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Does Poverty Cause Terrorism?

After the terrorist attacks of September 11, 2001, politicians and policy experts drew a quick and intuitive line between terrorism and poverty. Much of the existing academic literature on conflict suggested that poverty increased the likelihood of political coups and civil war, so conflating terrorism with poor economic conditions seemed logical. Indeed, just a few weeks following 9/11, then U.S. Trade Representative Robert Zoellick spoke out on the need to liberalize international trade — and thus reduce poverty — as a means to fight terrorism.

In **Poverty, Political Freedom, and the Roots of Terrorism** (NBER Working Paper No. 10859) Alberto Abadie explores this link in greater detail and finds that the risk of terrorism is not significantly higher for poorer countries, once other country-specific characteristics are considered. In particular, Abadie finds that a country's level of political freedom better explains the presence of terrorism.

Unlike other recent studies on the causes of terrorism, Abadie's work explores not only transnational instances of terrorism but also domestic ones. This difference is telling: in 2003, the MIPT Terrorism Knowledge Base reported only 240 cases of transnational terrorism compared to 1,536 instances of domestic terrorism. Furthermore, Abadie suggests that the determinants of transnational and domestic terrorism may differ. "Much of modern-day transnational terrorism seems to generate from grievances against rich countries," he writes. "In addition, in some cases terrorist groups may decide to attack property or nationals of rich countries in order to gain international publicity. As a result, transnational terrorism may predominantly affect rich countries. The same is not necessarily true for domestic terrorism."

While many studies have relied on measures of terrorism-related casualties or terrorist incidences as a proxy for the risk of terrorism, Abadie uses country-level ratings on terrorist risk from the Global Terrorism Index of the World Market Research Center, an international risk-rating agency. The index assesses terrorism risk in 186 countries and territories. In order to measure poverty, Abadie uses World Bank data on per capita gross domestic product as well as the United Nations Human Development Index and the Gini coefficient (a measure of country-level income inequality). He also uses Freedom House's political rights index as a measure of country-level political freedom and employs measures of linguistic, ethnic, and religious fractionalization. Finally, he includes data on climate and geography, since it is well known that certain geographic characteristics — such as being land-locked or in an area that is difficult to access — may offer safe haven to terrorist groups and facilitate training.

After controlling for the level of political rights, fractionalization, and geography, Abadie concludes that per capita national income is not significantly associated with terrorism. He finds, though, that countries with the highest levels of political rights are also the countries that suffer the lowest levels of terrorism. However, the relationship between the level of political rights and terrorism is not a simple one. Countries in an intermediate range of political rights experience a greater risk of terrorism than countries either with a very high degree of political rights or than severely authoritarian countries with very low levels of political rights.

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Why this relationship? Abadie offers two possibilities. "On the one hand, the repressive practices commonly adopted by autocratic regimes to eliminate political dissent may help [keep] terrorism at bay," he explains. "On the other hand, intermediate levels of political freedom are often experienced during times of political transitions, when governments are weak, political instability is elevated, so conditions are favorable for the appearance of terrorism." Finally, this study reveals that geographic factors — such as measures of average elevation, tropical weather, and country area — are also powerful predictors of terrorism.

— Carlos Lozada

CEO Overconfidence, Corporate Investment, and the Market's Reaction

How does the overconfidence of CEOs affect their corporations' performance? And how do investors perceive and react to CEO overconfidence? In two NBER Working Papers, authors **Ulrike Malmendier** and **Geoffrey Tate** examine the critical issue of CEO overconfidence as it affects investment options and corporate value.

In **CEO Overconfidence and Corporate Investment** (NBER Working Paper No. 10807), they depart from the traditional approach of tying corporate investment decisions to firm characteristics and examine instead how investment is related to the personal characteristics of the top decisionmaker inside the firm. One important link between investment levels and cash flow, for example, is the tension between the beliefs of the CEO and the market about the value of the firm.

Malmendier and Tate find that managerial overconfidence can explain corporate investment distortions. Overconfident managers overestimate the returns to their investment projects and view external funds as unduly costly. Therefore, they overinvest when they have abundant internal funds, but curtail investment when they require external financing. Using panel data on personal portfolio and corporate investment decisions of Forbes 500 CEOs, the authors classify CEOs as overconfident if they persistently fail to reduce their personal exposure to company-specific risk. They find that the investment of overconfident CEOs is significantly more responsive to cash flow, particularly in equity-dependent firms.

