

sanity, humanity and science

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In this issue:

- **Risk, inequality and the economics of disaster**
Marcellus Andrews 2
- **A XXI-century alternative to XX-century peer review**
Grazia Ietto-Gillies 10
- **Trade and inequality: The role of economists**
Dean Baker 23
- **Beyond economic fundamentalism**
Riccardo Baldissone 33
- **A short critique of the Stern Review**
Ted Trainer 54
- **Markets, politics and freedom
in the work of Hannah Arendt**
Kevin Quinn 59

Opinion

- **The case for mitigating greenhouse gas emissions**
Kenneth J. Arrow 66
- **Stagflation cometh**
Joseph E. Stiglitz 68
- **His and hers economics**
Brian Snowdon 70
- Submissions, etc. 72

Risk, inequality and the economics of disaster

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I am struck by the excessive, near Pollyannaish optimism of mainstream economics in its assumptions about human reason and, in an odd way, the peaceable nature of economic order. Our discipline tends to gloss over the central role of power and violence in the creation of wealth, the distribution of opportunity and the fact that suffering and well-being are tightly connected. This paper, reflecting the horror and obscenities of New Orleans' agony, keeps the blood-stained nature of economic life firmly in mind.

Climate Change and the Social Contract

I am sorry to say that I am about to confirm my marginal status in the economics profession by digging into a most unpleasant aspect of the already far too scary matter of climate change. I am going to consider why climate change will inevitably shred the contemporary American social contract – that evolving mix of markets and violence that creates knowledge and wealth, billionaires and prisoners, opportunity and social death in ways that fascinate and horrify the rest of humanity. I want to explain why climate change will force the United States, and every other market society, to abandon the practice of creating disposable classes of persons whose primary function is to serve as blood and bone buffers who absorb the risks of life at the cost of their bodies and souls. I am suggesting that the market fundamentalism of Milton Friedman and Friedrich Hayek, the inspirational twin intellectual dynamos of the profession for the past three decades or more, will soon slip into oblivion because climate change will push all of us to understand that unlimited capitalism is, in the end, inextricably connected to the disposability of human beings.

First, climate change destroys market fundamentalism by showing why market based inequalities necessarily lead to hierarchies of pleasure and suffering where the well-off regularly sacrifice the well-being and lives of the poor and vulnerable. Second, climate change poses such severe collective risks to societies that polities must explicitly choose whether to reorient national and local economic policy in ways that share these risks in an egalitarian manner or to deliberately shift these risks to the bottom of society, even at the cost of escalating the degree low-intensity civil conflict by broadening the American race/poverty/prison complex beyond the hard black/white color boundary.

Consider the by now well known and ominous predictions by the Intergovernmental Panel of Climate Change that changing weather patterns and rising sea levels will destroy the lives and livelihood of millions of poor people in Asia, Africa and Latin America.¹ Many analysts and activists from threatened societies have noted, with great politeness given the dire nature of the forecast, that the rich world of Europe, North America and Northeast Asia, which grew rich by emitting the vast bulk of the greenhouse gases that are raising the Earth's temperature, is now imposing the costs of filthy production methods on the world's weakest people. Citizens of the rich world can hardly deny these facts – try as they might – nor can they justly object to billions of people seeking to become rich themselves by following the

¹ IPCC (2007).

same dirty road to wealth in the absence of an explicit transnational deal about how to share the world's atmosphere in ways that avert, or at least minimize, the climate crisis.

The public in the rich world will soon have to face up to the fact that its wealth has been purchased at a vast human cost as well as choose whether or not to resist changing their methods of production and habits of consumption in the interest of reducing the mortality and morbidity they impose on the rest of the world. In other words, the hierarchy of pleasure and suffering on a global scale is slowly becoming quite plain to citizens in rich societies, just as their willingness to either accept or resist change will soon tell the world whether fighting or negotiation will be the mechanism for allocating the right to use high concentrations of GHG's to drive the growth of national wealth. The danger for market fundamentalism is crystal clear: once citizens of rich societies realize that they have purchased their well-being at the expense of the lives and well-being of others living far away, they may become curious about whether this system of pleasure and suffering exists closer to home. Imagine what would happen to white middle class America's faith in markets if enough of them were to honestly ask if their pleasures required the suffering of others in their country?

Why Philosophy Matters for the Economics of Climate Change

We must dig a bit deeper into the logic of market fundamentalism to expose the radically destructive core of this doctrine that somehow became synonymous with liberty.

The central claim of the Hayekian vision is that a just society is one that treats all of its members equally with regard to the rule of law by specifically disavowing redistributive policies that would transfer resources from the rich to the poor or from the strong to the vulnerable. Justice is concerned with establishing a system of rules that respects each person's freedom – especially how owners choose to make use of their property – without discriminating in favor of any particular person, group, region, race or set of purposes. Therefore, both the free market system, especially the distribution of economic benefits and burdens generated by markets, are just so long as these are the result of the unregulated activity of self-interested parties. Since the results of competition are the unintended outcome of market activity rather than the goal of any particular person or group, the pattern of rewards and suffering, including the allocation of risks, may be unfortunate but *cannot* be unjust. By contrast, public policies that attempt to alter the outcomes of market processes by either redistributing resources or by deliberately altering the balance between the costs and benefits of economic activity so as to encourage some actions while discouraging others are necessarily unjust.²

This elevation of Pareto Optimality from the status of an observation about the nature of tradeoffs in market economies under very restrictive conditions to a quasi-ethical bar to all forms of redistribution has become the de facto standard by which economic policies are judged in my country and around the world over the past thirty years. While almost no government actually follows the Hayekian injunction against public action in economic matters – except to justify regressive policies that injure poor and working people while favoring elites – the market fundamentalist vision has so reshaped policy discourse that there is now a presumption against acting on behalf of poor and vulnerable people unless such actions benefit the non-poor as well. While we can all think of a few public policy moves that can

² Andrews (2005) develops a detailed critique of Hayek's formulation of justice under conditions of liberty as these are developed in Hayek (1976).

improve the well-being of everyone in society, most policies are inherently redistributive to the extent that these impose costs on the better off members of society while delivering benefits to the worse off. Modern public policy discourse has recast the Hayekian bar to redistributive policy as a “universalist” policy standard that seeks to raise the well-being of all persons and groups in society in the interest of avoiding social conflict – this in a market society where (hopefully) nonviolent fighting via prices, quantities and technological change is the source of both wealth and poverty.

Amartya Sen has taught us, with grace, humor and the infinite gentleness of a teacher conveying a most difficult and upsetting lesson, that the fatal flaw in the Hayekian project is its elevation of an exceedingly limited number of formal rights over substantive capabilities to exercise these same rights.³ Sen’s point in the context of climate change takes on an especially lethal character: the market fundamentalist’s concern with property rights insists that society refrain from protecting its weakest members from climate risks because such actions are inherently redistributive and unjust on their face. So when the City of New Orleans warned its citizens that Katrina was coming, and urged everyone to leave, it had more than done its Hayekian duty. Further, the city, state of Louisiana and the Federal government were under no obligation to help the city’s poorest residents to escape because any such action would have required the use of resources gained via an ever so mildly progressive tax system that injured the well-being of high income and wealthy citizens for the benefit of poor people.

By contrast, Sen’s capability approach to justice insists that government must not only respect all persons by promoting equal treatment before the law as well as refraining from favoring one set of private projects over others, but that society is obliged to make sure that its members are capable of exercising rights on a roughly equal basis if rights are to have any substantive meaning. So, any substantive view of freedom-as-capability would insist that governments guarantee that all citizens have an equal chance of escaping disasters, including redistributive actions providing the poor with publicly provided means to leave New Orleans as Katrina bore down on the region.

But Sen’s analysis of freedom-as-capability exposes the brutal heart of the Hayekian vision by showing why the latter is not only indifferent to the capability of citizens to exercise their rights, but indeed requires that a perhaps sizeable portion of the community be barred from becoming capable. Freedom-as-capability is, like Rawls theory of justice, an analysis of the nature and content of justice in a liberal society.⁴ One of the requirements of a really free society is that its members be capable of exercising their freedom by being granted access to crucial developmental resources in childhood – like health care, education, nutrition, personal safety, parental care or at least care by adults in conditions of affection and commitment (if possible) and other essential goods. Societies that regularly and deliberately fail to invest in the human capital of the children of the poor or members of outcast groups are systematically destroying the capability of future adult citizens to exercise their freedoms. Also, societies that regularly and deliberately neglect the development needs of the children of the poor or outcasts are also creating other castes who will themselves be unable to provide for themselves or their children on their own, or to defend themselves and their children from the animus of the larger or richer community.

³ See Sen (1992), pages 31-56, Sen (1995), pages 307-330, Sen (1998), pages for evolving formulations of and support for this crucial point.

⁴ See Rawls (1995).

Philosopher Harry Brighouse reminds us that parents are only the first among many adults who share ethical responsibility for the development of the young since communities are to be judged by how well or how badly they fulfil their stewardship role vis-à-vis children as future free citizens.⁵ Malignant societies that regularly and deliberately cripple the capacity of some of their younger members to grow into self-reliant and economically competent adults – like New Orleans, the state of Louisiana and the Federal government by virtue of each government’s high tolerance for and in many case active participation in the well documented racial discrimination in jobs, education, housing and medical care afflicting black New Orleans – create social classes that are incapable of protecting themselves from even the most obvious harms, to the point where they are too poor to leave a region on the brink of destruction.

The foregoing remarks suggest that a really free society will, at a minimum, do all it can to make sure that its weakest members are capable of exercising their rights, including their right to survive harm by having means of escape. Of course, a decent and free society will do much more than make sure that all of its members are capable enough to escape oncoming disaster. The facts of human development recommend a substantial degree of redistribution in the interest of developing a non-trivial level of economic capability for all citizens, at least enough so that someone can pay for a bus ticket to get themselves and their families out of town when a hurricane is on the way.⁶ Sen’s move beyond procedural to substantive justice extends far beyond the predatory character of the Hayekian project by insisting that *equal value of lives* – as a nexus of embodied rights and capacities contained in human beings – is the object of liberal statecraft, not the equal treatment of persons as abstract bearers of an extremely spare slate of rights whose physical survival is of no importance.

Climate Change and the Common Good

Climate change will, in time, push even the most market obsessed societies to see the ethical and practical sense of Sen’s analysis of freedom, discrediting the Hayekian nightmare as the radical, nearly predatory mantra of a dangerous cult. But will the close of the Hayekian system have any practical impact on public policies for dealing with the costs of climate change – beyond the considerable benefits of so marginalizing market fundamentalism that sensible redistributive policies can be developed and implemented? The

⁵ Brighouse (2000) is a powerful and creative analysis of social justice in the context of education that brushes past the usual constrictions of contemporary debate to open up new areas. For instance, Brighouse makes a convincing *left-liberal* social justice case in favor of Milton Friedman’s proposal for school vouchers, on the condition that all educational systems must enhance individual autonomy and equal educational opportunity. The first two chapters of the book contain a useful synthesis of the implications of liberal political theory for education and the rights of children that most economists – particularly those mesmerized by the Hayek/Friedman project – might want to consider in some detail.

⁶ Margalit (1995) develops a harsh yet compelling theory of the ethics of public policy that is informed by the author’s sense that justice is a utopian and therefore hopeless ambition in the world as we now it. Instead, Margalit suggests that the best we can hope for in society is to craft collective institutions that do not require the humiliation of large numbers of persons or social groups – like the poor or racial outcasts – thereby limiting the extent to which the ordinary routines of economic and social life inflict injury on the weakest members of society. By this definition, there can be little doubt that markets under American economic and racial conditions are deeply humiliating institutions, not least in a situation like that facing thousands of New Orleans’ poorest citizens on August 29, 2005, where thousands of people were too poor to evade an oncoming hurricane.

following remarks consider two areas – insurance in risky regions and how society might price greenhouse gas emissions – where the freedom-as-capability approach to economic policy and climate change can shape practical policies in important ways.

The vexing problem of climate and insurance along the Gulf coast of the US offers a chance to test the practical utility of freedom-as-capability. The best work on climate change suggests that structural change in the climate system will impose severe *common* risks to life, health and property over large populations, such large risks that markets will shy away from providing affordable insurance to middle class populations who could once count on being able to protect themselves. Professor Kunreuther's piece on the opinion page of the *New York Times* this past August put the point quite starkly: private insurers will not be able to provide affordable property and liability insurance for homeowners and businesses. Kunreuther suggested that the federal government make flood insurance mandatory for all property owners – particularly home and apartment owners, as well as all local governments managing public housing units.⁷ Further, the National Flood Insurance Program should set premiums based on actuarially sound calculations of losses, without any regional cross-subsidies. Kunreuther also suggested that the resulting substantial increase in the cost of owning a home be partly offset by a well-designed subsidy program that cushioned the blow for low to moderate income homeowners.

Kunreuther's proposal is an example of how to "get the prices right" in the matter of pricing risk along the Gulf Coast without barring low and middle class home ownership along the Gulf. Yet, this sensible proposal, which is sure to be resisted by realtors, contractors, mortgage brokers and all others in the Gulf region with a keen interest in building and selling homes – but not necessarily in protecting moderate income homeowners – does not take adequate account of the brutal logic of dependence and domination inherent in market inequality. Many thousands, perhaps millions of poor people living in dreadful conditions will still flock to the Gulf region, and any region facing disaster risk, because living under the threat of disaster is still their best alternative. Decent market societies will find a way to prevent local enterprises from exploiting poor populations by exposing them to climate risks from which better off citizens are protected – especially undocumented populations pushed into risk by poverty and their lack of papers.

One viable approach might be to incorporate the vulnerability of poor people into the risk pricing mechanism. Contemporary computational economics and actuarial science are as capable of estimating the risks that climate change poses to the lives and well being of the uninsured as the risks facing the insured – but do not for obvious reasons. The National Flood Insurance Program as well as other agencies in the federal government should first calculate the frequency and severity of property and human losses that extreme weather poses to poor people and then impose an insurance surcharge on both wind and flood premiums that reflects the vulnerability of poor people to weather risks. At a minimum, the proceeds from this "poverty weather risk tax" should accumulate in a special fund, managed by regional consortia monitored by the Federal government, which can be used to finance investments in infrastructure that increase the weather security of the poorest residents in an area.

⁷ Howard Kunreuther's proposal is summarized in a recent *New York Times* opinion piece, "Who will Pay for the Next Hurricane?", August 25, 2007. A detailed analysis of the economics of compulsory natural disaster insurance as part of a comprehensive national natural disaster is developed by Kunreuther in "Has the Time Come for Comprehensive Natural Disaster Insurance?" in Daniels, Kettil and Kunreuther (2006).

This policy would accomplish three goals. First, it would force all property owners to take account of extreme weather risks as they make location and business decisions on the basis of prices that accurately reflect near and longer-term losses. Second, these policies price an important but neglected negative externality – the exposure of vulnerable poor and outcast populations to weather risk – flowing from the self-interested behavior of consumers, producers and governments in societies with high degrees of economic inequality. Third, a sharp and permanent increase in the price of insurance in more risky relative to less risky regions would force local and regional governments to invest in and maintain water and weather infrastructure as a condition of economic survival in a competitive national and global economy.

There is little doubt that local elites and their publics will object to the proposed regulations because this portfolio of policies will so raise the cost of doing business in risky regions that population centers will move to safer ground. Indeed, the policy portfolio offered above is distinctly anti-populist to the extent that beautiful shorelines in risky areas will become so expensive that only the rich can afford to pay to protect themselves from disaster – so long as an anti-tax, anti-government ethos limits public investments in protective capital capable of providing real climate security for large populations of middle income and poor people. Yet, economic reason and the principle of the equal worth of citizens compel the federal government to impose an expensive regime of market-based risk pricing, large-scale infrastructure investment and tough building codes on localities and states all too willing to allow racial animus and economically illiterate forms of greed to result in large concentrations of vulnerable persons and property. Rare though it may be, this is one instance where government policies can promote both equality and efficiency by “getting the prices right” and forcing communities to address the ways that ordinary business activity and racial/class fighting expose the most vulnerable populations to dangerous weather. Above all, the federal government can never again allow nor assist local concentrations of power and hatred bent on using natural disasters as mechanisms for racial “cleansing”.⁸

Solidarity and Carbon

Most economists agree that the best way to reduce greenhouse gas (GHG) emissions is to assign a price to GHGs that reflects the current and future environmental and social costs of this atmospheric filth. At present, the useful debate between those who favor imposing a carbon tax and others favoring a “cap and trade” system is inspiring excellent

⁸ In passing, one can almost hear the protests of the Friedmanians and Hayekians as they cry out against policies that end up costing jobs and depriving the most vulnerable people in society of economic “opportunity”. We are all so used to Chicago-esque pap about how regulations end up hurting the people they are supposed to help, in this case by boosting the cost of producing and living in regions exposed to extreme weather risk, that we fail to see the predation at the heart of this argument. The Chicago mantra against regulation in this instance, and in most instances, is not unlike the kidnapper who claims that the death of hostages is the responsibility of family members who refuse to submit to ransom demands. We would all object (or should object) to the claim that the death of hostages is the fault of those who refuse to pay ransom rather than the kidnapper. Similarly, the Chicago mantra is all too frequently an excuse by the strong to overlook their role in creating the lousy and frequently deadly roster of choices facing weak people. Policies that allow prices to “tell the truth” about climate risk may well reduce employment and growth in risky regions, as well as bar persons of moderate incomes from ocean views and the presumed benefits of the culture of the beach. Of course, another way to improve the well-being of poor people is to reduce their poverty directly – perhaps by forcing dominant castes and classes in society to invest in the capabilities of the weak on the principle that all citizens deserve genuine equal opportunities to achieve a good life. As the saying goes, “freedom isn’t free”.

work on the connection between economic activity, GHGs and the environmental costs thereof. For instance, a recent working paper by Professor James Boyce of the University of Massachusetts estimates both the connection between the distribution of income and the resulting burden that families place on the environment as well as the increase in costs that families across the income spectrum must bear once GHGs are priced.⁹ Boyce's findings include the unsurprising observation that higher income families generate higher levels of carbon and other GHG emissions (though this "demand" for GHGs appears to be slightly income inelastic) as well as the more surprising estimate that the average family will see their costs rise about \$1,500 per year if GHGs prices were set at \$200 per metric ton. Needless to say, this underscores the fact that pricing carbon and other GHGs will surely cut into the living standards of all Americans, and especially families with modest incomes, thereby dampening whatever limited support the public may have for dealing with GHG emissions.

One way of handling with this matter – apart from the ongoing fuss over whether the nation should impose a tax or implement a cap and trade system to price GHGs – is for the receipts of GHG pricing to be recycled to families, either on a per person, per family or progressive basis. Boyce's analysis suggests that such a policy of equal per family payments from GHG pricing will actually boost the real incomes of more than 60% of families, thereby reducing opposition to the policy of pricing GHGs on the grounds that this regressive tax will ultimately cut living standards. Note that distributing the receipts from GHG pricing on a per family or per capita basis takes a bit of the bite out of the usual Hayekian snarl against public policy – all families in exactly the same way, which is *not* the same thing as being treated equally – though a die hard might still complain that any form of GHG taxes is an affront to freedom.

One might think that the proceeds from pricing GHGs might best be applied to financing technological developments and investments in cleaner energy sources, thereby reducing the cost and increasing the pace of innovation as well as the transition to a low GHG economy. While a policy of recycling revenues in the form of subsidies to those enterprises investing in new technologies is better than nothing, it still offends against equality to the extent that it actually blunts the impact of pricing GHGs on polluter profits. Filthy production processes have generated a vast amount of wealth, in turn contributing the obscene rise in economic inequality that warps American life and is the source of so much avoidable suffering. It makes little sense to first impose costs on producers whose choice of technologies is the source of GHG emissions, only to then offer these same polluters a bribe to change their ways – a bribe which will in any case cushion the costs of GHG pricing on the returns to those who own filthy enterprises. The demands of distributive justice suggest that people should not be rewarded for doing what they are obligated to do by ethics and morality – there is no good reason for polluters to be rewarded for refraining from poisoning the planet in ways that threaten the lives and well-being of millions of poor people via climate change. Also, the demands of retributive justice suggest that the owners of filthy enterprises whose actions have contributed the climate crisis should bear the costs of repairing the problem, thereby transforming a substantial portion of their ill-gotten gains into cleaner, safer technologies.

⁹ Boyce (2007).

