Social issues in the SEEA framework

Preface

At the London Group meeting in Rome in 2003, a number of participants voiced different needs to include some social issues in the accounting framework. Some issues raised were e.g. health information coupled to water accounting, social capital as a complement in sustainability indicator work and also inclusion of variables such as traffic accidents per industry. It was decided to form a sub-group to discuss and find out more about what types of issues that could be of interest and make an inventory of what has already been done. This paper is intended as such an inventory and is intended to be presented to the group at the meeting in Copenhagen in September for discussion.

The inventory and discussions so far have been made on email basis. The people who have been involved in the sub-group are the following:
Rocky Harris DEFRA, UK and Perry Francis ONS, UK,
Alexander Opitz and Norbert Schwarz, Destatis, Germany,
Ismir Mulalic, Statistics Denmark,
Martin Lemire and Rob Smith, Statistics Canada,
Bob Harrison, ABS, Australia
Alessandra Alfieri, UN
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Ideas and texts have also been kindly provided by Maja Larsson, Martin Villner and Anders Wadeskog at Statistics Sweden and by Eva Samakovlis at the National Institute for Economic Research.

Summary
The attempts at bringing in social issues in forms that give or may give opportunities for integration with the system of integrated environmental and economic accounts (SEEA) were grouped under three headings.

The first socio-economic group consists of well established practices that link social data with the system of national accounts and use ordinary statistics and classifications to make more detailed analyses of households and of the work force. Here we have three studies. One study is covering the link between economy and social issues in Germany. The two others, one from UK and one from Sweden, show different ways of presenting household related environmental economic information.

The second socio-environmental group consists of information on health aspects expressed either in physical or monetary forms. It is relatively easy to see the policy needs for these types of analyses. However, it is probable that the gathering of data will be a cumbersome task, as the effects on health are often difficult to trace to particular causes. However, there are areas where data are available such as traffic related death and injuries and work environment data. In the monetary study from Sweden a contingent valuation study was carried out in order to relate air pollution damage to bad health. Several models are using health valuation figures that where calculated in the Externe project.

The third and last group was intended to cover the social issues that are included in the discussions and strategies for sustainable development but have no clear coupling to the environmental or economic data sets. In this inventory we have only included three reports that deal with the notion of social capital. None of the studies intend to put a monetary value on the capital, but use other physical data to estimate and compare this resource. We have not covered any studies on human capital in the inventory. Contacts have been taken with the Siena Group, a UN City group on social statistics. They are coordinating efforts on harmonizing social capital surveys and will have a meeting on this topic in 2005.

To conclude, many policy issues can be seen that would benefit from an inclusion of social data into the SEEA. It may even help in the implementation phase of the environmental accounts if it can be shown that also social issues can be analyzed to some extent. A set of resource accounts that neglect the resources of people and societies is perhaps only of a limited value for the policy makers of many nations.

1 Aim
The aim of this paper is to make an inventory of some different approaches for adding social aspects to the environmental accounts and briefly reflect on how these can be integrated in the SEEA framework.

2 Introduction

2.1 The SEEA

Increasing national and global impacts and repercussions of economic activities on and from the natural environment call for the analysis of environmental and economic activities within a common framework. The existing situation has induced the United Nations to develop concepts and methods for integrated environmental and economic accounting as a basis for internationally comparable work in this field. An efficient analysis of environmental-economic relations necessitates having a data system in which the different parts are built on comparable concepts and can thus be linked to each other (SEEA, 1993).

As is noted in the recently finished handbook (SEEA 2003) there are several approaches to defining sustainable development and the SEEA may be helpful to inform some of them but not all. The concepts of human and social capital are left out of the handbook as it is a large undertaking to describe and suggest concepts for the relations between economic and environmental data in themselves. Still, the question on how to try and integrate all three areas in national analyses are pressing. National and international strategies for sustainable development are being formed. Also companies are incorporating more social data in their yearly reports. If it is possible to use similar classifications for social statistics, this would help towards making a framework of statistics that could be used for the creation of sustainable development indicators and for integrated policies.

2.2 Social statistics

In the mid 1960s a growing dissatisfaction with the amount and quality of social information available to government decision makers spawned what came to be known as the 'social indicators movement'. Initially this was a reaction against what was perceived as an overemphasis on measures of economic performance as indicative of social well-being (Carley, 1981). Since that time, the statistics on social issues has become a well-established tradition. Both subjective data, based on questions to people where they are asked to indicate the health and other essential quality of life issues, and objective data which is collected from registers or similar. What is still lacking is a unifying framework which allows to present the data in an aggregated fashion. However, it is clear that many aspects of the social indicators tend to relate to the same group of people. If you have a job and feel healthy you are likely to be lucky also in other dimensions such as relations, political power, economy. On the other hand if you are unemployed then you stand a greater risk of also being poor, lonely, etc.

