

EDE at 20: Further Agenda

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(Final version)

A problem in urgent need of attention in modern industrial societies is to discover ways to de-link aggregate output from recorded employment. If the loss were shared in a manner deemed fair by the general public, there would be nothing catastrophic for people in a country where the average income is 35,000 international dollars a year to suffer an income loss of even 25 per cent, let alone 5 per cent. Average income in the UK in 1990 was about 25 per cent less than in 2005. It's hard to maintain that UK citizens experienced significantly lower levels of personal well-being in 1990 than they did in 2005. Revival of research on competitive consumption (e.g., Veblen's "conspicuous consumption") and reports on "life satisfaction" suggest that a general rise in private consumption among a population enjoying a high standard of living adds little to happiness, or indeed to objectively measured indices of well-being.¹

Employment and the Environment

In contrast, employment is known to be a powerful factor in a person's sense of well-being and self-worth. It is a catastrophe when a 25 per cent drop in average income is accompanied by a comparable drop in employment. Citizens would rightly demand that if there is a significant fall in aggregate income, it should be shared by all in a fair manner. But that would require employment not to decline. Governments in many modern economies have either been unable to, or have chosen not to, prevent inequities appearing in employment and income, especially in difficult economic times. The sole route they take to achieve full employment is the pursuit of policies that are thought to boost aggregate demand. That demand needs to keep rising if employment is not to decline is a view that appears to be shared by all decision makers, be they Keynesians or otherwise. Politicians and media commentators express deep anxiety when spending on High Street shows any sign of decline. We are encouraged to think that to consume is to contribute to the social good. It is more than an irony that short run macroeconomic reasoning is wholly at odds with environmental concerns.

¹ Southerton and Ulph (2014) is a collection of essays on the subject by economists, historians, psychologists, and sociologists.

Pigouvian Taxes and the Short-Run Macroeconomy

In its first 20 years our journal *Environmental and Development Economics* has studied economic problems no other journal has to date attempted so consistently. Official thinking in the West regarded the environment as a luxury good. Attempts to popularize the "environmental Kuznets curve" were a symptom of that belief. *EDE*'s lasting contribution will be its relentless study of environmental resources as factors of production; not only in mills and factories but in households and communities too. We now know a great deal more than before about the links between deep poverty and the state of the local resource base in Asia, Africa, and Latin America. The editors of *EDE* have been faithful to the journal's name.

The focus on spatially-localized interchanges between people and nature has meant, however, that we continue to know little about the macroeconomic implications of environmental policies. Economists study Pigouvian taxes mostly on a case-by-case basis. But environmental externalities are present variously at local, regional, and global levels. Imagine that corrective taxes and subsidies, those that are advocated routinely in public economics, were to be put in place by a government to combat externalities in a comprehensive manner. What would it mean nationally for output and employment?

The optimistic view is that resources would find themselves re-directed toward "green technologies". Those technologies are taken either to exist already as blue-prints or are expected to come rapidly into being once venture capitalists and entrepreneurs put their minds to the task. The argument continues that the mix of technologies and the composition of household consumptions would come into line with changes in relative prices, but employment wouldn't be affected. This is the famous "win-win" view of environmental policy.²

Is the view plausible? Entrepreneurs adopt techniques of production and consumption that economize on expensive factors of production, not those that are cheap. That influences the direction of scientific and technological research. Natural capital has been underpriced for over two centuries. Because the corresponding externalities have been left unattended to, the technologies we have inherited are rapacious in their demand for natural resources and nature's services.³

2 Starting with the *World Development Report* of 1992, the World Bank in its various publications has taken this line. Jorgenson *et al.* (2013) is a recent articulation of the view, albeit restricted to the imposition of carbon taxes in the US.

