"The Specter of *Irreparable Ignorance* in Economics: An Introduction to the Issues"

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Introduction

Economists concern themselves with expanding the frontiers of economic knowledge, extending the map of the known, encircling and invading the remaining terrain of the notyet known. Over time, the profession presumes the increasing adequacy of economic knowledge—where adequacy is assessed relative to the purposes to which economic knowledge is put. The economist's view of the potential of economic science and the capacities of the economics profession is abidingly optimistic. The progression of economic knowledge establishes the grounds for increasing influence of economists over public affairs. Deepening expertise is taken as warrant for greater authority.

This view is now under scrutiny. The economic crisis of 2008 shook the confidence and caused widespread reflection among prominent economists, including some of the profession's leading public intellectuals (e.g., Krugman 2009a; 2009b; Shiller 2009; Stiglitz 2009). The profession's chief fault in this connection was not just that it failed to predict the crisis. It's chief fault was the extent of intellectual and professional hubris in the years immediately preceding the crisis which reached a level not seen since the heyday of the neoclassical-Keynesian synthesis of the postwar era. Leading economic authorities celebrated their ability to *know* the economy, and to *predict* and even *manage* economic events (DeMartino 2011a). Recall in this regard the so-called "Great Moderation" in macroeconomic affairs that was presumed to have settled in by the 1990s. Speaking of the lessons learned over the previous decades, Christina Romer had this to say in 2007, just as financial markets were about to go over the cliff:

We have seen the triumph of sensible ideas and have reaped the rewards in terms of macroeconomic performance ... The costly wrong turn in ideas and macropolicy of the 1960s and 1970s has been righted, and the future of stabilization looks bright (cited in Postrel 2009).

Fed Chair Ben Bernanke was equally impressed by the capacities of the economics profession, reflected in the confidence with which he pronounced on matters pertaining to financial regulation right up to the onset of the crisis. In May of 2006 Bernanke (2006a) spoke of the virtues of "financial innovation and improved risk management," including "securitization, improved hedging instruments and strategies, more liquid markets, greater risk-based pricing, and the data collection and management systems needed to implement such innovations." While recognizing risks associated with financial innovation, he argued that

these developments, on net, have provided significant benefits. Borrowers have more choices and greater access to credit; lenders and investors are better able to measure and manage risk; and, because of the dispersion of financial risks to those more willing and able to bear them, *the economy and financial system are more resilient* (Bernanke May 18, 2006; emphasis added).

That July, Bernanke (2006b) wrote: "Today, retail lending has become more routinized as banks have become increasingly adept at predicting default risk by applying statistical models to data, such as credit scores" (Bernanke June 12, 2006). In response to a question about whether there was need for increased regulation of hedge funds, Bernanke (2006c) told Congress on July 20, 2006 that

the best way to achieve good oversight of hedge funds is through market discipline, through the counterparties, through the investors ... at this point I think that the market discipline has shown its capability of keeping hedge funds well disciplined ...

Whatever one's take on the exact drivers of the crisis, I think we can agree that the pre-crisis confidence of leading macro and financial economists in their own expertise-in their ability to know and control-was wildly unwarranted. Economists' self-confidence led market actors at all levels to trust the wisdom of the housing and associated financial markets; and to take risks that they otherwise might not have been willing to take (Schiller 2009).¹ I think it appropriate to understand the economic crisis as a joint product of the imprudent behavior of two groups of influential actors-financial institutions and economists-which spawned twin reinforcing bubbles. The profession generated an intellectual bubble that overvalued the virtues of liberalized financial markets and discounted credible theory and evidence that challenged the euphoria. The intellectual frenzy contributed to and helped to sustain even more dangerous financial and housing market bubbles (cf Johnson 2009). In turn, rising asset prices in the context of sustained growth substantially increased the professional and psychic costs of intellectual non-conformance among economists (as Robert Shiller (2008) and Dean Baker (2009) have rightly argued). Over the course of the pre-crisis decade, then, the two herds economists and investors-came to feed off each other's success, sustain each other's optimism, and trample each other's critics. In so doing, they sowed the seeds of their mutual crisis—one borne of short-sightedness and, ultimately, hubris.

