup> rank of the overall quality of the youth's current/past school as reported by youth (physical building, scholastic materials, teachers preparation, content of courses and teachers attendance) – Respondents ranked the quality of each aspect listed above as good, bad or fair. The variable puts these rankings on a 0-1 scale, sums and takes the average.

Table 2. Descriptive Statistics, Mexico and Chile

	Mexico				Chile		
	All ages	12 to 14	15 to 17	18 to 24	All ages	15 to 17	18 to 24
<b>Behaviors and Outcomes</b>							
% inactive	20.3	8.9	17.7	29.9	23.4	6.7	33.9
% dropping out of school before completing high school	29.9	10.0	33.0	42.3	14.2	8.4	17.8
% having sex	52.1	-	13.3	56.0	59.1	26.9	79.4
% of the sexually active using protection	50.6	-	54.0	52.5	38.1	40.11	38.7
% reporting at least 1 child	19.4	-	2.5	28.9	18.6	3.9	27.9
% ever participating in at least 1 activity (organization, club)	27.3	30.7	26.0	23.4	78.8	81.2	77.3
% reporting they can justify getting drunk	3.4	3.1	3.7	3.6	-	-	-
% reporting they can justify drug use	1.1	1.1	1.0	0.8	-	-	-
<b>Risk and Protective Factors</b>							
% female	53.5	50.7	52.9	55.9	53.0	50.5	54.6
Average age	17.2	13.0	16.0	20.8	18.9	16.0	20.8
% with parents who have a primary degree or less	56.1	56.3	58.0	55.0	38.1	38.8	37.7
% rural	24.7	28.1	26.0	21.6	13.2	13.8	12.9
% indigenous	-	-	-	-	10.8	11.5	10.4
% whose parents hit them when they do something which bothers the parents	6.6	8.1	4.7	6.6	-	-	-
% whose parents insult them when they do something which bothers the parents	2.6	2.1	2.7	2.8	-	-	-
% whose parents accuse them in front of others when they do something which bothers the parents	1.2	1.2	1.2	1.3	-	-	-
% whose parents punish them when they do something which bothers the parents	22.2	26.2	22.7	19.0	-	-	-
% reporting physical or psychological abuse in home	-	-	-	-	6.3	6.2	6.4
% reporting problems arising from substance abuse in home	-	-	-	-	8.5	7.0	9.5
% reporting social exclusion	53.2	66.8	53.9	43.1	17.7	10.1	22.5
% living with both parents	70.3	83.1	77.2	57.2	-	-	-
% living with neither parent	16.0	3.8	7.9	29.3	-	-	-

% reporting they talk to their mother about their problems					47.9	51.4	45.7
% reporting they talk to their father about their problems					17.7	19.4	16.7
% reporting they talk regularly to either their father or mother about school	71.6	77.7	72.9	66.5			
% reporting they talk regularly to either their father or mother about politics	26.5	22.2	25.9	29.9			
% reporting they talk regularly to either their father or mother about religion	54.9	52.4	51.1	57.2			
% reporting they talk regularly to either their father or mother about sex	37.4	34.0	39.3	38.9			
% reporting they talk regularly to either their father or mother about work	50.3	38.9	48.9	62.4			
% reporting they talk to an adult other than a parent about their problems					10.4	10.4	10.3
% attending church weekly	9.3	11.3	10.3	7.3	21.6	27.2	18.1
% attending church at least once in the past month	66.3	72.0	65.9	62.5	-	-	-
% believing in God	-	-	-	-	94.8	95.1	94.6
<i>School quality</i>							
% reporting a bad physical school environment (e.g. building quality)	4.1	4.3	4.0	3.9	-	-	-
% reporting that teaching materials are poor	4.9	3.7	4.7	5.8	-	-	-
% reporting that teacher preparation is poor	2.8	2.4	2.8	3.0	-	-	-
% reporting school course content is poor	2.2	1.9	2.0	2.5	-	-	-
% reporting poor teacher attendance	3.3	3.5	3.2	3.3	-	-	-
% reporting poor environment with classmates	2.8	2.9	2.9	2.6	-	-	-
% reporting poor recreational activities and sports at school	7.2	4.5	6.9	9.4	-	-	-
<i>Government institutions</i>							
% reporting trust in the government	-	-	-	-	31.0	28.5	32.6
% reporting trust in congress	-	-	-	-	19.1	21.5	17.6
% reporting trust in the municipality (city council)	-	-	-	-	42.2	45.4	40.1
% reporting trust in the political parties or politicians	6.5	-	6.4	6.5	9.3	11.2	8.1
% reporting trust in the judicial system or judges	16.1	-	16.0	16.1	24.2	29.3	21.0