2.3 Combining policy relevant information

When the debate on sustainability started, it was mainly the countries in the south that advocated the need for a social pillar. The first social sustainability indicators that were suggested were also mainly concerned with poverty and child health, and for some actors in the north it was perhaps felt that these problems were already overcome in more developed countries. Still, a closer look at national statistics in these areas will show that every country has its own problems to tackle, and with budget constraints the environmental and social agendas will to some extent be weighted against each other in every nation.

There is of course a fear that opening up the accounts for more social issues will drown them in statistics. The social statistics have a long history and is in many ways more elaborated and established than the environmental statistics. We would thus attempt to include certain important aspects but set up some limits to what could be seen as parts of an accounting system. In similar ways it can be said that there is much environmental and economic data that will never enter the SEEA, as the system mainly attempt to bring light

on certain aspects of policy closely linked to production and consumption by economic agents.

Combining economic and environmental information in the SEEA has made it easier to investigate several policy relevant issues. For example, it has become possible to compare the environmental performance of industries within the nations and internationally. The system can also provide data to study the influence of taxes and subsidies or the import patterns on environmental performance. In many policy issues, social aspects are a vital part of the discussion. In particular, employment and health issues are often touched upon when environmental policy is discussed.

It can be said that social variables are already included in the environmental accounts, as employment is a vital part of the national accounting structure. This makes it possible to analyze for example how many people that may be affected by a particular policy that addresses some particular industries. In Holland and in other countries social accounting matrices (SAM) have been created and linked with the environmental accounts, analyzing gender issues coupled to environmental policy and looking deeper into the environmental performance of households (de Haan, 2004). In some of the analyses coupled to environmental industry social aspects such as education, gender and regional issues on employment have also been addressed.

It can also be stated that the boundary between social and environmental issues is not so clearly defined. Working environment is an area which is sometimes included in the environmental policies, especially if it concerns chemical policy. For companies that report on sustainability issues, the work environment is certainly a part of their reporting.

However, there are also attempts to bring in other social issues, that will be part of the sustainability strategies for several nations and organizations. The reasons for including them in the framework would mainly be that it makes comparisons and analyses in general easier. The indicator sets that have been produced until now are a mix of statistics from different areas: economic, environmental, social and institutional. These sets are informative in many ways and have made it more clear what issues are regarded as belonging to the sustainability agenda. However, it has also been said that more streamlining and comparability would be good for future uses.

In UK a need for social decoupling indicators has been voiced as a part of the ambitious sustainable indicator system. A number of responses to the decoupling indicators consulted on last year flagged the need to tie in household consumption more closely with resource use/environmental impact. This may not strictly be social environmental accounting, but a first link between standard environmental accounting and social dimensions such as patterns of consumption/life style. It could include expenditure on say tourism and the ecological impacts of tourism for example. The link between the accounts and other life style aspects such as employment, work and traffic accidents, health, distribution, crime etc will also be important.

3 Method

There are some different outlooks on how social issues can be included and we will try to investigate them by bringing in some examples. One of the challenges is to integrate what is household or individual characteristics with the SNA production and consumption approach. This can e.g. be done by coupling people in the work force to the production through their working place. For children, retired, students and unemployed this is not possible. However, theses can be linked to the household “sector” or through other types of surveys covering travel, time , income etc.

1. The socio-economic aspects. Looking in more detail at issues which in principle are already included: employment, household properties, education, gender, income etc.
2. The socio-environmental aspects. Integrating closely related social issues with economy and environment: sickness caused by environmental degradation, work environment, traffic accidents, people access to nature, radon exposure, passive smoking, etc.
3. Other social aspects. Social issues that are vital to sustainability in a general sense on a society basis such as social capital. These can include data which are more loosely coupled to the economic sphere e.g. poverty, sickness, threat of violence, unemployment, political empowerment. If external effects of consumption would be included then also obesity and drug abuse could be included.

These wordings are not agreed upon, but used in this paper to point to the difference in which variables will be included dependent on what policy questions or type of data are at hand. Especially the third category could be renamed, and some of the data included there could perhaps be regarded as socio-economic.

In the following text we will briefly describe some attempts at measuring similar aspects in the environmental accounts or, in the third group, outside of the accounts.

4 Inventory

4.1 Socio-economic accounting

4.1.1 Germany: socio-economic accounting. Income and Expenditure of Private Households in the Context of a SAM

Like other Statistical Offices, the Federal Statistical Office of Germany already provides various information concerning social issues, based on registers or derived from household surveys. However, no comprehensive social reporting system has yet been in place. About two years ago, the Office therefore started building up a social reporting system based on national accounts. One of the projects is the calculation of a Social Accounting Matrix (SAM).