In the years prior to the crisis and since, there has been a small eruption of interest in the limits to expertise and the epistemic problem prevailing in the professions. The influential work of Philip Tetlock, especially his *Expert Political Judgment* (2005), expose just how flimsy is expertise in the social sciences. Paradoxically, the best

¹ Robert Shiller (May 12, 2009, 16) put it this way:

This mania was the product not only of a story about people but also a story about how the economy worked. It was part of a story that all investments in securitised mortgages were safe because those smart people were buying them...*To a remarkable extent we have got into the current economic and financial crisis because of a wrong economic theory*—an economic theory that itself denied the role of the animal spirits in getting us into manias and panics (emphasis added). See also MacKenzie (2006) on the ways in which economic theory shapes rather than simply describes economic phenomena.

predictors in the social sciences are those with the least confidence—the prudent, selfreflective foxes rather than the headstrong, macho hedgehogs (see also Tetlock 2015). The provocative work of Nassim Taleb, including *The Black Swan* (2007) and subsequent research (2014), ridicules the pretense of predictive power. His work ought to dampen the economist's drive to predict the future. Instead, that work is largely ignored within economics. And long before Tetlock and Taleb, Deirdre McCloskey (1990) called the profession to task for peddling snake-oil in the form of confident predictions of economic flows and outcomes.

Others have pushed back against the pretense of omniscience. I'm thinking of the remarkable essayist and environmentalist Wendell Berry, who worries about intellectual over-reach and the dangers of professional hubris. In this he is joined by the geneticist and agronomist Wes Jackson (2005; Vitek and Jackson 2008) and others in the ecological sciences who foreground the unknown and the unknowable in their deliberations over public policies pertaining to farming practices and land use more generally. In the ecological domain recognition of non-domesticable ignorance is incorporated in the contested precautionary principle, which places the burden of proof on those who would introduce new technologies and practices. In political science a series of black swans ranging from the collapse of the Soviet Union, to the Arab Spring, to Brexit and now Trump have put to rest the idea that political experts can identify epoch-making events even twenty minutes before they erupt.²

Today, professionally self-aware economists are beginning to discern a specter of ignorance that haunts the work of our profession. It is deeply disturbing to confront the fact that there are limits to what we know *now*, what we will know *tomorrow*, and what we can in principle *ever* know. It is equally disturbing to have to admit that these limits are not abstract constraints—distant to our everyday projects of social betterment—but that they crisscross the domain of what we would want to know and would need to know in order to do much of what we are presently doing. Forecasting most obviously, but also the design and installation of institutions and policies in the present that will register effects in the immediate and long-run future, and most other facets of economic engineering, run up against the unknown and the unknowable.

But what are the professional entailments of the recognition of what I will call "irreparable ignorance"? What does it imply about the ethical duties of our profession?

Facets of Irreparable Ignorance in Economics: An introduction to some of the issues

Answering these questions (even provisionally) requires engagement with the ways in which irreparable ignorance bears on economic science and practice. Here I can only barely touch on some of the issues. Even this cursory review suffices to reveal just how fraught is ethical economic practice in a world of irreparable ignorance.

² Among political scientists Mark Blythe is particularly attentive to the limits to knowledge. For instance, see Blythe (2009).

