Independent Thinking and Hard Working Girls or Caring and Well Behaved?
Peers Mothers' Beliefs and the Gender Gap in Risky Behaviors and Later-Life Outcomes

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Abstract

Using the National Longitudinal Study of Adolescent to Adult Health, we explore the causal effect of gender-identity norms on female teenagers' engagement in risky behaviors in the US, relative to their male counterparts. To do so, we exploit idiosyncratic variation across adjacent grades within schools in the proportion of high-school peers' mothers who think that important girl's skills are to think for herself or work hard (as opposed to be well-behaved, popular or help others). We find that a higher proportion of mothers who believe that independent thinking and working hard matters for girls reduces the gender gap in risky behaviors, traditionally more prevalent among male, both in the short, medium and long run. During high school, this effect is driven by two opposite effects: a decrease in boys' engagement in risky behaviors and an increase in that of girls. When youths are in their early and late twenties, only males' beneficial effect persists, suggesting that girls' experimented during high school. We also find that a greater proportion of high-school peers' mothers who value girls' independent thinking and hard working improves adult females' annual earnings and reduces adult females' welfare dependency. No labor-market effects are found among adult males.

Keywords: Gender Identity, short-, medium- and long-run effects, risky behaviors and labor market choices, and Add Health.

JEL Codes: I10, I12, J15, J16, J22, Z13

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"The boys were clamorous and physical. They shouted and hit. The girls held up their arms and whimpered to be picked up. The group of 1- and 2-year-olds had, in other words, split along traditional gender lines."

Ellen Barry, The New York Times, March 24, 2018

"Female trial lawyer, male nurse, woman Marine—all conjecture contradiction. Why? Because trial lawyers are viewed as masculine, nurses as feminine, and a Marine as the ultimate man." "

Akerlof and Krantom, QJE 2000.

1. Introduction

Men's and women's lives have converged considerably in recent decades in the US, as in many other developed countries. Importantly, the labor-force participation rates of men and women have converged over time and the gender wage gap has narrowed (Goldin, 2014).[1] Men and women have also converged in their human capital investment decisions. In fact, the gender gap in educational attainment has sometimes reversed with girls outperforming boys in high-school graduation (Murnane, 2013), years-of-schooling completion (Charles and Luoh, 2003), and college enrollment (Goldin, Katz, and Kuziemko, 2006; and Fortin et al., 2015).

The convergence in men's and women's life patterns is undoubtedly a multifaceted phenomenon, explained by a combination of factors. One of such factors is the role of gender-identity norms, defined as a person's sense of belonging to a social category with clear norms (prescriptions) on how people within that category ought to behave (Akerlof and Stranton, 2000). Within the gender context, women are traditionally thought of as "*generally weak, careful, obedient, socially responsible and sensible, well-behaved, and anxious about and responsive to others' opinion*", whereas men, in contrast, are perceived as "*independent, daring, and fearless, inherently curious, and holders of relaxed attitudes*" (Sznitman, 2007). Hence, traditional feminine traits have subordinated women to childreading and domestic tasks and established invisible boundaries of respectable behavior for them (Abrahamson, 2004). Akerlof and Stranton (2000) build a theoretical model in which changes in society's perceptions on women's appropriate behavior and women's defining traits (toward more masculine ones) decrease women's gains (men's losses) in identity from homemaking, and the identity loss of women (men) working in traditionally men's (women's) jobs, as well as the accompanying externalities.

[1] Recent evidence suggests that female labor force participation has stagnated since the 1990s in the US (Blau and Kahn, 2006).

A recent strand of the economics literature has empirically estimated the effects of gender-identity norms on women's labor-market returns and involvement. Within this context, gender-identity norms tend to be described as "*differences in preferences regarding family structure and women's role in market versus home production"* (Antecol, 2000 and 2001). This literature finds that gender-identity norms are an important determinant of US adult women's labor force participation, hours worked and fertility (Fernandez and Fogli, 2006 and 2009; and Blau et al. 2013). Instead of focusing only on women, other authors have emphasized the effect of gender-identity norms in the US on women's labor-force participation (Antecol 2000), wages conditional on working (Antecol 2001), and math test scores (Pope and Sydnor, 2010) *relative to those of men*. All of these papers examine how variation in gender outcomes across countries of ancestry correlate with immigrant females' (and males' in the case of the gender gap) behaviors in the US.[2] They argue that correlation between country-of-ancestry measures of gender equality and immigrant females' behavior in the US reflects vertical (from parents) or horizontal (from parents' social networks in the US) transmission of gender-identity norms from the country-of-ancestry. In contrast, the current article studies whether gender attitudes towards women during high school affect female adolescents' engagement in risky behavior during high school relative to their male counterparts. We then explore whether these high-school gender-identity norms have a persistent effect as they grow up, and whether they affect their subsequent labor market involvement as young adults relative to their male counterparts.

Since earlier studies suggest that the relaxation of traditional gender-social norms reduces the male-female gender gap in education and in the labor force (Antecol 2000 and 2001, Fernandez and Fogli, 2006 and 2009, Pope and Sydnor, 2010, and Blau et al. 2013), it is plausible that less traditional female identity may also reduce the gender gap in risky behaviors, which have been traditionally more prevalent among males.[3] In other words, the relaxation of gender stereotypes may result in girls behaving "more like boys". Because traditional gender roles exert more rigorous social control over women than men (Rubin 1984), when they are relaxed, women may well increase their experimentation with tabaco, alcohol and illicit drugs. Kaplan et al. (1990) and Waldron et al. (1988) explain that traditional female norms define smoking as unfeminine and inappropriate, and women whose actions do not correspond to the

[2] These studies focus on first- or second-generation immigrants living in the United States, who, hence, share educational, labor- and family-market American institutions but differ in their country-of-origin or country-of-ancestry preferences towards women's role in society.

[3] Keyes et al. (2007) and Warren et al. (2016) report that adult men are generally more likely to engage in risky behaviors than women, but the gap is getting smaller all around the world.

gender norms of behavior face sanctions against smoking under the close social monitoring of traditional societies. Similarly, Abrahamson (2004) notes that women are aware of gender-specific norms establishing invisible boundaries of respectable behavior for them when drinking, while men do not articulate such concerns. Sznitman (2007) argues that traditional female norms also prevent women from losing control and being selfish, which tends to be associated with the consumption of illicit drugs.

In this paper, we study the causal effect of gender-identity norms during high school on the gender gap in engaging in risky behaviors from adolescence into early adulthood. Additionally, we estimate the impact of gender-identity norms on the gender gap in labor-market outcomes during early adulthood. To do so, we exploit idiosyncratic variation across adjacent grades within schools in the proportion of high-school peers' mothers who think that important girl's skills are to think for herself or work hard (as opposed to be well-behaved, popular or help others) using National Longitudinal Study of Adolescent Health (hereafter, Add Health). The Add Health dataset is ideal for our purposes because, on top of containing detailed information on youths' outcomes, characteristics, family background including mothers' beliefs on relevant skills for girls, it includes students from multiple grades in a nationally representative sample of high schools and follows them over time. Our primary interest is on the following risky behaviors: smoking regularly, getting drunk in the past year, ever smoking marijuana, ever using illicit drugs other than marijuana, being expelled from school, and having sex before age 16. Labor-market choices are measured with: full-time employment, annual earned income, and welfare receipt. For each student, a "school/grade" gender identity norm indicator is constructed using *only* information on other students' mothers, that is, we exclude the respondent's own mother.[4] We use school- and grade-fixed effects, as well as school-specific time trends to control for unobserved factors that might confound the non-traditional gender-norm effect in schools.

We measure the influence of grade-mates' attitudes,[5] also known as the *oblique socialization channel* (Dohmen et al., 2012), which emphasizes the role played by the gender-identity norms of the grade-mates' mothers on risk-taking choices while growing up and employment choices in adulthood. While Olivetti, Patacchini, and Zenou (2017) also study the

[4] Our identification strategy is drawn from the education literature and exploits variation in the student composition across cohorts, within schools, to avoid the endogeneity of friendship networks (Angrist and Lang, 2004; Friesen and Krauth, 2007; Hanushek et al. 2002; Hoxby, 2000; Lavy and Schlosser, 2011; Lavy et al., 2012; Bifulco et al., 2011; and Olivetti, Patacchini, and Zenou, 2017).

[5] "Grade-mates" refer to students in an individual's school specific grade.

oblique socialization channel, they focus on adult women's hours worked, and use as proxy of gender-identity norms the average hours worked by grade-mates' mothers. In contrast, we measure gender-identity norms with grade-mates mothers' beliefs on the most relevant skills for girls, hence, directly measuring beliefs on female identity.[6] We argue that through this variable we are capturing gender-identity norms, which have been inter-generationally transmitted from mothers to their sons and daughters, subsequently affecting their peers' engagement in risky behaviors and adult labor-market outcomes. We begin our analysis of the oblique socialization channel on risky behaviors during high school, and then explore on whether this socialization persist over time, and its effect on annual income, full-time employment and welfare receipt in the late twenties/early thirties.

To account for multiple hypotheses testing, we conduct two alternative and complementary strategies. First, we construct summary indexes as in Kling, Liebman, and Katz (2007), and Rodríguez-Planas (2012 and 2017), among others. Second, we adjust p-values using the Romano and Wolf (2005) step-down procedure that asymptotically controls for the family-wise error rate. To support the validity of our identification strategy, we follow Lavy and Schlosser (2011) and use Monte-Carlo simulations to show that the within-school variation in the proportion of mothers with gender-equal social norms is as good as random. Furthermore, we do not find that this within-school variation is related to within-school variation in students' predetermined characteristics.

We find that having a greater share of grade-mates' mothers with non-traditional gender norms reduces the high-school gender gap in risky behaviors traditionally more prevalent among males. This reduction is the result of two opposite forces: an increase in girls' engagement in risky behaviors (regular smoking, getting drunk, ever tried marijuana and ever expelled), both in absolute values and relative to their male counterparts, and a reduction in boys' engagement in risky behaviors. Over time, the detrimental effects of high-school gender norms on females' risky behaviors fade away, but males' beneficial effects on smoking regularly, ever trying marijuana and ever expelled from school persist well into the early thirties. Interestingly, we also find evidence that a greater share of grade-mates' mothers with non-traditional gender norms increases gender convergence in the labor market by raising women's annual earnings and decreasing welfare dependency. There is no evidence that our measure of gender-identity norms during school affects adult males' labor-market outcomes.

[6] The evidence on the inter-generational transmission of culture suggests that transmission is stronger among mothers than fathers (Blau et al. 2013). In any case, most of our parent questionnaires are responded by mothers as explained in the data section.

Overall, our findings suggest that the relaxation of gender stereotypes may result in girls behaving "more like boys" and boys behaving "more like girls" in terms of their engagement in risky behaviors during high school with long-term beneficial effects for males (by curving their engagement in risky behaviors) and females (by improving their labor-market prospects). Crucially, we find that gender-identity norms experienced during adolescence shapes women's labor market decision as adults.

Our work is related to the following four papers on women's behavioral responses to gender-identity norms. First, we contribute to evidence that gender-identity norms (from the parents' country of ancestry) affect second-generation immigrants' teenage smoking in Spain (Rodríguez-Planas and Sanz-de-Galdeano, 2017). The current paper corroborates that the effect of gender-identity norms on the gender gap in risky behaviors: (1) holds in other countries (the US in this case) and among a different population (all US residents regardless of their citizenship status); (2) expands to a wide array of risky behaviors and adult behavioral outcomes; and (3) is robust to a very different identification strategy (idiosyncratic cross-cohort, within school variation). Second, we complement findings in Olivetti, Patacchini, and Zenou (2017) by showing that grade-mates' mothers beliefs on girls' most relevant skills (instead of social norms on mother's hours worked) shape women's earnings and welfare receipt. In addition, we show that gender identity also shapes both male and females' risk taking during adolescent and adulthood and that it does so differentially. Finally, our findings also complement those in Bertrand, Kamenica and Pan (2015) and Cools and Patacchini (2017). The former exploit variation in gender-identity norms across marriage markets,[7] and find that an aversion to a situation where the wife earns more than a husband (their measure of traditional-gender norms) causes women to earn less than their husbands or to not exit the labor force if their earnings would be higher than those of their husbands. Cools and Patacchini (2017) also find that gender-identity norms shape the gender wage gap. More specifically, they find that the gender wage gap is larger for women with brothers (who spend more time with males while growing up) than those without and that traditional female identity explains 20% of these earnings difference between those with and without brothers.[8] Ultimately, these two papers present evidence on how gender-identity norms shape the gender wage gap in the US.

