The Distributional Impacts of Real-Time Pricing

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Abstract :
While the benefits of Real-Time Pricing (RTP) of electricity are well known, less is known about their distributional impacts. We examine the distributional impacts of RTP by leveraging on a country-wide field experiment which started in 2015, when RTP became the default option for most Spanish households. Access to hourly consumption data during more than a year for over 4M households allows us to compute the bill impacts of the switch from flat rates to RTP. By examining the households' sociodemographic characteristics, we document who wins and who loses from RTP. We propose a two-step approach to infer consumers' unobserved income combining detailed household data with information of the distribution of income at the zip-code-level. Our results suggest that the distributional impacts of RTP were quite small and, once household income heterogeneity is accounted for, progressive. We also find strong differences in the impacts across regions, even when controlling for income. Last, while households significantly reduce their electricity bills by being more price responsive, the distributional impacts across income groups depend on the correlation between elasticity and income.