The Epistemic Condition Facing Economic Actors

The first point to make is that economic actors themselves (and not just economists) operate on a terrain of ignorance. This is a fundamental Austrian and Keynesian insight one that has been advanced by economists for over a century (by Knight and Shackle, among others). Economic agents make many consequential decisions in the context of irreparable ignorance. This condition presents an extraordinary problem for the economics profession, which needs to believe it can predict the impact of an economic intervention—say, a new policy. But those predictions are secure only if the decisions taken by economic actors are critical to the outcome-more weighty than the myriad other factors that will influence the policy's effects—and if actors' decision-making is predictable. And so the profession chooses to treat agents' behavior as predictablelargely by abstracting from the complexity of the human actor and relying on stick figures that responds consistently to economic stimuli. Homo economicus is central to the suppression of irreparable ignorance in 20th century neoclassical economics; as are those associated models that feature rational expectations. The economic agent that appears in the textbook to this day is best understood as a pleasure zone wired to a very capable computer (Sagoff, 2008). The models deny the full complexity of human actors that influences how they will behave, so as to generate determinate results. Alternatively, we find in parts of the Marxian canon the imperative for capital to accumulate, which implies determinant decision-making for those who bear the role of capitalist; and for classes to ultimately operate (though perhaps only in the last instance, whenever that might be) on the basis of their (economic) class interests.

If we instead confront the circumstance that economic agents themselves face irreparable ignorance—and if we resist the severity of the abstraction that is necessary to reduce human behavior to the workings of determinant impulses—then it becomes difficult to claim to know even probabilistically how they will respond to the stimuli they confront. And if we can't know that, then we can't purport to know what will be the effects of *our* interventions in the world.

Economists can't "know" the future (or the present...or even the past)

Myths like the rational economic man and rational expectations formation, or the Marxian conception of the imperative to accumulate, are taken to provide the economist with a means of time travel—we can know *today* the impacts that our *today*'s interventions will have in the *future*. Of course economists recognize contingency—which manifests in the assumption that the social world is stochastic—but we can glean today the broad contours at least of the ways in which today's policies will nudge the future direction of the economy. This belief is central to the 20th century modernist economic project: to devise means to know the future so as to exert some degree of control—generally, with an eye toward improving the lives of others. Ideally, all others.

But of course, as Keynes and so many since have argued, the future is simply unknowable. Not just the distant future—even tomorrow is fundamentally uncertain. Moreover, attempts to know the future change the present, and hence, the future. Think in this context of the impact of polling that is intended to predict the outcome of future events. As the recent US national elections demonstrated, reliance on polling predictions by political campaigns and professional prognosticators arguably affected decisionmaking through the campaign, and no doubt affected the outcome. So we have a circular, confounding set of relationships in which the past conditions the present, the present conditions the future, *but the future likewise conditions the present*. What we come to believe about the future, rightly or wrongly, changes what we do today. And this implies that if the future is unknowable, then so is the present—since we can't know how that unknowable future is influencing decisions being taken today. The rational expectations hypothesis tried to domesticate this problem, and along with equally implausible assumptions it led macroeconomists down a primrose path into irrelevance (cf. Buiter 2009).

But what about the past? Is that knowable in a fundamental sense, or do we confront irreparable ignorance there, too? This question touches on a longstanding debate among self-aware historians—how much of our historical analysis is about the *past*—our *presumed object of knowledge*—and how much of it is about *us, the subjects of knowledge*? My small intervention in this connection is to claim that the past is no more "knowable" than the future, if by knowable we mean knowledge that is dependable, durable, and objective.