3 I have discussed this idea more fully in Dasgupta (2004). Stiglitz and Greenwald (2014) offer a

It may not be an exaggeration to suppose that globally, nature's services (including the service the atmosphere and the oceans provide in storing carbon) are underpriced to the tune of 3-4 trillion international dollars annually. As a fraction of global output (an annual 88 trillion international dollars) that may not amount to much, but because resource intensities differ enormously across industries, the dislocation of economic activity resulting from a comprehensive package of Pigouvian taxes and subsidies in a country could be substantial. Moreover, as technological development is inevitably path dependent, it may not be possible to adapt technologies without jeopardizing employment. The plain truth is, we don't know.

Macroeconomic models that include natural capital have mostly been designed to peer into the deep future (Dasgupta and Heal, 1979; Jones, 2004). The models assume the short run to be devoid of structural dislocations. Even the study of sectoral adjustments that could be expected to take place if Pigouvian taxes were imposed in a country avoids modelling the structural problems of adjustment that would arise (Jorgenson *et al.*, 2013).

Problems are compounded when we imagine international efforts to counter environmental externalities. Barrett (1994, 2003) explained why in the absence of international transfers we shouldn't expect all countries to agree on optimum carbon taxes. The analysis provided an explanation for why Rio was a failure. Barrett's arguments extend naturally to global commons generally. But the theory of public economics urges countries to collaborate on an environmental policy (including taxes and subsidies) aimed at eliminating local, regional, and global externalities in a comprehensive package. To the best of my knowledge no attempt has been made to uncover the structural problems the resulting shift in relative prices would create. We should expect there to be huge consequences to the distribution of income and employment within and across countries. But we don't know what they are likely to be.

Demographics over the Medium Run

Informed forecasts of the effects of environmental policies over the medium term, say, 30-40 years, are also in rare supply. MEA (2005a-d) provided an account of the stresses that are being experienced by global and local ecosystems. Of the 24 that were investigated for the report, 15 were found to be either degraded or being used in an unsustainable way. We should expect nature's implicit subsidy to grow over time as humanity degrades natural capital further.

comprehensive analysis of the microeconomics of technological change, relating their study to, but going well beyond, the economics of technological competition that was developed in the 1980s.

That growth in world population is slowing is on its own no cause for jubilation. The population *level* matters and could be expected to matter hugely if that level were to stabilize at a high 10 billion.

It isn't unreasonable to hope for a world where even the poorest enjoy the level of well-being of the average person in a middle-income country. But ecologists warn that a *sustainable* use of natural capital for a human population of 10 billion, enjoying an average income of 15,000 international dollars, would under imaginable technologies require 2-3 Earths. But because nature is a stock, humanity can deplete natural capital (either in quantity or in quality) for quite a while without feeling much global pain. Because extraction rates can exceed rates of natural regeneration for decades, the idea of "planetary boundaries" isn't useful. Several planetary boundaries have already been breached, but that hasn't moved governments and their citizens to act. There is abundant record of spatially-localized disasters in recent decades in Africa, South Asia, and Latin America. That they may be a mirror to large scale tipping points lying in wait is something most people don't like to acknowledge.

A common retort is that technology will come to the rescue. But no one says concretely, how. The absence of discussion among economists on the tug of war being played out by humanity's drive for conventional economic growth and nature's frequent complaint about it is a sign that we think ecologists are wrong. But it is we economists who have shown that in the presence of widespread environmental externalities, the world economic system doesn't have error-correcting mechanisms in place to avert large-scale societal meltdowns.⁴

The Next Agenda

It isn't often that macroeconomists include the environment in their models. That may be why an implicit assumption in contemporary macroeconomics, that there are no tradeoffs between environmental protection and aggregate employment, goes unremarked. But without systematic research into the consequences for income and employment of a comprehensive assault on environmental externalities, societies wouldn't put their minds to the question of how to de-link the two.

Work on such large-scale models as would be required to rectify this can be done only in teams, perhaps by international organizations and environmental NGOs. But the reconnaissance

⁴ Paul Ehrlich and I have recently offered a unified treatment of externalities at the population-consumption-environment nexus. See Dasgupta and Ehrlich (2013).

exercises that are needed to try out for size alternative ways of blending environmental policies with short and medium run macroeconomic adjustments is best done at academic centres. *EDE* could play a valuable role in encouraging that research. There is a long way to go.

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