[7] Gender-identity norms are measured with the expected probability that a randomly chosen woman within a marriage market becomes more likely to earn more than a randomly chosen man. Marriage markets are defined based on three race categories, two age categories, and two education cells

[8] Cools and Patacchini (2017) find that their measure of female identity, defined as women's self-reported answers to a battery of questions regarding the relevance of marriage and work in the early twenties and the interference of family interruptions to work and family interference with work as well as the number of children in their late twenties, explains most of the lower earnings among women with brothers.

Our work delivers a broader picture of the link between gender-identity norms and the gender gap, showing that its effects start early on, expand beyond family formation and labor market activities, and importantly, affect men's short- and long-run engagement in risky behaviors.

The remainder of this paper is organized as follows. The next section presents the data, sample selection and descriptive statistics. Section 3 describe the identification strategy and validity. Section 4 presents the main results. Prior to concluding in Section 6, Section 5 presents the robustness checks.

2. Data and Descriptive Statistics

2.1. The Add Health Dataset

The National Longitudinal Study of Adolescent to Adult Health (Add Health) is a school-based longitudinal survey, nationally representative of the United States population of 7th to 12th graders during the school year 1994/95. A stratified sample of 80 high schools and their main feeder school (mostly 80 middle schools) was selected, within each high school (middle school) up to four (two) different grades were generally sampled in Wave I,[9] and within each school and grade, a random sample of about 17 males and 17 females were selected in 1994/95 (hereafter Wave I). These 34 students compose the *core sample*, which is nationally representative of American adolescents in grades 7th to 12th, and were subsequently interviewed in 1996 (hereafter Wave II), in 2001/02 (hereafter Wave III) and in 2008 (hereafter Wave IV). In addition, students from specific minorities were oversampled in Wave I and followed over time. These students, together with the *core sample* students, constitute the so called *in-home* sample.

The *in-home* survey of Add Health, which was mostly conducted at the respondents' homes, collects comprehensive information on health-related behaviors of respondents during adolescence and early adulthood, as well as other post-secondary outcomes. Our outcome variables (described in detail below) and individual control variables come from the *in-home* survey. In particular, we use the following individual controls in our analysis: student's sex, age, race and quality of the residential building they live in, whether they live with both parents, as well as their parents' age and education. Residential building quality is commonly used to capture family socio-economic background (Olivetti, Patacchini and Zenou, 2017).

[9] About a fourth of the high schools had up to six grades as they began in middle school and went up to high school.

During Wave I, Add Health also collected a much larger *in-school* sample in which *all* students at the sampled schools who were present in a given interview date responded to a short survey. While we used the *in-school* survey to estimate most of the grade-level variables included in our analysis, we were unable to use the *in-school* survey more broadly as (1) it lacks the detailed information on risky behaviors collected in the *in-home* survey and (2) it is not longitudinal. Nonetheless, it is noteworthy to underscore that the following grade-level variables were estimated using the whole school student population (as opposed to approximately 34 students per grade) and are used as controls in our analysis: grade size and grade-mates' age, sex, age, race, immigrant versus native status, and parental education. In addition, to control for average quality of students in each grade and school, we use the students' test score the Peabody Picture Vocabulary test (PPVT), an age-specific test used to assess verbal ability and receptive vocabulary. This test score is in the *in-home* survey of Add Health. It is often considered a measure of verbal IQ and is strongly correlated with the Wechsler Intelligence Test and the Armed Forces Qualifying Test (Dunn and Dunn 2007).

2.2. Gender Social Norms

Gender-neutral education modifies stories and songs to counteract rather than reinforce traditional gender roles and family structures and avoids some behaviors traditionally directed to one gender (such as commenting on the attractiveness of girls' clothes) (Shutts et al. 2017). To the extent that traditional gender norms focus on women being obedient, socially responsible and sensible, well-behaved, and responsive to others' opinion, we would like to have a measure of gender social norms that reflects the parents' beliefs regarding their daughters' role in society. Because traditional gender roles rely on women's caring and nurturing roles within the household (as opposed to women's own career advancements outside the household), a measure of which girls' qualities parents believe matter most for their success in society would be capturing parents' social gender norms for their daughters.

Fortunately, Add Health also administered a parental questionnaire to the adolescent's mother during Wave I, which contains the following we use the following question (question A37): "*Of the following, which do you think is the most important thing for a girl to learn? (1) to be well-behaved; (2) to be popular; (3) to think for herself; (4) to work hard; or (5) to help others*", where respondents (mainly the mother) had to select one of the possible 5 choices. We classify mothers' gender-identity beliefs as non-traditional if they answered "*to think for herself*" or "*to work hard*", while we classify them as traditional if they answered any of the

other three choices. Using this binomial variable, we calculated, for each student in our sample, the proportion of non-traditional mothers in his or her grade and school (excluding his or her own mother). Hence, this variable is computed for each student using mothers of his or her classmates in his or her grade.[10]

Focusing on mothers' beliefs, as opposed to fathers' beliefs, is useful to the extent that research has found that transmission of gender-identity is stronger among mothers (Blau et al. 2013). This is relevant to the extent that lack of effect in this literature does not necessarily mean that gender-identity norms do not matter, but instead that the researcher may not be capturing them well enough or have enough variation to identify their impact. Hence, the fact that mainly mothers responded to the parental Add Health questionnaire works in our advantage.

Most recent work on gender-identity norms in the US proxies gender-identity norms with some measure of the (expected) role of women in society (Cools and Patacchini, 2017; Bertrand, Kamenica and Pan, 2015; and Olivetti, Patacchini, and Zenou, 2017). We follow this earlier work for two reasons. First, to the extent that gender-identity norms restraint the less-dominant group (women) from activities traditionally reserved to the dominant group (men), they need to capture the relaxation of the norms on the less-dominant group. Second, even if we wanted to build a measure of male gender-identity norms, we would need to have information on mothers' beliefs on whether boys ought to engage in traditionally female activities such as cooking or nurturing, information unavailable in Add Health.

To explore the extent to which these gender-related beliefs reflect mothers' own gender roles, we first analyzed whether our categorization of non-traditional gender-identity norms is correlated with behavior traditionally perceived as reflecting relaxation of traditional gender norms (in Panel A in Appendix Table 1). To do so, we use all mothers available in Add Health, about 15,000 mothers, and explore the correlations between our measure of gender-identity and these women's own behavior. We find that mothers (that we define) with non-traditional gender-related beliefs are more likely to report working for pay than traditional mothers, and doing so an average of 2.5 more hours per week. They also are less likely to live in an only-male-breadwinner household. In addition, they are more likely to be more educated (with, on

[10] Most of respondents to a parental questionnaire were mothers (93.3%) and we base the proportion of non-traditional mothers only on responses of mothers. If the father responded instead, we do not include this observation in the computation of school grade-level averages. Nonetheless, our findings are robust to including these observations.

average, close to one more year of education) and be more educated than their spouse than traditional mothers. Interestingly, non-traditional mothers are more likely to belong to a union, a sport club or a civic organization, but less likely to be religious or report that religion is important or that they totally agree with religious scripts. Finally, we find that non-traditional mothers are less likely to talk to their children about the moral issue of sex or the negative social impact of sex. While these estimates only capture correlations, they provide evidence that our measure of non-traditional gender-identity norms relates to maternal choices commonly linked to non-traditional gender roles.

Panel B in Appendix Table 1 presents complementary evidence that our main explanatory variable captures gender-identity norms in the county the student lives. Add Health makes available to researchers county-level variables measuring female labor participation, female opportunity index and age-specific child/woman ratios. [11] While the first two variables capture economic and social opportunities for women at the county level, the last one proxies county-fertility rate for different cohorts of women. We find that in those counties with a higher proportion of non-traditional mothers, there is also a higher female labor force participation rate and opportunity index, and lower child/woman ratios. Again, while we are only capturing correlations, our measure of non-traditional social gender norms seems to be related with county-level variables commonly used to reflect greater gender equality.

2.3. Outcome Variables

Our outcomes of interest are twofold: risky behaviors and post-secondary outcomes. Among the former, we consider the following six binary outcomes: smoking regularly, getting drunk in the last year, ever smoking marijuana, ever using illicit drugs (other than marijuana), ever being expelled from school, and having intercourse before age 16. Among the latter, we consider three post-secondary outcomes, namely whether the individual has ever worked for pay at a full-time job, personal annual earnings, and whether the individual is a welfare recipient. [12] Appendix Table 2 summarizes the variables from the *in-home* survey used to construct these different outcomes.

[11] Female Labor Force Opportunity Index indicates the expected number of jobs for female workers relative to the potential supply of female workers, taking into account the sex-segregated nature of the labor market. Age-specific child/woman ratios are calculated by dividing the number of children ever born (not counting still births) to women in the specified age group by the midyear population of women in that age group.

[12] Personal earnings include wages or salaries, tips, bonuses, overtime pay, and income from self-employment.

Because we are interested in analyzing the dynamic effects of social gender norms, we measure most of these behaviors at three different points in time: during adolescence (Wave I), as youth transition to adulthood (Wave III), and as young adults (Wave IV). There are a few exceptions: Having intercourse before age 16 is not measured in Wave I because most respondents were younger than 16 at that point in time, and being expelled from school is not measured in Wave IV as it is no longer relevant. Similarly, the three post-secondary outcomes are only measured during young adulthood, in Wave IV. [13]

A frequent concern in the risky behavior literature is non-response or misreporting as engagement in risky behaviors tends to be self-reported. To minimize such concerns, Add Health conducts computer-assisted self-interviews (CASI) in which the respondent listens through earphones to pre-recorded questions and enters the answers directly on a laptop. Prior to responding to the questionnaire, the interviewee is assured that his or her responses will be and remain confidential. CASI guarantees a strong degree of privacy compared to when the interviewee responds directly to the interviewer or in front of his or her parents or other adults. Indeed, the use of these techniques has been found to enhance the quality of self-reporting sensitive or illegal information (Turner et al. 1998).[14]

Our work adds to recent papers using cross-cohort, within school strategy to analyze the effect of school peers on in-school non-academic outcomes (Lavy, Paserman, Schlosser 2009, Carrell and Hoekstra 2010, Lavy and Schlosser 2011, Fletcher 2010, and Bifulco et al 2011).[15] Nonetheless, most of these studies focus on the socio-demographic composition of the grade-mates or their parents as opposed to the composition of the grade-mates parents' beliefs.[16] Moreover, our study is the first to take a gender perspective by exploring whether gender-identity norms affect in-school non-academic outcomes differentially by gender. Last but not least, our study takes a more comprehensive approach as it also analyzes the long-term effects of high-school grade-mates mothers' beliefs on gender gaps in risky behavior and labor-market outcomes.

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[13] Wave II data were collected in 1996. Because we are interested in analyzing the short-, medium- and long-run behavioral effects of high-school gender norms, we preferred to focus our attention on waves I, III and IV as they were each separated by 6 years. Nonetheless, results using wave II are similar to those from wave I and available from the authors upon request.

[14] For more details on confidentiality protocols of Add Health see http://www.cpc.unc.edu/projects/addhealth/contracts/security

[16] Lavy and Schlosser (2011) study the effect of the share of females students; Lavy, Paserman, and Schlosser (2009) the share of low-ability students; Carrell and Hoekstra (2010) the share of children from troubled families; Fletcher (20??) the share of students who smoke; and Bifulco et al. (2011) the share of minority students or with college-educated parents.

2.4. Sample Restrictions

Because we study youths' engagement in risky behaviors during high school and young adulthood, as well as other post-secondary outcomes, we restrict our analysis to students in the *in-home* sample who were in high school in Wave I.[17] This leaves us with a sample of 14,407 students. As most US high schools cover 9th to 12th grades, we mostly have four grades per school.[18] In addition, we restrict our sample to those students who were successfully tracked from waves I to IV, further reducing our sample to 8,547 students. We also dropped 16 students for whom age or race was missing. Given our focus on the proportion of grade-mates whose mothers have non-traditional gender-related beliefs during Wave I, we dropped 364 additional students because some grades had less than 10 students, leaving us with a longitudinal sample of 8,169 students from 72 schools and 283 school-grade cells.[19] In Section 6, we address potential concerns for attrition bias.

2.5. Descriptive Statistics

Table 1.A displays summary statistics of individual and parental characteristics measured at Wave I and by gender. The first two columns show averages for girls and boys, respectively, and the last two column presents gender differences (if any) without and with state fixed effects (columns 3 and 4, respectively).

Girls represent 53.8% of the sample and are overall evenly distributed across the four grades. Close to three fourth of girls in our sample are white and about one sixth are African American. More than half of them live in a high quality building, and over three fifths of them live with their two parents in the household.[20] On average, their mothers are 43 years old, and about one fourth of them have a college degree. And 71% of the mothers in our sample report having non-traditional gender-identity norms defined as reporting that girl's most important

[17] Others have recently focused on similar populations. For instance, Bifulco, Fletcher and Ross (2011) study the effects of the percent minority and the percent with college-educated mother on post-secondary outcomes. Similarly, Olivetti, Patacchini and Zenou (2017) analyze the effects of the mothers' class mates hours worked during high school on women's hours worked in adulthood.

