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HOW DO TEENAGERS ANSWER QUESTIONS ABOUT CONTRACEPTIVE USE?
DIFFERENCES BETWEEN YOUNG WOMEN'S AND YOUNG MEN'S ANSWERS

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ABSTRACT

High school aged women say they use different methods to prevent pregnancy than do high school aged men. Young men are more likely to say the couple used a condom and young women are more likely to say they used birth control pills. The differences remain large and statistically significant after controlling for age and ethnicity. There are several ways to explain this. The differences might partly reflect differences in actual use or differences in the partners' knowledge about the methods they use. But young men and women also appear to over-report methods that highlight their personal responsibility, possibly even when they did not use those methods.

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I. Introduction

People often misreport information during surveys. Managers do not always report paying bribes (Azfar and Murrell, 2009). People who have taken predatory loans sometimes deny they have (Karlan and Zinman, 2008). Men over-report how much classical music and under-report how much soft rock they listen to (Clausen and others, 2010). And, on average, men claim to have had more opposite-sex partners than do women.[1] People are most likely to misreport information when asked about illegal or immoral acts, embarrassing questions, or questions about sex or money (Tourangeau and Smith, 1996).[2]

People might answer sensitive questions inaccurately for several reasons. Some might have forgotten what they did. Some, especially teenagers, might want to give funny or mischievous answers (Robinson-Cimpian, 2014). Others might estimate a number rather than working out an exact answer. Some might want to impress the interviewer or make themselves feel virtuous. Finally, some might not want to admit they have done embarrassing, immoral, or illegal acts. If the person thinks others might identify them, they might be especially likely to lie.

Given that people misreport sensitive information, it would not be surprising if young people answered questions about contraception inaccurately. To see whether they do, this paper looks at how male and female high school students answered questions about contraception in the 2015 National Youth Risk Behavior Survey (NYRBS). The survey asked the young men and women whether they had ever had sexual intercourse and, if so, what contraception they used the last time they did. Men and women gave some similar answers. For example, about one-third of both said they did not use contraception. There were, however, some differences. Young men were much more likely to say the couple used a condom, while young women were more likely to say they used birth control pills. The differences stay significant after restricting the sample to people with opposite-sex partners.

We might be able to explain the difference between young men's and young women's answers in several ways. One possibility is young men, young women, or both systematically misreported the method they used. Other reasons, however, might play a role.

An alternative explanation is young men and women might use different contraceptives to prevent pregnancy. If the young men and women only had sex with opposite-sex partners and both were in the sample, we would expect the two groups to report similar methods. Most high school students who have intercourse that could result in pregnancy will do so with opposite-sex partners also in high school.[3] Some potential partners, however, are not in the sample; the partner might be a middle school student, a high school graduate, or a high school dropout. A related

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[1] Common explanations such as men visiting prostitutes do not easily explain the differences (Wiederman, 1997).

[2] This does not mean everyone lies when they benefit from doing so. People often tell the truth in experiments even when it is costly for them to do so and when they cannot be caught (Fischbacher and Follmi-Heusi, 2013).

[3] The question refers specifically to preventing pregnancy. Some people, including those in same-sex relationships, however, might ignore the instruction. The results are robust to dropping people who have had same-sex partners.

concern is the woman's age might affect contraceptive use differently than the man's; older high school aged women are more likely to use birth control pills. If men often date younger women while women date older men, couples including a 16-year-old man might be less likely to use birth control pills than couples including a 16-year-old woman. Controlling for only the respondent's age might not control for these differences.[4]

Another possibility is young men and women answer the question differently because they have different information about the methods they used. Sometimes both partners will know whether they are using contraception. If the couple uses a condom or withdrawal—two methods the survey asks about—both should know.[5] Both partners might not know, however, about other methods. For example, the young man might not know whether the woman is using birth control pills. This could mean young men are less likely to say the couple used birth control pills than are young women.

A third possibility is when couples use multiple methods, young men and women might focus on different methods. As well as knowing more about the method they are responsible for, they might want to signal they have been responsible. [6] High school aged men will not usually control whether the couple uses birth control pills, patches, shots, or intrauterine devices (IUDs). If they want to appear responsible, they might focus on condoms—the method where they can play the most active role. Young women, who have greater control over most other contraceptives, might also focus on methods where they have more control. Because individuals could only report one method in the survey, young men and women might report different methods when they use more than one.

It is also possible, however, young men and young women signal responsibility by misreporting what they used when they only use one, or no, method. Young men might report they used condoms, and possibly withdrawal, when they did not do so to make themselves seem responsible. Young women might do the same, reporting methods they control.

As well as showing that young men and young women report different methods, this paper looks at the different explanations. The results suggest the fourth explanation plays some role. First, young men's and women's answers are different at all grade levels. Because people in some grades will be more likely to have partners outside the sample, the difference is probably not just because some people have partners who are not in the sample. The difference is probably also not due just to differences in the omitted age of the other partner. The oldest men were less likely to say the couple used condoms than even the youngest women. Finally, the difference remains when we look at a separate question that directly asks whether the couple used a condom. Everybody who used a condom should answer 'yes' to this second question even if they also used other methods. Differences between men and women for the second question cannot be due to people using multiple methods reporting only one.

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[4] The survey does not provide information on the partner's age.

[5] Sometimes this might not be the case. If one partner was intoxicated or if the male put on, but then removed a condom before intercourse, the two might have different beliefs about whether they used a condom.

[6] Regnerus (2017), for example, notes that although Americans have become more willing to answer questions about sex, it remains difficult to collect accurate information. He argues (p. 19): "[T]he domains of sex and sexuality remain saturated with moral idealism… Young adults do lots of virtue signaling here."

