



SAINTS PERSPECTIVES

Things Exceptional (Nobel Prizes)

Prize in Economic Sciences 2021

The **Royal Swedish Academy of Sciences** has decided to award the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2021 with one half to:

David Card - University of California, Berkeley, USA

“for his empirical contributions to labour economics”

and the other half jointly to:

Joshua D. Angrist - Massachusetts Institute of Technology,
Cambridge, USA

Guido W. Imbens - Stanford University, USA

**“for their methodological contributions to the
analysis of causal relationships”**

Natural experiments help answer important questions for society

This year's Laureates – **David Card, Joshua Angrist** and **Guido Imbens** – have provided us with new insights about the labour market and shown what conclusions about cause and effect can be drawn from natural experiments. Their approach has spread to other fields and revolutionised empirical research.

Many of the big questions in the **social sciences deal with cause and effect**. How does immigration affect pay and employment levels? How does a longer education affect someone's future income? These questions are difficult to answer because we have nothing to use as a comparison. We do not know what would have happened if there had been less immigration or if that person had not continued studying.



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However, this year's Laureates have shown that **it is possible to answer these and similar questions using natural experiments**. The key is to use situations in which chance events or policy changes result in groups of people being treated differently, in a way that resembles clinical trials in medicine.

Using natural experiments, **David Card** has analysed the labour market effects of minimum wages, immigration and education. His studies from the early 1990s challenged conventional wisdom, leading to new analyses and additional insights. The results showed, among other things, that **increasing the minimum wage does not necessarily lead to fewer jobs**. We now know that the incomes of people who were born in a country can benefit from new immigration, while people who immigrated at an earlier time risk being negatively affected. **We have also realised that resources in schools are far more important for students' future labour market success than was previously thought**.

Data from a natural experiment are difficult to interpret, however. For example, extending compulsory education by a year for one group of students (but not another) will not affect everyone in that group in the same way. Some students would have kept studying anyway and, for them, the value of education is often not representative of the entire group.

So, is it even possible to draw any conclusions about the effect of an extra year in school? In the mid-1990s, **Joshua Angrist and Guido Imbens** solved this methodological problem, **demonstrating how precise conclusions about cause and effect can be drawn from natural experiments**.

“Card’s studies of core questions for society and Angrist and Imbens’ methodological contributions have shown that natural experiments are a rich source of knowledge. Their research has substantially improved our ability to answer key causal questions, which has been of great benefit to



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society,” says Peter Fredriksson, chair of the Economic Sciences Prize Committee.

The 2022 Prize Winners:

David Card, born 1956 in Guelph, Canada. Ph.D. 1983 from Princeton University, USA. Class of 1950 Professor of Economics, University of California, Berkeley, USA.

Joshua D. Angrist, born 1960 in Columbus, Ohio, USA. Ph.D. 1989 from Princeton University, USA. Ford Professor of Economics, Massachusetts Institute of Technology, Cambridge, USA.

Guido W. Imbens, born 1963 in Netherlands. Ph.D. 1991 from Brown University, Providence, USA. The Applied Econometrics Professor and Professor of Economics, Stanford University, USA.

Prize Amount:

10 million Swedish kronor, with one half to David Card and the other half jointly to Joshua Angrist and Guido Imbens.

Illustrations

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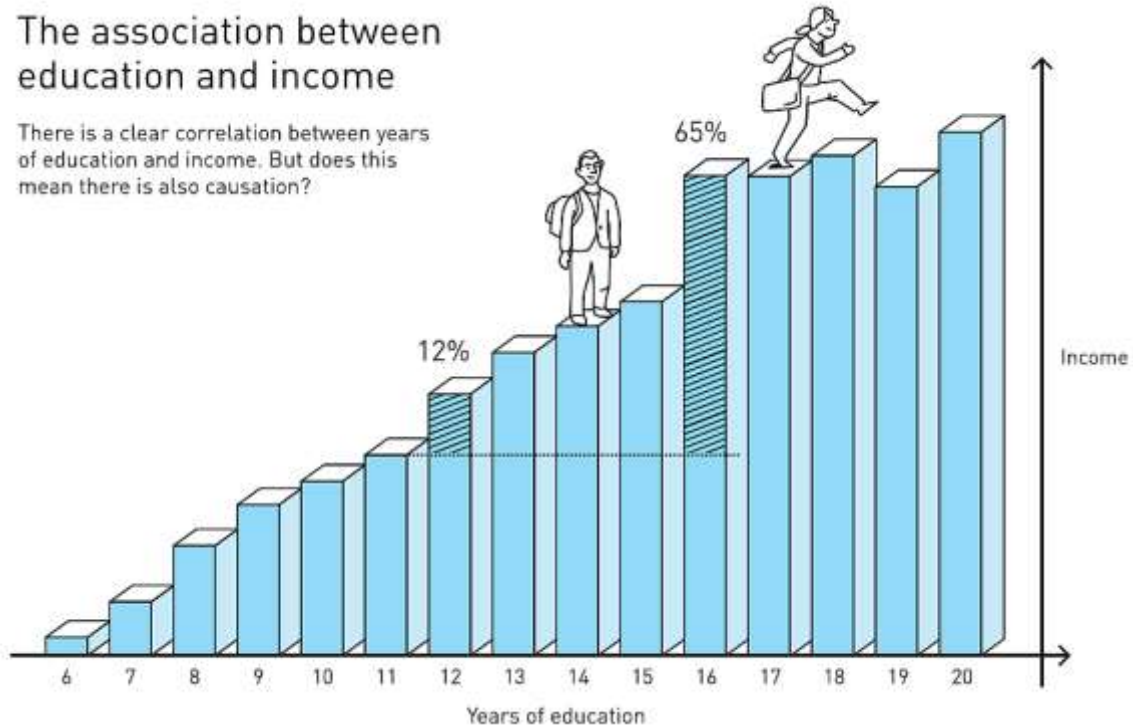


