

## **A review of economic studies on PSI that consider marginal costs / cost recovery**

### **1. Introduction**

At the European Commission led Public Sector Information Group meeting that was held on the 12<sup>th</sup> June 2009 it was agreed to form a workgroup to consider the economic case for marginal costs. The first meeting of the Marginal Costs working group is scheduled to take place on Thursday 12<sup>th</sup> November 2009.

This paper is an input to the 12<sup>th</sup> November 2009 meeting and reviews recent studies and papers that consider the economics of public sector information with respect to data provision based on marginal costs.

The Commissions review of the Directive 2003/98/EC published on the 7<sup>th</sup> May 2009 states in section 5.3 Charging and states: Further, continuous analysis of the economic case for marginal costs is a Commission priority for the future, to be carried out in cooperation with Member States and stakeholders.

Section 2 of this paper briefly reviews a number of studies that consider charges based marginal costs.

Section 3 of this considers examples of Countries that are moving towards a Marginal Cost regime for all public sector information.

Section 4 of this paper provides an overall summary.

It is the intention to update this paper further following the 12<sup>th</sup> November 2009 meeting.

Chris Corbin  
11<sup>th</sup> November 2009

## 2. An overview of studies and papers

The studies and papers reviewed within this section of the report are not meant to be inclusive of all the economic studies undertaken and papers produced related to public sector information. The brief reviews in this section are to provide a sample of the thinking on PSI and Marginal Cost.

### **PAPER: *The economics of Public Sector Information***

Pollock, R., 2009. *The Economics of Public Sector Information*. Cambridge Working Papers in Economics, Faculty of Economics, University of Cambridge.<sup>1&2</sup>

*Abstract.*

*We give an overview of the economics of 'public sector information' (PSI) focusing on the question of funding and regulatory structure. That is: who should pay to maintain public sector information and what regulatory structure should be put in place to support this.*

The paper first considers the key features of PSI and Public Sector Information Holders (Page 4) where it states:

***PSI is Nonrivalry (Zero Marginal Cost).*** *one person's use of a piece of information does not exclude another from doing so. This equates to the fact that it is (approximately) costless to reproduce a piece of (digital) information once the 'first copy' is made. This contrasts with 'normal' physical goods: if you are using my car I cannot also use it at the same time. However, if one shares a piece of information another gains without any corresponding loss to oneself. Formally, we can also state this as the good having (approximately) zero marginal cost of production. (Where production includes copying the data and distributing it to a new user. At the present time, both may have some cost. However, even for large datasets the cost of temporary storage and bandwidth is likely to be very small - and certainly tiny relative to any other cost involving in managing that data.*

On page 6 the two-sided nature of public sector information holders is described and the implications that this may have on policy and charging.

***Two-Sided Nature of PSIHs.*** *Any information holder can be seen as having two-sides to their operation: the input (write/update) and the output (read/use) side. For example, a registrar of companies must collect the data for its register (input/write) and then may supply this information to third parties (output/read). Similarly, a manager of geospatial information makes changes to their database in response to surveys and changes in the environment (input) and then supply this data to third parties (output). This fact - that all datasets involve both read and write operations - has important implications for policy as it means that: charges can be made on both sides.*

*That is, the revenue needed to create, update and maintain datasets can be levied (in most cases) on both the read and write side of the Holder's operations. That is, both those seeking to write (for example register a company) and those seeking to read (get a copy of the dataset or some portion thereof) can be charged. Thus, a policy-maker seeking to fund the production and maintenance of a dataset (or datasets) has three possible options (not mutually exclusive):*

- (1) Government funding: fund from general government revenues*
- (2) Updater funding: charge those who make changes to the dataset(s)*
- (3) User funding: charge those who use the dataset(s)*

*Which of these should/can be used will depend on the social, technological and political circumstances. In particular, option 2 is not always possible because there are no 'updaters' to charge - as with meteorological data for example.*

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<sup>1</sup> <http://ideas.repec.org/p/cam/camdae/0920.html>

<sup>2</sup> <http://www.rufuspollock.org/economics/papers/psi-funding-options/>

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On page 7 the following definitions are provided:

**Upstream:** *if it cannot be substituted directly from other sources.*

**Downstream:** *if it could be provided by another organisation should that organisation have access to the relevant upstream information.*

On page 9 the description of Marginal Cost is provided:

**Marginal-cost (Zero-cost):** *setting prices equal to the short-run marginal cost, that is the cost of supplying data to an extra user. Note that, as we are considering digital data, this cost is essentially zero and marginal cost and zero cost pricing are identical. In this case the PSIHs revenues from maintaining and supplying information will fall below its costs and the PSIH will depend on direct government funding (a 'subsidy') to continue its information operations.*

The paper then considers funding models and uses theoretical reasoning and equations to consider the various models using Australian examples.