II.   Data and Model

Data

This paper uses data from the Centers for Disease Control (CDC)'s 2015 National Youth Risk Behavior Survey (NYRBS). The CDC gives the survey to a nationally representative sample of public and private high school students (9th through 12th grade).[7] Participants answer questions about their sexual behavior, alcohol and drug use, tobacco use, and other risky and health-related behaviors.

The main dependent variable uses a question about contraceptive use that reads:

"The last time you had sexual intercourse, what one method did you or your partner use to prevent pregnancy? (Select only one response.)"(Centers for Disease Control and Prevention, 2016)

The question is interesting for two reasons. First, it asks about pregnancy prevention. If a couple used condoms to prevent disease, but not pregnancy, the teenager should say they did not use anything. This might be important for same-sex couples. Second, the young woman or man can only give one answer. If the couple used more than one method (for instance, birth control pills and condoms), the teenager would have to choose which one to report.

The question has seven possible responses: no contraception; withdrawal; do not know; birth control pills; intrauterine devices (IUDs) or implants; shots, patches or rings; and condoms. The most common answer was condoms; close to half of the teens reported using them (see Table 1). The next most common responses were birth control pills and no contraception. Few reported using any other method.

We also looked at a second question about condoms that reads:

"The last time you had sexual intercourse, did you or your partner use a condom?" (Centers for Disease Control and Prevention, 2016)

The question differs from the earlier one in two ways. First, it does not refer to preventing pregnancy. Second, students who use condoms should answer 'yes' even if the couple used the condom with another method.

Model

The likelihood the student reports choosing each contraceptive depends on what the student is like:

$$P(y_i = 1) = \frac{1}{1+e^{X_i\beta_2}+e^{X_i\beta_3}} \qquad\qquad (1)$$

$$P(y_i = j) = \frac{e^{X_i\beta_j}}{1+e^{X_i\beta_2}+e^{X_i\beta_3}} \qquad for\ j = 2,3 \qquad (2)$$

Student i reports choosing contraceptive j with the likelihood shown in equation (2). We make one of the choices the base choice—choice one in the model $(y_i = 1)$.   In the base model, the default choice is 'no contraception'. We set the coefficients for the default choice to zero to identify the model. The empirical results, however, will be the same whichever choice is the

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7 The data set is publicly available and is described in greater detail on the CDC webpage (www.cdc.gov/yrbs).

default.[8] Because the student chooses the main method from more than two choices and because we cannot order them, we estimate the model as a multinomial Logit model.

We assume the students' choice depends on what the student is like, including the student's gender, grade and race. We use sets of dummies for each characteristic, which allows characteristics to affect likelihoods non-monotonically. So, the likelihood students use a particular method can increase and then decrease—or decrease and then increase—as they age. As discussed below, the coefficients appear non-linearly in the estimated likelihoods. The coefficients in the equations for each choice also affect the estimated likelihoods for all other choices (see equation 1 and 2). As a result, it is difficult to interpret the coefficients. Because of this we focus on average marginal effects—how much characteristics affect the average likelihood students choose each contraceptive—rather than the coefficients themselves.

We group the seven choices in the questionnaire into three groups in the main model. Students in the first group said they did not use contraception. We include students who said they or their partner withdrew in this group. Students in the second group reported using condoms as the main method. Students in the third group said they used birth control pills or a medium- or long-term contraceptive (for instance, an IUD, a patch or an injection) as their main method of pregnancy prevention. As a robustness check, we also separate the groups into finer choices.

We group the young men and women's choices to reduce problems caused by an assumption the multinomial Logit model needs: the independence of irrelevant alternatives (IIA).[9] IIA implies if you look at any two contraceptive methods, how likely a student is to pick one over the other does not depend on what other choices are available. For example, in the NYRBS sample, 3 percent of students said they used IUDs, 16 percent said they used birth control pills and 49 percent said they used condoms. Teens were, therefore, about three times more likely to choose condoms then they were to choose birth control pills. The IIA assumption implies if IUDs were not available teens who were using IUDs would also be about three times as likely to use condoms as birth control pills.

Grouping similar choices can reduce problems due to the IIA assumption (Amemiya, 1981). The goal is, therefore, to group similar contraceptive choices into larger groups. We do this by grouping the methods into three groups: one needs no advanced planning, one needs moderate planning, and one needs significant planning.

The first group includes the methods needing no advanced planning: no contraception and withdrawal. Teens using these methods can decide to do so when they have intercourse. We also include people who responded 'don't know'. The fact they did not know means they had made no long-term plans. Further, teenagers might answer 'don't know' to avoid answering in a way that makes them seem irresponsible (that is, not using contraception).[10] Because combining "don't know" with "no contraception" might be controversial, we also run robustness checks dropping teens who answered "don't know."

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[8] Although the coefficient estimates depend which option is chosen as the default, the marginal effects, which we focus on in this paper, do not.

[9] In the robustness checks, we also run the analysis with all seven categories and test groupings.

[10] This is often done when looking at sensitive questions. For example, when the World Bank calculates the percent of firms that pay bribes used data from the Enterprise Surveys, they treat "don't know" as an admission the firm pays bribes (World Bank, 2012).

The second group includes the methods needing some, but not much, advanced planning: condoms. Teenagers can buy condoms over-the-counter or online in the United States without a doctor's visit or permission from their parents. Further, unlike birth control pills and other long-lasting methods where the young woman has to take the main role in getting them, either the young woman or man could buy condoms.[11] Finally, unlike birth control pills and the other long-lasting methods, both partners will know they are using condoms in most cases.

