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Anti-Depressants Reduce Suicide

Selective serotonin reuptake inhibitors (SSRIs) — a class of antidepressants — are among the most widely prescribed medications in the world, but they are now at the center of an intense debate about whether antidepressant treatment may increase rather than decrease the risk of completed suicide. In **Anti-Depressants and Suicide** (NBER Working Paper No. 12906), co-authors **Jens Ludwig, Dave Marcotte,** and **Karen Norberg** find that SSRIs appear to save lives. In general, an increase in SSRI sales of one pill per person per year — about a 12 percent increase over year 2000 sales levels — is associated with a decrease in deaths from suicide of about 5 percent. Furthermore, now that SSRIs are off patent, spending an additional $20,000 on them in the United States could avert one death from suicide; that is a cost per life saved far below the cost of most other public health or regulatory government intervention.

Using a panel dataset from 26 countries over 25 years, the authors sort through the possibility that earlier studies may have overstated the benefits of SSRIs by attributing to them the effects of such things as improvements in mental health systems, or they may have understated the benefits by not taking into account any increases in the prevalence of mental health problems. The authors use the sales of four other drugs (as what economists term "instrumental variables") to control for the effects of systemic changes in the health system that are unrelated to the causal effects of the SSRIs themselves. It turns out that countries with higher rates of growth in new drugs, generally, have higher rates of growth in SSRI sales. Furthermore, despite clinical evidence that antidepressant use may increase the risk of nonlethal suicidal behavior in pediatric patients, the authors find that the protective effect of SSRI sales on suicide mortality is largest, in both proportional and absolute terms, for people aged 15–24.

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These estimates of SSRI effects improve on those from randomized clinical trials (RCTs). Although RCTs are the "gold standard" for the study of treatment effectiveness in the medical literature, they have at least two important limitations in studying a rare but serious adverse event such as completed suicide: first, because even combined analyses of multiple RCTs have involved sample sizes that are too small to detect differences in rare outcomes like suicide; and second because RCTs may not adequately represent the average patient. People at high risk for suicide are often excluded from trials for ethical reasons, and the quality and intensity of care available to people in clinical studies may be unrepresentative of usual levels of community care.

— Linda Gorman

Why is the Developed World Obese?

Aside from the physiological fact that the number of calories consumed must be larger than the number expended in order to gain weight, the causes of the dramatic increase in obesity over the last few decades are not well understood. Although some experts point to the decline in work-related physical activity, it has both been comparatively gradual and has largely predated the recent rise in obesity. Furthermore, obesity among children and the elderly, two groups that we would not expect to be affected by changes in work-related physical activity, has risen along with adult obesity. Finally, the obesity increase has been remarkably similar across countries, which suggests a worldwide phenomenon.

In **Why is the Developed World Obese?** (NBER Working Paper No. 12954), authors **Sara Bleich, David Cutler, Christopher Murray**, and **Alyce Adams** show that rising obesity in the developed world is primarily the result of consuming more calories. Specifically, they find that increased caloric intake accounted for 93 percent of the change in adult obesity from1990 to 2001 (the remainder is attributable to reduced energy expenditure). The increase in caloric intake appears to be driven by technological innovations, such as lower food prices and the ease with which businesses can enter the marketplace, as well as changing sociodemographic characteristics such as increased labor force participation and increased urbanization.

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Across the developed world, average food prices fell by 12 percent from 1980 to 2002, which the authors associate with a corresponding higher caloric intake of approximately 38 calories. A 10 percent increase in female labor force participation was associated with an increase of approximately 70 calories. A 10 percent increase in urbanization was associated with an increase of approximately 113 calories.

The authors point out that a very small net increase in calories may lead to a large increase in obesity, and they predict expected changes in weight based on the associations they observe between caloric supply and the drivers of increased consumption. For example, they show that increasing food prices by 12 percent would be associated with a decrease of 1.5 kilograms (3.4 pounds) for the average 65-kilogram (143-pound) person. Similarly, they show that decreasing urbanization by 5 percent would be associated with a decrease of 2.2 kilograms (5 pounds) for the average 65-kilogram person.

The data used in the paper were constructed from a variety of sources including the food balance sheet from the Food and Agricultural Organization, obesity prevalence from the OECD, economic indicators from the World Development Indicators, and regulation indicators from the Economic Freedom of the World Index. The authors note that available data are likely subject to important measurement errors and that caution should be used in interpreting their results. They conclude that, while over consumption appears to be relatively more important to rising obesity than physical activity, energy expenditure is still important to weight management and overall health.

