flight of the Wright brothers, driving knowledge of aerodynamics.

The role of scientists in advising both governmental and nongovernmental bodies, which involves essentially the entire community of established scientists, may be seen as another disinterested service to society. The American public simply has no idea of the vast advisory network that provides continuous input to the executive and legislative branches of government and their many subdivisions, as well as to nongovernmental organizations and the private sector. The National Institutes of Health (NIH) alone has some 270 'study sections' (panels of scientists), which advise on applications for research grants, each meeting two or three times a year for several days at a time. 'Congressional Fellows,' supported by various scientific societies, provide another channel of scientific input to legislators (and now to most agencies of the executive branch). More than 1,600 Science and Technology Fellows of the American Association for the Advancement of Science have worked, since the program was started in 1973, as 'special legislative assistants,' in legislative and policy areas requiring scientific and technical input, on the staff of members of Congress or congressional committees. The program has been highly commended by senators and representatives from both Democratic and Republican sides of the aisle.

One of the most important rewards of science is the satisfaction of getting answers to difficult and potentially important problems. The contemporary public does not understand this and thinks of high-profile awards, such as the Nobel Prize, mainly in terms of the large sum of money that changes hands. Yet a recent study, published in *Science*, showed that two-thirds of science and engineering researchers at universities, ranging from Harvard to Texas A&M, evinced little interest in patenting their discoveries (over the period 1983 – 1999), although they might have made a good deal of money by doing so.

Let me close by noting that research, in fact, has an artistic side. Nature is complex, but the scientist finds a piece of Nature's jigsaw puzzle – and it has its own beauty. If he keeps working on the same problem, he may find additional pieces, which fit together to create a beautiful whole.

Byron H. Waksman, M.D.

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On Social Security & the aging of America

February 27, 2006

To the Editor:

In "Measuring Social Security's financial outlook within an aging society" (*Dædalus*, Winter 2006), Jagadeesh Gokhale and Kent Smetters set forth a concise and clear account of the standard financial framework for understanding Social Security's financial problems that is generally subscribed to by academic experts and the Social Security Administration's actuaries. Gokhale and Smetters criticize this formulation and offer a refinement from which to better assess reform proposals. I contend that the standard formulation, as well as their refined version of it, is deeply flawed from the perspective of social justice. Basically, this formulation has led to all of the reform proposals requiring that a large fraction of the population forgo, in financing their pensions, the very substantial benefits provided by return on investment on their payroll taxes.

Congress, in managing Social Security, set pension levels for people retiring in the early years of the program much higher than their payroll tax payments would justify. This has evolved into the present situation in which people retiring during the last few years receive pensions of reasonable size relative to the money they paid in – in payroll taxes, and the return on investment of these payments. Unfortunately, the portion of these pensions that would normally come from return on investment is coming from the payroll taxes paid by younger workers. As a result, the Social Security trust fund, the investment vehicle for Social Security, is at about $1.7 trillion when it should be around $13 trillion to cover future pensions. Although the details are complex, my contention is captured in the following two ways of responding to this state of affairs.

Gokhale and Smetters respond with:

> Unfortunately, the windfalls awarded to prior generation of retirees do not come for free: future generations must pay for them by receiving lower rates of return on their payroll taxes compared to the rates they could have earned if they had invested their contributions in government bonds instead. In fact all future generations are worse off.

In present reform proposals, "lower rate of return" turns out to mean negative rate of return. I have been preparing a paper entitled "A Strategy for Reforming Social Security's Pension Program." Quoting from this paper:

> Step 2: Completely solve the problem for workers retiring after 2045. The Social Security Administration should set up a second Old Age Survivor and Dependents Insurance (OASDI) program for these workers keeping present benefits levels. Their payroll taxes are invested in Treasury bonds and their payroll tax rates are reduced (probably about 25 percent) to a rate making the system financially sound, that is, so that at all times the Trust Fund balance equals a reasonable estimate of future liabilities. Failure to immediately put this into effect is obviously inexcusable. *There is no reason these workers should be called upon to make a greater contribution to the federal shortfall due to their reduced payroll taxes than the general taxpayer.* The additional money needed to fund benefits for earlier retirees should come from income and corporate profit taxes rather than from payroll taxes.
>
> Investment in Treasury bonds and corporate stocks and bonds in retirement programs such as Social Security are all about the same – none is free lunch. The community at large pays the return on investment. The bottom line in any Social Security reform is how are benefits modified and what fraction of pensions comes from payroll taxes and what comes from the community at large via return on investment. Once it is agreed that workers should get a fair shake for their payroll taxes, reform is easy.

Edgar H. Brown, Jr.

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February 28, 2006

Jagadeesh Gokhale and Kent Smetters respond:

We appreciate Edgar H. Brown, Jr.'s thoughtful response to our paper. We agree that a fully funded Social Security system, where each generation pays for its own benefits, would have more than $12 trillion in assets. After initially establishing Social Security as a funded system, however, Congress chose to transform it into a mostly pay-as-you-go system. As a result, younger workers pay for the benefits of older retirees instead of saving for themselves. That transformation produced windfalls for previous generations that cannot be recovered since most are no longer alive.

Although we don't deal with social justice in our paper, we agree with Mr. Brown that future generations should not be asked to shoulder the entire burden of closing Social Security's total financial shortfall – current generations should contribute as well. But it is inescapable that current and future generations must collectively share the load. The appropriate distribution of this cost sharing across generations is a moral choice that our alternative (or, indeed, any) accounting framework cannot decide. But our framework does indicate the full value of the financial shortfalls that must be addressed, and it could be used to show how particular policy choices would differentially impact current and future generations.