The final group includes methods needing long-term planning: birth control pills, long-acting reversible contraceptives (IUDs and implants), and medium-term hormonal contraceptives (shots and patches). Teens need to visit a doctor before using these methods and the methods do not become effective straight away. They are also similar in another way; the young woman will usually plan and carry out the method. In fact, if she wanted to, the young woman could use them without asking, or even telling, the young man.   In contrast, the young man has few similar choices; vasectomies were the only long-term method available to men in 2015. The survey did not include this choice—or similar surgical methods for young women—and few teenagers choose these irreversible alternatives. We refer to this group as birth control pills or long-lasting methods in the analysis. We do this to be concise; long-lasting does not mean the group only includes long-acting reversible contraceptives (LARCs).

Once we have grouped the categories in this way, the choices are different. The couples decide to use the different methods at different times and some methods need more agreement or negotiation than others. To check whether IIA holds after combining categories, we test it. We also run the analysis using all seven categories as a robustness check.

III.   Empirical Results

Table 2 shows results from the main multinomial logit model. The omitted choice is no contraception. Every coefficient on every characteristic enters the equation for every choice (see the denominators in equations 1 and 2). As a result, we cannot work out how independent variables affect specific choices looking only at the coefficients. Even when a variable's coefficient is positive for a particular choice, the student might be less, not more, likely to choose that method than if the variable was greater.[12]   To make it clear how gender affects students' choices, we therefore calculate the average likelihood that female and male students choose each method, holding everything else constant (see top 2 rows of Table 3).[13]

Base results

Differences between young women and men. The female dummy's coefficient is positive for birth control pills and is negative for condoms. A joint test of the coefficients'

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[11] How much control the male partner has might differ for male and female condoms. Although the question does not distinguish between male or female condoms, female condoms are rare in the United States and other developed economies (Hoffman and others, 2004).

[12] The exponent of the coefficient gives the risk of choosing an option relative to the default option (using no contraceptive) for a one-unit change in the variable (see equations 1 and 2). If the coefficient is positive, the likelihood of choosing that option relative to the default option is greater for higher values. But it is difficult to know what happens to the likelihood of choosing the option overall or the likelihood relative to other non-default choices.

[13] We use the margin command in Stata to do this. For dummy variables, the margin command calculates the probability that each individual will make each choice when the dummy set to one and when it is set to zero. It then averages the probabilities over the sample.

significance confirms female students report using different contraceptives than do male students.[14] Although the coefficients give some information on young women and men's choices, we need to look at the average likelihoods to see whether young women and men give different answers on average (see Table 3).

Looking at the average likelihoods shows, despite the significant coefficients, male and female students were about equally likely to say they used no contraceptive when they last had sex. Holding everything else equal, the average likelihood that young women reported not using contraception was 30 percent and the average likelihood that young men did the same was 29 percent (see Table 3).

Male and female students did, however, give different answers for the other methods. Young women were far less likely to say they used condoms than were young men: 42 percent of women compared with 55 percent of men. Young men, in contrast, were far less likely to say the couple used the pill or another long-lasting birth control method. The average likelihood was 16 percent of men and 28 percent of women.

Many things could cause these differences. Because the students could only report one method, young women and men might stress different methods when they use more than one. The difference could, therefore, be due to young women reporting they used birth control pills when they use both and young men reporting condoms instead. If the young man did not ask the woman whether she is using birth control pills, he might not even know whether she is. We talk about this and other possibilities below.

Other Variables. Reported contraceptive choices also vary by grade level and ethnicity. We can reject the hypothesis that students in different grades are equally likely to choose each method at a 1 percent level.[15] Older students are less likely to report not using contraceptives, are more likely to report using birth control pills and other long-lasting contraceptives, and are less likely to report using condoms than younger students (see Table 4). We can also reject the joint hypothesis that students of all ethnicities are equally likely to report using each method at a 1 percent level.[16]

Independence of Irrelevant Alternatives. We run two tests to see whether the model with three choices satisfies the IIA assumption: a Hausman test and a Small-Hsiao test. [17] Although both have size distortions even for large samples (Cheng and Long, 2007), they give some assurance the model is acceptable. We cannot reject the null hypothesis the assumption holds for either test (see Table 5 for the Hausman test). Because the Small-Hsiao test divides the sample randomly, results depend on the randomization (Long and Freese, 2014). To check the results are robust for different random subsets, we used 10 different randomization seeds (that is, 30 tests in total). We reject the null hypothesis the assumption holds for only 2 of 30 tests.

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[14] We reject the null hypothesis the coefficients on the female dummy are jointly zero (p-value = 0.000, χ^2 (2) = 126.6. The individual coefficients are also statistically significant (see Table 3).

[15] The test statistic is χ^2 (6) = 65.1 and has a p-value of 0.0000.

[16] The test statistic is χ^2 (14) = 197.2 and has a p-value of 0.0000.

[17] We implement the test using the mlogtest package in Stata (Freese and Lang, 2000). An alternative version of the Hausman test gives similar results although, in this case, one test statistic has a counter-intuitive negative sign.

Robustness Checks

Multinomial Probit Model. As a robustness check, we estimate a similar multinomial Probit model. Table 3 shows the estimated likelihoods by gender (see rows 3 and 4).[18] Although the Probit model also assumes IIA holds, the probability is normal rather than logistic. The two models' results are similar. Young women are less likely to say they used condoms and more likely to say they used birth control pills or other long-lasting contraceptives than are young men. The estimated likelihoods in the multinomial Probit model are similar to the likelihoods in the multinomial Logit model (see Table 3).

Sample Weighted Regression. In the analysis, we estimate the model using a model-based approach. That is, we do not use sample weights or account for the survey's sampling method.[19] Using sample weights, however, can affect the coefficient estimates and standard errors. Further, when the weighted and unweighted results are different, this might suggest problems with the model-based approach.