% reporting trust in the national military police (gendarmerie)	-	-	-	-	58.7	62.1	56.5
% reporting trust in the military	29.5	-	29.2	29.7	-	-	-
% reporting trust in the police	12.3	-	14.0	11.4	-	-	-
<i>Local institutions</i>							
% reporting trust in hospitals, emergency centers, medical centers or doctors	70.8	-	68.7	72.0	63.7	68.1	60.9
% reporting trust in the Catholic Church or priests	61.8	-	62.0	61.7	57.7	62.8	54.5
% reporting trust in schools (primary or secondary) or teachers	66.2	-	65.8	66.5	81.2	82.6	80.4
% reporting trust in the universities	-	-	-	-	82.7	84.6	81.6
% reporting trust in the family	-	-	-	-	96.1	96.2	96.1
% reporting trust in businessmen	15.9	-	14.4	16.2	-	-	-
% reporting trust in labor union leaders	12.5	-	12.1	12.8	-	-	-
<i>Attitudes</i>							
% reporting they are very happy (sense of well-being)	69.7	-	67.7	70.8			
% reporting they are feeling optimistic about future work possibilities					87.7	88.2	87.3

- indicates that the variable is not included in the corresponding data set

Table 3a. Correlation Coefficients Significant at the 1% Level, Mexico

		Not inactive	School completion	Older age when started working	Safe Sexual behavior	Older age at first pregnancy/parenthood	Participate in activities	Attitude towards alcohol
Behaviors/Outcomes	No early school dropout	0.42						
	Older age when started working	-0.04	0.24					
	Safe Sexual behavior	0.21	0.35	0.14				
	Older age at first pregnancy/child	0.35	0.32	0.07	0.53			
	Participate in extracurricular activities	0.12	0.15	-0.06	0.10	0.13		
	Negative attitude towards alcohol	-0.10	-0.04	0.06	0.04	-0.06	-0.05	
Risk factors	Low parental education level	-0.10	-0.21	-0.11	0.03	-0.03	-0.12	0.08
	Rural residence	-0.12	-0.08	-0.02	--	-0.04	-0.06	0.11
	Negative parental response to misbehavior	-0.06	-0.08	-0.05	-0.13	-0.15	-0.03	-0.02
	Social exclusion	--	0.11	0.11	0.18	0.05	--	0.09
Protective factors	Living with both parents	0.27	0.35	0.13	0.49	0.49	0.08	-0.03
	Positive relationship with father	0.13	0.12	0.02	0.09	0.15	0.16	-0.03
	Positive relationship with mother	0.08	0.09	0.03	0.09	0.12	0.15	
	Church attendance	-0.02	0.06	0.06	0.10	0.05	0.12	0.08
	Spiritual influence in beliefs, opinions and attitudes	--	--	-0.07	0.03	0.04	0.15	--
	Trust in governmental institutions	--	--	--	0.02	--	0.03	0.02
	Trust in community institutions	--	--	0.02	--	--	0.02	0.02
	School quality	0.05	0.06	0.05	0.04	0.04	--	0.04
	Well-being	0.03	0.05	0.05	-0.03	--	0.04	0.02