— Linda Gorman

The Changing Nature of Marriage and Divorce

Marriage rates are at their lowest in the past century, but divorce is less likely today than it was 30 years ago. Even though the divorce rate was rising in the 1970s, the number of children involved in each divorce has been falling since the late 1960s. Fertility and pregnancy control made possible by "the pill" and legalized abortion may help to explain both the recent decline in divorces *and* a rise in out-of-wedlock births. These are among the intriguing and often unexpected trends documented in **Marriage and Divorce: Changes and Driving Forces** (NBER Working Paper No. 12944) in which authors **Betsey Stevenson** and **Justin Wolfers** find that it's time to reassess our views of "the American family" given the relatively new and still evolving conditions that now determine whether people marry, stay single, or break-up.

These forces include the aforementioned rise of the birth control pill; higher incomes for women and greater access to education; and new household labor-saving technologies that make it more likely a marriage today will involve people with "similar incomes and interests" as opposed to individuals with clearly defined and distinctly different domestic and wage earning roles. In particular, they argue that marriages can no longer be characterized as having household specialization and children as the central tenet. These changes mean that couples today have different expectations about the benefits of both forming a union and formalizing that union through marriage.

Early in their analysis, Stevenson and Wolfers consider two basic trends in modern marriage and divorce. First, there is the often-cited fact that the marriage rate today is "the lowest in recorded history." But less discussed, they note, is the fact that the divorce rate today — 3.6 divorces per one thousand couples per year — is at its lowest level since 1970. This rate is going down even when taking into account that there are fewer marriages. "For marriages that occurred in the 1950s through the 1970s, the figures clearly show that the probability of divorce before each anniversary rose for each successive marriage cohort," they write. "Yet for first marriages that occurred in the 1980s, the proportion that had dissolved by each anniversary was consistently lower and it is lower again for marriages that occurred in the 1990s."

While not pinpointing a single cause for the decline in the divorce rate, Stevenson and Wolfers observe that overall, the married couples of today look quite different from those of a few decades ago. For example, data from 2000 show that marriage today is less prevalent among young adults but more prevalent among older adults, and that people are waiting longer to get married. In the mid-1950s, for example, the median age of men getting married was 23. Today, it's 27. Also, people over 65 are just as likely to be married today as people between 16 and 65.

But while many trends can be documented easily, Stevenson and Wolfers find that figuring out how they affect marriage rates and family composition is a trickier task. Take cohabitation for example. Not surprisingly, their statistics show that today, members of the opposite sex are increasingly likely to be "sharing living quarters." And, cohabitation is more and more the preferred "stepping stone to marriage." Stevenson and Wolfers report that in the early 2000s, 59 percent of married couples had lived together before tying the knot. While couples who cohabit prior to marriage have historically exhibited higher divorce rates, Stevenson and Wolfers observe that there is research showing that pre-marital cohabiting may be more common among those with greater uncertainty about either their compatibility or the benefits of marriage. Thus it may be that divorce-prone couples cohabit, rather than that cohabiting causes divorce. In fact, without cohabitation, divorce may be even more likely, as living together allows couples to "test" their relationship before heading to the altar.

Stevenson and Wolfers encounter another interesting factor when they consider the effect of fertility control on marriage. They note that by removing an unplanned pregnancy from the equation, the birth control pill has allowed women to be more selective about whom they will marry and when they will marry. They cite research reporting that college-educated women who use the pill have a higher age at first marriage, lower divorce rates, and lower marriage rates.

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Looking to the future, Stevenson and Wolfers wonder what new forces will emerge to shape marriage and divorce decisions. They point to the dramatic rise in the use of Internet dating services as perhaps the next big factor on the horizon. And again, its effect could be complex. For example, Stevenson and Wolfers observe that the fact that a "tremendous amount" of searches on these sites is being done by those already married could be a "harbinger of rising divorce rates, yet this affect may be ameliorated by improved match quality in the new marriages."

— Matthew Davis

Hidden Taxes are Easier to Raise

Every year, as April 15 approaches, taxpayers must take the time to calculate — and then pay — their federal and state income taxes. Indeed, economists have estimated that for every dollar paid in taxes, taxpayers incur an additional 10 cents in time costs associated with record keeping and tax filing. Many policymakers and economists have conjectured that time spent paying taxes is important for keeping taxes visible and salient to taxpayers, thereby making it politically harder for the government to raise taxes.

In ***E-ZTAX*: Tax Salience And Tax Rates** (NBER Working Paper No. 12924), NBER Research Associate **Amy Finkelstein** investigates this conjectured link between the visibility of taxes and the level of taxes. She studies the impact of electronic toll collection systems — such as E-ZPass in the Northeast or Fast-Trak in California — on toll rates. Because these electronic systems automatically deduct the toll as the car drives through the toll plaza, and the driver therefore need no longer actively count out and hand over cash for the toll, electronic payment arguably reduce the visibility of tolls.

