Dynamics of adolescents' life satisfaction and effect of class rank percentile: Evidence from Korean panel data

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ABSTRACT

This study investigates the dynamics of adolescents' life satisfaction and the effects of academic success on life satisfaction using the Korean Youth Panel Survey (KYPS) 2003–2007 data. Unlike previous studies, our dynamic ordered probit models allow for persistence in life satisfaction which is attributable both to unobserved individual heterogeneity and to state dependence. First, we find that strong state dependence exists in adolescents' life satisfaction, that is, current life satisfaction is significantly affected by the previous state. Second, we show that academic success undoubtedly has a positive effect on adolescents' life satisfaction even after controlling for state dependence. Finally, we present that there exists an interesting gender difference: boys show stronger persistence in the state of high life satisfaction, whereas girls have stronger persistence in dissatisfaction.

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1. Introduction

The relationship between adolescents' life satisfaction and their academic success has been an important theme in economics and psychology. In the literature, life satisfaction is defined as "a global assessment of a person's quality of life according to his chosen criteria" (Shin & Johnson, 1978) or "a cognitive judgmental process dependent upon a comparison of one's circumstances with what is thought to be an appropriate standard" (Diener, Emmons, Larsen, & Griffin, 1985). Although Huebner (1991) and Huebner and Alderman (1993) show no significant correlation between subjective well-being and academic achievement, others have found a positive relationship between life satisfaction and academic success (Gilman & Huebner, 2006; Salmela-Aro & Tuominen-Soini, 2010; Verkuyten & Thijs, 2002). For example, Gilman and Huebner (2006) suggest that students who report higher life satisfaction are more likely to report better academic performance.

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However, two unanswered questions remain in the literature. First, previous studies have not considered individual heterogeneity in empirical analyses, although both life satisfaction and academic success would most likely be affected by unobservable individual heterogeneity. In fact, the importance of individual heterogeneity has been well-recognized in the related literature. Samuel, Bergman, and Hupka-Brunner (2013) emphasize that "unmeasured individual heterogeneity is one of the most serious problems in empirical research of educational pathways." Breen and Jonsson (2000) expect that individual heterogeneity, including ability and motivation, would substantially account for variations in educational and occupational success. Similarly, we expect that individual heterogeneity, including innate personality or attitude toward life, plays an important role in analyzing adolescents' life satisfaction and the effects of academic success.

Second, although previous studies explore adolescents' life satisfaction in many respects, the dynamics of adolescents' life satisfaction has rarely been considered. Investigating the dynamics of life satisfaction is important in that an individual's life satisfaction is likely to be persistent. Samuel et al. (2013) suggest that "one of the best predictors of well-being is well-being previously measured." To understand persistence in life satisfaction, it should be noted that unobserved individual heterogeneity and state dependence account for persistence in life satisfaction in different ways: a life satisfaction level is persistent over time not only due to an innate individual trait but also due to the influence of a prior level of life satisfaction on a current level of satisfaction.[1] This paper aims to allow for persistence in life satisfaction and capture the latter effect, state dependence.

To control the aforementioned two problems, our dynamic ordered probit models with correlated random effects specify the individual effect and control for state dependence and the initial conditions following Wooldridge (2005). As we explain later, we confirm the importance of considering unobserved heterogeneity by demonstrating that approximately 31% of the unexplained variation in life satisfaction can be attributed to individual heterogeneity. Furthermore, our dynamic panel regression models show the important role played by the dynamics in life satisfaction.

The main purpose of this paper is to explore the effects of academic success and failure on adolescents' life satisfaction, while considering the individual effect and the dynamics of life satisfaction. However, how we define an individual's academic success and failure is an issue. Samuel et al. (2013) suggest that "an individual's educational success is relative to a point of reference or to a system of points of reference," and propose (a) peers and (b) the individual himself or herself as possible points of reference. Students may compare their academic achievement with their peers' or achievements of their own past. In this paper, we define academic success (failure) based on the aforementioned two reference points, peers and the individual himself or herself, as follows: (a) whether a student is in the top (bottom) 25% of his or her class and (b) whether a student's class rank percentile has increased (decreased) from his or her previous ones by more than 15 percentile. The former suggests that students assess their academic achievement based on what others do, and the latter proposes that students assess themselves based on their past achievements. We use the former reference point firstly, and then the latter is used, to investigate the effects of academic success and failure on adolescents' life satisfaction.

Previous studies have shown gender differences among adolescents: boys express higher life satisfaction than girls (Moksnes & Espnes, 2013; Neto, 1993; Verkuyten, 1986); girls perform better than boys in school (Dwyer & Johnson, 1997; Mokashi, Yadav, & Khadi, 2012); and girls are more vulnerable to negative effects of stressful events (Ge, Lorenz, Conger, Elder, & Simons, 1994; Salmela-Aro, Kiuru, Pietikäinen, & Jokela, 2008). In the subsample analysis, we investigate potential gender differences among students.

In sum, we investigate the effects of academic success and failure on adolescents' life satisfaction as well as the dynamics of life satisfaction. We use 2003–2007 panel data collected from the Korean Youth Panel Survey (KYPS). The advantages of using Korean data are twofold. First, KYPS is a highly stable and informative survey. The National Youth Policy Institute (NYPI), one of the Korean national research institutes, conducted the detailed survey on various aspects of adolescents' life. The KYPS sampled approximately 3500 adolescents from the whole nation, and the survey continued for 6 waves.

Second, as Korean adolescents face far greater pressure to excel academically than their counterparts in most Western countries, we expect that Korean data can more effectively disentangle the effects of academic success on life satisfaction from those of other factors. In Korea, the pressure for academic success from parents and society is deeply ingrained in young people. In contrast to North American adolescents who spend more time in leisure than in studies, Korean students spend much of their time studying, giving up leisure activities after school (Lee & Larson, 2000; Yim, 1987). Won (1989) shows that Korean students are occupied with schoolwork about 47% of their wake time. Larson and Verma (1999) point out that Korean teens spend approximately double the time studying than U.S. adolescents. It is undeniable that academic performance in Korea results from very highly involved behavior. As a result, the relation between academic performance and life satisfaction can be clearly observed from Korean data without much ambiguity. Moreover, academic performance is a more important determinant of life satisfaction in Korea than in other countries. For example, Lee and Larson (2000) suggest that depression among both Korean and American students is highly related to their schoolwork, examinations, and academic

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[1] These two effects, individual heterogeneity and state dependence, are related though they are different. The individual fixed effects are due to personal characteristics (usually unobserved) such as how optimistic she is, how much she is loved, etc. State dependence is the influence of a prior level of life satisfaction on current level of life satisfaction. As the prior level of satisfaction is partially determined by individual fixed trait, state dependence is corelated with unobserved individual heterogeneity (in order to distinguish between state dependence and individual heterogeneity, how we treat the initial response at the start of a survey is important, which will be discussed later in section 4.2). However, there are other factors influencing the prior level of satisfaction than individual trait. For example, the prior level of class rank, the prior health status, or random luck factor can affect the prior level of life satisfaction. In other words, 'what happened' last year matters for this year's satisfaction level, in addition to a person's fixed individual trait.