In **Who Makes Acquisitions? CEO Overconfidence And The Market's Reaction** (NBER Working Paper No. 10813), the authors move the empirical analysis of CEO overconfidence one step further. They combine the portfolio measure of overconfidence with a new measure, based on CEOs' characterization in media outlets, to study both the impact of overconfidence and the market's assessment (in the press and in the stock market) in the context of mergers. Mergers and acquisitions, of which there are currently a staggering number, are among the most significant and disruptive activities undertaken by large corporations. However, existing results on returns to mergers are mixed, suggesting that mergers may not create value on average. And even if there are gains from mergers, they do not appear to accrue to the shareholders of the acquiring company. There is a significant positive gain in the target company's value upon the announcement of a bid, and a significant loss to the acquirer. This suggests that mergers are often not in the interest of the shareholders of the acquiring company.

Building on these stylized facts, the authors propose that overconfidence among acquiring CEOs is one important explanation of merger activity. Using a dataset of large U.S. companies from 1980 to 1994 and the CEOs' personal portfolio decisions as measures of overconfidence, they find that overconfident CEOs conduct more mergers and, in particular, more value-destroying mergers. These effects are most pronounced in firms with abundant cash or untapped debt capacity.

Malmendier and Tate demonstrate that, from a theoretical perspective, overconfidence does not unambiguously predict a higher frequency of mergers. Overconfident CEOs are more eager to make acquisitions, but perceived undervaluation and perceived financing constraints can prevent them from doing so. Overconfident CEOs are, however, unambiguously more likely than rational CEOs to undertake value-destroying acquisitions. And, they are more likely to make acquisitions when their firm has abundant internal resources. Because they do lower quality deals, on average, and tend to overpay, the market discounts their acquisitions relative to those of other CEOs.

Empirically, CEO overconfidence boosts the number of takeovers — even on average and despite the mitigating impact of cash constraints. Further, overconfident CEOs undertake more diversifying mergers, which are unlikely to create value. In addition, overconfidence has a strong positive impact on the probability of conducting mergers (and particularly of diversifying mergers) among the least equity dependent firms and has no effect among the most equity dependent firms.

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The market's assessment of overconfident CEOs, as reflected by press coverage in major business publications and the stock price reaction to merger announcements, corroborates the authors' findings. The authors' findings hold true using both exercise of stock options and press coverage as measures of overconfidence. Finally, they find that the market prefers the bids of rational managers: cumulative abnormal returns around overconfident bids are roughly 100 basis points lower on average than for rational bids.

The authors' findings also have implications for organizational design and leadership. Because overconfident CEOs believe they are maximizing value, standard compensation incentives are unlikely to correct their suboptimal decisions. However, overconfident CEOs do respond to financing limitations, proving the constraining role of capital structure. The authors suggest that independent directors may need to play a more active role in project assessment and selection to counterbalance CEO overconfidence.

— Les Picker

Do Federal Government Trust Funds Raise National Saving?

A critical question facing America is whether the assets in the federal trust funds will help future generations of workers finance the retirements of the baby boom generation. The 1983 Social Security Reforms (sometimes referred to as the Greenspan Commission reforms) were the most sweeping in the almost 70 year history of the system. They were made under the threat of an almost immediate inability to pay full benefits to Social Security recipients. One of the key elements of the 1983 reforms involved setting the Social Security payroll tax rates above the level required to pay current benefits. That is, the Greenspan Commission's plan was for Social Security to depart from pay-as-you-go (PAYGO) financing and to partially pre-fund the retirement costs of the baby boom generation. The idea was to offer some relief to the workers in the 2015 to 2050 period in supporting the enormous retired population forecast for that period. By forcing workers in 1984-2015 to pay higher payroll taxes than required to finance current retirement benefits, the hope was that workers in the 2016-2050 era could pay lower than PAYGO taxes. The trust fund buildup and subsequent spend down would spread the burden of the retirements of baby boomers over 65 years, rather than 30 years, and to some degree even out the tax burden faced by different generations of workers.

Overall, the annual surplus across all trust funds increased, in constant 2000 dollars, from $16.6 billion in 1980 to $147.9 billion in 1990. The biggest trust funds went from PAYGO financing to full or partial funding. As a result of the sustained surpluses, the trust funds accumulated almost $3 trillion in assets between 1985 and 2004. Current federal budget policies treat the surplus of trust fund revenues over expenditures, and the interest received by the trust funds, as part of the unified surplus.

