Mothers, Peers and Gender-Role Identity[*]

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Abstract

We study whether a woman's labor supply as a young adult is shaped by the work behavior of her adolescent peers' mothers. Using detailed information on a sample of U.S. teenagers who are followed over time, we find that labor force participation of high school peers' mothers affects adult women's labor force participation, above and beyond the effect of their own mothers. The analysis suggests that women who were exposed to a larger number of working mothers during adolescence are less likely to feel that work interferes with family responsibilities. This perception, in turn, is important for whether they work when they have children.

Key words: Role models, identity, female labor supply, peer effects, work-family conflict.
JEL Classification: J22, Z13.

1 Introduction

An extensive literature focuses on the importance of cultural norms for economic decisions and for the persistence of beliefs, norms, and socioeconomic status across generations (Alesina and Giuliano, 2010, 2014; Bisin and Verdier, 2011). When it comes to women, a number of studies have established that gender norms can explain some of the differences in women's labor market outcomes over time, across countries and ethnicities, and across generations (see Fortin, 2005, 2015, and the surveys by Bertrand, 2010, and Fernández, 2011). Some of these studies are grounded in the identity economics framework developed by Akerlof and Kranton (2000, 2011). In Akerlof and Kranton's framework, identity is defined by social categories that are associated with behavioral norms prescribing how people belonging to a given group should behave (e.g. men are breadwinners, women are homemakers). Identity is used to describe a person's assigned social category as well as his or her self-image. Formally, it is an argument in the utility function whereby an individual receives a positive payoff if he or she behaves according to the given behavioral prescription, or a penalty if he or she fails deviates from the ideal (Akerlof and Kranton, 2010, 2011). But what factors shape gender-role identity?

This paper explores the role of socialization during adolescence for a woman's labor supply as a young adult by studying a recent cohort of women that is observed over time. Our analysis starts from the premise that during adolescence girls and boys face increased pressure to adopt culturally sanctioned gender-role identities (a process known as "gender intensification hypothesis").[1] There is consensus that same-sex parent and other relevant adults in a child's life (i.e. teachers) are important for modeling and reinforcing gender appropriate behavior (e.g., Hyde and Rosenberg, 1980; Williams, 1977). These influences, in turn, presumably shape adult choices and outcomes. We explore the importance of one key reference group for the gender role socialization of girls: their *mothers*. This includes both one's own mother and peers' mothers (a set of female adults with whom she may have frequent interactions). Although social psychology has emphasized the role of same-sex parent and other same-sex adults in gender-role identity formation during adolescence, most work in economics has focused on the first mechanism.

The goal of this paper is to assess whether the share of high school peers with working mothers affects the likelihood that a woman works many years later, having controlled for her own mother's labor supply. Using Manski's (1993) terminology, the peer effect that we

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[1]The "gender intensification hypothesis" has been used in psychology to explain an array of situations whereby gender differences emerge or intensify during adolescence (see Hill and Lynch, 1983). For example, depressive symptoms (Priess, Lindberg and Hyde, 2002).

identify is a contextual effect, that is, the impact of one specific characteristic of high school peers: whether their mothers worked. The underlying idea is that girls who were socialized in a cohort in which the majority of mothers worked may be more likely to have a gender-role ideal that reconciles motherhood and work than girls who were socialized in an environment where most mothers stayed at home.

Our empirical strategy exploits idiosyncratic variation in the employment status of mothers across different cohorts of high school students within a school. Thus, the idiosyncratic component of the share of students with working mothers across cohorts within a school measures the intensity of the working mother identity 'dosage'. This approach has been first proposed by Hoxby (2000) to estimate the impact of classmates gender and race, and subsequently widely used in studying peer effects in education (e.g. Angrist and Lang, 2004; Friesen and Krauth, 2007; Hanushek Kain, and Rivkin, 2002; Hoxby, 2000; Lavy and Schlosser, 2011; Lavy, Paserman and Schlosser, 2012).[2] We use data from the National Longitudinal Survey of Adolescent Health (AddHealth) to extend this line of research to the analysis of gender roles socialization and their impact on adult women's work choices. An important feature of our study lies in the use of the longitudinal component of the AddHealth. This (underutilized) feature of the data, together with its extensive information on schoolmates, makes it possible to examine how behavioral prescriptions formed during adolescence shape adult women's work choices and to isolate the peers' mothers channel. Specifically, we measure work outcomes, educational attainment, marital status and presence of children as of Wave IV (2007-08), when individuals in our sample are aged 26 to 32. Information on mother's employment status and education, as well as other background characteristics and target variables, are instead drawn from Wave I (1994-95), corresponding to their high school years.

As in previous studies (e.g. Farré and Vella, 2013, Morrill and Morrill, 2013, McGinn et al., 2018), we find a positive correlation between the labor supply of mothers and daughters. All else being equal, daughters whose mothers worked for pay while they were in high school are more likely to work for pay in their late twenties and early thirties. Most importantly, having controlled for own mother's employment status, we find that the effect of high school peers' mothers' labor supply is relatively large and statistically significant. Across all specifications, a one standard deviation increase in peers' mothers' labor supply (about 7 percentage points) translates, on average, into an 8 percent increase relative to the mean participation rate for women in our sample (75.5 percent). The peers' mothers'

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[2]Patacchini and Zenou (2016) use a similar approach to investigate the impact of peer religiosity in the intergenerational transmission of religion.

effect is sizable but smaller than the correlation between the labor force participation of a woman and that of her own mother (i.e. 11 percent). This is consistent with findings of large contextual effects from the literature on developmental psychology and economics. For example, Gustafson, Stattin and Magnusson (1992) show that young female adolescents with low educational motivation are more susceptible to the influence of "nonconventional peers" (that is, the broader social environment including older peers, co-workers and a steady boyfriend) than to family inputs. Carrell and Hoekstra (2010) show that negative spillovers in the classroom caused by children who witnessed domestic violence at home have a large detrimental effect on students' academic outcomes and behaviors. When it comes to women's work, the cross-country analysis in McGinn et al. (2018) shows that childhood exposure to female employment within society is also important and can substitute for the influence of maternal employment on daughters' employment.

We provide evidence that the transmission mechanism of gender norms is driven by same-sex parents by showing that the effect of mothers persists when controlling for fathers' behavior. In addition, peers' fathers' working behavior has a (marginal) effect on children's employment outcomes for men, but there is no effect for women. While peer-mothers' labor supply only affects women's work decisions, especially if they have any children, the effect of peers' mothers education is not gendered. Our estimates indicate a positive and roughly equal effect of share of college educated mothers on later work choices of both daughters and sons. We also show suggestive evidence that the mechanism underlying our findings works through perceived conflict between motherhood and employment when these young women become mothers. That is, women that were exposed to a larger number of working mothers during adolescence are less likely to feel that work interferes with family responsibilities and, as a consequence, more likely to work when they have children.

Our study contributes to two different literatures. The first is the large body of work that studies the role of gender norms in shaping female labor force participation. Fernández, Fogli and Olivetti (2004) emphasize changes in men's attitudes towards married women working due to the increasing number of men socialized by working mothers. Other papers have emphasized the influence of own mother and the social context for changing women's beliefs about the effect of maternal employment on children (Fogli and Veldkamp, 2011), as well as changes in women's own sense of self (Fernández, 2013). Boustan and Collins (2014) show that the mother-daughter mechanism coupled with the racial gap in women's labor force participation under slavery contribute to explain racial differences in women's work well into the twentieth century. Farré and Vella (2013) and McGinn et al. (2018) document a high correlation between gender roles attitudes and work experience of mothers and daughters,

respectively, in the U.S. and across countries.[3] Bertrand et al. (2016) emphasize how the interaction of gender norms and economic development (and in particular, women's growing labor market opportunities) can impact women's investment in education, labor force participation, marriage and fertility. Fernández (2007) and Fernández and Fogli (2009) use the lagged values of the outcome variables in a woman's country of ancestry and a cross-section of second-generation immigrants to identify the impact of culture on women's work and fertility. Alesina, Giuliano and Nunn (2013) exploit the variation in the use of plough agriculture across ethnic groups to isolate the effect of gender norms on women's participation in the labor force and in the political arena. These papers use aggregated data, at country or ethnicity level, to measure gender norms. Our work instead uses individual-level data, thus providing a different perspective on the importance of gender norms for women's outcomes. Most related to our paper, Bertrand, Kamenica and Pan (2015) document that gender identity, interpreted as aversion to a wife earning more than her husband, is an important determinant of marriage formation and satisfaction, married women's labor force participation and income conditional on working. Goldin (2006) shows evidence that, much as it has been traditionally the case for men, college educated women have increasingly becoming to think about their occupation or employment as defining their own identity. Our paper uses the tools from the peer effect literature to identify a different utility parameter: the identity penalty (or payoff) associated with a potential conflict between motherhood and employment.

This paper also contributes to the emerging literature that documents the persistence of peer influence on outcomes in the long-run. Gould, Lavy and Paserman (2011) examine whether idiosyncratic cohort-to-cohort variation in exposure to immigrants during grade 5 has an impact on a native's probability of passing the high school matriculation exam and of dropping out of high school. Bifulco, Fletcher and Ross (2011) study the effects of the percentage of school peers with college educated mother, and percentage of black and Hispanic school peers on the probability of dropping out and the likelihood of college attendance. Bifulco et al. (2014) complement the analysis by looking at the effects on labor market outcomes. Anelli and Peri (2015) analyze the long-term effects of high school gender composition on the likelihood of choosing a prevalently male major and on labor market

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[3]Intergenerational gender role attitudes are positively correlated with daughters' labor supply for the cohort of women born between 1976 and 1982 (that is, the AddHealth cohort). General Social Survey data for this cohort show that 51 percent of all women whose mother did not work when they were 16 years old agree with the statement: "It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family". This share drops to 24 percent among women whose mother worked.

outcomes. Black, Devereux and Salvanes (2013) study the effects of 9th grade peer composition on dropouts, educational attainment, teenage childbearing, and earnings. Finally, Carrell, Hoekstra and Kuka (2016) study the impact of primary school peers with disruptive behaviors on non-disruptive students' short run and long run educational and labor market outcomes. AddHealth data have also been used to examine the influence on women's labor market outcomes of sibling gender (Cools and Patacchini, 2017) and the share of highly performing male peers in school (Cools and Patacchini, 2018). We contribute to this literature by analyzing the long run influence of peers' mothers labor supply choices on adult women's perceptions of the work-family balance trade-off and work choice.[4]

The paper is organized as follows. Section 2 describes the data. Section 3 discusses our empirical strategy, while the main results of our analysis are presented in Section 4. The underlying mechanisms are analyzed in Section 5. Finally, Section 6 concludes.

2 Data description

Our analysis is based on data from the National Longitudinal Survey of Adolescent Health (AddHealth).[5] AddHealth was designed to study the impact of the social environment (i.e. friends, family, neighborhood and school) on adolescents' behavior in the United States by collecting data on students in grades 7-12 from a nationally representative sample of roughly 130 private and public schools in the academic year 1994-95 (Wave I). The data include an in-school survey conducted on a single day between September 1994 and April 1995 and a subsequent in-home survey of a sample of students selected from the 1994-95 enrollment roster of the schools surveyed. The subset of adolescents from the Wave I in-home survey was interviewed again in 1995-96 (Wave II), in 2001-2 (Wave III), and again in 2007-08 (Wave IV). While cross sectional analysis of these data are widespread both in the sociological and economics literatures, the longitudinal information has not been heavily exploited. The

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[4]Our findings also speaks to the literature that uses a neighborhood approach to identify the importance of early socialization for economic outcomes (Katz et al., 2001; Kling et al., 2005; Oreopolous, 2003; Patacchini and Zenou, 2011; Fryer and Katz, 2013; Ludwig et al., 2013; Damm, 2014; Damm and Dustmann, 2014; Gibbons, Silva, and Weinhardt, 2017; Katz, 2015). The innovation relative to this literature is that we measure neighborhood influences more precisely using high school schoolmates' mothers.

