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Integrated accounting of EPEA and ESST

1 Introduction

This paper presents the preliminary methods of integrated accounting of environmental protection expenditure accounts (EPEA) and environmental subsidies and similar transfers (ESST) in Finland. Statistics Finland is developing ESST as a new module and developing better integration between monetary environmental accounts. This development is done in the project (03/2021-02/2023) entitled "Framework for monetary environmental accounts and pilot accounts on environmental subsidies and transfers" which is funded by Eurostat Grant. This paper is based on observations in our project and in Eurostat's statistical manuals of EPEA and ESST.

2 Environmental protection expenditure accounts

The environmental protection expenditure accounts (EPEA) are one of the European environmental-economic accounts as established in Regulation (EU) No 691/2011. It follows the international standards of the System of Environmental-Economic Accounting (SEEA), Central Framework 2012.

Purpose of EPEA is measure whole nation's effort to environmental protection through the supply of and demand for environmental protection services. Accounts measure activities that aim to prevent, reduce, or eliminate pollution and other degradation of the environment. There are separate tables for different institutional sectors which helps to analyse who is consuming and producing environmental protection services. Transfers are followed to give better understanding how environmental protection expenditure is financed. Expenditures are classified under different protection activities to give understanding about the focus points of protection.

3 Environmental subsidies and similar transfers

The environmental subsidies and similar transfers (ESST) are part of environmental accounts. The data is currently voluntary reported to Eurostat and legislation is in progress. ESST will be introduced in new proposal for amending Regulation (EU) 691/2011 and it is in line with SEEA Central framework. The definitions of transfers are based on the System of National Accounts (SNA 2008) and the European System of Accounts (ESA 2010).

Statistics on ESST can be used to follow exercised environmental policy. Generally, ESST show how societies try speed up sustainable development and reduce the pressure on the environment with the financial support. The data holds information about what kind of environmental activities are supported, and about which type of the

governmental actions are used. ESST also records which institutional sectors and industries are beneficiaries of environmental supports.

4 Definition of environmental transfers

An environmental subsidy or similar transfer is defined as a: "current or capital transfer that is intended to support activities which protect the environment or reduce the use and extraction of natural resources" (SEEA 2012, §4.138) in the SEEA Central Framework. The definition does not include indirect support measures such as tax abatements which may have major role in the environmental policy. Tax abatements are not recorded in the national accounts as transfers since those reduce the government revenue and not involve flow from the government in cash or in kind. Still effect on the behaviour of economic actors is similar and tax abatements may be used instead of environmental subsidies. Similarly, other measures like loan guarantees by the government could have important role financing environmental activities. For these reasons tax abatements and other measures are part of environmental support measures and ESST framework.

Transfers intended to support environmental protection and resource management can be identified by looking a technical nature of the support or legislator's motive. When the transfer is directed to specific environmental activity or product it can be categorised as environmental transfer based on its technical nature. Similarly, if legislator try to achieve positive environmental impact with the transfer, the same conclusion about the environmental transfer can be made.

5 Overlap between EPEA and ESST

The mandatory transfers in the EPEA are part of ESST scope based on the definition of environmental subsidies and similar transfers. Complementary parts hold transfers pointed towards the environment protection activities and use of environmental protection products. In both accounts, transactions are based on same SNA classification and transactions (D.3 Subsidies; D.7 Other current transfers; D.92 Investment grants or D.99 Other capital transfers).

However, there are some differences:

- Transfers related to resource management are included in ESST.
- Entities paying the subsidies and similar transfer is broader in ESST since the transfers from the rest of the world is also accounted.
- EPEA does not include D.6 (Social contributions and benefits) in current transfers.
- All transfers are consolidated in EPEA unlike those in ESST.
- In ESST entities receiving the subsidies are classified not only by institutional sector but also by industry.
- Non-profit institutions serving households are not separated from general government in EPEA like those are in ESST.

