

Marijuana Consumption and Violence: Is There a Bi-directional Association?

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Adolescent marijuana use has been traditionally associated with a wide range of anti-social and dangerous patterns of behavior, including engaging in criminal activity or different types of violence [Hawkins et al., *Psychological Bulletin*, 1992; Spunt et al., *International Journal of Addictions*, 1994; Osgood et al., *American Sociological Review*, 1998; Brook et al., *American Journal of Public Health*, 1999]. This literature, however, has not yet clarified the direction of this association. In this context, the authors examined the hypothetically bi-directional relationship, that is to say, the potential endogeneity, which links marijuana consumption and violence (physical aggression) among U.S. adolescents.

To that end, a generalized two-stage Probit model was developed which is estimated by using information provided by the 1999 Youth Risk Behavior Survey. The specification includes two equations with dependent variables that indicate whether the adolescent consumes marijuana and whether he or she has been involved in violence during the last 30 days. In addition, a number of covariates were considered for physical, environmental, and peer group aspects which could have an effect on both variables. Furthermore, a second group of variables was considered in order to identify the two equations. These were the abuse of alcohol and the consumption of tobacco when we try to identify the marijuana consumption equation, and the possession of a weapon and the number of hours watching TV in order to identify the violence equation.

The results confirmed the positive and endogenous relationship between the probability of marijuana consumption and the involvement of the adolescent in physical violence. Particularly, the significant coefficient which accompanied marijuana consumption in physical violence equation was 0.39 (t-ratio = 22.92), while that which accompanies the violence variable in marijuana consumption equation was 0.78 (t-ratio = 14.34). Moreover, the correlation coefficient was positive, 0.311, and significant (t-ratio = 10.59), confirming the existence of unobserved factors correlated with both dependent variables. The probability of marijuana consumption was higher among Afro-American, Hispanic, and White groups, as compared with other groups, as well as among those who live in the West and in a sub-urban environment. The probability of physical violence was higher among males than among females. Moreover, it is higher among adolescents in the first high school grades, among those who practice sports more frequently, and those who live in a urban area. It was lower among those in the White group or who live in the North, South, or West regions of the country. Finally, while both alcohol and tobacco consumption are clear determinants for marijuana consumption, and similarly while the possession of a weapon is a significant determinant for adolescent violence, the number of hours watching TV does not appear to have a significant impact on this latter endogenous variable. (JEL I12, C35, K32)