Teacher Incentives

An Example Proposal for the Final Assignment of EIO2 by JA & TK

Duflo et al. (2012) used experimental data to study the effects of monitoring and incentive pay on teacher absence and learning in India. In the experiment's treatment group, daily attendance is closely monitored and teachers earn $\pi(l) = 500 + 50 \cdot \max\{0, l - 10\}$ rupees at the start of the month for l days of work in the preceding month. Duflo et al. first studied the effects of monitoring and incentive pay using simple experimental comparisons between the treatment and control groups (the latter did not get the same level of monitoring nor incentive pay). Then, they estimated a daily labor supply model using data on the treatment group, which allows to extrapolate the experimental findings to other wage schedules than the experimental one.

We would like to predict teacher's labor supply under alternative wage schemes, such as $\pi(l) = 700 + 60 \cdot \max\{0, l - 15\}$.

To this end, we will use a simplified and slightly adapted version of Duflo et al.'s model. In particular, we focus on a teacher's work decisions in a single month. On each of the month's 26 work days $t = 1, \ldots, 26$; the teacher decides to go to school ($d_t = 1$) or not ($d_t = 0$) based on the number of days l_t already worked, the number of days z_t remaining in the month, and a vector of independent and mean-zero type 1 extreme value utility shocks $\varepsilon_t \equiv (\varepsilon_{0,t}, \varepsilon_{1,t})$; earning utility $(1 - d_t)\mu + \varepsilon_{d_t,t}$. On the model's final day, day 27, the teachers earns $\pi(l_{27})$, which gives utility $\gamma\pi(l_{27})$. The teacher makes choices that maximize the expected sum of utilities, without discounting (this and the linearity of utility justify that we ignore the nonwork days between the 26 work days of the model). The result is a version of the basic model without serial correlation in Duflo et al. (2012, Section III) with linear utility, extreme value errors, and a zero risk of being fired. Note that we used slightly different notation.

We will simulate and use data on $(d_1, \ldots, d_{26})$ for a cross-section of teachers.

References

Duflo, E., R. Hanna, and S. P. Ryan (2012). Incentives work: Getting teachers to come to school. *American Economic Review 102*(4), 1241–78. https://www.aeaweb.org/articles?id=10.1257/aer.102.4.1241. 1