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Seminar: Investments in water network: a normative analysis of local public utilities, Prof. Alberto Cavaliere, 27 February 2015, 10:30-12:15, Via Conservatorio 7, Milano

There are a lot of empirical works about the hydro-sector, but there are only a few theoretical works about it. We concentrate on investments, which is the most important problem in the water-sector of industrialized countries. They are necessary to limit the leaks, which amount to the 20 % of total water supplied in France, whereas they have been almost totally erased in Germany. To have null leaks is not necessarily optimal, because the investments needed to reduce them are very onerous and an evaluation about the costs and the benefits of such an operation is necessary.

If a water supply network leaks the variable costs increase, but there are also social costs: seepages can pollute water which had been purified before; more energy is needed to pump more water, but more energy means more pollution; finally, if the pressure decreases, the quality of the service worsens.

There are different ways to face the investments problem: UK is the only case of complete privatisation because of the impossibility for the government to afford the expenses imposed by the EU to improve the service; in France there are agreements between public and private sectors with the majority of investments provided by the State; in the USA there are a lot of private managements but the overwhelming majority of the total share of water is supplied by public utilities; eventually in Germany and Italy there are mixed managements, which are former public utilities now made corporations with a public majority.

Almost everywhere in the world the management of the hydro-sector is a local management, but there are 3 main organizational models: the first is the Municipalization, which is a local and public water management; the second is the Corporatization, generally followed by a partial privatisation; finally there is the full privatisation. Generally we can say that the public presence in water-sector is very important.

The unique regulatory mechanism for all those models is the price-cap. It consists of a fixed price imposed by a central authority. There is a problem in the determination of the price-cap: there is an informational asymmetry between the regulator and the local management because the regulator doesn't know the real level of efficiency of the private enterprise.

In a monopoly, if the price-cap is fixed at the same level of the marginal cost, a loss equal to the fixed costs is generated; therefore loss can be covered by public money transfers or by fixing the price-cap at the same level of the average costs. If the private enterprise lies about his costs and declare that they are superior to the real costs, the regulator can be induced to fix a higher price-cap: that grants the company a rent due to the difference between the price imposed and the real costs of the company. This is an efficiency problem because this leads to the production of a smaller quantity at an higher price than the optimal one.

The solution can be to make it indifferent for the company to lie or not about his costs by providing to the enterprises with lower costs a public money transfer. That although presents a problem: the public transfer is financed by taxes paid by consumers and so the social benefit is reduced.

The aim of the price-cap is to reduce the costs, but an economic effort is needed to reduce them. If prices are bound to the costs, the companies don't have incentives to reduce the costs, but if the price is fixed, all the reductions of costs result in a growth of incomes.

Generally, it's better to finance the investments by increasing prices than by using public money transfers because those have a twisting effect due to the cost of the public capitals, whereas the increase of prices is not twisting (due to the rigidity of the demand). If the company is private it cannot resort to public money and it cannot raise prices because of the price-cap, so it only can resort to capital increases by privates.