[5]The AddHealth is a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Information on how to obtain the Add Health data files is available on the Add Health website (http://www.cpc.unc.edu/addhealth). No direct support was received from grant P01-HD31921 for this analysis.

longitudinal structure of the survey is key for our analysis as it provides information on the characteristics of Wave I adolescents when they become adults, including their employment outcomes.

The labor supply decision in adulthood is measured using the individual data on employment status from Wave IV, when individuals are aged 26 to 32. In particular, Wave IV asks information about the current or most recent job that involves at least ten hours per week. Therefore, we define labor force participation as an indicator function that is equal to 1 if an individual reports working for pay for more than 10 hours per week and equal to 0 otherwise. Information on marital status, presence of children and education is also from Wave IV.

Background information on a student's family's economic and demographic characteristics comes from Wave I in-home interviews. Similar to that of daughters, we construct an indicator variable that equals 1 if a mother was employed in a wage-paying occupation at the time when the student attended high school, and equals 0 otherwise. Wave I also provides a measure of ability and a measure of residential building quality. Individual ability is measured using the Picture Vocabulary Test (PVT) score. The PVT is an abbreviated version of the full-length Peabody Picture Vocabulary Test (PPVT), a test used to assess verbal abilities and receptive vocabulary and, based on the psychology literature, is a good measure of an individual's ability.[6] The test was administered by the interviewer at the beginning of each Wave I in-home interview. The measure of residential building quality, which may capture socioeconomic status, is based on the interviewer response to the question: "How well kept is the building in which the respondent lives", coded as 4= very poorly kept (needs major repairs), 3= poorly kept (needs minor repairs), 2= fairly well kept (needs cosmetic work), 1= very well kept (see Table A2 for detailed variable definitions.)

Our estimation strategy exploits the within-school across-cohort variation of grade composition from the population of students. Therefore, all the information on school peers' parents, e.g. employment status, education and immigrant status of peers' mothers and fathers, is obtained from the in-school survey. This allows us to recover information on all school peers, regardless of whether or not they were interviewed in the in-home survey.

Starting from the sample of over 20,000 individuals who completed the full survey in Wave I, we drop approximately 5,000 individuals who were not followed through Wave IV, when we observe their adult outcomes. We also drop about 9,000 students with missing information on the dependent variable (from Wave IV) and the baseline set of control variables (from Wave I and IV). This gives us our initial sample of 7,071 students of which 3,988 are female.

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[6]On this point see Rowe, Jacobson and Van den Oord (1999) and Beaver and Wright (2011).

In addition, following Bifulco et al. (2011), we drop 1,882 students who, as of Wave I, were not in grades 9-12 (grades 10-12 for three-year high schools). We also drop 211 students who have fewer than 28 schoolmates in their grade.[7] Our final sample of Wave I students with non-missing information on the main target variables and basic demographic characteristics both in Wave I and in Wave IV consists of about 2,500 female students and 2,000 male students in 72 schools. As shown in Table A3 in the appendix, the composition of our sample is roughly unaffected by the selection process.

Table 1 provides descriptive statistics by gender for the samples used in our baseline regressions. Female students make up 56 percent of our final sample, 72 percent of them are white and around 4 percent of them lived in a very poorly kept residential building while attending high school. As for their mothers, 60 percent have a high school diploma, while 26 percent have at least a college degree. Approximately 91 percent of the mothers are U.S. born. In Wave I, approximately 82 percent of students in our female sample report that their mother works for pay. By age 26 to 32 (Wave IV), 48 percent of our wave I schoolgirls are married, 60 percent of them have children. Only 3 percent of them are high-school drop outs, while 40 percent have a college degree or a higher level of educational attainment. About 76 percent of adult women in our sample work for pay for more than 10 hours per week. Perhaps not surprisingly, labor supply around age 30 varies substantially by presence of children. The share of women working for pay in Wave IV drops to 69 percent in the sub-sample of women with children, while it reaches 86 percent in the sub-sample of women with no children.

The two samples (male and female) exhibit gender differentials of the expected sign and significance. For example, 87 percent of respondents in our male sample work for pay. In contrast to what we observe for women, men with children are more likely to work for pay (92 percent) than men without children (85 percent). Men aged 26 to 32 are less likely to be married and have children than women in the same age group; this is in line with statistics for the overall population. Consistent with patterns documented for this cohort (see Goldin and Katz, 2008), women are more likely than men to have obtained a college degree by Wave IV. There is also a small gender difference in the racial composition by gender: 75 percent of men are white, 3 percentage points more than women. The characteristics of the female and male sample are otherwise similar.

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[7]This corresponds to the 5th percentile of the grade-size distribution in this sample, which ranges from a minimum of 7 students to a maximum of 517 students. The median grade has 205 students.

3 Empirical model and identification strategy

The AddHealth data include students from multiple cohorts. They are thus ideal for exploiting cross-cohort variation within a school to estimate the effect of schoolmates' mothers' work behavior and other characteristics (i.e. education) on women's working decisions 10 to 12 years later.[8] Our empirical model can be written as:

$$e_{igs,t+1} = \alpha_g + \beta_s + \delta_s \tilde{g} + \gamma e^m_{igs,t} + \phi A e^m_{igs,t} + \sum_{k=1}^{K} \theta^k x^k_{igs,t,t+1} + \varepsilon_{igs,t+1} \tag{1}$$

where i denotes students, g denotes grades or cohorts, s denotes schools, and t denotes time. Thus, $e_{igs,t+1}$ is the employment status as an adult (i.e. at time $t+1$) of a woman i who was in school s and grade g at time t. Specifically, it is a dummy variable taking value 1 if, as of Wave IV, the woman works for pay for more than 10 hours per week and 0 otherwise. α_g is a grade fixed effect, β_s is a school fixed effect, and $\delta_s \tilde{g}$ is a school-specific linear time trend, where $\tilde{g}$ indicates the distance between the grade a student attends in Wave I and a reference grade (i.e. grade 9).[9] In addition, $e^m_{igs,t}$ is the employment status of i's mother at time t (i.e. when student i was in high school), and $Ae^m_{igs,t}$ is the share of students who are in the same school and grade as student i at time t, whose mother works for pay. Note that $Ae^m_{igs,t}$ are the sample moments of the *leave-one-out* distribution of the employment status of mothers of students belonging to a specific cohort. That is, for each student i, $Ae^m_{igs,t}$ captures the share of peers with working mothers computed from the school-cohort distribution of mothers' employment status after eliminating student i from the distribution. This implies that there is within-group residual variation in the target variable after having controlled for school and grade fixed effects. We also include controls for individual characteristics, $x^k_{igs,t,t+1}$ at time t and $t+1$. Finally, $\varepsilon_{igs,t+1}$ are i.i.d., mean 0 innovations.

Because students from different cohorts are in different grades in the AddHealth data, *grade fixed effects* control for initial differences across cohorts. *School fixed effects* control for unobserved differences in average student characteristics across schools as well as for aspects of school quality that are constant across cohorts within a school. Finally, *school-specific trends* control for potential changes in school effects over time.

The grade and school fixed effects control for selection across schools. The idea is to treat the composition of students by grade and gender within a school as quasi-random and to use this quasi-random variation as opposed to variation that can be traced to parental school

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[8]The results obtained using self-reported friends as peers are qualitatively similar to those discussed in this paper. These can be found in a previous version of this paper (Olivetti, Patacchini, and Zenou, 2013).

[9]Hence, $\tilde{g} = g - 9$, where $g = \{9, 10, 11, 12\}$.

and residential decisions. Indeed, when parents choose the school for their children, they are unlikely to be aware of how the percentage of students with working mothers vary by grade within a particular school. There may be, however, some trends in peer characteristics that can be of particular concern if correlated with unobserved characteristics affecting student outcomes. This would be the case, for instance, if parents are able to discern if a given trait in a school (e.g. share of students with highly educated parents or with stay-at-home mothers) is increasing over time, so that older students differ in a systematic and unobserved way from younger cohorts. The inclusion in the model specification of school-specific trends, that allow the school effect to vary across grades, should mitigate these concerns.[10]

While the AddHealth data provides an ideal (possibly unique) set-up to identify the presence of peers' mothers' effects, it does not provide valuable information to solve a possible endogeneity of own mothers' labor supply. A mother's employment during her daughter's adolescence could be correlated with unobserved characteristics that also shape the daughter's labor supply decisions as an adult. Borrowing from the literature on intergenerational transmission of educational attainment, one can think of three ways to instrument for own mother's employment status: using relatives' employment status (e.g. mother's siblings' working hours), or deviations from it (assuming deviations are exogenous), and using exogenous variation from natural events, policies, or policy changes. Since we do not have information on mother's siblings or other relatives in the AddHealth data, we cannot use either of the first two strategies. Similarly, we are not aware of any large policy reforms that would exogenously impact mothers' schooling and/or labor force participation that we could use in this sample. Our empirical strategy thus arguably identifies the spillover effects from adolescent peers' mothers on adult outcomes, but we cannot give a causal interpretation to the own mother effect. Table A1 in the Appendix documents that own-mother's and peer-mothers' labor supply decisions are orthogonal conditional on own and mother's characteristics and our vast array of fixed effects. As a result, the estimate of peers' mothers' labor supply decisions should still be unbiased.

3.1 Evidence on the identification strategy

Before moving to the main results of our analysis, following Lavy and Schlosser (2011), we investigate the validity of our identification strategy by performing three exercises. In Table 2, we examine the extent of variation in cohort composition that is left after removing

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[10]The school-specific trend effects could also operate non linearly on outcomes. As a robustness check, we run regressions with quadratic school trends, obtaining results that are qualitatively similar to those in our main specification.

cohort and school fixed effects and school-specific trends. This is an important check since the precision of our estimates rests on the assumption that there is sufficient residual variation in our target variable. Panel A reports the variation in the variable of interest among peers with working mothers, while Panel B reports the variation in the share of peers with working fathers. As Panel A shows, 82 percent of peers' mothers work for pay for more than 10 hours per week, on average, with a reasonable standard deviation (7 percent). The share of working mothers ranges from a minimum of 50.88 percent to a maximum of 97.37 percent. Most importantly, although removing fixed effects and school trends reduces variation in the percentage of peers with working mothers, the residual variation accounts for approximately 30 percent of the overall raw variation in the female sample, and about 33 percent of the total variation in the male sample. As Panel B shows, not surprisingly, a higher share of peers' fathers work for pay (95 percent), and there is much less variation. The standard deviation is 3.9 percent in the female sample and 3.5 percent in the male sample. While there is small variation in the share of peers with working fathers (most of the fathers work), 33 percent of the overall variation in the female sample and 43 percent of the total variation in the male sample are unexplained after controlling for fixed effects and school trends. This residual variation suggests that, even if most fathers in our sample work, using fathers' labor market participation as the target variable still leads to meaningful inference.

In Table 3, we produce an array of "balancing tests" for our target variable to study whether the variation in the share of working mothers is related to the variation in a number of pre-determined student characteristics: ethnicity, parents' immigrant status and education, household characteristics and the Picture Vocabulary Test (PVT) score (as a measure of ability). As shown in the table, none of the estimated correlations appear to be significantly different from zero in the fully specified model. This analysis mitigates concerns regarding systematic differences due to sorting along observable students' characteristics. Altonji, Elder, and Taber (2005) suggest that the degree of selection on observables can provide a good indicator of the degree of selection on unobservables. In light of this argument, the evidence of no correlation from Table 3 supports the notion that our model specification identifies an exogenous source of variation.

Taken together, the results in Tables 2 and 3 lend support to our identification strategy. It appears that there is sufficient variation to obtain precise estimates and that unobserved factors that influence within school variation in both cohort composition and student outcomes are unlikely to be confounding our estimates.

4   Main Results

Table 4 reports the estimation results of model (1). Except for the first column, all specifications include grade and school fixed effects. Standard errors are clustered at the school level.