Restatement of Principles

Safety and equality are tightly connected in liberal democratic societies committed to the principle that all lives are of equal value and are therefore worthy of equal protection against extreme weather risk. The structural inequalities in economic opportunity, political power and social status that are the source of unequal exposure to weather risk must be corrected by forcing stratified societies to both recognize the role of markets, customs and raw political power in creating vulnerable populations, and force dominant social groups in these communities to extend the circle of protection to include *all* of the community's members.

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A XXI-century alternative to XX-century peer review

Grazia Ietto-Gillies¹

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Abstract

The paper starts with a brief review of some criticisms of the Peer Review system – labelled *ex-ante top-down PR system* – for the evaluation of academic works. The critiques are grouped into efficiency and effectiveness criteria. It then goes on to analyse the roles of Peer Review and how good the system is at fulfilling those roles. The paper then proposes an alternative system for evaluation of academic works: an Open Access system – labelled *ex-post bottom-up Peer Comments system* – that takes full advantage of the technologies of information and communication to secure a speedy and efficient dissemination and evaluation process; moreover, one that enhances the research interaction within the academic community.

The editor would welcome comments on this paper.

Introduction

The last two decades have seen an increasing number of academic works on the issue of evaluation systems and specifically on Peer Review (PR): this is a system by which academic works are evaluated prior to being put in the public domain through publication. The evaluation is done by experts in the subject/field and thus by peers. The evaluation by PR may relate to a variety of means of dissemination: from book proposals to chapters in edited books, to papers submitted for presentation at conferences or for publication in academic journals. It is on the last that most of the writings on PR concentrate and so will this paper.

Though the main issue which authors have considered in writing about PR is indeed evaluation of academic works, the PR system has wide implications also for the dissemination of such works and indeed for the way academics communicate their results. The PR system, in fact, affects whether a work is published or not and, if so, in which journal; moreover, the process leading to the final evaluation affects the speed with which an academic work is put into the public domain.

The PR system has been in operation for a long time and it is therefore legitimate to ask why it has come in for increasing criticisms in the last few years. I suggest that this is for the following reasons. First, the fact that there has been an increase in evaluations in general: we seem to be living in an audit and control culture and this may be inducing people to start asking whether it is all necessary and indeed whether this type of culture encourages academic endeavours. Second, the proliferation of papers and journals is leading to increasing work to meet the demands of the PR process and, indeed, to overload for many reviewers² of submitted papers. A third – and in my view most relevant – factor is that changes in the information and communication technologies (ICTs) are making the old system redundant. Essentially, what I am saying is that – whether the commentators realize it

¹ Emeritus Professor of Applied Economics and Director, Centre for International Business Studies, London South Bank University. I am grateful to the following academics for useful comments on earlier drafts of this paper: N. Acocella, B.S. Frey, D.A.Gillies, M.Gillies, M. Rigby, A. Rosselli, A. Sparkes and M. Tiberi. The paper first appeared in www.lsbu.ac.uk/cibs. Since then I have received several welcome comments. I encourage readers of this version to send me their comments and ideas for improvements in the system here proposed. ietogg@lsbu.ac.uk

² In relation to the PR process I am using the terms reviewer and referee interchangeably.

or not – our critical attitude to PR is emerging because there is a way out. It is on this last point – on the way out – that this paper focuses and makes suggestions.

The next two sections consider issues of efficiency and effectiveness in the PR system; section four analyses the role of PR and section five proposes a different system of interaction and evaluation. The last section summarises and concludes.

Efficiency and effectiveness issues

Most authors who have written on PR accept that we need a system for evaluating the worth of a work and for assessing whether it is good enough to be put into the public domain. While some academics have written in favour of retaining the system (Lederberg, 1978; Garfield, 1986; Legendre, 1995), many question it and propose improvements.

There are two broad lines of criticisms; the first relates to issues of efficiency: how good the PR system is in relation to its costs. The second line relates to effectiveness: how good is the system at doing what it is supposed to do; this latter issue will be discussed in the next section.

As regards costs, Campanario (1998a and b) gives an excellent review of various studies relating evidence from several disciplines and showing that – in addition to the paid for administrative and editorial time - the editors and referees invest in the PR system a very large number of uncompensated hours. Ginsparg (2002) also tackles the issue of costs. He starts by noting that revenues per published article vary considerably from circa 1000 to 10000 dollars. What is revenue for journal publishers is a cost for libraries and journals buyers in general. The lower figure pertains to journals edited and published by not-for-profit organizations such as academic and professional associations, rather than by commercial publishers. However, not many journals are run on a not-for-profit basis because, in the last two decades, commercial publishers have gradually taken over most of the scholarly publications.

There are two main issues connected with costs: (1) costs in relation to the type of provider of editing and publishing services, i.e. not-for-profit versus commercial providers; (2) costs built-in into the system of selection of papers to be published: this is largely independent of the type of providers as in (1).

Regarding (2) we should note that the monetary costs of getting a paper published grossly underestimate the actual social costs for the research community and society as a whole. This is because a considerable amount of the work which goes into journal publication – over and above the actual development of research and production of papers by authors - is done on a voluntary basis by academics as part of their professional activities. This includes, in particular, the activities of referees and in many cases those of the editors themselves. This is what is discussed by Campanario, who, however, also notes that most academics consider these jobs as part of their professional duties and that the jobs are – indirectly – compensated because they count towards career advancement³.

³ A. Sparkes has pointed out to me that refereeing is now such a widespread activity that it no longer counts for career advancement.

Neither Campanario nor Ginsparg consider the opportunity costs of the PR activities. This is time that the academics might have been spending on their own research/scholarly or didactic activities: thus there is a heavy opportunity cost for each published article under the current PR system – whether run under for-profit or not-for-profit regime - and therefore a heavy social cost for the research community⁴.

It could be claimed that the review process and its many rounds help to improve the paper. This may indeed happen in many cases. However, the situation may also be problematic in many others. As anyone who has received two or three referee reports knows, they are often ambiguous and inconsistent: Ref A may like the parts that Ref B dismisses; Ref C misunderstands a whole section of the paper. These are not problems specific to one or two referees: they are faults of the system; any of us who has been a referee is bound to have fallen into one of these problems which, moreover, we have all experienced at some point in our career from the other side, i.e. when submitting papers or, for some of us, as editors⁵. The problem is endemic to the system: as referees, we all read a paper with our own preconceptions and frameworks in mind; often we read it very quickly as the number of requests from journal editors increases. In extreme cases the paper may be damaged by the author's attempts to fit in comments by successive referees and indeed by adding bogus references in the attempt to ingratiate editors and reviewers; a practice that, incidentally, also distorts citations indices.

Ginsparg (2002) notes that editorial and administrative costs are escalating under the pressure of increasing number of submissions. Some editors are calling for systems in which the authors and/or their institutions pay for each submitted or accepted paper: a practice already operated by some journals. While this move may help publishers and editors in meeting their costs, it does not deal with the social costs issue because it ignores who the ultimate payer is. The truth is that, whether the costs are borne by libraries or by authors/institutions, the ultimate payer is the taxpayer. Most libraries are publicly funded and thus, if the library bears the cost, it is the public that pays and the opportunity cost of excessive payments is the fact that higher library expenditure leaves fewer financial resources for the funding of research or the employment of extra lecturers. However, the situation is no different if the authors/institutions were to pay: the burden would be on the department/institution and thus, ultimately, on the taxpayer: again in this case also there would be an opportunity cost of excessive departmental or library outlays in terms of forgone academic services to which the extra outlays could have been allocated.

These considerations points to two sets of conclusions. First, that – unless there are clear quality gains by having commercial publishers as providers - a not-for-profit system of production and dissemination of journals is in the overall interest of the scholarly community and of society. Second, that it is in the interest of the research community and society as a whole to minimize the amount of resources involved in the process leading to publication.

⁴ A perceptive analysis of the problems and costs of evaluation systems applied to research can be found in Frey and Osterloh (2007).

⁵ The author has been Associate Editor of *Transnational Corporation*.

Effectiveness: what is Peer Review for?

Let us now turn to the other issue, the one which has been the subject of most critiques of the Peer Review system: effectiveness. This immediately begs the question: effectiveness in relation to what? Therefore the question of what is Peer Review for and what role it is supposed to play in academic works. Before we attempt to answer this question let us analyse more closely the characteristics of Peer Review, a system which I would like to call *ex-ante top-down PR system* (abbreviated to PR) because it is characterized by the following:

- (i) It is a system of *ex-ante* review because the peer review process intervenes prior to publication and is, indeed, instrumental to it.
- (ii) It is also a *top-down* system because the peer review is set in motion and applied by the editors who together with the referees have power over the decision to publish or not to publish.

PR is not the only possible *ex-ante top-down* system of validation: in the past the decision to publish or not was taken mainly by the editors without the refereeing process; a few journals still apply this system. An alternative system of validation – one which is not *ex-ante* and *top-down* but *ex-post* and *bottom-up* – will be introduced in section five.

As far as I can see PR is supposed to perform the following roles.

(a) Weeding out papers which are very obviously not up to standard; this is usually done by the editors on the basis of a first quick read and prior to any review process by outside referees.

(b) Guidance to readers as regard fields of specialization which tend to vary from journal to journal; the editors and the referees assess whether the paper falls within the sphere of interest of the journals and its readership.

(c) Guidance to editors in the allocation of limited journal space. This is probably the most important function of the PR system. Most journals – particularly the prestigious ones – receive far too many applications for the available journal space and they need an allocation mechanism that scales down the supply of papers to the demand by editors (constrained by the journal's space); the reports from reviewers are the filtering mechanism for such allocation.

(d) At second level from (c) the system is also used as guidance for jobs and grants allocation in the academic community. Such allocation is strongly influenced by the type of journal in which the research is published.

Points (a) and (b) are considered fairly unproblematic and most criticisms concentrate on (c) and related (d). Campanario (1998a) and Bedeian (2004) report a number of criticisms which include the following issues.

- Credentials of participants in the system and specifically how referees are chosen⁶.
- Reliability and accuracy of reviews and inconsistency among reviewers.
- Inability to spot ground-breaking works (Horrobin, 1982; Gans and Shepherd, 1994; Campanario, 1995).

⁶ Campanario reports that some studies show evidence that appointed referees pass on the job to more junior colleagues. In a conversation with a colleague on this issue she mentioned to me that the practice was well known in her department and that – when working for her doctorate - she used to be asked by her supervisor to write reports on papers he had been asked to referee.

- Inability to weed out very poor works⁷.
- Bias in favour of statistically significant results and thus denial of publication to relevant non-significant results.
- Bias against research that replicates existing results.

Obscurity of the text seems to correlate highly and positively with acceptance into highly-rated journals (Campanario 1998a: 195). There are also reports of unethical behaviour in the process (Campanario, 1998b). Many authors seem to conclude that whether a work is accepted by a journal or not may be accidental, depending on who reviews it (Bedeian, 2004; Campanario, 1998a); indeed, some argued that there does not exist a universal standard of 'what is fit for publication' within which referees can work and against which they can make their assessment. Ginsparg is quite explicit on what we should not expect from the PR system; he writes:

"...peer-reviewed journals do not certify correctness of research results. Their somewhat weaker evaluation is that an article is a) not obviously wrong or incomplete, and b) is potentially of interest to readers in the field. The peer review process is also not designed to detect fraud, or plagiarism, nor a number of associated problems - those are left to posterity to correct." (p.2)

In spite of these acknowledged difficulties, the PR system is seen as the 'gold standard' in quality assurance for academic works. The PR process is widely used not only for space allocation in journals but also as a filtering system for jobs and grants applications (d): if an article has been published in a prestigious journal it gives the author a strong basis for jobs and grants applications. Moreover, in the UK the process is used in the so-called Research Assessment Exercise (RAE) in which the government – through its higher education funding body - decides on the allocation of research funds to universities according to periodic rating of departments' research strengths. The latter are assessed – to a large extent – on the rating and prestige of the journals in which staff have published over the assessment period. It is known that – within the RAE process - in most subjects, a journal article is rated higher than a chapter in a book or a research monograph on the basis that the journal article has undergone a stricter PR process.

Though many academics would acknowledge the problems of PR in relation to publications, some of these problems seem to be forgotten when it comes to the impact on jobs and research funding allocation. It is as if, though we know that the metal we are dealing with is not pure gold, when it reaches its final destination, the 'jobs and research funding allocation desk' we treat it as pure gold. Yet, it is at this second level that the impact on individual academics' lives⁸, on the research community and on the direction of research, is most felt.

⁷ Campanario cites research reporting that the editors of a specific journal "...tend to accept about 10 percent of manuscripts they should have rejected, and rejected about 10 percent of manuscripts that should have been accepted" (p. 194).

⁸ A poignant fictional story of the impact of the RAE on individual academics is told in Sparkes (2007). In a written exchange, Sparkes has pointed out to me how 'bluntly negative and destructive' reports can destroy a young academic.

Scholarly activities and the management of gates

Points (c) and (d) above mean that the most important function of the *ex-ante top-down PR* process is its gate-keeping role giving or denying access to journal space and – indirectly - to academic jobs and research funds. The process leads to a decision to open or shut the entry gate for publication into a particular journal; in effect, in most cases, the management process results in the shutting of the gate: the most prestigious journals may have a 90 percent rejection rate. This leads the author whose paper has been rejected to try another journal. To continue with the 'gates' analogy it is as if the authors, finding the first gate shut to their papers, go along the path to the next gate and then the next till they may manage to find one that opens for them.

Once the authors find themselves in the field of published works, their pieces are available to readers and thus the PR system performs its dissemination function: readers are, partly, guided in their choice of which works to consider by the prestige of the journal in which papers have been published, as well as, of course, by the field of specialization of the journal.

To continue with the analogy of gates, our authors now find themselves in the green field of published authors; they have left behind outside the gates the miserable authors whose works have not been accepted for publication. However, the field of publication is not the point of destination but only a necessary staging post.

Here comes the impact of the process on point (d), i.e. the effects on jobs and grants allocation. It is well known that people and institutions with responsibility and power to allocate academic posts and/or research funds, in assessing the quality of candidates or of applications are, to a large extent, guided by the worth of their publications as indicated by the quality of the journal in which they have been published. The British RAE - mentioned in section two - is also based on a second stage PR system.

All our authors need to use their reputation as published authors to access the next even greener field: the luscious field of academic jobs, promotions, grants allocation. To have access to these, a further selection process will be in operation depending on the reputation of the journal in which the works have been published. So, from our green field where the published authors are assembled they will all try to move on and pass through further gates, and here comes selection again. There are several gates leading to different shades of green in the grass: from the very deep green of top jobs in top institutions to the paler green of less prestigious jobs. Whether our authors get in the very deep, brilliant green field of most prestigious jobs or in one of the progressively paler green field depends on the reputation of the journal in which they have published. Some authors who have published in less prestigious journals may never progress towards this second set of gates.

The gates analogy is here kept deliberately simple and schematic. In practice, other elements affect the passage into the second set of gates: books publication and the reputation of their publishers is taken into consideration in the social sciences and the humanities; conferences seem to count more in the physical or engineering sciences; the reputation of one's institution counts towards grants allocation; in the social science and humanities, the ideological perspective of the research may affect the ability of its authors to proceed through the first set of gates (to the field of published works) and to the second set, to the field of jobs and grants.

Thus PR is very influential on two levels: in the dissemination process (i.e in which journals the paper is published, if any) and in the assessment of performance of individuals and institutions. These two levels affect both the allocation of academic jobs and of research funds. Moreover, when PR is applied also to the assessment of institutions (as in the RAE), the two levels of assessment result in cumulative costs; to those costs of the PR system highlighted in section two must be added the costs of the RAE for the British academic community. The latter are enormous as the evaluation system requires a large central administration system as well as administrators at each university and of, course, the investment of considerable time by academics themselves to prepare their own and their institution's cases.

The PR system may serve reasonably well editors and publishers in their main problem of space allocation; but how well does it serve the research community and society? Not very well I would say for the following reasons some of which emerge from the critical literature cited above.

- The introduction of long delays between completion of a paper and its publication. The review process in each journal takes months; as most papers are sent to several journals consecutively, the lag between completion of a paper and its publication may be counted in years. This is a problems for the authors but also for the research community as further developments in an area in which an author has made a contribution are delayed.
- The very high private and social costs of the system as argued in section two.
- The possible distortion of research paths introduced by the authors' race to get into the more prestigious journals: authors, under pressure to get into top journals, may incline to work in areas, paradigms, ideological frameworks acceptable to specific journals. Authors may adjust their behaviour and work to meet targets – including the target of making it into a specific journal - rather than to advance research and science (Frey and Osterloh, 2007)⁹. This is a trend which would not matter if it applied to few cases only, but can be serious as the practice becomes widespread under the pressure from institutions such as the British RAE¹⁰.
- A built-in bias against papers that are very innovative and outside the established paradigm. The reason for this is that most referees and editors work within well established paradigms, while ground-breaking research by its own nature and definition is something outside the standard paradigm. When refereeing, the reviewers will read a paper with the mind frame of the paradigm they are working under; what is presented to them may appear as strange, unusual, not properly researched; it may be something presented in a new and untried language or framework. If the readers of this piece think that all this is nonsense and that any competent person is able to spot 'the great work' they should consider evidence from the history of science as in Gillies (2006a and b): researchers who are now

⁹ The introduction of targets has become very widespread also in the British National Health System (NHS) and this is leading to behaviour distortions on the part of health workers under pressure from their managers to perform well. The devastating effects of all this has been highlighted by some high profile failures in hospitals (Carvel, 2006: 9 and 2007:14).

¹⁰ Here is an example of undergoing adaptation of behaviour. There are currently plans to modify the RAE system more away from PR and into using metrics including citation indices. Change in behaviour are already occurring and there is talk of establishment of 'citation clubs' (Corbyn, 2007) and of pressure on authors by editors of journals for more citations of their own journal's works.

acknowledged as having made ground breaking contributions saw their efforts rejected by their peers working in different paradigms.

It could be argued that the latter problem does not matter that much because many works will reach the public domain eventually. However, when a piece of research is ground-breaking and very important there is also urgency in publishing and in wide dissemination for the following reasons: (a) the author may want to establish intellectual priority; (b) the research community would benefit from early release of results and from potential further developments following interaction between readers and authors; moreover, some research may be very relevant for human life or for business and the economy; (c) for some academics delays may lead to loss of tenure with long term effects on individuals, families and research communities.

Most academics would agree that a system of evaluation and dissemination of academic works is needed, though many would also agree that the current PR system is imperfect. Some have proposed amendments mostly at the margin, that is the type of amendments that leave the basic tenets of the system in place: the conclusion seems to be that imperfect though the system is, it may be the best available on offer. The next section challenges the last statement in the light of alternative systems made possible by the new technology.

A different system of gates management?

As mentioned above, it could be argued that – given the space constraints – the current PR system is the best available. This may have been the case till a decade or so ago; however, here is where the new technology comes in and it is in this light that possible alternatives must be considered.

What do we want from an evaluation and dissemination system? We may not all agree on the details, but in reality most people might agree that we want a system with the following characteristics.

1. An efficient system that absorbs less compensated and uncompensated, private and social resources than the present one.
2. A system that cuts the length of time between the completion of a paper and its appearing in the public domain and thus its availability to the potential readership.
3. A system that substantially reduces the probability of shutting the publication gate to ground-breaking research works.
4. A system that weeds out the very poor papers.
5. A system that alongside the evaluation function performs an interaction function within the community of researchers.

Regarding points 3 and 4, I would like to make the following comments. Gillies (2006a and b) notes that most people in charge of resources allocation and selection are obsessed with avoidance of type I error that is with avoiding letting through the gates poor papers. However, type II error – not letting through ground-breaking research results – has much more serious consequences for the research community and society in general.

Regarding point 5, Bedeian (2004) stresses that the interaction between author, editor and referee makes the end product - the published paper - the result of a social

interaction; in effect the published work becomes a social product often different from the original product sent to the journal. Frey (2003) comes down strongly against one aspect of this type of socialization of the academic work because he feels that the anonymous referees have excessive power to impose their views on the author and that the work may end up not reflecting the original views. He concludes in favour of laying the decision power entirely in the hands of editors who have more invested interests in the success of the journal than anonymous referees.

