

DOES UNSATISFACTORY SUBJECTIVE WELL-BEING OF SCHOOL CHILDREN DECREASE THEIR COGNITIVE DEVELOPMENT SKILL?

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1. Abstract

At the end of the 20th century and the beginning of 21st century, some school children—specifically in the US—victims of school shooting tragedies. The medium and long-run effects on survivors need to be investigated and any potential economic loss associated with their adversity should be estimated. A paper by [Levine and McKnight \(2021\)](#) studied the impact of school shootings on the educational performance and well-being of school shooting survivors, and it inspired our research. The authors estimated the direct impact on students' test scores via difference-in-difference framework, but they did not measure the students' well-being. Our contribution is to fill a gap in the literature by addressing whether the unsatisfactory subjective well-being of school children decreases their cognitive development.

Existing literature such as [North et al. \(2013\)](#); [Lowe and Galea \(2017\)](#); [Bharadwaj et al. \(2021\)](#) assessed the mental health of school children, shooting survivors and they found that those exposed children experienced post traumatic stress disorder

Almost no evidence has been documented of the direct measurement between early child's cognitive development skills and their subjective well-being. There are a few studies that have focused on measuring the relationship between objective well-being and children's academic performance. For example, students' well-being and their education outcomes were investigated by researchers from the Childhood Well-being Research Centre, Institute of Education, University of London as a part of the Avon Longitudinal Study of Parents and Children (ALSPAC). They examined the connection between di-

mensions of children's well-being at the ages of 7 and 13, and national exam results when the children were then aged between 11 and 16. Findings of [Gutman et al. \(2009\)](#) and [Gutman and Vorhaus \(2012\)](#) emphasised that various dimensions of well-being predict educational outcomes. Children with better emotional well-being made more progress as well as were more likely to have positive friendships that helped them engage in secondary school.

In order to fill this gap, this paper provides an instrumental variable framework and various quantile regression methods to evaluate the effect of unsatisfactory subjective well-being on school-aged children's cognitive development scores by utilising Peruvian data from the Young Lives project which is sponsored by Oxford University. We use a widely used psychometric test to measure children's cognitive development - the Peabody Picture Vocabulary test (PPVT) which is initiated by special education specialists Lloyd M.Dunn and Leota M.Dunn in 1959, and their son D.Dunn has been developing its reliability and validity since then.

The PPVT is extensively used as a key measure of children's receptive first language skills, early childhood language development, school readiness, and is a cognitive development measure of young children [Long \(2012\)](#); [Lopez Boo \(2013\)](#); [Paxson and Schady \(2007\)](#); [Vogel et al. \(2006\)](#)

Finally, we explore the effect of unsatisfactory subjective well-being (USWB) of school children on their cognitive development skill which is measured by a Spanish version of Peabody picture vocabulary test (PPVT) in Peru. We use a fixed effects regression and generalised moment method (GMM) approach for quantile data with fixed effects. Our findings highlight that unsatisfactory SWB decreases the PPVT score by 1.9 percentage points in the 25th quantile. Similarly, to those children in the median and 75th quantile of distribution, unsatisfactory SWB decreases their PPVT score 0.97 and 1.4 percentage points respectively.

Keywords: Subjective well-being; Cognitive development skill; Peabody picture vocabulary test (PPVT); Peru; GMM approach for quantile regressions; Instrumental variable

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