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The association between education and income

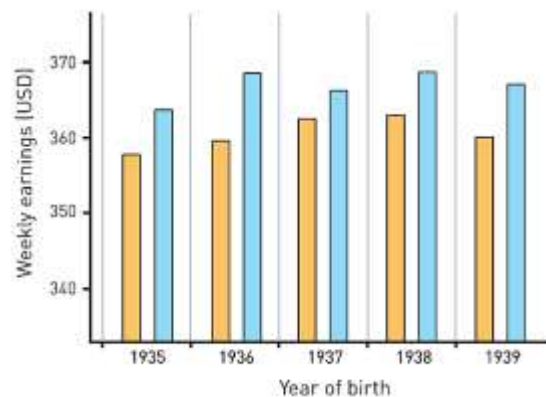
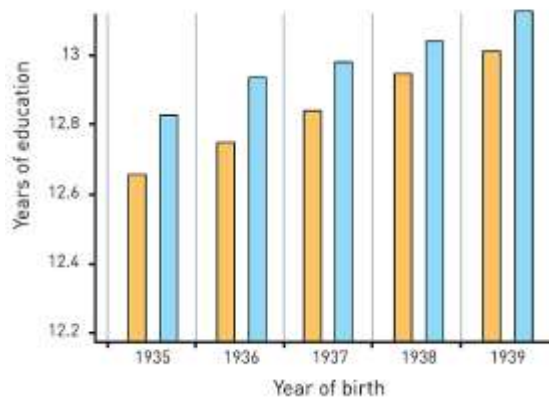
There is a clear correlation between years of education and income. But does this mean there is also causation?



The figure shows that people with 12 years of education have incomes that are 12% higher than those of people with 11 years of education. People with 16 years of education have 65% higher incomes than people with 11 years of education

Additional years of education have a positive effect on income. The figure uses data from Angrist and Krueger (1991).

■ Born in first quarter ■ Born in fourth quarter

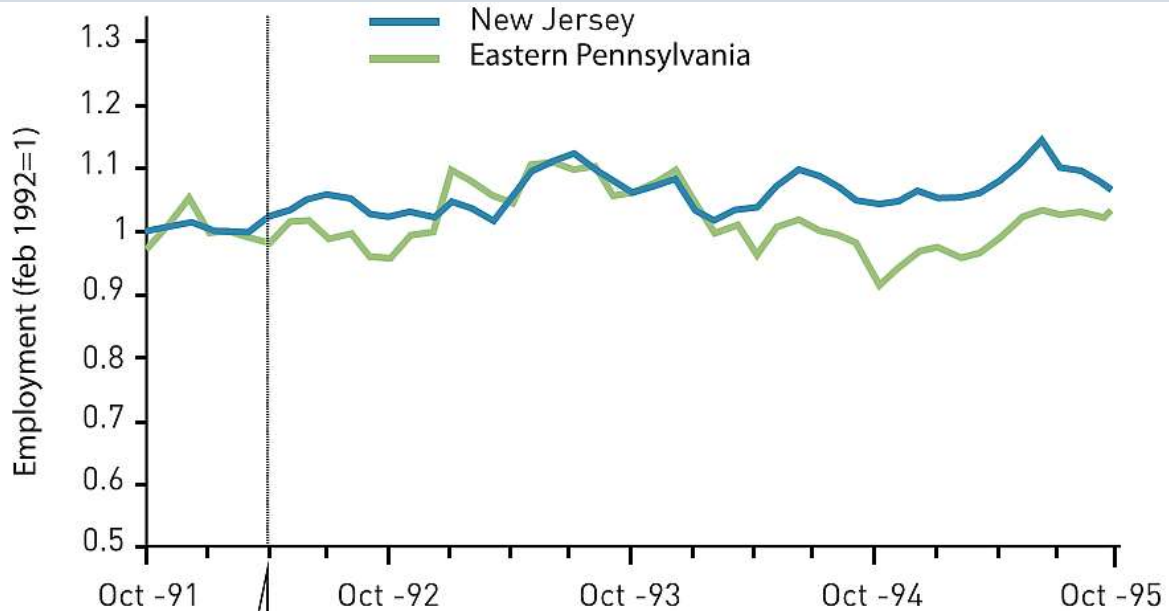


People born late in the year have more years of education and higher incomes



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1 April 1992: The hourly minimum wage in New Jersey was increased from 4.25 dollars to 5.05 dollars. Despite this, employment in New Jersey was not affected.

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● CONTROL GROUP ● TREATMENT GROUP

Card and Krueger used a natural experiment to study how increasing the minimum wage alters employment. The research identified a treatment group (restaurants in New Jersey) and a control group (restaurants in eastern Pennsylvania) to measure the effect of increasing the minimum wage.



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