I see social interaction as a very important part in the development of research; however, it does not have to be the specific power-based social interaction built into the current PR system as discussed by Bedeian and by Frey as above. The information and communication technologies offer us the potential for a new system of evaluation, dissemination and indeed interaction within the research community. Open Access systems - in which research papers are placed in the public domain with some pre-selection by the site editors – are already in existence in many subjects. For example, in economics RePEc and NEP perform this function; Ginsparg (2002) mentions arXiv in relation to physics. He is concerned with the efficiency of the scholarly communication infrastructure and favours the use of Open Access in order to achieve speedy and low cost dissemination; however, he thinks that a form of PR is still necessary in order to validate the worth of research works and to aid selection for jobs and grants allocation. Therefore, he favours a double system in which Open Access in internet sites secures a fast and low cost dissemination while a later publication with prior PR process gives a mechanism for selection in jobs and grants applications¹¹.

However, I feel that we could go a step further and develop a system that takes full advantage of the ICTs; I therefore propose the following *ex-post bottom-up Peer Comments system* (henceforth abbreviated as PCs).

- Use of Open Access sites categorized by fields of specialization for each subject. Research papers to undergo a first selection designed to (a) weed out the crankish papers and (b) make sure that – as far as possible - they pertain to the right field of specialization. The latter point is designed to help readers as well as authors.
- For each paper published on Open Access the editor should open an electronic 'Comments Link' inviting readers to send comments which – following a vetting to weed out crank or offensive contributions – will then be placed on the Link site. These open debates should be positively encouraged as a way of developing research; they are a way of recognizing that research is a social activity and the interaction of various researchers can aid progress. As already noted Bedeian (2004) stresses that papers published in journals are the result of social interaction between author, editor and referees. The type of social interaction proposed here differs from the one discussed in Bedeian because: (a) it is based on a potentially much larger number of commentators; (b) it is not power-based in the sense that the commentators do not have the power to stop the paper being put into the public domain: it is already there; and (c) the comments are signed unlike the anonymous referees reports.
- Academic associations could encourage the publication – in books or in dedicated e-journals - of selected 'Readers', i.e. collections of papers and their critiques – mostly already available on Open Access sites - with a specific focus in order to give further

¹¹ This approach is curious in view of Ginsparg critical attitude towards the quality assurance of the PR process cited in section three.

guidance to readers¹². Ginsparg (p. 7) cites the case of successful Mathematical Reviews, published by the American Mathematical Society.

- The publications of articles on 'Literature Surveys' should be encouraged in order to help readers sift through the large amount of literature now available. In fact doctoral students world wide engage in this useful activity; papers from this part of their effort are usually not published; we should encourage their publication because it may provide a useful feed back for authors and other interested researchers. It could be argued that good literature reviews are not easy and they need a considerable more experience than that of the average research student. I tend to agree with this and I suggest that experienced people should also get involved in this.
- Reviews of web articles as well as of books should be encouraged as they perform a very valuable service; this would reverse a trend of the last couple of decades which have seen the downgrading of book reviews for the purpose of the RAE or jobs and grants applications. This downgrading discourages authors from employing their time in reviewing activities and deprives the community of a useful tool for selection and discrimination of which papers/books to read.

The above system I call *ex-post bottom-up Peer Comment* for the following reasons. First, to stress that the comments occur after the paper has been put into the public domain. Moreover, it is bottom-up because the comments and reviews are not power-based: the commentators do not have the power to stop the paper going into the public domain.

Among the advantages of this system are the following.

- It secures quick dissemination of research ideas and results.
- It is very cost efficient because both private and social costs are very low.
- The bottom-up approach is likely to give better assessment because of the large number of potential contributors against the few referees in the *ex-ante top-down PR* system
- One further advantage of the PCs system is that those who are prepared to read the relevant papers and write criticisms are likely to be people interested in the specific topic and thus their criticisms are likely to be relevant.
- The wider dissemination of papers on e-sites has a major advantage: within a large readership and potential commentators we are more likely to have a few who can spot the occasional ground-breaking research than if we confine such a task to very few referees as in the present PR system.
- The Link site for comments invites people to participate disclosing their identity rather than anonymously. The lack of anonymity has the advantage that, if someone has a brilliant idea following the reading of the original paper, s/he will not be tempted to hold it back for fear of losing attribution – as may happen under the current system of anonymous referees. They know that whatever comments they place on the site will be attributed to them. Moreover, openness is likely to lead to more positive developments and the process would strengthen the social character of research: further progress along the line of specific papers would emerge from critiques and discussions. It could, however, be claimed that the

¹² In the 1950s and 1960s the American Economic Association – through the publisher Allen & Unwin - issued a series of 'Readers in Economics' collecting major published articles in a specific field. They were – at the time – very useful reference texts particularly for researchers working in institutions/countries not well endowed with library resources. As I write I can look on my shelves at Readers in 'Business Cycles', in 'Price Theory', in the 'Theory of Income Distribution' and in the 'Theory of International Trade'. The aim and format of XXI century Readers would differ by taking account of the opportunities offered by the new technologies as well as of the scholarly infrastructure proposed here.

lack of anonymity discourages academics from making negative comments. This is possible; however, we should not forget that the internet interaction spans the whole globe; while someone in Britain may not want to offend co-researchers whom they are likely to meet often and/or who may have power over jobs allocation, they may be less worried about academics further afield.

- From the reader's perspective, there is evidence that the opportunity to read comments and debates is viewed positively: Bedeian reports that "Subscribers either to the *American Psychologist* or the *American Sociological Review* often find that the sometimes-heated interchanges appearing in the Comment and Reply sections can be more intellectually stimulating than the original works being disputed" (p. 211).
- As regards jobs and grants/funds allocation, the proposed system has the following advantages over the PR system: the allocators of grants and jobs can rely on a wider number of potential commentators than the current system and thus will be better able to assess the impact of the paper.
- The development of 'Readers', literature surveys and review articles will support the system and may help readers as well as jobs and grants allocators to find their way through the large amount of papers and comments.

The research community and society would get the maximum benefit - by paying the lowest cost - from this proposed system if the providers of services on these web sites were not-for-profit organizations such as academic and professional associations. The editing of Open Access and related 'Comments Link' sites should be supported by public funds to encourage competent and keen people to engage in them. Yes, there will be also many poor works (including comments) put in the public domain: but this is a problem already present under the current system; at least the cost of these will not be very high. Moreover, in the end readers will have to be discriminating as they have to be now. The transition towards the *ex-post bottom-up PCs* system may have to be gradual to avoid excessive disruption to ongoing processes¹³; it would be facilitated by the fact that the system is changing anyway under the effect of the establishment of many Open Access publication sites. It is a matter of seizing the initiative and moving towards an interaction and evaluation infrastructure for research appropriate for the XXI century.

Finally, I would like to bring to the attention of readers a striking example from the history of physics¹⁴: a case in which a policy of support for (and trust in) authors rather than hindrance through excessive scrutiny and controls led to the quick dissemination of ground breaking research work. Miller (1981: 2)) argues that Einstein famous 1905 relativity paper had all the characteristics of papers that are rejected by referees. It was by a young, unknown author who had neither academic post nor doctorate; The paper contained 'no citations to current literature'; was 'unorthodox in style and format'; it contradicted the main paradigms in the discipline; and the title had 'little to do with most of its content'. It might not have been put in the public domain quickly had *Annalen der Physik* not followed – at the time – a policy with similarities to what is being proposed here. Miller writes on this point:

"As far as we know the editorial policy of the *Annalen* was that an author's initial contributions were scrutinized by either the editor or a member of the Curatorium;

¹³ I owe this point to Mario Tiberi.

¹⁴ I am grateful to my husband Donald Gillies for bringing this example to my attention.

subsequent papers may have been published with no refereeing. [...] Einstein's...paper was probably accepted on receipt." (p. 2)

Summary and conclusions

The paper starts with summarizing critiques of the current system for evaluating research papers: the Peer Review system which is labelled as *ex-ante top-down Peer Review*. Two sets of criteria are considered in the critiques: efficiency and effectiveness; that is how good the PR system is in relation to private and social costs and how good it is in fulfilling its roles. A discussion of roles and functions of the PR system leads to an analysis of its problems.

The last section proposes an alternative system – an Open Access system characterized by *ex-post bottom-up Peer Comments* - one that is more appropriate to the XXI century because it utilizes the new technologies to achieve the following.

- Low cost and speedy dissemination of research papers.
- Encouragement of comments and discussions on papers; these to be put in the public domain under the name of the commentator.
- Strong and open interaction between authors and commentators thus emphasizing the perspective of research as a social process.

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Trade and inequality: The role of economists

Dean Baker¹

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Economists have come to play an enormously important role in public policy debates. Their use of their expertise to effectively act as priests, telling the less informed public what the impact of their various policy proposals will be on the economy's future performance. Economists often tell the public that its preferred policy path will not have the intended effect, and may actually lead to outcomes that are the opposite of what is intended.

Since economists, or at least the mainstream of the economics profession, are accorded enormous respect by the major media outlets, any politician who challenges the prognostications from this group is likely to be ridiculed in the media. This ridicule is generally sufficient to derail the career of any politician who does not already possess an independent and determined base of support and/or a vast amount of wealth that she can use to sustain her political career.

As a result of their ability to influence the media, economists can be incredibly important in steering public policy, often in directions that may not be supported by most of the country. Trade policy provides an excellent example of a case in which the mainstream of economics profession has been adamant in pushing economic policies that clearly do not have the support of the bulk of the public.

The role of economists in trade debates is especially pernicious because there is no area of economics in which economists have been less honest about what their models show. They have consistently exaggerated the benefits that are predicted by standard trade models. At the same time they have ignored or downplayed the distributional consequences. In doing so, they consistently deride those who raise questions about the path of recent trade policy for failing to accept fundamental realities of the modern world.

Before laying out this case more fully, it is important to note that I am not raising any questions about the trade models themselves. There are important assumptions of these models that may be viewed as unrealistic. Most importantly, trade models generally assume full employment. If this assumption is relaxed, then it is far less clear that the elimination of trade barriers will necessarily lead to gains for the country as a whole.

The standard story of gains from trade is that fully utilized resources will be used more efficiently in the absence of barriers to trade. However, if one of the main outcomes is that a substantial number of workers end up unemployed as result of the being exposed to international competition, then the lost output due to higher unemployment can swamp any efficiency gains from reducing trade barriers.

While it is standard for economists to assume that periods of unemployment due inadequate demand are rare occurrences that can be safely assumed away for purposes of analyses, it is certainly hard to accept that this has been the case in the recent past. Alan Greenspan, along with many other economists, viewed the economy as suffering from a world-wide glut of savings in the years following the collapse of the stock bubble. Insofar as

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this description of the economy was accurate (and arguably still is), the economy's main problem is a failure to fully utilize its resources, not a failure to direct them to their most efficient uses. In this context, the removal of trade barriers may quite plausibly have led to less employment and less output, even if the employed workers were more efficiently distributed.

However, for purposes of this discussion, I will ignore the possibility that unemployment may in fact often be a problem and that trade may be a factor contributing to higher unemployment. Instead, I want to focus on three issues that follow directly from the standard trade models in which all the assumptions are chosen to support the gains from trade conclusion:

- 1) Trade does create winners and losers, and given current patterns of trade, the winners are likely to be owners of capital and highly educated workers, with the rest of the population ending up as losers.
- 2) It is possible to redistribute from the winners to the losers. However, the taxes necessarily to pay for any redistributions are themselves distortionary. It is not possible to determine a priori whether the distortions created by taxes to finance redistribution are more or less distortionary than the trade barriers that were eliminated.
- 3) There are trade barriers that have the effect of protecting workers in the most highly paid professions, such as doctors, lawyers, and accountants. There are large potential economic gains from eliminating these barriers. Removing these barriers would both increase economic efficiency and reduce inequality.

I will discuss each of these items in turn.

The winners and losers from trade: does the redistribution ever take place?

The basic story of the gains from trade story is that removing trade barriers leads to a change in the relative prices of traded goods. This leads to a change in the price of factor inputs. The price of the relatively scarce factor in each country is supposed to fall, while the price of the relatively plentiful factor rises.² In the context of the United States removing barriers to trade with developing countries, the expected outcome would be a decline in the relative price of less-educated labor (the relatively scarce factor in the United States), and an increase in the relative price of more educated labor. In other words, we should expect to see an increase in wage inequality as the direct result of the trade agreements that have been pursued over the last two decades, not an accidental outcome. The gains from trade and the increase in inequality are part of the same process of a change in relative prices.

Whether or not less-educated workers end up as absolute losers in this story depends on the relative size of the two predicted effects from removing trade barriers. If the efficiency gains from removing barriers are large enough, then it is possible that less-educated workers end up as absolute gainers, even if inequality increases. The actual history of the last quarter century suggests that this is not the case. The growth of wage inequality since 1979 has meant that most workers have seen almost no real wage growth over this period. In the years from 1979 to 2005, the median hourly wage has risen by just 9 percent.

² This is main implication of the Stolper-Samuelson theorem.

The wages of workers at the 30th have risen by just 3.5 percent and they have fallen by 2.3 percent for worker sat the 10th percentile. Even workers at the 70th percentile have seen real growth of just 10.4 percent over this period. In other words, the vast majority of the workforce have seen only minimal gains in real wages over a period in which net productivity has risen by more than 40 percent.³

The rise in wage inequality over the last quarter century is not really in dispute, nor is the stagnation of wages for most of the workforce. The only real question is the extent to which the growth in inequality can be attributed to increased trade. There has been extensive research on this topic, which has produced a wide range of estimates. At the high-end, Cline (1997) estimated that trade and immigration together explained 40 percent of the growth in wage inequality over the last quarter century.⁴ Krugman (1995) used a simple computable general equilibrium model to conclude that trade accounted for 10 percent of the increase in inequality over this period, coming in near the lower end of the range of estimates. Based on the increase in trade with developing countries in the last decade, Bivens (2006) uses the same methodology to conclude that trade would explain 14 percent of the change in relative wages over the period since 1980.

Such changes in relative wages imply substantial reductions in incomes for most workers. For example, if trade and immigration can explain 40 percent of the 20 percentage point gap between the growth in usable productivity and the growth in wages for the typical worker, then it implies a reduction in compensation of \$2,900 a year for a full-time worker earning the median wage.⁵ Even the 14 percent figure implied by Bivens update of Krugman's calculation, implies a loss of more than \$1000 per year for a typical worker. While the additional growth attributable to trade may partially offset these losses, most of the workforce is likely to end up as serious losers from trade.

This point is important because most discussion of trade policy only treats the workers who directly lose jobs because of trade as the losers from increased trade. The policies proposed to redistribute to the losers from trade involve retraining or in some other way compensating the workers who can directly trace their job loss to trade. This group typically numbers in the low hundreds of thousands, as opposed to the tens of millions of workers who can realistically claim to have suffered wage declines due to trade. For the most part, the trade adjustment assistance received by these workers has not made them whole in the sense of leaving them as well off as they were before they lost their jobs. However, even

³ The wage data are taken from Mishel, Bernstein, and Allegretto, 2007, Table 3.4). The net productivity figure is a "usable productivity" measure that is based on a net output measure and a CPI deflator for output. This measure allows for real wage growth to be directly compared to productivity growth. This measure is explained in Baker (2007). It is worth noting that then on-wage share of compensation increased by 8 percentage points from 1980 to 2006. This rise in non-wage compensation (mostly due to employer paid health care benefits) explains part of the gap between productivity growth and real wage growth.

⁴ This was the finding in Cline (1997) in an analysis that only covered the years through from 1973 to 1993 found that 39percent of the rise in inequality over this period could be explained by trade and immigration flows. Since the trade share of GDP has increased by more than one-fourth since the end point of this study and immigration flows have increased by at least 20 percent, the impact of trade on inequality predicted by this methodology would be considerably larger today.

⁵ This calculation assumes a wage of \$15.00 an hour (Mishel, Bernstein, and Allegretto, 2007, Table 3.4), non-wage compensation that is equal to 20 percent of wage compensation and a 2000 hour work-year.

the most generous trade adjustment assistance to displaced workers does nothing for the tens of millions of workers who suffer wage reductions as a result of trade.

It is certainly possible to imagine political scenarios in which various forms of trade adjustment assistance will be substantially expanded so that those who lose their jobs as a result of trade are not as negatively affected as is the case presently. It is not possible to imagine any measures that will offset the losses to the larger group of workers who suffer wage reductions. They are expected to simply endure this reduction in living standards as a necessary sacrifice for a larger economic agenda.

Economists have been especially notably for their silence on this issue. With very few exceptions they have eagerly embraced the trade agenda of recent administrations. They have been quick to denounce opponents of this agenda as “protectionists” who should not be allowed in polite circles. Yet, they rarely acknowledge the unavoidable implication of trade theory – that a large segment of the U.S. workforce will have to endure lower living standards as a result of the current course of trade liberalization. Apparently, economists believe that these people have an obligation to sacrifice in the interests of economic efficiency.

Economic efficiency and redistribution

Most of the supporters of the current trade agenda, and especially the more liberal supporters of this agenda, do make a point of advocating redistribution from winners to losers, so that in principle at least everyone can gain from trade. As noted, this redistribution usually takes the form of retraining or readjustment assistance for workers who can demonstrate that they directly lost their jobs due to trade. Although, it has never really appeared as a serious proposition in political debate, in principle it would be possible to tax away enough of the gains from the winners to compensate all the people who lose from trade.

Before addressing efficiency questions at stake in this proposition, it is worth pointing out the different order of magnitude of the necessary transfers compared to those being discussed in national political debates presently. Most forms of trade readjustment assistance are relatively small items in the federal budget. For example, the 2008 appropriation for trade adjustment assistance is less than \$200 million, approximately 0.006 percent of the federal budget.⁶

By contrast, suppose that trade had the effect of lowering the wages of the bottom 70 percent of the wage distribution by an average of 2.0 percent, a relatively conservative estimate of the impact of trade on inequality. In this case, the amount of money that would have to be redistributed from higher income people to low wage workers would be close to \$50 billion annually, or 1.6 percent of the federal budget. This would be a qualitatively larger sum to raise in taxes, which perhaps explains the reason that no politician has championed this effort to date.

There is a second more fundamental point that needs to be addressed in assessing such large redistributions from the standpoint of trade policy. The argument for trade liberalization depends primarily on the claim that it increases economic efficiency. However, any revenue that is raised to pay for compensation from winners to losers will require taxes.

⁶ The cost of the training component of trade adjustment assistance can be found at the Department of Labor's website <http://www.doleta.gov/tradeact/docs/2008AllocationTable.pdf>.

These taxes will themselves be distortionary. While it is easy to say that the distortions that result from the taxes necessary to fund a \$200 million job retraining program will not create enough distortions to offset the gains from trade liberalization, it is far from obvious that this is true if it's necessary to raise \$50 billion to redistribute to the losers from trade.

Trade modelers often evade this issue of distortionary domestic taxes by assuming that the tax revenue lost from trade liberalization will be made up by a lump sum tax. A lump sum tax has two interesting properties. First, it does not create any economic distortions. A lump sum tax effectively just sucks up money from the economy without affecting anyone's behavior, therefore it does not create distortions. The other interesting feature of lump sum taxes is that they do not actually exist in the world. In the real world we have to raise revenue by doing things like taxing income, sales, or property. These taxes all do lead to economic distortions, unlike lump sum taxes.

As a practical matter then, an efficiency minded economist would want to compare the efficiency gains from reducing tariffs, or other obstructions to trade, with the efficiency losses associated with whatever taxes might be raised, both to offset lost tariff revenue and also to compensate the losers from trade. To do this sort of analysis you have assume that real world taxes will be used to raise the necessary revenue.

Of course once this step is made, it is far from obvious that reducing trade barriers will always increase efficiency. In some cases, import tariffs can be a relatively efficient form of taxation. This is especially likely to be the case in developing countries without well developed tax administrations. Taxing goods when they enter through ports or main border crossing is likely to be far easier than imposing income taxes or even sales taxes.

In the case of a wealthy country like the United States, income taxes or sales taxes are likely to be less distortionary than tariffs as a source of revenue, however if there is going to be compensation paid to the losers from trade, then it is necessary to raise such taxes by considerably more than is necessary to just replace lost tariff revenue.⁷ In this case, it is far from obvious, and certainly not obvious *a priori* that trade liberalization coupled with an effective program for compensating losers is a net efficiency gain. In this scenario, one source of inefficiency is eliminated – the barrier(s) to trade—but another source of inefficiency had been added, the tax needed to compensate losers and possibly also to replace lost tariff revenues.

The story looks even worse from the standpoint of trade liberalization when we consider the fact that any redistribution program will incur administrative costs, which could be substantial, and that no adjustment program will be ever be perfectly targeted. To cover these additional costs, it will be necessary to raise more than one dollar in tax revenue for each dollar paid in compensation to the losers from trade. The question that economists, who are committed to compensating losers, must then ask is whether the efficiency gains from eliminating a set of trade barriers are greater than the efficiency costs associated with a tax increase that is large enough to both compensate losers, and cover the costs associated with a program directed to these losers.