A SAM provides a comprehensive framework for linking together economic and social statistics. Concepts for a SAM were already developed in the fifties of the last century by Richard Stone. A description of a SAM is given e.g. in the European System of National Accounts (ESA 95) and more detailed in the Handbook on Social Accounting Matrices and Labor Accounts, European Commission 2003.

A SAM provides a conceptual framework for linking together economic and social statistics to disclose a comprehensive and disaggregated overview on the socio-economic situation. Furthermore, it can be used as a data base to analyze future developments. The strength of the SAM as an analytical tool arises from its consistency with national accounts and its flexibility in introducing different modules, classifications and statistical units. In June 2004 some first results for a SAM based on data of the year 2000 were published. For the time being, the main focus is on income and consumption of private households.

Ideas for a SAM are taken up by the SEEA and SNA93. Chapter 6 of the SEEA contains concepts for an extension of the SAM towards a hybrid flow account (NAMEA), a national accounting matrix including environmental accounts, by introducing additional modules in physical units. This chapter also proposes a further breakdown of the household sector by type, as well as an additional disaggregation of private consumption by purpose.

In its basic version, a SAM comprises the complete set of SNA accounts and additional disaggregated information on the flow of goods and services supplied by the input-output framework. The SAM is subdivided in sub-matrices for different kinds of economic flows (e.g. intermediate and final consumption, distribution of income, financial transactions). Taking such a matrix solely based on national accounts as a starting point, the schema can be gradually extended by further subdividing the rows and columns of the sub-matrices. Special emphasis is thereby laid on a disaggregation of the “sector” private households by socio-economic categories. However, by adding new modules to the SAM, it is crucial to ensure consistency with other parts of the system. This implies that all additional data from household surveys and other sources that is applied, has to be adjusted to ESA concepts.

The national accounting framework in Germany already comprises an additional breakdown of disposable income and its components by different kinds of households that is consistent with national accounts and could therefore be linked to the SAM. Within this module, households are classified by employment status of the chief economic supporter, and by size. During spring 2004, the research expanded towards a similar breakdown of private consumption by these groups of households. A suitable tool for describing consumption patterns is the classification of individual consumption according to purpose (COICOP). The objective was, therefore, a disaggregation of private consumption expenditures in a cross-classification by household groups and COICOP categories.

The compilation of this matrix is based on the sample survey of income and expenditure that has last been carried out in 1998. However, these results do not match national accounts data on private consumption expenditures by COICOP categories for private households as a whole. Therefore, adjustments and estimations were necessary to attain results that are compatible with national accounts. To some extent, the data based on the sample survey of income and expenditure could be adjusted to ESA definitions.

In addition, the consumption expenditures of high income households and population living in institutions such as prisons or nursing homes had to be estimated, as they were not included in the survey. The remaining discrepancies between the sample survey and national accounts data were adjusted by a mechanical reconciliation technique. In a last step the results for 1998 were applied to aggregate national accounts data for 2000. Combined with the already compiled data on disposable income by household group, the results for private consumption also comprise saving by household group as a balancing item. However, saving could only be calculated as a residual.

The breakdown of private consumption is an important feature of the SAM, as it represents the link between detailed socio-economic information on the flow of income and disaggregated data of the flow of goods and services. This linkage allows, for example, to analyze the impacts of an assumed change in the structure of the population - say, a higher proportion of recipients of pensions – on consumption, production and income within the economic system on a meso-level. It is also possible to link the disaggregated monetary data on private consumption with the corresponding flows in physical units to cover environmental issues. However, a prerequisite for these applications would be a transition matrix which links the breakdown of consumption by purpose with a breakdown by product group.

The first results for the year 2000 can only represent a first step towards a more comprehensive analysis of consumption patterns in the scope of the SAM. At present, further work is done to improve the quality of estimations and to obtain more detailed data. We also plan to compile similar matrices on consumption by household group and purpose for further years. Such a time series would allow detailed analysis on long term changes and trends of consumption patterns. Furthermore, a detailed SAM module on income and consumption will be equally important for analyzing future economic developments like changes in labor demand.

4.1.2 Sweden: Household accounts

Statistics Sweden has developed physical environmental accounts since 1993. In the environmental accounts, so far, households have appeared as one of the components of final demand, thus linking it both directly and indirectly to environmental effects through what is consumed and how these goods and services are produced. This has made it possible to compare environmental pressures caused by households with pressures from other economic agents such as industries or the public sector.

A new report presents possible ways to elaborate the role of households in the environmental accounts and presents results, by using household/individual surveys to identify environmental effects generated by expenditure and activity patterns of different household types. A method named decomposition is used in the report to analyse what in private consumption that is changing over time. An international outlook regarding European Household Budget Surveys (HBS) and some European experience in the area is also presented in the report. (Households in the environmental accounts. Wadeskog and Larsson, 2004. Eurostat and SCB).

The purpose of this report is to illustrate some ways to use the environmental/national accounts together with household survey data to look at the environmental role of households. The bulk of this is devoted to linking Household Budget data to the results in the environmental accounts. The idea is that most member states that have developed environmental accounts can perform Input-Output Analysis and have access to more or less frequent data from Household Budget Surveys.

In addition to this an example of what can be done with the use of data from time-use surveys is provided. Many members states have done time use surveys in recent years. And although the direct links between the time use surveys and environmental/national accounts data is less direct than for Household Budget Surveys, they provide a rare opportunity to compare environmental pressures between the formal and the informal economy. The informal economy is defined as "..those economic services produced in the household and outside the market, but which could be produced by a third person hired on the market without changing their utility to members of the household ."

The analysis is centered around the Environmental accounts and its actual or potential links to other types of statistics that is likely to be found in statistical agencies.

At the core of this is the close relationship between the environmental accounts and the national accounts by way of classification and definitions. This means that all data that can be linked to the production accounts of the national accounts can be directly or indirectly linked to data in the environmental accounts. In most cases this works through the allocation of some variable over the industries or components of final demand in the national accounts[1].

The first type of linkage is the one between the environmental and national accounts as such. Given that the data in the environmental accounts is published as direct environmental impact by actors in the economy, emissions are either allocated to production activities or to consumption activities. This means that all production related emissions are indirect emissions to consumption – it comes with purchasing a product for final consumption domestically or in another country through export from Sweden. Changes in these indirect emission between years then, at least in part, depend on changes in the volume and composition of private consumption.

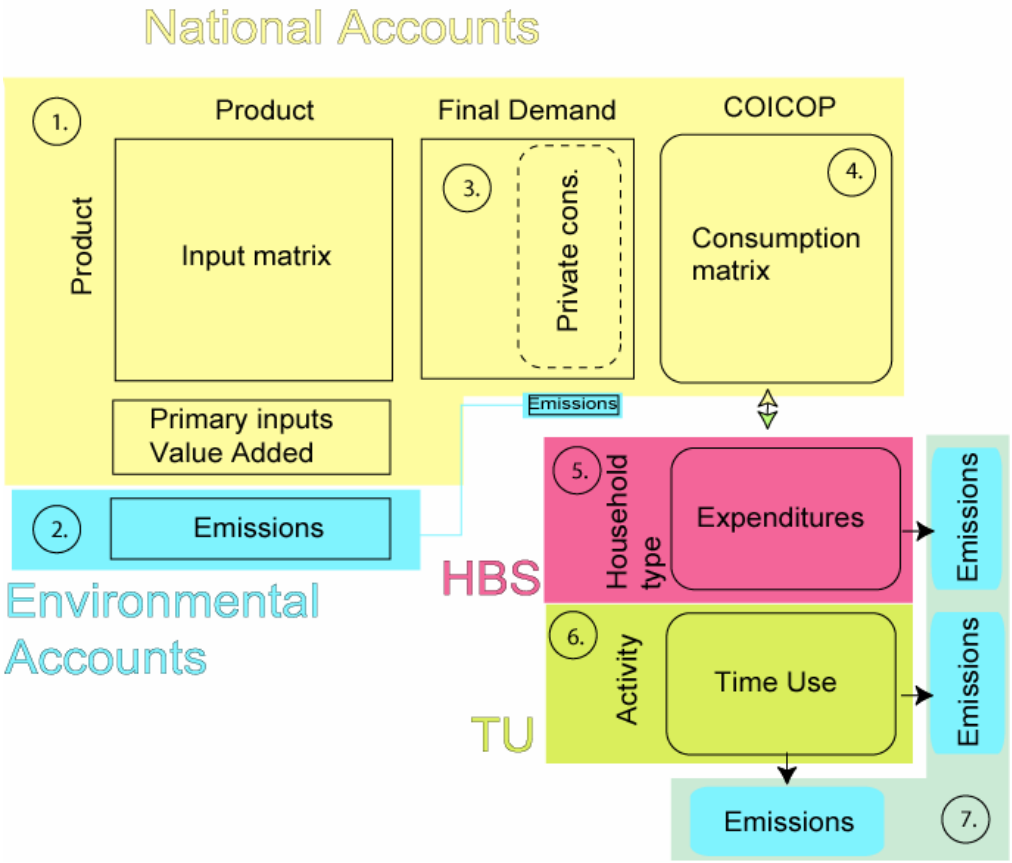
The second type of linkage is going from the macro household (i.e. Private consumption in the national accounts) to individuals/households. This means, again, linking emissions to private consumption through the national and environmental accounts and then linking this to households via the household budget surveys. This makes it possible to allocate direct and indirect emissions according to all dimensions collected in the household budget survey, such as income, region, type of dwelling, number of children etc.

