Title: Noise, Cognitive Function, and Worker Productivity

Abstract

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Cognitive science suggests noise pollution in the developing world might reduce productivity by impeding cognitive function. Yet little evidence exists on the economic importance of this channel. I fill this gap with two experiments in Kenya. In the first, I demonstrate the importance of noise pollution by randomly exposing participants in a textile training course to engine noise while they complete an incentivized production task. An increase of 10 dB (perceived as twice as loud by human ears) decreases output by approximately 5%. In the second experiment, I explore the underlying mechanisms by randomly exposing individuals from the same population to engine noise while they complete cognitive tests. The same noise change decreases cognitive function by 0.05 standard deviations. I then combine the results in a split-sample IV to estimate a return of 103% for every one standard deviation in cognitive function. Finally, I assess the potential for market forces to alleviate these effects by allowing participants in both experiments to pay to work in quiet while varying whether they are being paid based on their performance. I find productivity losses are likely to persist in equilibrium because willingness to pay for quiet is not affected by the wage structure. This suggests participants do not internalize the productive effects of noise.