Without having examined any data on this question, I would be skeptical that the answer would in general be yes. Economists usually do not think that most government

⁷ If the liberalization involved the elimination of non-tariff barriers such as quotas or other obstacles to imports, then the revenue needs are somewhat lower.

programs are very efficient, and they often have some cause for this view. If we envision adjustment assistance programs that are one or two orders of magnitude larger than the existing programs and the tax revenue needed to pay for such programs, it seems quite plausible that the distortions that result from the necessary tax increases are considerably larger than the gains from trade liberalization. But, this is really the topic that proponents of the current trade agenda should be investigating. There is no basis for determining the answer to this question based on existing research.

Professional protectionism: the barriers to trade in highly paid professional services

While economists can be criticized for failing to be forthcoming about the fact that most of the workforce likely ends up losing from current trade policies, and that the distortions created by policies designed to compensate losers may be larger than the efficiency gains from trade liberalization, these are not the worst sins of the economics profession when it comes to trade policy. The biggest failing of the economists concerns what they have kept off the table, specifically the large array of legal and practical barriers that protect workers in highly paid professions (e.g. doctors, lawyers, economists) from competition with their counterparts in the developing world.

The standard view among economists seems to be that there is already free trade in these professions and that the people who hold these highly paid positions in the United States just happen to be the best in their specialties, true winners in global competition. It is easy to show that this view is nonsense.

There are a wide range of barriers that prevent professionals in the developing world from working in the United States. The most important of these restrictions is the rule that applies to employers seeking foreign workers, which requires that they first attempt to find a United States citizen or green cardholder, before they seek out a non-citizen for the job. They must also claim that they are offering the prevailing wage for the job in question.

While this restriction may be poorly enforced, the fact that the law exists on the books is likely to prevent the emergence of Wal-Mart hospitals, Wal-Mart law firms, or Wal-Mart universities that explicitly seek to hire professionals from the developing world, and pay them wages that are much lower than the standard in the United States. These Wal-Mart institutions could then charge much lower prices than existing hospitals, law firms, and universities and thereby gain enormous market share. Eventually, the existing institutions would also have to cut the wages they paid for professionals in order to stay in business. This would lead to lower wages in the highest paid professions, but also lower costs for medical care, legal services, and education.

In this scenario, we would see the same sorts of gains from trade that economists love to tout, except that it would lead to greater equality rather than greater inequality. (We can have retraining programs for the doctors, lawyers, and economists who lose their jobs due to trade.) Yet, virtually no economists ever discuss this sort of vision when they push an agenda for liberalized trade.

To convince themselves that they and their professional friends and relatives really are just the hardworking and/or lucky winners in global competition, economists tend to embrace the "Mexican avocado theory of international trade (MATIT)." According to the

MATIT, there are no barriers to trade in agricultural products in the United States because it is possible to buy an avocado grown in Mexico in most grocery stores. The MATIT as applied to the highly paid professions leads to the conclusion that there are no barriers to foreign professionals working in the United States because their doctor was born in India or the economist in the next office was born in China. Using the MATIT, economists have little difficulty concluding that the United States has free trade in highly paid professional services because they personally can identify one or more foreign born professionals working in the United States.

Of course this is not serious analysis. Intelligent and highly motivated professionals from the developing world can overcome the barriers that are intended to limit entry, but this fact hardly proves that such barriers do not exist. Economists would openly ridicule the application of the MATIT to any other sector of the economy, but somehow they find it compelling when discussing trade in highly paid professional services.

The ability of economists to overlook barriers to trade in highly paid professional services is truly astounding. In 1997 there was an effort by the major doctors' associations to restrict the number of foreign doctors who were entering the country. They complained that the large number of foreign doctors entering the country was depressing their wages. (Note, the doctors did not claim that the foreign doctors lacked adequate training and were threatening the public's health. The argument was about wages, not safety.) On the other side, people argued that foreign doctors were working in underserved areas in the inner cities and countryside where U.S. born doctors did not want to work.

There were no prominent economists involved in this debate making the obvious economic argument, that foreign doctors are depressing the wages of U.S. born doctors, and this is good. Lower wages for doctors, means lower health care costs, which will increase the money that consumers have available for other spending and lead to more economic growth. The model is exactly the same whether the X axis is labelled "steel" or "physicians' services."

The result of this debate was that tighter rules were imposed on foreign doctors entering the country and the number of medical residency spots available to foreign trained doctors was cut back substantially. In other words, the doctors were able to get the protection they wanted. Furthermore, they were able to get this protection without economists, or the newspaper pundits who defer to economists, calling them knuckle-scraping Neanderthals.

In fact, this episode seems to have gone virtually unnoticed by trade economists, in spite of the large sums of money at stake. The country spends around \$160 billion a year paying physician salaries. By contrast, it spends around \$70 billion a year on steel. While most trade economists probably do not even know about the restrictions imposed on the entry of foreign physicians in 1997, all of them could probably explain the basic outlines of President Bush's tariffs on imported steel from 2002. The latter were explicitly time limited and peaked at 30 percent for a small category of items. By contrast, U.S. physicians earn almost twice as much as their counterparts in other wealthy countries (net of malpractice insurance). The gap between physicians' salaries in the U.S. and their pay in the developing world is even larger. Clearly the economic costs of restrictions on foreign physicians dwarf the costs of the steel tariffs, but only the latter concerned trade economists.

The idea of free trade in professional services is remarkably foreign to free trade advocates. They have difficulty even understanding what it means. The basic point is very

simple. We carry through the exact same sort of process that we did with NAFTA. In the case of NAFTA, U.S. manufacturers were asked to identify the obstacles that prevented them from setting up manufacturing operations in Mexico. The trade agreement was then designed to remove these obstacles. This meant ensuring the security of investments in Mexico, protecting them against nationalization, excessive taxation, or restrictions on the repatriation of profits. On the U.S. side the deal was constructed to prevent the possibility of barriers to imports from Mexico, not only in the form of tariffs or quotas, but also in the form of product or safety regulations that could obstruct imports.

If we believed in free trade in professional services our trade negotiators would sit down with hospitals, law firms, universities, and other employers of highly paid professionals and determine the obstacles that prevent them from hiring large numbers of professionals from the developing world. At the top of this list would be immigration restrictions that sharply limit the quantity of highly paid professionals who can enter the country and that also require that foreign professionals be paid comparable wages to U.S. professionals. If Wal-Mart can pay less than the domestic price for Chinese made shoes and toys, thereby depressing the wages of manufacturing workers in the United States, then hospital and universities should be able to do the same in hiring physicians and professors.

It is also important that the licensing standards be made fully transparent. It would also be useful to allow for students to be tested in their home countries (by U.S. certified testers of course). This will allow smart kids in India, China, Mexico, and elsewhere to train in their home country to meet the requirements necessary to be a doctor, lawyer, architect, or some other professional in the United States. If a student in the developing world passes the appropriate test and gets licensed, then they should have the same opportunity to work in the United States as student who was educated in New York or Los Angeles. This would be free trade in professional services.⁸ Just as it is cheaper to produce shoes and toys in the developing world than in the United States, it is also cheaper to educate doctors and lawyers in the developing world. In the absence of the obstacles to trade in highly paid professional services, most professionals in the United States would be educated in the developing world.

It is worth noting that it is possible to ensure that developing countries are not harmed by this brain drain. It would be a relatively simple matter to impose a tax associated with the issuance of a work permit that would be repatriated to the country of origin to finance the education of more professionals. Since a large percentage of the most highly paid workers are in licensed professions, there is little basis for concern that these workers will work off the books to evade taxation. By the nature of their work, they have to be openly available and visible to the public. For this reason, highly paid professionals will be far less likely to work off the books than custodians, dishwashers, or other workers in relatively low-paying jobs.

If the upward redistribution of the last quarter century is to be reversed, increased international competition for the most highly paid professionals will almost certainly have to be part of the picture. Since the upward redistribution over this period went primarily to these high-end workers, rather than corporate profits, reversing this upward shift in income will require bringing down the relative wage of these workers.

⁸ It is worth mentioning that the flows of professionals need not have much impact on the overall rate of immigration. They are around 4 million workers in these highly paid professions. If an increased inflow of foreign professionals increased this number by 50 percent over the next decade, this would imply an inflow of 200,000 professionals annually. This is approximately one-sixth of the current rate of immigration.

In principle, the pay of high-end workers can be reduced by having the pay of less-educated workers increase, which would then be passed on in the form of higher inflation. If the wages of higher paid workers is then prevented from keeping pace with inflation, then their real wage will have fallen. However, this process could require a lengthy period of higher inflation, which could in turn lead the Fed to raise interest rates to slow the economy and reduce inflation. Even in this case, there is no guarantee in this story that the wages of high-end workers are held in check.⁹

In short, the surest route to reversing the upward redistribution of income over the last quarter century would be by embracing “free-trade.” This free-trade would be about subjecting our most highly educated workers to direct competition with counterparts in the developing world. This free trade offers the promise of both increasing efficiency and equality.

Conclusion

To sum up, economists have been extraordinarily dishonest in their interventions in public debates over trade policy. They have not been straightforward on the implications of standard trade models.

First, they have acted to conceal the fact that a substantial group of workers, quite likely a majority of the workforce, can be expected to be losers from the recent path of trade liberalization. This is not an accidental outcome; it is literally the mechanism through which the economy experiences gains from trade. The vast majority of these workers will not actually lose their jobs as a direct result of trade. Rather they will receive lower wages in the same jobs. If no compensation is paid from winners to losers, then a large segment of the work force can be expected to be losers from the current trade agenda.

The second key point that has been largely concealed from public debate is that the gains from trade liberalization in a regime where the losers are compensated cannot be assumed. To cover lost tariff revenue and raise revenue to pay compensation to losers, it is necessary to raise other taxes. These taxes are by definition distortionary, and it is quite possible that the distortions created by these taxes are larger than the efficiency gains from reducing trade barriers. Since any compensation program will necessarily be imperfectly targeted, and incur administrative costs in addition to the compensation paid out, it is quite likely that the taxes necessary to pay for such a program will exceed the efficiency gains from trade liberalization.

Finally, economists have been very willing to ignore the trade barriers that protect the wages of highly educated professionals. For the most part, obstacles to trade in highly paid professional services do not even get discussed in the context of trade debates, even though the potential gains from reducing barriers in this area are likely to swamp the gains from removing the remaining barriers in merchandise trade. In this case, the effect of trade liberalization would be equalizing, since it would push down the wages of the most highly paid workers.

The views of economists have carried enormous weight in trade debates. Those who have opposed the trade agendas of recent administrations have routinely been denounced as

⁹ Increases in unemployment disproportionately affect the wages of less educated workers (Baker and Bernstein, 2004).

reactionary and ignorant by the media and other supposedly neutral experts. Such charges have been based on misperceptions of economic theory and its implications. Economists have been too willing to allow these misperceptions to persist and often helped to foster them.

Unfortunately the role that economists have played in debates over trade policy is typical of their role in public policy debates. The mainstream of the profession has taken positions that tend to support the existing economic and political power structure and effectively used its claim to expertise to deprive the public of the opportunity to freely debate policy options. In addition to trade, some of the other important areas in which this usurpation has occurred include Social Security, the relationship between Europe's welfare state and European unemployment, and the conduct of monetary policy. In these, and many other areas of public policy, the mainstream of the economics profession has sought to pronounce judgments that are not supported by their own theory and/or evidence, and thereby helped to impose certain policies on the larger public. It will be a huge step forward for democracy when economists no longer have this sort of power.

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Beyond economic fundamentalism

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Abstract

This paper sets in a historical perspective, beginning with Cantillon, the Physiocrats and Smith, the contemporary challenge posed to neoclassical/neoliberal orthodoxy by heterodox economics. It shows how neoclassic/neoliberal fundamentalist assumptions are deeply rooted in modern economic thought, and how the latter in turn is embedded in the broader modern theoretical fabric. The paper argues that alternatives to the neoclassic/neoliberal mode of thinking come from the reconsideration of the distinction between economics and economy, and from the recognition of the performativity of science.

“We have to decide between two philosophies: one in which construction and reality are opposite, and another in which constructing and realizing are synonymous.”

Bruno Latour

An abstract wasteland: the neoliberal worldview

“In 1945 or in 1950, if you had seriously proposed any of the ideas and policies in today’s standard neo-liberal toolkit, you would have been laughed off the stage or sent off to the insane asylum” (George, 1999). These words by George brilliantly express to what extent the ideological climate shapes our common ideas. In particular, for more than a quarter of a century neoliberalism not only has moulded our economic reality, but it has also presented its theoretical constructions as economic facts, i.e. inevitable and natural occurrences.

As a matter of fact, economic events are far from inevitable, as they are the results of complex and unpredictable human activities, such as planning, taking decisions, building relations, defining values and negotiating. They are neither acts of god nor nature, but social activities. Nevertheless, neoliberalism made again commonsense the concept of a natural course of the economy, as opposed to the unnatural intervention of the state. This means not only overturning the economic visions and policies of the previous forty years, but also denying world economic histories, in the name of the abstract and natural laws of the market. According to the neoliberal vulgate, such natural laws are supposed to be constantly at work, and humans are likewise supposed to comply with them by following their natural personal interest.

Neoliberals often quote Smith’s remark that “it is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love” (Smith, [1776] 1937, p. 14). Actually, the previous statement “helps to explain why we seek exchange. But it tells us nothing whatever about how to make sure that the sought-after exchanges are actually organized and in fact occur - and occur expeditiously” (Sen, 2000). For example, in order to negotiate and implement a contract we need more than motivation. In particular, the actual operation of exchanging contracts requires institutions for legal enforcements, for monitoring, for audit and accounting, and behavioural ethics. Smith knew it well, but his neoliberal epigones prefer to let the contracting actors perform in a social vacuum. In such an abstract atmosphere, abstract individuals unfettered by social ties perform abstract economical acts with the only motivation of self-interest.

Before the neoliberal crusade, we could have simply objected that actual butchers, brewers and bakers are knots in a social network, which shapes their actions and which is in turn shaped by their agency. Therefore, we could have also added that such complex interactions can hardly be reduced to mere self-interest. Moreover, we could have suggested that the very definitions of 'self' and 'interest' are problematic too, because they are shaped through social interaction. Nevertheless, after thirty years in which neoliberal maxims have been pouring on the general public through mass media, government policies, educational institutions and workplace rules as a virtually unchallenged image of economic reality, we can no longer exclude the possibility for social actors to embody neoliberal economic assumptions and perform as atomised entities who seek only to maximise their revenues. To say it in Merton's terms, after those thirty years neoliberal prophecies are more likely to self-fulfil (Merton, 1968).

Neoliberal views always claimed to be a realistic description of both human and economic nature. Nevertheless, they actually have been shaping both human and economic realities as a normative project. As a matter of fact, neoliberalism applied on a global scale the modern fundamentalist pattern that Feyerabend and Latour have shown at work, for example, in reformed Christian and scientific communities alike. Following this pattern, members of both communities could present their object of faith, god and nature respectively, as the source rather than the result of their activities of controversy settling. Neoliberal settlements too kept being hidden behind the faith in the Market, which neoliberal theorists always described as the source of their economic analysis. Meanwhile, the convergent actions of financial, industrial, educational, media and governmental neoliberal-oriented actors pushed for shaping the actual markets on the model of the neoliberal ideal Market. This strategy has since proved successful, and it oriented the very behaviour of the multitudes by generating both acquiescence and resistance to neoliberal policies and values. On the one hand, the acceptance of neoliberal principles has produced a generalised, albeit partial instantiation of the liberal wasteland in the actual world of economic interactions, thus fabricating evidence for neoliberal alleged economic analysis. On the other hand, the resistance to neoliberal policies and values has been traditionally denied by neoliberal theorists the status of a genuine economic factor and has been instead conveniently attributed to extra or noneconomic motivations (Von Mises, 1956), thus reinforcing the description of the neoliberal view as the rational approach to economy.

The hidden power of scientific rhetoric

In the last thirty years, neoliberal simplistic models have attained a commonsense status as supposedly objective representations of a likewise supposedly objective reality. In other words, neoliberal thinkers successfully recycled the modern dichotomy between the world, which they describe as the economy, and its theoretical representation, i.e. economic theories. Moreover, they also embraced the standard Hobbesian narrative of an absolutely atomised individual, whom Smith later assumed as classical economy's basic subject and Pareto finally labelled as *homo (sic) oeconomicus* (Pareto, [1906] 1972). Furthermore, they followed classical economists in attributing to this individual economic subject an ability of choice that they deemed as rational. Finally, they exploited Western rhetoric tradition, as carried on by Western modern thought.

As previously recalled, neoliberal rhetoric recycled Smith's sentence on food providers. Actually, this sentence was a modern variation on a millennial tradition of parable-

making. Modern thinkers gave such tradition a distinctive turn, which altered the structure of their biblical models. The latter established or exploited an analogical connection between a particular situation and a different general meaning. In other words, biblical parables suggested a metaphorical or metonymical link between the domain that they literally described, and a more abstract or general domain. An example of metaphorical links is the portrayal of the apostles as fishermen of souls, whilst god as father exemplifies the metonymical ones. With the baroque split between art and natural philosophy, scientific discourse reduced these analogical connections to mere rhetorical devices, which could at most buttress from outside the self-sustaining structure of scientific theories. Within the latter's boundaries, relations of identity and difference were supposed to replace analogical ones, so that parable had to survive on synecdochical links. Following Quintilian's *Institution of Oratory*, a classic first-century text on rhetoric, synecdoche is a figure of speech that let us understand "the plural from the singular, the whole from a part, a genus from the species, something following from something preceding, and vice versa" (Quintilian, 2006). All these substitutions rely on the relation of inclusion but the last one, which exploits a topological link. However, such a link could be intended as a relation of contiguity among different levels within a hierarchical system, hence it could also be referred to inclusion. The latter relation was attributed since seventeenth century an essential role in ordering nature through scientific systems. Therefore, within these systems a specific instantiation could stand as a proper example of more general or abstract entities. For instance, Galileo presented the movement of an object sliding on an inclined plane as an example of every object's behaviour. In the same way, Hobbes laid the foundations for *homo oeconomicus* by assuming the supposed selfish behaviour of his atomised individual subject as an example of human behaviour as such.

In general, both *gedankenexperiments*, i.e. thought experiments, as Newton's cannonball, and actual laboratory ones relied on the possibility of substituting the behaviour of the specific objects involved with the behaviour of each and every physical object. This possibility had long been codified as inductive logic, when it implied a move from particular to general, and as deductive logic, when dealing with the opposite move. Nevertheless, apart from Plato it never had an exclusive role in organising knowledge during classical antiquity. For example, Aristotle fully recognised the cognitive value of analogical links, which he deemed as the most important language device (Aristotle, 1995, 1459a), because by revealing resemblances, metaphors make words subtler (Aristotle, 1959, 1412b). Unfortunately, when the Aristotelian corpus disappeared from Christian Europe in the sixth century, Aristotelian logic was only represented in Porphyry's *Isagoge*, i.e. introduction, as a hierarchical structure, the so-called Porphyrian tree. Middle age scholars had to wait until the thirteenth century to have Aristotelian texts imported from the Islamic world and translated into Latin. Since then, Aristotle's appreciation of metaphor informed mainstream scholastic thought, until in the seventeenth century the baroque split between art and science reduced such appreciation to a purely esthetical judgement. Only synecdochical links were then allowed within the scientific systems, which aimed at mirroring the naturally hierarchical order of things.

Of course, analogical links did not completely disappear even from the driest scientific report. Moreover, scientists occasionally made use of traditionally structured parables. For instance, in the economic realm Bastiat wrote his famous parable of the broken window to better illustrate the so-called hidden costs of industry. Nevertheless, such parables were intended as mere explanatory devices. As scientific knowledge was built on the hierarchical structure of the Porphyrian tree, synecdoche remained instead the only *tropos* that could

properly relate scientific objects. Within the modern scientific discourse, analogical examples were thus supplanted by synecdochical ones. In other words, the rhetoric potential of parables did not disappear, but was associated with examples that were, at the same time, an instantiation and a representation of a more general meaning. As already recalled, for instance Galileo presented the behaviour of a specific object both as an individual, observable event and as an instantiation of a general physical law. Therefore, when Smith took the behaviour of butchers, brewers and bakers as an example in 1776, he could rely on an almost bicentennial tradition of modern scientific rhetoric.