[18] Only three high schools (out of 80 high schools interviewed by Add Health) teach to 10th graders and higher, representing 13.5% of the Add Health high-school student population in Wave I. In these three cases, we only have three grades per school.

[19] This restriction is common in papers analyzing the effects of high school grade-mates' characteristics and using Add Health data (see Bifulco, Fletcher and Ross, 2011; and Olivetti, Patacchini and Zenou, 2017).

[20] The building is defined as a high quality if interviewer has reported that the building in which the respondent lives is very well kept.

skills are being an independent thinker or hard working (instead of being well-behaved, being popular or helping others).

Boys in our sample resemble girls in most individual and parental characteristics. The only statistically significant differences, after controlling for state fixed effects are that boys tend to be 2.2 months older than girls, on average, and score 1.244 points higher on the PVT (shown in column 4). Both differences are statistically significant at the 1% level. In addition, boys are less likely to be in 10^{th} grade in Wave I, more likely to have mothers with a college degree, although they are also more likely to have maternal education and residential quality building under-reported. These differences, however, are only statistically significant at the 10% level.

Table 1.B presents summary statistics of grade-level variables. On average, during Wave I, students in our sample are 16 years old, and score 101.8 in the PVT. Their grade size is under 40 students, with half of them being girls, over one sixth being African American and 7% being immigrants. Over one third of the parents have a college degree. The only grade-level differences across genders is that girls tend to be in grades with a slightly higher percentage of girls, although the difference is only statistically significant at the 10% level once we control for state fixed effects. Table 1.B also presents descriptive statistics of our key explanatory variable, the share of grade-mates' mothers with non-traditional gender beliefs. On average, over 70 percent of grade-mates have mothers reporting non-traditional gender-related beliefs. Moreover, there are small gender differences in this variable, especially after accounting for state fixed effects.

Table 2 compares our outcomes of interest by gender using our longitudinal Add Health sample. Consistent with previous evidence on boys' underperformance (relative to girls') in many non-cognitive outcomes (see Bertrand and Pan, 2013, Autor et al. 2016, and the references therein), we find that male teenagers are generally more likely to engage in risky and disruptive behaviors than female teenagers. Interestingly, this difference appears to widen as time goes by. In contrast, men tend to outperform women in labor market outcomes in early adulthood.

3. Identification Strategy and Validity

3.1. Identification Strategy

Our goal is to estimate the causal effect of gender-identity norms during high-school on the gender gap in risky behaviors from adolescence into early adulthood and in labor market outcomes in early adulthood. This effect may be confounded by the effects of unobserved correlated factors if gender-identity norms affect student sorting across schools, or if they are correlated with other characteristics of the school, the grade-mates or their parents, that may also affect students' outcomes. To account for these sources of confounding factors we follow a quasi-experimental research design, first developed by Hoxby (2000), which is based on across grades comparisons within a school. In our context, the basic idea of this approach is to exploit within-school variation in gender-identity norms across adjacent grades. Hence, we assume that, conditional on school, the variation in grade-mates' exposure to different gender-identity norms is quasi-randomly assigned. In particular, we estimate the following model:

$$Y_{igs,w} = \beta_1 NonTraditionalMothers_{-igs,1} + \beta_2 Female_{igs} + \beta_3 NonTraditionalMothers_{-igs,1} * Female_{igs} + \delta_g + \rho_s + X'_{igs,1}\alpha + G'_{gs,1} + \varphi\pi_s(Grade_g) + \varepsilon_{igs,w} \quad (1)$$

where $Y_{igs,w}$ is the outcome of interest in wave *w* for an individual *i* who attended high school *s* and grade *g* in Wave I. $NonTraditionalMothers_{-igs,1}$ is the proportion of students (excluding individual *i*) in grade *g* and school *s* whose mothers have non-traditional gender-related beliefs in Wave I. For each student *i*, we construct this variable using *only* information on his/her grade-mates, that is, excluding each student's own mother's gender social norms. $Female_{igs}$ takes the value 1 if individual *i* is female and 0 otherwise and accounts for behavioral differences across genders in the outcome variable. $X'_{igs,1}$ is a vector of student-specific characteristics and $G'_{gs,1}$ is a vector of grade-specific characteristics in a particular school *s*. Both vectors measure characteristics at Wave I and control for student- and grade-specific characteristics that may be related to the engagement of certain risky behaviors, such as the age, race or parental education of a child or its grade-mates. In addition, to control for the most obvious potential confounding factors at the school and grade level such as the static selection of students into schools or the fact that some grades may differ from others within a school, we include both school (ρ_s) and grade (δ_g) fixed effects. One may still be concerned that time-varying unobserved factors correlated with the changes in grade composition within

schools may be biasing our results. For example, let's suppose that the proportion of non-traditional mothers is increasing over time in some schools more than in others. To the extent that parents may be able to detect this change and act upon it based on their preferences related to gender-identity norms, students in higher and lower grades may differ in unobserved ways that may in turn affect boys' and girls' relative propensities to engage in risky behaviors. To address this concern we include a full set of grade-school trends, $\pi_s(Grade_g)$. By doing so, identification is based on the deviation in the proportion of grade-mates' non-traditional mothers across grades from its school long-term trend. The error term, $\varepsilon_{igs,w}$, captures unobserved determinants of individual outcomes. Standard errors are clustered at the school/grade level. Following Add Health protocols, our analyses use longitudinal sample weights so that our estimates are nationally representative of the US high-school student population in school year 1994/95.

Since our goal is to examine whether gender-identity norms affect the gender gap in individual outcomes, our main coefficient of interest is that of the interaction between $NonTraditionalMothers_{-igs,1}$ and the female indicator, that is, β_3. It captures the impact of gender-identity norms on the gender gap in individual behavioral outcomes holding constant the fact that prevalence of different behaviors may well differ across genders. For instance, if *Y* is smoking regularly, a positive and significant β_3 would suggest that a higher proportion of non-traditional mothers in grade *g* and school *s* is associated with a higher prevalence of smoking among female teenagers relative to their male counterparts from the same grade and school (net of any underlying school trends), and thus a *smaller* male-female gender gap in smoking. Note also that the coefficient β_1 captures the effect of the proportion of non-traditional mothers on the outcomes of interest for boys and (β_1+ β_3) the (absolute) effect of the proportion of non-traditional mothers on the outcomes of interest for girls.

We examine six different risky and disruptive behaviors at three different points in time—in Waves I (adolescence), III (transition into adulthood) and IV (early adulthood), as well as three labor market outcomes in Wave IV. Since we analyze multiple outcomes, we must address the concern that an increase in the number of tests increases the likelihood of rejecting the null hypothesis using traditional inferential techniques. We do so using two alternative and complementary strategies. First, we apply the Romano and Wolf (2005) stepwise multiple testing procedure that asymptotically controls the familywise-error rate to estimate adjusted p-values. Following Heckman *et al.* (2010), we group hypotheses into economic and substantially meaningful categories by survey waves. Thus, the analysis focuses

on indicators from two key families of outcomes: risky behaviors and labor market outcomes, measured at three different points in time (Waves I, II and IV). Second, to address concerns that methods that adjust individual p-values for multiple testing to control for familywise-error rate may be overly conservative in terms of power, we also construct several summary indexes (using the same families of outcomes as explained above).[21] Summary indices are a common method to adjust for multiple hypothesis testing (Kling, Liebman, and Katz, 2007, and Rodríguez-Planas, 2012 and 2017, among others), in addition to offer a broad snapshot of our results' overall patterns. Each summary index variable, Y^*, is constructed as the unweighted average of all standardized outcomes within a family:

$$Y^* = \frac{\sum_k Y_k^*}{k} \qquad \text{where} \qquad Y_k^* = \frac{Y_k - \mu_k}{\sigma_k}$$

where Y_k is the k^{th} outcome of K variables within each family. If the summary index contains adverse and beneficial effects (as is the case for the labor-market index in Wave 4), we switch the sign for the adverse outcome (welfare receipt), so that a higher value of the normalized measure represents a more "beneficial" outcome. Standardization is performed using the mean (μ_k) and standard deviation (σ_k) for the control group. Appendix Table A.3 describes the summary indices presented in this paper. Only when summary indices indicate a statistically significant effect, do we discuss statistically significant individual outcomes.

3.2. Validity of the Identification Strategy

Identification in our analysis comes from variation across grades (say a 10th grader versus an 11th grader) in the share of individuals with mothers with non-traditional beliefs in that same grade (excluding one self) and net from the school's long-term trend. This variation can be considered as quasi-random if the following two conditions are met. First, being in one grade or another is beyond one's control. In most schools in the US, the grade a student attends is a function of his or her birth date and a cut-off date, hence, beyond the influence of the student, parents or school administrator (as argued by Elsner and Isphording 2018, among others). Second, there are no systematic differences in the across-grade variation of grade-mates' mothers gender-identity beliefs, that is, they are not driven by unobserved factors that may also influence differential risky behavior between boys and girls growing up and labor-market

[21] Anderson (2008) explains that when there is a priori no reason to believe that a group of outcomes will be affected in a consistent direction, the summary indices are preferred to alternative methods that adjust individual p-values for multiple testing.

behavior between adult men and women. Our conjecture is that after removing grade and school fixed effects, as well as school trends, these two conditions are satisfied. Below, we provide evidence supporting these two conditions.

Table 3 shows the amount of variation that is left in our key explanatory variable after removing grade and school fixed effects first, and grade and school fixed effects and school trends, subsequently. Insufficient variation would lead us to fail to reject the null hypothesis of no effect because of poor precision of our estimates. According to the raw estimate, 71.5% of grade-mates' mothers have non-traditional beliefs. The standard deviation of this raw variable (12%) is reduced by 40% to 7.3% when we remove grade and school fixed effects and by an additional 15% to 6.2% when school trends are also accounted for. Despite the standard-deviation reduction, our estimates are based on far from negligible changes in gender-identity norms across grades, which should give us reasonable precision.

Table 4 presents balancing tests for our non-traditional gender-identity norms variable. To rule out sorting across grades, we explore whether variation in the share of grade-mates' mothers with non-traditional beliefs across grades is unrelated to a number of socio-demographic characteristics net of grade and school fixed effects. Because our analysis focuses on the differential effect of grade-mates' mother social gender norms on girls relative to boys, variation ought to be unrelated to both socio-demographic characteristics and gender differences in those characteristics. The second column in Table 4 presents the balancing tests for the gender gaps. Balancing tests reveal that two of our 36 coefficients are statistically significantly different from zero at the 10 percent level, and none are statistically significantly different at the 5 percent level, which is less than what we would expect by chance, suggesting that controlling for grade and school fixed effects is likely to be sufficient to isolate variation in grade composition that is not systematically related to students' socio-demographic composition within schools.

Finally, we follow Lavy and Schlosser (2011), and use Monte-Carlo simulations to show that the within school grade-level variation in the share of grade-mates' mothers with non-traditional gender beliefs is as good as random. To do so, for each student in each school cell, we randomly draw a dummy variable indicating beliefs in non-traditional gender roles using a binomial distribution with the school mean of this measure. Then, we calculated the average the standard deviation of non-traditional gender role beliefs in each grade and repeat this process 1,000 times to obtain a 95% confidence interval for the standard deviation for each grade/school cell and check if the actual standard deviation is within the 95% interval. 96% of schools have an actual standard deviation that falls within the 95% simulated confidence

interval, which is good for us to claim that the variation of grade-mates' mothers non-traditional beliefs is as good as random. Figure 1 shows that the actual and simulated standard deviation of the share of individuals with non-traditional beliefs within a cell are very similar.

4. Results

4.1. Summary Indices

Table 5 presents estimates by domain, with the measures included in each summary index indicated in Appendix Table A.3. The second row in Table 5 displays the coefficient β_3, which captures the effect of high-school gender-identity norms on the gender gap in risky behaviors in the short-, medium- and long-run (columns 1 to 3). This coefficient is positive and statistically significant at the 5 percent level or higher, revealing that having a higher proportion of grade-mates with mothers with non-traditional beliefs during high school increases girls' engagement in risky behaviors *relative* to their male counterparts, hence reducing the gender gap. Even though the size of β_3 declines over time, it remains sizeable and statistically significant at the 5 percent level in Wave IV (shown in column 3 in Table 5).