-- not significant at the 1% level

Table 3b. Correlation Coefficients Significant at the 1% Level, Chile

		Not inactive	School completion	Older age when started working	Safe sexual behavior	Older age at first pregnancy/ parenthood	Participate in activities
Behaviors/Outcomes	No early school dropout	0.38					
	Older age when started working	0.13	0.22				
	Sexual behavior	0.30	0.27	0.29			
	Older age at first pregnancy/ child	0.36	0.40	0.13	0.41		
	Participate in extracurricular activities	0.19	0.17	--	0.14	0.19	
Risk factors	Low parental education level	-0.16	-0.23	-0.14	-0.08	-0.09	-0.10
	Rural residence	-0.11	-0.11	-0.10	--	--	-0.05
	Physical/Verbal abuse in the home	-0.04	-0.06	-0.05	-0.05	-0.04	--
	Substance abuse in the home	-0.05	-0.07	-0.08	-0.10	-0.04	--
	Social exclusion	-0.26	-0.23	-0.09	-0.17	-0.31	-0.21
	Indigenous	--	--	-0.05	--	--	--
Protective factors	Good relationship with father	0.10	0.13	0.11	0.13	0.14	0.07
	Good relationship with mother	0.13	0.16	0.10	0.15	0.15	0.06
	Spiritual influence in beliefs, opinions and attitudes	--	0.07	0.05	0.16	0.05	0.20
	Trust in governmental institutions	--	--	0.04	0.09	--	0.04
	Trust in community institutions	--	--	0.06	0.09	--	--
	Optimism towards future work opportunities	0.09	0.05	--	--	0.05	0.05
	Preparation for work	--	--	-0.06	-0.09	-0.04	--

-- not significant at the 1% level

Table 4a. Key Correlates of Positive Youth Behaviors, Mexico

	Not inactive <sup>a</sup>		School completion <sup>a</sup>		Older age at first job <sup>b</sup>		Safe sexual behavior <sup>b</sup>		Older age at first pregnancy /parenthood <sup>b</sup>		Participation in activities <sup>b</sup>		Healthy attitude towards alcohol <sup>b</sup>	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
<b>Macro</b>														
Rural residence	-0.38 (0.09)	-0.90 (0.06)	-0.66 (0.06)	-0.84 (0.06)	-0.32 (0.05)	0.23 (0.05)	--	-0.17 (0.06)	--	-0.22 (0.06)	-0.38 (0.06)	--	0.56 (0.07)	0.80 (0.09)
<b>Micro</b>														
Low parental education level	-0.89 (0.19)	-1.21 (0.12)	-2.83 (0.14)	-2.41 (0.12)	-1.14 (0.08)	-0.81 (0.08)	--	-0.36 (0.11)	-0.75 (0.16)	-0.72 (0.12)	-0.69 (0.10)	-0.82 (0.09)	0.65 (0.10)	1.07 (0.12)
Live with both parents	--	1.32 (0.05)	0.54 (0.07)	0.88 (0.05)	0.47 (0.05)	0.40 (0.04)	0.98 (0.06)	2.12 (0.05)	1.89 (0.08)	2.22 (0.06)	--	0.30 (0.06)	--	-0.39 (0.08)
Poor parental response to misbehavior	--	--	--	--	-0.13 (0.05)	-0.20 (0.04)	-0.13 (0.05)	-0.22 (0.05)	-0.21 (0.07)	-0.31 (0.05)	--	--	-0.20 (0.05)	-0.17 (0.07)
Poor parental response to good behavior	--	--	-0.61 (0.12)	-0.73 (0.11)	-0.50 (0.09)	-0.45 (0.08)	--	--	--	--	-0.61 (0.11)	-0.55 (0.11)	--	--
Positive relationship with father	0.89 (0.23)	0.48 (0.16)	0.49 (0.18)	0.91 (0.16)	--	--	--	--	-0.70 (0.25)	--	0.76 (0.17)	0.87 (0.16)	--	--
Positive relationship with mother	--	1.35 (0.15)	1.56 (0.19)	1.43 (0.15)	--	-0.63 (0.11)	--	0.73 (0.14)	1.48 (0.26)	1.14 (0.15)	0.90 (0.18)	1.48 (0.16)	--	--
Social exclusion	--	--	0.25 (0.05)	--	0.17 (0.04)	0.10 (0.04)	0.63 (0.05)	0.60 (0.05)	1.19 (0.11)	0.38 (0.06)	--	-0.13 (0.04)	0.33 (0.05)	0.27 (0.06)
Spiritual	--	0.30	--	--	-0.46	-0.32	0.21	0.32	--	0.49	0.95	0.93	--	--

