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The Value of Planning Prompts

People often intend to take beneficial actions, such as reviewing their credit reports or going to the doctor for a check-up, but fail to follow through. The lack of action can be linked to procrastination and memory failures, such as the tendency to process information in a shallow way or to lose information as time passes.

In recent years, numerous studies have established that defaults can have a powerful effect on saving behavior. Relatively less is known about whether more a modest "nudge" can affect behavior, including behavior outside the realm of saving. In **"Following Through on Good Intentions: The Power of Planning Prompts" (NBER Working Paper 17995),** researchers **Katherine Milkman, John Beshears, James Choi, David Laibson**, and **Brigitte Madrian** explore the effect of an intervention designed to help people form and follow through on a plan — a simple sticky note.

The study focuses on the decision to receive a colonoscopy. One study estimates that for every 1,000 additional individuals who follow a schedule of one colonoscopy every ten years between the ages of 50 and 75, 250 life-years would be gained.

The study involved four employers who sent mailings to nearly 12,000 employees due for a colonoscopy. All employees received a mailing providing information about why and how to obtain a colonoscopy and describing how sticky notes can be used to help people remember to do important things. For those employees randomly assigned to the treatment group, the mailing included a sticky note that urged "Don't forget!" and provided a space to write the location and date of the appointment. Employees in the control group received a blank sticky note instead.

During the seven-month follow-up period, 7.2 percent of treatment employees received a colonoscopy, compared to 6.2 percent of control employees. This statistically significant difference was comparable to the increase in compliance associated with a 10 percent increase in the fraction of the procedure's cost covered by insurance. The authors also find that the treatment effect was largest for demographic groups judged to be at the highest risk of failing to receive a colonoscopy due to forgetfulness.

"This paper provides evidence from the field that planning prompts have the power to help people overcome forgetfulness and follow through on their plans even when that follow-through is in the distant future, requires multiple steps, and involves a costly, unpleasant action," the authors write in their conclusion. Interventions such as the one they study "may be able to save many lives at much lower cost than price mechanisms that are often suggested for promoting behavior change."

The researchers gratefully acknowledge financial support from the National Institute on Aging (grants P01AG005842 and P30AG034532). At least one co-author has disclosed a financial relationship of potential relevance for this research; further information is available at http://www.nber.org/papers/w17995.ack.

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The Effect of the Earned Income Tax Credit on Infant Health

The Earned Income Tax Credit (EITC) has become the most important cash transfer program for low-income families — in 2010, the EITC reached 26 million families at a total cost of $59 Billion. In the current challenging fiscal climate, social safety net programs such as the EITC are subject to cuts, making it all the more important to understand their effects.

Many past studies have examined the effect of the EITC on labor supply, but relatively few have examined its effect on health. This is the subject of a new NBER working paper by **Hilary Hoynes, Douglas Miller,** and **David Simon, "Income, the Earned Income Tax Credit, and Infant Health" (NBER Working Paper 18206).**

The EITC is a refundable tax credit for low-income working families with children. In 2011, families with income up to $40,964 were eligible for the credit. The maximum value of the credit was $5,112 for families with two or more children and $3,094 for families with one child.

In their analysis, the authors take advantage of expansions in the EITC that occurred in 1986, 1990, and 1993 to examine the program's effect on birth outcomes. The reforms expanded the EITC differentially by family type — for example, between 1993 and 1996, families with two or more children saw their maximum EITC payment rise by $2,045, as compared to $718 for families with one child. The reforms were also phased in over time, generating different EITC amounts in different years.

There are several pathways by which higher EITC payments may affect infant health. The first is income. It is well established that higher family socio-economic status is associated with better health, though establishing that there is a causal effect of income on health has proven more difficult. On the other hand, higher income could facilitate greater pre-natal smoking and drinking, which would negatively affect infant health.

In addition to the direct income channel, the EITC could encourage women to enter the work force or to work more, since the value of the credit rises (up to a point) with earnings. Finally, because eligibility for and the amount of the credit depend on the presence and number of children, an expansion in the EITC could theoretically lead to increases in fertility (though any induced increase in employment could tend to dampen fertility).