Imagine this scenario: two economists are debating whether raising the minimum wage today will increase unemployment tomorrow. They might agree that they can't be sure of that, but they might also agree that they can be sure of what has happened in the past when the minimum wage was increased. This question might submit to objective analysis, relying on well-established empirical techniques. But I want to suggest that all causal knowledge involves invocation of the counter-factual-a narrative about what would have happened had some cause not intervened. When we claim that X happened in the past because of Y, we are also claiming that not-Y would have precipitated not-X. That claim entails the counterfactual. But here enters an insurmountable problem: the counterfactual can't be checked because that historical path was precluded when Y happened. Hence we are generating a story—irreducibly *fictitious*—about what would have happened but for Y. Now there are many ways to generate these fictions, and some are taken by economists to be more scientifically adequate than others. But the point is that fiction writing is unavoidable in even the most objective scientific explanations. When we adjudicate the debate over the effects of raising the minimum wage in the past we are in fact adjudicating among our respective counter-factuals-our respective fictions of what would have been. Given the extent of human ingenuity and imagination, and the in principle innumerable counterfactual stories that can be told, we should have no trouble understanding why it is that bright, well-meaning economists, equipped with the very best techniques and data, can and do disagree (in perpetuity?) about something as apparently simple as the effects of raising the minimum wage-its prospective effects, and even its effects in the past.

The radical implication follows: explanatory knowledge in economics is fictitious in the sense that it depends upon the construction of counter-factuals which are

themselves fictions, stories we tell to convince ourselves and/or persuade others that we understand why things did and did not, or do and do not, or will and will not happen. The point is that the future is not epistemically distinct from the present and the past. We run up *equally* against the limits to knowledge in our confrontation with the past, the present, and the future. What allows us to check off the past as known? Merely a conventional exercise, professionally sanctioned, in which we agree to subscribe to the same fictitious explanatory counterfactual. The point is that we are far more ignorant than we tend to think—even our explorations of the present and the past are haunted by the specter of irreparable ignorance.

The Problem of Unlearning

One can still defend a progressive model of economic knowledge on the grounds that imperfect as our knowledge is, it is better than in the past. We have learned, after all—not least, from those who preceded us. Hence, though we are not done, and perhaps though there is no possible condition of being done in economics, we at least are closer to dependable, true knowledge than we were in the past. We should carry on down this road, pursing this project of knowledge expansion, since it promises to get us there or closer to there than any alternative.

This is a comforting argument. But it entails a number of myths. One is this: that we have learned and we carry into contemporary economic practice all that is wise in the work of our predecessors, and have shed all of their errors. Hence, the work of the past 20 years, say, is much better than the work of the preceding 20 years. Indeed, one need only concern oneself with contemporary work, since a sort of law of "conservation of truth" operates in economics, such that the value of past economic research is always retained in our work. Deirdre McCloskey often tells a story of a Big Deal economist whose syllabus only includes articles from the preceding five years. Why go back further, when the new represents an unambiguous improvement over the old?³

Unfortunately, the development of economic practice—including the domains of theory and application—is marked by perpetual *un*learning as much as it is by learning. Smith, Marx, Hayek, Keynes, and Polanyi... we continually forget their insights at our peril. An anecdote that makes the point: during the crisis, an economist wrote that she learned for the first time that Keynes was pronounced "Kanes" rather than "Keens." She explained that in all her graduate work she had never heard the name spoken. I think it is safe to assume that unlearning critical insights is the norm and not the exception in economics; that in proceeding to generate new knowledge economists do as much forgetting as learning. All we have forgotten punishes us in moments of economic and political crisis, when we and those we purport to serve pay the price for our forgetting. In those moments we have to begin anew a process of un-forgetting what we needed to know in advance of the crisis.

³ It's important to keep in mind the Taleb corrective: the older a work that is still read today, the better its quality. Time acts as a filter that weeds out marginal work. Most recent work will be forgotten within months of publication. See Taleb (2014).

But how are we ever to know what exactly we need to take from our predecessors, and what we can safely leave behind? And what should we take—their explicit economic concepts, or just their methods, or perhaps just their dispositions? The unsatisfying point is this: learning necessarily entails forgetting. I can't reproduce for myself Thorstein Veblen's training, or life experiences; nor can each generation of economists go back and duplicate the training of their professors before going off to think new thoughts. The process of filtering past work is conducted implicitly, by what is put on and left off the syllabus; by off-hand comments to graduate students from which they infer what they do and don't need to read. Even if we could engage all the past valuable work in our field, we would always lack a rock-solid sorting mechanism that allows us to choose to remember and to forget just the right things. Hence, we fight among ourselves, rightly and in perpetuity, over what to carry forward from Smith, say, or from Marx, without a dependable standard for demonstrating that we our selections are right or wrong.

