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The possibility of a water market in Brazil[☆]

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Abstract

The paper examines the possibility of a water market in Brazil. The US market, probably the oldest and most well-documented one, is initially analyzed. In the American West, over the past 140 years the so-called “water rights” can be sold or rented. However, mainly due to high transaction costs, only recently the trading became regular. Analyzing the Brazilian case, it is clear that the country does not have the problem of water availability that the American West has. On the other hand, the Brazil has a precarious infrastructure. To implement a water market, the first step would be to allow the trade of the grantings of right to the use of water. It is argued that this would be an opportunity to force users to invest in water infrastructure. Thus, a model is built to study the conditions under which the market would lead to a Pareto superior situation.

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Keywords: Water right; Water market; Brazilian water law

Resumo

O artigo examina a possibilidade de um mercado de água no Brasil. O mercado dos EUA, provavelmente o mais antigo e bem documentado, é inicialmente analisado. No Oeste Americano, nos últimos 140 anos os chamados “water rights” podem ser vendidos ou alugados. Todavia, devido principalmente aos altos custos de transação, apenas recentemente o comércio se tornou regular. Analisando o caso brasileiro, fica evidente que o país não tem o problema de disponibilidade hídrica que o Oeste Americano tem. Por outro lado, o Brasil tem uma infraestrutura precária. Para implementar um mercado, o primeiro passo seria permitir o comércio das outorgas de direito de uso de água. Argumenta-se que isso seria uma oportunidade para forçar os usuários a investir em infraestrutura hídrica. Assim, um modelo é construído para estudar as condições em que o mercado levaria a uma situação Pareto superior.

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Palavras-chave: water right; mercado de água; lei das águas do Brasil

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1. Introduction

In 1997, the Brazil established a national plan to manage water resources with three main elements¹: the granting of right to the use of water, the billing for the use of water and the basin committees. Under this approach, the water users need permits from the government, and they must finance the watershed preservation. The aim of the basin committees is to monitor the grantings, establish the payments, and invest in water conservation.

In 2015, the Organization for Economic Cooperation and Development (OECD) published an evaluation of the Brazilian plan. The report indicates that the users rarely pay for the water, as outlined by the law – in fact, only 10 in 223 committees had implemented the policy by 2016 (ANA, 2017). In conclusion, the report suggests that to allow the trade of the grantings of right to the use of water to start a market is an alternative for the plan, and the taxation on trading could finance watersheds maintenance. Although this is not a new discussion in Brazil: a law project with this purpose was debated between 2002 and 2013 in the National Congress; and in 2016 a new law project (#4452/2016) was proposed and it is currently being debated.

The market of the grantings of right to the use of water resources has been promoted since Roman times. Scott and Coustalin (1995) show that the idea came up several times throughout history, motivated by many different causes, but always as to balance different uses in dry times and in arid places. Today water markets in some form exist in the United States (US), Mexico, Australia, South Africa, Chile, India, China, Israel, Portugal, and Spain.

Among these countries, the US case is probably the oldest and best documented. According Anderson and Hill (1975) and Littlefield (1983), the modern idea of water market started in the 1850s with the California gold rush, where river fractions were allotted by the miners themselves by date of first use, giving them an early form of the so-called “water rights”. At the end of the gold rush period, farmers started buying these water rights, and during the following years they started a primitive marketplace among the settlers. During the 20th Century, activity in this market was reduced by the popularization of groundwater exploitation as a substitute source. However, in the later years, it has restarted because there are not more options to supply water in the American West.

The literature in economics began to take a special interest in this issue in the 1980s. There seems to be a consensus that the market is a good way to force the efficient water use under a scarcity situation, provided that there are ways to reduce transaction costs and negative externalities (Burness and Quirk, 1980; Howe et al., 1986; Swaney, 1988). In this sense of scarcity, the data show that Brazil has a “functional” lack of water, i.e., the country has a considerable lack of water infrastructure and does not have an issue of availability. In fact, Brazil has 12% of the world’s fresh water, but many cities suffer from water shortages regularly because there were not ways to adequately management the watersheds (OECD, 2015; ANA, 2017).

Given the possibility of a water market in Brazil, or at least a more frequent discussion of the idea, this paper has two purposes. First, it produces a literature review to contribute to a clearer debate about this issue. It points out what has been learned about the historical development of water rights, the formation of a marketplace, and the situations in which it has become beneficial to society. Second, this article analyzes situations in which to concede a kind of property right to the granting of right to the use of water can be an opportunity to solve water problems in Brazil – for this, an economic model is developed to study how the market would lead to a “Pareto superior” situation.

In this way, the second section presents the water market development and some current data, with special attention to the US case. The third discusses the hydric situation and the imminence of the water market in Brazil. Final remarks conclude the paper.

2. The US water market

Gleick (1993) describes many conflicts related to droughts, and the reason for this is quite simple: water is a fundamental resource, integral to all ecological and societal activities, including food and energy production, transportation, waste disposal, industrial development, and human health. In any inhabited place where water becomes scarce for a long time, some kind of human conflict emerges. Among these quarrels exists a special case in the US during the second half of 19th Century. It is emblematic because from it comes up with the idea of the so-called “water rights”

¹ See the history of the Brazilian Water Law in ANA (2002).

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