In **Has the Unified Budget Undermined the Federal Government Trust Funds?** (NBER Working Paper No. 10953), authors **Sita Nataraj** and **John Shoven** examine whether the shift from PAYGO to partially funded Social Security (and the corresponding shift in the funding of military and civil service retirement plans) resulted in a shift in national saving. The attempt to partially prefund Social Security benefits and to fund military and civil service pensions will tend to enlarge the unified surplus. However, if the larger unified surplus projections permit additional government spending and tax reductions, then saving by the trust funds may be partially or even completely offset by reductions in federal funds saving. The authors also explore whether larger trust fund surpluses resulted in increased personal saving.

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Nataraj and Shoven find that increases in the aggregate surplus of the trust funds are offset – perhaps completely – by reductions in the federal funds surplus. In fact, the trust fund surpluses result in enlarged deficits for the rest of the government. The authors maintain that it is the existence of a unified budget that produces this offset.

The authors show that prior to the adoption of a unified budget in 1970, an increase in the surplus of the trust funds did *not* reduce saving by the rest of the government. The government appears to have had the ability to save before the advent of the unified budget, but has lost that ability since. The $3 trillion of assets in the trust funds represent the cumulated surpluses of their operations, with interest. However, the money has been spent or returned to taxpayers and not saved, at least not by the federal government.

From the perspective of Social Security, the trust fund does represent real claims on the rest of the government. Thus, the presence of the trust fund may prolong the life of Social Security beyond the date at which tax receipts fall short of benefits payments. However, from the perspective of future generations of workers, the trust funds do not represent incremental wealth. Even if Social Security's life is lengthened, workers 15 years from now will have to pay off the obligations in the trust fund through increases in other taxes and cuts in other government services. The trust funds themselves do not provide any assistance to future generations of workers in coping with the inadequate income of Social Security to pay the legislated benefits.

— Les Picker

How Insurance Affects Hospital Care of Accident Victims

As a group, people covered by health insurance generally are thought to spend about 40 percent more on health care than those who are not insured. Although this difference is much discussed, its effect on individual health remains controversial. Some argue that the additional money spent by those who have insurance does little to improve their overall health. Others point out that people who think they will be spending large amounts on medical care in the near future are more likely to buy health insurance. In this case, the insured

spend more simply because they need more care.

In **Health Insurance, Treatment and Outcomes: Using Auto Accidents as Health Shocks** (NBER Working Paper No. 11099), author **Joseph Doyle** analyzes the effect of insurance status on health care spending by looking at the amounts spent on inpatient treatment for victims of severe automobile accidents in Wisconsin between 1992 and 1997. Using an unusually rich dataset linking police reports to inpatient hospital records, he finds that the spending differences are smaller than generally thought. People generally do not choose to be in severe auto accidents, so the estimate of only a 20 percent spending difference between the insured and the uninsured suggests that earlier estimates of the effect of health insurance on health spending indeed may have been inflated (by people who bought health insurance only if they knew they would need it.)

Facility charges for the uninsured were about 22 percent lower than for the insured, Doyle finds, and the uninsured received 20 percent fewer days of care. While the uninsured received more sutures and "alcohol and drug rehabilitation and detoxification," they received less of almost everything else: fewer spinal fusions, skeletal traction, fewer operations on organs like the brain, kidney, bladder, and large intestine, and less plastic surgery and skeletal traction.

Furthermore, the additional spending on insured victims reduces mortality. The author finds that "A ten percent increase in facility charges is associated with a reduction in the mortality rate of roughly 1.1 percentage points and the mortality rate is about 1.5 percentage points higher for the uninsured in a sample with a mean mortality of 3.8 percent."

But the type of hospital also matters, according to Doyle. Compared to other non-profit hospitals, religiously affiliated hospitals provide the insured and the uninsured with more equal treatment. And, there was no estimated difference in mortality in these hospitals. Mortality differences between insured and uninsured accident victims were larger at teaching hospitals, perhaps because they have more resources and "provide costly, life-saving care to the insured." Hospitals that received larger fractions of their budgets from public sources also showed treatment differences and slightly larger mortality differences than the full sample.

