

# The NBER Digest

NATIONAL BUREAU OF ECONOMIC RESEARCH

## IN THIS ISSUE

- Reforming Social Security with Personal Accounts
- The Health Effects of Medicaid Coverage for Children are Unclear
- Does Border Enforcement Protect U.S. Workers From Illegal Immigration?
- Stimulating Commercialization in Government Laboratories

Digest OnLine at: [www.nber.org/digest](http://www.nber.org/digest)

July 1999

## Reforming Social Security with Personal Accounts

If it pays benefits at promised levels as baby boomers retire, the Social Security trust fund will be exhausted by 2034. The payroll tax will have to rise to 17.3 percent by 2050 as the population ages, and to 18.7 percent by 2070. However, the payroll tax could stay at 12.4 percent if the government deposits 2.3 percent of taxable earnings in Personal Retirement Accounts (PRAs), according to research by **Martin Feldstein, Elena Rangelova, and Andrew Samwick**. Investing in the stock market offers lower cost provision of pensions because the return from investing in the market is greater than the return inherent in the pay-as-you-go system of Social Security (equal to the rate of growth in the economy). The government deposits to the PRAs can be financed by a portion of the projected budget surpluses.

In **The Transition to Investment-Based Social Security when Portfolio Returns and Capital Profitability are Uncertain** (NBER Working Paper No. 7016), Feldstein and his co-authors also show that a shift to a fully investment-based system would be possible with contributions to PRAs that are less than one third of the current payroll tax rate. However, a mixed system that maintains Social Security while introducing a funded element is probably a more realistic proposition. Under the mixed system, people

would continue to pay the 12.4 percent payroll tax. On top of this, the 2.3 percent of earnings (up to the payroll tax threshold) that is deposited into PRAs by the government would be invested in a 60:40 stock-bond portfolio. The calculations in the paper assume that PRAs earn a 5.5 percent real rate of return (this is the average real postwar portfolio rate of return for such a portfolio, after a 0.4 percent allowance is made for administration costs). The researchers use the same forecasts for average wage growth and

pension would be only slightly greater than the promised Social Security benchmark benefit. However, by 2050, the combined average pension would be 11 percent greater than the benchmark and by 2070 it would be 15 percent greater.

Feldstein and his co-authors carry out 10,000 simulations of the investment risk, based on the postwar experience associated with a 60:40 equity-debt portfolio. The younger the worker at the start of the transition, the greater the risk. But even people aged

---

"Retirees can be insured against all downside investment risk at a very small cost to taxpayers through a government guarantee of the benchmark benefit."

---

changing demographics that the Social Security Administration uses, and take into account the rise in the retirement age to 67 under current law.

With these assumptions, retirees would receive a pension equal to the benefits promised, under current law, by Social Security, plus an extra annuity based on 25 percent of the value of their PRA. The remaining 75 percent of the PRA annuity would be paid to the Social Security Trust Fund. This would cover the costs of supporting an aging population, and mean that the payroll tax would not have to rise. In the early years of this transition, the combined

21 in 2000—who make PRA contributions throughout their working lives—face only a 10 percent chance of a combined benefit of less than 79 percent of the benchmark benefit when they are 71. They also have a 10 percent chance that the combined pension will be nearly three times the benchmark.

The researchers show that retirees can be insured against all downside investment risk at a very small cost to taxpayers through a government guarantee of the benchmark benefit. This means that the only risk that retirees would face is the upside risk of higher

### NBER Working Papers On-Line

A complete list of all NBER Working Papers with searchable abstracts, and the full texts of Working Papers (issued since November 1994) are available at <http://www.nber.org/wwp.html> to anyone located at a university or other organization that subscribes to the (hard copy) Working Paper series.

If you believe that your organization subscribes, but you cannot access the on-line Working Paper service, please e-mail the NBER at [wpp@nber.org](mailto:wpp@nber.org) for more information and assistance.

than expected benefits. This is an inter-generational guarantee; the working population bears the risk. But by 2070—when the risk is greatest—the median value of the transfer is equal to just 0.07 percent of earnings that year. There is only a 1 in 10 chance that the transfer will exceed 5.32 percent of earnings.

However, the additional corporate tax revenues generated through the PRA saving mean that in 2070 there is only a 1 in 10 chance that any net transfer will be required at all, and only a 1 in 50 chance that the net transfer will exceed 3.7 percent of covered earnings. Even then, the total burden is less than the rise in the payroll tax to 18.7 percent if Social Security is left as it is.

