



## Estimating peer effects in sexual behavior among adolescents

Mir M. Ali<sup>a,\*</sup>, Debra S. Dwyer<sup>b,1</sup>

<sup>a</sup> Department of Economics, University of Toledo, 2801 W Bancroft Street, University Hall 4110H MS 922, Toledo, OH 43606-3390, USA

<sup>b</sup> School of Health, Technology & Management and Department of Economics, Stony Brook University, Stony Brook, NY 11794-8204, USA

### A B S T R A C T

#### Keywords:

Adolescent sexual behavior  
Peer measurements  
Peer influence

In this paper we seek to empirically quantify the role of peer social networks in influencing sexual behavior among adolescents. Using data of a nationally representative sample of adolescents we utilize a multivariate structural model with school-level fixed effects to account for the problems of contextual effects, correlated effects and peer selections to purge the potential biases from the estimates of peer influence. Our peer group measures are drawn not only from the nomination of close friends, but also from classmates. Controlling for parent level characteristics, and other demographic parameters, we find that a 10% increase in the proportion of close friends who initiates sex increases the probability that an individual chooses to initiate sex by 5% and a 10% increase in number of sexual partners among close friends increases an individual's sexual partner by 5%. The influence of classmates however, diminishes in magnitude after accounting for unobserved environmental confounders.

© 2009 The Association for Professionals in Services for Adolescents. Published by Elsevier Ltd. All rights reserved.

### Introduction

An increase in the percentage of adolescents engaging in sexual intercourse accompanied with a decrease in the age of sexual initiation have occurred during the last 30 years (Seiverding, Adler, Witt, & Ellen, 2005). The number of sexual partners before the age of 18 has also been steadily rising (Davis & Friel, 2001). Even though sexuality is a normative event and considered a normal aspect of healthy adolescent development (Brendgen, Wanner, & Vitoro, 2007), early initiation of sexual behavior is associated with adverse health and educational outcomes such as sexually transmitted diseases (STD), poor mental health (Sabia & Rees, 2008), lower grade-point averages (Sabia, 2007) and unintended pregnancies (Davis & Friel, 2001). Early fertility is associated with negative educational and subsequent labor market outcomes and also has inter-generational effects; children of teenage mothers are less likely to receive good prenatal care, are relatively disadvantaged and are more likely to repeat the behavior (Trussell, 1988).

A large literature has been devoted to determine the importance of social networks in influencing adolescent behaviors, especially health risky behaviors and outcomes (Ali & Dwyer, 2009; Bearman & Moody, 2004; Guo, Elder, Cai, & Hamilton, 2009; Jaccard, Blanton, & Dodge, 2005; Valente, Fujimoto, Chou, & Metz, 2009). In the case of adolescent sexual behavior, the role of social networks or peer effects are unclear (Fletcher, 2007), but there exists some evidence to suggest that behavioral choices by adolescents are partly determined by how acceptable the behavior is believed to be among their peers (Evans, Gilpin, Farkas, Shenassa, & Piere, 1995). For example, an adolescent's self-reported perception of friends' sexual behavior has been identified as an important predictor of sexual initiation (Romer et al., 1994; Teitler & Weiss, 2000). The flow of STD in

\* Corresponding author. Tel.: +1 419 530 5148; fax: +1 419 530 7844.

E-mail addresses: [mir.ali3@utoledo.edu](mailto:mir.ali3@utoledo.edu) (M.M. Ali), [debra.dwyer@stonybrook.edu](mailto:debra.dwyer@stonybrook.edu) (D.S. Dwyer).

<sup>1</sup> Tel.: +1 631 638 1009; fax: +1 631 444 6474.

social networks has also been documented (Moody, 2002). Regardless of the mechanism through which social influences affect adolescent sexual behavior, for example information sharing and the development of social norms (Fletcher, 2007); from a policy perspective, the potential existence and the magnitude of the social network effect is of interest since “peer effects may serve to amplify the effects of interventions” (Lundborg, 2006, p. 215). Thus it is important to understand the social process that influence sexual behavior so that prevention policies can be designed to incorporate such influences (Romer et al., 1994).