This convergence in risky behaviors may be the result of a reduction in males' engagement in risky behaviors, an increase in females' engagement in risky behaviors, or both. We observe that β_1, which captures the effect of gender-identity norms on boys' engagement in risky behaviors, is negative indicating that a greater proportion of peers with non-traditional mothers during high school curves males' risky behaviors during high school. This beneficial effect persist over time beyond high school, albeit it loses precision in the long-run and is only statistically significant at the 10 percent level in Wave IV (shown in row 1, column 3 in Table 5).

The effect of gender-identity norms on gender convergence is also the result of an (absolute) increase in girls' engagement in risky behaviors during high school ($\beta_1 + \beta_3 = +0.253$, standard error=0.121). However, the size of ($\beta_1 + \beta_3$) becomes considerably smaller and is no longer statistically significant in Waves III and IV, suggesting that the detrimental effect of gender-identity norms on girl's engagement in risky behaviors during high school is more the result of experimentation. Column 4 in Table 5 enables us to explore whether gender-identity norms during high school affect females' and males' labor market outcomes in adulthood.

We find a positive and persistent effect of high-school gender-identity norms on females' relative (β_3) and absolute ($\beta_1+\beta_3$) labor market outcomes in Wave IV.[22] This effect is statistically significant at the 1 percent level and consistent with earlier findings that a relaxation of traditional gender norms improves the gender gap in the labor market as shown by Bertrand, Kamenica and Pan (2015) and Cools and Patacchini (2017) for the gender wage gap and Olivetti, Patacchini, and Zenou (2017) for women's hours worked. We find no effect of high-school grade-mates' mothers with non-traditional beliefs on adult males' labor market outcomes.

4.2. Individual Outcomes

Panels A and B in Table 6 show the effects of gender-identity norms on individual outcomes using a specification that controls for grade and school fixed effects, individual, parental and grade controls, and school trends. Panel A focuses on risky behaviors in the short, medium and long run, while Panel B presents labor-market outcomes in the long run. Each table presents estimates of β_1 and β_3. In addition, Appendix Tables A.3-A.6 show the sensitivity of these coefficients to sequentially adding fixed effects, school trends and individual, parental and grade controls. The last column adds a control for own mother's gender-identity norms. Note that we have excluded this variable from our preferred specification because it is potentially endogenous as a mother's beliefs on daughters' most relevant skills could be correlated with unobserved heterogeneity shaping her engagement in risky behavior during adolescence and adulthood as well as her labor market choices.

Because of multiple hypothesis testing, below we only discuss estimates when the coefficient on the summary index (shown in Table 5) is statistically significantly different from zero. Even though summary indices are frequently preferred to alternative methods that adjust individual p-values for multiple testing (Anderson 2008), in Tables 6 and 7 we also adjusted standard errors with the Romano and Wolf procedure (coefficients in bold are those that are statistically significant at the 5% level or higher using this alternative correction method).

Short-Run Effects on Risky Behaviors

Focusing on the short-run effects first, we find that having a greater proportion of grade-mates' mothers with non-traditional beliefs during high school increases girls' regular smoking, getting drunk in the last year, ever smoking marijuana, and ever being expelled from school

[22] ($\beta_1+\beta_3$)=+0.354, standard error=0.126.

relative to their male counterparts. Indeed estimates of β_3 shown in column 2 indicate that a 10 percentage-point increase in the share of grade-mates' mothers with non-traditional beliefs results in an increase in girls' likelihood of getting drunk during the last year by 2.48 percentage points relative to their male counterparts (a 7% increase of girls' "getting drunk" prevalence in Wave I). Since the gender gap in Wave I is 3.7 percentage points, this represents a 67% decrease in the raw gender gap.[23] Similarly, a 10 percentage-point increase in the share of grade-mates' mothers with non-traditional beliefs results in an increase in high-school girls' likelihood of: (1) regular smoking by 2.05 percentage points relative to their male counterparts (or 9.4% increase of girls' smoking prevalence); (2) ever smoking marijuana by 3.11 percentage points relative to their male counterparts (or 71% reduction of the raw gender gap); (3) ever being expelled by 1.46 percentage points relative to their male counterparts (or 33% reduction of the raw gender gap). All of these estimates are statistically significant at 5 percent or higher, even after adjusting for multiple hypotheses testing with the Romano and Wolf procedure. It is also noteworthy that the size and precision of all these coefficients is quite stable across specifications in Appendix Table A.3 (including when controlling for own mothers' gender-related beliefs) suggesting that school trends matter little and that omitted individual-level variable bias is unlikely to be a problem.

We already saw in Table 5 that this gender convergence is driven by two opposite effects: a decrease in males' engagement in risky behaviors and an increase in females' engagement in risky behaviors during high school. Even though, the short-run summary index shown in Table 5 and discussed in the previous sub-section was statistically significant for males, none of the individual outcomes are statistically significantly different from zero. For high-school girls, we find that the absolute effect of gender-identity norms on risky behaviors during high school are positive and quite large but lack significance with the exception of "ever smoking marijuana". A 10 percentage points increase in the share of grade-mates' mothers with non-traditional beliefs during high school increases the likelihood that girls ever smoke marijuana during high school by 2.09 percentage points, a 6.3% increase in girls' prevalence in Wave I.

How do these estimates compare to other estimates on engagement in risky behavior during high school? Our estimates for girls' ever smoking marijuana are not far from those found by Garivia and Raphael (2001), Clarck and Lohéac (2007) and Fletcher (2010) on the

[23] In Wave I, the prevalence of boys and girls reporting getting drunk in the last 12 months is 39.8% and 36.1%, respectively.

effect of peers smoking or drinking and smaller than those found by Fletcher (2017) on the effect of peers with suicidal thoughts. In particular, these authors find that a 10 percentage-point increase in the share of peers who drink or smoke increases the likelihood of drinking or smoking by 1.5 or 2 percentage points, about 5% to 8% increase in prevalence.[24] Fletcher (2017) finds that a 10% increase in the proportion of peers with suicidal thoughts increases own suicidal thoughts by 3.6 percentage points or 28% increase in prevalence.

Medium- and Long-Run Effects on Risky Behaviors

Moving now to Wave III, when youths were on their early twenties and out of high school, we explore whether high-school grade-mates mothers' gender-identity norms continue to affect young females' engagement in risky behaviors as young adults relative to their male counterparts. The summary-index estimate of β_3 in Table 5 was positive and statistically significant indicating that high-school gender-identity norms affected the gender gap in risky behaviors in the medium run. Even though most estimates of β_3 in Column 4 in Table 6 remain positive and sizeable, only three estimates are statistically significantly different from zero and of these, only one remains statistically significant once we adjust the standard errors for multiple hypothesis testing. Hence, it appears that some of the detrimental effect of grade-mates mothers' non-traditional gender norms on girls' risky behaviors (relative to boys) tends to fade away as they grow up. Nonetheless, there is some persistence as we find that a 10 percentage-point increase in the share of grade-mates' mothers with non-traditional beliefs during high school results in an increase in the likelihood of young female adults having ever been expelled by 2.13 percentage points relative to their male counterparts, the equivalent of a 24.5% decrease in the gender gap. In addition, it also increases young female adults' relative likelihood of smoking marijuana by 2.75 percentage points (the equivalent of a 33% decrease in the gender gap) and having sex before age 16 by 1.92 percentage points (the equivalent of a 71% widening of the gender gap)—albeit the last two variables lack precision when the Romano-Wolf adjustment is applied. Appendix Table A.4 shows that these results are robust to alternative specifications.

Similar findings emerge in Wave IV, when youths were in their late twenties: high school grade-mates mothers' beliefs seem to have some lingering effect on females' engagement in risky behaviors relative to those of males 14 years later. A 10 percentage-point

[24] Elsner and Isphording (2018) find estimates of similar magnitude for a one-decile increase in ordinal rank ability.

increase in the share of grade-mates' mothers with non-traditional beliefs during high school results in an increase in the likelihood of female adults' regularly smoking or smoking marijuana by 2.15 and 2.37 percentage points relative to their male counterparts (the equivalent of a 36.4% and 23.7% increase in the gender gap, respectively). While neither of these two estimates are statistically significant once we adjust for multiple hypothesis testing using the Romano and Wolf procedure, these procedures are known to be overly conservative (Anderson 2008), and our estimates do pass the index summary test (shown in Table 5). Finally, Appendix Table A.5 shows that these results are robust to alternative specifications.

The bottom line is that high-school grade-mates mothers' gender-identity norms reduce the gender gaps in risky behaviors during high school and beyond (up until the late twenties/early thirties). While the short-run effects were driven by opposite effects on girls' and boys' engagement in risky behaviors, the medium- to long-run effects are mainly driven by a reduction in males' engagement in risky behavior. In particular, we find that a 10 percentage-point increase in the share of high-school grade-mates' mothers with non-traditional beliefs reduces males' regular smoking by 2.59 and 2.64 percentage points in the medium- and long-run, respectively, the equivalent of an 8% decrease in males' prevalence. Both estimates are statistically significant, even after accounting for the Romano-Wolf correction. We also find that a 10 percentage-point increase in the share of high-school grade-mates' mothers with non-traditional beliefs reduces males' likelihood of: ever trying marijuana by 2.49 and 1.72 percentage points in the medium and long run (a 4% and 2.4% decrease in males' prevalence, respectively), and ever being expelled by 1.71 percentage points (a 13% decrease in males' prevalence). These three coefficients loose precision once we adjust for multiple-hypothesis testing with Romano and Wolf procedure.

Crucially, we find that the detrimental effects of gender-identity norms during high school has no (absolute) effect among females' risky behaviors, suggesting that earlier findings of non-traditional beliefs disinhibiting high-school girls' engagement in risky behaviors may have well been girls' experimenting with traditionally male activities.

Long-Run Labor Market Outcomes

Perhaps not surprisingly, given the lack of persistence of gender-identity norms on females' engagement in risky behaviors, we find that a higher proportion of grade-mates' mothers with non-traditional beliefs during high school benefits adult women's labor market outcomes both in absolute and relative terms. We find that women who experienced a higher share of non-traditional mothers during high school earned higher annual income and were less likely to

receive welfare 14 years later when they were in their late twenties relative to their male counterparts. More specifically, Panel B in Table 6 shows that a 10 percentage-point increase in the share of grade-mates' mothers with non-traditional beliefs during high school results in an increase in women's annual personal income of 1,729 US dollars relative to their male counterparts, reducing the earnings gap from $12,794 to $7,080 US dollars (or from 42% of females' average earnings to 23%). Similarly, we find that a 10 percentage-point increase in the share of grade-mates' mothers with non-traditional beliefs during high school results in a decline by 2.3 percentage points in the likelyhood that women receive welfare relative to their male counterpart, the equivalent to a 24% decline in the raw gender gap.

While there are no effects of high-school gender-identity norms on males' labor market outcomes, we do find an absolute effect on females' earnings and on welfare receipt. A 10 percentage-point increase in the share of grade-mates' mothers with non-traditional beliefs during high school increases women's earnings by $1,454 US dollars (or 5%) and reduces their likelihood of welfare receipt by 1.27 percentage points (or 5%).

5. Robustness Checks

5.1. Gender Norms Based on Full Sample vs Gender Norms Based on Core Sample

Since we observe only subsample of students from each school and grade and not all students, we need to impose an additional assumption that the proportion of traditional mothers is estimated consistently with this subsample. This would not be an issue if the interviewed subsample was drawn randomly from each school and grade. However, there is a potential concern with the sample construction of AddHealth because minorities have been over-sampled. That is, for in-home interview there was firstly randomly selected the sample of 17 boys and 17 girls from each school and grade (*core sample*) and then several minorities students were sampled on top of this. Therefore, the percentage of traditional mothers could be measured with the bias if minorities have systematically different gender social norms.

To assess this issue we first compare mother's beliefs distributions of the core sample and of the full sample.[25] We compute the proportion of gender neutral mothers based on the randomly drawn core sample and it is highly correlated with the proportion based on the full sample that we use for our analysis (ρ=0.905). However, these distributions might be more different within schools. To address this concern, we re-

[25] We compare the distributions of mothers' answers to the question about the most important qualities for girls, which we use to construct an indicator for having traditional beliefs.

estimate the baseline model using (1) the full estimation sample but calculating the proportion of gender neutral mothers based on the core sample and (2) using the core sample only. In both cases we eliminate any bias from over-sampling. Table A2 of Appendix 1 compares the results of re-estimations using these two definitions with the baseline results from Table 5, Column (5). Estimated coefficients are very similar across columns, which indicates that over-sampling does not introduce a substantial bias in the estimates.

