

Cognitive consequences of iodine deficiency in adolescence: evidence from salt iodization in Denmark*

Benjamin Ly Serena

Copenhagen Business School, DK-2000 Frederiksberg, Denmark
bse.eco@cbs.dk

Abstract

Over the past three decades, many countries have introduced iodized salt policies to eradicate iodine deficiency. Iodine deficiency *in utero* is detrimental to cognitive ability, but little is known about the consequences of iodine deficiencies after birth. This paper examines the impact of iodine deficiency in adolescence on school performance. I exploit the introduction of iodized salt in Denmark during 1998–2001 as a natural experiment. Combining administrative records on high school grades over a 30-year period with geographic variation in initial iodine deficiency, I find that salt iodization increases the grade point average of students by 6–9 percent of a standard deviation.

Keywords: Health; human capital; iodine deficiency; iodized salt; nutrition

JEL classification: I15; I18; J24

1. Introduction

More than two billion individuals lack essential vitamins and minerals (WHO et al., 2007), and these micronutrient deficiencies are major causes of disease globally. Over the past three decades, the World Health Organization (WHO) has initiated global efforts to increase food fortification, which has reduced the incidence of micronutrient deficiencies (Allen et al., 2006). The adoption of iodized salt to eradicate iodine deficiency is a leading example of such food fortification. Iodine is a crucial mineral for metabolic functioning and brain development. While iodized salt has been used since the 1920s in the United States and Switzerland to prevent goiter, it became a global health policy after the 1980s, as researchers established that iodine

*I would like to thank Gordon Dahl, Meltem Daysal, Claus Thustrup Kreiner, Nick Fabrin Nielsen, Torben Heien Nielsen, Peter Nilsson, and Adam Sheridan for helpful advice, and participants at the EEA Annual Congress 2018, the IIPF Annual Congress 2018, Essen Health Conference 2018, and the Education and Health Group at the Department of Economics, University of Copenhagen, and two anonymous referees for useful comments. This research was supported by Novo Nordisk Foundation Grant NNF17OC0026542 and CEBI, Center for Economic Behavior and Inequality, which is financed by the Danish National Research Foundation Grant DNRF134.