The other link between national-/environmental accounts data and micro data made in this report is more indirect. Linking private consumption and the associated emissions to time use in the household is done by making more or less enlightened guesses on how the purchases of products enter the different activities of the household as it is recorded in the time use surveys. Once this allocation is done the allocation of emissions follows through the emission intensities.

The general idea can be visualized as a set of matrices that are linked in the following way:

[1] For an example of this that includes social variables see SCB 2003 (MIRINDA)

Figure 1. Link environmental accounts, HBS and TUS



The first set of matrices (1.) comes from the National Accounts. They consist of the Use table converted to a product by product showing amounts of domestic inputs of products in making products for final demand. Adding the primary inputs and Value Added to the columns produces a production value for that product. Of the final demand matrix (3.) only Private consumption is used in this context. As all of these products are classified according to the NACE-system an additional matrix (4.) is used to convert private consumption of product according to NACE over to private consumption of products classified in COICOP.

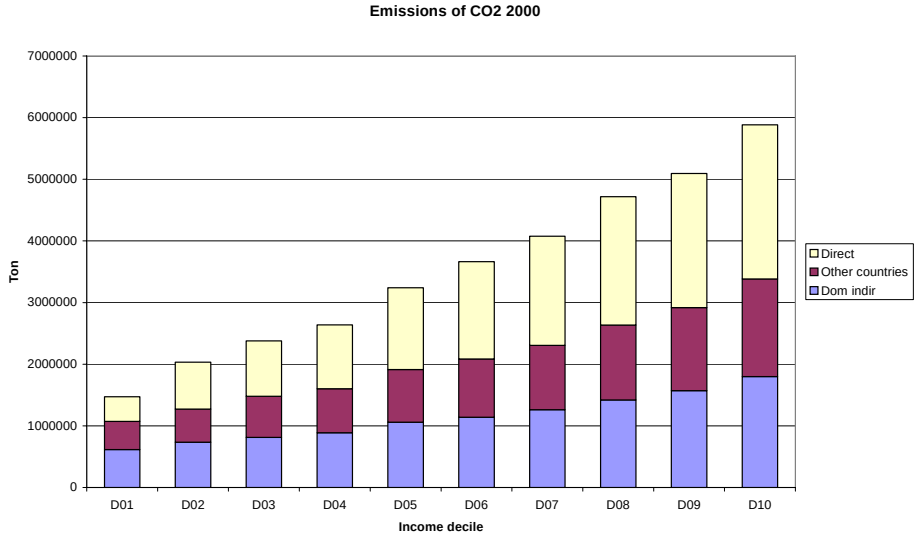
Environmental accounts contribute the direct emissions matrices (2.) that originally calculate the emissions per industry and final demand component. The direct emissions in production is converted from industry to product in the same way as the use matrix. This is then used to produce emissions coefficients per product produced, i.e. tons of CO2 per MSEK of Agricultural products produced.

Using input-output analysis emissions (2.) is then translated into emissions per product (COICOP), Household type or household activity (7.) by using data from the Household Budget Surveys (5.) or Time Use surveys (6.) to allocate the calculated emissions per product (COICOP).

An addition to the matrices above, matrices showing imports of products are also used to calculate hypothetical emissions in other countries from Swedish private consumption. These import matrices are identical in shape to the input/Final Demand matrices above.

As an example of the results, in Figure 2 the total emission of CO2, caused by private consumption, is presented for 2000, per income deciles. The three components make up roughly one third each.

Figure 2. The total emissions of CO2 in 2000



The households are classified according to income deciles which is a common way of categorizing households. The ten deciles are grouped according to disposable income, where the first decile has the lowest income and the tenth decile has the highest. The total emissions caused by the different households in income deciles 1 to 10 is here directly related to its respective share of total expenditures.

The figure illustrates that rich households emit more than poorer. The CO2 emissions increase with increasing disposable income for all three kinds of emissions. The poorest tenth only emit 25 % of what the richest tenth emit.

The share of the indirect emissions tend to decrease and the direct emissions increase with rising disposable income. For households in decile 1 indirect emissions represent 42 per cent of the total emissions in the decile and for decile 10 about 31 per cent. The share of direct emissions in decile 1 is 27 per cent and 43 per cent in decile 10. The results indicate that the poor have a larger impact through their indirect emissions than by their direct emissions. The richer, in the tenth decile, have a larger impact by their direct emissions, for example heating their houses and driving cars.

