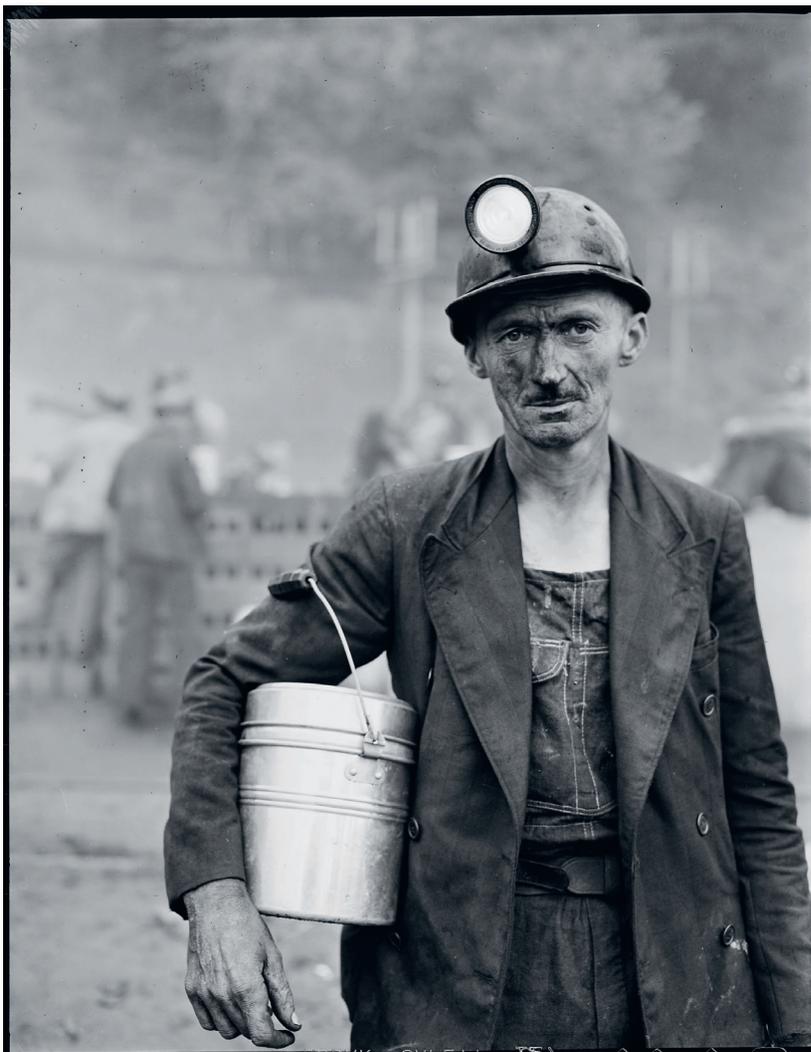


Introduction of iodized salt in the 1920s boosted the US economy

Excerpted from: **Nisen M, Business Insider, November 2013, commenting on: Adhvaryu A et al. Salt Iodization and the Enfranchisement of the American Worker, September 2013**



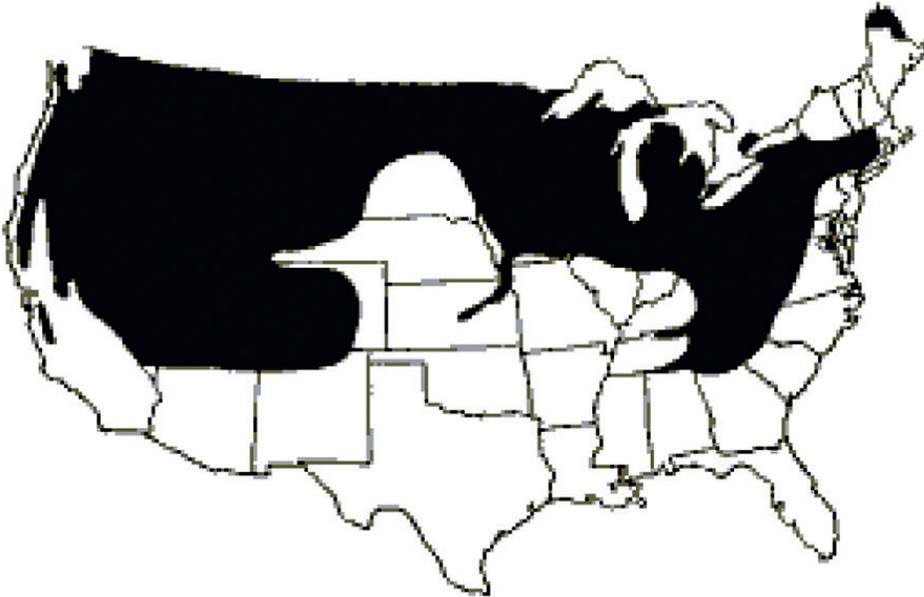
It is estimated that the widespread addition of iodine to salt beginning in 1924 increased IQ in America by as much as 15 points. But along with improved health outcomes, adding iodine to salt also helped boost the U.S. economy. For the generation that followed those born pre-iodization, labor force participation increased by 1% and high school completion rates jumped by 2%, according to a new paper from U.S. researchers at the University of Michigan.

