

Beyond the nation-state

SIR — Andrejs Baidins¹ has a naive faith in the institution of the nation-state if he believes that a multiplicity of them will result in “an unprecedented leap of progress”. In a curious lapse into social Darwinism he asserts that “[This] is the way of nature . . . more diversity, more cultures, more languages, more nations”, the “competition” between which will be a driving force for progress. I do not here wish to address the fallacies of social Darwinism, but I wish to make three other observations on Baidins’s pro-nationalist thesis.

(1) If biological analogy is relevant, the history of life on Earth is more a history of evolving ‘federalism’ than the reverse. Thus, some 1.5 billion years ago, simple prokaryotic cells came together to form ‘federal’ eukaryotic ones, and almost a billion years later these eukaryotic cells began to form the vastly larger ‘federal’ entities we know as multicellular animals. Many of these have in turn evolved ever more complicated social structures, which have resulted in even larger ‘federal’ communities based on the co-operation of many individuals.

(2) In particular, the species *Homo sapiens* has, over the past 50,000 years (and more or less in the following order), evolved political institutions appropriate for hunting and gathering, village agriculture, city states, military empires, geographically limited nation-states, and continental-sized federal states (a process begun at Philadelphia in 1787, and continuing to Maastricht in 1991). Each step in this political evolution, while resulting in fewer independent political units, has nevertheless increased the potential for human progress. Thus, in the third millennium BC, the Sumerian cities were able to undertake projects (for example, temple construction and canal building) utterly beyond the abilities of their still-neolithic neighbours, while, in our own day, a federal continent such as the United States is able to take on projects beyond the abilities of old-style nation-states such as Britain or France (the landing of man on the Moon is an obvious example).

(3) While the disadvantages of “competition” between nation-states are obvious, owing to the inherent risk of military conflict, it is actually very hard to identify the benefits hinted at by Baidins in his letter. While there are a handful of technological inventions (for example, radar and jet-propelled aircraft) that have appeared earlier as a result of military conflict than they might otherwise have done, this is not generally true of technological progress. What was the role played by international

competition in the invention of the steam engine, for example, or of the dynamo, or of radio transmission, or of the airplane? None of these key inventions was developed by nations engaged in competition with other nations, but by individuals who were not obviously motivated by nationalistic considerations.

In short, there is little evidence that nations and nationalism have had a positive influence on human progress, and, if we consider all the pointless wars that have been fought between them, their net affect would seem to have been almost entirely pernicious. These considerations led Kant² to conclude that nation-states “hamper progress towards [the] full development of man’s natural capacities”. Far from being seen as “the way of nature” within some social Darwinian world-view, nation-states should more properly be viewed as an intermediate step in the political evolution of human societies towards a world organized on federal principles. There are good reasons for believing that a federal world (complete with a federal government) would provide more opportunities for human progress than an anarchic world of competing nation-states.

I. A. Crawford
19b Clarendon Drive,
London SW15 1AW, UK

1. *Nature* **357**, 105 (1992).

2. Kant, I. *Idea for a Universal History* (1784) reprinted in *Perpetual Peace and other Essays*, trans. T. Humphrey (Hackett, Indianapolis, 1983).

Climate change

SIR — Wilfred Beckerman’s review of books on environment and economy (*Nature* **357**, 371; 1992) illustrates the continuing difficulties in the very theme he is writing about: the dialogue between scientific and economic disciplines. He raises many good critical points, but also reflects the tendency of many economic analyses to hide critical assumptions beneath a veneer of objectivity. He focuses upon work by Nordhaus as “probably the best attempt so far to estimate the whole schedule of costs and benefits” concerning climate change.

Nordhaus is a brilliant mathematical economist, but this does not prevent his estimate of the costs of climate change from being myopic speculation. The quoted analysis estimates the costs to the US economy of being in a warmer climate (one corresponding to “best estimates” of the impact of the doubling of atmospheric carbon dioxide), and extrapolates this globally. It does not consider the probable dynamics of the pro-

cess, for example the changing severity and frequency of unpredictable extremes such as prolonged drought. It assumes global fungibility (interchangeability) of different resources (yet people already die of water shortage, famine and flood despite immense wealth elsewhere), and it neglects the possibility of costly conflicts arising from changes in such resources. Using his point estimate of the damages from the doubling of atmospheric carbon dioxide, Nordhaus assumes a weak general relationship between temperature change and costs although his policy prescription could lead ultimately to atmospheric changes far beyond a doubling of carbon dioxide or anything observed in the geological record. Despite this and all the literature on the chaotic nature of climate and oceanic systems, his quantified estimate neglects any possibility of future surprises or other sudden changes in weather patterns.

Nordhaus’s key paper (*Econ. J.* **101**, 920–937; 1991) recognizes some of this and states that his quantification “is clearly incomplete . . . we might raise the number [cost of climatic change] to around 1% of total global income to allow for these unmeasured and unquantifiable factors, although such an adjustment is purely *ad hoc* . . . it is not possible to give precise error bounds . . . but my hunch is that the overall impact is unlikely to be larger than 2% of total output”. Beckerman should explain why an economist’s “hunch” about climate change should command more respect than the warnings of hundreds of scientists about the risks associated with human interference with the atmospheric heat balance, and of social scientists about the possible human impacts.

A crucial value of economics is that it can help us to understand trade-offs between different policy options. To do so, economists need to use assumptions regarding the possible costs and risks of climate change, and of technological options for abatement. When economists elevate their own hunches and simplifications above the judgements of scientists and technologists who specialize in them, it is a recipe for continuing the unfortunate divide between economics and other disciplines. Beckerman would have done better to cite another economist featured in the books he reviewed, namely David Pearce’s increasing emphasis on the fact that with large potential risks in a system — the planet — of such inertia and importance, good economic analysis prescribes caution.

Michael Grubb
Energy and Environmental Programme,
Royal Institute of International Affairs,
Chatham House,
10 St James’s Square,
London SW1Y 4LE, UK