Do Combined Residential Energy and Water Bills lead to Combined Consumption and Price Responsiveness, too?

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ABSTRACT

The effect of water and energy prices on their respective residential demands have been studied separately, but little attention has been given to the effect of energy prices on household water use and vice versa [3]. There is a direct relationship between water and energy consumption for a considerable portion of household activities (e.g. dishwashers and washing machines) and energy for water heating alone accounts for around 18% of a home's energy bill [1]. To address this relationship among prices and consumption patterns, I use a household-level panel data set that includes homes subscribing to different combinations of water, electricity and natural gas services from a single large, municipal utility. The recent literature focuses on which price signal households respond to: marginal price or average price? [2, 4, 5] Limiting the scope to own-price sensitivity ignores the significant functional connection between water and energy use and likely generates flawed estimates. Furthermore, these households receive one bill for all services rendered; combined bills likely exacerbate the relationship between energy and water price responsiveness and consumption since the price signals are delivered simultaneously. Preliminary analysis shows that own-price elasticities and cross-price elasticities vary depending on (1) the proportion of bill attributed to a given utility service and (2) the specific bundle of services subscribed to by the household.

References

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