Man describes what nature prescribes

Smith hinted at the behaviour of some specific economic actors in order to suggest that their behaviour was an instantiation of a more general rule. In particular, he surreptitiously suggested that the butcher, the brewer and the baker were an example of the abstract economical subject whose behaviour they were meant to represent in the sentence. Actually, Smith built the latter to make his readers agree on the behaviour of such abstract economical subject. Therefore, he used the butcher, the brewer and the baker, on whose behaviour readers could agree on the basis of their personal experience. Moreover, thanks to their practice of western modern discourse, readers could also understand and accept that the butcher, the brewer and the baker were an example of such abstract economic subject. Furthermore, readers could also understand and accept that the butcher's, the baker's and the brewer's behaviour was an example of the behaviour of the abstract general subject, i.e. of the supposed behaviour of everyone.

It is fair to recall that Smith, who was a moral philosopher, opposed self-love to selfishness, and credited his abstract human subject also with passions as sympathy for her/his fellow humans. On the contrary, the abstract economic subject of Smith's neoliberal epigons is only endowed with a lust for profit, so that he/she appears as one-dimensional as the Marcusean man. However, whilst both Smith and the neoliberal epigons presented their individual subjects as an objective description of human economic behaviour, they did not restrain from dictating economic policies that in turn had a huge impact on this very behaviour. Therefore, though adopting the modern epistemological view of a theorist-observer, both Smith and his later followers in practice blurred the boundaries between scientific observation and prescription.

The same blurring of boundaries between the descriptive and the prescriptive approaches took place in an even subtler way at a purely theoretical level. As showed by Smith's sentence on food providers, the substitution of a specific and observable behaviour with a supposed general one produced also a shift from a supposed description towards a surreptitious prescription of a general norm. Of course, Smith did not state that the economic subjects ought to follow their self-love more than Newton enjoined physical object to attract each other according to his gravitation law. On the contrary, both theorists appealed to a supposed natural propension of humans to love themselves and physical objects to attract each other respectively. Since the seventeenth century such appeal to nature as the absolute object and the touchstone of knowledge had been the distinctive feature of modern scientific discourse, which had built the realm of facts as opposed to that one of values. Therefore, natural facts could be only described, and the interaction between the describing subjects and the described objects could be conceptualised only as an undesired interference. Following the model of physical enquiry, modern scientists prided themselves of restoring the image of

the world as it was, rather than as they wanted it to be. Therefore, they took responsibility only for the accuracy of their supposed descriptions, whose prescriptive power was attributed to nature. Whilst it is not surprising that this pattern could work for physics until well after quantum mechanics, we may wonder how the appeal to an unchanging nature could fit modern economic theories, which were dealing with unprecedented transformations. However, as a matter of fact in the eighteenth century modern economists strived to be “the Newtons of human science” (Toulmin, 2001, p.55), and looked for the fundamental structure of economic reality.

The natural balance to come

During the seventeenth century, natural philosophers from Hobbes to Locke dealt with issues that would be later grouped under the label of economic theory. In particular, Petty attempted an analysis of wealth in “Terms of number, Weight, or Measure” (Petty, [1690] 1997, vol. I, p. 244). Moreover, he incidentally stated that the amount of labour needed to produce goods was “the foundation of equalizing and balancing of values” (Petty, [1662] 1997, vol. I, p. 43). This statement made Marx attribute to Petty the discovery of the value-form, and the beginning of classical economy (Marx, [1867] 1974).

Only in the eighteenth century a specific conceptual space has been devoted to economic studies, when a group of French theorists chose for themselves the definition of *economistes*, i.e. economists. As later on, the word economist came to define a specialist in the field of economic studies, the French *economistes* came to be known as Physiocrats, from the Greek words *physis*, i.e. nature, and *kratos*, i.e. rule. This is not only because, in attempting to conceptualize economy as a whole, they identified the source of economic value in the land. More in general, the Physiocrats were heralding the power of the natural order, which in true modern fashion they wanted to free from historical unnatural institutions and practices. In particular, they stressed that only agriculture provided a *net produit*, i.e. a net product, which they deemed as the actual source of the wealth flowing throughout society (Quesnay, [1758] 1972). Moreover, Quesnay defined a hypothetical balanced circular flow of wealth as the *ordre naturel*, i.e. the natural order of the economy. Furthermore, he appealed to such natural order to advocate the lifting of the obstacles placed in the way of the flow of wealth by the *ordre positif*, i.e. the positive order of traditional rules governing the agriculture.

Actually, Physiocrats probably owe to Cantillon the new dynamic concept of economic structure as a circular flow between incomes and expenditures (Cantillon, [1755] 2001), which was to supplant the previous static principle of accumulation of wealth. Moreover, Cantillon too hypothesised a possible natural balance in the income-expenditure flow. Furthermore, Cantillon gave new life to the distinction, first brought forth by Aristotle, between a supposed *valeur intrinsèque*, i.e. an intrinsic value of goods, and their exchange value. Whilst the former did not change, as it was “the measure of the quantity of Land and of Labour entering into its production” (Cantillon, [1755] 2001, p.16), the latter depended “on the Humors and Fancies of men and on their consumption” (Cantillon, [1755] 2001, p.16). Within well-ordered societies, where actual prices did not vary much from the intrinsic value, economy would have reached its natural balance. Cantillon’s linking of the intrinsic or natural value to the cost of production was also endorsed by the Physiocrats, who nonetheless applied it only to agricultural activities.

Smith fully extended the link between labour and value beyond the limits of farming production. For him, labour was the fundamental unit of value or “the only standard by which we can compare the values of different commodities, at all times, and at all places” (Smith, [1776], 1937, p. 36). In particular, he deemed labour as being the real price of commodities, and money as being their nominal price only. The same Smith recognised that such an abstract notion of labour was not obvious. Moreover, he stressed that labour itself, like commodities, had both a real and a nominal price. The former expressed what we would now call labour’s buying power, whilst the latter was labour’s monetary value. As for Smith the same real price was always the same real value, the real value of labour should have been ascertained from labour’s real price. Nevertheless, Smith observed that the real price of labour, that is the subsistence of the labourer, varied with circumstances. In order to better understand this variation, Smith applied his economic scheme, somewhat anachronically, to hunters’ and gatherers’ societies. In particular, he stated that “in that early and rude state of society which precedes both the accumulation of stock and the appropriation of land” (Smith, [1776], 1937, p. 47) the whole product of labour, that is its value, belonged to the labourer. Back to contemporary times he observed that, on the contrary, in a condition of waged work, the labourer must share with his employer the product of her/his labour. He therefore concluded that, in this state of things “labour measures the value, not only of that part of price which resolves itself into labour, but of that which resolves itself into rent, and of that which resolves itself into profit” (Smith, [1776], 1937, p. 50). As the previous quote shows, Smith’s use of the word ‘labour’ both as the abstract equivalent of value and as a metonymy for wages is quite confusing. Despite that, Smith’s formulation of what will be later defined labour value theory was to become the fundamental law of classical economy, especially through the works of Ricardo and Marx.

The equivalence between labour and value did not play an exclusively pivotal role in Smith’s economic analysis. Following a pattern already at work in the theories of his modern predecessors, Smith supposed that the natural value of things should have found expression in a natural price, through a process of natural self-adjustment of the market. In other words, the market would have re-established a supposed natural balance between natural values expressed as natural prices. Just like his predecessors, Smith justified the latter claim by relying on his and his readers’ experience of the dynamical balance produced within actual markets. Therefore, he turned the result of some structured activities of some social actors, that is sellers and buyers dealing in transactions within specific markets, into a transcendental feature of a transcendental object, that is the market as such. The famous image of market’s invisible hand, which Smith used to depict the transcendence of national economy’s tasks in regard to individual entrepreneurs’ visibility, was to become the symbol of such abstract market’s hidden power.

The concept of a self-regulating market could easily fit Marx’s definition of a social fetish, that is “a definite social relation between men, that assumes, in their eyes, the fantastic form of a relation between things” (Marx, [1867] 1974, p. 72). Nevertheless, whilst Marx did apply his idea of fetishism to commodities, he did not consider market as a fetish, but rather as a less fundamental level than production. Following Ricardo, Marx was to focus again on value as the fundamental objective form of a capital-dominated economy. Nevertheless, Marx also stressed the historical nature of value, which he linked to the likewise historically contingent capital-dominated production. Therefore, whilst both Ricardo and Marx further developed a theory of value as the fundamental structure of economic activities, the latter disentangled modern economic thought from its traditional naturalistic pattern.

Value confirmed and delimited (Ricardo and Marx)

Ricardo explicitly named Smith as his starting-point in his main work, *On the Principles of Political Economy and Taxation*. In particular, he opened the latter by stating that “the value of a commodity, or the quantity of any other commodity for which it will exchange, depends on the relative quantity of labour which is necessary for its production” (Ricardo, [1817] 1821, p. 1). Nevertheless, Ricardo pointed out Smith’s oscillations in writing of labour sometimes as the quantitative amount bestowed on the production of a commodity, and sometimes as the quantity it could command in the market. In other words, Ricardo blamed Smith for confusing labour as the measure of value and labour as the commodity to be sold for a wage. Therefore, he claimed that only the amount of labour bestowed on the production of a specific commodity would determine its value, which would have been expressed in terms of money as that commodity’s natural price. Nevertheless, following Smith, for Ricardo there could have been only accidental and temporary variations of the market price from such natural price. According to Marx, this was possible because Ricardo too defined natural price sometimes as the expression of value, and sometimes as equal to cost-price. Only in the latter case could market prices have been supposed to actually rotate around commodities’ natural price (Marx, [1861-1863] 1975, vol. 31). However, Marx’s critique of Ricardo went much further.

Whilst Marx prized Ricardo for recognising labour-time as defining the magnitude of value, he blamed him for not examining the form of such value. For Marx it was precisely the form of value that gave commodities their mysterious and even mystical character. Drawing an analogy from the religious world, where “the productions of the human brain appear as independent beings endowed with life, and entering into relation both with one another and the human race” (Marx, [1867] 1974, p.72) Marx defined commodities as fetishes, which appeared as endowed with independent life and power. In order to get behind this fetishist appearance, it was necessary to recognise value as a social product. According to Marx, such recognition was the historical merit of the labour-value theory. Moreover, Marx also recognised the specific form of value of commodities as the expression of a specific historical mode of production, which is the bourgeois production of commodities. Therefore, whilst he considered value as an objective expression of such capital-dominated production, he argued that value’s objectivity was historical rather than natural.

Marx also made a distinction between labour in general and the specific form in which labour was acquired as a commodity. He termed the latter *Arbeitskraft*, i.e. labour power or force, a definition that had already been used by Helmholtz in his formulation of the principle of conservation of energy. This principle postulated the existence of an entity called energy or force, which was intended as the common substance of phenomena as different as mechanic force, heat, light, electricity and magnetism. Therefore, it maintained that such different manifestations of energy could transform into each other without altering the amount of energy itself. A similar metaphor had inspired the analysis of economic flows. Since the Physiocrats, these flows were read as physical processes, in which wealth acted as a kind of energy circulating throughout society (Veca, 1977). When classical economist established the equivalence between labour and value, the former became the invariant substance underlying economic transformations. This is why both Smith and Ricardo were expecting that values expressed in actual transactions would converge on labour-determined values. As Marx realised the impossibility of such convergence of local prices and values, he put forth a global solution, which was also in line with his understanding of the labour-value equivalence. In

Marx's view, the actual value of commodities equalled the social necessary labour time which had been used to produce them. Therefore, value was always determined in relation to global production. Hence, it was only at this global level that prices equalled values. In other words, Marx stated that the sum of the prices of production of all commodities was equal to the sum of their values.

Towards the margins and back to totality (again)

Whilst the equivalence of labour and value put a particular emphasis on production, since the 1860s economists as Jevons, Menger and Walras focused on prices as the effect of market demand. In particular, Jevons revamped the simplistic anthropology of Bentham, who in turn had redefined as utility the interest orienting the behaviour of the Hobbesian atomised individual. Jevons began with recycling Bentham's appeal to pain and pleasure as the fundamental springs of human action. Moreover, he held these feelings as "quantities capable of scientific treatment" (Jevons [1866] 2000). Furthermore, he stated that the amount of pleasure, or utility, produced by the last supply of a useful object, decreased in proportion to the whole quantity received. It is noteworthy that a few years earlier Fechner had restated as a law of perception a supposed logarithmic proportion between increasing stimuli and their perceived effects (Fechner [1860] 1966). Later on, economists as Edgeworth even regarded the Weber-Fechner law as a confirmation of Jevon's principle of last or marginal utility (Edgeworth [1881] 1967). Weber took pain in severing Fechner's general psychological statement from the specific commercial bookkeeping outlook that marginalist economists attributed to human beings (Weber [1908] 1975).

Actually, both experimental psychologists and marginalist economists advocated the possibility to quantify human feelings, and to formulate general quantitative laws of human behaviour. Therefore, they were both pushing further seventeenth-century natural philosophers' agendas. On the one hand, experimental psychologists were extending Leibniz's idea of a universal computational language to human emotions. On the other hand, marginalist economists, by focussing again on individuals as the basic unit of economic interactions, were restating the Hobbesian technique of decomposing the social field in its constituent elements, as if they were dealing with a mechanical assemblage. Moreover, still following Hobbes, they assumed that such an individual subject was naturally equipped with a consistent and undivided self. It is somewhat ironic that Menger, the founder of the so-called Austrian school, developed his version of marginalist theory in the same time and city where Freud was at last questioning the modern supposition of a substantial unity of the self.

Marginalist economists also attempted to build on their subjective approach to value a general model of markets' behaviour. In particular, Walras coupled his subjective theory of value with a mathematical formalisation of the conditions for a general equilibrium between demand and supply. Regardless of its mathematical sophistication, Walras' neoclassical theory of equilibrium actually restated the classical fundamental postulate of a possible market balance. Moreover, according to Walras such balance would have been reached through processes of *tatonnement*, i.e. progressive adjustment. Therefore, he shifted the Smithian metaphor of a teleological invisible hand towards a multiplicity of *tatonnements*, which literally refer to the act of touching with hands in order to explore. However, the walrasian model, even though mathematically appealing, kept reproducing the classical transformation of a practical feature of economic transactions, that is the negotiation about prices and quantities, into a fundamental or natural condition of the economy. This supposed

natural condition, which Walras identified as *régime de la libre concurrence*, i.e. free market, became then the object of his theoretical investigation. In other words, the fundamental postulates of Walras' model, that is individual actors endowed with unrestricted knowledge and immediate and no-cost transactions, defined the very free market that the model was supposed to explore. Such partial circularity has always been a general feature of modelling activities. Nevertheless, in Walras' model it reinforced the fundamentalist modern pattern already applied by the Physiocrats, who turned an ideal or possible condition into a natural trend, and current conditions into artificial or unnatural incrustations. Therefore, just like in Physiocrats' works the historical restrictions to agricultural exchange had become artificial obstacles to the emergence of the natural order of the economy, in Walras' theory space and time bound transactions were discarded as flawed and imperfect instances of ideal frictionless markets. Of course, Walras recognised the difference between the 'pure economy' of his general equilibrium theory, and the economy of applied research. Nevertheless, he deemed the former as essential and truly scientific, and longed for its recognition "*a cote' de l'astronomie et de la mécanique mathématique*" (Walras, [1874] 1926, p. XX), i.e. side by side with astronomy and mathematical mechanics.

Socialist versus liberal economic fundamentalisms

Walras' system was soon recast by Pareto into a 'taste and obstacle' structure, which replaced the previous functions of demand and supply (Pareto [1906] 1972). However, Pareto kept considering general equilibrium as a solution to a set of simultaneous equations. Moreover, he also suggested the theoretical possibility of achieving general equilibrium not only by spontaneous market adjustment, but also by calculating this solution and planning the economy accordingly.

Pareto's suggestion led to the so-called socialist calculation debate, a long-lasting quarrel on the efficiency of a planned economy as compared with market economy. A purely hypothetical academic discussion until 1917, the debate resumed with the observations on the war economy by Neurath, who was a socialist and a member of the neopositivist Vienna Circle as well. Neurath contended that during World War I European governments' economic interventions had incontrovertibly positive results because they aimed at the efficient allocation of resources rather than profits. Von Mises, an economist of the second generation of the Austrian school replied, protesting the impossibility of a rational allocation of resources outside of the market. On the contrary, Paretians like Lange not only claimed the autonomy of mathematical solutions from economic policies, but also successfully championed the deployment of neoclassic simultaneous equations systems in the actual planning of Soviet Union economy (Lange, 1938). In particular, Lange argued that market failures deriving from imperfect competition, externalities or transaction costs would have always hindered the allocation of resources. On the contrary, prices set by a government as if they were determined by a fully competitive system would have produced a more efficient allocation than within an actual market economy. In other terms, a planned economy would have got closer to realise an ideal market condition than actual market economies. In order to rebuke this claim, which relied on the very recognition of the virtues of an ideal free market, partisans of *laissez faire* had to refine their position.

Hayek reframed the objections of his fellow scholar von Mises within a broader approach to economic issues (Hayek, 1937). In particular, he complained that the latter, as well as other social phenomena, were understood through habits of thoughts that had been

developed in dealing with natural phenomena (Hayek, 1945). Moreover, Hayek resented that mathematical models implying a fully centralised knowledge of the system were supposed to determine the solution to economic problems, whose relevant knowledge was instead actually scattered among stakeholders. Rather than advocating a hypothetical complete knowledge of economic systems, he invited economists to explore the emergence of economic solutions without design, as a result of the process of distributing information through the price system. Hayek defined the latter as a mechanism to register and distribute change, thus considering prices as communicative devices, rather than simple accounting tools. Therefore, he took further Menger's eschewing of the mathematical scaffolding, and questioned the very pretension of a mathematical determination of prices without the aid of an actual market.

Hayek's argument went far beyond the contended topic of economic planning. In his attack on mathematical reductionism in economics, Hayek challenged the modern assumption of a centralised and teleological order of things. On the contrary, he set as a main task of economics the explanation of how order would emerge despite the lack of information of the stakeholders, that is to say despite the absence of an omniscient central planner. With very few exceptions, the seventeenth-century founders of modern science instead had no doubt about the existence and the identity of such a planner, who was the object of natural theology. Actually, most seventeenth-century natural philosophers held the Christian god, regardless of his specific denomination, as both the planner and the warrant of the natural order. Moreover, since Galileo they choose god's supposedly objective, aperspectival view as a model for their scientific rendering of the world. Therefore, natural philosopher strove to read scientific facts with eyes as piercing as those of god, who only could have a complete view of nature. Moreover, Galileo shared with his mathematical reductionist fellows the belief in the certainty of mathematical knowledge, which he considered as absolute as god's. Whilst Hayek too referred to economic facts, he instead emphasised the analogical link between the latter and mathematical models. Most of all, he rejected the ideal of centralisation of relevant knowledge as a contradiction in terms, because it excluded "the knowledge of particular circumstances of time and place" (Hayek, 1945, p. 521), which could not be conveyed in statistical form to a central authority. Hayek thus parted from the legalistic and centralised model of nature provided by Newtonian physics to embrace an evolutionary, open ended framework more akin to Darwinian biology.

Nevertheless, though Hayek claimed the specificity of human social phenomena, he kept on naturalising economical processes. Whilst protesting the inadequacy of planning policies to deal with the complexity of actual economic interactions, Hayek praised the marvels of the price system, which he presented as a quasi-biological mechanism operating beyond individuals' will. Moreover, on a more practical level his faith in the self-adjusting properties of the price system did not provide him, nor his neoclassic fellow economists, with policy instruments adequate to face the actual economic crisis, which was devastating the world economy throughout the 1930s.

The Keynesian revolution . . .

Well before the 1929 Great Depression, neoclassical-inspired policies had already proved inadequate, if not counterproductive, during the great economic crises that afflicted most of China, Southern Africa, Brazil, Egypt and India during the last quarter of the nineteenth century. At that time, extreme climatic conditions such as drought and exceptional monsoons led to huge famine, whilst especially in British India, free-market inspired policies

did not even consider to stock inventories to be distributed. Though the death toll of such late Victorian holocausts amounted to tenths of millions of victims, it did not provide any feedback to neoclassical economists (Davies, 2001).