Because of these concerns, we estimate the model allowing for stratified clusters and using the sample weights as a robustness check. Doing so does not affect the results. Young women are still more likely to say they used birth control pills than young men and less likely to say they used condoms (see rows 5 and 6 of Table 3). Although the estimated likelihoods are not the same in the weighted and unweighted models, they are similar.

Leaving out Gay and Lesbian Teenagers. The question about contraceptives asks about preventing pregnancy. It, therefore, excludes sexual acts that do not result in pregnancy, whether between heterosexual couples or between gay or lesbian couples. If, however, the teens used a barrier method, such as condoms, to prevent disease, they might answer the question ignoring the reference to pregnancy. If gay men use condoms to prevent disease more or less often than do lesbians, young men and women might report different contraceptive use.[20]

We, therefore, repeat the regressions leaving out gay, lesbian, and bisexual teens. We first leave out young men and women who report ever having a same-sex partner and then leave out men and women who report they are gay, lesbian, or bisexual. Doing this does not affect the main results (see rows 7-10 of Table 3). Young men remain more likely to report the couple used condoms than young women while young women remain more likely to report the couple used birth control pills. The results, however, are not identical to the base results. The biggest difference is fewer teens report using no contraception once we have dropped gay, lesbian, and bisexual teens.

Leaving out People Who Answered "Don't Know". About 3 percent of teenagers said they did not know whether they used contraception when they last had intercourse. In the base analysis, people who said they did not know which method they used are grouped with people who said they used no contraception. In this robustness check, we keep three categories but drop people who answered 'don't know' from the regression. We will treat people who answered 'don't know' as a separate category later.

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[18] The full regression results for all robustness checks are available in an online appendix.

[19] Deaton (1997) and Chapter 7 of Heeringa and others (2017) discuss the model based approach in greater detail. The results' statistical significance is also similar when we cluster standard errors at the PSU level without using weights.

[20] Condoms can prevent sexually transmitted infections for both gay men and lesbians (Marrazzo and others, 2005).

The results are similar when we leave out the "don't knows". Young men remain more likely to report they used condoms and young women remain more likely to report they used birth control pills (see rows 11-12 of Table 3).

Dropping the "don't knows" does affect some results. When the 'don't knows' are left out, young men are less likely to say they did not use contraception than young women—24 percent of young men compared with 26 percent of young women. This suggests some young men answer "don't know" when the couple did not use contraception—perhaps because they were not sure whether the young woman was using birth control pills.

Seven Categories. The question about contraception has seven possible answers: no contraception; condom; birth control pill; shot, patch, or ring; IUD or implant; withdrawal; and don't know (see Table 1). Because few people gave some answers, and because of concerns about the IIA assumption when the answers are similar, we pooled seven categories into three. As discussed earlier, we did this based on how much the teens needed to plan and who was responsible for planning. Because we could merge categories in different ways, testing robustness using all seven categories is useful.

Table 6 shows the average likelihood a young woman or man will choose each of the seven methods.[21] As discussed earlier, interpreting the coefficients and their significance is difficult. We therefore look at the coefficients' joint significance for gender, which tells us whether young women and men report making different choices overall. The joint test confirms they do.[22]

The estimated likelihoods for the seven choices confirm the main results. Young men remain more likely to say they used condoms than young women (55 percent compared with 42 percent). In the same way, young women were more likely to say the couple used birth control pills. In fact, young women were more likely to say the couple used all long-term methods (shots, patches or rings; IUDs or implants; and birth control pills) than were young men.

Some interesting differences do emerge, however, in the final category. After breaking the final category into no contraception, withdrawal, and don't know, young men were more likely to say they practiced withdrawal and to report they did not know, while young women were more likely to say none. It is not surprising young men were more likely to say they didn't know—the young man might not know whether the woman is using birth control pills or medium or long-acting forms of contraception. This suggests teens' communication about contraception is not perfect. It also might not be surprising that young men were more likely to report withdrawal— young men might want to stress they tried to prevent pregnancy. Finally, young women might be more likely to say 'none' because when the young man answers 'don't know', thinking the young woman might be using birth control pills, the young woman was sometimes not.

The IIA test gives ambiguous results for the seven choices. This is not surprising; some choices are closer to each other than they are to other choices. For example, birth control pills might be a closer substitute for patches or shots than they are for condoms. In the same way, the medium- and long-acting methods might be close substitutes. Although most of the Small-Hsiao tests and the basic form of the Hausman test fail to reject the null hypothesis that the choices are

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[21] Full regression results for all robustness checks are available in an online appendix.

[22] For gender, $\chi^2 (6) = 171.0$, p-value=0.000. There are also difference by grade ($\chi^2 (18) = 92.1$, p-value=0.000) and ethnicity ($\chi^2 (42) = 240.3$, p-value=0.000).

independent (that is, IIA holds), the suest version of the Hausman test rejects it for 6 of 7 categories. This favors grouping the choices into three categories.

Separate Genders by Grade. The base regression includes controls for gender and grade. Although this allows young men and women in the same grade to give different answers, it assumes the difference between young men's and women's responses is the same in different grades.   It is possible, however, the difference between young men's and young women's responses is different at different grade levels. To see if this affects the paper's results, we re-run the analysis interacting gender and grade. This allows the difference between young men and women's responses to vary between grades.

Many results are the same in the model with interaction terms (see Table 7). First, young men were more likely to say the couple used condoms and less likely to say the couple used birth control pills at all grade levels. Second, the likelihood the couple used birth control pills was higher for both young men and women in higher grades. But the difference between young men's and women's responses is similar at all grade levels. Third, we can see a similar pattern for condoms; younger women and men were both more likely to report using condoms and the difference between young women's and men's answers is similar at different grade levels.

