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INTERNATIONAL CENTER FOR FINANCE  
ICF Working Paper No. 04-50

COWLES FOUNDATION  
For Research in Economics  
Discussion Paper No. 1499

January 2005

*BEHAVIORAL ECONOMICS AND INSTITUTIONAL  
INNOVATION*

*Robert J. Shiller*

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# **Behavioral Economics and Institutional Innovation**

Robert J. Shiller

January, 2005

## Abstract

Behavioral economics has played a fundamental role historically in innovation in economic institutions, even long before behavioral economics was recognized as a discipline. Examples from history, notably that of the invention of workers' compensation, illustrate this point. Though scholarly discussion develops over decades, actual innovation tends to occur episodically, particularly at times of economic crisis. Fortunately, some of the major professional societies, the Verein für Sozialpolitik, the American Economic Association and their successors, have managed to keep a broad discourse going, involving a variety of research methods including some that may be described today as behavioral economics, thereby maintaining an environment friendly to institutional innovation. Further, the broad expansion of behavioral economics that is going on today can be expected to yield even more such important institutional innovations.

Keywords: Economic innovation, invention, psychological economics, institutional economics, social insurance, workers' compensation, American Economic Association, Germany, *Verein für Sozialpolitik*.

JEL Classification: B41

## **Behavioral Economics and Institutional Innovation<sup>1</sup>**

Behavioral economics, which is really the application of methods from other social sciences — particularly psychology — to economics, is central to institutional innovation because it rounds out the details, the frictions or imperfections that might make some grand idea for a new economic institution unworkable, if not appropriately dealt with.

The invention of economic institutions is not unlike engineering inventions: it must deal with a multitude of problems and obstacles, including the problem that the people who must use the invention are themselves imperfect. What engineers call "human factors engineering" is especially important in the invention of economic institutions.

In this paper I will consider a little history of thought in both fields, behavioral and institutional economics together, from the perspective of their contribution to some of our most important social welfare institutions, institutions that help people manage the risks of living. I will trace the interaction of practical policy with economic thought extending back to the beginnings of modern social welfare institutions in 19<sup>th</sup> century Germany, up to the present. The example of the invention of workers' compensation will be particularly stressed as it affords a perfect example of the interplay between economic theory and behavioral economics in producing fundamental economic innovation. I hope this will offer some insights into the way that progress is made in economic policy, through the interaction of economic thought and the experimentation of social policy makers.

### **Behavioral Economics**

We divide the social sciences according to subject matter but also according to method. We might define the field of economics in terms of subject matter as the study of prices, quantities, resource allocation and economic organization. But we might also define the field of economics as it mostly exists today as a certain *approach* to social science, an approach that is based models of rational optimization, and in particular, of individuals' maximizing an expected utility function.

Unfortunately, the division of the social sciences by subject matter does not neatly match with the division according to method. The method of modeling rational optimization is not coterminous with economics. Many other methods, including aspects of psychology, have long been used by economists; I will cover some of this later. Moreover, non-economists often make

use of the rational optimizing model. Political science has been heavily influenced by, some would say over influenced by, rational optimizing models.<sup>2</sup> The field of law has also had a great reliance on the rational optimizing model ever since Ronald Coase's work in the late 1950s, and the founding then of the *Journal of Law and Economics*. Some would say too that the field of law was over-influenced by the rational optimizing model.<sup>3</sup>

The study of prices, quantities and economic organization does not completely succeed if conducted only from the paradigm of rational optimization. There is increasing recognition of this fact. A behavioral economics revolution has been taking place, a revolution that has accelerated over the last ten or twenty years.

Herbert Simon, in his entry "behavioral economics" in *The New Palgrave Dictionary of Economics and Law*, 1998, pointed out that the term "behavioral economics" is a sort of pleonasm, for what else is economics about than a study of human behavior. How could it possibly be that all the work done in departments of psychology, sociology and anthropology are irrelevant to economics? The discovery of behavioral economics in the past decade or two is really a return to reality from an untenable position that the rational optimizing model is the only framework for economics.

Another revolution in economics has been taking place that is not usually associated with the behavioral economics revolution, and that is the institutional economics. It becomes related when one looks at the defining characteristics of the two fields. One of the cardinal principles of behavioral economics, as enunciated by its most important exponents Daniel Kahneman and Amos Tversky, is framing, that human actions are heavily influenced by frames of reference. The institutional structure that we have is the basic framework for all of our economic decisions.

