

Price Regime Effects on Residential Water Demand in Canada

by

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Abstract

Water is a basic necessity of human life; it sustains the integrity of ecosystems, makes critical ecological functions possible, and is a key requirement of agriculture, industry, energy production and recreation. Covering nearly three-quarters of the earth's surface water seems abundant, yet this perception is deceptive. Hydrologic systems have limited carrying capacities to meet human and environmental needs. Nevertheless, Canadians use water profligately: in 2009 Canadians' average water consumption was one of the highest in the developed world, more than twice that of Europeans' and second only to that of Americans' (Jolicoeur, 2009). The purpose of this paper is to investigate how pricing structure and the price of water influence residential water consumption in Canada. Using least squares techniques, this paper estimates the effects of Canada's four traditional tariff schemes on residential water demand. The paper finds three significant policy implications. First, Canadians respond to pricing regimes and the introduction of volumetric rates in communities not already using them. The choice of municipal rate type has the potential to curtail residential demand by nearly 40% bringing average water consumption more in line with that of other OECD countries. Secondly, the decision to implement volumetric tariffs in communities using flat rates is not solely based on population size or dispersion, but rather on political motives. For example, one expects most large cities in Canada to use some form of metered pricing, but most dwellings in Vancouver are billed flat rate charges. Lastly, at current prices Canadians are more responsive to price structure than price. Future work could entail an investigation into whether or not customers fully understand rate structures, or a behavioural component considering how cognitive and emotional biases enter the decision making process.