INDICATORS TO MEASURE DECOUPLING OF ENVIRONMENTAL PRESSURE FROM ECONOMIC GROWTH

EXECUTIVE SUMMARY

Decoupling environmental pressure from economic growth…

The term *decoupling* refers to breaking the link between "environmental bads" and "economic goods." Decoupling environmental pressures from economic growth is one of the main objectives of the OECD Environmental Strategy for the First Decade of the 21st Century, adopted by OECD Environment Ministers in 2001.

... may be either absolute or relative and. . .

Decoupling occurs when the growth rate of an environmental pressure is less than that of its economic driving force (e.g. GDP) over a given period. Decoupling can be either *absolute* or *relative*. Absolute decoupling is said to occur when the environmentally relevant variable is stable or decreasing while the economic driving force is growing. Decoupling is said to be relative when the growth rate of the environmentally relevant variable is positive, but less than the growth rate of the economic variable.

… can be measured by decoupling indicators.

Decoupling can be measured by *decoupling indicators* that have an environmental pressure variable for numerator and an economic variable as denominator. Sometimes, the denominator or driving force may be population growth or some other variable.

Except for some pressures, decoupling is common in OECD countries and further progress seems possible.

The evidence presented in the OECD Report "Indicators to Measure Decoupling of Environmental Pressure from Economic Growth" shows that relative decoupling is widespread in OECD Member countries. Absolute decoupling is also quite common, but for some environmental pressures little decoupling is occurring. The evidence also suggests that further decoupling is possible, since absolute decoupling was recorded in at least one OECD country for all but two of the decoupling indicators examined at the national level.

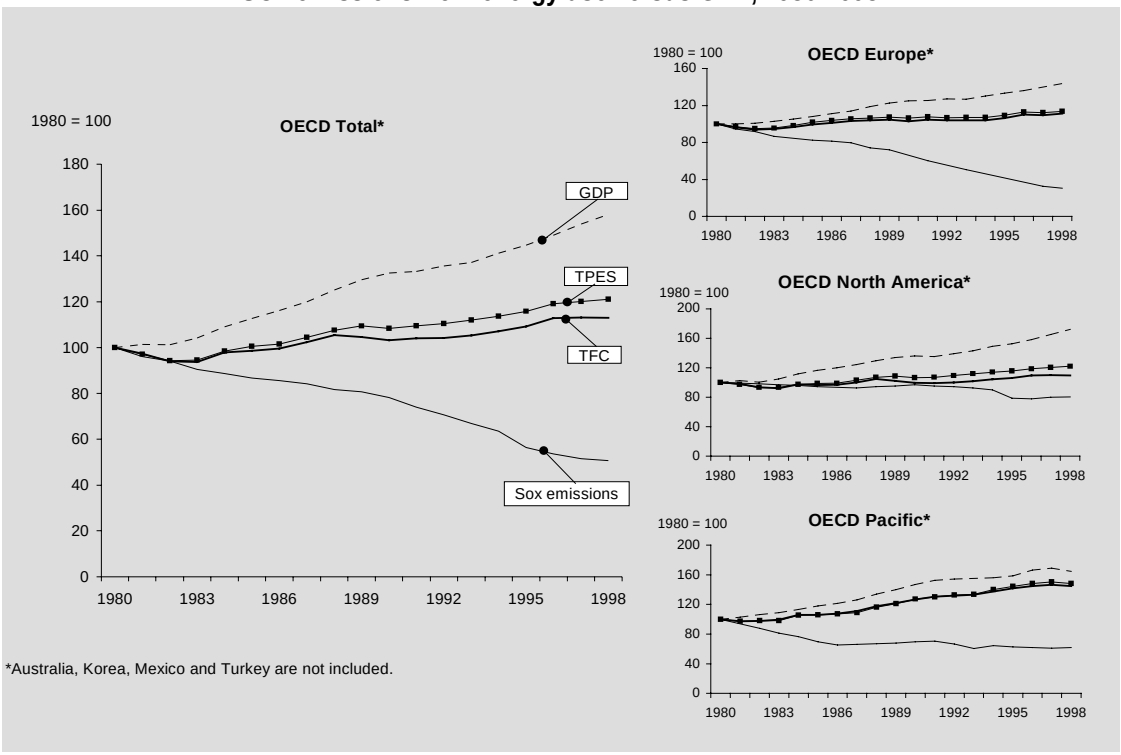
Some indicators in this report relate to decoupling environmental pressure from total economic activity, while others concern specific sectors…

