

## IN THIS ISSUE

- The Effectiveness of Fiscal Stimulus Depends on How It Is Delivered
- Hospital Competition and Patient Outcomes
- Are Building Codes Effective at Saving Energy?
- The Capital Structure Decisions of New Firms
- Broker Incentives and Mutual Fund Market Segmentation
- College Coeducation from 1835 to the Present

## The Effectiveness of Fiscal Stimulus Depends on How It Is Delivered

To stimulate the U.S. economy in 2001, households were sent a tax rebate (paper) check. In 2008, households also received economic stimulus payments in the form of a paper check or electronic funds transfer. But in 2009, working households instead got a reduction in income tax withholding corresponding to a tax credit, while retiree households received a one-time payment.

In **Check in the Mail or More in the Paycheck: Does the Effectiveness of Fiscal Stimulus Depend on How It Is Delivered?** (NBER Working Paper No. 16246), authors **Claudia Sahn, Matthew Shapiro, and Joel Slemrod** find that the reduction in withholding led to a substantially lower rate of spending than the one-time payments. Specifically, 25 percent of households reported that the one-time economic

stimulus payment in 2008 led them to “mostly increase their spending.” Only 13 percent of households reported that the extra pay from the lower withholding in 2009 led them to mostly increase their spending.

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“The [2009] reduction in withholding led to a substantially lower rate of spending than the one-time payments [of 2008].”

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Household economic conditions and other features of the stimulus program, such as its per-household size, also play a role in the spend/save decision, and therefore in the effectiveness of the fiscal stimulus. However, their effect is considerably smaller than the effect of the delivery mechanism, the authors find.

They observe that some households viewed the 2008 tax rebates as large

enough boosts in their income to induce them to make a large purchase, such as a vacation or a car repair. In contrast, households received the 2009 tax credit as a small but repeated boost to their paychecks, so it may have been less likely

to trigger a large purchase. Or, it may simply be harder for people to remember and report the extra small expenses that the tax credit induced.

The data for this study come from answers to the Thomson Reuters/University of Michigan Surveys of Consumers regarding the spending response of households to the fiscal stimulus measures in 2008 and 2009.

—Lester Picker

## Hospital Competition and Patient Outcomes

In 2006, England’s National Health Service (NHS) adopted a set of reforms intended to foster competition among hospitals. These reforms included paying hospitals fixed, regulated prices for treating patients (similar to the Medicare hospital payment system in the United States) and mandating that all patients be given the choice of five hospitals. Prior to this reform, the local public agencies responsible for purchasing health care on behalf of the

public engaged in selective contracting with hospitals, bargaining over price and quantity, and doctors referred patients to available facilities. Thus, the reform

provided patients with more choice, and moved hospitals from a market-determined price environment to a regulated price environment.

In **Death By Market Power:**

**Reform, Competition and Patient Outcomes in the National Health Service** (NBER Working Paper No. 16164), authors **Martin Gaynor,**

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“... Monopoly power substantially increases a patient’s risk of death.”

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**Rodrigo Moreno-Serra, and Carol Propper** use data from the universe of (English) NHS hospital discharges and administrative data on hospitals to examine the impact of these reforms. They

find that patients in markets where hospital competition was more feasible spent less time in the hospital and were less likely to die, but were treated at the same cost as patients in less competitive markets. The bottom line, the authors conclude, is that monopoly power substantially increases a patient's risk of death.

The NHS reform meant that hospitals would receive payment only if they attracted patients, and the newly fixed prices meant that such choices

would depend on quality, and not on price as in the previous system. The researchers find that after the reforms, hospitals with shorter waiting lists and higher quality attracted more patients, drew patients from more residential areas, and drew patients from further afield. The effect of these changes was that, within two years of implementation, the NHS reforms resulted in significant improvements in mortality and reductions in length-of-stay without changes in total expenditure or

increases in expenditure per patient.

The researchers' estimates suggest that the policy resulted in 3,354 life years saved, valued at £227 million per year. While this is small compared to the annual cost of the NHS of £100 billion, the authors calculate that estimate based only on short-run decreases in death rates. Allowing for longer-run improvements in mortality, as well as in other less well measured aspects of quality, might increase the net benefits of the pro-competition reforms.

— Matt Nesvisky

## Are Building Codes Effective at Saving Energy?

Since the oil embargo of 1973, most states have tried to improve energy efficiency by making their residential building codes more stringent. Now U.S. legislators are looking to implement national energy-efficiency codes as part of energy and climate bills. But little is known about whether the new codes will save energy.