Overall, the results are like the results in the base model. A likelihood ratio test confirms this, failing to reject the null hypothesis the difference between young women's and young men's responses is the same at all grade levels. This favors the base regression's results over the extended regression's results.

Any Condom Use. The earlier analysis uses a question about contraception that allows the teenager to report only one method. Young women and men's different answers might, therefore, be because young men and young women report different methods when they use more than one. This could also explain why students in different grades give different answers. Older students might be less likely to report using condoms not because they are less likely to use them but because they are more likely to use multiple methods. This might be the case if older teens are more likely to use birth control pills than younger teens. To see whether this is the case, we look at a separate question that specifically asks about condoms. The question asks all students whether they used a condom the last time they had sex. If young women and men give different answers because young women and men using multiple methods report different methods, the difference should disappear when using this question.

Table 8 shows the results. As before, young men are more likely to report using condoms than are young women. After controlling for other differences, young men were about 10 percentage points more likely to report using a condom than young women (64 percent compared with 54 percent). Although the difference is smaller than the difference for reporting condoms as the main method–a 12 percentage point difference—the difference remains large. This suggests young men and women's different answers are not only due to young women and men who use multiple methods giving different answers.

The difference between older and younger students also remains significant when looking at any condom use. Further, the difference between 9th and 12th graders' responses is about the same whether we look at condoms as the main method or any condom use—about 12 percentage points. This suggests the difference is because 9th graders shift from condoms to birth control pills as they get older rather than because they shift from condoms to multiple methods.

IV.   Discussion and Conclusions

Young women and men reported using different types of contraceptive than each other in a recent survey of high school students. Young women were less likely to say the couple used a condom the last time they had sex while young men were less likely to say the couple used birth control pills. Because most survey participants said they had opposite-sex partners, it seems men and women should give similar answers.

We might be able to explain this difference in several ways. First, young men and women might say they used different methods because they did. Second, young men might not always know what method the young woman is using. Third, young men and women might focus on different methods when the couple uses more than one. Fourth, some young people might misreport the method they used. As well as showing that young men and women answer differently, the results also provide some information on these different explanations.

The first explanation is young men and women answered differently because they used different methods. Because the survey excluded some participants' potential partners, this is possible. Some people in the survey might have had sex with middle school students, high school graduates, or high school dropouts—all of whom the survey excludes. One particular concern is young women might have older partners, while young men might have younger partners. Because young women become more likely to use birth control pills as they get older, young men and women of the same age might use birth control pills and condoms differently.

Although this might partly explain their different answers, this paper's results suggest other reasons might also be important. Even the oldest young men are more likely to say they used condoms than the youngest young women; male seniors (12th grade) are more likely to say they did so than female 9th graders. For the first explanation to work, the young women would therefore have to be much younger than their partners. But it is then difficult to know who the youngest men's partners are—few women have sex while in middle school.[23]

Other differences between young women's and men's partners are also unlikely to explain their different answers. If the difference is due to partners who are high school dropouts or graduates, we would see greater differences for people whose partners are often in these groups. So, for example, we might see greater differences for 12th graders than for 9th graders. Instead we see differences at all levels and these differences do not increase or decrease with age.

The second explanation is young men might not always know whether their partner is using birth control pills. This might be especially likely when the couple are not serious. If the woman wants to encourage the man to use a condom to prevent disease, she might not tell him she is using birth control pills to get him to do so. This explanation, however, is also not fully satisfactory. Although this could explain why men are less likely to say the couple used birth control pills, it does not explain why women are less likely to say they used condoms. Because both partners would know whether they used a condom, either young women underreport condom use or young men overreport it.

The third explanation is that young men and women stress different methods when the couple uses more than one. The question on contraception only allows couples who use both condoms and birth control pills to report one. Young women and men might give different answers

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[23] Only about 2.2 percent of young women in the 2015 NYRBS reported having sex before they were 14.

if young women who use both say they used birth control pills, while young men say condoms. They might do so because each partner reports the method that stresses his or her role.[24] Young men might say they use condoms because they want to show they took an active role in preventing pregnancy. By saying they used a condom—the method where they play the largest role—they stress this. Young women, in contrast, can signal they are being responsible by using either. But young women might believe birth control pills signal responsibility better than condoms. First, the young woman will need a prescription for birth control pills, showing she got medical advice. Second, birth control pills signal the woman, rather than her partner, played the main role in the decision. Third, birth control pills, unlike condoms, signal the couple is monogamous. Based on interviews with low-income young women in Philadelphia and Camden, Edin and Kefalas (2005) report:

> *"But once there is an understanding that [the couple have] become an exclusive pair, he often abandons condoms because continued use would signal a lack of fidelity and trust." (Edin and Kefalas, 2005, p. 38).*

If the couple uses condoms, it suggests they need to protect themselves against sexually transmitted infections. If the young woman wants to signal the couple are not having sex with other people, she might prefer to say she is using birth control pills.[25]

The third explanation alone, however, is unlikely to explain young men's and women's different answers. One problem is few teens use multiple methods; only 23 percent of teens who said they used another method also said they used a condom. A second problem is that young men were not only more likely to say condoms were the main method the couple used, they were also more likely to say they used condoms at all.

Because the first three explanations do not completely explain the difference, it is possible the fourth explanation—that some people misreport the method they used—plays some role. It would not be surprising if some teenagers lied—people often answer sensitive survey questions inaccurately (Tourangeau and Smith, 1996). Young men and women might answer the question on contraception differently for the same reason those using multiple methods pick one over the other: they want to stress they are responsible. Rather than just stressing the method that highlights their responsibility when they use two, some people might misreport the method they used.