All academic disciplines proceed by fits and starts, and a new paradigm, once adopted, tends to be carried too far, until earlier research assumptions are rediscovered. The exclusive reliance of many in the economic profession on the rational optimizing model was an example of carrying a model too far. Thus we are seeing the emerging fields of what are called behavioral economics, and the "new institutional economics," that are really returns to a more balanced approach to all of economics.

One signpost of a revolution in economics is the founding of new societies and journals. The Society for the Advancement of Behavioral Economics was founded in 1982. The International Society for New Institutional Economics was founded in 1997. Other evidence can be found in the creation of new scholarly journals. The *Journal of Economic Behavior and Organization* was created in 1980. The *Journal of Economic Psychology* was created in 1981. The *Journal of Behavioral Finance* was created in 1999 (under a slightly different title at first). The *Journal of Institutional and Theoretical Economics* began in 1997 (as a transformation of an earlier German

journal), and in the same year the *Review of Economic Design* appeared.

But, the founding of societies and the establishment of journals does not accurately represent progress in the fields, for creative research is always directed by individual researchers, not organizations. There appears to be something to be gained by people of similar research methods coming together to talk with each other, but there is also the risk that by defining themselves as a separate group they will lose their vitality and lose their ability to interact constructively with the profession at large.

Behavioral economics and institutional economics represent two distinct branches of economic theory that are often viewed as not central to economic theory, and have gone through periods of revival and discard over the history of economic thought. Behavioral economics has long been regarded as not very successful by many in the profession, for it has not produced an elegant theoretical framework that is readily applied to a wide variety of circumstances. Institutional economic has been criticized as little more than simple story telling about our existing economic institutions and off-the-wall proposals for the future. But, despite their frequent disparagement, these fields thrive in their ability to make institutional innovation happen.

### **Economic Crisis as an Instigator of Institutional Innovation**

Economic research is a fairly steady enterprise, but major institutional innovation is not. Those who would like to see their economic theories embodied in new institutions may have to wait many years to see that happen. One reason that innovation seems so episodic is that it tends to be spurred by major economic crises, and can take place only in the rare times when the public perceives an urgent need for change.

Sometimes economic crisis can be so pressing as to bring economic innovation on even before the theorists have opined on it. An example is the invention of inflation-indexed bonds in early America, when the erosion of soldiers' pay by wartime inflation was so intense and so resented that it actually created some mutinies among American soldiers. But in such cases, the innovation, not fully worked out or justified in theory, may be abandoned as soon as the crisis is over. Inflation-indexed bonds were not issued again in the U.S. until 1997.<sup>4</sup>

The American Economic Association was founded by practical economists who were motivated in some measure by the industrial depression of the 1870s. A period of irrational exuberance and overbuilding of railroads after the Civil War had led to a stock market crash (the panic of 1873) and a period of massive unemployment, by far the longest contraction (from 1873-9) in the NBER chronicle of business cycle dates.

The principal scholarly work of that time that dealt with the policy towards this depression was written not by a professor but by a journalist: Henry George. His 1879 book *Progress and Poverty* was long on proposals for institutional change but a little short on a factual basis in scholarship. Henry George had only 5 months of secondary schooling before joining the publishing industry at age 16, and he wrote in a loose and impressionistic manner. He did have a keen appreciation of the possibility of improving welfare by changing economic institutions (in his case, to convert the tax system to a single tax on land) and his beginning was an inspiration to many.

The intense public reaction to George's proposal to solve the problem of poverty attendant upon industrial depression both inspired and created hostility from academic economists. The simplicity of George's ideas repelled academic economists, but the sudden appearance of a public apparently willing to make major changes in economic institutions inspired them.

The American Economic Association was founded to provide a more scientific and scholarly approach to the same questions that George addressed. A *New York Times* article in 1886, the year after the founding of the American Economic Association in Saratoga New York, describes the new Association:

They do not mean to rest content with theoretical discussions of political science, but hope to achieve practical results. They believe that the industrial problem is the one which presses the most urgently for solution, and that while it remains unanswered there can be no security and no real progress. By careful and candid consideration of it at this stage they hope to avert catastrophes which they think must come if it is left untouched.<sup>5</sup>

One might compare the mission of the Southern Economic Association, founded much later, in 1927. The Association was not founded at a time of economic crisis, but the *Southern Economic Journal* was, in 1933, the bottom of the greatest depression this country had ever faced. The lead article by Tipton Snavelly in the first issue of the *Southern Economic Journal* describes the kind of scholarship that sets the example for this Association as the works of the southerners (as well as U.S. presidents in their day): Thomas Jefferson, James Madison and James Monroe.<sup>6</sup> These people responded to a crisis (the discord between the United Kingdom and its American colonies that led to the Revolutionary War) by becoming some of the most profound inventors of economic institutions in world history: Jefferson was the author of the Declaration of Independence, and Madison was one of the authors of the *Federalist Papers* that set forth a theory of democratic government that shapes world institutions today, and he has been called the father of the U.S. Constitution. All three of them were interested in economics and helped guide the curricula of the southern universities that were in formation then.