In a recent NBER Working Paper, **Are Building Codes Effective at Saving Energy? Evidence from Residential Billing Data in Florida** (NBER Working Paper No.16194), co-authors **Grant Jacobsen** and **Matthew Kotchen** look at how a change in Florida's code worked in Gainesville. The researchers conclude that these changes decreased electric consumption by 4 percent and natural gas consumption by 6 percent.

In March 2002, Florida implemented changes in its building code that effectively called for newly constructed homes to be more energy efficient. Especially important for northern Florida, where Gainesville is located, the code encouraged builders to use low-emissive or "low-E" windows, which reduce the amount of solar heat that comes into a home. In this study, the first to evaluate changes in an energy code by looking at monthly electric and natural gas bills, the authors consider 1,293 homes in Gainesville built in the three years before the energy-code change and

another 946 homes built within three years after the change. By comparing the electricity and natural gas bills of each group, and controlling for observ-

the best-case social payback stretches out to 5.3 years.

The results are consistent with other studies, which have shown a

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"The average new Gainesville home built after the new code took effect used 48 kWh [4 percent] less electricity and 1.5 fewer therms [6 percent less natural gas] per month than a home built right before the code took effect."

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able characteristics of each residence, they find that the newer homes did consume less energy. The average new Gainesville home built after the new code took effect used 48 kWh less electricity and 1.5 fewer therms per month than a home built right before the code took effect. That works out to \$106 a year in energy savings. However, it cost an estimated \$675 to \$1,012 to install the low-E windows to achieve that savings. Thus, "under the very best-case scenario — a 10 percent premium for low-E windows and a zero discount rate — the private payback period is roughly 6.4 years," the authors conclude.

Overall, the decreased consumption of electricity and natural gas allowed the Gainesville area to avoid environmental damages of between \$14 and \$85 per household per year. Under the best-case scenario, that means a social payback of 3.5 years, the authors find. Much of those avoided damages involve carbon-dioxide emissions, which affect a far broader area than Gainesville. If those benefits are excluded from the analysis,

decline of anywhere from 3 percent to 13.7 percent in electricity consumption as a result of higher building standards. And, the results were better than the 2 percent improvement that engineers' simulations predicted. "[E]nergy codes can in fact reduce energy consumption with magnitudes relatively close to simulation estimates," the authors conclude.

"Gainesville, Florida might be considered an opportune place to study the impact of energy codes for several reasons," they explain. "Florida ... is known to have generally strict enforcement of building codes, due to the risks of major hurricane events. [In addition], 22 percent of all U.S. residences are in the same national climate region as Gainesville (EIA 2009), meaning that energy-code effects in Gainesville might be somewhat representative of how energy codes affect more general regions of the country."

— Laurent Belsie

## The Capital Structure Decisions of New Firms

In **The Capital Structure Decisions of New Firms** (NBER Working Paper No. 16272), co-authors **Alicia Robb and David Robinson** investigate the capitalization choices that firms make in their initial year of operation. Using a novel dataset that tracks firms' funding decisions through their early years of operation, they find that these firms rely heavily on external debt sources such as bank financing and less extensively on friends and family-based funding sources.

There is a widely held view that frictions in capital markets prevent startup firms from achieving their optimal size, or indeed, from starting up at all. That view implies that startups are likely to pursue financing from informal channels. But Robb and Robinson find that funding through the use of formal debt dwarfs funding from friends and family: the average amount of bank financing is seven times greater than the average amount of insider-financed debt. Moreover, three times as many firms rely on outside debt as

inside debt. This reliance on formal credit channels as opposed to personal credit cards and informal lending even holds true for the smallest firms in the sample at

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“The average amount of bank financing [for start-up firms] is seven times greater than the average amount of insider-financed debt.”

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the earliest stages of their founding.

These findings are robust to controls for credit quality, industry, and characteristics of the business owner. Nonetheless, the authors do find that women are somewhat less likely to acquire outside debt. Also, black-owned businesses have a lower ratio of outside-to-inside financing. Businesses started by individuals without a high school degree also rely more on inside financing than others.

Extending their analysis, the authors find that a capital structure that is more heavily tilted towards formal credit channels is associated with a greater likelihood of success for the new firm. Firms that ceased operations within three years not

only began smaller but also had considerably smaller proportions of outside debt-to-total capital. Moreover, capital structure decisions are especially important in

the initial years: firms that accessed more external debt in the initial stages were nearly 10 percent more likely to be in the top revenue group. Even if credit conditions in 2004—the first year of the data set—were unique, credit market access appears to have had an important impact on firm success.