It would be interesting to extend this research using robust methods to explore the differences. We could identify dishonest respondents using random response questions and then see how their responses differ from others' responses.[26] This could give greater information on the roles played by the different explanations.

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[24] Although most adults disapprove of sex between teenagers--67.5 percent said it was always wrong in the 2014 General Social Survey (GSS)—unprotected sex is probably even seen even less favorably.

[25] Although the cultural double standard that subjects women to greater social sanctions for having casual sex might have become less important recently, women still recognize it exists (Lyons and others, 2011).

[26] Several recent studies have used this technique to estimate misreported information on bribe payments (Azfar and Murrell, 2009; Clausen and others, 2010) and other sensitive firm behaviors (Clarke, 2018).

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VI.   Tables

Table 1: Reported Contraceptive Use

		Seven Categories	Three Categories
None	No Contraceptives	14%	
	Withdrawal/Other	10%	27%
	Do Not Know	3%	
Long-Lasting	Birth Control Pill	16%	
	IUD or Implant	3%	23%
	Shot, Patch or Ring	5%	
Condom	Condom	49%	49%

Source: Authors' calculations using data from the Youth Risky Behavior Survey.

Table 2: Difference in responses from young men and women regarding contraceptive use

	Multinomial Logit	
	Long Lasting	Condom
Observations	5,519	5,519
Gender		
Respondent is Female	0.514***	-0.297***
	(6.49)	(-4.68)
Grade (9th Grade is omitted)		
10th Grade	0.370**	-0.057
	(2.55)	(-0.56)
11th Grade	0.680***	-0.092
	(4.99)	(-0.93)
12th Grade	0.816***	-0.065
	(6.08)	(-0.67)
Race/Ethnicity (Native American is omitted)		
Asian	-0.930**	-0.018
	(-2.21)	(-0.05)
African-American	-0.720**	0.266
	(-2.05)	(0.87)
Pacific Islander	0.126	-0.247
	(0.20)	(-0.43)
White	0.287	0.464
	(0.86)	(1.57)
Hispanic	-1.101***	0.275
	(-3.13)	(0.91)
Multiple (Hispanic)	-0.618*	0.180
	(-1.81)	(0.60)
Multiple (Non-Hispanic)	-0.389	0.219
	(-1.05)	(0.68)
Constant	-0.925***	0.399
	(-2.68)	(1.33)

Source: Authors' calculations using data from the Youth Risky Behavior Survey.
Note: t-statistics in parentheses.   ***, **, * Statistically significant a 1 percent, 5 percent and 10 percent significance levels.

Table 3: Estimated probability of males and females reporting contraceptive use.

		None (incl. Withdrawal)	Pill and Other Long-Lasting	Condoms	Joint Significance Test
Multinomial Logit	Males	29%	16%	55%	126.6***
	Females	30%	28%	42%	(0.00)
Multinomial Probit	Males	29%	16%	55%	129.8***
	Females	30%	28%	42%	(0.00)
Weighted MNL	Males	27%	18%	55%	45.8****
	Females	28%	30%	43%	(0.00)
All Sexual Contact with other Sex	Males	27%	17%	56%	97.3***
	Females	27%	28%	45%	(0.00)
Heterosexual only	Males	27%	17%	56%	106.9***
	Females	27%	28%	44%	(0.00)
"Don't Know" Excluded	Males	24%	18%	59%	109.7***
	Females	26%	29%	45%	(0.00)

Source: Authors' calculations using data from the Youth Risky Behavior Survey.
Note: Joint significance test is test of whether coefficients on the dummy indicating female are jointly zero (that is, a test of whether young men and young women give different answers). Number in Parentheses under test is p-value.

Table 4: Estimated probability of reporting contraceptive use, by grade.

	9th Grade	10th Grade	11th Grade	12th Grade
None (including withdrawal)	31%	30%	29%	28%
Pill and other long-lasting contraceptives	14%	19%	24%	26%
Condoms	55%	51%	47%	46%

Table 5: Hausman test for independence of irrelevant alternatives assumption

H$_0$: Odds outcome is independent of alternatives	χ2 Statistic	Degrees of Freedom	p-value
No birth control	15.041	12	0.239
Pill or other long-lasting	11.146	12	0.516
Condom	10.558	12	0.567

Table 6: Estimated probability of males and females reporting contraceptive use, seven categories

	Males	Females
None	13%	17%
Pill	12%	18%
Condoms	55%	42%
Shot, Patch or Ring	2%	3%
IUD or Implant	2%	6%
Withdrawal	11%	10%
Don't Know	4%	2%

Table 7: Estimated probability of males and females reporting contraceptive use, by grade

		Males	Females
None (including withdrawal)	9th Grade	30%	32%
	10th Grade	30%	30%
	11th Grade	29%	29%
	12th Grade	26%	29%
Pill and other long-lasting contraceptives	9th Grade	8%	20%
	10th Grade	13%	24%
	11th Grade	18%	31%
	12th Grade	21%	31%
Condoms	9th Grade	62%	49%
	10th Grade	56%	45%
	11th Grade	54%	40%
	12th Grade	52%	40%