influence		(0.08)			(0.06)	(0.06)	(0.08)	(0.08)		(0.09)	(0.08)	(0.07)		
Church attendance	--	--	--	--	--	--	0.43 (0.07)	0.62 (0.08)	--	0.57 (0.08)	0.56 (0.08)	0.81 (0.07)	0.39 (0.08)	--
Trust in government institutions	--	--	--	--	--	--	--	--	--	-0.26 (0.10)	--	--	--	--
Access to healthcare	-0.42 (0.07)	-0.44 (0.05)	-0.23 (0.05)	-0.31 (0.04)	-0.24 (0.04)	--	--	--	--	--	--	-0.13 (0.05)	--	--
Parental influence	--	0.16 (0.05)	--	0.19 (0.05)	-0.18 (0.04)	--	-0.17 (0.05)	--	--	--	--	0.25 (0.05)	-0.37 (0.06)	-0.22 (0.07)
School quality	--	0.28 (0.10)	--	-0.27 (0.10)	0.52 (0.08)	0.23 (0.08)	0.39 (0.09)	--	--	--	--	--	0.55 (0.11)	0.44 (0.13)
Connectedness	--	0.31 (0.07)	--	--	0.30 (0.09)	0.27 (0.06)	0.38 (0.11)	0.95 (0.07)	1.35 (0.16)	1.10 (0.07)	-0.27 (0.10)	--	--	--
Activities with parents	--	--	0.41 (0.12)	0.33 (0.11)	--	0.39 (0.08)	--	--	--	--	--	--	0.37 (0.02)	--
<b>Individual</b>														
Age	--	-2.17 (0.14)	-0.89 (0.15)	-1.07 (0.13)	1.09 (0.12)	-0.18 (0.11)	-5.64 (0.15)	-4.16 (0.14)	-5.51 (0.24)	-3.31 (0.16)	-0.41 (0.14)	-0.90 (0.14)	-0.45 (0.15)	-0.13 (0.18)
Positive sense of wellbeing	0.56 (0.13)	-0.26 (0.09)	--	--	--	0.30 (0.07)	--	--	-0.40 (0.15)	--	--	--	--	0.50 (0.12)
Constant	2.36 (0.22)	0.80 (0.16)	2.01 (0.19)	1.76 (0.19)	--	--	--	--	--	--	--	--	--	--
Adjusted or Pseudo R2	0.03	0.16	0.13	0.16	0.02	0.01	0.17	0.25	0.15	0.14	0.04	0.07	0.03	0.04
Correctly classified	89.5%	71.4%	68.4%	70.1%										

<sup>a</sup> Logit; <sup>b</sup> Ordered Logit. Standard errors in parentheses.