5.2. Attrition

Between wave I, wave III and wave IV we lose about 40 percent of the sample because of selective attrition, which might rise some concerns about validity of our estimates. Particularly, attrition could introduce a bias if it is systematically correlated with gender norms. We test whether selective attrition introduces a bias by regressing an attrition dummy on the proportion of non-traditional mothers, its interaction with female dummy and school and cohort fixed effects as well as female dummy. The coefficients of the proportion of non-traditional mothers and of its interaction with female dummy are neither individually, nor jointly statistically significant, suggesting that attrition is independent on gender norms.[26]

5.3. Strategic Delay of School Entry

Our estimation strategy relies on the assumption the within-school variation in the proportion of non-traditional mothers is as good as random, which also requires that there is no systematic selection in grades within the school. This assumption can be violated if students and parents can influence the assignment into cohorts, for example, if parents strategically delay their children's school entry. To address this concern, we follow Elsner and Ingo (2017) and restrict the sample to students who are at most 6 months older or younger than the cohort average. We re-estimate the baseline model implementing described sample description. Table A2, Column (4) of Appendix 1 presents the results of re-estimation. The magnitude of the coefficients does not change significantly compared to the baseline results presented in Column (1). Only two coefficients are no longer significant, those of having sex before 16 and ever smoking marijuana at wave 4, although given that the

[26] For the proportion of non-traditional mothers, the coefficient is 0.027, standard error is 0.064, t-statistic is 0.43. The coefficient for the proportion of non-traditional mothers interacted with female dummy is -0.099, standard error is 0.068, t-statistic is -1.45. F-statistic for joint significance is 1.18.

point estimates are similar, the higher standard errors seem to be due to a smaller sample size rather than a bias in the estimates.[27]

6. Conclusion

Using the National Longitudinal Study of Adolescent to Adult Health, we explore the causal effect of gender-identity norms on female teenagers' engagement in risky behaviors in the US, relative to their male counterparts. To do so, we exploit idiosyncratic variation across adjacent grades within schools in the proportion of high-school peers' mothers who think that important girl's skills are to think for herself or work hard (as opposed to be well-behaved, popular or help others). We find that a higher proportion of mothers who believe that independent thinking and working hard matters for girls reduces the gender gap in risky behaviors, traditionally more prevalent among male, both in the short, medium and long run. During high school, this effect is driven by two opposite effects: a decrease in boys' engagement in risky behaviors and an increase in that of girls. When youths are in their early and late twenties, only males' beneficial effect persists, suggesting that girls' experimented during high school. We also find that a greater proportion of high-school peers' mothers who value girls' independent thinking and hard working improves adult females' annual earnings and reduces adult females' welfare dependency. No labor-market effects are found among adult males.

Our work contributes to a recent literature studying the role of gender-identity norms on women's behavioral choices (Bertrand, Kamenica and Pan, 2015; Olivetti, Patacchini and Zenou, 2017; and Cools and Patacchini 2017). While these earlier studies find evidence that gender-identity norms affect women's behaviors (such as labor force participation, hours worked, income, division of home production and marriage satisfaction and tenure), we are the first to find evidence that gender-identity norms also shape males' behavioral choices. Our findings suggests that gender-identity norms lead girls (women) to behave more "like boys (men)" and boys (men) to behave more "like girls (women)" in terms of their engagement in risky behaviors. Hence, the relaxation of traditional gender stereotypes appears to weaken the perceived association between masculinity and traits such as fearlessness and "being daring", reducing in turn males' engagement in risky behaviors. We leave for future research (and better data) the understanding of mechanisms driving these findings.

[27] Note that coefficients for having sex before 16 and ever trying marijuana (wave 4) are not statistically significant in the baseline model after Romano-Wolf correction.

References (*incomplete*)

Anderson, M. (2008). "Multiple Inference and Gender Differences in the Effects of Early Intervention: A Reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects." *Journal of the American Statistical Association*, vol. 103 (484), pages 1481-1495.

Angrist, J., and K. Lang. (2004). "Does School Integration Generate Peer Effects? Evidence from Boston's Metco Program." *American Economic Review*, 94(5): 1613–34.

Antecol, H. (2000). "An Examination of Cross-Country Differences in the Gender Gap in Labor Force Participation Rates." *Labour Economic*s 7(4): 409–26

Autor, D. and D. Figlio, and Karbownik, Krzysztof and Roth, Jeffrey and Wasserman, Melanie, Family Disadvantage and the Gender Gap in Behavioral and Educational Outcomes (May 2016). NBER Working Paper No. w22267.

Bertrand, M., & Pan, J. (2013). The trouble with boys: Social influences and the gender gap in disruptive behavior. *American Economic Journal: Applied Economics*, *5*(1), 32-64.

Bertrand, M., Kamenica, E., & Pan, J. (2015). Gender identity and relative income within households. *The Quarterly Journal of Economics*, *130*(2), 571-614.

Bifulco, R., Fletcher, J. M., & Ross, S. L. (2011). The effect of classmate characteristics on post-secondary outcomes: Evidence from the Add Health. *American Economic Journal: Economic Policy*, *3*(1), 25-53.

Blau, Francine D., Lawrence M. Kahn, Albert Yung-Hsu Liu, and Kerry L. Papps. 2013. "The Transmission of Women's Fertility, Human Capital, and Work Orientation across Immigrant Generations." *Journal of Population Economics* 26(2): 405–35.

Card, D., & Giuliano, L. (2013). Peer effects and multiple equilibria in the risky behavior of friends. *Review of Economics and Statistics*, *95*(4), 1130-1149.

Charles, K. K., & Luoh, M. C. (2003). Gender differences in completed schooling. *The Review of Economics and Statistics*, *85*(3), 559-577.

Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J. and Wagner, G.G. (2012). 'Individual risk attitudes: measurement, determinants and behavioral consequences', *Journal of the European Economic Association*, vol. 9(3), pp. 520–50.

Dunn, D. M., & Dunn, L. M. (2007). *Peabody picture vocabulary test: Manual*. Pearson.

Fernández, Raquel, and Alessandra Fogli. 2006. "Fertility: The Role of Culture and Family Experience." *Journal of the European Economic Association* 4(2-3): 552–61.

Fernández, Raquel, and Alessandra Fogli. 2009. "Culture: An Empirical Investigation of Beliefs, Work, and Fertility." *American Economic Journal: Macroeconomics* 1(1): 146–77.

Fernández, Raquel. 2011. "Does Culture Matter?" Published in, J. Benhabib, M. O. Jackson and A. Bisin, editors, Handbook of Social Economics, Vol. 1A, North-Holland.

Fernández, Raquel. 2013. "Cultural Change as Learning: The Evolution of Female Labor Force Participation over a Century." *The American Economic Review*, 103(1): 472-500.

Fortin, N. M., Oreopoulos, P., & Phipps, S. (2015). Leaving boys behind gender disparities in high academic achievement. *Journal of Human Resources*, *50*(3), 549-579.

Friesen, J., & Krauth, B. (2007). Sorting and inequality in Canadian schools. *Journal of public Economics*, *91*(11), 2185-2212.

Fryer, R. G., & Levitt, S. D. (2010). An empirical analysis of the gender gap in mathematics. *American Economic Journal: Applied Economics*, 2(2), 210-240.

Furtado, Delia, Miriam Marcén, and Almudena Sevilla. 2013. "Does Culture Affect Divorce? Evidence from European Immigrants in the United States." *Demography* 50(3): 1013–38.

Goldin, C. (2014). A grand gender convergence: Its last chapter. *The American Economic Review*, *104*(4), 1091-1119.

Goldin, C., Katz, L. F., & Kuziemko, I. (2006). The homecoming of American college women: The reversal of the college gender gap. *The Journal of Economic Perspectives*, *20*(4), 133-133.

Gould, E. D., Lavy, V., & Daniele Paserman, M. (2009). Does immigration affect the long-term educational outcomes of natives? Quasi-experimental evidence. *The Economic Journal*, *119*(540), 1243-1269.

Guiso, Luigi, Ferdinando Monte, Paola Sapienza, and Luigi Zingales. 2008. "Culture, Gender, and Math." *Science* (New York, N.Y.) 320: 1164–65.

Hanushek, E. A., Kain, J. F., Markman, J. M., & Rivkin, S. G. (2003). Does peer ability affect student achievement? *Journal of applied econometrics*, *18*(5), 527-544.

Heckman, J., Moon, S. H., Pinto, R., Savelyev, P., & Yavitz, A. (2010). Analyzing social experiments as implemented: A reexamination of the evidence from the HighScope Perry Preschool Program. *Quantitative economics*, 1(1), 1-46.

Hoxby, Caroline. 2000. "Peer Effects in the Classroom: Learning from Gender and Race Variation." National Bureau of Economic Research Working Paper 7867

Kling, J. R., Liebman, J. B., & Katz, L. F. (2007). Experimental analysis of neighborhood effects. *Econometrica*, *75*(1), 83-119.

Lavy, V., & Schlosser, A. (2011). Mechanisms and impacts of gender peer effects at school. *American Economic Journal: Applied Economics*, *3*(2), 1-33.

Lavy, V., M. D. Paserman, and A. Schlosser (2012). Inside the Black Box of Ability Peer Effects: Evidence from Variation in the Proportion of Low Achievers in the Classroom. *Economic Journal* 122 (559), 208–237.

Murnane, R. J. (2013). US high school graduation rates: Patterns and explanations. *Journal of Economic Literature*, *51*(2), 370-422.

Nollenberger, N., N. Rodríguez-Planas, and A. Sevilla. 2016. "The Math Gender Gap: The Role of Culture." *American Economic Review*, vol. 106, no. 5, pp. 257-61.

Olivetti, C., Patacchini, E., & Zenou, Y. (2016). Mothers, peers and gender identity (No. 904). Boston College Department of Economics.

Pini, M. (2001). *Club cultures and female subjectivity: The move from home to house*. Springer.

Pope, D. G., & Sydnor, J. R. (2010). Geographic variation in the gender differences in test scores. *The Journal of Economic Perspectives*, *24*(2), 95-108.

Rodríguez-Planas, N. (2012). "Longer-Term Impacts of Mentoring, Educational Services, and Learning Incentives: Evidence from a Randomized Trial in the U.S." *American Economic Journal: Applied Economics,* 4 (4), 121–139.

Rodríguez-Planas, N. (2012). "School, Drugs, Mentoring and Peers: Evidence from a Randomized Trial in the U.S." *Journal of Economic Behavior and Organization*. July 2017, vol. 139: 166-181.

Rodríguez-Planas, N., and A. Sans-de-Galdeano. (2017). "Social Norms and Teenage Smoking : The Dark Side of Gender Equality" IZA Discussion Paper No. 10134.

Romano, J. P., & Wolf, M. (2005). Stepwise multiple testing as formalized data snooping. *Econometrica*, *73*(4), 1237-1282.

Sznitman, S. R. (2007). Drugs and gender. *Nordic Studies on Alcohol and Drugs*, *24*(2), 107-126.

Table 1 A. Longitudinal Sample Description

	Female mean/sd	Male mean/sd	Female-male	Female-male controls for state FE
Baseline controls				
Grade 9	0.245	0.254	-0.009	-0.008
	(0.430)	(0.435)	(0.010)	(0.015)
Grade 10	0.266	0.242	0.024**	0.022*
	(0.442)	(0.428)	(0.010)	(0.011)
Grade 11	0.231	0.239	-0.008	-0.009
	(0.422)	(0.427)	(0.009)	(0.011)
Grade 12	0.258	0.265	-0.007	-0.006
	(0.437)	(0.441)	(0.010)	(0.011)
Additional controls				
Age	16.857	17.040	-0.183***	-0.184***
	-1.207	-1.230	(0.027)	(0.044)
white	0.727	0.736	-0.009	-0.004
	(0.446)	(0.441)	(0.010)	(0.011)
black	0.170	0.155	0.015*	0.009
	(0.375)	(0.362)	(0.008)	(0.011)
PVT	102.089	103.283	-1.194***	-1.244***
	(13.724)	(13.186)	(0.298)	(0.284)
Missing PVT	0.049	0.060	-0.011**	-0.011
	(0.216)	(0.238)	(0.005)	(0.007)
High quality residential building	0.579	0.559	0.020*	0.015
	(0.491)	(0.492)	(0.011)	(0.016)
Missing residential building quality	0.010	0.018	-0.008***	-0.008*
	(0.099)	(0.133)	(0.003)	(0.004)
Mother is a college graduate	0.265	0.293	-0.028***	-0.029*
	(0.420)	(0.429)	(0.009)	(0.014)
Father is a college graduate	0.321	0.322	-0.001	-0.005
	(0.384)	(0.390)	(0.009)	(0.012)
missing mothers education	0.087	0.112	-0.024***	-0.026**
	(0.283)	(0.315)	(0.007)	(0.010)
missing fathers education	0.318	0.300	0.018*	0.015
	(0.466)	(0.458)	(0.010)	(0.016)
Both parents live in hh	0.625	0.645	-0.020*	-0.016
	(0.484)	(0.479)	(0.011)	(0.018)
Parental age	42.529	42.704	-0.175	-0.196
	-5.787	-5.858	(0.129)	(0.144)
Mother is non-traditional	0.712	0.720	-0.008	-0.010
	(0.409)	(0.394)	(0.009)	(0.014)
Mother is non-traditional missing	0.176	0.219	-0.042***	-0.048**
	(0.381)	(0.413)	(0.009)	(0.018)
Observations	4397	3772		

