



Assessing the impact of full cost recovery of water services on European households



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ABSTRACT

We assess the impact of implementing the full cost recovery (FCR) principle for water services on European households. This assessment includes three dimensions. First, we measure how household water consumption reacts to the price change induced by implementing the FCR principle. Second, we provide a measure of the resulting household welfare losses. Third, we evaluate how household water affordability is impacted. This assessment which relies on a household water demand function approach has been conducted for 9 European countries (Austria, Bulgaria, Czech Republic, Estonia, France, Greece, Italy, Portugal and Spain). For most of these countries, we show that implementing the FCR principle does not lead to substantial water affordability issues. Bulgaria (and to a lesser extent Estonia and France) is one exception since poor households (i.e. households belonging to the first income decile) have to devote more than 3% of their income for paying their water and wastewater bill under a FCR regime. The fact that water affordability may become an issue under FCR for some countries gives some ground for public authorities to develop specific policies targeted to poor households.

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1. Introduction

Full-cost recovery (FCR) of water services, in particular through use of efficient water prices, is considered as a cornerstone of any sustainable water management policy [1]. However it is well recognized, both in the academic literature and in most of national legislations, that implementing efficient water prices may raise social and redistributive concerns which have to be addressed by public authorities. In Europe for instance, Article 9 of the Water Framework Directive indicates that Member States may have regards to the social, environmental and economic effects of the recovery of costs.

Some previous works have then specifically focused on the tradeoff between efficiency (i.e. maximization of the social welfare) and equity of water pricing. Hajispyrou et al. [2] have

analyzed the welfare effects of block price systems for residential water use in Cyprus. They find that the heterogeneous regional block price systems induce strong price distortions that cannot be justified based on an efficiency argument. Garcia and Reynaud [3] have questioned the efficiency of water prices in France. They show that the pricing scheme used in France has a detrimental impact on water affordability for small water users, that is, in fact for low-income households. García-Valiñas [4] has investigated the distributional impacts of water pricing in Spain. This paper considers Ramsey prices, that is prices to be used by a monopoly wishing to maximize the total welfare under the condition of non-negative profit. In spite of being frequently used, García-Valiñas [4] shows that Ramsey pricing goes against the equity principle. García-Valiñas [4] proposes then to use a pricing scheme derived from Feldstein's works where the Ramsey pricing rule is distorted in order to take into account some redistributive objectives of public authorities. Lastly, Ruijs [5] explores the distribution and welfare effects of changes in

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block price systems in the Metropolitan Region of São Paulo, Brazil. Ruijs [5] shows that there is a tradeoff between efficiency and redistribution. Compared to a flat price system, a pro-poor price system may result in a lower total welfare, but with a higher individual welfare for the poor.

None of the above papers addresses the effect of implementing the FCR principle on water prices. This will be the central issue of our cross-country analysis. More specifically, we propose here to assess the impact of implementing the FCR principle for water services on European households. We will first measure how household water consumption is expected to react to the price change induced by implementing the FCR principle. Second, we will provide a measure of the resulting welfare losses for households. Lastly, we propose to evaluate how water affordability for households is impacted. Measuring water affordability for targeting pro-poor policies has been recognized by several international organizations as an important objective for public authorities. For example, in the 2006 Human Development Report, Watkins [6] suggests that any pro-poor water access policy should include sustainable and equitable cost-recovery measures and that affordability is one of the keys to equity. From a methodological point of view, our assessment will rely on a household water demand function approach conducted on some selected European countries. This is the first time that such a cross-country analysis is undertaken.

The remaining of this paper is organized as follows. In Section 2, we review the literature having addressed the FCR principle for water services with a specific focus on Europe. Section 3 is devoted to presenting our methodological approach. In Section 4 we conduct a cross-country assessment of the FCR principle for water services for households and we conclude by deriving some policy implications.

2. FCR of water services in Europe

2.1. Economic rationality of the FCR principle

FCR of water services is considered as a cornerstone of any efficient and sustainable water management policy [1]. This view is supported by several arguments. First, FCR of water services may find strong roots in the welfare economics literature which has emphasized for a long time that for maximum economic efficiency, prices should be set equal to the marginal (opportunity) cost. The allocative efficiency objective can also be advocated. Allocative efficiency concerned with the classic economic problem of allocating scarce resources across users. Allocative efficiency requires that all users face a clear signal regarding the value of water services. This can only be achieved if all costs are recovered through water pricing. Second, the financial sustainability of operators is a requisite for the sustainable operation of water services [7]. Key issues are the level of revenues and their stability or predictability. Because other financing instruments (taxes and transfers) are volatile and beyond the reach of the water service, cost recovery through tariffs is considered a significant driver of the financial sustainability of water operators. Third, as

well as creating an incentives for more efficient use of water, FCR can be derived from the polluter pays principle. Indeed, FCR might also be seen as a mechanism for producing revenue to rectify the cost of environmental damage arising from water use [8]. As discussed by Howarth [8], the recovering of environmental and resource costs of water services raises however some implementation difficulties, in particular related to the correct measure of these costs.

2.2. FCR in the European legislation

The full cost recovery principle is one of pillars of the Water Framework Directive (WFD). In Article 9 (1) it is stated that “Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs, having regard to the economic analysis conducted according to Annex III, and in accordance in particular with the polluter pays principle.” As stressed by Howarth [8], it should be however noticed that the cost recovery is formulated here as a relatively weak obligation upon Member States. The requirement to “have regard to” indicates that a high level of national discretion is in fact allowed.

The second element in Article 9 (1) introduces a more substantial legal obligation: “Member States shall ensure by 2010 that water-pricing policies provide adequate incentives for users to use water resources efficiently, and thereby contribute to the environmental objectives of this Directive. Member States shall ensure by 2010 an adequate contribution of the different water uses, disaggregated into at least industry, households and agriculture, to the recovery of the costs of water services, based on the economic analysis conducted according to Annex III and taking account of the polluter pays principle.” Article 9 stresses then the need for users (that is industries, farmers, and households) to be charged a price that reflects the full cost of the water services they receive.

Article 9 of the WFD has been highly debated within the European context. First, the term “adequate contribution” introduces some form of discretion for Member States. Indeed, what constitutes an adequate contribution may depend upon local considerations including the price elasticity and the sensitivity of different users to different levels of pricing [8]. Second the scope the term “water services” is also subject to controversies. Recently, the European Court of Justice has concluded that the WFD environmental objectives not necessarily imply that cost recovery should be applicable to all water-use activities mentioned in Article 2 (38) of the WFD, and that cost recovery for water services is only *one* of the instruments for Member States for qualitative management of water in order to achieve rational water use.¹

Implementing the FCR may raise sensitive social and economic issues. Indeed a stringent application of FCR for water services would be likely to affect their affordability, particularly for low-income groups and rural communities.

¹ Judgment of the Court (Second Chamber) of 11 September 2014. European Commission v Federal Republic of Germany. Case C-525/12.

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