After another major crisis struck the economy of the United States of America in 1929 and spread all over the industrialised world, the U.S. government put aside traditional neoclassical policies and opted for an intervention aimed at direct relief, economic recovery and financial reform. Such governmental intervention, dubbed “New Deal”, was put in place at the cost of unbalanced budgets. Whilst the U.S. government was at first apologetic about the unbalance, since 1938 it began openly advocating Government spending, in the words of president Roosevelt, “as a trigger to set off private activities” (Roosevelt, 1938), and therefore to help creating an economic upturn.

The turning point had been the publication in 1936 of *The General Theory of Employment, Interest and Money* by Keynes. The almost immediate impact both on economic theories and policies of the latter work could hardly be exaggerated. In his *magnum opus*, Keynes waged a relentless attack on what he called orthodox economics, which included most of the classical and neoclassical economic works. “The gist of this Keynesian criticism can be summed up simply as a flat rejection and denial of what has come to be known as Say’s law of the markets which, despite all assertions to the contrary by orthodox apologists, did run like a thread through the entire body of classical and neoclassical theory” (Sweezy, 1953, p. 256).

Actually, the so-called Say’s law is more properly a postulate, as it expresses the belief in the unconditional ability of production to create demand. In particular, according to Say, there could have never been a general glut, because an increase of supply itself would have created an exchange opportunity for overproduced items (Say, [1820] 2005). It is not difficult to recognise Say’s law as an article of the faith in the natural self-adjusting property of the market, which pervaded eighteenth-century French economic thought. Keynes argued that the unthinking acceptance of Say’s law had led his contemporary orthodox, i.e. neoclassical economists to state the impossibility of what was instead actually happening. At that time, economic depression and massive unemployment were shattering the industrialised world, and no hidden hand could guarantee economic recovery.

Keynes did not deny the action of economic automatic forces. He rather only accepted that these forces could work on restoring the long-run equilibrium between saving and investment, whilst he doubted that they could bring about an optimum level of production (Keynes, 1971). On the contrary, they could result in a kind of vicious underemployment equilibrium, which could only be broken by the relatively exogenous factor of higher investments, either autonomous or governmental. More in general, Keynes exposed the neoclassic equilibrium assumption as a refusal to explain timely and unstable phenomena as more than anomalies of the system. According to Keynes, from this refusal, which ruled economic fluctuations out of economic theory, stemmed the neoclassical inability to explain and usefully deal with the actual economic world.

. . . and the counterrevolution (part I)

After the Second World War, the Keynesian legacy came to exert a major influence over economics. Nevertheless, in its most successful version, the so-called Neoclassical-Keynesian synthesis, the gist of Keynes' theory was recast as a system of simultaneous equations, the so-called IS-LM model. This translation in neoclassical terms reproduced the neoclassical assumption of full employment, which Neo-Keynesians had to correct by appealing to supposed imperfections of the actual economic system. In general, the Neo-Keynesian synthesis was considered as a betrayal by Keynes' former colleagues at Cambridge and by the so-called Post-Keynesian scholars in the United States of America. It nonetheless gained a huge audience both in the academic world and within governmental agencies, on whose economic policies it exerted a powerful influence up until the 1970s.

The Neo-Keynesian success opened the era of the mathematization of economics, which spread over textbooks and policy design criteria alike. Both the former and the latter relied upon the new econometric techniques, first developed by Tinbergen, Frisch and the researchers of the Cowles commission since the 1930s, particularly in order to deal with the Keynesian economy-scale macroeconomic models. These techniques made use of quantitative or statistic methods for economic modelling. Though such methods had been defined by Keynes himself as a kind of statistical alchemy (Keynes, 1971), they gained momentum in the 1940s and were progressively adopted in empirical work and governmental planning. However, despite the fact that the formalisation of economic theory was associated with the so-called Keynesian Revolution, it actually harked back to the Walrasian-Paretian modelling style.

Econometrics brought in new and more flexible techniques as, for example, Haavelmo's probabilistic approach (Haavelmo, 1944). Moreover, the mathematization of economics was further boosted by the opening of new formalised fields such as Von Neumann's Game Theory, which was intended to transcend the simplistic model of Robinson Crusoe-like isolated individuals (Von Neumann & Morgenstern, 1944). However, the same Von Neumann considered the mathematized hard sciences as the model for a future essentially calculative economic theory. Following the motto of the Cowles commission, *Science is Measurement*, mathematically inclined economists thus resurrected the computational ideal of seventeenth-century natural philosophers. Despite Keynes' legitimate suspicion that vital economic factors would have been neglected because statistically intractable or unprocurable (Keynes, 1971), such computational ideal came to pervade post-World War II economic studies with few notable exceptions. Of course, the translation of economical theory into mathematical language appealed to economists with the promise of a more rigorous approach. Nevertheless, as Von Neumann conceded, the very mathematical tools which had granted the success of modern physics were unlikely to produce the same result with social phenomena (Von Neumann & Morgenstern, 1944). Therefore, though twentieth-century mathematization of economics was supposed to follow the steps of seventeenth-century mathematization of physics, it rather simply exploited mathematics' tools and credibility.

It is ironic that by turning hypothetical correlations into laws, and by expressing statements under the shape of theorems, mathematized economics strove to attain the status of objective, detached knowledge that its very models, namely mathematics and physics, were instead currently questioning. Actually, the challenge to the absolute Newtonian objectivity of mathematical and physical theories as representations of a likewise absolute

reality had already emerged with the invention of non-Euclidean geometries and mechanical statistics in the nineteenth century. Moreover, since the beginning of the twentieth century relativity theory and quantum mechanics had limited Newtonian objective representations to macroscopic events occurring at a speed far from that one of light. Nevertheless, as these limits appeared to encompass most of human experiential world, economists could still feel safe to share the Newtonian faith in a deterministic and predictable order of things. Since the 1920s this faith, coupled with the faith in the progress of knowledge, had been embraced by the scientific community even to a greater extent than at the time of its first appearance in the seventeenth century (Toulmin, 1990).

The renewed catastrophe of World War II reinforced the appeal to abstract rationality as a common endowment of humanity beyond cultural differences, as it already happened in seventeenth-century Europe on the wake of the religious wars. In this cultural climate, the formalisation of Keynesian theories could be hailed as a further step towards a more rigorous economic theory. Such was, for example, the aim of Hicks, the propounder of the IS-LM model on which the Neo-Keynesian synthesis relied. Only several years later Hicks recognised his own diagram as a rather misleading oversimplification. In general, after World War II the faith in figures overwhelmed Keynes' cautious stance among economists, regardless of their ideological, political and theoretical differences, the actual boundary being a methodological one. Whilst most economists maintained the usefulness of macroeconomic models, be them Ricardian, Marxian, Walrasian-Paretian or Keynesian, as a meaningful key to both economic description and prescription, others opted for a microeconomic approach, which perpetuated the Hobbesian tradition of a mechanical decomposition of the social field. For thirty years the Neo-Keynesian synthesis, as an ambiguous mixture of several strains of economic thought, provided a wide enough umbrella also for the latter approach to resist and grow. Microeconomic theorists were then ready to strike when in the 1970s the resistance of current stagflation to Neo-Keynesian solutions gave *laissez-faire* partisans the opportunity to seize mainstream economics.

A visitation of evil spirits: counterrevolution in economics (part II)

Already at the end of the 1960s, Friedman had launched his monetarist crusade, which was based on his staunch belief that "monetary policy can prevent money itself from being a major source of economic disturbance" (Friedman, 1968, p. 12). When in the 1970s such disturbances took the shape of a rising inflation accompanied by a general stagnation of the economy, Friedman's recipe of money supply control became the alternative policy to Keynesians' investment strategies.

Monetarist policies were first applied after the Chilean nine eleven, a bloodbath in which the military drowned the legitimate Chilean democratic government and not a few of its supporters. The Chilean totalitarian *junta* promptly presented its economic program, inspired by Friedman's associated at Chicago University, on the 12th of September 1973, the day after the coup. The dictatorship's agenda included the cut of the expenditures for social services, the privatisation of the public sector, the liberalisation of trade policies and the deregulation of the market, which was meant to be freed from the constraints set by the government and by labour unions. From today's perspective, it could appear that Chilean economy has been a testing ground for what we now call neoliberal policies. Nevertheless, if we consider the resulting disastrous outcome that led to the dismissing of both the Chilean economy minister and his Chicago advisors in 1982, we may wonder about the actual scope of the test. Whilst

the resulting successful transfer of resources from the poor to the rich had undoubtedly pleased the Chilean oligarchy, the failure of the Chilean experiment in establishing a supposedly optimal economic settlement not only did not provide any feedback to its theoretical propounders, but it was even presented in typical Orwellian double-talk as the Chilean miracle.

In the meantime, from the headquarters of the Chicago school Lucas had launched a microeconomic attack on the very field of macroeconomic theories. Lucas not only reiterated equilibrium models whose key elements are that “agents are rational, reacting to policy changes in a way which is in their best interest privately, and that the impulses which trigger business fluctuations are mainly unanticipated shocks” (Lucas & Sargent, 1981, p. 316). He also claimed that “macroeconomics is in need of a microeconomic foundation” (Lucas, 1981, p. 216). In other words, he requested to ground economic macromodels on micromodels representing the relations between atomised agents. The idea was not new, as it for example brought within economic literature the Smithian brewer, butcher and baker. However, Lucas mobilised his equations to back the assumption that individual agents, be them humans or even simians, should be the models for economic interaction (Lucas, 1981).

The so-called Lucas critique was received as a theoretical contribution to the growing trend of methodological individualism, which was beginning to converge with similarly growing political trends within first world countries. A startling example of such convergence was the statement that ‘there is no such thing as society’, which was uttered by Thatcher, UK Prime Minister since 1979. The devastating economic and social effects of Thatcher government’s monetarist policy made Keynesian economist Kaldor colourfully define monetarism as a visitation of evil spirits (Kaldor, 1981). As soon as 1984, both the governments of the United States of America and the United Kingdom had abandoned monetarist intended disinflationary policies, which had precipitated recession and unemployment without limiting inflation. Even in the homeland of the new monetarism, the Reagan administration of the United States had at last to recur to massive deficit-financed expansions in government spending in order to stimulate the economy. Nevertheless, though a strictly monetarist approach focussed on the control of money supply was soon dismissed, its corollary policies first applied in Chile were increasingly promoted as the inevitable outcome of a new economic orthodoxy, the self-appointed economic rationalism, or neoliberalism. Moreover, since the 1980s neoliberal policies spread all over the world, because they have been embraced as a blueprint for economic reform by the World Bank and the International Monetary Fund, which were both US-controlled. In other words, the success of Friedman’s money-centred model, even if temporary, opened the way for a far wider transformation of economic theories and policies, and produced truly global effects until present day.

Counterrevolution and its alternatives (part III)

Neoliberalism is not, strictly speaking, an economic doctrine. Whilst it became an umbrella label for the general ideological background of mainstream economic policies after 1979, it continued to accommodate various and even conflicting streams of economic thought. In general, these streams, from Friedman’s Monetarism to Lucas’ New Classicism and Hayek’s Austrian School share a little more than methodological individualism and a faith in Market’s self-adjustment ability. In other words, neoliberal assumptions far exceed the limits of economic theories, which neoliberal-inspired governments, institutions and firms simply brandish as a supposedly objective justification for their actions. As a successful

discourse, neoliberalism has resulted from the multiple convergence or alliance of heterogeneous actors, from vociferous public intellectuals as Friedman to corporations' funding resources and to most political parties, to name but a few. On the theoretical level, this unholy alliance has been spearheaded by the recycling of an individualistic and objectivist anthropology, which sets atomised agents and the autonomous laws of the Market as its foundational narratives.

The fundamentalist fetishisation of mathematical tools, which still burdens economic studies, cannot instead be regarded as specific to, or as representative of the entire neoliberal field. For example, as already recalled, Hayek and his school never shared the physics' envy that deeply affects his Chicago fellows, as well as many of their Keynesian, Walrasian and Neo-Ricardian counterparts. As the latter generally rely on the same objectivist assumptions that reduce economic thought to quantification and economic actors to quantifiable behaviours, they have since fruitlessly crossed swords with neoliberals on the same autistic mathematized battlefield.

The autistic retreat towards mathematics has left a theoretical void, which has been often filled with the call for some ethical *deus ex machina* that could clearly rebuke neoliberal claims. This appeal to ethics for providing an external and somewhat higher necessity than the economic one actually confirmed the supposed absolute autonomy of economic interactions, as represented by the neoliberal narrative of the Market. Moreover, it kept deepening the baroque fault that seventeenth-century natural philosophers dug, and twentieth-century scientism has even more fervently excavated, between facts and values.

However, not all economists would hide in the modernist trench of facts, refusing to accept a more intrinsic entanglement of ethics and economy as it were an invitation to drink and drive (Sen, 2000). In particular, the recognition of the ethical content of economic theories has found notable expression in the work of Sen, who also proposed an ethically and theoretically alternative approach to the assessment of economic wellbeing. Since the 1930s the latter has been evaluated through the Gross Domestic Product index, which had been devised by Kuznets to quantify the productive power of a nation by summing up the market value of all its goods and services. Sen substantially contributed to the elaboration of an alternative indicator, the Human Development Index, which took account of people's capabilities rather than utility or opulence. More generally, Sen's work has helped in reconsidering not only the tools of economic theories, but also the aims of both economy and economics. Such reconsideration is the theoretical focus of the opposition to neoliberal policies that gathered around the protest against The World Economic Forum and the meetings of the G8, the group of the eight most industrialised countries. These protests fostered a growing demand for an economy as if people mattered, which has since found expression in a widening range of economic research, both theoretical and applied. In particular, the questioning of the supposed autonomy of economic mechanisms from the broader field of human interactions challenged the very foundations of modern economic theory. (Toulmin, 2001).

The joint venture of economy and progress

Since the eighteenth century, economists theoretically constructed the economy as an autonomous sphere, which had been severed from the more general field of human activities. From within the perspective of economic thought, few complained about this

severance. One notable exception was Sismondi, who opposed Say not only with the language of economic equations, but by also exposing the frightful human cost of the application of equilibrium theory. Marx too espoused Sismondi's humanitarian worries, but he preferred to found his critique of political economy exclusively on scientific economic analysis, which he believed was a firmer ground than ethics. Therefore, though he rejected the supposed natural character of bourgeois economic relations, he endeavoured to describe such relations as being socially and historically objective. Hence, the Marxian critique of bourgeois economic exploitation restated the Classical view of an autonomous economic system, which however would eventually succumb to its internal contradictions.

Long before Hayek, Marx had integrated his fundamental theory of value, which was modelled on physico-chemical conservation laws, within an historical evolutionary framework, which rephrased Hegelianism in terms of Darwinian biology. In particular, Marx redefined historical progress as a conflictual process whose stages he identified as different modes of production. On the one hand, such a framework confirmed and sustained the social and political radical emancipatory expectations of its author, as it were to do with several generations of his followers. On the other hand, it presented as an inevitable historical stage the very process of commodification that the combination of industrialism and colonisation was then beginning to spread worldwide. It is then not surprising that the industrialist bias until the 1970s remained, under the label of development, the inspiring muse of economic policies regardless of cultural, geographical, theoretical and even ideological affiliations.

A turning point occurred in 1973, when the US administration and its Western allies presented a commercial war with the OPEC countries, the main oil producers, as the result of the depletion of oil reserves. Whilst the propaganda about the latter supposedly objective condition was meant to justify the adoption of compulsory measures for reducing oil consumption, it substantially contributed to raising a general concern with energy sources. In that climate, the combined effect of a rising ecological awareness, a political refusal of authoritarian centralisation and a theoretical scepticism on the neutrality of science produced a significant erosion of the standard narrative of linear historical progress, whose most apparent justification was the ever increasing availability of resources granted by industrial development.

Nevertheless, since 1979 the neoliberal concoction of early modern rationality with bits of information theory and evolutionary biology brought about a tidal wave of social, political and cultural backlash across governments, media and academia. Neoliberal discourse not only gave renewed emphasis to the rhetoric of progress through its enthusiastic and uncritical endorsement of technological innovation. It also endowed the Market with the ability to turn scientific and technological progress into social and political wellbeing. Therefore, neoliberalism propped up the already crumbling faith in progress with a renewed faith in the Market. In Hayek's approach, which is undoubtedly the subtler theoretical contribution to neoliberal discourse, progress had to be redesigned in order to be saved. In particular, Hayek moved from a theological and teleological model of progress to a biological model of undesigned and multicentered evolution, which he credited for the formation of the price system. Hayek considered the latter as an unplanned cultural inheritance just like language. Therefore, though he stressed the fundamental subjectivist spring of individual choice, he continued reifying actual economic interactions into a system, whose supposed autonomy he then strove to preserve.

Economy beyond economics

Despite the theoretical and practical shock of neoliberal hegemony, the demand for an economy as if people mattered began to spread also beyond the disciplinary boundaries of economics, where it met the contribution of anthropological, historical and sociological research. The first had long explored the complex interactions involved in a gift economy, thus challenging the evolutionary bias that associated complexity and commodification (Mauss, [1923-4] 1954). Moreover, the study of gift economies emphasised an underlined condition of abundance, as opposed to the scarcity paradigm advocated by classical and neoclassical economists in order to motivate economic competition (Sahlins, 1974).

Historians of economy had questioned the very nature of markets, both inside and outside capitalism, which is a term that after Sombart came to label the supposed univocal structure of modern exchange economies (Braudel, 1977). In particular, Polanyi described the multiple relationships involved in ancient pre-classical risk-free or nonmarket trade, in which “prices took the form of equivalencies established by authority of custom, statute or proclamation” (Polanyi, 1957a, p. 20). Therefore, Polanyi confirmed Weber’s acknowledgement of the possibility of complex economic relationships outside of the modern commodification process (Weber, 1927). Moreover, he rejected an ahistorical concept of market, and he explored Aristotle’s writings as an “eye witness account of some of the pristine features of incipient market trading at its very first appearance in the history of civilization” (Polanyi, 1957b, p. 67). Furthermore, Polanyi’s reinterpretation of Aristotelian texts led him to the stunning recognition of “the derivation of the exchange from contributing one’s share to the common pool of food” (Polanyi, 1957b, p. 94). However, it was in his previous work *The Great Transformation* that Polanyi provided a depiction of how markets took control of modern economy, whose disembodiment from social relationships for the first time in history has been thus claimed by modern economists. According to Polanyi, “to separate Labor from other activities of life and to subject it to the laws of the market was to annihilate all organic forms of existence and to replace them by a different type of organisation, an atomistic and individualistic one” (Polanyi, [1944] 1975, p. 163).

Even within the specific framework of modern market activities, Braudel underlined a difference between the level of proper market exchanges and that of capitalism, which he identified with the top level monopolist and with speculative economic organisations that circumvent the market (Braudel, 1981-1984). Braudel dubbed the latter as antimarket, thereby subverting both pro-capitalistic, i.e. liberal theoretical tradition, and anti-capitalistic, i.e. anarchist, socialist and communist ones. Moreover, Braudel defined a third and lower level of economic interactions, a vast uncharted territory which he called material life. Also in 1976, he argued that mankind was more than waist-deep in this level of daily routine outside of exchange rules. He considered this habitual world as permeating human life “just as the shadows of evening tint the landscape” (Braudel, 1977, p. 16). On the one hand, Braudel’s recognition of the submerged continent of unaccounted economic activities exposed the limits of economy as constructed by economics. On the other hand, Braudel’s fascination with almost ageless daily activities did not help him to focus on the transformation of unpaid work under a generalised exchange system.

Illich claimed instead that the attack of the exchange system on subsistence economy, which generated the bulk of *homines oeconomici* as wage workers, had also produced a new form of complementary unwaged work. Female housework has been the prototype of such new economic activity, which Illich termed shadow work. “In practice, the

labour theory of value made man's work into the catalyst of gold, and degraded the homemaker into a housewife economically dependent and, as never before, unproductive" (Illich, 1981, p. 107). Moreover, female housework was exported from Europe with male waged work, thus spreading worldwide the turn from the traditional self-sufficient household into the new basic unit of family consumption. Illich argued, against progress-biased economics, that the process leading to the defeat of self sufficiency was neither necessary nor complete. On the contrary, he advocated the reversal of that process by defending and expanding the vernacular domain, that is the area variously defined as use-value oriented activities, non-monetary transactions, embedded economic activities or substantive economics. In 1981 such reversal was already in place, so that Illich could claim that "all around the world thousands of movements try to unplug their communities from both wage and shadow work through the choice of an alternative use-value oriented life style (Illich, 1981, p.130).