*Note: For columns (1-2) standard deviations are in parentheses and for columns (3-4) standard errors are in parentheses. Column (4) reports OLS estimates assosiated with the regression of outcome on male dummy and state fixed effects and standard errors clustered at state level. Observations are weighted with longitudinal weights. *** p<0.01, ** p<0.05, * p<0.1*

Table 1 B. Longitudinal Sample Description

	Female mean/sd	Male mean/sd	Female-male	Female-male controls for state FE
Grade characteristics				
Share of non-traditional mothers	0.712	0.718	-0.006**	-0.008
	(0.123)	(0.120)	(0.003)	(0.006)
Average age	15.946	15.957	-0.012	-0.010
	(1.095)	(1.105)	(0.024)	(0.036)
Share of blacks	0.175	0.170	0.005	-0.001
	(0.236)	(0.225)	(0.005)	(0.004)
Share of females	0.509	0.487	0.022***	0.017*
	(0.054)	(0.097)	(0.002)	(0.009)
Average PVT	101.777	101.858	-0.082	-0.168
	(6.295)	(6.316)	(0.140)	(0.264)
Grade size	39.529	37.891	1.638	1.715
	(56.198)	(52.538)	(1.203)	(1.044)
Share of non-immigrants	0.927	0.925	0.002	-0.001
	(0.099)	(0.104)	(0.002)	(0.001)
Share with college graduate parents	0.347	0.353	-0.006	-0.012
	(0.170)	(0.176)	(0.004)	(0.010)
Observations	4397	3772		

*Note: For columns (1-2) standard deviations are in parentheses and for columns (3-4) standard errors are in parentheses. Column (4) reports OLS estimates assosiated with the regression of outcome on male dummy and state fixed effects and standard errors clustered at state level. Observations are weighted with longitudinal weights. *** p<0.01, ** p<0.05, * p<0.1*

Table 2: Summary Statistics for Main Outcomes. Longitudinal Sample

	Female mean/sd	Male mean/sd	Female-male	Female-male controls for state FE
Regular smoker. W1	0.217	0.218	-0.001	0.000
	(0.412)	(0.413)	(0.009)	(0.017)
Got drunk during the past year.W1	0.361	0.398	-0.037***	-0.038*
	(0.480)	(0.490)	(0.011)	(0.019)
Ever tried marijuana. W1	0.329	0.373	-0.044***	-0.043**
	(0.470)	(0.484)	(0.011)	(0.017)
Ever tried other illegal drugs. W1	0.139	0.147	-0.008	-0.007
	(0.346)	(0.354)	(0.008)	(0.014)
Expelled from school. W1	0.024	0.068	-0.044***	-0.045***
	(0.153)	(0.252)	(0.005)	(0.008)
Regular smoker. W3	0.289	0.324	-0.034***	-0.034**
	(0.454)	(0.468)	(0.010)	(0.016)
Got drunk during the past year.W3	0.488	0.601	-0.113***	-0.116***
	(0.500)	(0.490)	(0.011)	(0.017)
Ever tried marijuana. W3	0.552	0.635	-0.084***	-0.088***
	(0.497)	(0.481)	(0.011)	(0.016)
Ever tried other illegal drugs. W3	0.260	0.336	-0.076***	-0.076***
	(0.439)	(0.473)	(0.010)	(0.018)
Expelled from school. W3	0.046	0.133	-0.087***	-0.088***
	(0.210)	(0.340)	(0.006)	(0.011)
Had sex before 16. W3	0.305	0.277	0.028***	0.033*
	(0.461)	(0.448)	(0.010)	(0.016)
Regular smoker. W4	0.256	0.315	-0.059***	-0.061***
	(0.436)	(0.465)	(0.010)	(0.014)
Got drunk during the past year.W4	0.412	0.569	-0.157***	-0.162***
	(0.492)	(0.495)	(0.011)	(0.016)
Ever tried marijuana W4	0.617	0.718	-0.100***	-0.105***
	(0.486)	(0.450)	(0.010)	(0.014)
Ever tried other illegal drugs. W4	0.317	0.438	-0.121***	-0.121***
	(0.465)	(0.496)	(0.011)	(0.015)
Ever worked for pay full time. W4	0.953	0.967	-0.014***	-0.014**
	(0.212)	(0.178)	(0.004)	(0.007)
Annual personal income (1000 US dollars). W4	30.767	43.562	-12.794***	-13.165***
	-37.134	-41.448	(0.891)	(1.378)
Welfare recipient. W4	0.260	0.165	0.095***	0.094***
	(0.438)	(0.371)	(0.009)	(0.015)
Observations	4397	3772		

*Note: For columns (1-2) standard deviations are in parentheses and for columns (3-4) standard errors are in parentheses. Column (4) reports OLS estimates assosiated with the regression of outcome on male dummy and state fixed effects and standard errors clustered at state level. Observations are weighted with longitudinal weights. *** p<0.01, ** p<0.05, * p<0.1*

Table 3: Variation in Cohort Composition Measures After Removing School Fixed Effect and Trends

	Raw cohort variables			
	Mean	SD	Min	Max
Fraction of gender unbiased moms	0.715	0.122	0.333	1.000
	Residuals after removing cohort and school fixed effects			
	Mean	SD	Min	Max
Fraction of gender unbiased moms	0.000	0.073	-0.294	0.271
	Residuals after removing cohort fixed effects, school fixed effects and school trends			
	Mean	SD	Min	Max
Fraction of gender unbiased moms	-0.000	0.062	-0.242	0.263
Observations	8169			

Note: Longitudinal weights used

Table 4. Balancing Test

Variable	Share of non-traditional mothers	Share of non-traditional mothers*Female	Variable	Share of non-traditional mothers	Share of non-traditional mothers*Female
White	0.121	0.0329	Hispanic	0.0331	-0.0862
	(0.0796)	(0.0820)		(0.0494)	(0.0577)
Black	-0.00346	-0.0439	Born in the US	-0.0992*	0.0644
	(0.0588)	(0.0620)		(0.0585)	(0.0703)
PVT	-3.619	0.263	Number of siblinds	0.164	-0.401
	(2.863)	(3.066)		(0.303)	(0.390)
Missing PVT	0.0960*	-0.0615	Parental age	1.506	0.595
	(0.0570)	(0.0580)		(1.362)	(1.535)
Residential building	0.00359	-0.00635	Mother born in the US	-0.0131	0.0684
	(0.103)	(0.109)		(0.0598)	(0.0711)
Residential building quality missing	-0.0217	0.0578	Mother smokes	-0.0176	0.00727
	(0.0258)	(0.0385)		(0.107)	(0.131)
Mother is college graduated	0.0293	0.0280	Father smokes	0.0657	-0.176
	(0.0765)	(0.0877)		(0.112)	(0.140)
Father is college graduated	0.0345	0.0576	Missing mother's education	0.00419	0.0977
	(0.0845)	(0.0840)		(0.0588)	(0.0684)
Both parents in hh	0.0812	0.0411	Missing father's education	-0.0914	0.108
	(0.105)	(0.112)		(0.0933)	

*Note: OLS coefficient estimates and their associated standard errors clustered by school/grade in parentheses. No. of observations: 8169. All regressions include school and grade fixed effects. *** p<0.01, ** p<0.05, * p<0.1*

Table 5: The Effect of Mothers' of Grademates beliefs on the Gender Gap in Risky Behaviors and Labor Maket Outcomes. Summary Indexes.

	Risky behavior. W1	Risky behavior. W3	Risky behavior. W4	Labor market. W4
Female	1.525	2.723	3.463	1.308
	(3.568)	(2.932)	(3.164)	(2.836)
Share of non-traditional mothers	0.291**	0.393***	0.223*	-0.0798
	(0.141)	(0.115)	(0.129)	(0.121)
Share of non-traditional mothers*Female	-0.544***	-0.408***	-0.295**	0.433***
	(0.152)	(0.138)	(0.144)	(0.151)
Observations	8,169	8,169	8,169	8,169
R-squared	0.131	0.125	0.149	0.146

*Note: OLS coefficient estimates and their associated standard errors clustered by school/grade in parentheses. Controls include age, age squares and age and age squares interacted with gender, race and PVT, residential building quality, indicator that mother and father are college graduated, parental age and indicator that both parents inhabit in the household as well as grade characteristics. Grade characteristics include average age, share of black, share of females, average PVT, share of immigrants, share of college educated parents constructed at school-grade level and grade size. All missing observations in control variables are replaced by it means and dummies indicating missing variable are included. All regressions include school and grade fixed effects and school specific time trends. *** p<0.01, ** p<0.05, * p<0.1.*

Table 6. Panel A: The Effect of Mothers' of Grademates beliefs on the Gender Gap in Risky Behaviors

Dependent variable:	W1		W3		W4	
	Share of non-traditional mothers	Share of non-traditional mothers*Female	Share of non-traditional mothers:	Share of non-traditional mothers*Female	Share of non-traditional mothers:	Share of non-traditional mothers*Female
Regular smoker	-0.0881	**0.205****	**-0.259*****	0.157	**-0.264****	0.215**
	(0.0845)	(0.0851)	(0.0986)	(0.117)	(0.104)	(0.109)
Got drunk during the past 12 months	-0.134	**0.248****	-0.0737	0.174	-0.0223	0.130
	(0.106)	(0.117)	(0.105)	(0.110)	(0.117)	(0.123)
Ever tried marijuana	-0.122	**0.311*****	-0.249**	0.275**	-0.172*	0.237**
	(0.106)	(0.112)	(0.113)	(0.118)	(0.102)	(0.115)
Ever tried other illegal drugs	-0.0749	0.0951	-0.0388	0.00795	0.106	-0.0693
	(0.0770)	(0.0827)	(0.0930)	(0.121)	(0.0904)	(0.113)
Ever expelled from school	-0.0953	**0.146*****	-0.171**	**0.213*****		
	(0.0599)	(0.0511)	(0.0818)	(0.0710)		
Had sex before 16			-0.199*	0.192*		
			(0.105)	(0.109)		

*Note: OLS coefficient estimates and their associated standard errors clustered by school/grade in parentheses. No. of observations: 8169. The list of control variables is in the note for table 5.*** p<0.01, ** p<0.05, * p<0.1, **in bold** if Romano-Wolf p<0,1*

Table 6. Panel B: The Effect of Grademates Mothers' Gender Beliefs on the Gender Gap in Labor Market Outcomes

	W4	
	Share of non-traditional mothers	Share of non-traditional mothers*Female
Ever worked for pay >35	0.0190	0.0286
hours per week	(0.0380)	(0.0491)
Log of personal income	-0.309	**1.729****
	(0.607)	(0.728)
Welfare recipient	0.0964	**-0.231****
	(0.0892)	(0.0949)

*Note: OLS coefficient estimates and their associated standard errors clustered by school/grade in parentheses. No. of observations: 8169. The list of control variables is in the note for table 5. *** p<0.01, ** p<0.05, * p<0.1,* ***in bold*** *if Romano-Wolf p<0,1*

Table 7: Summary Statistics for Main Outcomes. Second Generation Immigrants Sample

	Male mean/sd	Female mean/sd	Male-Female	Male-Female controls for state FE
Regular smoker. W1	0.110	0.111	-0.001	0.001
	(0.314)	(0.314)	(0.018)	(0.030)
Got drunk during the past year.W1	0.266	0.300	-0.034	-0.018
	(0.442)	(0.459)	(0.026)	(0.043)
Ever tried marijuana. W1	0.289	0.264	0.025	0.026
	(0.454)	(0.441)	(0.026)	(0.037)
Ever tried other illegal drugs. W1	0.094	0.139	-0.046**	-0.037
	(0.292)	(0.347)	(0.019)	(0.036)
Expelled from school. W1	0.039	0.012	0.027***	0.018
	(0.194)	(0.109)	(0.009)	(0.013)
Regular smoker. W3	0.216	0.219	-0.003	-0.000
	(0.412)	(0.414)	(0.024)	(0.023)
Got drunk during the past year.W3	0.602	0.444	0.158***	0.173***
	(0.490)	(0.497)	(0.029)	(0.042)
Ever tried marijuana. W3	0.596	0.498	0.098***	0.124***
	(0.491)	(0.500)	(0.029)	(0.035)
Ever tried other illegal drugs. W3	0.327	0.249	0.078***	0.108**
	(0.470)	(0.433)	(0.026)	(0.047)
Expelled from school. W3	0.106	0.029	0.077***	0.071**
	(0.308)	(0.168)	(0.014)	(0.029)
Had sex before 16. W3	0.256	0.232	0.023	0.034
	(0.437)	(0.423)	(0.025)	(0.027)
Regular smoker. W4	0.270	0.180	0.090***	0.080***
	(0.444)	(0.384)	(0.024)	(0.022)
Got drunk during the past year.W4	0.565	0.431	0.134***	0.154***
	(0.496)	(0.496)	(0.029)	(0.049)
Ever tried marijuana W4	0.736	0.605	0.132***	0.163***
	(0.441)	(0.489)	(0.027)	(0.028)
Ever tried other illegal drugs. W4	0.435	0.318	0.116***	0.152***
	(0.496)	(0.466)	(0.028)	(0.040)
Ever worked for pay full time. W4	0.916	0.909	0.006	0.018
	(0.278)	(0.288)	(0.016)	(0.031)
Annual personal income (1000 US dollars). W4	43.438	33.534	9.904***	10.825***
	(37.269)	(32.745)	(2.073)	(3.161)
Welfare recipient. W4	0.130	0.135	-0.005	-0.016
	(0.337)	(0.342)	(0.020)	(0.030)
Observations	1193			

*Note: For columns (1-2) standard deviations are in parentheses and for columns (3-4) standard errors are in parentheses. Column (4) reports OLS estimates assosiated with the regression of outcome on male dummy and state fixed effects and standard errors clustered at state level. Observations are weighted with longitudinal weights. *** p<0.01, ** p<0.05, * p<0.1*

Table 8: The Effect of Gender Equality in the Country of Ancestry on the Gender Gap in Risky Behaviors and Labor Market Outcomes. Summary Indexes.

