

Psychological origins of the industrial revolution: why we need causal methods and historians

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Abstract

Did affluence lead to psychological changes such as reduced discounting, and did these changes facilitate the innovation associated with the Industrial Revolution? I argue that claims of this sort are best made when they can be supported by causal evidence and good psychological measurement. When we have neither identifying variation nor adequate measures, the toolbox of psychologists is not useful.

Baumard puts forward a bold hypothesis about the psychological underpinnings of the industrial revolution: the high rate of innovation in England during this period could be due to an “affluence mindset”, consisting of future-oriented time preferences, high levels of optimism and trust, and low levels of materialism. This mindset, in Baumard’s view, was generated by the high levels of affluence attained in England at the dawn of the industrial revolution. Thus, this account makes two causal claims: first, the affluence experienced by England at the dawn of the industrial revolution had particular psychological consequences; second, these psychological variables affected innovation during the Industrial Revolution.

Unfortunately, the evidence for this mechanism is weak. In arguing for a causal effect of affluence on psychological outcomes, Baumard draws on recent work on the psychology of poverty, which suggests that poverty leads to short-sighted time preferences (Haushofer & Fehr, 2014, 2018) and has other adverse impacts on cognition (Mani, Mullainathan, Shafir, & Zhao, 2013; Mullainathan & Shafir, 2013), possibly through psychological mechanisms such as stress (Chemin, Haushofer, & Jang, 2016; Haushofer, Jang, & Lynham, 2015). However, whether any changes in psychological variables actually occurred during the period in question, and whether they are truly causally responsible for changes in innovation, is far from clear. In principle, methods exist that allow teasing out causal effects from historical data: natural experiments can make it possible to use instrumental variables or regression discontinuity designs to study the effects of historical events on psychological outcomes. For instance, Nunn & Wantchekon (2011) use distance from the coast as an instrument for the number of slaves taken from various regions in Africa, and find that historical slave abductions reduce present-day trust in these areas. However, three factors distinguish efforts such as this one from the evidence Baumard presents.

First, in instrumental variables analyses such as that by Nunn & Wantchekon, care is taken to identify exogenous changes in the independent variable that allow making causal statements about the effects of this variable on the outcome. In Baumard's account, all we are told is that affluence, psychological outcomes, and innovation changed, possibly in sequence. Causality remains a matter of speculation.

Second, in Nunn & Wantchekon's work, the psychological data comes from direct present-day survey evidence on the variables of interest. In contrast, Baumard makes claims about psychological outcomes *in the past*, for which he has no or only indirect evidence. This lack of data necessitates some adventurous choices, such as using reading ability as a measure of time preferences. I believe that this is the point where we must recognize the limitations of our methods: When we have neither good (quasi-)experimental variation nor good outcome measures, the toolbox of psychologists is no longer useful. This is a task for historians, who are skilled in finding textual evidence of psychological states in primary sources of the time. We should yield the field to them.

Finally, and relatedly, in Nunn & Wantchekon, distance from the coast arguably affects present-day trust only through the number of slaves taken in the past, rather than through other factors. This so-called "exclusion restriction" is the crucial ingredient of instrumental variables analyses that enables causal statements about, in this case, the effect of the number of slaves taken on present-day trust. In Baumard's mechanism, it is likely to be violated: a change in affluence, even if it does affect psychological variables, would almost certainly also affect innovation through mechanisms other than these psychological variables. Indeed, it's easy to imagine a change in innovation following an increase in affluence that has nothing to do with psychological variables at all. Take again the increase in human capital acquisition that followed the increase in wealth. Baumard wants us to think this was caused by a change in preferences. But isn't it equally or more likely that preferences stayed the same, but people were now in a position to implement them? Put differently: an increase in reading ability might have nothing to do with patience, but simply be the result of education becoming affordable.

These difficulties in attributing changes in outcomes to psychological variables, even if they are perfectly observed, illustrate why the psychology of poverty literature studies the impact of poverty and its consequences in the lab rather than in the field: as soon as the economic conditions of an experimental group and a comparison group are different, any differences in observed economic behaviors such as investment, time preferences etc. could reflect not a true change in preferences, but a change in material circumstances allowing preferences to come to the fore that were there all along. The psychology of poverty literature uses lab paradigms which hold constant economic conditions to avoid this confound (e.g. Haushofer & Fehr, 2018). With historical relationships, we do not have the luxury of laboratory-like control, and thus any observed changes in economic behaviors might as well stem from changes in the budget constraint rather than true changes in preferences. This distinction is important because it matters whether we think of the psychology as changing or constant. If the psychology is changing, we truly need to explain the industrial revolution in psychological terms. If, on the other hand, the root cause is a change in the budget constraint, the best explanation is one in economic terms.

How can psychologists study the psychological origins of historical events? First, use empirical methods that allow causal statements, such as instrumental variables and regression discontinuity designs. Second, work with historians to obtain credible measures of psychological variables in the past. Until then, we should stay in the present.

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