This report explores a set of 31 decoupling indicators covering a broad spectrum of environmental issues. 16 indicators relate to the decoupling of environmental pressures from total economic activity under the headings of climate change, air pollution, water quality, waste disposal, material use and natural resources. The remaining 15 indicators focus on production and use in four specific sectors: energy, transport, agriculture and manufacturing.

… and several indicators have been decomposed to show the contribution of various factors to decoupling.

Some indicators have also been *decomposed* to highlight the extent to which various factors (e.g. technological factors, structural changes) have contributed to reducing or adding to environmental pressures in recent years. As may be seen from the figure, SOx emissions have exhibited absolute decoupling from GDP growth in OECD countries. This has been due in the past to an overall reduction in energy intensity with total final consumption of energy growing much slower than GDP. But it has also resulted from policies which have caused the energy sector to sharply reduce emissions per unit of energy produced.

SOx emissions from energy use versus GDP, 1980-1998



Source: OECD

Good data are available for some indicators, but data gaps remain important and further conceptual work is needed.

The report presents information through graphs and tables and, for each indicator, provides a brief explanatory text to help interpretation. An attempt was made to maximise the country and time period coverage for each indicator, but data gaps remain important. Of the 31 indicators, ten are considered conceptually sound and data are available for at least 20 of the 30 Member countries from at least 1990. A further 12 indicators are also considered conceptually sound, but suffer from statistical data gaps. Finally, nine indicators are assessed as needing further work for a variety of reasons (e.g. concept, definition, measurement).

The interpretation of decoupling indicators must take account of absolute levels of environmental pressures and …

Decoupling indicators measure *changes over time.* Interpretation of the message conveyed by these indicators should take account of *absolute levels* of environmental pressures and economic driving forces. If these pressures need to be reduced, to below what threshold? If they are allowed to rise, to what ceiling? Moreover, the initial level of an environmental pressure and choice of time period considered can affect the interpretation of the results, because in their efforts to reduce environmental pressures countries do proceed according to different timetables.

… country comparisons need to consider national circumstances.

When decoupling indicators are used to compare environmental performance among countries, the national circumstances of each country must also be taken into account. These include factors such as country size, population density, natural resource endowments, energy profile, (changes in) economic structure and stage of economic development.

Decoupling indicators tell only part of the story and do not take account of the environment's capacity to withstand pressures or …	Decoupling indicators, like all other types of indicators, shed light on particular aspects of a complex reality but leave out other aspects. For example, the decoupling concept lacks an automatic link to the environment's capacity to sustain, absorb or resist pressures of various kinds (deposition, discharges, harvests). In the case of renewable natural resources, a meaningful interpretation of the relationship of environmental pressure to economic driving forces will also require information about harvesting rates compared to renewal rates.
… cross-border flows of pollutants. Therefore, …	Also, decoupling indicators, when evaluated at a country level, do not capture the cross-border flow of various pollutants embodied in the international trade of goods.
… they should be seen as a complement to other approaches.	The approach used in this paper should be seen as a complement to other analytical frameworks. Moreover, to draw conclusions for policy from the evidence presented in this paper would also require consideration of the specific policy measures required to achieve decoupling in a cost effective way. From such a perspective, establishing an efficient level of decoupling, for a particular environmental resource or sink, ideally would involve ensuring that all external environmental costs are reflected in product prices, and then allowing the market to determine the appropriate level of use at the established price.
Some decoupling indicators need further work, but others are ready for use.	Therefore, while some of the indicators presented here are suitable for use in various OECD peer reviews, others need further development in terms of underlying concepts, choice of variables and data availability and quality.

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