	Risky behavior. W1	Risky behavior. W3	Risky behavior. W4	Labor market. W4
Female	1.204	2.353	-1.277	1.194
	(1.378)	(2.611)	(3.407)	(6.263)
Share of non-traditional mothers	0.0581	0.0510	-0.0289	-0.0777*
	(0.0398)	(0.0431)	(0.0422)	(0.0416)
Share of non-traditional mothers*Female	-0.126**	-0.146***	-0.0626	0.212***
	(0.0513)	(0.0473)	(0.0457)	(0.0571)
Observations	1,189	1,189	1,189	1,189
R-squared	0.259	0.180	0.187	0.139

*Note: OLS coefficient estimates and their associated standard errors clustered by country of ancestry in parentheses. Controls include age, age squared, race, PVT, residential building quality, indicator that mother and father are college graduated , indicator that both parents inhabit in the household, and their interactions with female dummy. All regressions include state fixed effects. GGI is standardized to have mean 0 and standard deviation 1. *** p<0.01, ** p<0.05, * p<0.1*

Table 9. Panel A: The Effect of Gender Equality in the Country of Ancestry on the Gender Gap in Risky Behaviors

Dependent variable:	W1		W3		W4	
	GGI	GGI*Female	GGI	GGI*Female	GGI	GGI*Female
Regular smoker	-0.000660	0.0546**	0.00886	0.0264	0.0118	**0.0723****
	(0.0171)	(0.0258)	(0.0175)	(0.0217)	(0.0226)	(0.0261)
Got drunk during the past 12 months	-0.0673**	**0.0904****	0.0178	0.0206	0.0543	-0.0160
	(0.0309)	(0.0388)	(0.0335)	(0.0408)	(0.0359)	(0.0393)
Ever tried marijuana	-0.0406	**0.0983*****	-0.0506	**0.115*****	0.00832	0.0273
	(0.0251)	(0.0319)	(0.0304)	(0.0293)	(0.0300)	(0.0293)
Ever tried other illegal drugs	-0.00155	-0.000845	-0.0826**	**0.106*****	-0.0413	0.0366
	(0.0115)	(0.0304)	(0.0320)	(0.0331)	(0.0340)	(0.0368)
Ever expelled from school	-0.00748	0.00664	-0.0271*	**0.0426****		
	(0.0108)	(0.0102)	(0.0151)	(0.0179)		
Had sex before 16			0.0125	0.0561		
			(0.0311)	(0.0376)		

*Note: OLS coefficient estimates and their associated standard errors clustered by country of ancestry in parentheses. No. of observations: 1193. The list of control variables is in the note for table 8.*** p<0.01, ** p<0.05, * p<0.1, **in bold** if Romano-Wolf p<0,1*

Table 9. Panel B: The Effect of Gender Equality in the Country of Ancestry on the Gender Gap in Labor Market Outcomes

	W4	
	GGI	GGI*Female
Ever worked for pay >35	-0.0625***	**0.104*** **
hours per week	(0.0184)	(0.0275)
Log of personal income	0.103	0.147
	(0.187)	(0.254)
Welfare recipient	-0.00104	**-0.0475** **
	(0.0171)	(0.0171)

*Note: OLS coefficient estimates and their associated standard errors clustered by country of ancestry in parentheses. No. of observations: 1193. The list of control variables is in the note for table 8.*** p<0.01, ** p<0.05, * p<0.1, in bold if Romano-Wolf p<0,1*

Appendix

Table A1. Panel A. The Effect of Mothers' of Grademates beliefs on the Gender Gap in Risky Behaviors. Short-run outcomes

Dependent variable		0	1	2	3	4	5	6
Regular smoker W1	female	0.00263	-0.157**	-0.152**	-0.0213	-0.337	-0.382	-0.414
		(0.0131)	(0.0610)	(0.0588)	(2.024)	(2.041)	(2.036)	(2.029)
	Share of non-traditional mothers		-0.0567	-0.114	-0.124	-0.119	-0.0881	-0.0695
			(0.0901)	(0.0822)	(0.0803)	(0.0816)	(0.0845)	(0.0835)
	Share of non-traditional mothers *female		**0.224****	**0.213****	**0.203****	**0.204****	**0.205****	**0.200****
			(0.0869)	(0.0837)	(0.0833)	(0.0850)	(0.0851)	(0.0855)
Got drunk during the past 12 months. W1	female	-0.0329**	-0.222***	-0.223***	1.743	1.594	1.652	1.636
		(0.0153)	(0.0831)	(0.0843)	(2.491)	(2.474)	(2.467)	(2.468)
	Share of non-traditional mothers		-0.124	-0.211**	-0.211**	-0.198**	-0.134	-0.122
			(0.109)	(0.101)	(0.0996)	(0.100)	(0.106)	(0.106)
	Share of non-traditional mothers *female		**0.265****	**0.265****	**0.258****	**0.249****	**0.248****	**0.245****
			(0.117)	(0.118)	(0.116)	(0.117)	(0.117)	(0.117)
Ever tried marijuana W1	female	-0.0331**	-0.256***	-0.258***	-1.177	-1.675	-1.726	-1.757
		(0.0147)	(0.0821)	(0.0802)	(2.595)	(2.573)	(2.571)	(2.560)
	Share of non-traditional mothers		-0.0720	-0.182*	-0.184*	-0.170	-0.122	-0.0951
			(0.114)	(0.109)	(0.107)	(0.105)	(0.106)	(0.106)
	Share of non-traditional mothers *female		**0.313*****	**0.312*****	**0.312*****	**0.306*****	**0.311*****	**0.304*****
			(0.116)	(0.114)	(0.111)	(0.113)	(0.112)	(0.112)
Ever tried other illegal drugs. W1	female	0.000294	-0.0535	-0.0712	-0.982	-1.295	-1.290	-1.306
		(0.0107)	(0.0595)	(0.0591)	(1.970)	(1.946)	(1.946)	(1.950)
	Share of non-traditional mothers		-0.0204	-0.0969	-0.0939	-0.0874	-0.0749	-0.0667
			(0.0827)	(0.0764)	(0.0749)	(0.0756)	(0.0770)	(0.0758)
	Share of non-traditional mothers *female		0.0755	0.0990	0.103	0.0933	0.0951	0.0935
			(0.0831)	(0.0822)	(0.0804)	(0.0821)	(0.0827)	(0.0825)
Expelled from school W1	female	-0.0442***	-0.157***	-0.154***	-0.540	-0.380	-0.405	-0.407
		(0.00668)	(0.0381)	(0.0381)	(1.202)	(1.198)	(1.197)	(1.199)
	Share of non-traditional mothers		-0.0494	-0.108*	-0.121**	-0.116**	-0.0953	-0.0952
			(0.0560)	(0.0579)	(0.0577)	(0.0575)	(0.0599)	(0.0591)
	Share of non-traditional mothers*female		**0.158*****	**0.154*****	**0.150*****	**0.146*****	**0.146*****	**0.146*****
			(0.0513)	(0.0511)	(0.0505)	(0.0510)	(0.0511)	(0.0509)
Grade and school FE		YES	YES	YES	YES	YES	YES	YES
School specific trend				YES	YES	YES	YES	YES
Individual characteristics					YES	YES	YES	YES
Parental characteristics						YES	YES	YES
Grade characteristics							YES	YES
Own mother is gender unbiased								YES

*Note: OLS coefficient estimates and their associated standard errors clustered by school/grade in parentheses. No. of observations: 8169. Individual controls include age, age squares, race, PVT and age and age squares interacted with female dummy . Parental controls include residential building quality, indicator that mother and father are college graduated, parental age and indicator that both parents inhabit in the household. Grade characteristics include average age, share of black, share of females, average PVT, share of immigrants, share of college greduated parents constructed at school-grade level and grade size. All missing observations in control variables are replaced by it means and dummies indicating missing variable are included. All regressions include school and grade fixed effect. Columns (3) - (6) include school specific time trend. *** p<0.01, ** p<0.05, * p<0.1,* ***in bold*** *if Romano-Wolf p<0,1*

Table A1. Panel B. The Effect of Mothers' of Grademates beliefs on the Gender Gap in Risky Behaviors. Middle-run outcomes

Dependent variable		0	1	2	3	4	5	6
Regular smoker. W3	female	-0.0302**	-0.133*	-0.144*	-3.056	-3.266	-3.223	-3.232
		(0.0143)	(0.0781)	(0.0789)	(2.297)	(2.320)	(2.323)	(2.315)
	Share of non-traditional mothers		-0.116	**-0.232****	**-0.239****	**-0.235****	**-0.259*****	**-0.252****
			(0.0978)	(0.0947)	(0.0939)	(0.0948)	(0.0986)	(0.0998)
	Share of non-traditional mothers *female		0.144	0.158	0.161	0.158	0.157	0.155
			(0.113)	(0.114)	(0.114)	(0.117)	(0.117)	(0.117)
Got drunk during the past 12 months. W3	female	-0.107***	-0.201**	-0.222***	-0.543	-0.480	-0.540	-0.551
		(0.0155)	(0.0777)	(0.0790)	(2.428)	(2.456)	(2.458)	(2.463)
	Share of non-traditional mothers		-0.0844	-0.176*	-0.140	-0.140	-0.0737	-0.0583
			(0.0985)	(0.103)	(0.101)	(0.102)	(0.105)	(0.103)
	Share of non-traditional mothers *female		0.132	0.162	0.173	0.172	0.174	0.169
			(0.111)	(0.113)	(0.110)	(0.109)	(0.110)	(0.109)
Ever tried marijuana W3	female	-0.0817***	-0.274***	-0.277***	-1.679	-1.923	-1.986	-2.026
		(0.0149)	(0.0854)	(0.0842)	(2.412)	(2.403)	(2.406)	(2.402)
	Share of non-traditional mothers		-0.239**	**-0.310*****	**-0.296*****	**-0.283*****	-0.249**	-0.217*
			(0.114)	(0.107)	(0.107)	(0.106)	(0.113)	(0.110)
	Share of non-traditional mothers *female		**0.269****	**0.273****	**0.284****	**0.276****	0.275**	0.267**
			(0.118)	(0.117)	(0.117)	(0.118)	(0.118)	(0.118)
Ever tried other illegal drugs. W3	female	-0.0686***	-0.0600	-0.0709	1.492	1.092	1.109	1.091
		(0.0144)	(0.0864)	(0.0862)	(2.306)	(2.309)	(2.315)	(2.312)
	Share of non-traditional mothers		0.0163	-0.134	-0.118	-0.114	-0.0388	-0.0280
			(0.104)	(0.0923)	(0.0908)	(0.0908)	(0.0930)	(0.0916)
	Share of non-traditional mothers *female		-0.0119	0.00394	0.0116	0.00749	0.00795	0.00546
			(0.122)	(0.122)	(0.120)	(0.120)	(0.121)	(0.120)
Expelled from school W3	female	-0.0861***	-0.257***	-0.252***	1.012	1.183	1.183	1.171
		(0.00955)	(0.0565)	(0.0558)	(1.828)	(1.849)	(1.848)	(1.844)
	Share of non-traditional mothers		-0.0912	-0.162**	**-0.183****	**-0.178****	-0.171**	-0.165**
			(0.0781)	(0.0786)	(0.0777)	(0.0777)	(0.0818)	(0.0816)
	Share of non-traditional mothers*female		**0.240*****	**0.233*****	**0.217*****	**0.214*****	**0.213*****	**0.211*****
			(0.0756)	(0.0745)	(0.0710)	(0.0710)	(0.0710)	(0.0706)
Had sex before 16. W3	female	0.0345**	-0.0925	-0.0903	-4.291*	-4.648*	-4.708*	-4.721*
		(0.0137)	(0.0786)	(0.0777)	(2.507)	(2.508)	(2.507)	(2.494)
	Share of non-traditional mothers		-0.0634	-0.191**	**-0.213****	**-0.208****	-0.199*	-0.192*
			(0.0958)	(0.0961)	(0.0958)	(0.0959)	(0.105)	(0.106)
	Share of non-traditional mothers*female		0.178*	0.174	0.195*	0.191*	0.192*	0.190*
			(0.107)	(0.106)	(0.108)	(0.109)	(0.109)	(0.109)
Grade and school FE		YES	YES	YES	YES	YES	YES	YES
School specific trend				YES	YES	YES	YES	YES
Individual characteristics					YES	YES	YES	YES
Parental characteristics						YES	YES	YES
Grade characteristics							YES	YES
Own mother is gender unbiased								YES

Note: See note for table A1. Panel A.