Finkelstein finds that this reduced visibility of tolls comes at the cost of higher tolls. She estimates that the introduction of electronic toll booths causes drivers to pay higher tolls — some 20 to 40 percent higher — than if electronic collection had never been introduced.

For her study, Finkelstein collected 50 years of toll data on 123 publicly owned roads, bridges, and tunnels in the United States. Starting in 1987, electronic tolling was introduced on these facilities. By 2005, about two-thirds of the facilities used electronic tolling. Once a facility introduces electronic tolling, drivers start to use the technology, and eventually usage levels out at about 60 percent of toll payments.

Finkelstein finds that as drivers switch to paying tolls electronically, toll authorities raise the toll rates. As a result, even though many facilities offer discounts to drivers who pay electronically, the toll that drivers end up paying electronically is still higher than it would have been had the facility not introduced electronic tolling (although it's lower than what their fellow drivers who still pay with cash have to fork over!)

Moreover, the increase in tolls is more pronounced when a larger share of the tolls are paid electronically (rather than in cash).

The study examined other possible explanations (than the decline in toll visibility) for the increase in tolls when the use of electronic tolling rises. For example: drivers may like the convenience of paying electronically so much that they're willing to pay more for it. But that thesis didn't hold up in two telling instances, Finkelstein says. First, on roads where manual tollbooths really slowed drivers down, the change to electronic tolling saved them much more time. Yet, these roads did not see unusually high price increases. Second, drivers saw similarly large savings of time when bridges and tunnels switched from charging tolls in both directions to charging tolls in only one. But again, the toll increases were not out of line with the norm.

> "Time spent paying taxes is important for keeping taxes visible and salient to taxpayers, thereby making it politically harder for the government to raise taxes … The introduction of electronic toll booths causes drivers to pay higher tolls — some 20 to 40 percent higher — than if electronic collection had never been introduced."

The most plausible explanation for the phenomenon, Finkelstein argues, is that drivers who pay the toll electronically don't notice price hikes as readily as manual-toll users do. So public resistance to toll increases lessens as more and more drivers pay electronically, and thus transportation authorities are able to push through more toll increases.

Automated tolls, after all, are fairly hidden. A driver only has to slow down so that her car's ID tag can be scanned and the toll automatically deducted from her account. When her balance falls below some preset minimum (typically $10), the transportation authority automatically debits her credit card or bank account. Small wonder, then, that survey evidence shows that drivers who pay electronically are much less aware of how much they have paid than drivers who pay using cash. Also supporting the "decreased visibility hypothesis", Finkelstein finds that traffic decreases less in response to toll increases when

Other possible explanations — that toll authorities had to raise rates because of the costs of installing the automated system or that they used higher rates to battle congestion or recoup revenue — didn't hold up either to the evidence, the study found. That leaves the original conclusion as the leading explanation: the more hidden the tax, the less resistance it breeds, and the easier it is for governments to raise taxes.

— Laurent Belsie

Higher Health Spending Saves Lives

Health care spending is a major concern in the United States, amounting to over $2 trillion per year or 16 percent of GDP. These figures are expected to increase with the aging of the population and are likely to strain government budgets and private-sector profitability. And, there is controversy over exactly what we are getting for that health care spending.

Among counties or regions within the United States, there are large disparities in spending, yet health outcomes are remarkably similar. One study of Medicare data found that end-of-life spending levels — a measure of treatment intensity that controls for the health outcome — are 60 percent higher in high spending areas of the United States than in low spending areas. Yet there is no difference across regions in five-year mortality rates after such health events as heart attacks or hip fractures.

One difficulty that arises when comparing regions is that populations in worse health may receive greater levels of treatment. For example, at the individual level higher spending is strongly associated with higher mortality rates, because more is spent on sicker patients. At the regional level, long-term investments in capital and labor also may reflect the underlying health of the population.

In **Returns to Local-Area Health Care Spending: Using Health Shocks to Patients Far From Home** (NBER Working Paper No. 13301), author **Joseph Doyle** compares outcomes of patients who are exposed to different health care systems that were not designed for them: patients who are far from home when a health emergency strikes. These visitors vacation in areas that provide different levels of health care. They may have a health emergency in an area that spends a great deal on patients or in one that tends to spend less. By comparing similar visitors across these locations, Doyle is able to use differences in health outcomes to shed light on the returns to health care spending, at least in emergency situations.

He finds that if the medical emergency occurred in a high-spending area, the patient was significantly more likely to survive. This result comes from analyzing groups of counties with similar lodging prices that are also popular tourist destinations — areas that are likely to be close substitutes in terms of vacations, and that provide credible variation in health care systems.