From these the most significant differences between the accounts might be resource management transfers and transfers from the rest of the world since those add new transactions that EPEA framework does not include. Social contributions and benefits seem to have minor role in the environmental transfers. Otherwise, the accounts share the same transactions, but accounting is more detailed in ESST.

Despite the differences, there is notable overlap between frameworks of these two accounts. It gives high incentives to use the same practices and the source data which ensure good integration between EPEA and ESST.

6 Common data sources

6.1 National accounts

National accounts have various data sources that could be used for the compilation of either environmental subsidies and similar transfers or environmental protection accounts.

General government expenditure by function is recommendation that is introduced in the statistical manuals of EPEA and ESST. It is easy route to imprecise estimates. Functions are classified by the Classification of Functions of Government (COFOG). Classification is useful since it tells the purpose of government activities.

Although COFOG division 05 is about environmental protection and has breakdown that has similarities with Classification of Environmental Protection Activities (CEPA), the compatibility of these two classifications is not perfect. COFOG group 05.03 pollution abatement sums up several CEPA classes from air pollution to protection from radiation which means that additional investigation is needed to match COFOG to CEPA. It is also necessary to point out that there is no COFOG division to correspond to Classification of Resource Management Activities (CReMa). There is uncertainty where government activities on resource management are assigned and there is high risk that environmental protection and resource management activities are all mixed up.

Also, the classification units of the data vary between single transactions or government bodies. When the classification unit is ambiguous like the government bodies, it may be the case that the bodies perform various COFOG functions. Multifunction units are often assigned to one COFOG function which is typically chosen by the purpose corresponding the largest part of the total unit. Firstly, this means that some units have environmental protection transactions although being classified under different COFOG function. Secondly, some units under division 05 may have transactions that have different purposes than environmental protection.

For these reasons EPEA is compiled without COFOG based data in Finland. COFOG is even more unsuitable for ESST since there is no distinct division for resource management. However, national accounts can be used other ways when compiling the data. Non-financial accounts by sector requires information about the beneficiary institutional sectors of transfers. The beneficiary industries of subsidies are used to compile data for production accounts by industry. There could be possibility to use the same data sources when computing breakdowns for ESST.

6.2 Government budget analysis

Based on reasons descripted above, transfers in EPEA are compiled based on government budget analysis in Finland. A basic idea is use CEPA classification for government bodies instead of COFOG, which means the data will be enriched for environmental accounts reporting needs.

Information about the government bodies can be found in budget documents. In EPEA also other transactions are used than transfers when compiling data for the public sector. Classification of all individual transactions would be very ambitious and difficult to do. Sometimes it is also unnecessary since the whole individual government body could be classified under one environmental activity. In Finland, instead of going detailed transaction level, general multipliers are used for classification units that are not completely based on single environmental activity. This means that the government bodies that hold only minor share of environmental activity can be taken into account. The multipliers can also be used to divide the individual government body into several CEPA or CReMa classes.

CReMa classification is needed if the same data is used for ESST accounting. Adding CReMa enriches the data also with the public sector's resource management expenditure. These figures could be reported in through the voluntary modules of Eurostat's EPEA questionnaire. The data is mostly usable for both, but since ESST follows only transfers, some caution is needed when using multiplier that reflects whole government bodies instead of only transfers. However, our experience is that this problem occurs only rarely.

Downside of budget analysis is that it involves manual labour to keep all the data updated. There are some budget lines that are stable, and most changes take place between government elections. Year to year analyses are significantly smaller than the setup cost. Upside is that same analysis can be used compiling both EPEA and ESST. When using the same data source, good integration between accounts is ensured.

6.3 Additional data sources

ESST needs additional data sources for transfers from the rest of the world and tax abatements. Sometimes there could be possibilities to investigate some subsidies more closely with additional data.