Table A1. Panel C. The Effect of Mothers' of Grademates beliefs on the Gender Gap in Risky Behaviors. Long-run outcomes

Dependent variable		0	1	2	3	4	5	6
Regular smoker W4	female	-0.0602***	-0.222***	-0.219***	-1.995	-2.007	-2.027	-2.054
		(0.0139)	(0.0776)	(0.0775)	(2.310)	(2.338)	(2.336)	(2.329)
	Share of non-traditional mothers		-0.239**	**-0.239****	**-0.250****	**-0.239****	**-0.264****	**-0.246****
			(0.115)	(0.102)	(0.101)	(0.101)	(0.104)	(0.102)
	Share of non-traditional mothers *female		0.226**	0.221**	0.218**	0.213*	0.215**	0.210*
			(0.110)	(0.110)	(0.110)	(0.109)	(0.109)	(0.109)
Got drunk during the past 12 months. W4	female	-0.151***	-0.220**	-0.230**	-1.477	-1.563	-1.651	-1.682
		(0.0158)	(0.0916)	(0.0920)	(2.620)	(2.634)	(2.640)	(2.638)
	Share of non-traditional mothers		-0.0310	-0.0764	-0.0415	-0.0411	-0.0223	0.00226
			(0.110)	(0.118)	(0.113)	(0.115)	(0.117)	(0.115)
	Share of non-traditional mothers *female		0.0965	0.114	0.132	0.134	0.130	0.124
			(0.127)	(0.128)	(0.123)	(0.123)	(0.123)	(0.123)
Ever tried marijuana W4	female	-0.101***	-0.258***	-0.262***	-3.074	-3.219	-3.262	-3.294
		(0.0145)	(0.0828)	(0.0835)	(2.537)	(2.548)	(2.555)	(2.555)
	Share of non-traditional mothers		-0.180*	-0.205**	-0.195**	-0.184*	-0.172*	-0.151
			(0.105)	(0.0975)	(0.0984)	(0.0978)	(0.102)	(0.101)
	Share of non-traditional mothers *female		0.220*	0.224*	0.241**	0.238**	0.237**	0.231**
			(0.114)	(0.115)	(0.114)	(0.116)	(0.115)	(0.115)
Ever tried other illegal drugs. W4	female	-0.114***	-0.0568	-0.0704	1.648	1.028	0.948	0.928
	Share of non-traditional mothers		0.0883	0.00131	0.0203	0.0255	0.106	0.119
			(0.108)	(0.0940)	(0.0914)	(0.0895)	(0.0904)	(0.0895)
	Share of non-traditional mothers *female		-0.0805	-0.0619	-0.0649	-0.0681	-0.0693	-0.0731
			(0.115)	(0.114)	(0.112)	(0.113)	(0.113)	(0.113)
Grade and school FE		YES	YES	YES	YES	YES	YES	YES
School specific trend				YES	YES	YES	YES	YES
Individual characteristics					YES	YES	YES	YES
Parental characteristics						YES	YES	YES
Grade characteristics							YES	YES
Own mother is gender unbiased								YES

Note: See note for table A1. Panel A.

Table A1. Panel D. The Effect of Mothers' of Grademates beliefs on the Gender Gap in Labor Market and Family Outcomes

Dependent variable		0	1	2	3	4	5	6
Ever worked for pay >35 hours a week. W4	female	-0.0135**	-0.0343	-0.0309	0.407	0.543	0.555	0.560
		(0.00587)	(0.0354)	(0.0359)	(0.942)	(0.937)	(0.936)	(0.936)
	Share of non-traditional mothers		-0.000898	0.00430	0.0155	0.0159	0.0190	0.0161
			(0.0403)	(0.0353)	(0.0347)	(0.0348)	(0.0380)	(0.0373)
	Share of non-traditional mothers *female		0.0291	0.0237	0.0231	0.0294	0.0286	0.0294
			(0.0477)	(0.0484)	(0.0487)	(0.0491)	(0.0491)	(0.0489)
Welfare recipient. W4	female	0.0913***	**0.258****	0.250***	-0.0404	0.111	0.0818	0.0695
		(0.0124)	(0.0684)	(0.0697)	(2.064)	(2.082)	(2.087)	(2.088)
	Share of non-traditional mothers		0.158**	0.137*	0.113	0.124	0.0964	0.107
			(0.0754)	(0.0821)	(0.0857)	(0.0869)	(0.0892)	(0.0885)
	Share of non-traditional mothers *female		**-0.233****	**-0.225****	**-0.227****	**-0.235****	**-0.231****	**-0.234****
			(0.0939)	(0.0953)	(0.0950)	(0.0944)	(0.0949)	(0.0949)
Log of personal income. W4	female	-1.054***	-2.214***	-2.153***	3.047	2.930	3.313	3.198
		(0.0859)	(0.520)	(0.528)	(12.99)	(12.95)	(12.96)	(12.99)
	Share of non-traditional mothers		-0.420	-0.428	-0.372	-0.359	-0.309	-0.263
			(0.558)	(0.565)	(0.568)	(0.567)	(0.607)	(0.602)
	Share of non-traditional mothers *female		**1.623****	**1.558****	**1.717****	**1.746****	**1.729****	**1.717****
			(0.704)	(0.715)	(0.721)	(0.724)	(0.728)	(0.729)
Grade and school FE		YES	YES	YES	YES	YES	YES	YES
School specific trend				YES	YES	YES	YES	YES
Individual characteristics					YES	YES	YES	YES
Parental characteristics						YES	YES	YES
Grade characteristics							YES	YES
Own mother is gender unbiased								YES

Note: See note for table A1. Panel A.

Table A2. Robustness of results. Coefficient for proportion of non-traditional mothers*Female

	Full sample	Share of non-traditional mothers based on core sample	Only observations from core sample	No selective delay
Regular smoker. W1	0.205**	0.240***	0.234***	0.263***
	(0.0851)	(0.0753)	(0.0848)	(0.100)
Got drunk during the past 12 months. W1	0.248**	0.221**	0.244**	0.296**
	(0.117)	(0.0958)	(0.115)	(0.138)
Ever tried marijuana. W1	0.311***	0.255***	0.389***	0.319**
	(0.112)	(0.0975)	(0.111)	(0.130)
Ever tried other illegal drugs. W1	0.0951	0.0555	0.0624	0.0715
	(0.0827)	(0.0692)	(0.0821)	(0.0956)
Ever expelled from school. W1	0.146***	0.111**	0.127**	0.126***
	(0.0511)	(0.0430)	(0.0526)	(0.0480)
Regular smoker. W3	0.157	0.0902	0.108	0.253*
	(0.117)	(0.101)	(0.108)	(0.142)
Got drunk during the past 12 months. W3	0.174	0.156	0.201*	0.172
	(0.110)	(0.0945)	(0.109)	(0.128)
Ever tried marijuana. W3	0.275**	0.216**	0.328***	0.275*
	(0.118)	(0.102)	(0.122)	(0.145)
Ever tried other illegal drugs. W3	0.00795	-0.0275	0.0266	0.00830
	(0.121)	(0.102)	(0.117)	(0.145)
Ever expelled from school. W3	0.213***	0.160**	0.188***	0.136*
	(0.0710)	(0.0618)	(0.0716)	(0.0694)
Had sex before 16. W3	0.192*	0.132	0.163	0.0298
	(0.109)	(0.0949)	(0.112)	(0.115)
Regular smoker. W4	0.215**	0.134	0.115	0.196*
	(0.109)	(0.0912)	(0.111)	(0.118)
Got drunk during the past 12 months. W4	0.130	0.109	0.118	0.164
	(0.123)	(0.107)	(0.125)	(0.136)
Ever tried marijuana. W4	0.237**	0.178*	0.189*	0.206
	(0.115)	(0.0971)	(0.114)	(0.138)
Ever tried other illegal drugs. W4	-0.0693	-0.0633	-0.0568	-0.0551
	(0.113)	(0.0950)	(0.116)	(0.137)
Ever worked for pay >35 hours a week. W4	0.0286	0.0344	0.0377	0.00196
	(0.0491)	(0.0427)	(0.0530)	(0.0537)
Log of personal income. W4	1.729**	1.395**	1.599**	1.444*
	(0.728)	(0.569)	(0.706)	(0.755)
Welfare recipient. W4	-0.231**	-0.196***	-0.176*	-0.240**
	(0.0949)	(0.0738)	(0.0899)	(0.111)

*Note: OLS coefficient estimates and their associated standard errors clustered by school/grade in parentheses. The list of control variables is in the note for table 5.*** p<0.01, ** p<0.05, * p<0.1.*

Appendix Table 2. Definition of Outcome Variables and Add Health Questions Used

Using Waves I, III and IV of AddHealth:	
Smoking	Youths who answered "*at least 10 out of 30 days*" to the question: "*During the past 30 days, on how many days did you smoke cigarettes?*"
Drinking	Youths who answered "*one or more days*" to the question "*Over the past 12 months, on how many days have you gotten drunk or "very, very high" on alcohol?*"
Smoking marijuana	Youths who reported an age when asked the question "*How old were you when you tried marijuana for the first time?*" in wave I; and youths who answered "*yes*" to the questions: "*Since June 1995, have you used marijuana?*", and "*Have you ever used any of the following drugs: marijuana?*" in Waves III and IV, respectively.
Illicit drugs (other than marijuana)	Youths who reported an age when asked at least one of the following questions: "*How old were you when you tried any kind of cocaine— including powder, freebase, or crack cocaine—for the first time?*", and "*How old were you when you first tried any other type of illegal drug such as LSD, PCP, ecstasy, mushrooms, speed, ice, heroin, or pills, without a doctor's prescription?"* in Wave I Youths who answered "*yes*" to at least one of the following questions: "*Since June 1995, have you used any kind of cocaine—including crack, freebase, or powder?*", "*Since June 1995, have you used crystal meth?*", and "*Since June 1995, have you used any other types of illegal drugs, such as LSD, PCP, ecstasy, mushrooms, inhalants, ice, heroin, or prescription medicines not prescribed for you?*" in Wave III. Youths who answered "yes" to the question "*Have you ever used any of the following drugs: cocaine, crystal meth or other types of illegal drugs, such as LSD, PCP, ecstasy, heroin, or mushrooms; or inhalants?"* in Wave IV. We coded as being expelled from school, youths who answered "*yes*" to the question "*Have you ever been expelled from school?*". This question was not asked in wave IV, so this indicator was constructed using only Waves I and III.
Having sex prior to age 16	Youths who responded "*16 years old or younger*" to the question "*How old were you the first time you had vaginal intercourse?*". This indicator was only constructed for wave III because many respondents were younger than 16 at Wave I.
Using Wave IV of Add Health	
Working full time	Individuals who answered "*yes*" to the question "*Have you ever worked full time at least 35 hours a week at a paying job while you were not primarily a student? Do not include summer work."*
Average yearly earnings	"*Now think about your personal earnings. In {2006/2007/2008}, how much income did you receive from personal earnings before taxes—that is, wages or salaries, including tips, bonuses, and overtime pay, and income from self-employment?"*
Welfare receipt	Individuals who answered "*yes*" to the question "*Between {1995/2002} and {2006/2007/2008}, did you or others in your household receive any public assistance, welfare payments, or food stamps?*"