In this paper, the researchers assume that if an individual dies before retirement age, the funds in his PRA are divided among the remaining employee accounts (survivor benefits are included in the benefits calculations). However, public discussion and the experience of private pension plans suggest that any Social Security reform that involves investment accounts will also involve leaving a “pre-retirement bequest” if an individual dies before reaching the normal retirement age, and may even involve bequests if the individual dies after retirement. In **The Economics of Bequests in Pensions and Social Security** (NBER Working Paper No. 7065), **Feldstein** and **Ranguelova** investigate

the implications of incorporating bequests into a system of PRAs.

They find that pre-retirement bequests would be possible without any reduction of the potential retirement annuity if the PRA savings are increased by one sixth—from 2.3 percent of payroll to 2.7 percent of payroll in the mixed system described above. They also investigate the possibility of “post-retirement bequests” when individuals die after retirement. A “ten year certain” annuity which provides a bequest whenever a retiree dies before the age of 77 would only require raising the PRA savings from 2.7 percent of payroll to 2.9 percent.

—Andrew Balls

## The Health Effects of Medicaid Coverage for Children are Unclear

**B**etween 1986 and 1994, the number of children from low-income families enrolled in the Medicaid program, the government program that finances medical care for the nation's poor and near-poor families, rose by 71 percent. Medicaid spending on the health care of these children climbed 107 percent in real terms during that period. This was the largest expansion of public health insurance coverage for children since the original introduction of the Medicaid program. In addition, the Balanced Budget Act of 1997 in-

**Racine** finds only weak support for this belief.

While much previous research evaluated the merits of health insurance solely on the basis of whether it expanded the utilization of medical care by children, in **Does Publicly Provided Health Insurance Improve the Health of Low-Income Children in the United States?** (NBER Working Paper No. 6887), the authors concentrate on the health consequences of increased insurance coverage. They study a large, nationally representative sample of children from the National Health Interview Surveys

days a child was in bed sick (morbidity) in the previous 12 months. Both of these measures are correlated with acute and chronic health conditions. The authors also analyze hospital discharge data for a sample of 544 hospitals in 11 states to investigate whether expansion of Medicaid eligibility was associated with a decrease in the incidence of ambulatory care sensitive admissions for children from low-income areas.

Kaestner, Joyce, and Racine find that the expansion of insurance coverage by Medicaid and private health insurance was associated with better health ratings by mothers of low-income black and Hispanic children, but it had no effect on the reported health status of poor white children. In fact, with Medicaid coverage, the health status of the white children was slightly worse. Nor did insurance coverage reduce days sick in bed, which were actually greater for black and Hispanic children covered by Medicaid than for uninsured children.

“Perhaps,” the authors speculate, “Medicaid provides greater access to care for poor black and Hispanic children than it does for white children, but this hypothesis is only conjecture at this point.” As for the increased bed days, one hypothesis is that they are a result of greater access to primary care and of physicians recommending

---

“The expansion of insurance coverage by Medicaid and private health insurance was associated with better health ratings by mothers of low-income black and Hispanic children, but it had no effect on the reported health status of poor white children.”

---

cluded a \$24.3 billion block grant to states to extend health insurance coverage to uninsured children from families with incomes up to 200 percent of the federal government's official poverty level. These spending increases were based on the assumption that increased utilization of medical services would improve the health of children from low-income families. Yet an examination of the data by NBER Research Associates **Theodore Joyce**, **Robert Kaestner**, and **Andrew**

of 1989 and 1992. They limit their analysis to children between the ages of two and nine who come from families with incomes below \$25,000, as these are the families targeted by the legislation. These surveys include information about health insurance coverage, the health of the children as reported by their mothers, and the social and demographic characteristics of the families. Mothers rated the health of their children (excellent to poor) and provided the number of

longer periods of rest or time in bed for treatment.

The authors do find that the Medicaid expansion decreased the incidence of ambulatory care sensitive discharges—mostly for children admitted to the hospital with convulsions, asthma, dehydration, and pneumonia—by 10 to 20 percent among young children in low-income families. But there are some “anomalous results” in this data that raise questions about the ro-

bustness of their findings, they caution.

