SNS Research Brief 120, November 2026

SNS

The Right Price for Water: How Pricing Can Promote More Efficient Water Use and Better Crisis Preparedness

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Sweden has long taken its water supply for granted. Recurrent droughts, falling groundwater levels and an ageing distribution network are now putting drinking water provision under growing pressure. Water is also an energy issue: hot water accounts for about one third of household water use and roughly 15 percent of residential energy use. In this SNS report, Mikael Elinder, Professor of Economics at Uppsala University, argues that pricing should play a more active role in Swedish water management, both to improve efficiency in normal times and to strengthen preparedness when supply falls short.

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Why current pricing is a problem

Municipalities are responsible for water supply and, under the Water Services Act, may not charge more than their costs. Most use a two-part tariff: a fixed charge covering infrastructure costs and a low charge per cubic metre, a structure that works well in normal times. During a shortage, however, the cost of supplying additional water can rise sharply, while the volumetric charge stays the same. The result is excess demand, which is currently handled through appeals for restraint and irrigation bans. Such measures are blunt, hard to enforce and apply equally to all, regardless of how much users value the water.

A second problem concerns the roughly half of the population living in multi-dwelling buildings. Most apartments lack individual metering and billing, and water costs are included in the rent, usually divided according to floor area. Households therefore face a marginal cost of zero, even for hot water, which is costly to heat. The result is a free-rider problem: total use exceeds what is socially desirable, and frugal households subsidise heavy users. Fewer than 25 percent of Swedish apartments have individual metering and billing of hot water.

What does the research say?

International research shows that households respond to water prices, although estimates vary widely. Softer instruments, such as information on one's own consumption and social comparisons with neighbours, typically reduce use by only 2–7 percent, and the effects tend to fade over time.

New Swedish evidence comes from a study of the municipal housing company in Kumla, which introduced individual billing of hot water in more than 500 apartments between 2012 and 2016 (Elinder, Hu, Liang and Minckley 2025). The staggered roll-out allows the causal effect of the price to be identified. The main findings are:

- Hot water use fell by 18 percent, almost immediately, and the reduction persisted throughout the follow-up period.
- The effect was driven by the price, not by information. Meters had been visible for months before billing started, with no notable change in consumption.
- The percentage reduction was similar across households regardless of initial consumption or apartment size, which means that heavy users accounted for most of the savings.
- The reform was roughly cost-neutral for the average household, as rents were lowered correspondingly.
- The investment is socially profitable even in normal times: each krona invested yields about 1.17 kronor in efficiency gains, plus savings in water and energy and lower emissions. During shortages the returns are even higher.

What stands in the way?

Two obstacles prevent a pricing system that reflects actual water availability. The first is technical: individual metering is far from universal in multi-dwelling buildings, and many detached houses still have meters that are read only once a year. The second is institutional: the Water Services Act gives municipalities unclear and largely untested scope to let charges reflect temporary scarcity. A higher volumetric charge during shortages need not mean higher total payments, since the fixed charge can be lowered correspondingly or the revenue returned to subscribers.

Policy recommendations

1. Accelerate the roll-out of individual metering and billing in multi-dwelling buildings, with subsidies where the investment is not commercially viable.
2. Ensure that metering and billing systems for detached houses can handle time-varying prices, prioritising municipalities at high risk of water shortage.
3. Clarify municipalities' scope to use scarcity pricing, for example through a temporary scarcity surcharge that is triggered by a declared shortage, is limited in time and has its revenue returned to subscribers, with compensation for low-income households.
4. Ensure transparency and public acceptance through clear communication and fair compensation, as in Kumla.

Better water pricing is thus a matter not only of efficiency but also of preparedness. In a crisis, whether caused by drought or damaged infrastructure, pricing is the most effective tool for directing water to where it does the most good.

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