Beyond economic fundamentalism

A rejection of economic fundamentalism came again recently from students, who protested against the narrowness of their economics education. The protest started in 2000 in Paris and has since spread worldwide, gaining the support of both students and economists under the banner "Post-Autistic Economics". The new movement seeks to underline the unresponsiveness to reality of mainstream neoclassical economics, and its pathological obsession with mathematical models. Nevertheless, the reform movement does not simply intend to replace neoclassical orthodoxy with another economic doctrine. On the contrary, the protesters called for a reform of economics education and research by adopting what they called a "broadband" approach, meaning pluralistic.

In an international open letter drafted in 2001 the protesters demanded that economic analysis include the consideration of history and the recognition of the embedment of economic activities in culture (Kansas City Proposal, 2001). Moreover, they criticized the narrowness of the model of *homo oeconomicus* and they exposed as problematic the distinction between facts and values. Today the Post-Autistic Economic Network, together with the Association for Heterodox Economics and the International Confederation of Associations for Pluralism in Economics pose a growing challenge to the fundamentalist grip of neoclassical orthodoxy over economics. However, as the open letter remarked, what is at stake is not simply a new and more adequate representation of economic facts. On the contrary, the modern dichotomy between positive (or descriptive) and normative (or prescriptive) approaches is at last being confronted also from within economic literature. Therefore, the distinction and the relation, "between economics and economy, between theoretical and practical activity, in short between economics as a discipline and economy as a thing" begin to be acknowledged as a problem. (Callon, 1998, p. 1).

Polanyi had already showed how economic theories had played a major role in shaping economy, and in particular in the establishment of the labour market (Polanyi, [1944] 1975). Moreover, as previously recalled, he had stressed that economic activities, far from being self-sustaining, were always framed by an institutional context. Granovetter went further by turning Polanyi's embedding context into a social network, which was not simply connecting pre-existing entities, but also configuring these entities' ontologies (Granovetter, 1985). Therefore, Granovetter replaced *homo clausus*, i.e. the enclosed human of modern economic theory with *homo apertus*, i.e. the open human of social network analysis.

According to Callon, it is precisely this openness that allowed humans to be shaped or performed as calculative agencies (Callon, 1998). In other words, *homo oeconomicus* does exist, but more as a result than as a presupposition of economic activities. Moreover, Latour and Callon argued that the latter were, in turn, shaped, performed, and formatted by economic theories (Latour, 1987) (Callon, 1994).

With Callon's statement of the embeddedness of economy in economics my exploration of economic fundamentalism comes full circle. My narration began by contrasting the allegedly descriptive approach of neoliberal views with those views' strongly prescriptive agenda, whose implementation over the last thirty years helped neoliberal prophecies to self-fulfil. I later sketched the path of modern economic thought mostly as a restatement of fundamentalist assumptions upon the likewise fundamentalist concepts of value and market, and I showed the neoliberal recycling of the neoclassic rhetorical apparatus as but another avatar of modern theoretical fundamentalism. Moreover, I recalled how neoliberalism emerged as a devastating social, cultural, and political backlash to the extraordinary opening of the claiming struggles of the 60s and the 70s. This opening led to the questioning of the narrative of progress and of the dichotomy between facts and values, and to which neoliberalism promptly opposed its unconditional endorsement of technological innovation and its restatement of the factual objectivity of neoclassical economics. Neoliberal prescriptions in turn took charge of providing factual evidence for neoclassical descriptions. Consequently appeal to factual economy as a means of disproving neoliberal assumptions becomes partially untenable and surely counterproductive, as it reconfirms the facts versus values dichotomy that underscores neoliberal rhetoric. But on the contrary, the recognition of the embeddedness of economy in economics, which finds a more general expression in Callon's recognition that "all science is performative" (Callon, 2006, p.10) would radically undercut neoliberal modern fundamentalism. In particular, it would deny neoliberal rhetoric the opportunity to hide, behind the alleged objectivity of the laws of the market, the subjective responsibility of a worldwide network of class alliances.

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A short critique of the Stern Review

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The application of economic modelling has led the Stern Review (2006) and the Intergovernmental Panel on Climate Change (IPCC) Working Group 3 (Barker, et al., 2007) to assert that the greenhouse problem can be solved at a negligible cost. These conclusions have been taken as gospel throughout the world and are now the basic assumptions underlying the policy and action of virtually all governments and official agencies, and the understanding of the situation held by the general public.

I have detailed the argument that both these conclusions are incorrect; i.e., that the greenhouse problem cannot be solved at any cost in a society that is committed to high material “living standards” and economic growth. (Trainer, 2007a.) It should be stressed that this is a critique of arguments to do with the possibilities and costs of mitigation and not of the climate analysis given by Stern or the IPCC, both of which are accepted as valid and important.

A brief summary of the faults in Stern’s Review.

The carbon dioxide emission target Stern adopts (the amount which will stabilise atmospheric carbon dioxide at 550 ppm) is far from sufficiently low. Many now say that to prevent a global temperature rise of more than 2 degrees C the limit must be 450 or even 400 ppm. (Baer and Mastrandrea, 2006.)

Stern does not provide for a world of 9 billion people, which we will have soon after 2050. If his energy provision target was to supply 9 billion people with the energy per capita we in Australia will probably consume by 2050 then the target would be 5 times as great as Stern takes. (If such an equitable goal is not taken then he should deal with the problems of justice, resource inequality, envy, insecurity and global conflict that will result.)

Stern deals only with *the steps that must be taken by 2050 to be on track to stabilise at 550 ppm at a much later point in time*. Those steps would only be the beginning and much bigger steps would have to be taken after 2050 to achieve that goal, let alone the more appropriate goal. Stern’s steps, if they could be achieved, would only cut global emissions by some 30% by 2050, yet his own fine print acknowledges that they must eventually be cut by more than 70% even to achieve the 550 ppm target. The IPCC’s Fourth Assessment Report shows that the 400 ppm target would require emissions to be cut to 5 - 15 GT (*See Glossary of Technical Abbreviations at end of the paper*) by 2050 and to more or less zero by 2100 (taking the mid range of estimates).

These three highly challengeable problem-defining moves have allowed Stern to focus on a task that is far easier than the one that should have been taken, perhaps by a multiple of 15.

However, by far the main fault in the Review is in the assumption that the use of “bottom up” and “top down” economic modelling of the costs of carbon abatement is appropriate and sufficient. “Bottom up” modelling focuses on a particular action or technology

which could eliminate the emission of one tonne of carbon at a cost of X dollars, stipulates that it will be applied on the sale required to eliminate Q tonnes of carbon, and concludes that this can be done at a cost of QX dollars. Usually this approach is applied to several alternative technologies, such as wind, sun, biomass, and the associated aggregate dollar cost is tallied to arrive at a net total achieved at the resulting aggregate cost. “Top down” modelling focuses on the overall, e.g., GDP, effects that would result if particular steps, such as carbon taxes or caps were applied across the whole economy.

These approaches are appropriate for many problems but they involve the crucial assumption that there is no problem of “scale-ability”. There are in fact a number of important technical and non-economic reasons why the carbon abatement steps Stern and the IPCC recognise as possible and cost-effective here and now on a small scale will become technically impossible or too expensive as scale increases. The following reference to the limits of renewable energy technology are drawn from the extended discussion in Trainer, 2007b.

- Stern’s assumed wind contribution corresponds to 62 EJ, some 113% of the present world electrical generation. To deliver this would require mills with a peak capacity of 270 EJ. This is around 180 times the present world installed wind capacity. Where is all this capacity to be located? It is highly unlikely that sufficient sites to locate more than a small fraction of it could be found within thousands of kilometres of demand centres. Some large European regions might not be far from their limits already. The IPCC estimates off-shore sites as somewhat larger than on-shore potential, but not markedly so. In addition, very large scale deployment would lower the present .23 capacity factor because decreasingly suitable sites would have to be adopted.
- Stern’s assumed nuclear capacity, 116 EJ or 12 times present installed capacity, would use up all estimated recoverable Uranium in less than 20 years. (Leeuwin and Smith, 2003, Zittel, 2006.)
- The coal capture and storage (i.e., geo-sequestration) capacity assumed by Stern, 7.7 GT/y of CO₂ p.a., approximately corresponds to half the weight of the present global coal production. Only 80 – 90% of CO₂ can be captured (and only from stationary sources). According to the IPCC by 2100 emissions probably have to be completely eliminated, so geo-sequestration might not be viable at all then.
- The quantity of biomass energy Stern assumes, 110 EJ, could be feasible as it corresponds to 870 million ha harvested at 7 t/ha. However this amount of primary energy would only provide 9 billion people with 12 GJ per person. If converted to ethanol this would provide around 4 GJ of liquid fuel, some 7% of the present Australian per capita consumption of transport fuel. Stern does not explain how transport could be fuelled. For 9 billion people to use the present Australian per capita amount of transport energy (60 GJ), 540 EJ would have to be provided, so 430 EJ would have to come from other than biomass sources.
- If this energy for transport is to come from hydrogen then very high losses and inefficiencies would have to be accepted due to the difficult nature of the hydrogen atom, multiplying capacities and costs greatly. Bossel explains that to deliver one unit of energy from windmill to wheels via hydrogen would require wind generation of 4 units of electrical energy. Therefore 1320 EJ of electricity would have to be

generated for transport. This would be 25 times the quantity of wind capacity Stern assumes. If it were to be derived from nuclear sources then 144 times the present nuclear reactor capacity would be required, again running into the above Uranium limit. According to Bossel electric vehicles would halve the losses involved with hydrogen-fuelled vehicles, but Australian transport takes 1.7 times as much energy as electricity supply, so to electrify this sector and meet normal electricity demand would require generation of about 4.5 times as much electricity as is generated now. Stern does not discuss these problems.

- Stern makes no reference to the major problem facing renewables, which is to do with integrating highly intermittent sources into supply systems. It is a mistake to assume that to build X GW of wind capacity and Y GW of solar capacity provides us with the capacity to generate X plus Y GW, because there will be times when this would give us no capacity to generate any energy, such as on calm nights. It is in other words a mistake to regard renewable capacities as additive. They are best thought of as *alternatives* that can at times be substituted for fossil fuel plant. One consequence is that if a large amount of renewable capacity is built it will not be possible to retire much conventional plant, because there will be times when the renewable plant will be making little or no contribution. Thus much of the time large amounts of a number of expensive alternative capacities will sit idle while one or two meet demand.
- Possibly more important is the problem of “ramping” fossil or nuclear plant up or down quickly to follow fluctuations in supply from the variable renewables. It can take many hours to bring these thermal units up to full generating capacity. This is not a significant problem when renewable sources constitute a small proportion of total generating capacity. (Gas-fired generating plant can be ramped up more quickly but gas is about as limited as oil, and it produces CO₂, so should not be assumed in a discussion of a sustainable or renewable energy future.) The ramping up problem does not affect hydro generators, but these provide only around 15% of world electricity and thus could not carry the bulk of demand on their own at times when combined renewable input is low.

These have been reasons why renewable and other non-fossil technologies that are feasible on a small scale either would be extremely difficult and costly to implement on a very large scale, or could not be implemented at all. Although Stern and the IPCC occasionally identify some of these problems in the briefest of terms they do not deal with any of them, and do not take into their energy accounting any provision for difficulties or limits.

There have been hundreds of studies based on top-down and bottom up modeling of the costs of carbon abatement. I have scanned many of these and have found within them no discussion of any possible technical limits to the scale-ability of renewables, CCS or nuclear energy.

If the case outlined above is valid, it would seem that the topic of carbon mitigation provides critics of conventional economics with one of the most impressive illustrations of how its narrowness can lead to a totally mistaken understanding of a field and to catastrophically inappropriate policy choices.

What then is the answer?

If the question is “How can we provide the energy to run a society committed to affluent living standards and economic growth?” then the answer is that we cannot. A number of distinct lines of argument show clearly that the lifestyles and per capita resource and ecological impacts of the rich countries are far beyond sustainable limits. For instance the Australian footprint of approximately 7 ha of productive land per capita is about 6 times the global average, and by the time we have 9 billion people on earth the multiple will be about 10. Even if none of these alarming sustainability problems confronted us, rich world living standards would not be possible without the grotesquely unjust global economy which delivers most of the world’s resource wealth to the enrichment of our corporations and supermarket shelves. The problems consumer society is running into are due to massive faults deep within the foundations of this society, most obviously to do with an economy driven by market forces, profit and growth, and a culture obsessed with material wealth. It is not just that consumer-capitalist society is unsustainable and unjust -- *it can not be made sustainable or just.*

A sustainable and just society cannot have anywhere near the per capita rates of resource consumption typical of rich countries today. “The Simpler Way” is the label that seems to me to most appropriately stand for the only way out of the global predicament the commitment to affluence and growth have got us into. Its key principles have to be, non-affluent lifestyles, mostly small and highly self-sufficient local economies (peak oil will soon eliminate globalization), enormous cultural change, away from the competitive, individualistic pursuit of wealth. The case for all this is spelled out in detail at The Simpler Way website below.

Glossary of Technical Abbreviations

IPCC	International Panel on Climate Change.
EJ	Exajoule, unit of energy equal to a billion billion joules.
GT	Gigatonne, one billion tonnes
O2	Carbon dioxide.
Ha	Hectare
GJ	Gigajoule, one billion joules.
GW	Giga-watt, one billion watts.
CCS	Carbon capture and storage.

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Markets, politics and freedom in the work of Hannah Arendt

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Let me start this paper by describing my motivation, as an economist, for studying Hannah Arendt. I have been concerned for some time with the political implications of economics--"political economy", if you like, but in a sense different from the one that term has been given in mainstream economics, where it means the application of rational choice theory to agents of the government, with the result being an elaborate "scientific" architecture for the everyday cynicism about people's motivation--in this case the public agent's ostensible motivation of serving the "public interest"--that is the ideological product of capitalism just as surely as any of its more visible, material products.

What I mean by the term is, instead, the relationship between the economy and the polity and the sense in which they represent different realms of life, or, to use Michael Walzer's term, different "spheres of justice". By assuming that a "scientific" examination of the polity would apply the same conceptions of agency and rationality that have been employed in economic analysis, the mainstream political economist has already begged in his or her very endeavour the question I want to ask. For it is notoriously the case that the application of the rational choice machine spuriously confirms its own propriety to whatever sphere it is applied to--that apparent disconfirmations simply call for a more subtle definition of the objective function. One would think that embarrassment at the failure to produce a convincing explanation in rational choice terms of the most basic aspect of political agency--the very willingness to vote--would have brought the whole enterprise to a crashing halt. Like the alchemist's philosopher's stone of old, though, the heavy artillery of game theory is being wheeled out in more and more sophisticated models, in the hope of converting the lead of individual self-seeking into the gold of cooperation or collective action. With their "iterated prisoner's dilemmas" and the like, it never seems to occur to these theorists that they may themselves be imprisoned--unable to break out of a discourse that prevents even the best of them from making contact with reality.

Let us take as a starting point the most sophisticated and least narrow version of a rational choice approach to politics, Jon Elster's well-known essay "The Market and the Forum", not only because of its sophistication (knocking down straw-men is no achievement, after all) but because he explicitly considers, before rejecting, Hannah Arendt's distinctive views about politics.

It will turn out, I hope, that seeing in what ways Elster misses his object in his criticism of her will motivate a positive characterization of what she is in fact doing.

Elster compares three views of politics. One essentially "privatizes" politics in two senses: first, it involves what he calls an instrumental view of the political, with politics seen as a means to accomplishing private ends; second, political agency is not seen as different in kind from private agency. He then arrives at the other views by dropping first the second component of the private view and then the first as well. He takes Habermas' approach as paradigmatic of the second view, in which political agency is different in kind from private agency--involving reaching a rational agreement, an exercise in what Habermas calls communicative as distinct from instrumental rationality; but where politics remains instrumental, essentially a means of deciding what we should do to pursue our private goals. In this view, he emphasizes the way, for its proponents, the process of rational deliberation

may result in a transformation of people's pre-political preferences. Still, transformed or not, they remain private in the sense that they are preferences about what to do in our non-political, private lives: making the economy run better, for example. The point is to arrive at a "rational" consensus about these matters.

Finally, we come to the third view, of which view Arendt's is a well-known example, in Elster's view. This view drops both components of the private view, imagining political agency to be different in kind from private agency and, in addition, making politics an end in itself. Views such as these, which include for Elster, besides Arendt, both Mill and Tocqueville's view of the educative effect of political activity, along with modern versions of a participatory politics which value participation in itself—think of the notion of "empowerment" as it has been used in this context—are all vitiated by the fact that "the benefits of participation are by-products of political activity. Moreover, they are essentially by-products, in the sense that any attempt to turn them into the main purpose of political activity would make them evaporate." (Elster, 1986: 121.)

Elster's examples of the genus of which he finds this particular fallacy a species are interesting. He uses Parfit's arguments for rule utilitarianism, the paradoxes of which many of us are perhaps more familiar with as they appear in Robert Frank's work, *Passions Within Reason*. The idea is that our goals may be better served by having the disposition to genuinely cooperate. The paradox is that choosing on the basis of instrumental rationality to have a disposition to cooperate—and thus a disposition not to be instrumentally rational, since genuine cooperation involves refraining from defecting in one-off prisoner's dilemmas—cannot be successful. Frank therefore ends up having parents choose, using instrumental rationality, to raise their children as genuine cooperators, so that they may be materially more successful.

Elster also looks at Hirschman's characterization of Mill's idea that participation is valuable in itself: " 'the benefit of collective action for an individual is not the difference between the hoped for result and the effort furnished by him or her, but the *sum* of these two magnitudes'" and comments: "could it really be the case that participation would yield a benefit even where the hoped-for results are nil...Is it not rather true that the effort is itself a function of the hoped-for result, so that in the end latter is the only independent variable?" (Elster, 1986: 125.)

In characterizing Arendt's view as an example of this same fallacy, he cites two passages from her work, which I list here:

'The public realm was reserved for individuality; it was the only place where men could show who they really and inexchangeably were. It was for the sake of this chance, and out of love for a body politic that made it possible to them all, that each was more or less willing to share in the burden of justification, defense and administration of public affairs'

'(in the American town assemblies) citizens participated neither exclusively because of duty nor, and even less, to serve their own interests but most of all because they enjoyed the discussions, the deliberations, and the making of decisions.'

(Elster, 1986: 126.)

Especially in the second passage, Arendt would appear to be guilty of the problem Elster has noted: "Politics...is on a par with other activities such as art, science, athletics or

chess. To engage in them may be deeply satisfactory, if you have an independently defined goal such as 'getting it right' or 'beating the opposition'. A chess player who asserted that he played not to win, but for the sheer elegance of the game, would be in narcissistic bad faith—since there is no such thing as an elegant way of losing, only elegant and inelegant ways of winning.” (Elster, op. cit.)

So Elster concludes that this third view—that politics is non-instrumental in the strong sense, an end in itself—is incoherent; and ends advocating some form of the second view, that while the agency displayed in our political lives cannot be reduced to the private, instrumental rationality of homo economicus, that, nevertheless, the political is a means of pursuing non-political ends: “if thus defined as public in nature, and instrumental in purpose, politics assumes what I believe to be its proper place in society” (Elster, 1986: 128.)

Elster's view seems to me to be an unstable view, perched precariously between the two “extreme” views he rejects. He never satisfactorily explains what he means by the “public nature” of the process, instead launching a passel of objections to Habermas' own formulations of what this might mean.

Ultimately, I want to argue, Elster's objections to Arendt work only by smuggling in the perspective of the rational chooser, who would indeed be acting incoherently if he or she deliberately sought what is essentially a by-product. But it seems to me to be essential to understanding Arendt that this perspective is rejected from the outset. Look again at the first passage from her work that Elster quotes, her claim that the Greeks valued the political, the public realm as “the only place where (they) could show who they really and inexchangeably were”. This seems to me to escape completely the net of his strictures on valuing an activity for what is essentially a by-product of that activity. Nor do I think he helps his case by his citation of chess, science, art, etc--the whole range of what are standardly—since Alisdair McIntyre's brilliant *After Virtue*--referred to as “practices”: as McIntyre's book pointed out, the goals of a practice are “internal to the practice”. This means that the goal of playing chess is “excellence”—not winning, not money etc. To engage in a practice is fundamentally to participate and contribute to the tradition that the practice represents by pursuing excellence in its terms. And, had Arendt, anachronistically, read McIntyre, I believe she would have been happy to call the political the “practice” par excellence, the “practice of practices”. There simply is a fundamental non-instrumentality to a practice that Elster's choice-theoretic perspective simply cannot accommodate—in fact, it is already stretched to the breaking point trying to accommodate what he admits to be “the public nature” of the process.