Turning to the results, the authors find that EITC expansions reduce the incidence of low birth weight and increase mean birth weight. This finding holds whether the authors compare mothers having a second or later child to those having a first child (childless women represent a pseudo-control since they are eligible for a much smaller credit than mothers) or mothers having a third or later child to those having a second child (mothers of two children experience a larger increase in the credit than those with one child).

Specifically, the authors find that an increase in EITC income of $1,000 (in 2009 $) is associated with a 6.7 to 10.8 percent reduction in the low birth weight rate for single mothers with a high school education or less. Effects for African-American women are larger. The magnitude of these findings is in line with that found in (relatively scant) existing evidence on income and infant health.

The authors also explore the mechanisms behind these effects. They find that part of the explanation may lie in greater use of pre-natal care, as EITC income increases the probability of using pre-natal care and of receiving such care before the third trimester. They also find that higher EITC income leads to fairly large decreases in pre-natal smoking (and less robustly, drinking). By contrast, the EITC has relatively little effect on health insurance status, though there is some shifting from Medicaid to private insurance.

Finally, the authors estimate the dollar benefit of reductions in low birth weight. Using results from the existing literature on the relationship between low birth weight and "excess hospital costs," they estimate that each $1,000 of EITC income may reduce hospital costs by $20 to $245. As the authors note, "hospital charges are just one of potentially many measurable benefits of reductions in low birth weight, and so these estimates are lower bounds" on the external benefits of the EITC.

The authors conclude, "our results suggest there are non-trivial health impacts of the EITC. Importantly, these impacts are typically not taken into account given the non-health nature of the program and should be considered in discussions of the value of the safety net."

The authors acknowledge funding from the U.C. Davis Center for Poverty Research, which receives funding from the U.S. Department of Health and Human Services, and from the Center for Health and Wellbeing at Princeton University.

Can Health Explain Differences in Employment of Older Men Across Countries?

Employment rates of older men vary substantially across developed countries. In 2007, for example, the share of men aged 60-64 who worked ranged from nearly three-quarters in Japan to less than a quarter in France and Belgium. Employment rates have also changed over time within countries, sometimes quite dramatically.

Differences in health may explain some of these differences in employment across countries and over time, as better health may increase the productive capacity of older persons, which may then be translated into increased work. This possibility is explored in a new study by researchers **Kevin Milligan** and **David Wise**, "**Health and Work at Older Ages: Using Mortality to Assess Employment Capacity Across Countries**" (**NBER Working paper 18229**).

In their analysis, the authors focus on mortality as a key indicator of health and the capacity to work at older ages. This approach has significant advantages — mortality data is available over long periods of time for the 12 OECD countries included in the study, and the clarity of its definition ensures that data are comparable across countries. Of course, focusing on mortality may miss more subtle health changes that could affect work capacity, such as physical or mental impairment. However, the authors show that there is a strong relationship within each country between changes in self-reported health and changes in mortality over time.

The authors begin by documenting trends in mortality over time. Over the past fifty years, all countries in the study experienced significant improvements in mortality at older ages, with some tendency towards convergence. Within each country, the authors ask at what age in 2007 was the death rate the same as it was for 60-year-olds in 1957. In the U.S., this value was 69.6, indicating that a U.S. man in 2007 at age 69.6 "feels like" a man at age 60 in 1957 in terms of his mortality risk. The "mortality years" gained over the past half-century range from 4.6 to 12.0 in the countries studied.

Turning to trends in employment, the labor force participation of older men generally fell over the 2nd half of the twentieth century before bottoming out in the mid-1990s and beginning to rise again. There are significant differences across countries in both the level of employment and the changes in employment over time — for example, the minimum employment rate for 60-to-64 year olds was about 50 percent in the U.S., versus 60 percent in Japan and 10 percent in France. The study focuses on men's labor force participation because steady growth in the female work force during this period complicates any attempt to explore the relationship between health and work.

Finally, the authors turn to their question of interest, whether there is any association between changes in mortality and changes in employment over time for the 12 countries in their sample. They find little evidence of a relationship, leading them to conclude: "it appears that the extra productive capacity indicated by reduced mortality is unrelated to changes in employment."

Another way to examine this question is to look at the employment rate at each level of mortality. At low levels of mortality, such as 0.005, there is little difference across countries in the employment rate, with 85 to 90 percent of men working. As mortality increases, employment rates diverge substantially — for example, at a 0.015 mortality rate, only about 5 percent of the work force is employed in France, versus nearly 50 percent in the U.S. This suggests that there are substantial differences in employment that cannot be explained by differences in health (as measured by mortality). Repeating this analysis for a single country at different points in time yields similar results — in the U.S., at a 0.015 mortality rate, 80 percent of men were working in 1977, versus only 50 percent in 2007.

Finally, one can calculate the potential gain in employment if employees worked as much as did workers with the same mortality risk in a different country or year. Over the ages of 55 to 69, French workers in 2007 would have worked a total of 4.6 additional years if they worked as much as did U.S. workers with the same mortality risk. Similarly, U.S. workers in 2007 would have worked 3.6 additional years (or nearly 50% more, relative to an average of 7.9 years worked over ages 55 to 69) if they worked as much as did U.S. workers in 1977 with the same mortality risk.

What can explain the large cross-country differences in labor force participation by older workers, if not differences in health? Reprising some of their earlier work as part of the NBER's International Social Security Project, the authors show that there is a strong positive relationship between the extent to which a country's public pension system discourages additional work and the share of the population within a given age range (55 to 65) or at a given level of mortality risk (0.015 percent) that is out of the work force. The authors conclude "our findings suggest that large differences in employment at older ages persist across countries given similar health levels, providing substantial scope for policy to influence work decisions."

The authors acknowledge funding from the Sloane Foundation.

NBER Profile: *Mark Stabile*

Mark Stabile is a Research Associate in the NBER's programs on Children and Health Care. He is the Founding Director of the School of Public Policy and Governance at the University of Toronto and Professor of Economics and Public Policy at the Rotman School of Management, University of Toronto.

From 2003–5, Stabile served as the Senior Policy Advisor to the Ontario Minister of Finance, where he worked on health, education, and tax policy. He has advised the Governments of Canada and Ontario, among others, on health care reform and programs to reduce child poverty. He is a member of the editorial board of *Health Economics, Policy and Law*.

Professor Stabile received his Ph.D. from Columbia University and his B.A. from the University of Toronto. He is a Visiting Professor at the London School of Economics and Political Science and has been a visiting Professor at Princeton University. He is the recipient of the John Polanyi Prize in Economics and the Harry Johnson Prize from the Canadian Economics Association.

Professor Stabile's research focuses on the economics of child health and development, child mental health, health care financing, and tax policy and health insurance. He is the co-editor of the 2008 book *Exploring Social Insurance: Can a Dose of Europe Cure Canadian Health Care Finance?*

Stabile lives in Toronto with his wife, Sarah, and son, Bruno. He enjoys playing tennis and cycling around the city.

Abstracts of Selected Recent NBER Working Papers

WP 18172
David Autor, Mark Duggan, Jonathan Gruber
Moral Hazard and Claims Deterrence in Private Disability Insurance

We provide a detailed analysis of the incidence, duration and determinants of claims made on private Long Term Disability (LTD) policies using a database of approximately 10,000 policies and 1 million workers from a major LTD insurer. We document that LTD claims rates are much lower than claims rates on the public analogue to LTD, the Social Security Disability Insurance program, yet LTD policies have a much higher return-to-work rate among initial claimants. Nevertheless, our analysis indicates that the impact of moral hazard on LTD claims is substantial. Using within firm, over time variation in plan parameters, we find that a higher replacement rate and a shorter waiting time to benefits receipt—also known as the Elimination Period or EP—significantly increase the likelihood that workers claim LTD. About sixty percent of the effect of a longer EP is due to censoring of shorter claims, while the remainder is due to deterrence: workers facing a longer EP are less likely to claim benefits for impairments that would lead to a only a brief period of LTD receipt. This deterrence effect is equally large among high and low-income workers, suggesting that moral hazard rather than liquidity underlies the behavioral response. Consistent with this interpretation, the response of LTD claims to plan parameters is driven primarily by the behavior of the healthiest disabled, those who would return to work after receiving LTD.

WP 18200
Yaa Antwi, Asako Moriya, Kosali Simon
Effects of Federal Policy to Insure Young Adults: Evidence from the 2010 Affordable Care Act Dependent Coverage Mandate

We study the health insurance and labor market implications of the recent Afford-

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able Care Act (ACA) provision that allows dependents to remain on parental policies until age 26 using data from the Survey of Income and Program Participation (SIPP). Our comparison of outcomes for young adults aged 19–25 with those who are older and younger, before and after the law, shows a high take-up of parental coverage, resulting in substantial reductions in uninsurance and other forms of coverage. We also find evidence of increased labor market flexibility in the form of reduced work hours.

WP 18210
John Shoven, Sita Nataraj Slavov
When Does It Pay to Delay Social Security? The Impact of Mortality, Interest Rates, and Program Rules

Social Security benefits may be commenced at any time between ages 62 and 70. As individuals who claim later can, on average, expect to receive benefits for a shorter period, an actuarial adjustment is made to the monthly benefit to reflect the age at which benefits are claimed. In earlier work (Shoven and Slavov, 2012), we investigated the actuarial fairness of this adjustment for individuals with average life expectancy for their cohort. We found that for current real interest rates, delaying is actuarially advantageous for a large subset of people, particularly for primary earners in married couples. In this paper, we quantify the degree of actuarial advantage or disadvantage for individuals whose mortality differs from the average. We find that at real interest rates close to zero, most households — even those with mortality rates that are twice the average — benefit from some delay, at least for the primary earner. At real interest rates closer to their historical average, however, singles with mortality that is substantially greater than average do not benefit from delay; however, primary earners with high mortality can still improve the present value of the household's benefits through delay. We also investigate the extent to which the actuarial advantage of delay has grown since the early 1960s, when the choice of when to claim first became available, and we decompose this growth into three effects: (1) the effect of changes in Social Security's rules, (2) the effect of changes in the real interest rate, and (3) the effect of changes in life expectancy.

WP 18235
Frank Lichtenberg
Pharmaceutical Innovation and Longevity Growth in 30 Developing and High-Income Countries, 2000–2009

We examine the impact of pharmaceutical innovation, as measured by the vintage of prescription drugs used, on longevity, using longitudinal, country-level data on 30 developing and high-income countries during the period 2000-2009. We control for fixed country and year effects, real per capita income, the unemployment rate, mean years of schooling, the urbanization rate, real per capita health expenditure (public and private), the DPT immunization rate, HIV prevalence and tuberculosis incidence.

Life expectancy at all ages and survival rates above age 25 increased faster in countries with larger increases in drug vintage. The increase in drug vintage was the only variable that was significantly related to all of these measures of longevity growth. Controlling for all of the other potential determinants of longevity did not reduce the vintage coefficient by more than 20%. Pharmaceutical innovation is estimated to have accounted for almost three-fourths of the 1.74-year increase in life expectancy at birth in the 30 countries in our sample between 2000 and 2009, and for about one third of the 9.1-year difference in life expectancy at birth in 2009 between the top 5 countries (ranked by drug vintage in 2009) and the bottom 5 countries (ranked by the same criterion).

WP 18282
Nathaniel Hendren
Private Information and Insurance Rejections

Across a wide set of non-group insurance markets, applicants are rejected based on observable, often high-risk, characteristics. This paper argues private information, held by the potential applicant pool, explains rejections. I formulate this argument by developing and testing a model in which agents may have private information about their risk. I first derive a new no-trade result that theoretically explains how private information could cause rejections. I then develop a new empirical methodology to test whether this no-trade condition can explain rejections. The methodology uses subjective probability elicitations as noisy measures of agents beliefs. I apply this approach to three non-group markets: long-term care, disability, and life insurance. Consistent with the predictions of the theory, in all three settings I find significant amounts of private information held by those who would be rejected; I find generally more private information for those who would be rejected relative to those who can purchase insurance; and I show it is enough private information to explain a complete absence of trade for those who would be rejected. The results suggest private information prevents the existence of large segments of these three major insurance markets.