Peer effects, however, are difficult to estimate and causal interpretations must be undertaken with caution since individuals in most cases choose with whom to associate (Kremer & Levy, 2008). In other words, estimates without accounting for peer selection are unable to identify accurately whether an individual’s behavioral choices in some way varies with behavior of the reference group (Manski, 1993). Peer selection implies that the correlation in behavior could be attributed to the similarity among individuals, whereas, peer influence implies that the correlation is due to the peer behavior. Disentangling the peer influence from spurious unobserved factors, associated with peer selection is important if we are to accurately predict the success of policies aimed at reducing any risky behavior among adolescents. Thus, if there are common underlying attributes of individuals within a peer group that drive behavior more than peer influence, policies aimed at taking advantage of peer influence may not realize the desired effects.

Building on the existing literature on peer effects we extend our analysis by empirically quantifying the role of peer social networks to explain sexual behavior among adolescents. Constructs of sexual behavior in our study includes sexual initiation and the number of sexual partners. Our peer measures are drawn not only from the nomination of close friends, but also from classmates within a grade. This allows us to identify the differences in effects that could be exerted by different compositions of the reference groups. Further we implement two stage least square modeling approaches with school-level fixed effects to purge potential biases from the peer estimates in order to give it a causal interpretation.

### Estimating social networks

A standard linear regression using an average contemporaneous measure by a reference group (for example, by the school level, by workplace or by closest friends identified by the individuals) as a proxy for social interactions is easy to estimate. However, such measures of peer networks, or social interactions, have quite a few problems of interpretation (Manski, 1993). A significant effect of a peer indicator could be the consequence of three different interpretations according to Manski. While there may be subtle differences, defining effective policies would vary depending on which is the driving force behind the significant peer effect. The three interpretations Manski offers are as follows:

- a. *Endogenous* – This effect occurs when individual behavior responds to the behavior of others in their reference group. For example, an individual is more likely to initiate sex if there is a high rate of sexual initiation among the reference group because friends engagement in sexual activities could develop a social norm which might compel an individual to have sex in order to fit in with one’s peer (Fletcher, 2007). The influence is coming from the peer behaviors themselves – and their behaviors influence each other. Targeting the individual to change the behavior would be an effective policy in this case – and would have a multiplier effect. So if only some of the individuals are part of the intervention – it will influence their peers and spread.
- b. *Exogenous or contextual effect* – This occurs when individual behavior responds to the exogenous characteristics of the reference group. For example, suppose there is a high rate of parental approval of having sex at the current age or with a romantic partner among the parents in a community and the dominating influence on peer sexual behavior is parental approval (Swain, Ackerman, & Ackerman, 2006). Spillover occurs even to the individuals whose parents might not approve of sex at the current age so that there is a peer effect on top of any parent effect. But targeting only the adolescent will not get at the root of the problem, nor will it have the multiplier effect discussed above since children of parents who approve of sex will continue to engage in sexual activities despite the behavior of their peers.
- c. *Correlated or confounding effect* – This occurs when individuals in the same group behave similarly because they have similar unobserved characteristics or they face similar institutional characteristics (Jaccard et al., 2005). For example, children from like disadvantaged socioeconomic backgrounds will sort to each other and be more likely to initiate sex because of those like attributes (Petersen, Bhagwanjee, Bhana, & Mzimela, 2004). Again, if one of them refrains from sexual engagements because of an intervention, it is even less likely to impact the others since something unobserved is driving them all to have higher propensities of sexual initiation.

In sum, given these alternative interpretations of a significant peer effect, standard regressions of individual engagement in a particular activity on group means are unable to distinguish between the endogenous, exogenous and correlated effects and successful policy will vary depending on what is driving the peer effect. This identification difficulty, coined as the ‘reflection problem’ by Manski (1993), occurs because group behavior by definition is the aggregation of individual behavior, i.e. group behavior affects individual behavior and vice versa due to the simultaneity in choices. Thus for the purpose of devising effective policy it is important to purge these biases from peer effect estimates to identify whether peer influence is more important than peer selection (Norton, Lindrooth, & Ennett, 1998).

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات