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The impact of extracurricular activities participation on youth delinquent behaviors: An instrumental variables approach

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ABSTRACT

The purpose of this study was to examine the association between extracurricular activities (EA) participation and youth delinquency while tackling an endogeneity problem of EA participation. Using survey data of 12th graders in South Korea ($n = 1943$), this study employed an instrumental variables approach to address the self-selection problem of EA participation as the data for this study was based on an observational study design. We found a positive association between EA participation and youth delinquency based on conventional regression analysis. By contrast, we found a negative association between EA participation and youth delinquency based on an instrumental variables approach. These results indicate that caution should be exercised when we interpret the effect of EA participation on youth delinquency based on observational study designs.

1. Introduction

Over the past decades, a large number of studies have been conducted to examine factors associated with youth delinquency (Vogel & Messner, 2012). Among various factors, participation in extracurricular activities (EA) has gained great attention from numerous researchers as a determinant of youth functioning and development (Fredricks & Eccles, 2010; Serido, Borden, & Wiggs, 2014; Taheri & Welsh, 2015; White & Gager, 2007). One of the major reasons for the popularity of EA is due to evidence that EA participation is positively associated with youth functioning and development, including deterring delinquency (Bohnert & Garber, 2007; Feldman & Matjasko, 2005; Gilman, 2001; Gilman, Meyers, & Perez, 2004).

In South Korea, however, EA have not been historically considered an important component of elementary or secondary education. The majority of active students engaging in EA are from lower socioeconomic statuses in rural areas (Kim & Hwang, 2009), while most other students mainly spend their time on private lessons for higher academic achievements. A disproportionate emphasis has been placed on mathematics, Korean, English, and science for the College Scholastic Ability Test. In a nation where the college entrance rate reaches almost 70% (Statistics Korea, 2015) and, more importantly, college admission depends heavily on academic achievements on those subjects, EA were largely neglected by students, parents, and teachers.

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Since the mid-2000s, the above mentioned trend has changed after the Korean national government initiated landmark polices, such as establishing a national committee for EA to facilitate EA participation across the nation. EA participation has become an important factor for entering college through non-scheduled admission which weighs the diversity of student activities (Choi, 2013), and its rate is 60.2% as of 2013 (Statistics Korea, 2014). The emphasis of EA in the Korean education system is mainly attributable to the notion that involvement in EA benefits the youths mentally and physically (Hong et al., 2011).

Various researchers have emphasized the importance of investigating the relationship between EA participation and youth behaviors and explained why EA participation is related to youth behaviors (Coleman, 1961; Habib, Zimmerman, & Ostaszewski, 2014; Peguero, 2009; Roeser, Midgley, & Urdan, 1996; Taheri & Welsh, 2015; Toomey & Russell, 2013). For example, it was argued that EA participation provides a channel to express and explore one's identity and create human and social capital (White & Gager, 2007). EA participation also facilitates youths to better understand themselves by evaluating and interpreting their own behavior in comparison with other members of a group (Valentine, Cooper, Bettencourt, & DuBois, 2002). Accordingly, youth identity and their peer group can form characteristics of their developmental pathway (Haggard & Williams, 1992). Additionally, EA participation can increase the opportunity for students to develop mentoring or coaching relationships, which can bolster academic achievement and deter misbehavior (Lamborn, Brown, Mounts, & Steinberg, 1992; Smith, 2003).

Numerous empirical studies have also been conducted to examine the association between EA participation and youth delinquency (Bohnert & Garber, 2007; Feldman & Matjasko, 2005; Gilman, 2001; Han, Kim, & Ma, 2015; Lee, 2003), but a major limitation remains to be addressed. That is, it is unclear whether or not the found association between EA participation and delinquent behaviors is causal due to endogeneity or self-selection of EA participation. It is not easy to address endogeneity bias based on an observational design, as an explanatory variable of interest does not randomly vary. Indeed, Feldman and Matjasko (2005) already warned that researchers need to consider the self-selection issue of EA participation. There are a few conceivable scenarios in which self-selection biases a coefficient of EA participation on youth delinquency.

First, although it is theorized that students' participation in EA decreases deviant behaviors, it is also possible that students' problem behaviors affect their likelihood of EA participation. For instance, delinquent students can be limited in EA participation since their problem behaviors can negatively influence general students during EA. The direction of the relationship could operate in an opposite way as well. Namely, continuous involvement in problem behaviors may prompt parents or teachers to strongly encourage EA participation so that students could learn conventional norms from other peers and teachers. Regardless of the direction of the relationship, reverse causality could have inflated or deflated the estimated coefficient of EA participation on delinquent behaviors. Second, the reported relationship between participation in EA and delinquency may be confounded by other unobserved factors. For example, students' unobserved heterogeneity, school norms, and school policy can confound the relationship. In any case, the estimated coefficient of EA participation from conventional regression analysis is biased.

To date, the endogeneity problem of EA has not been tackled. One method that can address the potential endogeneity problem is using an instrumental variables estimator (Wooldridge, 2012). The analytical framework for this study based on an instrumental variables strategy is shown in Fig. 1. As mentioned, it is likely that there was a correlation between EA participation and the error term in the previous empirical studies based on an observational design. Thus, the estimated coefficient of EA participation based on conventional regression analysis could be biased because it assumes there is no correlation between an explanatory variable and the error term. We attempted to address this self-selection bias by using an instrumental variables estimator with two instrumental variables: previous level of self-efficacy and previous experience of EA participation. We will discuss our rationale for choosing these two instrumental variables and explain the instrumental variables estimator in 2. Methods.

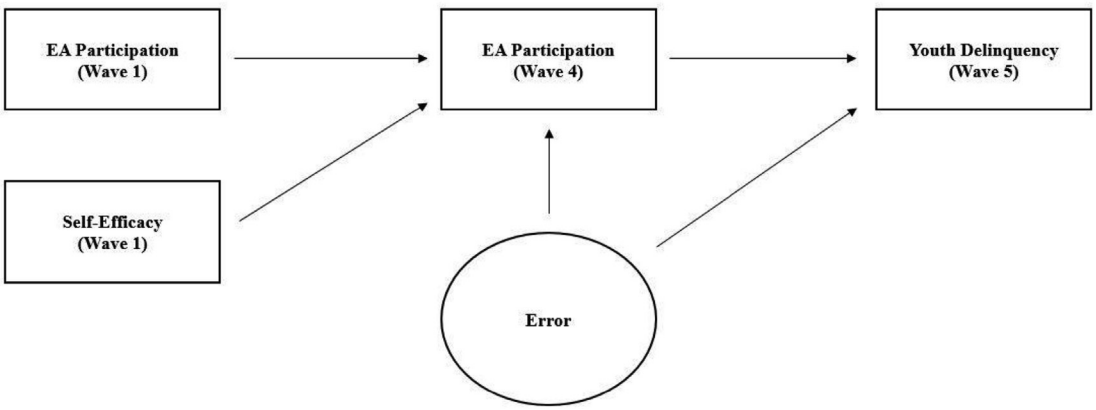

Fig. 1. Instrumental variables approach to the association between EA participation and youth delinquency.