WP 18327
Jessica Wolpaw Reyes
Lead Policy and Academic Performance: Insights from Massachusetts

Childhood exposure to even low levels of lead can adversely affect neurodevelopment, behavior, and cognitive performance. This paper investigates the link between lead exposure and student achievement in Massachusetts. Panel data analysis is conducted at the school-cohort level for children born between 1991 and 2000 and attending 3rd and 4th grades between 2000 and 2009 at more than 1,000 public elementary schools in the state. Massachusetts is well-suited for this analysis both because it has been a leader in the reduction of childhood lead levels and also because it has mandated standardized achievement tests in public elementary schools for almost two decades. The paper finds that elevated levels of blood lead in early childhood adversely impact standardized test performance, even when controlling for community and school characteristics. The results imply that public health policy that reduced childhood lead levels in the 1990s was responsible for modest but statistically significant improvements in test performance in the 2000s, lowering the share of children scoring unsatisfactory on standardized tests by 1 to 2 percentage points. Public health policy targeting lead thus has clear potential to improve academic performance, with particular promise for children in low income communities.

WP 18342
Jeffrey Brown, Scott Weisbenner
The Distributional Effects of the Social Security Windfall Elimination Provision

Millions of federal, state and local gov-

ernment employees have lifetime earnings that are divided between employment that is covered by the Social Security system and employment that is not covered. Because Social Security benefits are a non-linear function of covered lifetime earnings, the simple application of the standard benefit formula to covered earnings only would provide a higher replacement rate on those earnings than is appropriate given the individuals' total (covered plus uncovered) lifetime earnings. The Windfall Elimination Provision (WEP), established in 1983, is intended to correct this situation by applying a modified benefit formula to earnings of individuals with non-covered employment. This paper analyzes the distributional implications of the WEP, and finds that it reduces benefits disproportionately for households with lower lifetime covered earnings. It discusses an alternative method of calculating the WEP that preserves the intended redistribution of the system. In recognition of the data limitations that prevent this alternative method from being used by SSA for at least another decade, the paper also analyzes two alternative ways of calculating the WEP that use the same information that SSA currently uses, are budget neutral, and come closer to maintaining the cross-sectional progressivity of Social Security than does the existing WEP formula.

WP 18359
Keith Ericson
Consumer Inertia and Firm Pricing in the Medicare Part D Prescription Drug Insurance Exchange

I use the Medicare Part D prescription drug insurance market to examine the dynamics of firm interaction with consumers on an insurance exchange. Enrollment data show that consumers face switching frictions leading to inertia in plan choice, and a regression discontinuity design indicates initial defaults have persistent effects. In the absence of commitment to future prices, theory predicts firms respond to inertia by raising prices on existing enrollees, while introducing cheaper alternative plans. The complete set of enrollment and price data from 2006 through 2010 confirms this prediction: older plans have approximately 10% higher premiums than comparable new plans.

WP 18444
Isaac Ehrlich, Yong Yin
The Problem of the Uninsured

The problem of the uninsured — those eschewing the purchase of health insurance policies — cannot be fully understood without considering informal alternatives to market insurance called "self-insurance" and "self-protection", including the publicly and charitably-financed safety-net health care system. This paper tackles the problem of the uninsured by formulating a "full-insurance" paradigm that includes all 4 measures of insurance as interacting components, and analyzing their interdependencies. We apply both a baseline and extended versions of the model through calibrated simulations to estimate the degree to which these non-market alternatives can account for the fraction of the non-elderly adults who are uninsured, and estimate their behavioral and policy ramifications. Our results indicate that policy analyses that do not consider the role of self-efforts to avoid health losses can grossly distort the success of the ACA mandate to insure the uninsured and to improve the health and welfare outcomes of the previously uninsured.

WP 18446
Kathleen McGarry
Dynamic Aspects of Family Transfers

Each year parents transfer a great deal of money to their adult children. While intuition might suggest that these transfers are altruistic and made out of concern for the well-being of the children, empirical tests of the model have consistently yielded negative results. However, an important limitation in these sorts of studies and of our understanding of transfers in general has stemmed our inability to observe transfers over time. Estimates of patterns in a single cross section necessarily miss important aspects of behavior. In this paper I expand on the static altruistic model and posit a dynamic model in which parents use current observations on the incomes of their children to update their expectations regarding future incomes and desired future transfers. I then draw on data spanning a 17 year period to examine the dynamic aspects of transfer behavior. I find substantial change across periods in recipiency, large differences across children within the family, and a strong negative correlation between inter vivos transfers and the transitory incomes of the recipients. This evidence suggests that dynamic models can provide insights into transfer behavior that are impossible to obtain in a static context.

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