Table 8: Difference in responses from young men and women regarding condom use

	Any Condom Use	Condom is main method
Observations	5,664	5,519
Gender		
Respondent is Female	-0.253***	-0.318***
	(-7.47)	(-9.31)
Grade (omitted in 9th Grade)		
10th Grade	-0.105*	-0.112**
	(-1.83)	(-1.97)
11th Grade	-0.142***	-0.211***
	(-2.60)	(-3.89)
12th Grade	-0.235***	-0.231***
	(-4.39)	(-4.33)
Race/Ethnicity (Omitted is Native American)		
Asian	0.022	0.196
	(0.12)	(1.02)
African-American	0.202	0.327**
	(1.25)	(1.99)
Pacific Islander	0.075	-0.193
	(0.25)	(-0.61)
White	0.180	0.187
	(1.16)	(1.18)
Hispanic	0.217	0.400**
	(1.35)	(2.45)
Multiple (Hispanic)	0.116	0.255
	(0.73)	(1.57)
Multiple (Non-Hispanic)	0.054	0.228
	(0.32)	(1.31)
Constant	0.344**	0.042
	(2.17)	(0.26)
Pseudo R-Squared	0.0115	0.0186

Source: Authors' calculations using data from the Youth Risky Behavior Survey.
Note: t-statistics in parentheses. ***, **, * Statistically significant 1, 5, and 10 percent significance levels.

Appendix: Additional Tables

Table 9: Difference in responses from young men and women regarding contraceptive use

	Multinomial Logit		Multinomial Probit		Multinomial Logit (weighted)	
	Long Lasting	Condom	Long Lasting	Condom	Long Lasting	Condom
Observations	5,519	5,519	5,519	5,519	5,519	5,519
Gender						
Respondent is Female	0.514***	-0.297***	0.373***	-0.255***	0.501***	-0.288***
	(6.49)	(-4.68)	(6.41)	(-4.97)	(5.57)	(-3.28)
Grade (9th Grade is omitted)						
10th Grade	0.370**	-0.057	0.255**	-0.051	0.250	-0.048
	(2.55)	(-0.56)	(2.46)	(-0.60)	(1.37)	(-0.32)
11th Grade	0.680***	-0.092	0.480***	-0.088	0.695***	0.037
	(4.99)	(-0.93)	(4.94)	(-1.09)	(3.18)	(0.24)
12th Grade	0.816***	-0.065	0.584***	-0.070	0.610***	-0.002
	(6.08)	(-0.67)	(6.10)	(-0.88)	(3.09)	(-0.02)
Race/Ethnicity (Native American is omitted)						
Asian	-0.930**	-0.018	-0.681**	-0.008	-1.487***	-0.518
	(-2.21)	(-0.05)	(-2.18)	(-0.03)	(-2.74)	(-1.15)
African-American	-0.720**	0.266	-0.522**	0.224	-1.295**	0.124
	(-2.05)	(0.87)	(-1.97)	(0.92)	(-2.38)	(0.31)
Pacific Islander	0.126	-0.247	0.068	-0.216	-1.157*	-0.338
	(0.20)	(-0.43)	(0.14)	(-0.47)	(-1.69)	(-0.63)
White	0.287	0.464	0.216	0.366	-0.429	0.073
	(0.86)	(1.57)	(0.85)	(1.54)	(-0.88)	(0.20)
Hispanic	-1.101***	0.275	-0.775***	0.239	-1.640***	-0.084
	(-3.13)	(0.91)	(-2.93)	(0.98)	(-3.19)	(-0.22)
Multiple (Hispanic)	-0.618*	0.180	-0.458*	0.154	-1.254***	-0.101
	(-1.81)	(0.60)	(-1.77)	(0.64)	(-2.73)	(-0.29)
Multiple (Non-Hispanic)	-0.389	0.219	-0.308	0.181	-0.884**	-0.019
	(-1.05)	(0.68)	(-1.10)	(0.70)	(-2.21)	(-0.05)
Constant	-0.925***	0.399	-0.654**	0.342	-0.118	0.709*
	(-2.68)	(1.33)	(-2.52)	(1.42)	(-0.24)	(2.01)

Source: Authors' calculations using data from the Youth Risky Behavior Survey.
Note: t-statistics in parentheses.   ***, **, * Statistically significant a 1 percent, 5 percent and 10 percent significance levels.

Table 10: Difference in responses from young men and women regarding contraceptive use (heterosexual students only)

	Only sexual contact with other sex		Describes self as heterosexual		"Don't know" excluded	
	Long Lasting	Condom	Long Lasting	Condom	Long Lasting	Condom
Observations	4,893	4,893	4,822	4,822	4,673	4,673
Gender						
Respondent is Female	0.514***	-0.237***	0.525***	-0.265***	0.448***	-0.343***
	(6.03)	(-3.42)	(6.13)	(-3.79)	(5.11)	(-4.73)
Grade (9th Grade is omitted)						
10th Grade	0.322**	-0.091	0.352**	-0.053	0.268	-0.141
	(2.01)	(-0.80)	(2.18)	(-0.47)	(1.60)	(-1.17)
11th Grade	0.537***	-0.205*	0.648***	-0.133	0.553***	-0.230**
	(3.58)	(-1.89)	(4.27)	(-1.22)	(3.53)	(-1.98)
12th Grade	0.764***	-0.161	0.806***	-0.097	0.679***	-0.229**
	(5.18)	(-1.51)	(5.40)	(-0.90)	(4.41)	(-2.01)
Race/Ethnicity (Native American is omitted)						
Asian	-0.900**	0.050	-0.844*	0.031	-0.777*	0.094
	(-2.06)	(0.14)	(-1.89)	(0.09)	(-1.71)	(0.25)
African-American	-0.609*	0.406	-0.588	0.372	-0.529	0.443
	(-1.68)	(1.29)	(-1.58)	(1.17)	(-1.38)	(1.34)
Pacific Islander	-0.010	-0.360	0.270	-0.119	0.573	0.187
	(-0.02)	(-0.60)	(0.40)	(-0.19)	(0.77)	(0.27)
White	0.406	0.609**	0.405	0.565*	0.427	0.593*
	(1.18)	(1.99)	(1.15)	(1.82)	(1.18)	(1.85)
Hispanic	-1.085***	0.410	-1.027***	0.338	-1.011***	0.357
	(-2.98)	(1.32)	(-2.75)	(1.07)	(-2.65)	(1.09)
Multiple (Hispanic)	-0.538	0.352	-0.517	0.273	-0.499	0.293
	(-1.52)	(1.14)	(-1.43)	(0.87)	(-1.35)	(0.90)
Multiple (Non-Hispanic)	-0.244	0.414	-0.242	0.363	-0.220	0.388
	(-0.63)	(1.23)	(-0.61)	(1.07)	(-0.54)	(1.10)
Constant	-0.862**	0.412	-0.924**	0.421	-0.705*	0.639**
	(-2.41)	(1.33)	(-2.51)	(1.34)	(-1.87)	(1.96)