Even before the founding of these associations, similar changes in response to crisis were happening in Europe. The very first national social insurance programs were instituted by the German government led by Otto von Bismarck in the 1880s. The German government created health insurance (*Krankenversicherung*) in 1883, followed by accident insurance (*Unfallversicherung*) in 1884 and old age insurance (*Altersversicherung*) in 1889. These institutions were then copied around the world. Indeed, the Social Security institutions that we have in the United States today are very similar to those instituted in Germany in the 1880s.

The German social insurance is often described as recommended to Bismarck by his economic advisors, including Johann Karl Rodbertus and Hermann Wagener, as a response to the threat of the emerging socialist and communist movements. The 1848 Revolution, which started in Sicily and spread to France, Germany, Italy and Austro-Hungary, had made a strong impression of the potential dangers an angry proletariat posed to the established order. The *Communist Manifesto* by Karl Marx and Friedrich Engels was written in that same year, and helped launch an international Communist movement. These events undoubtedly led to a motive for established governments to preempt these revolutionary movements by improving the economic lot of the poorer element of society. A social insurance system would impress upon them the benevolence of their government and create public support for the state. To use Bismarck's own words, workers will think "if the state comes to any harm, I'll lose my pension."<sup>7</sup>

Bismarck himself was hardly interested in social insurance and embraced the social insurance programs suggested to him because of their apparent political expedience. He did not even bother to mention the birth of social insurance in his memoirs. It appears to be the *academic* discussion of options for social welfare that laid the groundwork for the innovations, and this public discussion had aspects of recognition of modern principles of behavioral economics, that it designed social welfare institutions around these principles.

It remains to be seen whether the crisis of globalization, and the pressures of the emerging economies on the United States, will be sufficient to generate this kind of response.

### **Importance of Economic Discourse Generated by Crisis**

There is evidence that there were some more fundamental reasons than simple political expedience for Germany's invention of social insurance in the 1880s. One of these is an inventive spirit and public discussion that led to the details of the social insurance plans.

In the 1870s and 1880s, there was widespread public and scholarly discussion of the "social question" (*soziale Frage*), no doubt at least partly in response to the communist threat. People

wanted to know a moderate response to the same issues that motivated the communists. The German equivalent of the American Economic Association (*Verein für Sozialpolitik*) was founded in 1872.

In the second half of the nineteenth century in Germany, there were also some of the finest university economics departments in the world, where the social issues of the day were debated. At that time there was in contrast relatively little academic economics in the United States<sup>8</sup> and the economists the U. S. did have near the end of the nineteenth century tended to be products of German universities. Historian Daniel Rodgers notes that:

Of initial 6 officers of the American Economic Association in 1885, 5 had studied in Germany, of its first 26 presidents, at least 20 had done so.

In 1906, when Yale's Henry Farnum polled what he took to be the 116 leading economists and social scientists in the US and Canada, 59 had spent a student year or more in Germany.<sup>9</sup>

The American Economic Association in its early years was actually often described as an exponent of German economics. The person most responsible for founding the American Economic Association, Richard T. Ely, felt that the parallel between the American Economic Association had become so strong that it needed to be corrected:

Dr. Ely also maintained that the proposed association ought in no sense to be regarded as a German movement, as some had intimated. Nothing about it was more marked than its American character. It had sprung up almost spontaneously to answer to felt needs. Doubtless many present had studied in Germany and were grateful for what they had learned in the German universities; but nothing was more foreign to their purposes than to import Germany into America.<sup>10</sup>

The German economics departments were much involved in advancing social causes, and their relative advantage in understanding economic theory was a critical factor making possible the creation of social insurance.

Germany in the late 19th century was also the country most on the move in terms of scientific research. Germany invented then the modern concept of a graduate school, where doctoral students would work with professors on fundamental research. Germany, in the 1870s, invented the modern concept of an in-house research laboratory within a corporation, an invention of a way of inventing that was later widely copied in other countries.<sup>11</sup> While these in-house departments were probably not the venue for most discussions of social insurance, the kind of intellectual environment they represented apparently carried forward in many directions in

German society. In many ways the vitality of our economics profession today has to do with copying educational institutions from Germany.

