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# **PART TWO**

## **SUSTAINABLE DEVELOPMENT IN THE ECE REGION**

*PAPERS FROM THE ECE SPRING SEMINAR, MARCH 2003*

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# INTRODUCTION AND SUMMARY OF DISCUSSION

## *Economic Analysis Division, UNECE*

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This part of the *Survey* consists of contributions to the sixth Spring Seminar, held in Geneva on 3 March 2003 and focusing on sustainable development in the ECE region. Sustainable development is difficult to define in non-tautological terms and even harder to analyse, as any long-term process involves qualitative change with unforeseen consequences. The Seminar presentations focus primarily on the quantitative relationships between economic growth and the natural environment in a number of ECE countries at the economy-wide and industry levels. The environmental effects of growth are analysed with the aid of applied models that estimate the links between income and emission levels, energy prices and intensities, etc. This kind of “technical” analysis involves important efficiency versus equity choices that permeate the contributions, sometimes explicitly and often implicitly.

The two-session seminar opened with a paper on “Economic growth and the environment” by **Theodore Panayotou**, of Harvard University and Cyprus International Institute of Management. The author argues that there exists an inverted U-shaped relationship between economic development and environmental degradation, known in the literature as the environmental Kuznets curve (EKC). The EKC implies that the relationship between economic growth and environmental deterioration is positive (i.e. pollution increases with growth) up to a certain level of per capita income and inverse (i.e. pollution declines with growth) beyond this threshold. The paper examines empirical evidence for the advanced economies, and this appears to be broadly consistent with the EKC hypothesis in some instances (e.g. sulphur dioxide or SO<sub>2</sub> emissions) and inconclusive in others (e.g. carbon dioxide or CO<sub>2</sub> emissions). It then describes how the partial decoupling of economic growth from environmental deterioration, observed in recent decades within the ECE region, has resulted from shifts in economic activity from the goods-producing sectors to services. In the advanced economies, this structural change has co-existed with a growing use of less pollution-intensive technology, stimulated either directly through emission standards and other mandatory rules or indirectly through tax-adjusted prices that better reflect the social opportunity

costs of production and consumption activities. In contrast, environmental progress in the transition economies of the ECE region in the 1990s reflected mainly a rapid decline of traditional material-intensive manufacturing and mining sectors and a gradual deregulation of the administered prices that had encouraged the excessive use of energy in the past. The author also reviews research into the determinants of environmental policies. Tentative results indicate that democratic societies achieve better environmental outcomes than dictatorial regimes.

In the concluding part of Panayotou’s paper, a number of recommendations are proposed to encourage environment-friendly patterns of structural and technological changes. Some of them are standard policy recommendations, including the use of economic instruments (e.g. taxes) to align better the private and social costs of goods and services with strong externalities. Another recommendation calls for the preservation of the consumption possibilities of everyone affected by this relative price adjustment, something that could perhaps be accomplished with the aid of transfers financed from the additional revenues raised by environmental taxes. Other recommendations include a reduction of income inequality and social exclusion as well as the strengthening of democracy and the rights of citizens, although it is not shown how such outcomes might be achieved. Some of the recommendations in the paper may be difficult to achieve in the light of the trade-offs between environmental goals and equity objectives. For instance, consider the imposition of an excise tax on gasoline to achieve optimal final prices that reflect the negative external effects of combustion. This environment-friendly measure affects both rich and poor car drivers, reducing their consumption possibilities. But if the extra revenue is used to compensate all those affected by the tax hike, how will the reduction of income inequality, advocated by Panayotou, be financed?

**Richard Herd** (OECD) makes three substantive points in his comments on Panayotou’s paper. First, recent research questions the validity of EKC estimates both on empirical and methodological grounds. Contrary to the EKC hypothesis, the relationship between income and pollution is sometimes U-shaped

and in some instances there appears to be no clear-cut correlation. In some of the OECD countries investigated, estimates based on individual time series fail to identify any turning point, in others it appears at much higher levels than implied by earlier investigations, and so on. Second, although emissions of a number of harmful substances declined or stabilized over the last two decades, the generation of municipal waste and greenhouse gases (GHGs) has continued to grow. Third, Herd suggests that the failure to break the link between growth and GHG emissions may be due to the continued absence of abatement technology with a favourable cost-benefit ratio and the lack of significant changes in consumption and production patterns. **Tomasz Zylicz** (Warsaw University) points out that Panayotou's paper fails to address one important issue, namely the possibility of pollution shifts through international trade. Indeed, it would be desirable to know more about the environmental effects of massive changes in the multinational supply chain driven by foreign direct investment in low-cost economies. If foreign investors take advantage of less stringent or non-existent emission standards in host countries, then the question is what level of abatement is optimal and how it can be achieved. Another shortcoming of Panayotou's paper, according to Zylicz, is the failure to explore the Porter hypothesis that strict environmental regulations are more conducive to business development than weak ones. Finally, Zylicz emphasizes the need for cost-effective environmental policies in transition economies, taking full advantage of the market mechanism through environmental taxes and tradeable permits. **Kaj Bärlund** (UNECE) notes that Panayotou's reflections on the relevance of institutions such as democratic structures are important for policy makers. He also claims that consumption patterns in advanced countries are unsustainable as they generate increasing amounts of waste leading to further environmental degradation and must be changed through better education.

The second session started with a presentation of a paper entitled "Sectoral dimensions of sustainable development: energy and transport" by **David Newbery** of Cambridge University. In his paper he describes an historical shift in advanced economies from traditional energy policy, aiming to ensure the security of supply with the aid of state owned or state controlled utilities, to market-friendly regulation allowing for competition among partly or fully privatized energy producers and distributors. He points out that this kind of liberalization is compatible with environmental objectives, providing that the regulators ensure that energy users pay full-cost prices, i.e. prices that internalize negative external effects. The most straightforward method to reduce the amount of energy-related pollutants to a socially optimal level

is to impose excise taxes that correct market prices to levels that include all external costs. In practice, some externalities can be measured more reliably than others, and so standards also have a role to play in the new energy policy.

Newbury demonstrates the paramount importance of pricing on energy use in a number of ECE countries. While it may be obvious that real energy prices are inversely related to energy intensities, it is less intuitive that energy price elasticities increase significantly (in absolute terms) in the long run. The adjustment of an economy to changing relative prices is slow because it takes a long time to rebuild capital stocks; this point is well illustrated by the experience of transition economies that continue to use significantly more energy per unit of GDP than their advanced counterparts. Newbery emphasizes that sustainability can be achieved more efficiently by targeted taxes on harmful pollutants associated with energy use than by continued increases of the relative price of energy. His paper examines the actual experience of ECE countries with environmental taxes and standards pertaining to diverse pollutants and concludes that market-oriented policies are preferable to government controls. Newbery notes that in many cases relative prices in the energy sector are still not in harmony with the objective of sustainable development. For instance, policy makers in some advanced and many transition economies have been reluctant to abolish energy subsidies to households. Similarly, many ECE countries continue to tax diesel at preferential rates and subsidize coal production for power generation, despite adverse environmental effects. Although the thrust of Newbery's policy recommendations is straightforward, some important questions concerning their implementation remain open. For instance, if governments in the less advanced transition economies were to allow the internal energy prices faced by households to rise rapidly to world market levels, as advocated by Newbery, there would be a significant reduction in the living standards of a large part of the population. Some form of compensation would therefore have to be provided to avoid widespread destitution and the risk of social unrest, but it is unclear how this could be done effectively in the absence of a competent bureaucracy and reliable statistical information.

**Thomas B. Johansson** (Lund University) emphasizes in his brief reflection on Newbury's contribution that the principal challenge is to move away from the dependence on oil and argues that market solutions can be relied on to improve energy efficiency only to a limited extent, given the presence of moral hazard problems. **George Kowalski** (UNECE) observes that the decoupling of economic

growth from energy consumption and CO<sub>2</sub> emissions in the developed market economies resulted from both declining energy intensity and inter-fuel substitution, a point also made in Newbury's paper. According to Kowalski, these gains have been diminishing since the 1980s. The principal challenge to policy makers is to stabilize concentrations of CO<sub>2</sub> in the atmosphere. To achieve this objective, he advocates the use of economic instruments such as emissions trading and stricter efficiency standards in the short run as well as strong public investment in research and development in the long run. The last two contributions focus on the transport sector. **Inge Mayeres** (Catholic University Leuven) shows in her comments that the ideal solution of optimal taxes on emissions is unattainable *sensu stricto* but some taxing and pricing schemes evidently result in significant welfare gains and are superior to a further tightening of emission standards. Furthermore, she points out that governments ought to consider the full impact of their transport policies on overall efficiency and equity objectives. For instance, if one is more concerned with efficiency (equity), then one should use the extra revenue raised from charges on transport-related emissions to reduce the taxation of labour (increase social transfers). **José Capel Ferrer** (UNECE) points out that ECE motor vehicle regulations, implemented both inside and outside the ECE region, have significantly reduced the emission of diverse pollutants. This remarkable success was achieved with the aid of cost-effective abatement technology. However, such technology is not available for all pollutants, while tighter safety regulations have resulted in increased vehicle weight and thus higher

fuel consumption. Capel Ferrer agrees with Newbury that additional net social benefits from lower pollution can be achieved with the aid of targeted taxes and road pricing, but he also advocates measures to promote public transport and improve land use planning.

To sum up, all the contributing participants seem to agree that, whenever feasible, the use of economic instruments is preferable to administrative measures (controls and commands). Most would also agree that efficient abatement ought to balance carefully marginal costs and benefits to achieve socially optimal outcomes. Provided that the external costs of economic activities can be estimated with reasonable accuracy, then excise taxes can be fairly efficient instruments to correct prices. If the authorities target efficiency rather than equity, then the best policy for sustainable development would be to use the extra revenue generated by the charges on polluting activities to cut the tax burden on labour that remains heavy in many ECE countries, including the transition economies. This, coupled with labour market and welfare reforms, should stimulate higher levels of employment, including of low-skilled adults suffering from social exclusion. That could accelerate the growth in per capita income and, perhaps, lessen pollution if the EKC becomes more relevant as a result of technical progress improving the cost-benefit ratio of abatement. The underlying catch-up process with full employment would be consistent with a more equitable income distribution in transition countries where the share of labour in national income remains well below the levels in the more advanced economies.