How to Be a Self-Aware Ignorant Economist

Recognition of irreparable ignorance is not a prescription for inaction. It is an argument for humility, and for foregrounding the unknown and unknowable in one's theoretical and applied work. But how can economists maintain their engagement in the world, hopefully improving the lives of others, and justify their influence in the world, if we give irreparable ignorance its due? How can economists maintain partisanship once the profession confronts honestly the limits to our knowledge, when we have to admit that we just don't know? How are we to engage a world we cannot control?

I have explored these questions at length elsewhere (DeMartino 2013). Here I'll quickly survey insights from scholars who have paid careful attention to the salience of irreparable ignorance.

To get at this matter, let's begin with a comparison of what I'll call the *Knowing Economist*, steeped in knowledge, and the *Self-Aware Ignorant Economist*. What are their particular features?

The Knowing Economist seeks to push theory further; to generate better models and to study more data in the hope of excavating dependable truths about the way the world is, and about the value of contending economic interventions, so as to improve the world. The focus is on the known and the potentially knowable. The goal is to tease out from ever more secure knowledge ever more certain policy implications—to identify what will be the effects of various policies; and then to advocate for the policy that promises the biggest payoff. In the practice of knowledge extension and policy prescription, the knowing economist must repress feelings of anxiety over the limits to knowledge. The knowing economist must proceed either as if those limits were nonexistent, or as if those limits were so far beyond the domain of economic practice as to be irrelevant. Professional practice entails demonstrating sufficient technical mastery and empirical knowledge, and claiming sufficient certainty, so as to achieve authority over pressing issues, especially in relation to others who offer alternative diagnoses and prescriptions. At every step, the knowing economist demonstrates the adequacy of economic science to the challenges confronting society.

In comparison, the *Self-Aware Ignorant Economist* faces a more difficult challenge. For guidance, we might look beyond economics.⁴

The extraordinary essayist and environmentalist Wendell Berry has long wrestled with the limits to our knowledge of the natural world. Berry's take is that we do grave harm to ourselves and to the planet when we approach the natural world with the attitude that we can adequately map natural processes and human interactions with nature. Berry argues that being responsible entails foregrounding what we don't and can't know. He worries in particular about hubris and pseudo-knowledge:

Ignorance, arrogance, narrowness of mind, incomplete knowledge, and counterfeit knowledge are of concern to us because they are dangerous; they cause destruction. When united with great power, they cause great destruction (Berry (2005, 59).

Berry emphasizes the ethical imperative of what he calls "the way of ignorance." The way of ignorance "to be careful, to know the limits and the efficacy of our knowledge" (Berry 2005, ix-x). Awareness of these limits directs us to consider carefully the scale on which we ought to work:

By propriety of scale we limit the possible damages of the risks we take. If we cannot control scale so as to limit the effects, then we should not take the risk. From this, it is clear that some risks simply should not be taken. Some experiments should not be made (2005, 66).

In a similar vein, agronomist/geneticist and Berry collaborator Wes Jackson (2005; Vitek and Jackson 2008) advocates for the adoption of an "ignorance-based worldview," one that requires of us constant attention to what we do not and cannot know. He captures the unknown and unknowable in the concept of mystery, and argues that

if we are up against mystery, then knowledge is relatively small, and the ancient program is the right one: Act on the basis of ignorance. Acting on the basis of ignorance, paradoxically, requires one to know things, remember things — for instance, that failure is possible, that error is possible, that second chances are desirable (so don't risk everything on the first chance), and so on (2005, 15).