-- indicates that the variable is not significant at the 1% level and was dropped from the regressions during the iterative process

Table 4b. Key Correlates of Positive Youth Behaviors, Chile

	Not inactive <sup>a</sup>		School completion		Older age at first job <sup>b</sup>		Safe sexual behavior <sup>c</sup>		Older age at first pregnancy/parenthood <sup>b</sup>		Participate in activities <sup>c</sup>	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
<b>Macro</b>												
Rural residence	--	-0.63 (0.14)	-0.46 (0.17)	--	-0.09 (0.02)	--	--	--	--	--	--	--
<b>Micro</b>												
Low parental education level	-2.02 (0.26)	-1.47 (0.23)	-4.18 (0.70)	-2.76 (0.31)	-0.28 (0.03)	-0.11 (0.03)	-0.79 (0.18)	-1.09 (0.18)	--	-0.11 (0.02)	-0.83 (0.16)	-1.06 (0.18)
Positive relationship with father	--	--	0.61 (0.19)	--	--	0.07 (0.02)	--	--	--	0.06 (0.01)	--	--
Positive relationship with mother	0.76 (0.25)	0.75 (0.19)	--	1.59 (0.21)	--	--	--	0.98 (0.18)	--	0.10 (0.02)	--	--
Abuse in household	--	--	--	--	--	-0.07 (0.02)	--	-0.67 (0.15)	--	--	--	--
Substance abuse in the home	--	--	--	--	--	--	-0.70 (0.14)	--	--	--	--	--
Social exclusion	--	-1.29 (0.10)	--	-1.54 (0.12)	--	-0.07 (0.01)	0.37 (0.13)	-0.98 (0.10)	-0.04 (0.01)	-0.16 (0.01)	-0.85 (0.12)	-1.20 (0.11)
Trust in governmental institutions	--	--	--	-0.87 (0.24)	0.07 (0.03)	--	0.78 (0.15)	--	--	--	--	--
Connectedness	--	--	0.49 (0.16)	0.60 (0.17)	--	--	--	--	--	--	--	--
Connection with	--	--	--	--	--	--	--	--	--	--	0.43	--

adult other than parent												(0.13)
Perceived violence in community	--	--	--	--	--	--	--	0.74 (0.18)	--	--	--	--
Poor family cohesion	--	--	--	--	-0.11 (0.02)	--	--	--	--	--	--	0.54 (0.13)
<b>Individual</b>												
Age	-2.66 (0.28)	-4.01 (0.25)	-3.5 (0.33)	-2.62 (0.31)	-0.41 (0.03)	-0.47 (0.03)	-5.57 (0.23)	-5.25 (0.21)	-0.15 (0.01)	-0.32 (0.02)	-1.19 (0.18)	-1.37 (0.20)
Spirituality/church attendance	--	--	0.70 (0.22)	--	--	--	0.75 (0.12)	0.58 (0.11)	--	--	1.19 (0.11)	1.39 (0.11)
Optimism towards future work	--	0.41 (0.13)	--	--	--	--	--	--	--	--	--	--
Have felt discriminated against	--	--	--	--	-0.04 (0.01)	-0.03 (0.01)	--	--	--	--	0.25 (0.07)	--
Positive outlook towards work	0.17 (0.12)	0.04 (0.10)	--	--	--	--	--	--	--	--	--	--
Constant	2.92 (0.31)	2.48 (0.28)	4.82 (0.34)	3.13 (0.34)	0.90 (0.02)	0.89 (0.02)	--	--	1.01 (0.00)	0.92 (0.02)	--	--
Adjusted / Pseudo R <sup>2</sup>	0.08	0.21	0.19	0.23	0.12	0.13	0.16	0.18	0.06	0.21	0.04	0.08
Correctly classified	83.8%	76.0%	87.4%	85.9%								

<sup>a</sup> Logit; <sup>b</sup> OLS <sup>c</sup> Ordered Logit

Standard Errors in parentheses

-- indicates that the variable is not significant at the 1% level and was dropped from the regressions during the iterative process

## Figures

Figure 1a. Mexico – Early sexual initiation by rural indicator, age group and gender

