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Does more Information-gathering Effort Raise or Lower the Average Quantity Produced? *

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Abstract

We aim at some simple theoretical underpinnings for a complex empirical question studied by labor economists and others: does Information-technology improvement lead to occupational shifts — toward "information workers" and away from other occupations — and to changes in the productivity of non-information workers? In our simple model there is a Producer, whose payoff depends on a production quantity and an unknown state of the world, and an Information-gatherer (IG) who expends effort to learn more about the unknown state and then sends the Producer a signal. The Producer responds by revising prior beliefs about the states and using the posterior to make an expected-payoff-maximizing quantity choice. We consider a variety of IGs and variety of Producers. For each IG there is a natural effort measure. Our central aim is to find conditions under which more IG effort leads to a larger average production quantity ("Complements") and conditions under which it leads to a smaller average quantity ("Substitutes"). We start by considering *Blackwell IGs*, who meet the strong conditions required in the Blackwell theorems about the comparison of experiments. We then turn to non-Blackwell IGs, where the Blackwell theorems cannot be used and special techniques are needed to obtain Complements/Substitutes results.

Keywords: Information technology and productivity, Blackwell Theorems, Garbling
JEL classifications: C44, D24, L11.

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