The share of emissions to other countries from the Swedish import remain between 26 and 31 per cent in the different deciles. There is no major difference between the different groups according to disposable income.

4.1.3 UK Monitoring the relationship between household consumption and environmental impact

Environmental accounts are useful in identifying responsibility for the environmental consequences of economic activities. This can be analyzed in two ways, first by identifying the direct pressures resulting from production and consumption, and second by tracking the pressures through the supply chain in order to identify the indirect effects of intermediate or final consumption.

One of the strengths of the accounts is that there is a clear distinction between consumption and production, based on National Accounts principles. Inevitably most of the policy focus on sustainable consumption and production is on the latter, both because it is more effective to intervene higher up the supply chain, and because companies are generally more amenable than individuals to regulation and fiscal measures. Increasingly, however, Governments are concerned that the existing patterns of consumption need to be changed if the impact of household consumption on the environment is to be sustainable. In order to throw light on this issue, the environmental accounts need to be extended to incorporate a number of social aspects relating to consumption.

A first extension, introduced within the Air NAMEA data collected by Eurostat, is to relate atmospheric emissions to household expenditure broken down into three elements:

- Travel/transport
- Heating and lighting
- Other

Each of these may be split further e.g. between the different types of energy used for heating and lighting, and between expenditure on different modes of transport.

An alternative approach is to analyze the relationship between the final demand for products and the emissions, waste and resource use associated with their production. This approach has been widely followed (Vaze, Denmark, the Netherlands, Sweden etc) and can be used to demonstrate the resource (generally CO2) intensity of different products. The results are based on analytical input-output tables and involve a number of important assumptions about the linearity of the relationship between inputs and outputs within each industrial sector, about the homogeneity of each industry, and the processes used to produce imports.

Decomposition analysis is another tool based on analytical input-output tables that can be used to throw some light on the reasons for changes over time. An element of the analysis attributes changes in emissions to changes in the structure and level of consumer demand. However, such indicators and summaries tell us little about the drivers involved or how the environment might be affected by future changes in structure of society.

This aspect can be covered by extending the analysis to incorporate data on expenditure by households, coupled with data from social surveys which reveal the consumption and travel patterns of different types of households according to social variables such as region, income and household composition.

The extensions are all achieved by disaggregating and transforming the National Accounts data on Household Final Consumption Expenditure by product so that it corresponds with the estimates of expenditure classified by COICOP (Classification Of Individual

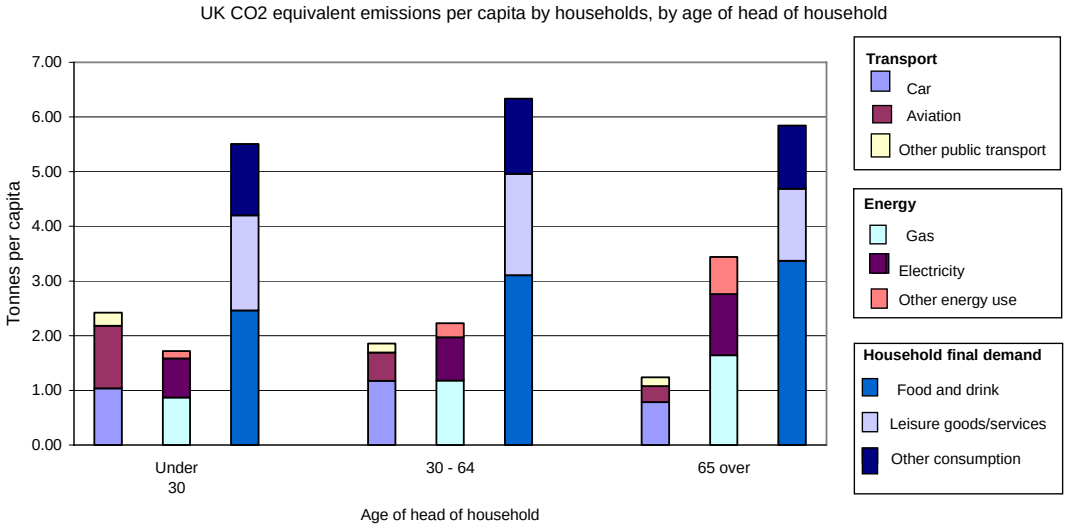
COnsumption by Purpose), which is the basis on which household budget data is collected and presented. The survey information about household composition, household income etc can then be related to expenditure on products and the direct environmental effects of consumption. By using input-output analysis, the expenditures of different household types can also be linked to the emissions, waste and resource use associated with the production of the goods purchased by households.