To pursue this point, I turn now to Arendt's *The Human Condition*, the work where she lays out her conception of the public realm in greatest detail. From her very first discussion of the meaning of the “public realm”, I think it can be appreciated how far we are from the Elsterian conception. She gives two senses to “the public”:

it means, first, that everything that appears in public can be seen and heard by everybody and has the widest possible publicity. *For us, appearance—something that is being heard and seen by others as well as ourselves—constitutes reality.* Compared with the reality which comes from being seen and heard, even the greatest forces of intimate life—the passions of the heart, the thoughts of the mind, the delights of the senses—lead an uncertain and shadowy kind of existence unless and until they are transformed, deprivatized and deindividualized, as it were, into a shape to fit them for public appearance.

(Arendt, 1958: 45-6, emphasis added.)

And, second:

the term 'public' signifies the world itself, insofar as it is common to all of us and distinguished from our privately owned place in it. This world, however, is not identical with the earth or with nature, as the limited space for the movement of men and the general condition of organic life. It is related, rather, to the human artifact, the fabrication of human hands, as well as to affairs which go on among those who inhabit the man-made world together. To live together in the world means essentially that a world of things is between those who have it in common, as a table is located between those who sit around it; the world, like every in-between, relates and separates men at the same time.

(Ibid: 48.)

A good deal more would seem to be at stake in politics in Arendt's view than in Elster's. We seem here to be in a different "world"—no pun intended. As many commentators have noted, the notion of the "world" in Arendt is deeply indebted to her teacher, Martin Heidegger. The world, for Heidegger, is where "being" discloses itself. Unlike Heidegger himself, Arendt out and out identifies this world with "the public and political space which plural human beings can form among themselves" (Canovan, 1992: 112.) Thus as Canovan notes, for Arendt, "the public realm is important...because it is only in the public realm that reality discloses itself." (Ibid: 111.) The point as it pertains to Elster is one that Arendt makes over and over again: the focus of distinctively public action is not on "our common needs"; nor is it, pace communitarians of all stripes, any common conception of "the good life"; what simultaneously relates and separates us, the focus of our distinctively public concerns, is the "world" we have in common. The "separation" is as crucial as the relation: the keynote of Arendt's politics is plurality ("Not Man, but men inhabit the world"). Canovan writes about Arendt's "insistence that plurality is vitally important because it allows reality to be experienced, her understanding of freedom as the experience of that reality in the space cleared by the multiple standpoints of plural men, and her evident concern that the loss of that many-sidedness is equivalent to the loss of reality" (Canovan, op. cit.: 113).

The other side of "world-disclosure" is "self-disclosure". And again, the stakes are very high, for Arendt. Only on the public stage, can we become individuated, achieve distinction, disclose who we really are. (Note, too, that this is by no means a sociological point, the platitude that we are created as individuals by society: it is politics, not society, which individuates, for Arendt.) In fact, the availability of a public world is for her the only source of "earthly immortality":

The common world is what we enter when we are born and what we leave when we die. It is what we have in common not only with those who live with us, but also with those who were here before and with those who will come after us. But such a common world can survive the coming and going of the generations only to the extent that it appears in public. It is the publicity of the public realm which can absorb and make shine through the centuries whatever men may want to save from the natural ruin of time. Through many ages before us—but now not any more—men entered the public realm because they wanted something of their own or something they had in common with others to be more permanent than their earthly lives.

(Arendt, 1958: 50.)

“But now not any more”—What has happened? First, people stopped seeking immortality in the public realm when they came to believe Christianity’s message that they were possessed of eternal life. But second, and much more crucially, capitalism has succeeded in eclipsing the public realm completely by absorbing the public in the private realm: this “instrumentalization” of politics—which Arendt calls the emergence of the “society”, a monstrous hybrid of the public and private—is, for Arendt, capitalism’s greatest crime.

And socialism is no help at all: Arendt sees it as the logical continuation of what capitalism began in this respect: her favorite quote from Marx is to the effect that socialism seeks as its goal “the withering away of the state” and the replacement of politics with “the administration of things”. The “public” as Arendt understands the term has as its correlate “the private”. The latter realm, in Athens and in Rome, was the dark realm of necessity, where what Arendt calls the *animal laborans*—the laboring animal—engages in the endless biologically induced cycle of production and reproduction—consuming in order to produce in order to consume and repeat the cycle over and over. Out of this realm of the natural, the necessitous—the truly “privative” private realm, in Arendt’s etymology—people (“men” actually, in Arendt—and in fact, since obviously women in Athens and throughout most of history have been confined to this dark realm) emerged into the light of the polis, from the natural into the artificial, the monism and singularity of their herd-like species being into plurality and freedom, from life—which we share with all animals—into “the good life”, which makes us human.

The economic growth which might have served to make this experience universal, not the privilege of the few, has instead resulted in the replacement of the public realm with “national house-keeping”. (“Society is the form in which the fact of mutual dependence for the sake of life assumes public significance” (Arendt, op cit: 43). In contrast to the public realm, where, for Arendt, the notion of rule is out of place – where we neither rule nor are ruled—the household is characterized by rule. And “although it is true that one-man, monarchical rule, which the ancients stated to be the organizational device of the household, is transformed in society...into a kind of no-man rule”—and here she has in mind both the invisible hands of the capitalist economy and bureaucratic rule in a socialist economy—“...the rule by nobody is not necessarily no-rule; it may indeed, under certain circumstances, even turn out to be one of its cruelest and most tyrannical versions.” (Arendt, 1958: 37.) Nor does the fact that, with capitalism, the consumption/production cycle takes place on an ever-increasing scale mitigate the essential meaninglessness of the process, the enslavement to the necessitous that it represents: on the contrary, this “unnatural growth of the natural” is the mark of society, in which “all members consider whatever they do primarily as a way to sustain their own lives and those of their families” (Ibid: 43.)

In light of all this, perhaps we owe Elster an apology: although not representing any “scientific universal” but a contingent fact of history, a tragic fact, his claim that the private rules the roost, that the political is instrumental to the economic, would, we are bound to say, meet with Arendt’s assent. The bright light of the public—in her analysis—has truly been eclipsed. Without a genuine public, moreover, we are both “world-less” and “Self-less”.

Without the ability to get out of the private and into the world, confined to “making a living”, we can hardly be said to have selves at all. In fact, she would find the term “individualism”, accepted so widely as a description of modern societies, by liberal boosters as well as communitarian critics, to be a complete misnomer as applied to the herd-like and homogeneous nature of modern life. As Canovan notes, Arendt, “instead of seeing modern

society as impersonal, rational and individualistic...sees it as stiflingly uniform, paternalistic and monolithic" (1992: 121.)

To see, finally, what it means to lose the world, and how the economist—whether Elster or, in this case, Adam Smith—keeps us from recognizing our loss, I want to end with a long quote from Arendt on Adam Smith, which occurs soon after she has given the definition of the public that was quoted above.

What the modern age thought of the public realm, after the spectacular rise of society to public prominence, was expressed by Adam Smith when, with disarming sincerity, he mentions 'that unprosperous race of men commonly called men of letters' for whom 'public admiration makes always a part of their reward..., a considerable part in the profession of physic; a still greater perhaps in that of law; in poetry and philosophy it makes almost the whole.' Here it is self-evident that public admiration and monetary reward are of the same nature and can become substitutes for one another. Public admiration, too, is something to be used and consumed, and status, as we would say today, fulfills one need as food fulfills another: public admiration is consumed by individual vanity as food is consumed by hunger. Obviously from this point of view the test of reality does not lie in the public presence of others, but rather in the greater or lesser urgency of needs to whose existence or non-existence nobody can ever testify except the one who happens to suffer them. And since the need for food has its demonstrable basis of reality in the life process itself, it is also obvious that the entirely subjective pangs of hunger are more real than 'vainglory', as Hobbes used to call the need for public admiration. *Yet even if these needs, through some miracle of sympathy, were shared by others, their very futility would prevent their ever establishing anything so solid and durable as a common world. The point then is not that there is a lack of public admiration for poetry and philosophy in the modern world, but that such admiration does not constitute a space in which things are saved from destruction by time.* The futility of public admiration, which daily is consumed in ever greater quantities, on the contrary, is such that monetary reward, one of the most futile things there is, can become more 'objective' and real." (emphasis added) (1958: 51-2.)

Now it seems to me—and I won't belabor the point—that the terms of Elster's critique are already present in the passage from Smith that Arendt comments on here. So that if one is prepared to think of public participation as satisfying a need on the rational chooser's part for esteem just as food satisfies his or her need for hunger, then the inevitably subsidiary, secondary—indeed for Smith even contemptible—and certainly the *at most instrumental* character of public life will follow as a matter of course. I hope I have said enough to convince the reader that this is not in fact how Arendt thought about the public and the public world.

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The case for mitigating greenhouse gas emissions

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Last fall, the United Kingdom issued a major government report on global climate change directed by Sir Nicholas Stern, a top-flight economist. The Stern Review Report on the Economics of Climate Change amounts to a call to action: it argues that huge future costs of global warming can be avoided by incurring relatively modest cost today.

Critics of the Stern Review don't think serious action to limit CO₂ emissions is justified, because there remains substantial uncertainty about the extent of the costs of global climate change, and because these costs will be incurred far in the future. However, I believe that Stern's fundamental conclusion is justified: we are much better off reducing CO₂ emissions substantially than risking the consequences of failing to act, even if, unlike Stern, one heavily discounts uncertainty and the future.

Two factors differentiate global climate change from other environmental problems. First, whereas most environmental insults – for example, water pollution, acid rain, or sulfur dioxide emissions – are mitigated promptly or in fairly short order when the source is cleaned up, emissions of CO₂ and other trace gases remain in the atmosphere for centuries. So reducing emissions today is very valuable to humanity in the distant future.

Second, the externality is truly global in scale, because greenhouse gases travel around the world in a few days. As a result, the nation-state and its subsidiaries, the typical loci for internalizing externalities, are limited in their remedial capacity. (However, since the United States contributes about 25% of the world's CO₂ emissions, its own policy could make a large difference.)

Thus, global climate change is a public good (bad) par excellence. Cost-benefit analysis is a principal tool for deciding whether altering it through mitigation policy is warranted. Two aspects of that calculation are critical. First, it has to be assumed that individuals prefer to avoid risk. That is, an uncertain outcome is worth less than the average of the outcomes. Because the possible outcomes of global warming in the absence of mitigation are very uncertain, though surely bad, the uncertain losses should be evaluated as being equivalent to a single loss greater than the expected loss.

The second critical aspect is how one treats future outcomes relative to current ones – an issue that has aroused much attention among philosophers as well as economists. At what rate should future impacts – particularly losses of future consumption – be discounted to the present?

The consumption discount rate should account for the possibility that, as consumption grows, the marginal unit of consumption may be considered to have less social value. This is analogous to the idea of diminishing marginal private utility of private consumption, and is relatively uncontroversial, although researchers disagree on its magnitude.

There is greater disagreement about how much to discount the future simply because it is the future, even if future generations are no better off than us. Whereas the Stern Review

follows a tradition among British economists and many philosophers against discounting for pure futurity, most economists take pure time preference as obvious.

However, the case for intervention to keep CO₂ levels within bounds (say, aiming to stabilize them at about 550 ppm) is sufficiently strong to be insensitive to this dispute. Consider some numbers from the Stern Review concerning the future benefits of preventing greenhouse gas concentrations from exceeding 550 ppm, as well as the costs of accomplishing this.

The benefits are the avoided damages, including both market damages and non-market damages that account for health and ecological impacts. Following a “business as usual” policy, by 2200, the losses in GNP have an expected value of 13.8%, but with a degree of uncertainty that makes the expected loss equivalent to a certain loss of about 20%. Since the base rate of economic growth (before calculating the climate change effect) was taken to be 1.3% per year, a loss of 20% in the year 2200 amounts to reducing the annual growth rate to 1.2%. In other words, the benefit of mitigating greenhouse gas emissions can be represented as the increase in the annual growth rate from today to 2200 from 1.2% to 1.3%.

As for the cost of stabilization, estimates in the Stern Review range from 3.4% of GNP to -3.9% (since saving energy reduces energy costs, the latter estimate is not as startling as it appears). Let’s assume that costs to prevent additional accumulation of CO₂ (and equivalents) come to 1% of GNP every year forever, and, in accordance with a fair amount of empirical evidence, that the component of the discount rate attributable to the declining marginal utility of consumption is equal to twice the rate of growth of consumption.

A straightforward calculation shows that mitigation is better than business as usual – that is, the present value of the benefits exceeds the present value of the costs – for any social rate of time preference less than 8.5%. No estimate of the pure rate of time preference, even by those who believe in relatively strong discounting of the future, has ever approached 8.5%.

These calculations indicate that, even with higher discounting, the Stern Review’s estimates of future benefits and costs imply that mitigation makes economic sense. These calculations rely on the report’s projected time profiles for benefits and its estimate of annual costs, about which there is much disagreement. Still, I believe there can be little serious argument about the importance of a policy aimed at avoiding major further increases in CO₂ emissions.

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Stagflation cometh

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The world economy has had several good years. Global growth has been strong, and the divide between the developing and developed world has narrowed, with India and China leading the way, experiencing GDP growth of 11.1% and 9.7% in 2006 and 11.5% and 8.9% in 2007, respectively. Even Africa has been doing well, with growth in excess of 5% in 2006 and 2007.

But the good times may be ending. There have been worries for years about the global imbalances caused by America's huge overseas borrowing. America, in turn, said that the world should be thankful: by living beyond its means, it helped keep the global economy going, especially given high savings rates in Asia, which accumulated hundreds of billions of dollars in reserves. But it was always recognized that America's growth under President George W. Bush was not sustainable. Now the day of reckoning looms.

America's ill-conceived war in Iraq helped fuel a quadrupling of oil prices since 2003. In the 1970's, oil shocks led to inflation in some countries, and to recession elsewhere, as governments raised interest rates to combat rising prices. And some economies faced the worst of both worlds: stagflation.

Until now, three critical factors helped the world weather soaring oil prices. First, China, with its enormous productivity increases – based on resting on high levels of investment, including investments in education and technology – exported its deflation. Second, the United States took advantage of this by lowering interest rates to unprecedented levels, inducing a housing bubble, with mortgages available to anyone not on a life-support system. Finally, workers all over the world took it on the chin, accepting lower real wages and a smaller share of GDP.

That game is up. China is now facing inflationary pressures. What's more, if the US convinces China to let its currency appreciate, the cost of living in the US and elsewhere will rise. And, with the rise of biofuels, the food and energy markets have become integrated. Combined with increasing demand from those with higher incomes and lower supplies due to weather-related problems associated with climate change, this means high food prices – a lethal threat to developing countries.

Prospects for America's consumption binge continuing are also bleak. Even if the US Federal Reserve continues to lower interest rates, lenders will not rush to make more bad mortgages. With house prices declining, fewer Americans will be willing and able to continue their profligacy.

The Bush administration is hoping, somehow, to forestall a wave of foreclosures – thereby passing the economy's problems on to the next president, just as it is doing with the Iraq quagmire. Its chances of succeeding are slim. For America today, the real question is only whether there will be a short, sharp downturn, or a more prolonged, but shallower, slowdown.

Moreover, America has been exporting its problems abroad, not just by selling toxic mortgages and bad financial practices, but through the ever-weakening dollar, in part a result of flawed macro- and micro-policies. Europe, for instance, will find it increasingly difficult to export. And, in a world economy that had rested on the foundations of a “strong dollar,” the consequent financial market instability will be costly for all.

At the same time, there has been a massive global redistribution of income from oil importers to oil exporters – a disproportionate number of which are undemocratic states – and from workers everywhere to the very rich. It is not clear whether workers will continue to accept declines in their living standards in the name of an unbalanced globalization whose promises seem ever more elusive. In America, one can feel the backlash mounting.

For those who think that a well-managed globalization has the potential to benefit both developed and developing countries, and who believe in global social justice and the importance of democracy (and the vibrant middle class that supports it), all of this is bad news. Economic adjustments of this magnitude are always painful, but the economic pain is greater today because the winners are less prone to spend.

Indeed, the flip side of “a world awash with liquidity” is a world facing depressed aggregate demand. For the past seven years, America’s unbridled spending filled the gap. Now both US household and government spending is likely to be curbed, as both parties’ presidential candidates promise a return to fiscal responsibility. After seven years in which America has seen its national debt rise from \$5.6 trillion to \$9 trillion, this should be welcome news – but the timing couldn’t be worse.

There is one positive note in this dismal picture: the sources of global growth today are more diverse than they were a decade ago. The real engines of global growth in recent years have been developing countries.

Nevertheless, slower growth – or possibly a recession – in the world’s largest economy inevitably has global consequences. There will be a global slowdown. If monetary authorities respond appropriately to growing inflationary pressure – recognizing that much of it is imported, and not a result of excess domestic demand – we may be able to manage our way through it. But if they raise interest rates relentlessly to meet inflation targets, we should prepare for the worst: another episode of stagflation.

If central banks go down this path, they will no doubt eventually succeed in wringing inflation out of the system. But the cost – in lost jobs, lost wages, and lost homes – will be enormous.

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His and hers economics*

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Economics has always been, and remains, a male-dominated occupation. In Mark Blaug's mid-1980s surveys of great economists before and after Keynes, only three females – Rosa Luxemburg, Irma Adelman and Joan Robinson – appear among his 200 subjects. While only 4 per cent of all Nobellaureates have been female, the gender gap is greatest in the "hard sciences" and economics. Since 1969, of the 61 recipients of the Nobel Prize in Economics, not one has been female. Furthermore, only one of the 30 recipients of the John Bates Clark Medal (the second most prestigious award in economics) has been a woman – namely Susan Athey of Harvard University who received her award in April 2007.

This gender gap also remains significant in academic economics departments and among undergraduate and postgraduate economics students.

Concern in the US relating to the gender imbalance and the status of women working in academic economics led to the formation in 1971 of the Committee on the Status of Women in the Economics Profession. In the UK, the role of this committee is mirrored by the women's committee of the Royal Economic Society, whose primary objective is to increase the number of women economists at all levels in UK academia and business.

But has there been any significant change in the gender balance within US and UK academia since the early 1970s? The representation of female economists at all levels within US academia increased significantly between 1971 and the 1990s, but in 2006 only 21 per cent of tenured assistant professors, 24 per cent of associate professors and 8 per cent of full professors were women. Data from the American Economic Association on the total number of bachelors, masters and PhD economics degrees awarded indicates that for a total of 217 institutions in 2004-05, the percentage of females in each category was 34, 40 and 30 respectively. While from 1991 to 2006 the proportion of females among economics graduates increased from 29 per cent to 31 per cent, this modest expansion must be viewed against a backdrop in which the proportion of females in the total undergraduate population increased from 54 per cent to 59 per cent.

A recent Royal Economic Society survey, conducted by Andreas Georgiadis and Alan Manning, found that in the UK, 9 per cent of professors, 21 per cent of readers, 19 per cent of senior lecturers and 24 per cent of permanent lecturers were female. In total, including full-time, part-time and research appointments, only 20 per cent of academic staff in economics were women. Thus while the position of female academic economists has improved over the past 30 years, they "remain a small minority among academic economists, and are heavily under-represented among the more senior grades", according to the survey.

One problem facing all female academics who plan to have children relates to the potential conflict, especially in the US, between the tenure clock and the biological clock. For example, the average female PhD recipient in the US is 34, and as Harvard's first tenured female economics professor, Claudia Goldin, observes: "The most important question facing women graduating today is whether they can find a job where it is possible to combine family and career." This remains a significant problem in any occupation involving a total

commitment in terms of long working hours. But why is this acting as a more significant constraint in economics than in other academic disciplines?

Some explanations emphasise demand-side factors, such as discrimination and nepotism in appointments and promotions. However, in countries where anti-gender discrimination legislation has been enacted and regularly enforced, we may have to look elsewhere for reasons.

Other explanations focus on supply-side factors, such as a possible lack of interest among females in the content of economics and its increasingly technical and mathematical nature, a lack of female role models and mentors within academia and a difference in individual gender preferences for fields of study.

But perhaps the main reason is simply that for too long economics has been viewed as a “male subject” that is unattractive to most women. This is a false image and it is about time that economists – as one – did a better job at showing how economics can contribute to a better understanding of almost all the major issues that confront the world economy in the 21st century.

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