Reviewing possible explanations for their inconsistent findings, the authors note that uninsured children may already be receiving adequate health care, with parents paying for essential treatment out-of-pocket or getting it free at hospitals and clinics. But they do not find this explanation compelling, since health insurance does increase utilization of medical facilities. Another explanation, they note, could

be that their measures of child health do not adequately reflect the benefits of having insurance. Certain unmeasured types of child illnesses may benefit from the extra health care.

They conclude that the proposition that the provision of health insurance through Medicaid to remedy the relatively poor health condition of children from poor and near-poor families “has not been adequately demonstrated.”

—David R. Francis

## Does Border Enforcement Protect U.S. Workers From Illegal Immigration?

There is concern in the United States that the ready availability of public assistance has contributed to illegal immigration from Mexico, especially during times of Mexican economic difficulties. Many wonder to what extent illegal immigration might affect the wages of U.S. workers. As a consequence, border enforcement has become the centerpiece of U.S. immigration policy with Mexico. In fact, the number of hours that Border Patrol agents spent patrolling our border with Mexico nearly tripled from 1977 to 1997, from 1.8 million to 5.1 million.

In **Does Border Enforcement Protect U.S. Workers From Illegal Immigration?** (NBER Working Paper No. 7054), authors **Gordon Hanson**, **Raymond Robertson**, and **Antonio Spilimbergo** find that for the United States, only the lumber industry in

California and Texas is affected positively, and only slightly, by border enforcement. When enforcement is high, wages rise slightly. For all other industries they examine, there is no impact on the wages of poorly educated males in U.S. border regions.

In Mexican border regions, though, wages fall for poorly educated males

apprehensions made, the authors conclude that stricter enforcement does deter illegal immigration. But illegal immigration has only a minimal effect on labor markets in U.S. border regions, probably for two reasons. First, given continuing illegal immigration, U.S. natives may leave border regions or be deterred from moving to those

---

“Stricter enforcement does deter illegal immigration. But illegal immigration has only a minimal effect on labor markets in U.S. border regions.”

---

in Tijuana when U.S. border enforcement is high. Tijuana is where a large number of immigrants attempted to enter the United States illegally over the authors' sample period.

Using monthly and quarterly data on wages, person-hours logged by the U.S. Border Patrol, and the number of

regions. Second, the economies of border regions may gradually shift to industries that make intensive use of immigrants' skills. The authors thus conclude that the perceived impact of illegal immigration on wages has been exaggerated.

—Lester A. Picker

## Stimulating Commercialization in Government Laboratories

In the 1980s, Congress enacted legislation to encourage patenting and technology transfer at federally funded research and development (R and D) laboratories. In **Privatizing R&D: Patent Policy and the Commercialization of National Laboratory Technologies** (NBER Working Paper No. 7064), **Adam Jaffe** and **Josh Lerner** attempt to measure the success of this initiative. Their results, focusing on U.S. Department of Energy (DOE)

laboratories, indicate that the impact of the legislation has been profound.

The United States historically has been ambivalent about privatizing the fruits of publicly funded scientific research. Beginning in 1980, though, the policy underwent a substantial shift: the Stevenson-Wydler Technology Innovation Act and subsequent legislation established technology transfer to the private sector as a primary mission of all federal laboratories. The purpose of this policy was to speed the dissemination of R and D

products and to stimulate investment.

Jaffe and Lerner conclude that the policy changes of the 1980s had a substantial impact on the patenting activity of DOE laboratories. Before this period, such facilities had considerably fewer patents per R and D dollar than the average university had, but today they are about equal. University patenting indeed has increased in recent years, but the quality of the awards, as measured by the number of citations they generate, has declined. Using this same measure, the quality of DOE lab-

oratory patents had remained constant or has even increased slightly. These results, Jaffe and Lerner say, suggest that the organizational structure of the government-owned, contractor-operated model used at DOE laboratories may be far more successful than critics have believed.

The authors factor into their study such variables as the scale and scope of individual laboratories, the degree of basic scientific research or defense-related projects conducted at such laboratories, political encouragement or

tory, which specializes in nuclear weapons research, is primarily funded by the DOE's Office of Defense Programs and is operated by the University of California. The Idaho National Engineering and Environmental Laboratory is mainly funded by the DOE's Office of Environmental Management, has a private corporation as its main contractor, and is located in a former bomber test site in the Idaho desert. Both of these diverse laboratories have earned accolades for their commercialization achievements, the former espe-

to its original focus on undertaking industrial partnerships related only to its mission. Changing Congressional mandates created challenges for the laboratory, and continue to do so. Yet Lawrence Livermore's licensing activities and revenues have risen dramatically throughout the 1990s. The authors point to the laboratory's strong ties to the University of California and to its access to Bay Area companies and venture capitalists as important factors in this regard.