## **Information Technology**

The other cause of the creation of national social insurance in the 1880s are a number of inventions in information technology, in the information infrastructure, that made much more feasible the ambitious social insurance plans. Some of the Nineteenth Century innovations were: the invention of cheap paper, of preprinted forms in books with carbon paper between them, of typewriters, of vertical filing cabinets. We are not talking about computers here, but instead about the simple methods of keeping track of people, maintaining their records, and following a social insurance program methodically.

In Germany, notably, an efficient government bureaucracy stood out, with its system of management as well as professionalism among its employees was already an example for the entire world by the 1880s. Germany was an example of government professionalism for the entire world.

The nineteenth century also saw the development of the first modern and efficient postal services. The cost of mailing a letter declined sharply, and post offices proliferated into every town and village. The German postal service was one of the most advanced, and it became a financial conduit through postal savings. The postal service became the information infrastructure for the age, the Internet of the 19<sup>th</sup> century, so to speak.

The kind of economic innovation that was seen in Germany in the 1880s would probably not have been possible in earlier centuries: the cost of accurate record keeping, record transmittal and funds transfer would have been prohibitive then.

## **The Origin of Social Insurance: Workers' Compensation as an Invention**

Workers' compensation is a good example of a radical invention in social welfare since in most countries, including the United States, it was historically the first major government social insurance scheme to be put in place. In fact, according to Arthur Williams who did an extensive study of workers' compensation around the world, workers' compensation was the first social insurance program for 106 of 136 countries.<sup>12</sup> It was the first because it, as an invention, had a clear logic and functioning, and thus stood to be copied.

Workers' Compensation (workman's compensation) is the U.S. version of the German accident insurance, a government-mandated accident, disability and life insurance program that

applies only to work-related events, work-related injuries illnesses and deaths. After worker's compensation began in Germany in 1884 as an initiative of the it was copied by Poland in the same year, and by 1900 it had spread to 11 countries.<sup>13</sup> By 1988, all but five of 141 countries had some form of workers' compensation.<sup>14</sup> Even the Soviet Union, with a very different ideology from the countries where workers' compensation began, adopted a workers' compensation that was not fundamentally different.

Workers' compensation is an institution that reduces risks to livelihoods, but deals only with a subset of risks, the risks that are work-related. One naturally wonders what is the essence of the idea that has been so widely copied. One wonders why work-related injuries should be given a separate program from a general welfare program, and why the programs stop short of dealing with the bigger issues of lifetime income risk management.

In the United States, after the turn of the century, the workers' compensation cause was led by economists Richard T. Ely and John R. Commons, both professors at the University of Wisconsin and founders of the American Economics Association. At that time, the U.S. federal government was not considered the proper authority for social welfare institutions, and so the idea had to be sold individually to each of the state governments. Wisconsin and New York led the way by adopting workers' compensation in 1911. By 1920, all but six states had adopted it, and by 1948 all states had.<sup>15</sup>

We must try to understand the essence of this institution in order to appreciate the reasons for its near-universality. It is a sort of "invention" that has an internal logic and substance, so that its spread is not unlike the spread of technology in other areas. It allows a kind of risk management that had not been possible before. The elements of the invention, in its original 1884 form in Germany as well as many successor versions, are several. The 1884 law set up new mutual associations for each industry in Germany, and for large industries several mutual associations. The law also set up a government-financed imperial office (in Berlin) that regulated these associations. The law specified that firms were required to pay an assessment to their respective mutual association, from which compensation for workers' claims would be made. A definition of events that are presumed to be work-related was drawn up, to be the basis of claims. Claims would be automatically paid if the event satisfied the definition, whether or not there was fault on the part of the employer.

The workers' compensation system replaced an older model in which employees' only recourse when they were injured at work was to sue their employer. The old system seemed to work very poorly for a number of reasons. In many injuries, it was difficult to prove fault on the part of the employer. Lawyers might argue that the employer's working conditions were such as to make such an injury more probable than it should be, but such arguments are often too

intangible a basis on which to predicate a huge award. Sometimes affixing blame on an employer requires testimony from other employees, who might be reluctant to testify against their employer. Lump-sum awards for permanent disability would have to be very large to compensate for lifetime disabilities, and firms may find it difficult to pay in some circumstances. Firms cannot be guaranteed to continue making regular payments indefinitely; firms do not last forever. Before workers' compensation, the lawsuit often failed to produce a sizable settlement, and the worker thus suffered a catastrophic decline in living standards, leading even sometimes to a life of beggary.

The invention of workers' compensation allows a certain spreading of risk that had not been possible before. By mandating the program for all firms, the law eliminated the selection bias problem (that only firms that had inside knowledge that working conditions were relatively more dangerous would sign up for insurance against workers' judgments against them). By defining an objective list of work-related events for compensation, without regard to fault, the law eliminated the problem that fault was difficult to prove. By creating long-lived organizations, the mutual associations or their equivalent, the government made it possible for workers to be compensated in the long-term even though firms were irregular and transitory in their ability to pay.

The essential element of this invention of workers' compensation is a formal definition of "work-related" injuries or illnesses that is the basis of claims. Arriving at this definition would appear to be the most difficult step in implementing workers' compensation, and the issues make the definition so ambiguous that one wonders why relation to work should be an issue in a government-sponsored insurance plan.

While it is clearly possible to identify an accident in which a worker is crushed by a machine as work related, more often the source of the injury or illness is hard to pin down. Repetitive work can bring on arthritis, but most people who live long enough get arthritis eventually anyway. Should arthritis be covered? Wouldn't that bring on a flood of claims from people experiencing normal age-related arthritis? Back problems are sometimes work related, but back problems are very common among the general population. Isn't there a risk of a large number of claims that work brought on a back problem?

What if a worker falls ill with an infectious disease following a minor injury at work. Should we suppose that the injury made the worker vulnerable to the disease? Should mental illnesses or stress-related conditions be covered? Jobs may produce psychological stress that arguably could be held responsible. Heart and lung disease may be worsened by atmosphere, and many workplaces have some at least minor problems with atmosphere.

By working out answers to these questions, Germany created a model for an economic institution, something that could be copied with relative ease in other countries. In this sense,

there was a great deal of research and development that led to workers' compensation, it was a real invention.

One wonders why the government should make such a point of trying to decide whether an injury or illness is work related. Part of the reason must be the employee lawsuits against employers for work-related injuries and illnesses, for which the same ambiguities have to be worked out by courts in a context of fault-finding and case-specific arguments. A sequence of judgments on individual cases is probably not the best way to arrive at systematic judgments on definition of work-related injury or illness. An invention does not have to be perfect to be adopted widely, it has only to be the best available technology.

There are very good reasons for adopting something like workers' compensation, and this must account for its spread. These reasons for workers' compensation do not, however, explain why the compensation is limited to work-related injuries, and why it is usually financed by employers' contributions. Some accounts of the reasons to have workers' compensation separately from a general social insurance scheme are unconvincing:

Two possible reasons for this special treatment [for work-related injuries] are that (1) the nation believes that employers and society have a greater obligation to workers injured or exposed to disease because of their work, and (2) the WC benefit may be the exclusive remedy of the employee against the employer for job-related injuries or diseases.<sup>16</sup>

It is hard to see why workers are so different from nonworkers in terms of society's obligations that we need to have a separate program for them, and the workers' compensation benefit does not need to be the exclusive remedy of the employee. The weakness of these arguments leads one to wonder if the existence of workers' compensation as a program separate from other government illness or disability insurance is nothing more than a historical accident, caused by the fact that pressing and widely observed problems with employee lawsuits against employers caused workers' compensation to be the first social insurance program to be created, and the institutions have just lived on since.

There is, however, an important reason why workers' compensation financed by employers' contributions is an important invention that is different from other forms of social insurance: such a program, if the rates are related to the employer's or industry experience with workplace illness and injury, creates proper incentives for employers to reduce the riskiness of their work environment. It is perhaps for this reason that workers' compensation is best thought of as a separate invention, apart from other kinds of social insurance. One might also argue that employer contributions that are somehow related to experience with injuries or illnesses related to the employer is an essential element of the invention of workers' compensation, without which

it would not work well. If we institute worker's compensation without relating contributions to loss experience, then we would create incentives for even worse workplace conditions than were there before it. Employers would become encouraged to allow workplace safety to deteriorate even further, since the cost of injury and illness would be subsidized by the insurance program.

John R. Commons, a tireless campaigner for workers' compensation in the United States, referred to this effect of workers' compensation by the term "the internalization principle," the principle that society should impose whenever possible all costs that firms cause for society onto the firms themselves, so that firms will have an incentive to contain these costs, thereby "internalizing" costs that were formerly borne externally to the firm. Commons noted that many turn-of-the-century workplaces had dangerous conditions for the workers, that workers would occasionally incur a disabling injury at work. With worker's compensation, firms have an incentive to make the workplace really safer, and not just to create an appearance of safety enough that lawsuits against them could not prove they caused the accident.

