Funding Childcare for the Poor: A CGE Analysis of the Sugary Beverage Tax in Philadelphia

Topic: Input-Output Modelling: Income Distribution Policies
Author: Michael L. LAHR
Co-Authors: Ye Yao, Xiaoyu Li

We model the economic impacts on Philadelphia of the 1.5 cent per ounce soda tax effects using an applied computable general equilibrium (CGE) model. Our analysis focuses the expenditure side of the analysis is limited here to a pre-K programs for families within 200% of the poverty line. This work will center on three aspects: (1) poor households' alternative uses of moneys formerly spent on sugary beverages, (2) the enhanced spending by the pre-K education industry, and (3) improvements in City productivity and income enabled by (re-)entry into the labor force of low-income parents of Philadelphia's pre-K students.

The soda tax reduces the quantity of sweetened beverages that are consumed within the City. This dampens employment and wages at least somewhat in the City's industries related to beverage distribution; but it concomitantly improves employment and wages in pre-K education. Subsidized pre-K induces some parents of the 3,300 participating children in lower-income families either to improve their level of education or to enter the labor force. Both should improve the quality of employed labor and, hence, enhance industrial production within the City.

As the tax was effected in 2017, we create a 2016 social accounting matrix for Philadelphia County articulated with household expenditures for four different income groups. The prime novelty other than the policy topic itself is that we concomitantly break labor use by industry by this same set of household types and shift income away from public welfare programs as poor families earn more income. We shock the city's economy with the tax. Subsequently, we examine various scenarios for a change in labor supply as parents of the Pre-K children enter the labor force.