The first two columns report the results of the regression that includes the two main variables of interest: a dummy for whether a woman's mother worked when she was a teenager (i.e. in Wave I) and the share of high school peers with working mothers (again from Wave I), our main contextual variable. Column (1) reports the results without any of the fixed effects, while grade and school fixed effects are added to the specification in column (2). Consistent with the literature, we find a positive association between a daughter's and a mother's likelihood of working for pay. Most importantly, we also find a positive relationship between the share of peers with working mothers and the probability of working as an adult. Both coefficients are statistically significant.

The size of the estimated coefficients and their significance do not vary substantially as we progressively add controls. Specifically, column (3) controls for daughter's characteristics, including race, marital status and presence of children at the time she makes work decisions, a measure of ability (PVT score) and educational attainment measured by whether she has a four-year college, or higher, degree. Column (4) adds controls for family background variables. These include the quality of the building where the student's family lived when she was in high school (a measure of socioeconomic background), and two additional own-mother characteristics: whether she was born in the US and whether she has a college (or higher) degree. Finally, column (5) also controls for school specific time trends in order to take into account factors that are changing over time within a school that might be inducing a bias in our estimate of the importance of peers' mothers.

The estimated coefficient on mother's employment status decreases slightly (from 0.092 to 0.081) as we increasingly add control variables to our specification, but it remains statistically significant, at the five percent level, across columns. The estimate in column (5), implies that having a working mother increases the probability that a daughter works for pay by 8.1 percentage points, which is about 11 percent increase relative to the average labor force participation rate of 75.5 percent. Although we cannot give a causal interpretation to this estimate, it is worth noting that it broadly is in line with the findings in comparable studies. For example, Morrill and Morrill (2013, Table 2) find that having a working mother around age 14 is associated with a 7.4 to 8.6 percentage point increase in the probability that an adult woman works, corresponding to 10 to 12 percent of the mean female participation in

their GSS sample.

The marginal effect of the social context is roughly constant when varying the control set (ranging from 0.8 of a percentage point to 1 percentage point), confirming that our cohort composition measure is unrelated to other background variables. The magnitude of the effect is sizable. The estimate in columns (4) and (5) imply that a 7 percentage point increase in peers with working mothers (corresponding to one standard deviation, see Table 1) is associated with a 5.6 to 7 percentage point increase in the probability of working for pay at age 26-32, which is 7 to 9 percent of the average participation rate for women in our sample. This estimate is in the same ballpark of estimates of the importance of gender-role preferences for women's labor force participation from the literature. For example, Fernandez and Fogli (2009) find that for second-generation women in the United States, a one standard deviation increase in female labor force participation in the parents' source country is associated with an 8 percent increase in daughters' labor supply as measured by hours worked (a measure that includes both the intensive and the extensive margin of labor supply). It is also consistent with other estimates of 'lagged' peer effects using the same data set and empirical strategy but different outcomes. For example, Bifulco et al. (2011) find that one standard deviation increase in peers with college educated mothers increases the probability of attending college by 7.6 percentage points, which is about 8 percent relative to the baseline.[11]

The estimates of the control variables follow standard patterns from the literature on female labor supply. For instance, as shown in columns (3) to (5), a woman's work probability is lower for married women and for women with children, while women with a four-year college degree or higher level of educational attainment are more likely to work. As shown in columns (4) and (5), having a lower socioeconomic background is associated with a higher probability of working as a young adult. Note, however, that having a college educated mother does not seem to affect (adult) daughter's work decisions above and beyond the effect of own mother's or peer mothers' work.

We next investigate whether our main findings can be explained by other contextual variables, in particular peers' mothers' education. For example, more educated mothers might be more likely to pass to their daughters egalitarian gender roles views. Thus, it could be the case that mothers' human capital (rather than whether they work) drives gender norms. In this case, the omission of this contextual variable would lead to our finding of a positive long run effect of mothers' work. We also depart from the linear-in-means

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[11]Similar results would hold, at least qualitatively, at the intensive margin of labor supply. In a previous version of the paper, Olivetti, Patacchini and Zenou (2016) show that average hours worked by peers' mothers have a long-run impact on the labor supply decisions of adult women.

specification of the model to assess distributional effects for the main contextual variable. For example, the social context during high school years may be particularly important if a female student is exposed to an environment where the vast majority of mothers work, while it might not matter much if it is representative of the average behavior in the economy.

The results of these analyses are summarized in Table 5. All specifications include grade and school fixed effects and school-specific trends. Column (1) reports the results from Table 4, column (5), as a benchmark, while in column (2) we add two additional mother-specific contextual variables: the share of peers with US born mothers and the share of peers with college educated mother. The model in column (2) will become our baseline specification throughout the second part of the paper.[12] Consistent with previous studies (e.g. Bifulco et al. 2011) we find that having more peers with college educated mothers has a beneficial significant effect on long run outcomes. However, our main contextual effect remains positive and statistically significant: A one percent increase in peers with working mother increases the probability a woman works for pay later in life by 0.8 of a percentage point. That is the importance of peers' mother work hours does not decrease much relative to the estimate in column (1). This is an important finding as it suggests that peers' mother work affects adult daughters' work decisions above and beyond the contextual effect of mothers' education on the assimilation of gender-role identity norms. We will return to this point when we discuss the results of Table 7.

In the remaining columns we consider specifications in which the share of peers with working mothers enters non-linearly. We consider three alternatives. In column (3) we add an interaction term that captures whether the effect of peers' mothers differs by own mother's labor supply. As shown in the table this interaction term is small (and not statistically significant). In column (4) we add the within-grade standard deviation of the share of peers' working mothers. Adding this term captures whether the impact of peers' mothers depends on grade/cohort heterogeneity in mothers' labor force participation. This channel does not seem to be supported by the data. Finally, in column (5) we include dummies corresponding to quartiles of the distribution of peers' working mothers. The omitted category is whether this share is in the bottom quartile of the distribution. We don't find statistical difference at the second and third quartile of the distribution of peers' with working mothers. The only statistically significant effect (at the margin) is when we compare women in the top quartile to those in the bottom quartile of the distribution.[13] Overall, the results in columns (3) to

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[12]The results in column (2) of Table 5 are unchanged if instead of the share of peers with college educated mothers, we include the top three quartiles of the leave-one-out distribution of peers' mothers education (roughly corresponding to high school dropout, high school graduate or GED recipient and college graduate).

[13]The bottom 25th percentile of the distribution for the share of peers' working mothers is 79.27 percent,

(5) do not provide support for a strong non-linear impact of the contextual effect.

4.1 Additional Evidence

In Table 6, we report the results of a set of placebo regressions. First, we estimate model (1) replacing the actual cohort composition with the composition of a randomly selected cohort from the same school. The full set of covariates of interest is the same as in columns (2)-(5) in Table 5. School and grade fixed effects and the school-specific linear time trend are also included. If our fixed-effect strategy controls for both unobserved school and student characteristics, then the composition of other cohorts in the same school should not show any effect on student outcomes in these placebo regressions. We run 500 of these placebo tests by randomly assigning students to cohorts. Column (1) in Table 6 reports the results from one of these placebo regressions. There is no evidence of a significant impact on adult work outcomes of the share of "peers" with working mothers in a randomly selected cohort. The only significant variables are employment status of own mother during adolescence, whether the woman currently (i.e. at time $t+1$) has children and the share of peers whose mother was born in the US. The distribution of the 500 estimates are reported in Figure 1. The graph shows that they are small and centered around zero. Our estimate of peer effects (the red line in the figure) corresponds approximately to the upper value of the distribution of placebo estimates (it is in the top 0.2 percent of the distribution).

As a final robustness check, we run the same specification but instead of randomly assigning students to grades we compute the contextual variables based on the adjacent lower [column (2)] and upper [column (3)] cohort (note that we necessarily loose one boundary cohort in each of the two specifications). We find no impact of peers' mothers' working behavior in the higher or lower adjacent cohort on a woman's work outcomes as a young adult.

In Table 7, we repeat our analysis on the male sample as a placebo test. If, as we claim, the share of peers with working mothers affect women's gender-role identities and therefore whether they work in adulthood, then peers' mothers' work behavior should not affect men's labor supply.[14] Across all specifications, whether mothers work for pay (own or peers') has no impact at all on the work probability of men aged 26 to 32. Note, however, that, consistent with results from the peer effects literature (e.g. Bifulco et al., 2011, 2014), men's work is

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while the top 25th percentile is 85.7 percent, implying a 6.4 percentage point interquartile range.

[14]Fernandez et al. (2004) show that own-mother work behavior affects the likelihood that a man is married to a working woman. Unfortunately, although very interesting, we cannot assess this intergenerational channel or the importance of peers' mother on whether a man's wife works. This is because the AddHealth does not include information on spousal labor supply.

positively and significantly correlated with peers' mothers' college attainment and the size of this effects is very similar (and statistically indistinguishable) to the effect for women (see column (2) in Table 5). Thus while whether peers' mothers work has an heterogeneous effect across genders, this is not the case for peers' mothers' educational attainment. Taken together with the results in Table 6 and Figure 1, this finding strengthens our claim that our analysis is identifying one important channel of teenage girls' gender-role socialization.

4.2   Fathers

Our paper emphasizes the influence of mothers as role models. However, fathers might also play an important role for women's labor market decisions. For example, hard working fathers could also be role models, motivating their daughters to work as hard (irrespective of whether mothers work or keep house).

In Table 8, we investigate the robustness of our results to including fathers' characteristics.[15] In addition to the usual set of controls used so far, we also include the number of people (not necessarily siblings) living in the household who are in grade 7-12 and the mean and variance of the distribution of this characteristic among peers. Thus the full specification in this table (column [4] and [6]) includes the richest (possible) set of peers' characteristics based on the in-school survey: mother *and* father work, their education, whether they are born in the US and number of adolescents living in the same household.[16]

Perhaps unsurprisingly, the first row of the table shows that the probability that a daughter works for pay is positively correlated with whether her father worked while she was in high school. This finding is consistent with work documenting intergenerational persistence in father-daughter occupational status for recent cohorts of women (Hellerstein and Morrill, 2011.) The effect of own father's work is of comparable size to that of own mother's work discussed in the previous tables, though it is not consistently statistically significant across specifications [columns (1) to (4)]. Note, however, that the size and significance of the coefficient on own mother does not vary across specifications or with respect to the estimates in previous tables that did not include fathers. This suggests that although fathers matter for adult daughters' work choices, the mother-daughter relationship operates distinctly and

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[15]Note that the information on fathers is missing for a number of students for which we have information on mother's characteristics. This is either because of no response or because there is no father in the household. This explains the lower number of observations in Table 8.

[16]Ideally we would like to control for total family size (for which people living in the household who are in grade 7-12 is a very imperfect proxi) and other background characteristics, i.e. household income. However, the in-school survey, which is used to identify peer effects, does not include the same extensive set of information on background characteristics that is available in the in-home survey.

is (at the very least) equally important.

Most importantly for the purpose of this paper, while whether peers' mothers work impacts labor force participation later in life, the labor supply of peers' fathers does not have any impact on work behavior for women. The coefficient on the fathers' target variable is virtually zero (and not statistically significant) across all specifications [columns (1) to (4)].

In the last two columns of Table 8 we repeat our analysis on sons. We find that own father's employment status does not affect the probability that a young man works [columns (5) and (6)]. The coefficient on the percentage of peers with working fathers is positive but only statistically significant in the full specification [column (6)]. As in Table 7, the work behavior of mothers (own and peers') in adolescence does not have any influence on the labor supply of young men.

Overall, we interpret the results in Table 8 as further suggestive evidence that socialization by same-sex figures during the formative years is important for women's long run labor outcomes. Fathers seem to play a similarly important role for boys but this finding should be taken with caution given that most fathers work in our sample.

5   Exploring the mechanism

Next we analyze potential mechanisms underlying our findings of a long lasting impact of peers' mothers' labor force participation on the labor supply of young adult women. We first explore whether the quality of mother-daughter relationship or the frequency of contact with peers' mothers mediates gender-role modeling. We then examine whether the work behavior of mothers observed at a key time for gender-role development is more salient when these young women become mothers, and explore alternative channels - marriage and fertility expectations and perceptions of a work-family conflict - that might shape ideals of motherhood and work choices. The results of these analysis should be taken with caution. Because of the small sample size and qualitative variables we often lack the precision to make more definitive statements along these heterogeneous dimensions.