The original German *Unfallversicherung* was in fact a model for creating such an incentive. Since the 1884 law specified a separate mutual association to insure the risks of each industry, higher insurance premia would be assessed on firms in industries that pose high risks to their workers. Ultimately, these higher insurance premia would be passed on to consumers of their products through higher prices. It is efficient that consumers pay the full costs (including costs of injury to workers) and decide whether the product is attractive to them at that price; if it is not the industry does not justify the risk to injury.

Commons internalization principle was an effective argument; it appealed to state legislators, who would respond by adopting mandatory workers' compensation programs. Commons was not successful in his proposal for health insurance, which did not have the internalization principle behind it.

In the United States workers' compensation systems today, employers may be class-rated, experience-rated, or retrospectively rated. Class rated employers are assigned to one of over 600 industrial classes, and then see their premium depend on the injuries and illness experience of others in their class. Class rating is used for small employers, who are too small for it to be possible to estimate their injury and illness rates accurately. The experience-rated or retrospectively-rated employers see their premium depend on their own actual loss experience. Some states also allow schedule rating, which adjusts the employer's premium with regard to safety programs and other factors believed to affect future losses. In 45 states, employers may also choose to purchase insurance privately. The alternatives incorporated into this system are designed to have a very effective link between premiums paid by a firm and its actual loss experience, thus internalizing the losses firms create very effectively.

In Japan, the Workmen's Accident Compensation Program divides employers into 54 categories, and employer contribution rates differ dramatically across categories, from 14.5 percent for firms constructing hydroelectric power plants, to 0.1 percent for firms in banking and insurance.

Not all countries have an effective link between losses and premiums. A notable example is the United Kingdom, where their industrial injuries scheme does not make contributions vary according to either employers' industry or individual firm experience. However, the United Kingdom is a country where workers are allowed to sue employers for damages even though they are compensated by workers' compensation, and so this defect of their system is not as serious as it would otherwise be.<sup>17</sup>

### **Behavioral Economics and the Invention of Mandatory Social Welfare**

When national social insurance was invented in the 1880s, German social thinkers, such as Adolph Wagner and G. Behm, were arguing that national social insurance should be made *mandatory*, to deal with, the problem that few people would actually buy the insurance, a problem that is ultimately behavioral.

There are many complex reasons grounded in human behavior why social insurance needs to be mandatory.

The "risk as feelings" hypothesis is the product of research in clinical and physiological psychology. It asserts that emotional reactions to situations involving uncertainty or futurity often differ sharply from cognitive assessments of those situations, and that when such differences occur, it is often the emotional reactions that determine behavior.<sup>18</sup> Rational optimizing economic theory assumes that people calculate their rational advantage and then *act* consistently with that. In fact, it is a common human shortcoming that actions to put in actions one's rational decisions are often postponed or neglected.

The hyperbolic discounting theory that was developed by David Laibson helps us to quantify an important human tendency: a tendency to postpone consideration of important problems indefinitely. People violate the precepts of rational optimizing theory by displaying time inconsistency, repeatedly violating their own plans for the future.

The theory of mental compartments developed by Richard Thaler helps us to understand why people may be very cautious to protect themselves against some small, even inconsequential, risks, and to ignore some of the biggest lifetime risks of all.

The research on "wishful thinking bias" has demonstrated that people really do tend sometimes to believe what they want to believe. They may then disregard some important risks,

not deal with them. For example, soccer enthusiasts overestimate the probability that their team will win<sup>19</sup> and supporters of political candidates give overestimate the probability that their candidate will win.<sup>20</sup>

While these are modern research results, the ideas were anticipated in the discussions that led to the establishment of nineteenth century social welfare institutions. That the social insurance should be made compulsory emerged as a central theme. In many countries, there were already voluntary help self-help, benevolent societies and insurance companies. By making the government plans compulsory, the government solved the selection bias problem that plagued private insurance plans, and they solved the problem that some individuals, of lesser intelligence, discipline or foresight, will omit to buy insurance and then, after a bad outcome, throw themselves at the mercy of others. The social insurance replaced or supplemented the poor laws, which had until then offered some support for the most unlucky, but not on the basis of insurance, that is, out of sympathy and without regard for prior contributions or contractual coverage.