The way of ignorance that Berry presses upon us is foreign to economists, to be sure, and it invites a reflexive dismissal since it seems to call into question the foundations of our intellectual and practical missions. But this worldview is not hostile to science or practical interventions; nor is it biased toward the political left or right. Its import is to prevent the harm that arises from scientifically unwarranted overconfidence

⁴ Some of what follows in this subsection is taken from DeMartino (2011b).

combined with the authority that flows to the professions on account of their expertise and institutional positions. Though the critique originates in epistemic claims (about what we cannot possibly know), it is essentially ethical. It is intended to remind the ethical professional that she fulfills her professional covenant by keeping ever in view the limitations of her craft as she nevertheless intervenes in ways that are designed to promote the welfare of others. She works ethically when she takes careful account of the scale on which she can and should efficaciously act and when she designs interventions that embrace the existence of, rather than deny, the complexities that exceed her science.

Recognition of the ignorance surrounding economic matters implies that all economic interventions have an experimental quality: we act based on our best judgments, but we presume always that the full consequences of our acts are unknowable (*ex ante* and *ex post*). This strengthens substantially the normative demand for prior informed consent since those who are targeted by economic interventions are always, in part, research subjects. This is not to say that economic interventions are generally intended as experiments: to the contrary, they are intended to benefit directly the participants rather than simply to learn from their experiences so as to promote the welfare of others. But these benefits may or may not materialize, other benefits may arise instead, and unanticipated harms may attend and overwhelm them. It is this aspect of uncertainty that lends to economic interventions an experimental quality with strong normative entailments.

"Muddling Through" and "Skin in the Game"

David Colander has drawn attention to a distinction within contemporary economic theory that relates to the matter before us. The economics taught in the undergraduate curriculum, to this day, emphasizes a "simple system" model of the economy that yields an "economics of control" approach to policy, even though in Colander's view this model has been substantially displaced in advanced economic thought. The simple system approach to theory presumes what Colander calls the "holy trinity" of rationality, greed, and equilibrium, which allows the economist to deduce agent behavior and the outcome of their interactions from first principles. As a consequence, this approach generates parsimonious and elegant theoretical models. These features imply that economists have at their disposal sufficient knowledge to generate effective policy. The economics of control approach to policy presents the economist as efficacious — as a social engineer that can turn this dial or pull that lever in order to ensure good economic outcomes.

Colander traces the economics of control approach to policy to Abba Lerner for whom

applied policy economics was the application of a scientific set of rules determined by economic theory to be followed by policy makers and by agents in the economy ... In the economics of control, economic analysis became the decision criterion, not an input into a broader decision process (Colander 2003, 201–02; emphasis in original).

This story remains the centerpiece of the economics curriculum today. "It is a control

story in which there is a knowable social optimum that government policy is designed to achieve" (Colander 2005, 254).

Contemporary mainstream economic theory has joined various heterodox traditions in moving away from this simple model of the economy to an understanding of the economy as an irreducibly "complex" system more closely associated with the vision of Hayek than Lerner or postwar Keynesians. The complex system approach of mainstream economics is predicated on an alternative and less determinant trinity of purposeful behavior, enlightened self-interest, and sustainability (ibid, 251). The complexity view understands the economy to encompass emergent properties at the macro level, path dependencies, discontinuities, multiple equilibriums, and the like. In this view, one does not presume and then bet everything on the stability of well-behaved economic relationships; nor does one seek to generate a full economic mapping that can yield definitive conclusions about optimal policy interventions. In place of the illusion of control, the complex system view yields a "muddling through" policy approach in which the economist works as an inductive social mechanic — trying this, then trying that, always watching, evaluating and adjusting, and always attentive to surprise and anomalies — rather than as a deductive social engineer who infers what is right and best from the elegant diagrams that appear in the textbook. In Colander's words,

Each of the changes currently occurring in the holy trinity can be seen as a movement away from a search for the blueprints of the economic system, and toward a search for understanding a system in which the blueprints are missing, nonexistent, or so far beyond our analytic capabilities that we might as well forget about them (2003, 206–07).

