At the cliff's edge

The news this summer has been dominated by the sovereign debt crisis and its major fallout—namely, widespread political turmoil and the increasing risk of a serious economic collapse in Europe. The United States stands near the edge of the same cliff, with similarly difficult decisions postponed until after the presidential election. Some of its once most prosperous states, such as Michigan and California, find themselves locked into long-term stagnation, echoing the plight of the Eurozone's most indebted members.

Do we molecular biologists have anything to contribute to charting a way out of this mess? Although there remains much that we don't understand about the genome and the cell, we have at least established basic principles that govern the relations of their components. We know that microtubules will not suddenly switch polarity as a result of an unexpected disturbance in cellular homeostasis. We know that epigenetic marks that reinforce gene activation will not randomly alter their meaning so as to signal repression. True, gene knockouts sometimes still surprise us, unexpectedly generating lethality or else hardly any detectable phenotype. But we are comfortable that our still rudimentary understanding of biological systems suffices for us to provide a modicum of advice to policy-makers, whenever a threatening event requires a response grounded in biological knowledge: for example, prion disease, SARS or declining biodiversity.

The science of economics can offer far fewer certainties at present. Yet, our political leaders are desperately in search of immediate and reliable advice on how best to handle the current financial crisis. It is easy to blame 'the system' and those who

govern it for the mess. In truth, they are just at the mercy of their own and our collective ignorance. Most political parties that staunchly defend a particular interest in society, whether it be the working class, the small investor, big-business or state-owned corporations, have, in the unfolding crisis, failed even to satisfy their friends and allies. Their disillusioned supporters then turn to parties offering more of the same, only worse, or 'solutions' even more detached from reality.

Current policy in Europe—and to a lesser extent in the USA—is still haunted by the spectre of inflation of 1922–1923, and the Great Depression that began with a relentless austerity programme driven by panic over debt, eerily similar to what has unfolded over the past two years. Worse, academic economists remain fundamentally divided over the diagnosis, which does not stop some of them from offering unsolicited advice. Some assert that the Great Depression was actually prolonged by the spendthrift programmes of the New Deal, whereas others assert that the inflationary crises following the First World War were exacerbated, or even caused, by the overzealous attempt to enforce debts that were fundamentally unpayable. Given these divergent schools of analysis, it is not surprising that today's policy initiatives seem so confused and ineffectual. Competing experts push governments to adopt different bold reforms, in the belief that their own favoured theories will be vindicated. Despite the romantic appeal of waving the flag of revolution, past experience of revolution driven by economic theoreticians has been catastrophic.

The alternatives before us are not particularly attractive, but some carry far greater risks than others. The least egregious might

be a variant of the course on which we are already set: blundering through, with inconsistent shifts of policy, but driven by a commitment to maintain domestic political consensus and seek international solidarity wherever possible. Optimally, the pain should be shared fairly. History teaches that social fragmentation against the backdrop of economic disaster leads only to brutal repression and to venomous confrontation between nations.

The world faces other major threats, including the continuing clash of civilizations, the widening global disparities in health, wealth and energy supply, and potential environmental disasters arising from climate change running out of control. The perilous risks we face would be hugely exacerbated by a global economic meltdown. We and our leaders have a duty to do whatever we can to avoid it, even if the only way we can do so is by what appears to be a hopeless muddle, rushing to plug each successive leak in the dam.

Our colleagues in economics need to be cautious, applying level-headedness and humility in the face of trends that cannot accurately be predicted, let alone shaped by policy. Given all the uncertainties, muddling remains more likely to work than meddling. The only useful lesson we can share with them is that although we are further down the road of explaining how living systems work, our ability to use that knowledge to conquer major diseases or hold back the tide of ecological desecration, let alone shape the future course of evolution, remains severely limited. Better steer a path gingerly along the cliff edge, than leap over it.

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