The paper concludes with a number of recommendations and the following are relevant to the subject matter of this paper.

Page 43:

*When it comes to charging 'users' of public sector information the case for pricing at marginal cost or below is very strong for a number of complementary reasons (note that, for most digital data, marginal cost will be approximately zero).*

Page 44:

*To conclude: most upstream, digital public sector information is best funded out of a combination of 'updater' fees and direct government contributions with access provided for free. Appropriately managed and regulated this model offers major societal benefits from increased provision and access to information-based services while imposing a very limited funding burden upon government.*

### The Cambridge Study

*Models of Public Sector Information Provision via Trading Funds.* Published 26<sup>th</sup> February 2008. The Department for Business, Enterprise and Regulatory Reform (BERR)<sup>3</sup> and HM Treasury jointly commissioned the study in July 2007.<sup>4&5</sup>

The Executive Summary (page 1) states the purpose of the study as:

*This study has analyzed the impact of adopting different models for the provision of public sector information by trading funds. Its basic task has been to examine the cost and benefits for society, and the effects on government revenue, of four different charging policies: profit-maximization, average cost (cost-recovery), marginal cost and zero cost; both on their own and when interacted with various data distinctions such as raw versus value-added, and unrefined versus refined.*

*The study focused on the six largest trading funds by data provision: the Met Office, Ordnance Survey, the UK Hydrographic Office, the Land Registry, Companies House and the Driver Vehicle Licensing Agency.*

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<sup>3</sup> Now the Department for Business Innovation & Skills (BIS)

<sup>4</sup> [http://www.epsiplatform.eu/news/news/the\\_cambridge\\_study](http://www.epsiplatform.eu/news/news/the_cambridge_study)

<sup>5</sup> <http://www.berr.gov.uk/whatwedo/businesslaw/competition/market-studies/public-information/page39978.html>

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Page 11 and 12 of the study report provide the following descriptions:

1. **Profit-maximizing:** setting a price to maximize profit given the demand faced by the trading fund. Where the product being supplied does not face competition then this will naturally result in monopoly pricing.
2. **Cost-recovery pricing:** setting a price equal to average long-run costs (including, for example, all fixed costs related to data production).
3. **Marginal-cost:** setting a price equal to the marginal cost of supplying data (that is, simply the cost of actually transmitting the data to someone).
4. **Zero-cost:** setting a price equal to zero.

A large part of the report undertakes a theoretical analysis and considers each public body in turn. The conclusions on pages 123 – 124 states:

*This report has shown that the case for pricing no higher than marginal cost (which, for most digital data will be zero) on basic data products is very strong, for a number of complementary reasons. First, the distortionary costs of average rather than marginal cost pricing are likely to be high, for several reasons. The mark-up to cover fixed costs is high, as marginal costs are such a low fraction of average costs. The demand for digital data as with other information services is likely to be high and growing. Finally, there are likely to be large beneficial spill-overs in inducing users to innovate new services based on the data, as is evidently the case for other ICT services. Second, the case for hard budget constraints to ensure efficient provision and induce innovative product development is weak for public enterprises not subject to regulation and providing monopoly services without fear of competition. It would be far better to address issues of incentives, regulation and commitment explicitly rather than indirectly through budget constraints. Finally, for several services, the Government is already providing effectively a large contribution to fixed costs, without allowing the public to enjoy the benefits of efficient pricing.*

## The CUPI Study

*The Commercial Use of Public Sector Information (CUPI)* – a market study undertaken by the UK Office of Fair Trading (OFT) and published on 7<sup>th</sup> December 2006. The report has 11 annexes that contain the background detail from the study. The study was undertaken over the period 28<sup>th</sup> July 2005 to 7<sup>th</sup> December 2006.<sup>6</sup>

The main CUPI report states on page 11:

*1.26 The various possibilities for charging, such as allowing re-use at no charge, charging only for the marginal costs of dissemination and charging to cover all or a proportion of the costs of collection of the data have very different implications. The implications are different for the economy as a whole and for who pays for, and who benefits from, the collection of PSI. To date, HMT and the DTI have not produced further research on the subject.*

Page 20:

