

JOB MARKET PAPER SYNOPSIS

The impact of peer effects on student achievement has received considerable attention in the economics of education literature. Significant peer effects imply that policies such as school busing have a far reaching influence on the educational outcomes of all students in the school. The lack of consensus on the magnitude of these effects has encouraged researchers to examine alternative measures of peer interaction.

While the economics literature defines peer effects as either the impact of exogenous characteristics or endogenous behaviors, the sociology literature has used a much broader definition. The field of social network analysis pays particular attention to how students in a given friendship network are influenced by their position in the network. Measures of position include popularity (the number of times the respondent was nominated by others), centrality (the distance of the person to all others in the network), and betweenness (the number of friendship paths that pass through the individual). Research on the impact of these network structure measures on student delinquency and academic outcomes consistently finds significant positive effects. A limited number of studies in economics have used similar measures of peer effects, with qualitatively similar results. However, the previous literature fails to recognize that friendship nominations are endogenous choices. In addition, failing to control for unobservable student characteristics which impact friendship nominations and educational outcomes can bias estimates of peer effects.

This paper examines the role of peers on student academic achievement by estimating a joint model of friendship nomination and academic achievement production. The decision to nominate a same sex friend is a function of the match between own and friend characteristics. I control for unobserved student heterogeneity in both models using mixture distributions. Academic production is modeled as a function of various measures of location in the student friendship network. By including unobserved heterogeneity in both the friendship formation and academic achievement equations I minimize the bias due to selection.

The dataset used in this study comes from the National Longitudinal Survey of Adolescent Youth (Add Health). This unique survey of schools contains information on within school friendship nominations in addition to detailed demographic characteristics for both the individuals and the friends. These friend nominations are essential, because as I show in Mihaly (2006), using the actual friends instead of broader peer groups in peer effects estimation corrects for the downward bias due to aggregation. I am able to construct various measures of network location by recreating the friendship networks and measure their impact on academic outcomes.

I find that friendship nominations are an increasing function of similarity in demographics between individuals and friends, and that the importance of these characteristics depends significantly on the minority status of these traits in the school. My results on the network structure effect on achievement diverge significantly from previous literature. I find that being central in the network has a significant negative impact on academic achievement. This result is due to the inclusion of unobserved heterogeneity in the model, which enters positively and significantly. Previous research cannot separately identify these two effects. These results are consistent with the idea that popular students spend their scarce time fostering friendships at the expense of scholastic pursuits.