5.1   Quantity and quality of interactions

The importance of the quality and quantity of contact for gender stereotypes or gender-role modeling has been emphasized both in the social psychology and in the economics literature (see for example, Asgari, Dasgupta and Cote (2010) and Carrell, Page and West (2010) for an

analysis of post-secondary students). Based on these findings, we would expect the intergenerational mechanism to be stronger in the presence of better mother-daughter relationships in adolescence. We would also expect our contextual gender-role identity mechanisms to be stronger if students had high-intensity social interactions with peers' mothers.

AddHealth includes questions about the *quality* of child-mother relationship (as reported by the student), as well as questions about the *quantity* of social interactions with their peers' parents (as reported by the parents in the in-home survey) which we use to explore some of these mechanisms. However, because of the data limitation, we cannot assess whether, within each of these mechanisms, it is quality or quantity of contact that matters.

For the quality of mother-child interactions, each in-home interviewee in Wave I was asked to indicate whether her or his mother cared about her or him. Possible answers were: not at all, very little, somewhat, quite a bit or very much. They were also asked to indicate the extent of their agreement (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree) with the statement "When you do something wrong that is important, your mother talks about it with you and helps you understand why it is wrong." We use standard factor analysis based on these two questions to obtain a summary indicator of the quality of mother-daughter relationships (mother care).[17] We then run our main specification on two different samples defined by whether the quality of mother-daughter interactions is below or above the median of the mother care indicator.

Our indicator of social closeness with peers' mothers is based on a question that asked parents to assess the intensity of contact with their children's friends parents. Specifically, the question asked that the parents indicate how many parents of their child's friends they had been in contact with over the four weeks prior to the Wave I interview, a measure varying from 0 to 6 times. We run our main specification on two different samples defined by whether parents had below or above median interactions with their child's friends' parents.[18]

Table 9 presents the results of the regressions on these subsamples. The results in columns (1) (low mother care) and (2) (high mother care) suggest that working for pay is positively and significantly correlated with own mother's labor force participation only if they had a high-quality relationship. The labor supply of women with low-quality mother-daughter interactions is only affected by the behavior of peers' mothers, and to a larger degree than in

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[17]See appendix Table A2 for details on the construction of this indicator.

[18]A similar variable has been used in sociology to measure "intergenerational closure". Coleman (1988)'s theory of social capital predicts that students who have high levels of "intergenerational closure", that is, whose parents know more of their children's friends' parents, will have better educational outcomes than students with low levels of intergenerational closure. See, in particular, Carbonaro (1998), Morgan and Sorensen (1999), and Cleveland and Crosnoe (2004) for empirical investigations of this hypothesis.

the overall sample. The estimate in column (1) implies that a five percentage point increase in peers with working mothers would increase the labor force participation of women with low quality relationships with their own mothers by about 10 percentage points. This is twice as large as the effect found in the overall sample. It seems plausible that a daughter whose mother is not caring might be more likely to follow alternative role models: their high school peers' mothers in our analysis. Conversely, in the high mother care sample [column (2)], the probability that a woman with a working mother works for pay is 13 percentage points higher than that of a woman whose mother was not in the labor market. This is a larger effect than that in our benchmark specification (by about 5 percentage points). Peers' mothers' work behavior does not seem to affect women who had a high-quality relationship with their own mothers.

Columns (3) and (4) display the estimates of the peers' mothers effect as a function of the social connectedness of the family of origin with peers' families in high school. The contextual impact of mother figures is not statistically significant for the sample of women with below median social closeness to high school peers [column (3)]. For this group, the correlation with own-mother's labor supply is very high. On the other hand, the strength of the contextual mechanism is larger than in the benchmark for the sample of women with above median social ties to the high school community [column (4)]. The coefficient on own mother is much smaller and not statistically significant in this sample.

The results in Table 9 provide additional suggestive evidence that mothers observed during adolescence are important role models, with the important qualification that we are looking at a quality effect for mother-daughter relationships and a quantity effect for peers' mothers.

There might, of course, be reasons other than gender norms that can rationalize these results. For example, an adult woman may derive positive utility directly via interactions with her own mother. The fact that an adult woman's work depends on whether her mother worked can thus be a sign of a continued shared experience. This mechanism, however, could be at play in the mother-daughter relationship but it would not be as plausible or common when it comes to high school peers' mothers, a group with whom an individual is unlikely to have much contact after high school.

5.2 Motherhood and employment

The gender-role formation mechanism that we emphasize is about perception of a conflict between motherhood and employment. If this is the case, the contextual effect of mothers' work should be stronger when women face the (identity) choice between being a working or

a stay-at-home mother.

To investigate this hypothesis we present in Table 9 the result of regressions run on split samples by presence of children [columns (5) and (6)]. The work behavior of mothers during adolescence significantly affects adult daughters' labor supply decisions only when they have children [column (5)]. The estimated coefficient on own mother's employment status implies that having a working mother during high school increases the probability that a young woman with children works by approximately 8 percentage points. For women without children the mother-daughter correlation is still positive but smaller and not significant [column (6)]. This is consistent with the findings in McGinn et al. (2018) of a stronger association between maternal employment and daughters' employment outcomes for daughters with children at home. Similar findings are found for the effects of peers working mothers. A one standard deviation increase in this share (i.e. 7 percentage points), translates into a 7.7 percentage point increase in the probability that a woman with children works [column (5)]. For the sample of women with no children the impact of peers' mothers is small (by an order of magnitude) and it's not statistically significant. Own and peers' mothers seem to have a stronger long lasting behavioral effect on daughters when they eventually have children. That is, when their work choice are more likely to trigger an identity penalty if it goes against an ideal of motherhood.

An alternative interpretation of this result is that we are simply picking up the larger variation in employment status on the sample of women with children relative to those without children. However, as noted in our discussion of the summary statistics in Table 1, while it is of course true that women with children are less likely to work for pay than women without children and display a slightly higher degree of variation, the comparison of the coefficient of variations (0.3 and 0.13, respectively) does not seem large enough to fully explain our findings, at least for the peers' mothers' effects. One additional possible concern is that this evidence simply reflects the fact that women with working mothers might be delaying childbearing. Our data reveals that this does not seem to be the case. We run a specification of our model where the dependent variable is a dummy variable indicating whether a woman has children. Neither of our target variables shows a significant effect. If anything, we find that having children by age 30 is positively correlated with having a working mother.

5.3 Gender-role identity and perceived work-family conflict

The AddHealth survey includes a set of questions that may help understand how peers' mothers might shape adult women's gender role preferences.

For example, the questionnaire in Wave I asked the following question "On a scale from 'No chance' to 'It will happen' what do you think are the chances you will be married by age 25?" (answers range from no chance to almost certain). In Wave IV respondents were asked a question about desired fertility and two questions about potential conflicts between family and work responsibilities. The first question asked for the "total number of children that the respondent intends to have (including any children she may already have)." The first of the two work-family question asked the respondent to "Indicate how much you would agree or disagree with this statement: Family responsibilities have interfered with my ability to work," (answers range from strongly agree to strongly disagree). The second question asked "(In the past 12 months/Since you started your current job/In the last year of your most recent job), how often on your primary job (have you spent/have you spent/did you spend) less time with your family than you wanted to because of work responsibilities?" (answers range from frequently, to never). We use these two indicators in a standard factor analysis to produce an index of work-family conflict.[19]

In Table 10, we first examine whether the answers to these questions differ by exposure to peers' mothers. As shown in column (1), whether mother (own or peers' mothers) worked is not correlated with expectation of marriage by age 25. This might be influenced by the standards in the society at large or by observing the decisions of women who were around age 25 at the time girls were interviewed in Wave I. The contextual effect of high school peers' mothers also appears to have no impact on intended fertility [column (2)]. The next three columns report results for the index of work-family conflict. There is no effect of peers' mothers' work when we run the regression on the overall sample [column (3)]. However, the type of conflict captured by this index is really about having a family (i.e. children), thus in columns (4) and (5) we run the regressions on two different sample by presence of children. We find a very strong effect of peers' mothers' behavior on whether women with children in Wave IV perceive a work family conflict. Women who are socialized in a context in which a large number of mothers work are less likely to perceive or report that they are conflicted about spending time at home versus at work.[20]

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[19]See appendix Table A2 for details on the construction of this indicator. Note that, the work-family questions were asked to all women, irrespective of their work status. The first question asks generally about work-family interferences. The second asks about the current job or, for individuals not currently working, the most recent job.

[20]Recently, Kuziemko, Pan, Shen and Washington (2018) show that for recent cohorts of women, especially the college educated, reconciling work and motherhood is harder than they expected as adolescents. Their analysis suggests that, at least in part, this is because young women underestimate the *psychic* cost of being mothers. One possible interpretation of the results in column (5) suggests that having been exposed to more working mothers might attenuate this 'surprise' effect.

Table 11 shows that, for women with children, the effect of peers' mothers weakens once we include our indicator of work-family conflict in the regression. Columns (1) and (2) show that there is no effect for the sample without children. The remaining two columns report the results for the sample with children. Column (3) reproduces our baseline regression, while in column (4) we add the index of work-family conflict. Going from column (3) to column (4) the coefficient on the share of peers with working mothers is reduced in size (from 1.2 percentage points to 0.9 of a percentage point) and looses statistical significance, while the index of work-family conflict is negative and significant, indicating that women who are more conflicted are less likely to work. Note that the coefficient on the share of peers mothers with college degree, or higher, does not change in size and loses statistical significance only marginally (from five to one percent).

These results further suggest that mothers' work choices, rather than their human capital, matter most for shaping the perceived conflict between motherhood and employment. That is, women who were exposed to a larger number of working mothers during adolescence are less likely to feel that work interferes with family responsibilities.

There may be, of course, other types of cultural beliefs and norms that can be formed from the observations of the working behavior of peers' mothers. For instance, the sociological literature has discussed how beliefs that maternal paid employment negatively affect children's outcomes might impact women's work decisions (e.g. Kanji, 2010, Sigle-Rushton and Waldfogel, 2007). In economics, Fernández (2013) and Fogli and Veldkamp (2011) argue that these beliefs can indeed explain the evolution of female labor force participation during the course of the twentieth century. While important historically, this channel is unlikely to play a key role for our cohort of women who were born in the late 1970s and early 1980s and grew up at a time of widespread female participation in the labor force.[21]

Peers' mothers' behavior could also influence a young woman's general attitudes towards gender roles. The Wave III of the AddHealth questionnaire includes the typical gender role question: "How much do you agree or disagree with the following statement? It is much better for everyone if the man earns the money and the woman takes care of the home and family." We do not find much of a correlation between this indicator of traditional gender roles views and the employment of peers' (or own) mothers.[22] However, it is hard to draw

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[21]Recent evidence suggests that this is indeed the case. Dustmann and Schönberg (2012) exploit three expansions in maternity leave coverage in Germany - 1979,1986 and 1992 - to identify the long-run effects of maternal employment on children. The 1979 expansion was associated with a modest improvement in children's outcomes (years of education and wages at age 28). The subsequent expansions, which occurred in an increasingly gender equal environment in education and labor market outcomes, did not have much of an impact. If anything, the effect of the 1992 policy change is negative.

[22]AddHealth women's gender role attitudes are similar to those expressed by women (from the same

any conclusion from this analysis, because the question was asked to a small number of students (the sample size drops from about 2,500 to 654 adult women).[23]

Although peers' mothers can shape cultural beliefs and norms in a number of ways, the evidence in this paper suggests that one important channel is their influence on women's perception of work-family conflicts.

6   Conclusions

In this paper, we study the importance of socialization during adolescence for shaping women's gender-role identity and subsequent work choices. We find that the extensive margin of high school peers' mothers labor force participation is important. Our analysis reveals that women who were exposed to a larger number of working mothers during adolescence are more likely to work, especially when they become mothers. The evidence suggests that one important reason for this finding is that exposure to working mothers affects attitudes about whether there is a conflict between motherhood and employment. Women who grew up in an environment with relatively high female labor force participation are less likely to feel that work interferes with family responsibilities.