Doyle's results also confirm earlier findings of little relationship between spending and mortality among the populations the health care systems are designed to serve. Instead, those who have a serious health emergency far from home are exposed to different health care systems, but they are unlikely to affect the resources available in the systems.

"A typical comparison of a high-spending area and a low-spending one means a 50 percent difference in health care spending intensity ... This disparity is associated with a 1.6 percentage-point lower mortality rate among heart emergency patients. Based on that estimate, the additional cost of a statistical life-year-saved is on the order of $50,000."

In particular, Doyle uses data from hospital discharges in the state of Florida — one of the most frequently visited states, which also gathers a wealth of data on patient characteristics. A typical comparison of a high-spending area and a low-spending one means a 50 percent difference in health care spending intensity. Doyle finds that this disparity is associated with a 1.6 percentage-point lower mortality rate among heart emergency patients. Based on that estimate, the additional cost of a statistical life-year-saved is on the order of $50,000 — similar to the estimate from health improvements over time, and well below the typical value of a life-year-saved of $100,000.

Doyle points out that visitors choose their destinations, and if relatively healthy individuals were to choose high-spending areas, then his main results would reflect these differences. However, his estimates are robust across different types of patients, including those with various income levels, and within groups of destinations that can be characterized as close substitutes. The returns to spending are lower in places where the visitors were more likely to select the destination with the health care system in mind — this suggests that Doyle's main results may understate the benefits of health care spending.

— Les Picker

Did Bankruptcy Reform Increase Financial Distress?

The number of personal bankruptcy filings in the United States increased more than fivefold between 1980 and 2004. By then, more Americans were filing for bankruptcy than were graduating from college or getting divorced. When Congress reformed bankruptcy laws two years ago, its aim was to crack down on those who were using bankruptcy as an easy way to escape their debts. The reform made filing for bankruptcy more difficult by requiring debtors with higher incomes to repay more, by making it much more complicated and expensive for all debtors to file, and by increasing the number of debtors who are ineligible for bankruptcy. These reforms caused the number of filings to drop dramatically — from 2 million in 2005 to 600,000 in 2006.

But the reforms had an unintended effect, contends **Michelle J. White** in **Bankruptcy Reform and Credit Cards** (NBER Working Paper No. 13265). While bankruptcy filings dropped, financial distress increased. How did this happen?

The answer is that by making

it harder for consumers to escape their debts, the new law dramatically reduced lenders' losses from default and bankruptcy. As a result, they started lending more, even to consumers with bad credit. Credit card debt increased more quickly during the past two years than at any time during the previous five years.

Consumers should have responded to the new harsher bankruptcy law by borrowing less, which would have lowered their risk of getting into financial distress. But not all consumers behaved in this rational way. Instead, many behaved shortsightedly and took advantage of the greater availability of credit to borrow more than they could easily handle — ignoring the risk of financial distress. (Economists refer to this shortsighted behavior as "hyperbolic discounting" — consumers who are hyperbolic discounters intend to start paying off their debts immediately, but each month they consume too much and end up postponing repayment until the following month. So their debts steadily increase.)

The new bankruptcy law exacerbated the problem of shortsighted consumers borrowing too much, because it prevented many of them from using bankruptcy to limit their financial distress. Many consumers in financial distress are unable to file for bankruptcy under the new law, because they cannot afford the costs of filing, cannot meet the new paperwork requirements, or are ineligible. This means that their debts will not be discharged and they will remain vulnerable to creditors' collection calls and to wage garnishment that may take funds they need for basic necessities. Because of the new bankruptcy law, consumers can end up in deeper financial distress than would have been possible before 2005.

Survey evidence presented by White supports the idea that most debtors get into financial distress because of shortsighted behavior, rather than because they behave rationally but experience adverse events. In one survey of bankruptcy filers, 43 percent pointed to "high debt/misuse of credit cards" as their primary or secondary reason for filing. Another survey in 2006 found that two-thirds of those who sought credit counseling before filing for bankruptcy cited "poor money management/excessive spending" as the reason for their predicament, compared to only 31 percent who pointed to loss of income or medical bills.

"The number of personal bankruptcy filings in the United States increased more than fivefold between 1980 and 2004. By then, more Americans were filing for bankruptcy than were graduating from college or getting divorced."

White argues that lowering the costs of filing for bankruptcy would help debtors who are in the worst financial distress by making it easier for them to file. But changes in bankruptcy law cannot solve the basic problem of shortsighted consumers borrowing too much, since these consumers generally ignore the provisions of bankruptcy law until after they are in financial distress. Instead, White argues that changes in credit market and truth-in-lending regulation are more likely to work because they motivate lenders to lend less to the most vulnerable consumers.

— Laurent Belsie

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