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Lengths of stay and facility charges for the uninsured were about half those of Medicaid patients, and their mortality was 4.7 percent higher. It is possible that the higher charges reflect the fact that Medicaid recipients as a group are in poorer health than the uninsured and require more treatment to achieve the same result. Another explanation is that Medicaid reimbursement rules encourage more costly treatment. During the period under study, private insurers generally paid hospitals a flat fee for each case. Wisconsin Medicaid did not do this. It reimbursed hospitals additional amounts for their most costly "outlier" cases. This may have given hospitals an incentive to provide more costly treatment for Medicaid patients.

The finding that uninsured accident victims are 1.5 percentage points more likely to die than privately insured ones implies a 0.45 percentage point increase in the lifetime risk that an uninsured person will die in a severe automobile accident. The author estimates that "this is over five times the lifetime risk of dying due to complications or misadventures during surgery." But, as he points out, the money saved by not buying health insurance roughly compensates for the increased risk of death. If the value of a life is $3,000,000, then reducing the lifetime risk of dying in an auto accident would be worth about $300 a year. At the time the data were collected, a health insurance policy with a $1,500 deductible cost about $300 for a 23 year-old-man. The author concludes that "the magnitudes of the benefits and costs of catastrophic insurance are roughly similar and that the differences in treatment and mortality are not unreasonably large."

— Linda Gorman

The Effect of Price Controls on Pharmaceutical Research

One of the main concerns of both business and Washington policymakers in recent years has been soaring health care costs. This was an issue behind the passage of the Medicare Modernization Act in 2003 and during the more recent debate on legislation dealing with the re-importation of drugs, from Canada or elsewhere. "It seems likely, therefore, that pharmaceutical price controls are just around the corner," **Thomas Abbott** and **John Vernon** write in **The Cost of U. S. Pharmaceutical Price Reductions: A Financial Simulation Model of R&D Decisions** (NBER Working Paper No. 11114). "Indeed, the U.S. pharmaceutical market is currently the *only* market in the world where drug prices remain largely unregulated. In every other major market, governments regulate drug prices either directly or indirectly."

Some critics of the drug companies assume that patent protection and the freedom to price drugs in the United States at market prices, along with an ability to exploit inefficiencies in the existing insurance system, actually encourage pharmaceutical firms to exploit consumers with high costs. However, numerous economic studies indicate that price controls, by cutting

the return that pharmaceutical companies receive on the sale of their drugs, also would reduce the number of new drugs being brought to the market. So, a short-run benefit for consumers could lead to a long-run negative impact on social welfare. And, this damage wouldn't be fully felt for several decades because it takes so long to develop new drugs.

Abbott and Vernon apply a new technique to studying this question about research and development (R and D). They maintain that their approach is more closely aligned with the actual structure of R and D investment decisions by firms. They take account of the uncertainty around R and D research costs, the success rates for drug developments, and the financial returns to those products that are successfully launched onto the market.

Their basic finding is that cutting prices by 40 to 50 percent in the United States will lead to between 30 and 60 percent fewer R and D projects being undertaken in the early stage of developing a new drug. Relatively modest price changes, such as 5 or 10 percent, are estimated to have relatively little impact on the incentives for product development — perhaps a negative 5 percent.

For the pharmaceutical industry, one economic problem is that only 3 out of every 10 of their products generate aftertax returns (measured in present value terms) in excess of average, aftertax R and D costs. The scientific process is heavily regulated, and involves significant technical risk. Only one in several thousand compounds investigated ever makes it through the full development process to gain approval of the Food and Drug Administration. The vast majority of R and D projects fail for reasons related to safety, efficacy, or commercial viability, the authors note. For compounds that do gain FDA approval and are taken to market, the entire process from discovery to launch takes on average about 15 years.

Further, it's estimated that the pretax cost of a new drug runs around $802 million. The aftertax cost of an average drug is about $480 million, assuming the company has sufficient revenues to take advantage of the tax benefits or can somehow sell the tax benefits to another firm. The average net revenues for a new drug amount to about $525 million in present value. Thus at the time of a product launch, the drug company can foresee a potential average profit or economic value for their pharmaceutical R and D of about $45 million.

With this economic scene as background, a company must make a financial decision about whether to take an R and D project into clinical development. This step is called the Phase 1 Go/No-Go decision. Only one out of five projects that are given the "Go" signal into clinical development actually reach the market as a product. Factoring in this uncertainty, the authors write, is essential to understanding the behavior of the industry. This uncertainty factor may explain what critics say is a tendency of the pharmaceutical industry to focus on only minor innovations (me-too products) because of their greater probability of success, at the expense of conducting more revolutionary research that carries a higher risk of failure but also may yield greater health improvements.