Source: Authors' calculations using data from the Youth Risky Behavior Survey.
Note: t-statistics in parentheses.   ***, **, * Statistically significant a 1 percent, 5 percent and 10 percent significance levels.

Table 11: Difference in responses from young men and women regarding contraceptive use (all seven choices)

	Pill	Condoms	Shot, Patch or Ring	IUD or Implant	Withdrawal	Don't Know
Observations	5,519	5,519	5,519	5,519	5,519	5,519
Gender						
Respondent is Female	0.131	-0.520***	0.383**	0.848***	-0.334***	-0.870***
	(1.30)	(-6.50)	(2.01)	(5.15)	(-3.06)	(-5.18)
Grade (omitted in 9th Grade)						
10th Grade	0.535***	0.037	0.583	0.197	0.397**	-0.210
	(2.91)	(0.29)	(1.48)	(0.72)	(2.13)	(-0.90)
11th Grade	0.863***	0.056	1.052***	0.628**	0.568***	-0.325
	(4.97)	(0.45)	(2.88)	(2.49)	(3.20)	(-1.41)
12th Grade	0.836***	-0.084	1.103***	0.532**	0.233	-0.699***
	(4.94)	(-0.70)	(3.08)	(2.14)	(1.32)	(-2.99)
Race/Ethnicity (Omitted is Native American)						
Asian	-0.598	0.093	-0.416	-1.536**	0.019	0.785
	(-1.07)	(0.21)	(-0.32)	(-2.04)	(0.03)	(0.89)
African-American	-0.870*	0.087	-0.273	-1.159**	-0.622	0.288
	(-1.82)	(0.22)	(-0.25)	(-2.06)	(-1.28)	(0.36)
Pacific Islander	0.234	-0.314	-12.187	-0.160	-1.336	1.292
	(0.29)	(-0.44)	(-0.02)	(-0.16)	(-1.10)	(1.18)
White	0.553	0.496	0.902	-0.543	-0.021	0.321
	(1.21)	(1.31)	(0.85)	(-1.02)	(-0.04)	(0.41)
Hispanic	-1.080**	0.135	-0.519	-1.902***	-0.459	0.206
	(-2.27)	(0.35)	(-0.47)	(-3.27)	(-0.96)	(0.26)
Multiple (Hispanic)	-0.521	0.141	0.138	-1.282**	-0.202	0.325
	(-1.12)	(0.37)	(0.13)	(-2.33)	(-0.43)	(0.41)
Multiple (Non-Hispanic)	-0.564	0.076	0.399	-0.819	-0.455	0.164
	(-1.12)	(0.19)	(0.36)	(-1.38)	(-0.88)	(0.19)
Constant	-0.662	1.163***	-3.223***	-1.268**	-0.306	-1.049
	(-1.41)	(3.05)	(-2.95)	(-2.28)	(-0.64)	(-1.33)

Source: Authors' calculations using data from the Youth Risky Behavior Survey.
Note: t-statistics in parentheses. ***, **, * Statistically significant a 1 percent, 5 percent and 10 percent significance levels.

Table 12: Difference in responses from young men and women regarding contraceptive use, by grade

	Condoms	Pill
Observations	5,519	5,519
Grade and Gender (omitted in 9th grade males)		
9th Grade Female	0.882***	-0.273*
	(3.63)	(-1.72)
10th Grade Male	0.533**	-0.089
	(2.31)	(-0.65)
10th Grade Female	1.154***	-0.289**
	(5.24)	(-2.03)
11th Grade Male	0.865***	-0.077
	(3.99)	(-0.59)
11th Grade Female	1.435***	-0.379***
	(6.84)	(-2.82)
12th Grade Male	1.157***	-0.011
	(5.45)	(-0.08)
12th Grade Female	1.455***	-0.387***
	(7.00)	(-2.94)
Race/Ethnicity (Omitted is Native American)		
Asian	-0.896**	-0.005
	(-2.13)	(-0.01)
African-American	-0.696**	0.276
	(-1.97)	(0.91)
Pacific Islander	0.148	-0.235
	(0.24)	(-0.40)
White	0.309	0.472
	(0.92)	(1.60)
Hispanic	-1.077***	0.284
	(-3.05)	(0.94)
Multiple (Hispanic)	-0.595*	0.188
	(-1.74)	(0.63)
Multiple (Non-Hispanic)	-0.355	0.233
	(-0.96)	(0.72)
Constant	-1.167***	0.376
	(-3.11)	(1.23)

Source: Authors' calculations using data from the Youth Risky Behavior Survey.
Note: t-statistics in parentheses.   ***, **, * Statistically significant 1, 5, and 10 percent significance levels.