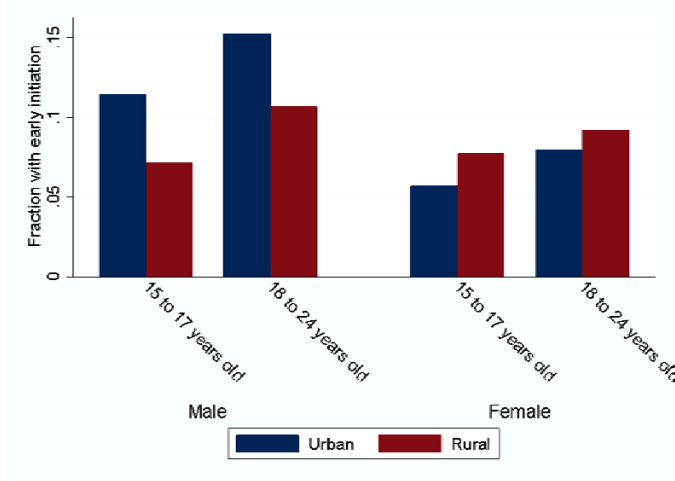


Figure 1b. Chile – Early sexual initiation by rural indicator, age group and gender

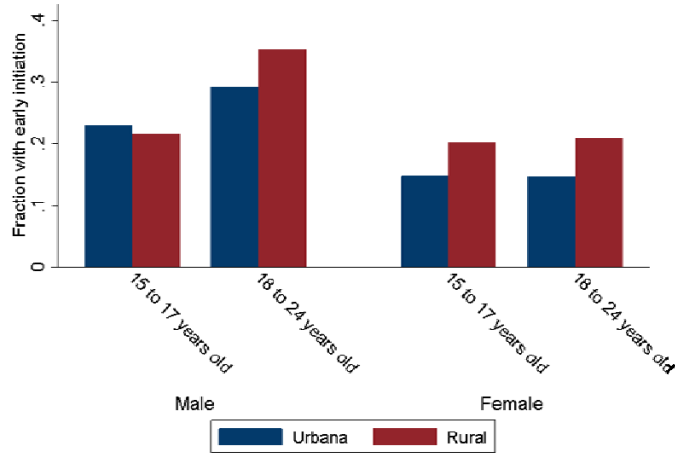


Figure 2a. Mexico – Contraception use by rural indicator, age group and gender

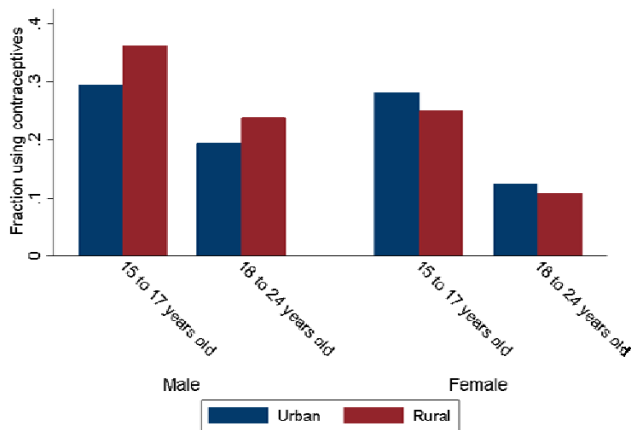
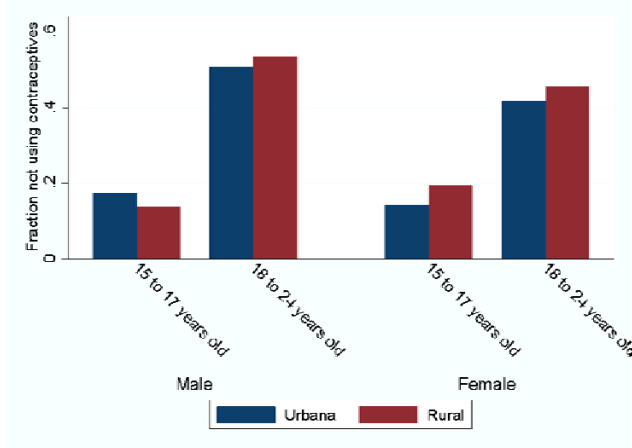


Figure 2b. Chile – Contraception use by rural indicator, age group and gender



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