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The papers at the January 2012 CCRP Research Workshop covered a range of areas in both competition policy and the regulation of infrastructure industries. This special section includes three papers on recent regulatory-related discussions in three industries:

- (i) aviation – specifically on airport regulation and how it is affected by supply-side substitutability;
- (ii) water supply – specifically on how to establish a value of water in circumstances of current and/or prospective water resource shortages; and
- (iii) electricity – specifically on investment appraisal methods and potential regulatory requirements for hydro-pumped storage facilities given the growth in intermittent renewable generation.

## **1 Airport Regulation – Paper by Volodymyr Bilotkach and Juergen Mueller**

The issue of the economic regulation of airports has attracted the interest of policy makers and academics alike in recent years. A considerable amount of the literature is dedicated on the issues surrounding the single and the dual till approaches used in the price regulation of airports, including which approach better promotes the interests of passengers. However, the question most frequently posed is whether the ex-ante regulation of airports is necessary in the first place.

Recently an alternative (albeit for the time being complementary) approach to regulation has been slowly forming in the form of constructive engagement. In the UK, the Civil Aviation Authority (CAA) argues that there is a good case for seeking to enhance the role for airport/airline engagement in shaping and informing the outcome of the airports' review by using the output of Constructive Engagement in 2012. Indeed the latter will be one of the key inputs to the CAA's determination of regulation at Heathrow airport after 2013 in the setting of aeronautical charges including landing charges. This highlights the importance of the airport-airline relationship where the airlines who use the airports and pay the charges are well-informed and well-resourced consumers who can negotiate with competing airports from a position of similar bargaining strength.

The paper by Bilotkach and Mueller also looks at aviation markets from the point of view of the airlines and explores whether there is supply side substitutability that the airlines can use to control the potential market power of airports. Importantly, the role of passengers is also included in their market definition analysis. They address this issue by differentiating between two different types of passengers: (a) origin-and-destination passengers and (b) transfer passengers. They consider whether these two different types of passengers represent different markets in terms of both competing airports and geographical boundaries. The focus of their study is the Amsterdam Schiphol airport.

The authors argue that Schiphol airport cannot compensate for the higher charges imposed on the first type of passengers by increasing its share of transfer passengers.

Bilotkach and Mueller offer as evidence for this the imposition of a passenger ticket tax in 2008 that applied only to origin-and-destination passengers. They show that, as a result of this ticket tax, the airport experienced a heavy loss of such passengers in the second half of 2008. However the number of transfer passengers (who were not affected by this tax) remained virtually unchanged. This implies that the provision of infrastructure to the airlines serving the former type of passengers is, in competition policy terms, a separate market from that providing infrastructure to airlines serving transfer passengers.

Using this market definition, they show that the airport faces only modest competition from nearby airports as regards the provision of infrastructure to airlines serving origin and destination passengers. Similarly, the airport seems to enjoy a dominant position on certain segments of the transfer passenger market. However, the existence of substantial discounts offered to transfer passengers suggests that the ability of the airport to exercise its potential market power in this second market is more limited when compared to that in the origin and destination segment.

Overall, Bilotkach and Mueller conclude that large airlines which are the most important customers of Schiphol airport have only limited options in terms of available supply side competition.

## **2. Water Supply – Paper by Jon Stern and Jonathan Mirrlees-Black**

There has been growing interest in the UK, Australia and elsewhere in the use of market-based pricing methods in the water supply industry to help address current and prospective water shortages. This is the theme of the paper by Stern and Mirrlees-Black. In particular, their paper focuses on how best to establish a ‘value of water’ in circumstances where some parts of England and Wales have (or will have) a sufficiently high demand for water to cause significant environmental damage in the absence of much higher volumes of water imports from water surplus areas – even with active demand-side programmes.