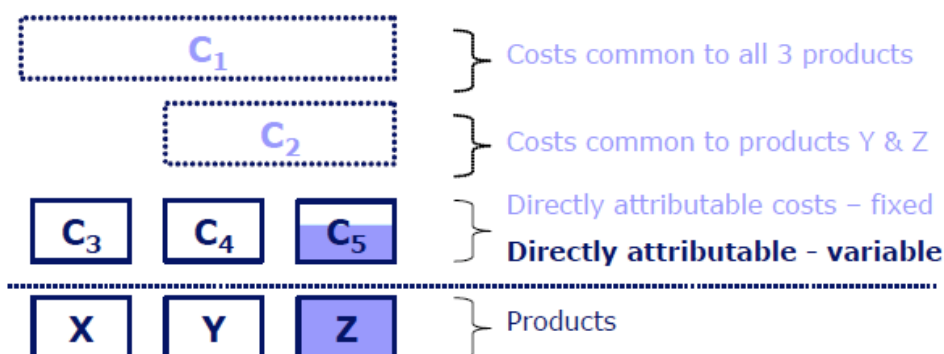
*3.6 From our survey, sent to over 400 of the largest PSIHs, we estimate that, inclusive of these many variations, there are around 120 public sector bodies currently earning some income from the supply of PSI. Some of these bodies merely make a charge to cover the marginal costs of dissemination, that is, the cost of providing that particular piece of information, and many other bodies do not charge at all for the re-use of their information.*

The CUPI report **Annexe F: International case studies** considers three countries Australia, Sweden and the United States of America and within those countries to consider the Meteorological Offices, the Company Registries, and the National Mapping Agencies.

The CUPI report Annexe I: Background to cost allocation on page 5 states:

*1.16 Marginal costing: this measures the cost of increasing output by one additional unit, or alternatively the cost saving resulting from a reduction in output by one unit; in other words directly attributable variable cost would be considered. For example, in the diagram below, only the variable component of Cost C5 would be considered in relation to product Z.*

**Figure 2: Marginal costing**



<sup>6</sup> [http://www.offt.gov.uk/advice\\_and\\_resources/publications/reports/consumer-protection/oft861](http://www.offt.gov.uk/advice_and_resources/publications/reports/consumer-protection/oft861)

#### 4. Recent examples where Countries are moving towards a Marginal Cost regime for all PSI

##### The UK

##### The Power of Information

*The Power of Information Taskforce Report*, published February 2009<sup>7</sup>. The Power of Information Taskforce was established in the spring of 2008 by the UK Government in response to the Power of Information Review that was published in 2007. The taskforce brought together a group from government, industry and the third sector.

The taskforce final report made 25 recommendations and one recommended that marginal cost for public information should be the norm. The report further recommended that if there were exceptions to this then these should be tested against a set of criteria and then enforced.

Recommendation 10 of the report (page 25) states:

*Public information should be available at marginal cost, which in practice means for free online. Exceptions to this rule should pass stringent tests to ensure that the national benefit is actually served by charging for information and this limiting its reuse. OPSI (part of the National Archives) should define and consult publicly upon such tests which they then enforce.*

On page 20 of the report it

*However, the current access regime is aimed at maximising the average return on capital for a single data business, not the overall welfare of the UK. Economic theory generally holds that maximum welfare is generated from charging at marginal cost, but the Ordnance Survey charges out at average cost as part of its Trading Fund approach. Analysis by Cambridge University suggests that current pricing directly reduces the size of the UK economy by £190m a year, in a sector that has been growing at an average rate of 9% a year. If the impact found by Oxera is true then this figure will be much higher.*

The UK Government responded to *The Power of Information Taskforce Report* in May 2009 when the report *DIGITAL ENGAGEMENT: Update on Power of Information* was published.<sup>8</sup> The UK Governments commitment towards Open Information appears under the heading Open Information (page 4) where the report states:

##### ***Information is power, distributed information is empowering***

*The government is committed to being open with our information. This is to strengthen our democracy and to increase the social and economic welfare of the UK.*

*In recent years there has been a strong drive to measure public service outcomes and use those measurements to drive improvements in performance. Whilst this has introduced new levels of professionalism into public services, too often the performance data itself is either internal or published in static form. This makes it hard for this information to underpin the democratic processes that shape public services.*

*Alongside this, there are several studies showing that the maximum social and economic value comes from public information being published at marginal cost – the most recent being *Models of Public Sector information* by Cambridge University.*

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<sup>7</sup> <http://powerofinformation.wordpress.com/2009/03/04/final-report/>

<sup>8</sup> <http://blogs.cabinetoffice.gov.uk/digitalengagement/?page=2>

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*The government will be joining our international partners in placing non-personal information into the global digital commons (available for global re-use). Without this then we cannot truly achieve the vision set out elsewhere in this document.*

The UK Government response to Recommendation 10 was accepted and the report states (page 7):

**Accepted** – *Consistent with HM Treasury's existing Fees and Charges Guidance, most Government content is available for re-use at marginal cost, in practice free of charge. This maximises social and economic value.*

*Trading funds get a derogation from this to support their commercial activity. The basis on which information within trading funds should make their information available was clarified in Budget 2009.*

*Where government departments and agencies wish to charge for re-use they will need to demonstrate to OPSI that there is a valid reason for doing so. In assessing whether charges are appropriate, OPSI will apply a series of tests. These tests, in beta version, will be made available for public comment on PSI Perspectives by the end of May.*