— David R. Francis

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Smoking, Drinking, and Drug Use Respond to Price Changes

By studying data compiled over the past three decades, NBER Research Associate **Michael Grossman** determines that, contrary to conventional wisdom, changes in price can explain a good deal about the consumption rates of such addictive substances as tobacco, alcohol, and illegal drugs. In **Individual Behaviors and Substance Abuse** (NBER Working Paper No. 10948), Grossman finds further that the consumption-price relationship should be useful in formulating taxation, regulation, and legalization policies concerning these substances. His findings are consistent with a growing body of evidence indicating that addictive substances are more sensitive to price than previously believed.

Grossman first looks at trends in the real prices of cigarettes, alcohol, cocaine, heroin, and marijuana (the money price of each substance divided by the Consumer Price Index for all goods) and at corresponding trends in their consumption for the period from 1975 through 2003. Despite vigorous anti-smoking and anti-drunk driving campaigns real cigarette prices fell between 1975 and 1980 and between 1992 and 1997, while real alcoholic beverage fell except for the years 1990-2. These declines can be attributed in part to stability (in nominal terms) of federal excise tax rates. Since 1997 the real price of cigarettes has risen by 72 percent in response to the settlement of the lawsuits filed by 46 state attorneys general against cigarette makers and because of federal and state tax increases.

The drop in the real price for beer, wine, and spirits is even more notable. Between 1975 and 1990 the declines were 20 percent, 28 percent, and 32 percent respectively. Since federal tax rates on all three beverages were raised in 1991, real price declines amounted to 9 percent for beer, 13 percent for wine, and 8 percent for spirits.

Meanwhile, during the same peri-

od (1975-2003) the real price of one pure gram of cocaine, according to Drug Enforcement Agency data, fell by 89 percent, and the price of one pure gram of heroin fell by 87 percent. Marijuana prices fluctuated over the decades, but this is harder to measure because marijuana prices are not adjusted in terms of purity.

Grossman then looks at trends in cigarette smoking, alcohol consumption, and binge drinking for the same period. He uses data from the Monitoring the Future (MTF) project compiled annually since 1975 by the University of Michigan's Institute of Social Research. The MTF studied the three aforementioned trends among high school seniors and found declines in all three between 1975 and 2003. Trends in marijuana use likewise suggest that the number of youths who use this substance rises as the real price falls, and vice versa. Heroin is uncommon among high school students, but cocaine use leaped from 5.6 percent of high school seniors in 1975 to 13.1 percent in 1985 at the same time that the real price of cocaine fell by approximately 64 percent.

The reduction in smoking trends is consistent with the marked increase in the real price of cigarettes. Indeed, the dramatic increase in the price of cigarettes since 1997 explains almost all of the 12-percentage-point reduction in the cigarette participation rate since that year. Alcohol use and abuse cannot be correlated indisputably with the reductions in the real prices of alcoholic drinks without factoring in other elements. These include changes in the minimum legal drinking age and the redefining of blood-alcohol levels in regard to drunk driving. However, when these factors are taken into account, the 7 percent increase in the real price of beer between 1990 and 1992 attributable to the Federal excise tax hike on that beverage in 1991 explains almost 90 percent of the 4-percentage-point reduction in binge drinking in that period.

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When Grossman looks at statistics on heroin, cocaine, and marijuana users of all ages who were either arrested or treated at hospital emergency rooms between 1978 and 2002, the relationships between substance prices and usage rates cannot be determined with absolute certainty. Nevertheless, he says, enough evidence exists that harmful addictions are sensitive to price, and that the government can discourage these behaviors by taxation or by bans.

Grossman cautions: "I have not provided enough evidence to conclude in a definitive manner whether the use of cocaine, marijuana, and other illicit substances should be legalized. I have, however, highlighted three factors that have been ignored or not emphasized in the debate concerning legalization. The first is that legalization is likely to have a substantial positive effect on consumption if prices fall by as much as that suggested by many contributors to the debate. The second is that these price reductions, while almost certainly sizable, may have been greatly overestimated. The third is that legalization and taxation — the approach that characterizes the regulation of cigarettes and alcohol — may be better than the current approach."

Grossman says he hopes he has "convinced the reader to treat with a significant amount of skepticism propositions such as 'the demand for illegal drugs is not sensitive to price; tremendous price reductions will occur if drugs are legalized; and legalization and taxation is not a feasible policy option'."

— Matt Nesvisky

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