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cohorts and age) surveyed in the GSS. About 63 percent of women disagree somewhat or strongly disagree with the AddHealth gender statement above. In the GSS, 62 percent of women disagree or strongly disagree with a similar statement (i.e. "husband should work, wife should look after home.")

[23]The question was only asked of individual in the 'couples sample.' This was a purposive, quota sample designed to collect information on 1/3 married, 1/3 cohabiting, and 1/3 dating partners. Only current relationships with opposite sex partners age 18 or older and a duration of at least 3 months were eligible.

References

[1] Akerlof, G.A. and R.E. Kranton (2000), "Economics and identity," *Quarterly Journal of Economics* 115, 715-753.

[2] Akerlof, G.A. and R.E. Kranton (2011), *Identity Economics: How Our Identities Affect Our Work, Wages, and Well-being.* Princeton: Princeton University Press.

[3] Alesina, A. and P. Giuliano (2010), "The power of the family," *Journal of Economic Growth* 15, 93-125.

[4] Alesina, A. and P. Giuliano (2014), "Family ties," In: P. Aghion and S. Durlauf (Eds.), *Handbook of Economic Growth, Vol. 2A*, Amsterdam: North Holland, pp.177-215.

[5] Alesina, A., Giuliano, P. and N. Nunn (2013), "On the origins of gender roles: Women and the plough," *Quarterly Journal of Economics* 128, 469-530.

[6] Altonji, J.G., Elder, T.E. and C.R. Taber (2005), "Selection on observed and unobserved variables: Assessing the effectiveness of Catholic schools," *Journal of Political Economy* 113, 151-184.

[7] Anelli, M. and G. Peri (2015), "Peers Composition Effects in the Short and in the Long Run: College Major, College Performance and Income," *IZA Discussion Paper*, No. 9119.

[8] Angrist, J.D. and K. Lang (2004), "Does school integration generate peer effects? Evidence from Boston's Metco program," *American Economic Review* 94, 1613-1634.

[9] Asgari, S., Dasgupta, N. and N.G. Cote (2010), "When does contact with successful ingroup members change self-stereotypes? A longitudinal study comparing the effect of quantity vs. quality of contact with successful individuals," *Social Psychology* 41, 203-211.

[10] Bertrand, M. (2010), "New perspectives on gender," In O. Ashenfelter and D. Card (Eds.), *Handbook of Labor Economics Vol. 4B*, Amsterdam: Elsevier Science, pp. 1545-1592.

[11] Bertrand, M., Pan, J. and E. Kamenica (2015), "Gender identity and relative income within households," *Quarterly Journal of Economics* 130, 571-614.

[12] Bertrand, M., Cort©s, P., Olivetti, C. and J. Pan (2016), "Social norms, labor market opportunities, and the marriage gap for skilled women," " NBER Working Paper 22015.

[13] Beaver, K.M. and J. P. Wright (2011). "School-level genetic variation predicts school-level verbal IQ scores: Results from a sample of American middle and high schools." *Intelligence* 39, 193-197.

[14] Bifulco, R., Fletcher, J.M. and S.L. Ross (2011), "The effect of classmate characteristics on post-secondary outcomes: Evidence from the AddHealth," *American Economic Journal: Economic Policy* 3, 25-53.

[15] Bifulco, R., Fletcher, J.M., Oh, S.J. and S.L. Ross (2014), "Do high school peers have persistent effects on college attainment and other life outcomes?" *Labour Economics* 29, 83-90.

[16] Bisin, A. and T. Verdier (2011), "The economics of cultural transmission and socialization," In J. Benhabib, A. Bisin, and M.O. Jackson (Eds.), *Handbook of Social Economics*, Amsterdam: Elsevier Science, pp. 339-416.

[17] Black, S.E., Devereux, P.J. and K.G. Salvanes (2013), "Under pressure? The effect of peers on outcomes of young adults," *Journal of Labor Economics* 31(1), 119-153.

[18] Boustan, L. and W.J. Collins (2014), "The origin and persistence of black-white differences in women's labor force participation," In: L. Boustan, C. Frydman and R.A. Margo (Eds.), *Human Capital in History: The American Record*, Chicago: University of Chicago Press, Chap. 6.

[19] Carbonaro, W.J. (1998), "A little help from my friends' parents: Intergenerational closure and educational outcomes," *Sociology of Education* 71, 295-313.

[20] Carrell, S., Page, M. and J. West (2010), "Sex and science: How professor gender affects the gender gap," *Quarterly Journal of Economics* 125, 1101-1144.

[21] Carrell, S. E. and M. L. Hoekstra (2010), "Externalities in the classroom: How children exposed to domestic violence affect everyone's kids," *American Economic Journal: Applied Economics* 2, 211-228.

[22] Carrell, S.E., Hoekstra, M. and E. Kuka (2016), "The long-run effects of disruptive peers," NBER Working Paper 22042.

[23] Cleveland, H. H. and R. Crosnoe (2004), "Individual variation and family-community ties: A behavioral genetic analysis of the intergenerational closure in the lives of adolescents," *Journal of Adolescent Research* 19, 174-191.

[24] Coleman, J.S. (1988), "Social capital in the creation of human capital," *American Journal of Sociology* 94, S95-S120.

[25] Cools, A. and E. Patacchini (2017), "Sibling gender composition and women's wages," IZA Working Paper 1101.

[26] Cools, A. and E. Patacchini (2018), "On the sources of the gender earnings gap," Working Paper, Cornell University.

[27] Damm, A.P. (2014), "Neighborhood quality and labor market outcomes : Evidence from quasi-random neighborhood assignment of immigrants," *Journal of Urban Economics* 79, 139-166.

[28] Damm, A.P. and C. Dustmann (2014), "Does growing up in a high crime neighborhood affect youth criminal behavior?" *American Economic Review* 104, 1806-1832.

[29] Dustmann, C. and U. Schönberg (2012), "Expansions in maternity leave coverage and children's long-term outcomes," *American Economic Journal: Applied Economics* 4(3), 190-224.

[30] Farré, L. and F. Vella (2013), "The intergenerational transmission of gender role attitudes and its implications for female labor force participation," *Economica* 80, 219-247.

[31] R. Fernández (2007), "Women, work, and culture," *Journal of the European Economic Association* 5, 305-332.

[32] R. Fernández (2011), "Does culture matter?" In J. Benhabib, A. Bisin, and M.O. Jackson (Eds.), *Handbook of Social Economics*, Amsterdam: Elsevier Science, pp. 481-510.

[33] R. Fernández (2013), "Culture change as learning: The evolution of female labor force participation over a century," *American Economic Review* 103, 472-500.

[34] Fernández, R. and A. Fogli (2009), "Culture: An empirical investigation of beliefs, work, and fertility," *American Economic Journal: Macroeconomics* 1, 146-177.

[35] Fernández, R., Fogli, A. and C. Olivetti (2004), "Mothers and sons: Preference formation and female labor force dynamics," *Quarterly Journal of Economics* 119, 1249-1299.

[36] Fogli, A. and L. Veldkamp (2011), "Nature or nurture? Learning and the geography of female labor force participation," *Econometrica* 79, 1103-1138.

[37] Fortin, N. (2005), "Gender role attitudes and the labour market outcomes of women across OECD countries," *Oxford Review of Economic Policy* 21, 416-438.

[38] Fortin, N. (2015), "Gender Role Attitudes and Women's Labor Market Participation: Opting-Out, AIDS, and the Persistent Appeal of Housewifery," *Annals of Economics and Statistics*, 117-118, Special Issue on the Economics of Gender (June), 379-401.

[39] Friesen, J. and B. Krauth (2007), "Sorting and inequality in Canadian schools," *Journal of Public Economics* 91, 2185-2212.

[40] Fryer, R.G. and L.F. Katz (2013), "Achieving escape velocity: Neighborhood and school interventions to reduce persistent inequality," *American Economic Review: Papers & Proceedings* 103, 232-237.

[41] Gibbons, S., Silva, O. and F.J. Weinhardt (2017), "Neighbourhood turnover and teenage attainment," *Journal of the European Economic Association* 15(4), 746?783.

[42] Goldin, C. (2006). "The quiet revolution that transformed women's employment, education, and family," *American economic review* 96(2), 1-21.

[43] Goldin, C. and L.F. Katz (2008), *The Race Between Education and Technology*, Cambridge, MA: Harvard University Press.

[44] Gould, E.D., Lavy, V. and D. Paserman (2011), "Sixty years after the magic carpet ride: The long-run effect of the early childhood environment on social and economic outcomes," *Review of Ecoconomic Studies* 78, 938-973.

[45] Gustafson, S. B., Stattin, H., and D. Magnusson (1992), "Aspects of the development of a career versus homemaking orientation among females: The longitudinal influence of educational motivation and peers," *Journal of Research on Adolescence* 2, 241-259.

[46] Hanushek, E.A., Kain, J.F. and S.G. Rivkin (2002), "Inferring program effects for special populations: Does special education raise achievement for students with disabilities?" *Review of Economics and Statistics* 84, 584-599.

[47] Harris, K.M., C.T. Halpern, E. Whitsel, J. Hussey, J. Tabor, P. Entzel, and J.R. Udry (2009), "The National Longitudinal Study of Adolescent to Adult Health: Research Design," [WWW document], URL: http://www.cpc.unc.edu/projects/addhealth/design.

[48] Hellerstein, J.K. and M.S. Morrill (2011), "Dads and daughters the changing impact of fathers on womens occupational choices," *Journal of Human Resources* 46(2), 333-372.

[49] Hill, J.P. and M.E. Lynch (1983), "The intensification of gender-related role expectations during early adolescence." *Girls at puberty*, Boston: Springer, pp. 201-228.

[50] Hoxby, C. (2000), "Peer effects in the classroom, learning from gender and race variation," NBER Working Paper 7867.

[51] Hyde, J. and B.G. Rosenberg (1980), *Half the Human Experience: The Psychology of Women*, D.C. Heath and Company.

[52] Kanji, S. (2010), "What keeps mothers in full-time employment?" *European Sociological Review* 27(4), 509-525.

[53] Katz, L.F. (2015), "Reducing inequality: Neighborhood and school interventions," *Focus* 31, 12-17.

[54] Katz, L.F., Kling, J.R. and J.B. Liebman (2001), "Moving to opportunity in Boston: Early results of a randomized mobility experiment," *Quarterly Journal of Economics* 116, 607-654.

[55] Kling, J.R., Ludwig, J. and L.F. Katz (2005), "Neighborhood effects on crime for female and male youth: Evidence from a randomized housing voucher experiment," *Quarterly Journal of Economics* 120, 87-130.

[56] Kuziemko, I., Pan, J., Shen, J. and E. Washington (2018), "The Mommy Effect: The Impact of Parenthood on Gender Role Attitudes," NBER Working Paper Number 24740 (June).

[57] Lavy, V., Paserman, D. and A. Schlosser (2012), "Inside the black box of ability peer effects: Evidence from variation in low achievers in the classroom," *Economic Journal* 122, 208-237.

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

[59] Ludwig, J., Duncan, G.J., Gennetian, L.A., Katz, L.F., Kessler, R.C., Kling, J.R. and L. Sanbonmatsu (2013), "Long-term neighborhood effects on low-income families: Evidence from Moving to Opportunity," *American Economic Review: Papers & Proceedings* 103, 226-231.

[60] Manski, C.F. (1993), "Identification of endogenous social effects: The reflection problem," *The review of economic studies* 60(3), 531-542.

[61] McGinn, K.L., Castro, M.R. and E. Long Lingo (2018), "Learning from mum: Cross-national evidence linking maternal employment and adult children's outcomes," *Work, Employment and Society,* forthcoming.

[62] Morgan, S.L. and A.B. Sorensen, (1999), "Parental networks, social closure, and mathematics learning: A test of Coleman's social capital explanation of school effects," *American Sociological Review* 64, 661-681.

[63] Morrill, M.S. and T. Morrill (2013), "Intergenerational links in female labor force participation," *Labour Economics* 20, 38-47.