Since its founding in 1949 as a test facility for nuclear reactors, the Idaho National Engineering and Environmental Laboratory has been managed by a series of private contractors. It has since grown into a major employer in the state. Under the influence of the new Congressional mandates of the mid-1990s, not only was technology transfer emphasized, but local politicians pressed for the encouragement of spinout companies to soften the blow of unemployment resulting from federal cutbacks. In 1992, the authors point out, there were no spinouts, and licensing revenue from the Idaho laboratory totaled a mere \$7,000. By the middle of the decade, however, a \$10 million venture capital fund had been established by a consortium of investors, and licensing activity increased dramatically. In 1997, the Idaho laboratory accounted for seven of the 19 spinouts from the DOE's research institutes. —Matt Nesvisky

---

"The policy changes of the 1980s had a substantial impact on the patenting activity of DOE laboratories. Before this period, such facilities had considerably fewer patents per R and D dollar than the average university had, but today they are about equal."

---

lack thereof, bureaucratic help or hindrance of licensing processes, and the proximity of research facilities to population and entrepreneurial centers. The results suggests the importance of laboratory focus and contractor turnover on both the quantity and quality of patenting. While the underlying activities and the measures of performance are quite different, Jaffe and Lerner suggest that the results are consistent with studies of the privatization of state-owned enterprises.

These findings are supported by case studies of two very different laboratories. The San Francisco Bay Area's Lawrence Livermore National Labora-

cially in licensing and the latter particularly in creating spinout companies.

Even though the Lawrence Livermore laboratory had expanded into such areas as biomedicine and non-nuclear energy and had established strong relationships with the computer and laser industries, the facility made virtually no effort at patenting its discoveries until the legislative initiatives of the 1980s. A dramatic increase in such activity occurred, however, following the National Competitiveness Technology Transfer Act of 1989. Eventual cutbacks in government funding in the mid-1990s motivated Lawrence Livermore accordingly to return

---

## NBER

---

*The National Bureau of Economic Research is a private nonprofit research organization founded in 1920 and devoted to objective quantitative analysis of the American economy. Its officers are:*

*Martin Feldstein—President and Chief Executive Officer  
Sam Parker—Director of Finance  
John H. Biggs—Chairman  
Carl F. Christ—Vice Chairman*

*Contributions to the National Bureau are tax deductible. Inquiries concerning the contributions may be addressed to Martin Feldstein, President, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398.*

*The NBER Digest summarizes selected Working Papers recently produced as part of the Bureau's program of research. Working Papers are intended to make preliminary research results available to economists in the hope of encouraging discussion and suggestions for revision. The Digest is issued for similar informa-*

*tional purposes and to stimulate discussion of Working Papers before their final publication. Neither the Working Papers nor the Digest has been reviewed by the Board of Directors of the NBER.*

*The Digest is not copyrighted and may be reproduced freely with appropriate attribution of source. Please provide the NBER's Public Information Department with copies of anything reproduced.*

*Preparation of the Digest is under the supervision of Donna Zerwitz, Director of Public Information.*

*Individual copies of the NBER Working Papers summarized here (and others) are available free of charge to Corporate Associates. For all others, there is a charge of \$5.00 per downloaded paper or \$10.00 per hard copy paper. Outside of the United States, add \$10.00 per order for postage and handling. Advance payment is required on all orders. To order, call the Publications Department at (617) 868-3900 or visit [www.nber.org/papers](http://www.nber.org/papers).*

*Please have the Working Paper Number(s) ready.*

*Subscriptions to the full NBER Working Paper series include all 500 or more papers published each year. Subscriptions are free to Corporate Associates. For others within the United States, the standard rate for a full subscription is \$1850; for academic libraries and faculty members, \$1070. Higher rates apply for foreign orders.*

*Partial Working Paper subscriptions, delineated by program, are also available. For further information, see our Web site, or please write: National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398.*

*Requests for Digest subscriptions, changes of address, and cancellations should be sent to Digest, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398. Please include the current mailing label.*