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## The Impact of Taxes on Internet Commerce

While Internet use has surged from fewer than 5 million users in 1993 to more than 62 million in 1997, sales of products and services on the Internet has grown even faster, rising approximately 300 percent annually. Analysts estimate online sales in the year 2000 will be between \$200 billion and \$1 trillion.

Even though on-line sales represent only a fraction of total retail sales, they are attracting significant attention as targets for sales taxes, which represent the largest single component of state revenues.

In **A World Without Borders: The Impact of Taxes on Internet Commerce** (NBER Working Paper No. 6863), NBER Faculty Research Fellow **Austan Goolsbee** examines the purchase decisions of approximately 25,000 online users

in more than 350 cities and metropolitan areas to estimate how the introduction of sales taxes would effect Internet commerce.

Goolsbee shows that Internet sales are highly sensitive to local taxation. People who live in high sales tax locations are significantly more likely to make purchases

Internet more, do not own more computers, and are not more technologically sophisticated than those living in low tax locations, Goolsbee concludes that the relationship between Internet purchases and high tax areas is motivated by the desire to save money.

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“Internet sales are highly sensitive to local taxation. People who live in high sales tax locations are significantly more likely to make purchases over the Internet.”

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over the Internet, exhibiting purchase decisions similar to consumers who live in geographic border areas with different tax structures. This pattern holds true nationally, within regions, within states, and even within metropolitan areas. Since people living in high tax locations do not use the

He also concludes that applying existing sales taxes to the Internet could reduce the number of online buyers by 25 percent and online spending by 30 percent or more. Since current online sales constitute only a fraction of total retail sales, the revenue loss from not applying taxes is small, thereby

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allowing the fledgling online commerce industry to grow and stabilize. However, if predictions about the future growth of online commerce are correct, the potential tax

revenue loss could eventually be very large. This is of concern to states, which generally are not able to collect sales or use taxes from out-of-state mail-order companies

or Internet companies, and has generated considerable debate in Washington.

—Lester A. Picker

## Unemployment Insurance Savings Accounts

**U**nemployment Insurance (UI) in the United States supports the income of people made unemployed but also provides an incentive for people to become, or stay, unemployed. In **Unemployment Insurance Savings Accounts** (NBER Working Paper 6860), NBER President **Martin Feldstein** and co-author **Daniel Altman** show that a system of unemployment protection based on individual sav-

ing accounts—Unemployment Insurance Savings Accounts (UISAs)—could substantially reduce UI's adverse effects on incentives without decreasing protection for those who suffer unemployment.

the market rate. Positive UISA balances would be converted into retirement income or bequeathed if the individual died before the retirement age. Negative account balances would be forgiven at the retirement age, or if the individual died.

The virtue of such a system is that when a person becomes unemployed, drawing from a UISA with a positive balance reduces personal wealth by an equal amount. This means that the costs

sitive to the cost of unemployment compensation. They find that around 5 percent of employees, based on the historical data, would retire or die with negative account balances and that only about half the benefits under the UISA system would be paid to such individuals. Even among individuals that experience unemployment, most have positive account balances at the end of the unemployment spell.

Although about half the benefit dollars would go to individuals whose accounts are negative at the end of their working life, less than one third of the benefits go to individuals who also have negative account balances when unemployed.

The cost to the taxpayer of unrecovered loans in the negative accounts is substantially less than the cost of the current UI system. Under a system of UISAs, the government could cut the payroll tax. Thus, as well as reducing the cost of providing unemployment protection, UISAs would permit a reduction in payroll taxes, reducing distortionary effects in both cases. Feldstein and Altman show that a system of UISAs, combined with a government safety-net, is a viable economic option.

—Andrew Balls

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ings accounts—Unemployment Insurance Savings Accounts (UISAs)—could substantially reduce UI's adverse effects on incentives without decreasing protection for those who suffer unemployment.

Under such a system, people would be required to save a fraction of their wages (up to 4 percent) in special accounts. If they became unemployed, people would benefit from their accounts rather than taking state UI benefits.

Positive accounts would earn a market rate of interest. If the accounts were exhausted, then the government would lend money to tide people over, again charging

of unemployment are fully borne by the individual. UISAs would provide the same protection as the existing state UI system, without the adverse incentives. The only adverse incentive effect is for individuals who expect to retire (or die) with negative balances in their UISA; they face the same adverse incentives as under the traditional system.