The argument for making plans compulsory hinged partly on some recognitions of limitations of human ability to tackle risk management. G. Behm, in his 1874 paper for the Society for Social Politics (*Verein für Sozialpolitik*), noted that

From my experiences, I have to say it is very doubtful that any substantial number of workers would on their own sign up for a pension plan.<sup>21</sup>

Fritz Halle, a businessman, in another paper collected in the same 1874 volume, offered his interpretation of the reasons workers gave for not wanting insurance. The worker would say, Halle quotes:

As long as I am alive I can earn my bread, from the little that I can now save, I cannot also afford contributions for insurance, and should I die young, which surely won't happen as I am strong and healthy, the community would take care of my wife and children.<sup>22</sup>

Halle says that such statements reveal a "deficiency of foresight and a deficiency of concern for heirs."<sup>23</sup> Such statements appear to reflect a number of judgment errors that twentieth century psychologists have studied closely: overconfidence, underestimation of low probability risks, and myopia about not-so-near future.

Part of the reason that individuals would not buy insurance is that they feel that they are already protected from extreme vicissitudes by their family and friends, who would help them out then if anything went seriously wrong. This feeling was surely also largely an illusion, or

wishful thinking. Friends will not appreciate the dimensions of economic hardship one may encounter. Making the insurance compulsory creates a common knowledge among society in general that the government has taken on the former role of the vaguely-defined community, and so that they are freed from ill-defined obligations to take care of others. Compulsory social insurance provides a clean break from the imperfect informal risk sharing.

The hopes, expressed in other many countries that voluntary associations would solve the risk problem people faced were simply unrealistic. The benevolent societies and fraternal organizations that were entrusted with the social welfare function before the German invention of social insurance covered few people, and even these inadequately. Still, despite this evidence, it was hard for social thinkers in the late nineteenth century to justify any mandatory plans, since they seemed to run counter to principles of individual freedom. But after the German experiment with social insurance in the 1880s, which revealed the benefits of such insurance, now virtually every advanced country in the world has some form of social insurance. The advantages of compulsory insurance has become so clear that the principle is accepted even in the societies that value individual liberty the most.

Making social insurance mandatory deals with, as we would put it now, the selection bias problem that hampers private insurance (only sick people would sign up for voluntary health insurance, for example). The mandatory nature of social insurance makes it possible to keep insurance down from levels that would discourage most potential applicants from buying insurance (much as the analogous invention of group policies, such as corporate health insurance policies, for the same reason, but with its own different problems).<sup>24</sup>

Mandatory social insurance was one of those difficult pills to swallow that delayed the adoption of important social insurance innovations. But, when the arguments for it were made persuasively enough, the innovations eventually did happen, and are now accepted by all shades of political leanings, from the most conservative to the most liberal.

### **Gentler Alternatives to Mandatory Programs**

Today, modern behavioral economics is suggesting new ways of encouraging better economic decision making without necessarily making the plans mandatory. These new ways of handling the problems that interfere with good decision making are grounded in behavioral research, that is, in the barriers to individual success in economic decisions.

James Choi, David Laibson, Brigitte Madrian and Andrew Metrick (2003) have shown evidence that in order to encourage better economic behavior we may have only to institute economic institutions that make the good behavior the "default option." Most people let stand a

default option that is suggested to them, and so merely setting up an institutional environment that requires people to make a tiny effort to deviate from the default option can be enough to encourage better economic decision making. As simple as this point seems to be, it has often eluded government policy makers. One suspects that their failure to see this point is a consequence of habitual over reliance on rational optimizing models of human behavior.

Shlomo Benartzi and Richard Thaler (2004) have shown through some experiments that people can be encouraged to save more if employers merely offer them a plan that specifies that their a fraction of their future pay increases will be automatically diverted into a savings program. By specifying that only *future* increases will be diverted, they make it easier for individuals to sign up for the program, overcoming a tendency for people to procrastinate in their savings decisions. By requiring that people make a little effort to cancel the program, they succeeded in preventing most cancellations. Their programs resulted in a quadrupling of the saving rate in 40 months, far more than any government tax incentives towards saving have done, and with no mandatory provisions.

Richard Zeckhauser and Jeffrey Liebman (2004) have shown how complicated schedules, such as schedules of tax rates relative to income, are a source of endless confusion to the general public. Complicated schedules can sometimes be used to victimize the public, as for example by cell phone companies that advertise low rates on calls made in accordance with a complex schedule, and profit from customers' failure to comprehend the schedule. But, at the same time, a benevolent designer of economic institutions can use schedules to improve economic welfare by changing the psychological salience of factors that might inhibit constructive economic behavior. An example is the tax schedule involving the earned income tax credit, which encourages unemployed people to find a job by offering a negative tax rate on the salient first income. The earned income tax credit encourages them to make the psychologically difficult transition from unemployment to work. At the same time, the high marginal tax rates on subsequent income are apparently not noticed by most people, and do not operate as a deterrent to further work.