The links between the survey data and environmental impacts can be made either in a top-down way, by grossing up the survey data and applying suitable emission or resource use factors, or by using a top-down approach which allocates out national totals using percentage shares derived from the surveys.

A number of indicators can be derived from such analyses. One of the key policy interests is in understanding how environmental impact is related to different patterns of consumer behavior, and what the impact will be of increasing disposable incomes, an ageing population, smaller household sizes, increased leisure time etc. Indicators which show whether household expenditure is decoupling from direct and indirect environmental pressures for particular social groups will be particularly useful in guiding government intervention and raising awareness.

As a first step, the Office for National Statistics in the UK produced estimates for 2001 based on the environmental accounts. The results (see Figure 3 below) show that young people tend to travel by air more than other types of household, households headed by people aged 30 to 64 account for most emissions relating to the general consumption of goods and services, and the more elderly households generate relatively more emissions from heating and lighting.

Figure 3



One of the advantages of this approach is that it is able to accommodate some information about the environmental impacts of trade, and hence meet some of the concerns that a shift

in environmental burden from developed to less developed countries is not being taken into account in indicators of sustainable consumption and production. Potentially the environmental impacts of tourism and other leisure activities can all be taken into account within the framework. That said, such analyses require the assumption that emissions per unit of output from domestic production are the same as those relating to the production of imports.

This assumption is widely acknowledged by practitioners. However, one of the more hidden assumptions behind the approach is that the level of expenditure by different households on goods and services is directly related to the environmental impact, so that for example if one household spends four times as much as another on a particular product, it is responsible for four times the environmental damage associated with the production of that product. This may well be the case for purchases of standard items such as apples, but is unlikely to hold true for services such as business class air travel, where richer households will tend to spend on higher quality services that are more labor-intensive rather than resource-intensive to produce.

The assumption can be tested by using volume data rather than expenditure data, e.g. by using travel data to allocate transport-related emissions to different types of households. Time use survey data may offer another way of identifying the relationship between driver (expenditure) and pressure (emissions or resource use) at a sub-macro level.

The above analyses relate the environmental effects of consumption with social characteristics, by extending the environmental accounts to incorporate social information about the consumption activities of different types of households. There is potential for two further sets of related indicators within the ambit of Sustainable Consumption and Production, covering the social impacts of consumption (e.g. traffic deaths, obesity indicators) and the social impacts of production (e.g. work accidents, distribution of income). Whilst these might have more limited interest in terms of links with the environmental accounts and associated analytical techniques, there is some scope to incorporate them within a Social Accounting Matrix (SAM) which would link in with environmental accounts through other parts of the National Accounts matrices.

4.1.4 Sweden: Social variables by industry

Statistics Sweden is working on complementing the environmental data in the environmental accounts with selected social data on work environment and on general social aspects. In earlier reports issues such as traffic accidents and health has been presented by industry. This new report is investigating the fact that much of the social statistics is possible to tie to different industries, by using the information on where people are employed. Preliminary results also show differences in the distribution of social issues between various industries. The results can be used as national means by industry to inform the companies reporting on triple-bottom-line, thus wanting comparable data for economy, environmental pressure and working environment.

4.2 Socio-environmental accounting

4.2.1 UN: water accounts and health related variables

Within the water accounts there is a need for health data. Shortage of water and water with bad quality is causing health problems in many parts of the world and these aspects would be important to cover in a framework for physical and economic aspects of water management. Water is a key to sustainable development encompassing social, environmental and economic dimensions. The water accounts focuses on the interactions between the economy and the environment. They could be expanded to cover the social aspects connected with the availability, supply and use of water. For example, the sustainable water abstraction, which is one of the variables in the asset accounts, includes considerations on the minimum flow of water, which is necessary to maintain the ecosystem unchanged. In addition, water use by households can be disaggregated by gender and income level and can be linked to the time used to collect water. Furthermore, the millennium development goals indicators – proportion of population with sustainable access to improved water sources and sanitation could be added as memorandum items. The structure of the accounts could be used to look, for example, at the impacts of investment in infrastructure on the economy and, if additional information is added, on health.

4.2.2 Sweden: Health and air pollution project

The National Institute on Economic Research have developed a theoretical model for including health problems from air pollution in environmental accounts (Huhtala and Samakovlis, 2003). The model includes a production externality in the form of air pollution, which causes both direct discomfort and indirect health effects through its impact on the productivity of the labor force. The results from the model show that the valuation of discomfort should be included in the environmental accounts. Further, data from a National Environmental Health Survey, conducted by the Karolinska Institute, have been linked with municipal data on air quality. Concentration-response functions have then been estimated to analyze the relationship between air pollution and respiratory restricted activity days (Samakovlis et al., 2004). The model states how many extra days of respiratory problems arise if the level of nitrogen dioxide increases by one unit. The aim is for the estimates to form the basis for valuation of the health effects.
In order to be able to value the discomfort deriving from the problems, a contingent valuation (CV) study has been conducted. The questionnaire was sent out in November 2002 and the results are now being compiled (Samakovlis and Svensson, 2004). The results from the concentration-response analysis and the CV study has also been included in a general equilibrium model, developed at the institute, to include the feedback from air pollution to decreased labor productivity and reduced welfare from deteriorated health (Östblom and Samakovlis, 2004).

