

# Rent Seeking By Excessive Data Collection

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## **1 Introduction**

1. We often think that government collects statistics because it is a good with public benefits.
2. But private actors may collect excessive information.
3. Government can limit excessive private spending on information by collecting and disseminating limited information.

The National Academy of Sciences (2005) wrote that “public policy makers are best served by statistics that are accurate, timely, and relevant for policy decisions... And credibility requires concern for both the reality and appearance of impartiality, and of independence from political control. It is the primary mission of agencies in the federal statistical system to work to ensure the goals of accuracy, timeliness, relevance, and credibility of statistical information.”

This paper gives different reasons for the desirability of such statistics.

## 2 Literature

Hirshleifer (1971) considers an exchange economy with people having equal endowments, and who can trade future claims

An agent who knows future demands can generate a profit, though the information does not affect anyone's consumption or production. That is, private benefits of information are positive while social benefits are zero.

Morris and Shin (2002) argue that when each individual benefits from taking the same action that others do, but suffers when his action does not match the state of nature, then public information can reduce welfare.

Svensson (2006), however, shows that under most plausible parameter values, under this framework social welfare is increased by dissemination of information.

### 3 Assumptions

1. A seller sets a posted price.
2. The buyer knows his valuation of the good, but the seller does not.
3. The buyer has a reservation price of  $V_L$ ,  $V_M$ , or  $V_H$ , with  $V_L < V_M < V_H$ .
4. The prior probability of valuation  $V_i$  is  $\pi_i$ .
5. The buyer's valuation is always higher than the seller's.
6. The cost of getting information on whether the valuation is  $V_L$  instead of  $V_M$  or  $V_H$  is  $F_{L\_M\_H}$ .
7. The cost of getting perfect information is  $F_{L\_M\_H}$ .

#### 4 Outcome with no government intervention

The seller can collect no information, collect information on  $L\_M\_H$ , or collect information on  $L\_M\_H$ .

In the absence of any information, the seller faces the following choices.

1. If the seller sets the price  $V_L$ , he earns  $V_L$ .
2. If the seller sets the price  $V_M$ , his expected revenue is  $(1 - \pi_L)V_M$ .
3. If the seller sets the price  $V_H$ , his expected revenue is  $(1 - \pi_L - \pi_M)V_H$ .

## 5 Seller collects too much information

For a numerical example, let the buyer's possible valuations be 100, 110, or 120, each with probability  $1/3$ .

1. In the absence of any further information, the seller charges a price of 100, and earns profits of 100.

The firm would not, for example, charge 120, because then its expected revenue is only  $(1/3)(120) = 40$ , which is less than 100.

2. A seller with perfect information has expected profits of  $(1/3)(100) + (1/3)(110) + (1/3)120 = 110$ .

3. A seller who knows that the buyer's valuation is either 110 or 120 maximizes expected profits by charging 110.

Therefore, the expected revenue when the firm gets partial information (that is, it learns whether the valuation is 100 or not) is  $(1/3)100 + (2/3)110 = 100 + 20/3$ .

1. Let the cost of collecting imperfect information be  $20/3$ .
2. Let the cost of collecting perfect information be a bit under 10.
3. Then the seller would on its own collect perfect information.

A seller with imperfect information would not spend the 10 to get perfect information.

Thus if government collects imperfect information, at a cost of  $20/3$ , it would stop the seller from spending 10 to get the perfect information.

Indeed, government would be wise to spend up to 10 to collect imperfect information.

Notice that a seller who increases the price (say from charging  $V_M$  instead of  $V_L$ , or  $V_H$  instead of  $V_M$ ) increases his profits by more than the increase in social benefits—the lost revenue from selling less equals the social loss, but the gain from the higher price is a private gain with no social benefits.

This observation explains why a private seller may spend too much on collecting information.

## 6 Seller collects too little information

If a seller charges  $V_H$  when he knows the value of the good is  $MH$ , then the social benefit of perfect information will exceed the private benefit.

Here government may want to provide information.