[64] Oreopoulos, P. (2003), "The long-run consequences of living in a poor neighborhood," *Quarterly Journal of Economics* 118, 1533-1575.

[65] Olivetti, C., Patacchini, E. and Y. Zenou (2016). "Mothers, Peers and Gender Identity." Boston College WP series, No. 904 (March).

[66] Olivetti, C., Patacchini, E. and Y. Zenou (2013). "Mothers, Friends and Gender Identity." NBER Working Paper 19610 (November).

[67] Olivetti, C. and B. Petrongolo (2016), "The evolution of gender gaps in industrialized countries," *Annual Review of Economics* 8, 405-434.

[68] Patacchini, E. and Y. Zenou (2011), "Neighborhood effects and parental involvement in the intergenerational transmission of education," *Journal of Regional Science* 51, 987-1013.

[69] Patacchini, E., and Y. Zenou (2016), "Social networks and parental behavior in the intergenerational transmission of religion," *Quantitative Economics* 7(3), 969-995.

[70] Priess, H.A., Lindberg, S.M. and J.S. Hyde (2009), "Adolescent genderrole identity and mental health: Gender intensification revisited," *Child development*, 80(5), 1531-1544.

[71] Ruggles, S.J., Trent A., Genadek, K., Goeken, R., Schroeder, M.B. and M. Sobek (2010), *Integrated Public Use Microdata Series: Version 5.0* [Machine-readable database], Minneapolis: University of Minnesota.

[72] Rowe, D.C., Jacobson, K.C. and E.J. Van den Oord (1999), "Genetic and environmental influences on vocabulary IQ: Parental education level as moderator," *Child development* 70(5), 1151-1162.

[73] Sigle-Rushton, W. and J. Waldfogel (2007), "Motherhood and women's earnings in Anglo-American, Continental European, and Nordic countries," *Feminist economics* 13(2), 55-91.

[74] Williams, J. (1977), *Psychology of Women: Behavior in a Bio-Social Context*, Norton.

7 Tables and Figures

Table 1: Sample Description

	Females		Males		p-value
	Mean	Std. dev.	Mean	Std. dev.	
Work for pay	0.755	0.430	0.873	0.334	0.000
Work for pay conditional on:					
Children	0.685	0.465	0.920	0.271	0.000
No children	0.863	0.344	0.848	0.360	0.557
Own mother worked	0.819	0.385	0.848	0.359	0.326
% peers with working mother	0.819	0.072	0.820	0.071	0.458
Share white	0.721	0.449	0.750	0.433	0.008
Share married	0.478	0.500	0.422	0.494	0.000
Share with children	0.604	0.489	0.343	0.475	0.000
Share with less than High School	0.032	0.175	0.050	0.218	0.001
Share with High School or some College	0.571	0.495	0.582	0.493	0.003
Share with College or more	0.397	0.489	0.368	0.482	0.000
Mother with:					
Less than High School	0.141	0.348	0.117	0.321	0.008
High School/ some College	0.601	0.490	0.570	0.495	0.596
College or more	0.258	0.438	0.313	0.464	0.011
US born mother	0.906	0.292	0.893	0.309	0.015
Share living in very poorly kept residential building	0.038	0.191	0.036	0.186	0.295
PVT test score	103.242	13.153	106.067	12.680	0.000
Student share in:					
Grade 9	0.285	0.452	0.277	0.448	0.102
Grade 10	0.276	0.447	0.245	0.430	0.715
Grade 11	0.238	0.426	0.245	0.430	0.316
Grade 12	0.201	0.401	0.233	0.423	0.782
N. Obs.	2,781		2,197		
N. Schools	72		72		

Notes: The table reports descriptive statistics by gender for the main variables used in the analysis (see Appendix Table A2 for the detailed definition of each variable). The last column reports *p-values* for T-tests on the gender differences between means. The sample includes students in grades 9 through 12 with at least 28 peers. Individuals with missing information on any of the variables reported in the table are excluded.

Source: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Table 2: Raw and residual variation in peers with working mother or father

Panel A: % peers with working mothers	Mean	Std.dev.	Min	Max	Obs
Females					
Raw cohort variable	0.819	0.072	0.509	0.974	2,781
Residuals: net of grade and school fixed effects	-0.000	0.026	-0.123	0.094	2,781
Residuals: net of grade and school fixed effects and school trends	-0.000	0.021	-0.116	0.133	2,781
Males					
Raw cohort variable	0.820	0.071	0.509	0.974	2,197
Residuals: net of grade and school fixed effects	-0.000	0.027	-0.130	0.096	2,197
Residuals: net of grade and school fixed effects and school trends	-0.000	0.022	-0.128	0.077	2,197
Panel B: % peers with working fathers					
Females					
Raw cohort variable	0.953	0.039	0.713	1.000	2,174
Residuals: net of grade and school fixed effects	0.000	0.017	-0.068	0.195	2,174
Residuals: net of grade and school fixed effects and school trends	0.000	0.013	-0.152	0.247	2,174
Males					
Raw cohort variable	0.955	0.035	0.713	1.000	1,931
Residuals: net of grade and school fixed effects	0.000	0.018	-0.158	0.073	1,931
Residuals: net of grade and school fixed effects and school trends	0.000	0.015	-0.176	0.171	1,931

Notes: The table reports descriptive statistics for % peers with working mothers and % peers with working fathers, before and after removing grade and school fixed effects and school trends. The sample in Panel A is defined in the notes to Table 1. The sample in Panel B includes students in grades 9 to 12 with at least 28 peers and with non-missing information on own father and peer fathers' employment status (Wave I), as well as own employment status (Wave IV).
Source: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Table 3: Balancing tests for cohort composition

Dependent variable	% peers with working mothers		
	(1)	(2)	(3)
PVT	0.016	-0.081	-0.069
	(0.113)	(0.099)	(0.107)
Parents born in the US	0.005	-0.001	0.000
	(0.003)	(0.002)	(0.002)
Single parent family	0.002	0.006*	0.005
	(0.002)	(0.004)	(0.005)
White	-0.004	-0.001	0.000
	(0.005)	(0.003)	(0.004)
Black	0.007**	0.001	0.001
	(0.003)	(0.003)	(0.003)
Parent education = College+	0.002	-0.005	-0.006
	(0.004)	(0.003)	(0.004)
Household size	0.003	0.000	0.009
	(0.009)	(0.014)	(0.017)
Very poorly kept residential building	0.000	0.002	0.000
	(0.001)	(0.002)	(0.002)
Grade fixed effects	No	Yes	Yes
School fixed effects	No	Yes	Yes
School trends	No	No	Yes

Notes: Each row in the table reports coefficients from a regression of the dependent variable on the % peers with working mothers. Column (2), in addition to this cohort composition measure, includes grade fixed effects and school fixed effects. Column (3) additionally includes school linear time trends. Standard errors (in parentheses) are clustered at the school level. Significance levels are: * 10%, ** 5%, *** 1%.

Source: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Table 4: Effects of peers with working mothers - females

	Dependent variable: Work for pay				
	(1)	(2)	(3)	(4)	(5)
Own mother worked	0.111***	0.092**	0.076**	0.081**	0.081**
	(0.036)	(0.036)	(0.034)	(0.033)	(0.033)
% peers with working mother	0.006***	0.007*	0.008**	0.008**	0.010**
	(0.002)	(0.004)	(0.003)	(0.003)	(0.004)
White			-0.021	-0.027	-0.030
			(0.031)	(0.032)	(0.035)
Married			-0.067**	-0.064**	-0.066**
			(0.030)	(0.030)	(0.031)
Children			-0.125***	-0.126***	-0.126***
			(0.029)	(0.028)	(0.029)
PVT			0.001	0.001	0.001
			(0.001)	(0.001)	(0.001)
Education = College+			0.094***	0.104***	0.099***
			(0.025)	(0.024)	(0.025)
Very poorly kept residential building				0.121**	0.113**
				(0.046)	(0.048)
Mother born in the US				0.057	0.060
				(0.038)	(0.040)
Mother education = College+				-0.025	-0.022
				(0.025)	(0.027)
Grade fixed effects	No	Yes	Yes	Yes	Yes
School fixed effects	No	Yes	Yes	Yes	Yes
School trends	No	No	No	No	Yes
N. Obs.	2,781	2,781	2,781	2,781	2,781
R-squared	0.024	0.087	0.134	0.138	0.163

Notes: Regressions in columns (2) to (4) include grade fixed effects and school fixed effects. In addition, column (5) includes school linear time trends. The sample is defined in the notes to Table 1. Standard errors (in parentheses) are clustered at the school level. Significance levels are: * 10%, ** 5%, *** 1%.

Source: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Table 5: Effects of peers with working mothers - robustness checks

	Dependent variable: Work for pay				
	(1)	(2)	(3)	(4)	(5)
Own mother worked	0.081**	0.081**	0.230	0.081**	0.081**
	(0.033)	(0.034)	(0.286)	(0.035)	(0.035)
% peers with working mother	0.010**	0.008**	0.010**	0.008*	
	(0.004)	(0.004)	(0.005)	(0.005)	
Own mother worked ×			-0.002		
% peers with working mother			(0.004)		
Standard deviation of				-1.652	
% peers with working mother				(35.351)	
% peers with working mother ∈					0.037
(25th pctile, 50th pctile)					(0.043)
% peers with working mother ∈					0.061
(50th pctile, 75th pctile)					(0.048)
% peers with working mother>75th pctile					0.119*
					(0.064)
White	-0.030	-0.039	-0.038	-0.039	-0.038
	(0.035)	(0.034)	(0.034)	(0.034)	(0.034)
Married	-0.066**	-0.068**	-0.068**	-0.068**	-0.067**
	(0.031)	(0.033)	(0.033)	(0.033)	(0.033)
Children	-0.126***	-0.130***	-0.130***	-0.130***	-0.130***
	(0.029)	(0.026)	(0.026)	(0.026)	(0.027)
PVT	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Education = College+	0.099***	0.096***	0.096***	0.096***	0.097***
	(0.025)	(0.026)	(0.026)	(0.026)	(0.026)
Very poorly kept residential building	0.113**	0.096*	0.096*	0.096*	0.096*
	(0.048)	(0.049)	(0.049)	(0.050)	(0.049)
Mother born in the US	0.060	0.070*	0.070*	0.070*	0.069*
	(0.040)	(0.041)	(0.041)	(0.041)	(0.041)
Mother education = College+	-0.022	-0.026	-0.025	-0.026	-0.027
	(0.027)	(0.027)	(0.028)	(0.027)	(0.027)
% peers with mother born in the US		-0.001	-0.001	-0.001	-0.001
		(0.006)	(0.006)	(0.006)	(0.006)
% peers with mother educ = College+		0.006**	0.006**	0.006**	0.006**
		(0.003)	(0.003)	(0.003)	(0.003)
Grade fixed effects	Yes	Yes	Yes	Yes	Yes
School fixed effects	Yes	Yes	Yes	Yes	Yes
School trends	Yes	Yes	Yes	Yes	Yes
N. Obs.	2,781	2,569	2,569	2,569	2,569
R-squared	0.163	0.168	0.168	0.168	0.168

Notes: All regressions include grade fixed effects, school fixed effects, and school linear time trends. The sample is defined in the notes to Table 1. In addition, columns (2) to (5) exclude students with missing information on % peers with mother born in the US and % peers with mother educ = College +. Standard errors (in parentheses) are clustered at the school level. * 10%, ** 5%, *** 1%.