The authors conclude that the heavy reliance on external debt underscores the importance of well functioning credit markets for the success of nascent business activity. Because startups rely so extensively on outside debt as a source of startup capital, they are especially sensitive to changes in bank lending conditions.

—Claire Brunel

## Broker Incentives and Mutual Fund Market Segmentation

Some mutual fund investors seek to optimize their investment returns by taking a do-it-yourself approach: they choose to invest in low-cost fund families with the best-performing funds. Others prefer a fund family that provides personalized service through a broker. Because brokers have no financial incentive to recommend mutual funds that investors can purchase at low cost online, or through another broker, it is difficult for mutual fund families to simultaneously serve both investor types. As a result, only 3.3 percent of all fund families serve both groups.

In **Broker Incentives and Mutual Fund Market Segmentation** (NBER Working Paper No. 16312), co-authors **Diane Del Guercio, Jonathan Reuter, and Paula Tkac** find that fund families internalize the preferences of their target investors when setting fees and fund management strategies. Investors in the

direct channel are more sensitive to performance -- they are more likely to buy when historical returns are high and to sell

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“Mutual fund families that sell via the direct channel...outperform comparable funds sold through other distribution channels by 1 percent per year.”

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when returns are low. As a result, mutual fund families that sell via the direct channel invest more in portfolio management. For example, these funds are **more likely to** employ mutual fund managers who attended the 25 most selective U.S. colleges and universities, and more willing to pay for higher quality managers when outsourcing portfolio management to outside firms. Perhaps because of these differences, funds sold through the direct channel outperform comparable funds sold through other distribution channels by 1 percent per year, the authors find.

Investors who value personalized financial advice tend to invest in mutual

funds through a broker. For example, some investors may value outsourcing their decisions about asset allocation or

rebalancing their portfolio. The mutual funds that are sold through this channel need to charge higher fees to compensate brokers for providing that service. These funds also invest less in portfolio management and the funds earn lower before-fee returns.

The researchers analyze data from Financial Research Corporation covering the period 1996 to 2002. They study 524 of the 547 mutual fund families operating in 2002, and 452 of the 473 fund families that offered at least one actively managed domestic equity fund during this time period.

—Frank Byrt

## College Coeducation from 1835 to the Present

Women represent 57 percent of all B.A.s in the United States today, and more than 97 percent of women will graduate from coeducational institutions. But until 1835, there were no coeducational institutions of higher education in the United States. Still, 60 percent of college women (in four-year institutions) attended coeducational institutions in 1900. In **Putting the Co in Education: Timing, Reasons, and Consequences of College Coeducation from 1835 to the Present** (NBER Working Paper No. 16281), co-authors **Claudia Goldin** and **Lawrence Katz** provide the first extensive examination of when coeducation developed in the United States, why it did, and what impact coeducation had on the college education of women.

The move to coeducation often has been depicted as sporadic and episodic. But Goldin and Katz find, to the contrary, that the change to coeducation was fairly continuous from 1835 to the 1950s before it accelerated (especially for Catholic institutions) in the 1960s and 1970s. Their conclusions are based on an analysis of data on all institutions granting four-year undergradu-

ate degrees that were operating in 1897, 1924, 1934, and 1980. They also find that the increase in coeducation was not just due to a relative increase in publicly-

controlled institutions. Some colleges opened as coeducational institutions and others switched from single-sex to coeducational in a relatively unbroken fashion, and this occurred in both the private and public sectors.

Goldin and Katz also reject the long-held belief that the strains of recession and a dearth of college-aged men during wartime were the driving forces in the nation's transition to coeducation, and the popular perception that a surge in coeducation began in the late 1960s led by elite colleges. Although it is true that for Catholic institutions and colleges in the northeastern states the shift to coeducation was more concentrated after the late 1960s, much of the change to coeducation across the nation had occurred earlier. In addition, many elite institutions had already become coeducational prior to the

late 1960s, or were founded as such, including Brown, Cornell, Harvard, the University of Pennsylvania, Stanford, and the University of Chicago.

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“Coeducation mattered to a greater extent in the more distant past than in the more recent and celebrated period of change.”

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Goldin and Katz note that older and private single-sex institutions were slower to become coeducational. Those institutions persisting as single sex into the 1970s had lower enrollment growth in the late 1960s and early 1970s than those that switched earlier.

The authors also find that the rise of coeducation in the United States in the 1920s and 1930s was associated with increased educational attainment for women. The share of women who completed some college was positively related to the share of institutions that were coeducational in their respective states in the 1920s and 1930s. Coeducation, the authors find, is good for women's college education. Furthermore, coeducation mattered to a greater extent in the more distant past than in the more recent and celebrated period of change.

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