4.2.3 Monetary valuation in models

Deleted: 4

In a recent report on emissions trading based on the model E3ME some data on health problems from air emissions were calculated based on the Externe data set.

4.3 Social capital and other social aspects

4.3.1 General Social Survey 2003: Social engagement in Canada

Statistics Canada released the results of the 2003 General Social Survey. This is the first time that Statistics Canada has attempted to measure issues related to 'social capital' directly. A summary of the results is included below. The full report can be accessed at: http://www.statcan.ca/english/freepub/89-598-XIE/2003001/pdf/89-598-XIE2003001.pdf

Over the course of their lives, Canadians engage in many types of civic and social activities that play a vital role in the health and vitality of the nation. Preliminary findings of a new report show a positive relationship between the various dimensions of this ‘social capital’ and the satisfaction people derive in their lives.

This report provides comprehensive information from the 2003 General Social Survey (GSS) on Social Engagement, which covered just under 25,000 Canadians aged 15 years and older. It was designed to further understanding by shedding light on the many ways in which Canadians engage in civic and social life. Some of the civic and social activities that Canadians engage in include donating their time and money to charity; becoming members of organizations; voting in elections and engaging in other political activities; attending religious services; and establishing social networks with friends, neighbors, co-workers and acquaintances.

This social capital has attracted the interest of researchers and policy-makers. Many of them wish to develop a better understanding of how social networks and norms of trust and reciprocity may contribute positively to individual and social outcomes. It was in this environment that the 2003 GSS on social engagement was developed. This survey collected comprehensive information on a wide range of activities in which Canadians are engaged.

Information was collected on Canadians' social contacts with family, friends and neighbors; their involvement in formal organizations, political activities and religious services; their level of trust in people and in public institutions; and their sense of belonging to Canada, their province and their community.

More research is necessary in order to explore this relationship between social engagement and well-being. However, preliminary findings show that people who derive their highest sense of satisfaction from life are those who describe their sense of community as very strong, those who are involved in one or more groups or organizations, and those who express confidence in their public institutions.

4.3.2 Sweden: An attempt at estimating social capital

In a report published by SCB 2003 (Rapport 98. Föreningslivet i Sverige, Vogel et al.,2003) several social capital measures are presented. The measures are all based on a yearly survey that started in 1974, where people in the age 16-84 are interviewed about their living conditions. As a complement to the interviews registers are used to get data on income, taxes and demographical data. The survey is not a standardized survey but rather a system of different surveys generating data on several welfare components (education, employment, work conditions, income, standard of living, housing, transport, leasure activities, social contacts, political resources, security and health). As a complement to the yearly questions, four special areas are covered and this data is gathered in 8-year intervals. In 1992 and 2000 the special study concerned political resources and especially the participation in organizations.

The data is not presented in monetary forms but rather as statistics on important variables. In one of the essays the number of people who are members of one or several organizations is the main variable. In another essay difference is made between *social capital* measured as members in organizations and social networks and *political capital*. The political capital is measured as the ability and will to vote, to trust in people, to take action against injustice, to discuss, to appeal against, talk in meetings or act together with other people. The data is presented by gender and age groups.

In the year 2000, about 90 percent of the people aged 16-84 are members of at least one organization, and 40% are active members, which are high figures in an international perspective. Men are slightly more active compared to women.

4.3.4 Australia: A framework for how social capital can be measured.

In the publication, Measuring Social Capital - An Australian Framework and Indicators a framework is described. It provides a comprehensive description of the meaning of social capital and the way its various dimensions might be measured. The publication has been developed in consultation with a wide range of government and non-government agencies and research institutions. The paper is a contribution to national and international work on measuring social capital.

This framework is one of several produced recently by the ABS to simplify analysis of complicated topics. Such frameworks enable planners and policy makers to make better use of all the available statistics, and help the ABS to address gaps in data coverage.

The ABS has adopted the OECD definition of social capital: ‘networks, together with shared norms, values and understandings which facilitate cooperation within or among groups’. This OECD definition is emerging as a common basis for international comparability.

The framework presents the various elements of social capital with possible statistical indicators and data items. It has four dimensions: Network qualities (Norms and Common purpose), Network structure, Network transactions and Network types.

Discussion

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