*As OPSI will be responsible for approving whether particular content is charged for, OPSI itself will cease to license any government content that involves payments. This will involve a number of transitional arrangements being made by the end of 2009. Departments and agencies that satisfy the charging tests, will undertake the licensing themselves and will be subject to verification under the Information Fair Trader Scheme (IFTS).*

*All licensing of government content that involves the payment of a fee will be regulated under the enhanced version of the IFTS which was introduced on 1 April 2009. Building on existing principles of openness, transparency, fairness, challenge and compliance, extended, rigorous principles of maximisation, simplicity and innovation have been added. This raises the standards by requiring public sector bodies to demonstrate a more proactive and user responsive approach to their content.*

*Information on the enhanced IFTS can be found at: <http://www.opsi.gov.uk/ifts/ifts-principles>. The first detailed verification under the enhanced IFTS took place in late April with the Coal Authority, a new member of the IFTS.*

On the 28<sup>th</sup> July 2009 the UK Office of Public Sector Information (OPSI) responded to the Digital Engagement action on marginal costs and published on the *PerSpectives* blog the draft exceptions for discussion in a topic titled: **Exceptions to marginal cost pricing**<sup>9</sup>. The discussion closed on the 22<sup>nd</sup> October 2009 and OPSI state:

*We plan on issuing a final draft of the policy by January – we anticipate this will go into further detail on the performance levels expected of applicants.*

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<sup>9</sup> <http://perspectives.opsi.gov.uk/2009/07/exceptions-to-marginal-cost-pricing.html>

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### Australia

In June 2009 the Victorian State Parliament published<sup>10</sup> the outcome of the inquiry into improving access to Victorian Public Sector Information and Data titled: *Access to Victorian Public Sector Information and Data*. The Victorian State Parliament Economic Development and Infrastructure Committee undertook the inquiry.

The report within the Executive Summary states on page xv:

*The Committee has proposed three key recommendations for access to and re-use of Government information. First, the Committee recommends that the Victorian Government develop an Information Management Framework for the purpose of facilitating access to and re-use of Victorian Government information by government, citizens and businesses. The default position of the framework should be that all PSI produced by Victorian Government departments from now on be made available at no or marginal cost.*

The report within the Executive Summary states on page xxi:

*The application of no cost or marginal cost pricing to information products, in particular those considered part of the Victorian Government's "basic information product set", is the most effective method to achieve economic efficiency.*

*While cost recovery pricing reduces reliance on general taxation revenue, the application of no cost or marginal costs to PSI may maximise its economic and social value. No cost or marginal cost pricing facilitates access to PSI within the broader community. Internationally, in response to growing evidence regarding the benefits associated with the marginal cost model, there has been a clear shift in the pricing policies of various countries that have traditionally adopted cost recovery.*

*Cost recovery can enhance economic efficiency if it is appropriately implemented. For example, cost recovery is appropriate when attached to the provision of products that are additional to the basic information product set at the request of individual users. Cost recovery is inappropriate if those products have public good characteristics and/or produce significant positive externalities.*

*A shift in the Victorian Government's pricing policy from cost recovery to no costs or marginal costs will likely create more opportunities for the community and private sector to re-use and add value to PSI.*

Page 9 of the report refers to the UK Cambridge report and goes onto state on page 10:

*There is little concrete data indicating the quantum of return that could be expected to result from improved access to PSI. However, most studies argue that economic gains will occur through improved use of PSI. The Committee notes that governments from a great number of developed nations – including international organisations such as the OECD and the EU – regard prospects for economic benefit seriously enough to take steps to ensure PSI is opened up.*

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<sup>10</sup> [http://www.epsiplatform.eu/news/news/victoria\\_publishes\\_report\\_on\\_psi](http://www.epsiplatform.eu/news/news/victoria_publishes_report_on_psi)

## **5. Summary**

At the current time there are a limited number of studies and papers that deal specifically with the economics of public sector information and a marginal cost regime and those that do exist recommend further research is undertaken on specific examples where a public body has moved towards marginal cost pricing. It is suggested by some economists that by examining specific examples of public sector bodies that the evidence base would be built up that would assist in applying the economic theory that for public sector information a marginal cost regime (or no cost) would maximise the wealth from the investment in the PSI.

The review within this report shows that within Europe the UK is currently working through the implications of moving towards a marginal cost regime for all public sector information in order to maximise the wealth of the UK from using and re-using public sector information. The UK Government partly in response to the UK Office of Fair Trading CUPI report has taken a number of actions that have been positive in raising the debate on moving towards a marginal cost regime for PSI.

The review also indicates that there is a growing worldwide interest in how public sector information is priced and the move towards marginal cost regime.