Source: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Table 6: Placebo regressions

Cohort definition:	(1) Random group	(2) Adjacent lower cohort	(3) Adjacent upper cohort
Own mother worked	0.079**	0.071*	0.063
	(0.034)	(0.041)	(0.039)
% peers with working mother	0.002	0.003	-0.002
	(0.003)	(0.005)	(0.005)
White	-0.04	-0.046	-0.011
	(0.034)	(0.043)	(0.037)
Married	-0.067**	-0.061*	-0.074*
	(0.034)	(0.031)	(0.038)
Children	-0.129***	-0.109***	-0.115***
	(0.027)	(0.034)	(0.033)
PVT	0.001	0.001	0.000
	(0.001)	(0.001)	(0.001)
Education = College+	0.097***	0.073**	0.113***
	(0.026)	(0.035)	(0.027)
Very poorly kept residential building	0.096**	0.054	0.102*
	(0.047)	(0.063)	(0.054)
Mother born in the US	0.076*	0.085	0.041
	(0.041)	(0.052)	(0.049)
Mother education = College+	-0.031	-0.005	-0.028
	(0.027)	(0.032)	(0.033)
% peers with mother born in the US	-0.006	0.018**	0.014**
	(0.004)	(0.009)	(0.006)
% peers with mother educ = College+	0.000	-0.008	-0.007
	(0.004)	(0.006)	(0.005)
Grade fixed effects	Yes	Yes	Yes
School fixed effects	Yes	Yes	Yes
School trends	Yes	Yes	Yes
N. Obs.	2,569	1,760	2,010
R-squared	0.169	0.192	0.175

Notes: All regressions include controls for grade fixed effects, school fixed effects, and school linear time trends. The sample is defined in the notes to Table 1. In addition, we excluded students with missing information on % peers with mother born in the US and % peers with mother educ = College +. Column (2) excludes students in grade 9. Column (3) excludes students in grade 12. Standard errors (in parentheses) are clustered at the school level. * 10%, ** 5%, *** 1%.
Source: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Table 7: Effects of peers with working mothers - males

	Dependent variable: Work for pay				
	(1)	(2)	(3)	(4)	(5)
Own mother worked	-0.009	-0.007	-0.009	-0.008	-0.010
	(0.034)	(0.031)	(0.031)	(0.032)	(0.032)
% peers with working mother	0.002	0.001	0.001	0.001	-0.000
	(0.003)	(0.005)	(0.004)	(0.004)	(0.004)
White			0.048	0.053	0.049
			(0.034)	(0.034)	(0.038)
Married			0.056**	0.055**	0.040
			(0.027)	(0.026)	(0.028)
Children			0.053*	0.054*	0.069**
			(0.032)	(0.031)	(0.033)
PVT			-0.001	-0.001	-0.001
			(0.001)	(0.001)	(0.001)
Education = College+			0.043*	0.042	0.039
			(0.025)	(0.026)	(0.026)
Very poorly kept residential building				-0.009	-0.040
				(0.079)	(0.083)
Mother born in the US				-0.043	-0.086**
				(0.033)	(0.034)
Mother education = College+				-0.003	0.001
				(0.023)	(0.025)
% peers with mother born in the US					0.000
					(0.008)
% peers with mother educ = College+					0.005*
					(0.003)
Grade fixed effects	No	Yes	Yes	Yes	Yes
School fixed effects	No	Yes	Yes	Yes	Yes
School trends	No	Yes	Yes	Yes	Yes
N. Obs.	2,197	2,197	2,197	2,197	1,990
R-squared	0.109	0.177	0.200	0.201	0.217

Notes: Regressions in columns (2) to (5) control for grade fixed effects, school fixed effects, and school linear time trends. The sample is defined in the notes to Table 1. In addition, column (5) excludes students with missing information on % peers with mother born in the US and % peers with mother educ = College +. Standard errors (in parentheses) are clustered at the school level. Significance levels are: * 10%, ** 5%, *** 1%.
Source: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Table 8: Effects of peers with working fathers

			Dependent variable: Work for pay			
	(1)	(2)	(3)	(4)	(5)	(6)
Own father worked	0 .116**	0.083	0.122**	0.128**	0.018	-0.004
	(0.048)	(0.058)	(0.061)	(0.061)	(0.045)	(0.054)
% peers with working father	0.001	-0.005	-0.002	0.000	0.009	0.022**
	(0.008)	(0.008)	(0.009)	(0.009)	(0.006)	(0.010)
Own mother worked		0.098**	0.086**	0.084*		0.007
		(0.043)	(0.043)	(0.043)		(0.040)
% peers with working mother		0.012**	0.011**	0.009*		0.001
		(0.005)	(0.006)	(0.005)		(0.007)
White		-0.043	-0.040	-0.042		0.045
		(0.036)	(0.044)	(0.044)		(0.047)
Married		-0.052	-0.027	-0.025		0.043
		(0.032)	(0.033)	(0.032)		(0.029)
Children		-0.166***	-0.169***	-0.169***		0.052
		(0.035)	(0.036)	(0.036)		(0.037)
PVT		0.001	0.001	0.001		-0.001
		(0.001)	(0.001)	(0.001)		(0.002)
Education = College+		0.065**	0.058*	0.059*		0.074***
		(0.028)	(0.030)	(0.030)		(0.027)
Very poorly kept residential building			0.075	0.079		-0.022
			(0.067)	(0.064)		(0.107)
Both parents born in the US			0.073	0.070		-0.059
			(0.045)	(0.046)		(0.044)
Max parents educ = College+			-0.040	-0.039		0.021
			(0.034)	(0.034)		(0.027)
Household members in grade 7-12			0.000	-0.001		-0.015
			(0.018)	(0.018)		(0.014)
% peers with both parents born in the US				0.005		0.003
				(0.005)		(0.006)
% peers with max parents educ = College+				0.009**		0.001
				(0.004)		(0.004)
Mean peers' hh members grade 7-12				-0.410		-0.392
				(0.345)		(0.324)
Variance peers' hh members grade 7-12				0.194		-0.068
				(0.167)		(0.167)
Grade fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
School fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
School trends	Yes	Yes	Yes	Yes	Yes	Yes
N. Obs.	2174	1924	1764	1764	1931	1453
R-squared	.131	.213	.214	.219	.143	.209

Notes: All regressions control for grade fixed effects, school fixed effects, and school linear time trends. The sample is defined in the notes to Table 2, Panel B. In addition we excluded students with missing information on any of the control variables. Standard errors (in parentheses) are clustered at the school level. Significance levels are: * 10%, ** 5%, *** 1%. *Source*: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Table 9: Effects of peers with working mothers - heterogeneous effects

	(1)	(2)	(3)	(4)	(5)	(6)
	By mother care		By social closeness		By presence of children	
	Low	High	Low	High	Children	No children
Own mother worked	-0.010	0.128***	0.148**	0.036	0.077	0.053
	(0.079)	(0.038)	(0.068)	(0.049)	(0.048)	(0.043)
% peers with working mother	0.021*	0.006	0.009	0.011*	0.012**	0.002
	(0.012)	(0.006)	(0.009)	(0.007)	(0.006)	(0.005)
White	-0.069	-0.023	-0.074	-0.051	-0.048	-0.038
	(0.076)	(0.038)	(0.071)	(0.050)	(0.045)	(0.055)
Married	-0.115**	-0.068**	-0.080	-0.045	-0.134***	0.046
	(0.055)	(0.032)	(0.066)	(0.039)	(0.046)	(0.034)
Children	-0.095	-0.131***	-0.132**	-0.135***		
	(0.082)	(0.029)	(0.061)	(0.035)		
PVT	-0.002	0.001	0.001	0.001	-0.000	0.002
	(0.003)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
Education = College+	0.090	0.096***	0.137**	0.057	0.154***	0.054
	(0.062)	(0.033)	(0.058)	(0.035)	(0.040)	(0.035)
Very poorly kept residential building	0.053	0.129**	0.165	0.039	0.055	0.119*
	(0.166)	(0.059)	(0.117)	(0.069)	(0.081)	(0.066)
Mother born in the US	0.117	0.031	0.052	0.097	0.044	0.091**
	(0.090)	(0.048)	(0.082)	(0.060)	(0.072)	(0.045)
Mother education = College+	0.012	-0.025	0.043	-0.030	-0.025	-0.036
	(0.064)	(0.033)	(0.051)	(0.037)	(0.044)	(0.033)
% peers with mother born in the US	0.779	-0.457	1.386	-0.737	-0.312	0.341
	(1.444)	(0.708)	(1.572)	(0.721)	(1.038)	(0.681)
% peers with mother educ = College+	0.151	0.713*	0.680	1.001*	0.943**	0.237
	(0.790)	(0.398)	(0.743)	(0.560)	(0.393)	(0.490)
Grade fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
School fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
School Trends	Yes	Yes	Yes	Yes	Yes	Yes
Observations	641	1,925	767	1,474	1,487	1,082
R-squared	0.358	0.211	0.368	0.217	0.182	0.281

Notes: The table reports the results of regressions stratified by an indicator of mother care (columns 1 and 2), an indicator of social closeness (columns 3 and 4), and presence of children (columns 5 and 6). All regressions control for grade fixed effects, school fixed effects, and school linear time trends. Mother care is an index based on two questions on mother-daughter relationship (Wave I). High mother care is defined as the score being above the median score. Social closeness is based on how many parents of their child's friends a parent interacted with in the four weeks prior to the interview (Wave I). Low social closeness is defined as having below average interactions, relative to each student's school/grade. See Appendix Table A2 for the detailed definition of the variables. The sample is defined in the notes to Table 1. In addition, we excluded students with missing information on % peers with mother born in the US and % peers with mother educ = College +. Regressions in columns (1) and (2) additionally drop students with missing information on mother care. Regressions in columns (3) and (4) additionally drop students with missing information on social closeness. Standard errors (in parentheses) are clustered at the school level. Significance levels are: * 10%, ** 5%, *** 1%.

Source: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Table 10: Expectations and perceptions of work-family conflict

	(1)	(2)	(3)	(4)	(5)
	Expect to be married	Children Intended	Work/family conflict		
	by age 25 (Wave I)	(Wave IV)	(Wave IV)		
	Whole sample	Whole sample	Whole sample	No child	Child
Own mother worked	0.047	-0.040	-0.079	-0.108	-0.002
	(0.031)	(0.102)	(0.072)	(0.083)	(0.095)
% peers with working mother	0.005	-0.003	-0.007	0.026	-0.039***
	(0.004)	(0.015)	(0.012)	(0.017)	(0.014)
White	0.098**	0.052	0.062	0.057	0.139
	(0.045)	(0.096)	(0.085)	(0.146)	(0.103)
PVT	-0.003*	-0.003	-0.000	0.003	0.001
	(0.001)	(0.002)	(0.002)	(0.004)	(0.004)
Very poorly kept residential building	-0.018	0.524*	-0.038	-0.066	0.086
	(0.063)	(0.310)	(0.137)	(0.223)	(0.217)
Mother born in the US	-0.138**	0.169	-0.106	-0.215*	-0.124
	(0.054)	(0.124)	(0.100)	(0.108)	(0.149)
Mother education = College+	0.046	0.000	-0.134**	-0.060	-0.039
	(0.030)	(0.088)	(0.060)	(0.085)	(0.088)
% peers with mother born in the US	-0.000	0.021	0.009	-0.013	0.043*
	(0.007)	(0.021)	(0.015)	(0.011)	(0.025)
% peers with mother educ = College+	-0.001	0.012	0.008	0.005	-0.003
	(0.004)	(0.012)	(0.011)	(0.013)	(0.020)
Grade fixed effects	Yes	Yes	Yes	Yes	Yes
School fixed effects	Yes	Yes	Yes	Yes	Yes
School trends	Yes	Yes	Yes	Yes	Yes
N. Obs.	2,563	2,569	2,549	1,072	1,477
R-squared	0.127	0.101	0.122	0.264	0.165

Notes: All regressions include controls for grade fixed effects, school fixed effects, and school linear time trends. The sample is defined in the notes to Table 1. In addition, we excluded students with missing information on % peers with mother born in the US, % peers with mother educ = College +, and the dependent variable. Standard errors (in parentheses) are clustered at the school level. Significance levels are: * 10%, ** 5%, *** 1%.
*Source*: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Table 11: Gender-role identity, motherhood and employment