Feldstein and Altman use data from the Panel Study on Income Dynamics to simulate a UISA system over a 25-year historic period. Their analysis indicates that almost all individuals have positive UISAs balances and therefore remain sen-

## Venture Capital Spurs Innovation

The rise of venture capital in the 1980s and 1990s has coincided with a huge wave of innovation and entrepreneurship. It has been widely assumed that there is a causal relationship at work, but empirical research on the relationship has been scant. In **Does Venture Capital Spur Innovation?** (NBER Working Paper No. 6846), **Samuel Kortum** and **Josh Lerner** attempt to fill this gap by examining the link between venture capital and new patents. They find that a dollar of venture capital is far more likely to produce patented innovations than a dollar of traditional corporate R and D spending. And while this could simply mean that venture-capital-funded companies do not so much innovate more as patent more, other measures of innovation indicate that

this is not the case. That is, venture capital does spur innovation.

Kortum and Lerner studied data on 20 manufacturing industries between 1965 and 1992. They found that the amount of venture capital activity in an industry significantly increased its rate of patenting. From 1982 to 1992, in fact, venture capital amounted to just 3 percent of corporate R and

investment. The authors use this regulatory change to help address concerns about the interpretation of the results, in particular concerns that venture capital might follow rather than cause innovations.

Finally, Kortum and Lerner examined data on 530 venture-backed and non-venture-backed firms based in Middlesex County, MA. They confirmed that the ven-

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“...a dollar of venture capital is far more likely to produce patented innovations than a dollar of traditional corporate R and D spending.”

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D spending, but accounted for 15 percent of industrial innovations.

Kortum and Lerner also compared patenting activity before and after 1979, when a changed Labor Department rule freed pension funds to make big venture investments. This change brought on a sharp increase in venture capital

venture-backed firms' higher patenting rate coincided with other indicators of innovation, such as how often the firms' patents are cited in other patent applications and how aggressively they litigate to protect trade secrets.

—Justin Fox

## Equal Prescriptions for Unequal Patients

A cornerstone of the American health care system lies in the authority granted to physicians to prescribe drugs to patients. But how does physician authority and ability actually affect your treatment?

In **Empirical Implications of Physician Authority in Pharmaceutical Decisionmaking** (NBER Working Paper No. 6851), **Scott**

**Stern** and **Manuel Trajtenberg** tackle the implications of physician authority by studying pharmaceutical prescribing. Patients want the right drug for their illness, but physicians' diagnostic abilities vary. What's more, the incentives for doctors to invest in understanding subtle differences in drug effectiveness may vary considerably. Not surprisingly, then, the authors unearth evidence of systematic dif-

ferences in physician behavior.

In their analysis, they argue that physicians with top-notch diagnostic skills would prescribe a more diverse portfolio of drugs. Superior medical discrimination would show up in a willingness to dip into a wide array of drugs to deal with a patient's particular problem. Less discriminating physicians in contrast would rely more on advertising, popularity, and other low-cost

sources of information for their prescription judgment. For example, if a certain anti-depressant is well-known and has a large market share, it's likely that the less-skilled doctor would prescribe it to his patients without regard to the

more fundamental but mostly unobservable features of physicians such as their diagnostic ability," write the authors.

Their results, based on a 1993 and 1994 sample of over 1,500 prescriptions for depression and hy-

perension, are compelling. They find a great deal of variation among physicians in their portfolio of drugs. Doctors with highly concentrated portfolios tend to prescribe drugs with higher levels of advertising and high market share. There is weaker evidence for the influence of low price and positive reviews in the scientific literature. These doctors seem more likely to relate to each patient as the "average" patient rather than as an idiosyncratic individual.

In sharp contrast, "physicians who differentiate among their patients more finely are more likely to have less concentrated portfolios and to be less sensitive to information sources which promote the use of drugs for the 'average' patient," they write.

—Chris Farrell

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"Doctors with highly concentrated portfolios tend to prescribe drugs with higher levels of advertising and high market share."

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finer distinctions between the specific conditions of each of them. "By focusing on concentration in prescribing as a key characteristic of physicians, we link these differences in prescription behavior to

perfusion, are compelling. They find a great deal of variation among physicians in their portfolio of drugs. Doctors with highly concentrated portfolios tend to prescribe drugs with higher levels of

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