The boost was higher in areas that had particularly high levels of iodine deficiency, and even helped spur the surge in female labor participation in the mid 20th century, as the effects were concentrated among women, according to the paper.

Other factors, of course, from growing societal acceptance of women working outside the home to a booming post-war economy played a part as well, but particularly in areas where iodine deficiency and related disorders were common, the effect was substantial.

The numbers may seem small at first glance, but they're significant. And it's fascinating that something as simple as fortifying a common food ingredient could change people's lives inside of a decade. Incredibly, this is one of the few major public health interventions that was carried out entirely by the private sector. In fact, it was basically one company, the Morton Salt Company, that did the heavy lifting. Iodization was never legally mandated, and it cost the taxpayer almost nothing.

FIGURE 1 Goiter among drafted men in the US in World War I



Black areas: High goiter incidence, i.e. 6 and more goiter cases per 1,000 drafted men.
White areas: Low goiter incidence, i.e. 5 and less goiter cases per 1,000 drafted men.
 Source: McClendon (1939)

The IQ boost, and the likely source of most of the economic gain, come from the fact that children born to iodine-deficient mothers can have significant and irreversible cognitive impairment. Iodine deficiency remains the largest preventable cause of mental retardation in the world. Women are more sensitive to iodine deficiency, and

their babies gain significant cognitive benefits from its consumption, according to the paper.

Iodization was powerful for two reasons. First, iodine deficiency is highly localized in the U.S., as shown in *Figure 1*. The black areas on the map show areas of high goiter occurrence. Second, iodization

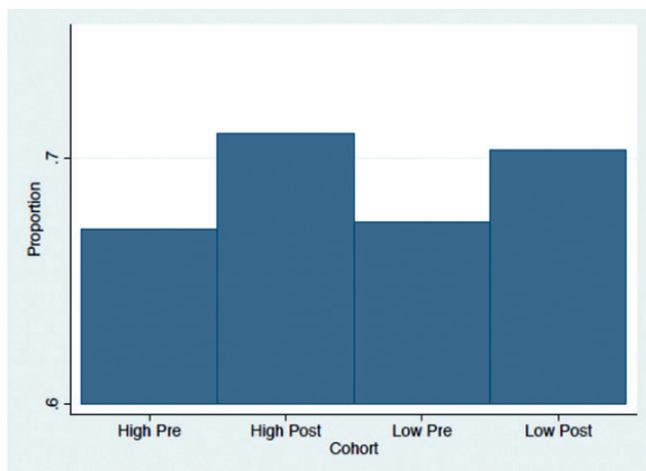
happened rapidly, and only a small amount is required to prevent deficiency. After Morton introduced iodized salt nationwide in 1924, the U.S. went from near-zero to wide availability in just half a decade. Iodine deficiency rates plummeted dramatically and rapidly in areas where it had been high.

That made the effect on “positive wage earning,” defined as earning more than one received in government assistance, and labor force participation particularly dramatic in high-deficiency areas. *Figure 2A* shows labor force participation in high goiter areas (indicating iodine deficiency) before and after iodized salt’s introduction compared to low goiter areas. *Figure 2B* does the same for positive earnings.

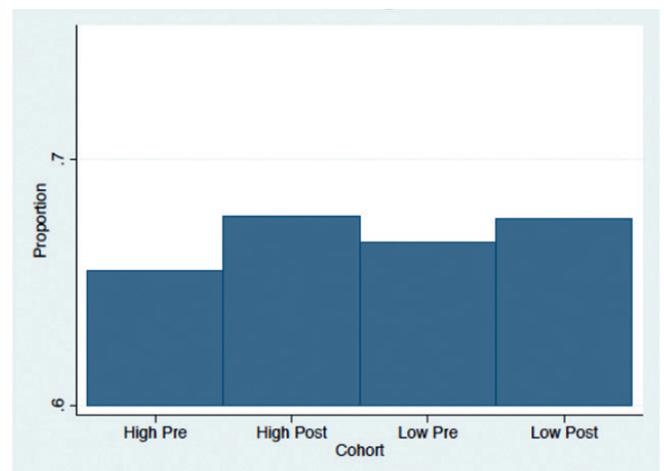
The study results inform the ongoing push for salt iodization in many low-income countries. Blanket iodized salt distribution in fact had a very targeted impact, benefiting the worker on the margin of employment and females, and generating sizeable economic returns at low cost. As big and rapid an effect as iodization had in the U.S., nearly a quarter of the world still doesn’t have sufficient access to iodine. There’s still a great deal of work to be done.

FIGURE 2 Proportion of labor force participants and positive wage earners in high goiter and low goiter areas, before and after salt iodization.

PANEL A: Labor force participation



PANEL B: Positive wage earners



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http://www.arec.umd.edu/sites/default/files/_docs/events/Achyuta%20Adhvaryu-Salt%20Iodization%20and%20the%20Enfranchisement%20of%20the%20American%20Worker-9-25-13.pdf