These, then, are concrete examples of behavioral economics offering us some real institutional alternatives to mandatory programs, and alternatives that have the potential to increase economic welfare.

## **Conclusion**

Proposing major innovations in economic institutions is the most important way that economists make lasting contributions to society. The major general economic societies in history, such as the Verein für Sozialpolitik and the American Economic Association, have over the years

supported a broad spectrum of views on economic research and have encouraged fundamental economic innovation. The recent shift in interests of economists towards behavioral economics and institutional economics offers further hope that the economics profession can achieve more such institutional change in the future.

But we have also seen that major changes in economic institutions often need to await an economic crisis, some major exogenous event that makes the public ready to listen to ideas for fundamental change and to accept such changes. Today, the public may not be in the mood to make big changes. Certainly, in the U.S. today it is not in the mood to see any changes that might require an increase in taxes.

The biggest crisis that we are in today may be the war against terrorism, along with the smouldering wars in Iraq and Afghanistan. Those events, whose impact goes far beyond the U.S., serve more to distract attention away from economic reform rather than bring attention to it.

There is also a possible worldwide economic crisis spurred by the rapid development of emerging countries, most notably China and India, whose demand for the limited supplies of energy and raw materials is suddenly soaring. The 2004 spike in oil prices to over \$50 a barrel was bordering on creating a world economic crisis, but it did not reach the proportions of the crisis generated by the second oil crisis, in 1980, when real shortages of oil, and long lines at gasoline stations, made a huge impression on the public. A public mood for fundamental institutional change may yet come, but it has not happened yet.

Thus, despite some hopeful signs, we today may not be embarking in the immediate future on a major new era of innovation in our economic institutions. But the kind of work that can lead to real institutional innovation is something that economists ought to be doing continually. Advancing our understanding of institutional innovation is an ongoing process, that takes years and years. We as economists should not be deterred by the fact that we might have to wait years to see some major innovations happen. We should be, over coming years, setting the groundwork for major new innovations, in our own countries and around the world, biding our time until these have a real chance to be implemented.

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## Notes

1. Distinguished Guest Lecture, Southern Economic Association Meetings, New Orleans, November 21, 2004.
2. See Green and Shapiro (1994) for a critique of the application of rational optimizing models to political science.
3. See Cass Sunstein (2000).
4. See Shiller (2005).
5. "Practical Political Science," *New York Times*, Feb 28, 1886, p. 5.
6. Snavelly, [1933], p. 7.
7. Otto von Bismarck, speech of June 18, 1889, in *Sten. Berichte des Reichstags*, VII, IV., vol. 3, 1831-26, 1834, quoted in Ritter [1983], p. 35.
8. In a review of U.S. economics literature 1776-1876, Charles F. Dunbar was struck by the "general sterility of American thought on this subject, and the failure of our scholars as well as statesmen to contribute their share in the progress made by the world." p. 146, *North American Review*, 122: 124-54, 1876.
9. Daniel T. Rodgers, *Atlantic Crossings*, 1998, p. 86.
10. "Discussion of the Platform at Saratoga," *American Economic Association Publications*, 1(1): 21-30, 1886, p. 24.
11. See David C. Mowery and Nathan Rosenberg, *Paths of Innovation: Technological Change in 20th Century America*, Cambridge University Press, Cambridge, 1998, Chapter 2, pp. 11-46.
12. Williams [1991], p. 1
13. Williams [1991], p. 1.
14. U. S. Social Security Administration [1988].
15. Williams [1991] points out that the administration of workers' compensation by local governments is an anomaly by world standards, only the U. S., Canada and Australia have a local administration of workers' compensation.
16. Williams [1991], p. 7.
17. See Williams [1991] for a comparison of workers' compensation plans across countries.

18. See Loewenstein *et al.* 2001.
19. Bahad [1987].
20. Uhlener and Grofman [1986].
21. G. Behm [1874], p. 141.
22. Fritz Halle, [1874], p. 4.
23. *op. cit.* Halle also buttressed his case by noting that most workers have little interest in fire insurance. He asked workers at a factory if they had fire insurance; of 40 breadwinners, only 3 had fire insurance. (p. 5) Today, of course, fire insurance is institutionalized, one cannot obtain a mortgage without obtaining the insurance.
24. G. Behm, "Über Alters- und Invalidencassen für Arbeiter," *Schriften des Vereins für Sozialpolitik*, 5, 1874.