	Dependent variable: Work for pay			
	No child		Child	
	(1)	(2)	(3)	(4)
Own mother worked	0.060	0.059	0.068	0.068
	(0.043)	(0.043)	(0.049)	(0.048)
% peers with working mother	0.002	0.002	0.013**	0.010
	(0.005)	(0.006)	(0.006)	(0.006)
Work/family conflict		-0.008		-0.087***
		(0.019)		(0.019)
White	-0.038	-0.038	-0.049	-0.037
	(0.055)	(0.054)	(0.045)	(0.040)
Married	0.054	0.053	-0.133***	-0.135***
	(0.033)	(0.033)	(0.046)	(0.046)
PVT	0.002	0.002	-0.001	-0.000
	(0.001)	(0.001)	(0.002)	(0.002)
Education = College+	0.041	0.040	0.152***	0.154***
	(0.034)	(0.034)	(0.040)	(0.039)
Very poorly kept residential building	0.110	0.109	0.053	0.060
	(0.069)	(0.068)	(0.081)	(0.076)
Mother born in the US	0.085*	0.083*	0.044	0.033
	(0.047)	(0.046)	(0.074)	(0.072)
Mother education = College+	-0.023	-0.023	-0.026	-0.030
	(0.032)	(0.032)	(0.044)	(0.043)
% peers with mother born in the US	0.008	0.008	-0.003	0.001
	(0.006)	(0.006)	(0.010)	(0.011)
% peers with mother educ = College+	0.002	0.002	0.008**	0.008*
	(0.005)	(0.005)	(0.004)	(0.005)
Grade fixed effects	Yes	Yes	Yes	Yes
School fixed effects	Yes	Yes	Yes	Yes
School trends	Yes	Yes	Yes	Yes
N. Obs.	1,072	1,072	1,477	1,477
R-squared	0.287	0.287	0.180	0.211

Notes: All regressions include controls for grade fixed effects, school fixed effects, and school linear time trends. The sample is defined in the notes to Table 1. In addition, we dropped students with missing information on work/family conflict. Standard errors (in parentheses) are clustered at the school level. Significance levels are: * 10%, ** 5%, *** 1%.

Source: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Figure 1: Distribution of placebo regressions estimates
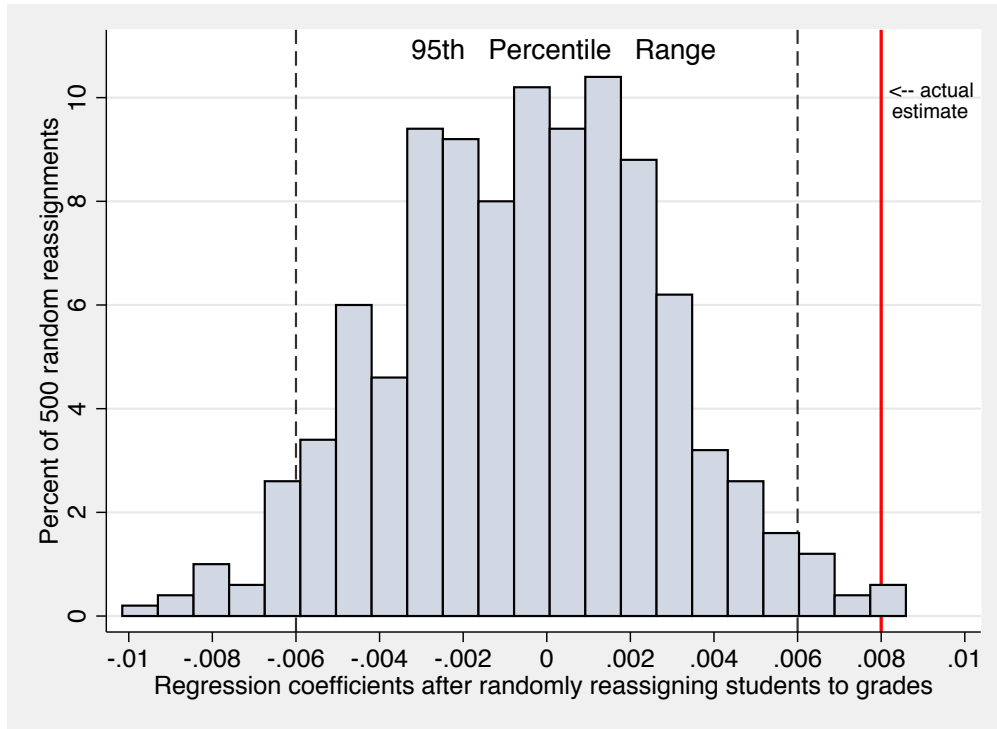
Notes: The graph reports estimates from 500 randomized samples, where for each sample a within-school cohort composition is randomly selected. The red line represents the estimate which is obtained when using the actual cohorts of the dataset and the most extensive set of controls (Table 6, column 2).

8   Appendix Tables

Table A1: Correlation between own mother employment status and peer mothers' employment status

	Own mother works		
	(1)	(2)	(3)
% peers with working mother	0.007***	-0.004	-0.007
	(0.002)	(0.004)	(0.004)
Mother born in the US	0.001	0.013	0.021
	(0.035)	(0.037)	(0.038)
Mother education = College+	0.109***	0.116***	0.119***
	(0.022)	(0.023)	(0.023)
Very poorly kept residential building	-0.020	-0.029	-0.045
	(0.077)	(0.082)	(0.084)
Constant	0.173	1.669***	1.515**
	(0.184)	(0.530)	(0.668)
Grade fixed effects	No	Yes	Yes
School fixed effects	No	Yes	Yes
School trends	No	No	Yes
N. Obs.	2,569	2,569	2,569
R-squared	0.041	0.108	0.141

Notes: The regression in column 2 controls for grade fixed effects and school fixed effects. The regression in column 3 additionally controls for school linear time trends. The sample is defined in the notes to Table 1. In addition, we excluded students with missing information on % peers with mother born in the US and % peers with mother educ = College +. Standard errors (in parentheses) are clustered at the school level. * 10%, ** 5%, *** 1%.
Source: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).

Table A2: Data Description

Variables	Description
Wave I	
Own mother worked	Dummy variable equal to one if resident mother worked for pay
White	Dummy variable equal to one if the respondent reported being white
Black	Dummy variable equal to one if the respondent reported being black
PVT	Score on the student's Picture Vocabulary Test
Very poorly kept residential building	Based on the question: "How well kept is the building in which the respondent lives? Very well kept, fairly well kept (needs cosmetic work), poorly kept (needs minor repairs), very poorly kept (needs major repairs)." The variable was coded as one if the interviewer answered "very poorly kept" and zero otherwise
Mother education = College+	Dummy variable equal to one if the respondent's mother had at least a four-year college degree
Mother born in the US	Dummy variable equal to one if the respondent's mother was born in the US
% peers with working mother	% of peers (leave-out mean) in same school/grade who answered "yes" to the question: "Does your biological mother, stepmother, foster mother, or adoptive mother work for pay?"
% peers with mother born in the US	% peers (leave-out mean) in same school/grade who reported their mother was born in the US
% peers with mother educ = College+	% peers (leave-out mean) in same school/grade whose mother had at least a four-year college degree
Parent education = College+	Dummy variable equal to one if at least one parent had at least a four-year college degree
Parents born in the US	Dummy variable equal to one if both parents reported being born in the US
Single parent family	Dummy variable equal to one if the parent reports not being married
Siblings 7-12th grade	Number of siblings in grade 7 to 12 living in the respondent's household
Mother care	It is based on two questions from the in-home survey: "How much do you think she cares about you? Not at all, very little, somewhat, quite a bit, very much" and "When you do something wrong that is important, your mother talks about it with you and helps you understand why it is wrong. Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree." Answers were used in a standard factor analysis to produce an index of mother care. High mother care was defined as the score being above the median score.
Social closeness	Answer to the question from the parent survey: "Please think about all of your child's friends. How many parents of your child's friends have you talked to in the last four weeks? 0, 1, 2, 3, 4, 5, 6 or more." Low social closeness means having below median interactions, relative to each student's school/grade.
Expect to be married by age 25	Dummy variable equal to one if the respondent answered that she believes there is "a good chance" or she is "almost certain" she will be married by age 25
Wave IV	
Work for pay	Dummy variable equal to one if the respondent is currently working for pay at least 10 hours a week
Married	Dummy variable equal to one if the respondent reported being married (household roster)
Children	Dummy variable equal to one if the respondent reported having at least one child (household roster)
Education = College+	Dummy variable equal to one if the respondent had at least a four-year college degree
Household size	Total number of household members (household roster)
Work/family conflict	It is based on two questions: "Indicate how much you would agree or disagree with this statement: Family responsibilities have interfered with my ability to work. Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree" and "(In the past 12 months/Since you started your current job/In the last year of your most recent job), how often on your primary job (have you spent/have you spent/did you spend) less time with your family than you wanted to because of work responsibilities? Frequently, sometimes, rarely, never." Answers to the first question were re-coded into a binary indicator equal to one if the respondent answered "strongly agree" or "agree." Answers to the second question were re-coded into an indicator equal to one if the respondent answered "frequently" or "sometimes." These two indicators were used in a standard factor analysis to produce an index of work/family conflict.
Children intended	Total number of children that the respondent intends to have (including any children she may already have)

Table A3: Sample Selection Description

Mean (Std. dev.)

	Females			Males		
	Original longitudinal sample	Dropping grades 6-8	Dropping students with less than 28 peers	Original longitudinal sample	Dropping grades 6-8	Dropping students with less than 28 peers
Work for pay	0.738 (0.440)	0.752 (0.432)	0.755 (0.430)	0.856 (0.351)	0.872 (0.334)	0.873 (0.334)
Own mother worked	0.812 (0.391)	0.817 (0.386)	0.819 (0.385)	0.835 (0.371)	0.847 (0.360)	0.848 (0.359)
% peers with working mother	0.819 (0.079)	0.818 (0.078)	0.819 (0.072)	0.818 (0.084)	0.817 (0.077)	0.820 (0.071)
White	0.743 (0.437)	0.727 (0.446)	0.721 (0.449)	0.757 (0.429)	0.756 (0.43)	0.750 (0.433)
Married	0.446 (0.497)	0.481 (0.500)	0.478 (0.500)	0.379 (0.485)	0.429 (0.495)	0.422 (0.494)
Children	0.563 (0.496)	0.603 (0.489)	0.604 (0.489)	0.331 (0.471)	0.351 (0.477)	0.343 (0.475)
Share with less than High School	0.051 (0.221)	0.033 (0.179)	0.032 (0.175)	0.075 (0.263)	0.049 (0.216)	0.050 (0.218)
Share with High School or some college	0.590 (0.492)	0.580 (0.494)	0.571 (0.495)	0.602 (0.489)	0.588 (0.492)	0.582 (0.493)
Share with College or more	0.359 (0.480)	0.387 (0.487)	0.397 (0.489)	0.323 (0.468)	0.363 (0.481)	0.368 (0.482)
PVT	102.801 (13.345)	103.067 (13.299)	103.242 (13.153)	105.255 (13.045)	106.077 (12.734)	106.067 (12.680)
Very poorly kept residential building	0.041 (0.198)	0.038 (0.191)	0.038 (0.191)	0.037 (0.19)	0.035 (0.183)	0.036 (0.186)
Mother born in the US	0.916 (0.277)	0.906 (0.291)	0.906 (0.292)	0.913 (0.282)	0.897 (0.304)	0.893 (0.309)
Mother education = College+	0.245 (0.430)	0.252 (0.434)	0.258 (0.438)	0.293 (0.455)	0.310 (0.462)	0.313 (0.464)
Age	15.231 (1.691)	16.225 (1.192)	16.209 (1.194)	15.42 (1.747)	16.416 (1.211)	16.418 (1.213)
N. Obs.	3,988	2,901	2,781	3,083	2,288	2,197

Notes: The table reports descriptive statistics by gender for the main variables used in the analysis at each stage of the sample selection process. The original longitudinal sample includes students with non missing information on any of the variables reported in the table. In the second column we drop students that are not in grades 9 through 12. Finally, in the last column, we drop students who have less than 28 peers (5th percentile of the cohort-size distribution).

Source: National Longitudinal Survey of Adolescent Health (AddHealth), Harris et al. (2009).