The effect of these methodological innovations on economists' self-conception as policy designers is profound. Rather than imagine themselves to be "infinitely bright ... with full knowledge of the system design," they now recognize themselves as "reasonably bright ... with limited knowledge of the system" (Colander 2005, 251; emphasis in original).

These insights resonate naturally with heterodox economists of various sorts who challenge the tendency within the profession to reduce economic complexities for the sake of analytical tractability (see Resnick and Wolff 1987; Gibson-Graham 1996; Ruccio and Amariglio 2003; Bergeron 2006; Burczak 2006). Drawing on insights from feminist economics, for instance, Julie Nelson problematizes conceptions that rely on the metaphor of the economy as a machine. She argues that this metaphor is based on a "seventeenth-century Newtonian" understanding of "a clocklike world" that privileges "observability, predictability and control" (2004, 394; 384) and that hives off ethical considerations as irrelevant to the scientific enterprise. But this conception, Nelson explains, has by now been abandoned in the natural sciences. In contemporary physics, for example, we find attention to

quantum theory, the theory of relativity, and most recently the study of chaos and complexity [that] reveals that the universe has non-mechanical, unpredictable,

non-linear, seemingly incommensurable, surprising and even "spooky" behaviors. More generally, disequilibrium, effects of the observer on the observed, impossibility of prediction and control, jumpy or chaotic processes, emergence and systems that are more than just the sum of their parts demand nonmechanistic and non-reductionist approaches (ibid, 394).

For Nelson, the application of these lessons to economics implies that there is "no blueprint for economic behavior." Instead, there is a need for context-sensitive economic analysis that probes the specifics of particular cases. It follows that policy making becomes much more laborious, uncertain, and provisional.

This brief survey of the implications of ignorance for ethical economic practice would not be complete without reference to the work of Nassim Taleb (2005; 2014), who has emphasized as much as anyone the limits to the ability of economists, financial analysts, and others to predict the future. His concern is that those with the expert authority to act in ways that are deeply consequential for others are sometimes able to escape the downside of the risks they impose on society. A case in point is a financial system where too-big-to-fail implies that the government will bail out financial institutions, and those within them who have profited from imprudent risk taking, when their behaviors generate crisis. When actors are not held responsible for downside risks of their actions—when they don't have what Taleb calls "skin in the game," they are able to offload the harms they cause onto others; and they have no incentive to learn from their errors, or to take steps to reduce risk in the future.

Conclusion

Most economists are not hedge fund managers, to be sure. But our profession, too, lacks skin in the game. At present there are no mechanisms to hold economists accountable for their imprudence—such as when they champion interventions that induce avoidable risk for economic actors—or when they otherwise make well-meaning mistakes. In the absence of accountability, economists have implicitly embraced the maxi-max rule—choosing that policy that promises highest potential return, without consideration of the downside risks—rather than employing decision rules that reduce avoidable harm (see DeMartino, 2011a; 2011b). No other profession gets away with imposing such risks on society. The profession's rigid and forceful advocacy of neoliberal reform in the post-Soviet economies comes to mind, as does its naiveté regarding financial market self-regulation in the years leading up to the crisis of 2008. In the aftermath of the miscalculations in these two instances it was often noted that no economist lost his/her job as a consequence of these failures.

The lesson is clear: the formula of irreparable ignorance plus the absence of professional accountability sustains hubris in a field where over-confidence can be terribly dangerous to those economists purport to serve. The remedy entails, in part, foregrounding irreparable ignorance—taking it out of the shadows, examining what we don't and can't know, and engaging its professional implications. Rather than present itself as the master of economic affairs, the profession would do better to emphasize to its

publics what it doesn't and can't know, so that non-economists can better assess what it is that economists do and do not have to offer to good social analysis and to wise policy formation.

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