In Finland, agricultural subsidies are investigated separately from the others. We have done this previously for EPEA, but it is obviously useful for ESST as well. Environmental compensation and subsidies for organic farming are quite substantial environmental subsidies. Statistics Finland receives data from Finnish Food Authority that includes receiver level information about specific subsidies. With this data, we can classify environmental activity very accurately as well as institutional sectors which vary quite much in agriculture.

7 Cooperation between accounts in Finland

7.1 EPEA and ESST

Overlap and common data sources provide fruitful fundaments for cooperation between EPEA and ESST. In Finland ESST is decided to build into the same computation system with EPEA. The computation system is

mostly based on government budget data and calculations are done with SAS Enterprise Guide statistical software. Use of the old computation system as a base made ESST setup costs lower.

Classification of accounts by environmental domain is mostly done at aggregated level rather than transaction level. This means that same analysis works for both accounts and decomposition is made by transactions used. EPEA could be compiled without resource management expenditures, but joint production of accounts and use of CReMA classification expands EPEA's public sector's figures quite easily with resource management domains. In Finland, we are planning to use those figures in EPEA reporting voluntary parts (Table 1. RM domains).

Obviously two accounts need more to compile than one but adding two accounts in the same computation system also saves time which can be used to improve quality of accounts. The Finnish computation system of EPEA previously used only one environmental domain for each government body. The joint computation system was developed so that government bodies could be classified to several different CEPA or CReMA classes. Saved time can also be used to investigate the budget lines more detailed and even look the transaction level data in those cases that have a bigger effect like agricultural subsidies or development aids. This means that more detailed data is produced compared to the old system which is expectable outcome since ESST is specialised to transfer whereas in EPEA those are only a small subsection.

7.2 Environmental accounts and national accounts

Environmental accounts are not isolated island from the national accounts. Therefore, it is important that analyses are coherent so that there are no inconsistencies between the environmental accounts and the national accounts. Consistency ensures comparability of different accounts domestically and internationally. There are some cases where definitions might differ, but in this paper, we concentrate on the so-called technical pitfalls which are additional data sources or when the national accounts data is enriched for needs of environmental accounts.

When constructing EPEA and ESST joint accounting system in Finland, two potential pitfalls were found. Those were:

1. breakdown of subsidies and similar transfers by beneficiaries
2. imputation of transaction codes to the data received from the Finnish Food Authority

To avoid these pitfalls, experts from national accounts specialized in general government financial accounts were invited to participate in the development project. It should be also noticed that Finnish EPEA and ESST are not comparable to COFOG figures and that could be called third pitfall. However, it is conscious choice to desert COFOG which is done based on quality problems explained in Chapter 5.1.

The data of the government budget in Finland does not hold information about beneficiaries at industry level. Even at institutional level there are some blank spots. Imputation for ESST needs is done together with national accounts experts. There are additional data sources for subsidies but not for other current transfers or capital transfers. The imputation is done based on either budget documents or data sources of the statistics of business

subsidies. Cooperation can be two directional because the classification of environmental domain is based on the same budget documents and environmental accounts experts have usually already made effort to study budget documents about the environmental transfers.

When there are data sources that are more detailed than the government budget data but do not have the same structure, it is important to investigate corresponding budget lines. If the data does not include for example transaction codes, comparison to corresponding budget lines is recommended. The aim is to have the same transaction structure. However, the government budget data might not be perfect and there is room for discussion which data should be updated in these situations. Some environmental transfers are difficult to classify under certain transaction code because characters of transfers differ from usual subsidies on production. For those situations, discussions between environmental accounts and national accounts are very useful.

8 Conclusions

Overlaps and common data sources offer great starting point for an integrated accounting of EPEA and ESST. Integrated accounting is not difficult to implement and have several benefits. The joint accounting system needs less contribution than two separate accounting systems. Higher efficiency can be used to quality improvements. Integration also ensures that EPEA and ESST are not contradictory to each other. Carefully done integration is also good with the national accounts and cooperation between the environmental accounts and the national accounts is fruitful for both parties.