The paper suggests that, in the absence of well-functioning upstream water markets, the value of water should be set by combining, (a) the estimated forward looking LRMC (long-run marginal cost) of water; with, (b) some measure of the scarcity-based water abstraction price to cover environmental externalities. The practical implications of these recommendations raise a number of issues, the most important of which are discussed in the paper.

As in many other domains, the England and Wales water supply industry operates as a set of geographically based vertically integrated companies with exclusive franchise rights in their area. There is little retail competition and no wholesale competition so that trade volumes (either in bulk water or in water licenses) are very low. Introducing a resource cost for (raw) water into this framework raises major issues both about the medium term industrial, market and pricing structure as well as the structures most appropriate for the long-term.

The paper focuses primarily on the medium term (i.e. for the next 10-15 years) and, in particular, how best to create strong incentives to current and future industry participants to build the right infrastructure at the right price. For the medium-term, the paper recommends the development of a bulk supply tariff (BST) to reflect the marginal costs of future water supplies, including scarcity costs, together with a set of network access prices and actions to promote inter-company network interconnection.

The paper argues that the partially unbundled proposed model has strong internal incentives to develop into a more thorough-going market model like bilateral trading, which, in the British context, is likely to be superior in the longer-term. However, the recommended medium-term model can provide a strong basis for developing arrangements that foster upstream water competition and trade. This will help encourage the retail competition among non-householder customers which, following the Scottish example, the UK government is now proposing to introduce in England.

### **3. Paper by Bernardo Rangoni**

The paper by Rangoni investigates the hydro-pumped storage and assesses whether the commissioning of such storage in Italy and Spain was justified.

The existence of storage options is important as a means to face the challenges imposed by the increasing penetration of Renewable Energy Resources (RES). Given their intermittent nature, these require increased flexibility for balancing purposes. There are different ways of providing for this intermittency: “peaking plants”, demand side management, existing grid reinforcement plus the development of smarter grids and cross-border interconnections. The final solution is electricity storage which allows the holding of energy before it is returned back into the grid at a later time. From the different storage technologies currently available, hydro-pumped storage seems to be the most mature and cost effective.

According to Rangoni the decision to commission hydro pumped storage (HPS) in Italy and Spain has very largely been in response to the increase in RES in both countries from major growth in recent years in installed wind and solar PV (photo-voltaic) capacity. This has created a need for backup electricity storage capacity.

Testing a market’s ability to deliver HPS capacity is essential as the need to “commission” by regulation rather than leaving this to the market competition implies a failure of the market to deliver new or upgrade existing HPS. In other words, making a case for the construction of such capacity firstly requires a verification that the market has failed to deliver new or upgrade existing HPS. In essence we are back to the need for a justification of *ex ante* regulation as in the aviation markets case discussed above.

Rangoni’s estimates suggest that in both countries while a *new* HPS investment is unlikely to recover its costs, the *upgrade* of existing HPS is likely to do so. The question then becomes whether this will result in sufficient capacity, or whether there is a case for building new additional HPS capacity which the markets are unable to deliver through

commissioning. In the latter case, there is the question of who should be responsible for running such facilities.

For this later case Rangoni argues that there is a need to establish an adequate regulatory framework that will periodically *either* auction the right to operate HPS facilities *or* contract with market participants who will, in turn, sell ancillary services to the TSO at regulated tariffs. The latter solution may not be feasible, as the informational asymmetries that exist between the TSO and the companies make it very difficult to establish the appropriate price regulation regime that will incentivize efficient and cost effective delivery. Hence it seems that holding auctions for such new construction is in many cases likely to be the most straightforward and cost efficient approach.

### **Concluding Comment**

The rest of this special supplement sets out in full the papers introduced above.

In their different ways, the papers provide a useful perspective on the infrastructure industry-related policy issues currently being discussed in Europe. They also demonstrate how the discussion of the nature of specific markets and the scope of feasible competition is now increasingly interacting with discussions of regulatory mechanism design both in academic discussions and for policy design. Although there are major differences between the industries, there is also much in common between them at least as regards the appropriate modes of economic analysis.

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